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INDIA'S FOREMOST ENTERPRISE IT MAGAZINE www.expresscomputeronline.com

COVER STORY

Trends in cloud, big data, networking and more

COLUMNS

The evolving role of CIO/CISO





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edit
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THE SHAPE OF TECH TO COME



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ENTERPRISE
TECHNOLOGIES
ARE GETTING
INCREASINGLY
INTER -
CONNECTED
TO EACH OTHER,
AND HOW



As we turn 24 this month, there is an incredible amount of flux in the air. Flux in the political climate of the country, flux in the business environment and, of course, flux in information and communication technology itself.

One of the most amazing aspects of this edge-of-the-seat state of change is that the more we separate things, the more they seem to be connected. Church-state, politics-business, IT-operations, *aam aadmi-khaas aadmi*...take your pick. One thing affects the other and vice versa. Like the English metaphysical poet John Donne had said: No man is an island.

Today, the CIO might well say, No technology is an island (though some would replace “island” with the more frequently used term in IT, “silo”).

Every technology an enterprise puts in place is related to every other technology by six degrees and less and less of separation. A box is no longer just a box but a bundle of possibilities. The microchip is getting embedded everywhere, the cloud is casting its spell in all directions, there is software-defined this and software-defined that...

Now analyze that with big data analytics, if you will, and post it to your Facebook or LinkedIn account.

For those whose business it is to run or help run technology, it is becoming increasingly difficult to talk about big data without also bringing in the cloud; about social media without touching upon security; or about memory without computing.

The Internet will soon be the Internet of Things—where the “Thing” part could be anything, including the traditional computer.

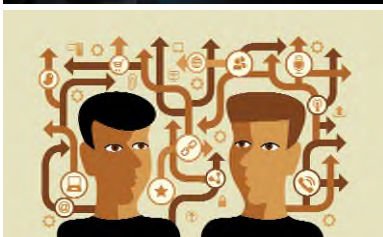
Is everything becoming hodgepodge? Of course not! What is happening is that the forces of consumerization, openness and availability are drastically altering the course of enterprise tech.

Some in the vendor community call it the New IT. Others may give it more disruptive names as we go. But one thing is agreed to by most stakeholders: how IT is viewed, how systems and technologies are bought and sold, how software is developed, how networks are treated, how the device onslaught is tackled—all that is passe and giving way to a different approach.

So as *Express Computer* celebrates its 24th Anniversary with this special issue, please join us by flipping through the pages. Inside, you will find some of the leading technology heads pondering over the changing role of the CIO as well as the CISO, and an array of features on technologies that continue to matter—and that continue to get inter-connected, with interesting results.

Rather than sink, float and have fun on the flux.

sanjay.g@expressindia.com



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EXPRESS COMPUTER

INDIA'S FOREMOST ENTERPRISE IT MAGAZINE

**Vol 25. No. 2. Combined Issue for
March 1-15 & 16-31, 2014**

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Note to our readers:

This is a special double edition for March, so no issue dated March 1-15 was published. This holds for March only.

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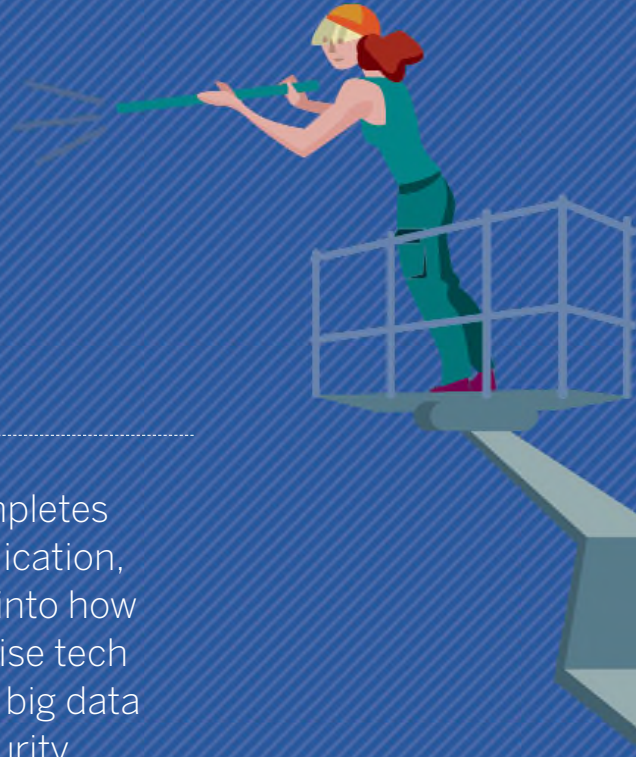
Express Computer

Reg. No. MH/MR/SOUTH-132/2012-14 RNI Regn. No. MAHENG/49926/90

Printed for the proprietors, The Indian Express Limited by Ms. Vaidehi Thakar at Indigo Press, (India) Pvt. Ltd. Plot No. 1c/716, off Dadoji Konddeo Cross Road, Byculla (E), Mumbai 400027 and Published from Express Towers, 2nd Floor, Nariman Point, Mumbai - 400021. (Editorial & Administrative Offices: Express Towers, 1st Floor, Nariman Point, Mumbai - 400021) Editor : Sanjay Gupta (*Responsible for selection of News under the PRB Act.) Copyright © 2012

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As *Express Computer* completes 24 years of continuous publication, we invite you to take a peek into how some of the hottest enterprise tech domains—cloud computing, big data analytics, enterprise security, etc—are shaping up. Also, guest columns by CIOs/CISOs on how their role is evolving

..... ● ●





CLOUD COMPUTING

GOING BIG ON CLOUD



HARSHAL KALLYANPUR

Enterprises are going full steam ahead with cloud adoption and the numbers back it up. Here is a perspective on the cloud scenario in the country



That cloud computing is an everyday reality for a lot of organizations today, is a statement that would hold water today. For something that got popular amidst a lot of hype as well as apprehension, cloud computing has come a long way. The words Salesforce.com, Azure, public, private, hybrid and increasingly becoming a part of IT discussions today.

In fact, most people believe that cloud has increasingly started finding an uptake in enterprises, both large and small. While cost remains the usual suspect, enterprises have come to terms with the fact that longer deployment

cycles and a somewhat inflexible and less scalable IT, does not fly well with the business and it has become imperative to adopt IT which is 'plug and play' to stay competitive in the market.

D.D. Mishra, Research Director, Gartner says, "Gartner estimates that that the public cloud service market in India grew by 31.2% from 2012 through 2013, growing from US \$ 322.7 million to 423.4 million. The public cloud services market is on a pace to grow 29.8% in 2014 to a total of US \$ 550 million."

According to Mishra, India has shown one of the highest growth rate for cloud services in the country, especially

because of the high demand for IT services of all types. Cloud services mostly represents an innovation platform in a country like India because there is great interest in new technologies, while it complements or serves as a replacement for traditional IT in mature markets such as North America and Europe.

Gartner predicts that between from 2013 and through 2017, around US \$ 4 billion will be spent in India on cloud services, and most of this segment will be dominated by Software-as-a-Service or SaaS.

Echoing his opinion, is Srinivas



The focus is on using more public cloud services, as there is no CAPEX involved and the OPEX can be optimized based on the real usage.

Sridhar Iyengar,
VP - Product Management,
ManageEngine



Only a cloud offers the flexibility to support the scale and the cyclic and uncertain demand on the mobile platform.

Somenath Nag,
Director - ISV & Enterprise Solutions,
Alten Calsoft Labs



Tadigadapa, Director – Enterprise Sales, Intel – South Asia, who quotes an IDC estimate says, “The Indian cloud computing market is growing 50% year on year. The SaaS market in the country will go from \$176 million in 2013 to \$500 million in the next four years.”

Saju Sankaran Kutty, Associate Vice President and Head – Transformed Outsourcing, Cloud, Infosys is of the view that the bulk of new IT spend will be on cloud by 2016 and two thirds of the cloud business is expected to come from new business models as opposed to the current business models.

Pankaj Sabnis, Principal Architect - Cloud Computing, Blue Star Infotech Ltd. says, “The last one year has seen cloud computing become mainstream especially for large enterprises. Though it is yet to attain high levels of maturity, it is definitely a part of their IT discussions. 36% of companies using cloud services are using a private cloud. However, public cloud has seen the highest amount of growth and 40% of enterprises have either adopted public cloud services or have it in their plans.”

Drivers for adoption

While the numbers point towards a bright present and an optimistic future, there are several reasons for which the outlook towards cloud is steadily

changing.

Sridhar Iyengar, VP - Product Management, ManageEngine believes that cloud gives companies the freedom to focus on their core business and delegate or outsource all the IT to the cloud service provider and this today is a major reason for increase in the uptake of cloud services.

He is of the view that cloud adoption started mostly from a cost benefit perspective. However, more recently, the drivers have been, the ability to scale resources and expand the IT infrastructure in an agile manner, or roll out product development much faster.

Today, cost does hold a high place in order of benefits for organizations adopting cloud. Most enterprises who have owned IT traditionally, are coming to terms with the fact that investing more in CAPEX and the associated total cost of operations and infrastructure refresh every few years, is not a luxury anymore.

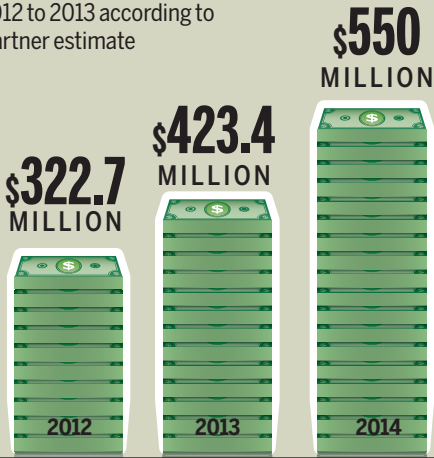
The industry's favorite 'go-to' reason of economic downturn or instability is more of a reality than excuse today. Every enterprise would like to hold on to its cash reserves and loosen its purse strings judiciously, only when necessary.

Sharing a similar sentiment, Somenath Nag, Director – ISV & Enterprise Solutions, Alten Calsoft Labs says, “The overall slow growth rate has

CLOUD COMPUTING: KEY FACTS

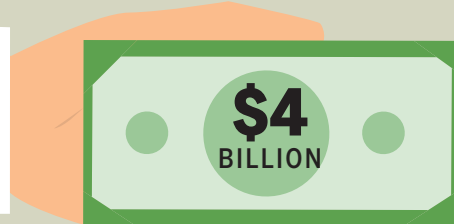
MARKET GROWTH

31.2% growth in public cloud services market from 2012 to 2013 according to Gartner estimate



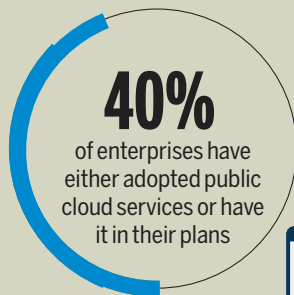
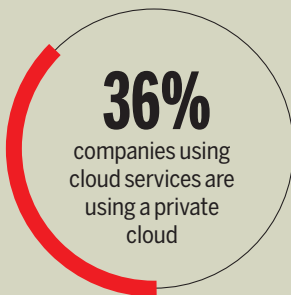
29.8%
growth in public cloud services market in 2014

Estimated spend on cloud services according to Gartner. Most of this segment will be dominated by Software-as-a-Service or SaaS.



BENEFITS

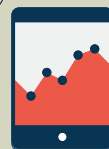
- ▶ Lower cost
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- ▶ Scalability
- ▶ Rapid development
- ▶ Increased mobility
- ▶ Virtualized environment



50 BILLION
mobile devices by 2020

400 smart phones require one server at the back end

41Mn smart phones sold in India in 2013





Public cloud has seen the highest amount of growth and 40% of enterprises have either adopted public cloud services or have it in their plans.

Pankaj Sabnis,
Principal Architect - Cloud Computing,
Blue Star Infotech Ltd



SMB customers are adopting cloud-based ERP at a much higher rate than large enterprises, largely due to the complexity of enterprise class ERP deployments.

DD Mishra,
Research Director, Gartner

made CIOs look for solutions which need low CAPEX, as CAPEX is hard to come by during this challenging economy. This has pushed the focus on using more and more public cloud services, as there is no CAPEX involved and the OPEX can be optimized based on the real usage. With SaaS and IaaS, the spend can happen over a period of time.”

However, cost is not the only driver here. Looking beyond savings, enterprises are also realizing that the business today depends so much on IT that its agility or the lack of it, can reflect on how fast or slow the business can react to changing market demands. Gone are the days of long indulgent deployment cycles and IT today is expected to be one step ahead of the business when it comes reacting to market requirements.

Himanshu Khanna, Head - Enterprise Products, Tata Teleservices Limited, says, “The go-to-market time and the complexity of getting it done in house, the associated vendor interactions and time spent in developing applications and the infrastructure is making more organizations adopt cloud.”

And finally, scalability is another key reason for increase in the uptake. Organizations today are increasingly opening up channels such as mobile and Web, to reach out to customers and other stakeholders. The business needs IT to be capable of throttling up or down, depending on market demand.

Nag gives an instance of a large educational institute in the country using the cloud to conduct competitive exams, to explain how scalability matters today

THE BULK OF NEW IT SPEND WILL BE ON CLOUD BY 2016 AND TWO THIRDS OF THE CLOUD BUSINESS IS EXPECTED TO COME FROM NEW BUSINESS MODELS AS OPPOSED TO THE CURRENT BUSINESS MODELS



from a cloud perspective. When the candidate goes to a center to register himself for the exam, a scan of his fingerprint is taken. He can select a center three days before the exam. And then on the day of exam, he needs to go there half an hour before the exam, to validate his identity and attendance for the exam at the center, through a fingerprint scanner.

The system is said to take scans for 30 people across each center, for 300 centers, in a span of half an hour. Hosting this infrastructure and managing it by themselves would have cost the institute \$100,000 a year. Also the service is required only few times in the year and therefore by having this hosted on a cloud infrastructure, the institution ends up paying only a few thousand dollars every year.

Cloud starts to find uptake

Having gone past the initial reservations, a lot of enterprises today are adopting cloud for various applications. The first few applications to get delivered via cloud were CRM, e-mail, collaboration and travel and expense management among others.

However, given the concerns related to security and data sovereignty, enterprises chose to hold back their core IT infrastructure, and it was restricted to on premise.

In case of large enterprises, having invested in building and running an IT infrastructure over a long period of time, moving the entire stack to the cloud immediately, is neither viable nor recommended. Having said that, business demands are changing dynamically, and these organizations do not have the time to spend on lengthy deployment cycles, which eventually end up with an IT infrastructure, which is still lagging behind, as the business requirements would have changed by then.

Says Sabnis of Bluestar, "If you look at the cost of running an ERP solution, the refresh costs involve not just the software but hardware too. Also they have to invest in additional skill set to maintain these systems."

Therefore, enterprises today have gone beyond the few periphery applications and are looking at having bits and pieces of their core ERP application, being delivered out of the cloud.

Nag of Alten Calsoft says that large enterprises, having already invested in big ERP solutions, are not open to public cloud services and therefore, are looking at a hub and spoke model today, wherein the main ERP elements are hosted in-house while non-core components such

as SCM and distribution management and vendor management are deployed on a SaaS model.

Saju of Infosys says, "Enterprises are definitely using a two tier model wherein certain functions are hosted on a SaaS model, while the rest are delivered through an on-premise infrastructure. However, within on-premise, that infrastructure could be hosted on an IaaS model. Functions such as HCM and procurement are today being deployed on a SaaS or an IaaS model."

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| 3. Printer's Name | : | MS. VAIDEHI THAKAR |
| Whether citizen of India | : | Yes |
| Address | : | Express Towers, 2nd Floor
Nariman Point, Mumbai-400 021 |
| 4. Publisher's Name | : | MS. VAIDEHI THAKAR |
| Whether citizen of India | : | Yes |
| Address | : | Express Towers, 2nd Floor
Nariman Point, Mumbai-400 021 |
| 5. Editor's name | : | Sanjay Gupta |
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VAIDEHI THAKAR
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ENTERPRISES THAT HAVE TAKEN TO THE CLOUD



Ratnakar Bank is an instance of a bank who has actually taken its applications to the cloud. Though hosted on a private cloud run by Netmagic, 95 percent of the bank's applications are delivered out of the cloud. They are even considering moving the remaining few applications in a few months. The bank had adopted the public cloud for its lead management, salesforce management and campaign management applications.

Talking about what has worked in the bank's favor, Anup Purohit, Head-IT, Ratnakar Bank says, "We started the transformation journey when most of the technologies had matured and we too had little legacy to deal with. The thought process was that whatever applications do not access sensitive customer data, can be moved to the cloud."

The bank initially had one server per application and these servers hosted applications such as Active Directory, email, DHCP, branch servers etc. In June 2012, the bank had close to 52 applications spread across 49 servers. In June 2013, Ratnakar Bank looked at moving these to a cloud infrastructure such that today it has nine applications per server. However, its core banking platform is running on a separate AIX virtualized environment.

Moving to the cloud has helped the bank reuse its existing infrastructure.

"For the salesforce applications deployed in the public cloud we pay on per user basis. For the Netmagic infrastructure, we pay on a quarterly basis," informs Purohit.

Blue Star Infotech on the other hand, has adopted Office 365 for e-mail and SharePoint. Talking about the cloud service adoption, Pankaj Sabnis, Principal Architect - Cloud Computing, Blue Star Infotech says, "For an IT company likes ours, email is also a critical application. We also moved our website to the cloud and since website traffic is variable, from a cost perspective, setting up the server on cloud has helped us minimize the cost by 50%."

Prior to moving to the cloud, the company had Exchange 2010 on premise. It required one person to monitor this infrastructure. As it would get updated only every few years, the company would skip one version and move to the next. Due to this, a lot of productivity tools would come to the employees late.

Moving to Office 365, has helped the company ensure that they are using the latest version of the applications and also helped them mitigate issues associated with perpetual licensing. The company is now looking at moving to a hybrid cloud during the later half of 2014.

According to Ramesh Babu - Chief Delivery Officer, Ramco Systems, providing ERP on the cloud is much more challenging, as it deals with confidential data and any downtime can lead to disruption of business and directly impacts revenue. Therefore large enterprises with big ERP systems prefer to keep them on-premise and use the public cloud for peripheral ERP requirements such as vendor, dealer and services ecosystem.

"A lot of large enterprises are choosing to go for ERP in the cloud for such applications because the availability has matured, there is no CAPEX involved, it is less expensive and they do not want to extend their existing ERP implementations because it is time consuming and often expensive," adds Babu.

The company has over 300 customers using its cloud-based ERP solution, 200 of which are Indian organizations belonging to verticals such as manufacturing, BFSI and Pharma. Ramco, which started off with SMB customers has grown over the last two years and now caters to large enterprises such as Siemens which uses its solutions for the manufacturing sector.

Mishra of Gartner giving his perspective says, "ERP solutions are somewhat fragmented. SMB customers are adopting cloud-based ERP at a much higher rate than large enterprises, largely due to the complexity of enterprise class ERP deployments. Therefore we see cloud-based ERP adoption in large enterprises mostly taking a piecemeal approach, where some components may be implemented as a cloud service while others continue to be implemented using traditional software. HR is one such application that could be delivered out of the cloud."

Talking about adoption of cloud services by large enterprises, Karan Kripalani - Associate Vice President, Product Management, Netmagic says, "Netmagic has seen a revenue growth of almost 145% year on year. More and more enterprises have started moving their critical workloads to the cloud. We today have a significant number of SAP



CLoud gives companies the freedom to focus on their core business and delegate or outsource all the IT to the cloud service provider and this today is a major reason for increase in the uptake of cloud services

implementations hosted on our cloud.”

Driving cloud adoption: SMBs and mobile

While enterprises may be opening up more to the cloud, it has traditionally been the SMBs who have been gung-ho about cloud adoption. The lower entry cost, CAPEX requirements and comparatively lower total cost of operations (TCO) make cloud computing a definite SMB favorite. Small and medium businesses spread across verticals, start ups and even smaller government organizations to some extent, are contributing to the growing adoption of cloud.

Due to the size and complexity of a

large enterprise, decision making goes through multiple channels. SMBs on the other hand, do a risk versus rewards analysis for cloud and find that the rewards outweigh the risk and therefore are more akin to adopting cloud services.

Jiten Patil - Cloud Expert & Senior Technology Consultant, Persistent Systems says, “The amount of business generated by the large enterprises is more, but the number of use cases are more from an SMB perspective.”

Tadigadapa of Intel says, “Smaller banks are even looking at hosting their core banking applications in the cloud. For instance, NABARD is driving a project with TCS and ISVs to help co-operative banks move to the cloud. The



A lot of large enterprises are going for ERP in the cloud because they do not want to extend their existing ERP implementations as it is time consuming and often expensive.

Ramesh Babu,
Chief Delivery Officer, Ramco Systems



The Indian cloud computing market is growing 50% year on year.

Srinivas Tadigadapa,
Director - Enterprise Sales,
Intel - South Asia



drivers for these organizations to put core applications in the cloud is that they don't have in-house expertise to manage IT."

However, besides the traditional businesses, it is the start ups that are using the cloud increasingly to deliver services. Started mostly by new age entrepreneurs, these organizations are pretty cloud-aware and therefore are at the forefront of adopting cloud-based applications.

Says Nag of Calsoft, "The growth of internet-enabled services such as news portals, e-commerce and social media has fuelled the growth of cloud services. A lot of the enterprises offering these services are set up by first generation entrepreneurs who have no legacy baggage and are better aware about cloud services."

Adds Iyengar of ManageEngine, "With IT as a service, it is much easier to develop applications, invest in hardware where outliers are limited and even from a budgetary standpoint, the entry barrier to a product becomes very low."

Due to this, they are in turn able to deliver to the market faster, and therefore are even seeing better support from venture capitalists and angel investors to further expand their business. E-commerce portals which are primarily relying on cloud to deliver data to their consumers are increasingly posing a threat to the traditional brick and mortar shops.

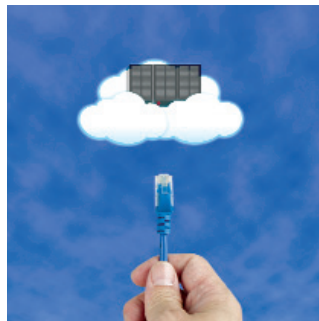
Furthermore, a lot of these start ups are adopting a mobile first approach, where data would reside in the cloud, and will be delivered to the end user primarily through mobile apps. And this sort of new business model of delivering applications and data on mobile devices is causing a disruptive change in the way organizations provide access to employees, partners and even end consumers.

This is because cloud offers the ideal IT infrastructure scenario for delivering on the mobile platform. Given the fact that the space is so fragmented, with a variety of applications, form factors, operating system platforms, and consumption across verticals by different



With cloud computing, warm site disaster recovery is an optimal solution as backups of critical servers can be spun up in minutes.

Srimathi K Swamy,
AVP and Practice head for
Technology Services, Head, Technology,
Infrastructure services, Infosys BPO



types of employees, investing in a dedicated infrastructure to host such a dynamic environment, would not prove to be efficient.

With the ecosystem constantly evolving, an enterprise would only end up spending more, trying to keep itself abreast of the demands from the market. This is where cloud, with its agile and dynamic way of IT delivery, provides some answers to the requirements of a growing mobile ecosystem.

According to Nag of Alten Calsoft, cloud is finding adoption for mobile because, only a cloud offers the flexibility to support the scale and the cyclic and uncertain demand on the mobile platform.

Says Tadigadapa of Intel, "By 2020, the world would have seen 50 billion mobile devices. The different screen sizes and form factors of mobile devices is affecting the application back end. For every 400 smart phones they need a server at the back end. Last year it was estimated that around 41 million smart phones were sold in India, and an estimated 9 million tablets would have been shipped this by year."

Going by this estimate, it is clear that deploying a dedicated infrastructure on premise, would not be enough or the most efficient way to handle the workloads generated by mobile platforms.

DR in the cloud

Another trend that is steadily catching on is having a disaster recovery (DR) infrastructure delivered out the cloud. It saves the organization the trouble of investing in a mirror infrastructure and the associated tools and manpower, to manage an infrastructure which would rarely get used. Instead, with a cloud-based DR service, an enterprise only ends up paying for parking resources on the cloud, periodic data replication and synchronization and DR drills. The only additional cost is when the DR infrastructure is actually used, which could be for as less as a day.

According to Mishra of Gartner, backup and recovery solutions including DRaaS are popular and are delivered by IaaS providers or their partners. It does

SMBS ARE FINDING DR-AS-A-SERVICE LUCRATIVE, AS THEY DO NOT HAVE TO PUT COMPLICATED INFRASTRUCTURE AND IT ALSO OFFERS EASE OF ADOPTION

not require any upfront investment from organizations and therefore they can adopt these services without making much investment. SMBs are finding this lucrative, as they do not have to put complicated infrastructure and DRaaS offers ease of adoption.

According to Srimathi K Swamy, AVP and Practice head for Technology Services, Head, Technology, Infrastructure services, Infosys BPO, "Cloud makes cold site disaster recovery out-of-date. With cloud computing, warm site disaster recovery is an optimal solution as backups of critical servers can be spun up in minutes on a shared or private cloud host platform. With SAN-to-SAN storage replication between sites, hot site DR with very short recovery time objective (RTO) is also recommended. One of the inherent capabilities of disaster recovery in the cloud is the ability to deliver multi-site availability."

Says Kripalani of Netmagic, "DR in the cloud will be a huge growth driver for us. This is because traditional DR is expensive. The cost of duplicate infrastructure and the additional load, when doing DR the traditional way, takes the total production cost up three times."

"DR in the cloud can help slash the DR cost by 70 to 80%. The cloud can sync data on a daily basis. We formally productised the service six months ago and recently, we have closed a deal with one of the largest insurance companies in India," he adds.

Clouds ahead

Cloud computing has indeed come a long way, finding adoption across verticals and making good in-roads even in the larger enterprises. As enterprises realize that the only scalable, flexible and cost-effective way (in most cases) to consume



IT is to have it delivered as a service, cloud will start to find more takers in the country.

Says Ramesh Babu of Ramco, "I feel cloud maturity in the country is increasing. Enterprises have become comfortable about availability, security, disaster recovery, processes and SLAs when it comes to the cloud. The technology has matured, SLAs have been re-drawn and people are getting a lot more confident to venture into the cloud."

However, what we have not touched upon, is the challenges or concerns around cloud adoption. Although services are getting mature, and cloud providers are increasingly trying to make their services secure, the jury is still out on important factors such as

regulatory compliance, auditing, vendor lock-in, data privacy, accountability and portability.

The cloud service providers say that a few niggles have been ironed out, while the industry is hoping that the ecosystem will come together to agree upon certain standards, guidelines and interoperability measures to make the customer feel a lot more 'at home' when adopting a cloud service.

However, it would be safe to say that cloud computing has indeed arrived, and is here to stay. The next few years look promising from a cloud computing perspective. How it really pans out? Only time will tell.

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DATA CENTERS

MIGRATING TO EFFICIENCY



PUPUL DUTTA

More and more organizations are looking at hosting their applications at independent data centers for higher efficiencies and better management



Data centers have been evolving to meet the growing demands and complexities imposed by enterprises in their quest to stay competitive and agile.

The amount of data that is generated by enterprises today is enormous. As a result, businesses are realizing that their operational efficiency is dependent on the effectiveness of their data center.

Currently, there is an increased demand in the market with more and more companies looking at improving their IT adoption and this is directly influencing the speed at which data centers are coming up.

We are at a point where a large number of innovations and technologies that have been in development over the past decade are now ready for deployment. Abstracted computing models, software defined networks and increasing adoption of thin clients as well as mobile devices means businesses will find moving to the cloud more compelling than before.

Also, it is expected that more enterprises will migrate to independent data centers (IDCs) given the operational efficiency they provide. Usually, data centers consume up to 60% of the total power usage of a company. However, now with shortage of power and increasing

electricity cost, there is a need to manage and curb energy consumption in the data center. This need to save energy is resulting in a more scientific approach to designing and building efficient data centers. At the same time, with data centers growing in space, IT teams are also turning to Data Center Infrastructure Management (DCIM) software tools to monitor, optimize and intelligently plan power and cooling capacity in the data center. DCIM tools have become essential as the availability and operating costs of the data center have become increasingly intertwined with the facility.



Some estimates predict that DCIM will be worth \$3.14 billion in 2017, with an annual growth rate of over 47%.

Sridhar Pinnapureddy,
Founder & CEO,
CtrlS



The growth rate of DCIM far outstrips that for the data center equipment industries and for the enterprise IT segment as a whole.

Neeraj Matiyani,
Director, Storage Solutions,
Dell India

Data center market

The data center market can be divided into data center infrastructure management market (DCIM) and IDC (independent data center) market. According to a report by Nasscom, India is emerging as the fastest growing data center services market in the Asia Pacific region. The Indian IT infrastructure market (comprising servers, storage, and network equipment) reached \$2.2 billion in 2012, and is expected to grow at a CAGR of 8.5% over four years. "Growth is being driven by ongoing data center consolidation and modernization. Indian organizations are shifting from a distributed IT setup to a more manageable and efficient centralized model," says Santhosh D'Souza, Director - Systems Engineering, NetApp.

DCIM market on the other hand, grew from about \$245 million in 2010 to around \$307 million in 2011. Market figures about the current fiscal year are not available. "Some estimates predict that the DCIM will be worth \$3.14 billion in 2017, with an annual growth rate of over 47%," notes Sridhar Pinnapureddy, Founder & CEO, CtrlS.

Pinnapureddy adds that though North America, currently is the biggest market for DCIM software and services, the APAC region is well on its way to becoming the biggest DCIM market.

According to research firm IDC, the demand for DCIM is expected to pick up this year. "The growth rate of DCIM far outstrips that for the data center equipment industries and for the enterprise IT segment as a whole. DCIM sales are set to grow at 44% CAGR to reach \$1.8 billion in aggregate revenue by 2015, according to a study conducted by '451 Research'. However, the actual numbers are still small compared with other categories of enterprise software market (such as IT service management, ERP, databases or security)," asserts Neeraj Matiyani, Director, Storage Solutions, Dell India.

In any case, the industry is placing its bets on the DCIM market given the steep business it is expected to bring. Going by the current trends, Business Process Outsourcing (BPOs), trading and financial services, IT and ITeS, digital commerce

and manufacturing companies are expected to drive growth in this market exponentially.

Current trends

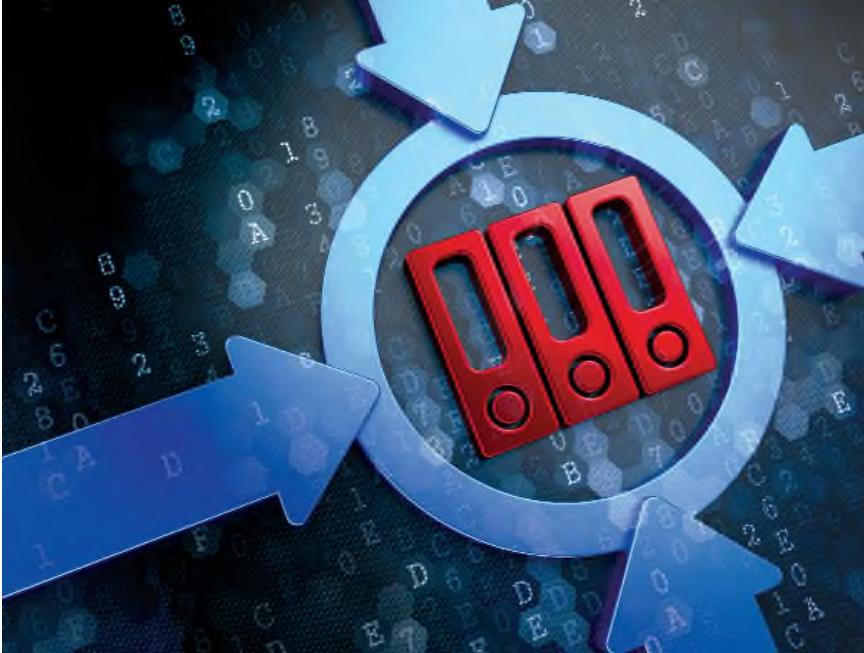
Indian data centers, lately, have witnessed the introduction of virtualization, orchestration and workflow automation across their infrastructure and operations and now cloud computing architectures and utility models promise to transform them further. The notion of a software defined data center is beginning to take hold, with command and control abstractions being overlaid on top of pools of hardware resources.

However, for a CIO, zero downtime and lights on (power) 24x7 is what he/she would call the ideal data center as of now. Basically, 100% efficiency is what each IT head aims for. Says Ashwin Khorana, CTO, ING Vysya Bank, "The current trends are around zero downtime, reference tools and services being offered and 100% efficiency in running the data center."

Other market trends which are currently very popular are business intelligence and big data. Big data is no longer just the next big thing, but it is a reality and a necessity in the current scenario. "Companies have realized the incredible value locked in their data sets and the sheer amount of actionable business intelligence that can be extracted from big data. The year 2014 will see many big data pilot projects being moved into the full production phase," explains Pinnapureddy.

Software defined networking (SDN) is another trend that is expected to see an enormous rate of adoption this year. In a software-defined data center, all elements of the infrastructure - networking, storage, CPU and security - are virtualized and delivered as a service. Though SDN currently has a few issues such as fragmentation and questionable interoperability, the huge benefits that SDN offers will make the industry adopt it rapidly.

Moving on, when it comes to IT spending, a trend that is fast catching up is the adoption of Enterprise Asset Management System by companies. With efficient life cycle management of assets,



companies can now focus on the total cost of ownership of their IT assets. With the move to Asset Life Cycle Management, the physical devices are managed as business assets, with standard accounting processes and TCO being addressed. This has led to the realization that servers or switches that exceed their depreciation and warranty schedules, can easily be replaced to reduce operating costs. This trend though is in its nascent stage, it is fast catching up as CIOs attempt to reduce their TCOs.

Some other trends that are being witnessed, but are yet to pick up in the data center market are modular and scalable infrastructure, pre-fabricated data center modules, all-in-one solutions and remote management and analytics.

Run up to IDCs

Migration of a data center is never an easy task as it involves several stakeholders, and significant investment and risk. However, in the recent past, the market has seen a rise in migration to independent data centers (IDCs) owing to cost efficiency, regulatory pressures etc. Though data center migrations have become much simpler than they were, they are not

without significant complexities.

“IDCs provide an attractive option for organizations that are starting out, or those that have limited in-house resources for infrastructure design/operation. Most IDCs are designed to higher tiers, thus assuring uptime, many also provide redundancies in power, cooling, connectivity and services,” notes Amod Ranade, General Manager – Data Center Business Development, Schneider Electric IT Business India.

Another reason why IDCs are gaining popularity is because of the high cost of real estate as well as commercial power. Says Ankesh Kumar, Director, Channel Products and Marketing, Emerson Network Power, “Resource constraint is one of the biggest reasons for companies to migrate to IDCs. CIOs are entrusted with the burden of providing maximum efficiency even when there is scarcity of resources. Given the high cost of real estate and power, IDCs turn out to be more cost effective than a captive data center.”

Since IDCs follow all the best practices, one just has to go and rent these places. Moreover, as enterprises continue to rapidly embrace cloud computing to meet their business needs, the increasing



Indian organizations are shifting from a distributed IT setup to a more manageable and efficient centralized model.

Santhosh D'Souza,
Director- Systems Engineering,
NetApp



With the exponential growth of IP traffic and data, businesses in all industries are increasingly outsourcing their data centers.

Sunanda Das,
Managing Director,
Pacnet India



volume and complexity of data traffic place severe strains on networks that are based on traditional hierarchical architectures. More than often, the need for data center migration emerges from enhanced cost efficiency, business demand and technology drivers associated with an IDC. Data protection and regulation is another area that data center operators have to consider when expanding their footprint.

IDCs vs captives

So, while we discuss the reasons behind the migration to IDCs, let's ponder over the facts as to why independent data centers score over captives.

According to a research by Forrester and TPI, cost savings generated from moving to independent data centers average around 12% for firms on the high and low end of deal sizes, while midsize deals deliver average cost savings of as much as 17%.

One of the most important factors in favor of IDCs definitely is economies of scale in terms of capital expenditure. Secondly, there is better component efficiency due to larger capacities deployed at the same time reducing overhead costs.

Moreover, an in-house data center requires a large team of experienced data center experts to manage, operate and upgrade the system. By outsourcing the data center, a company can rely on the

data center operators and the service level agreements offered, thus reducing human resource costs.

But migrating to IDCs does not always mean saving cost and improving efficiency. Many large organizations have capacity to build assets, and are able to still gain cost advantages in terms of Capex. Also, the infrastructure is designed to accommodate maximum IT profiles in the market. "There is always a possibility for a more efficient design which can be looked at if the company is deploying a captive infrastructure," notes Ranade of Schneider Electric.

Khorana of ING Vysya too believes in setting up a company's own data center. "It's better to run your own data center than migrating to an IDC. Basically, the maturity required to work in IDC is very high and with this, the cost spirals up. I personally look for the cost of running the whole gamut of services. Also, getting tied down by SLAs is not a very appealing idea," he asserts.

Many organizations set up offshore or near offshore captive centers, which help them overcome regulatory pressure and fears about IP security. "Multinational businesses often use captive centers in low-cost regions of the world to take advantage of cheap labor. Sometimes, the workforce in such places is not only cheap, but also skilled and hence, through these centers, businesses supply services to a company's global operations including IT,

HR and finance functions," explains Matiyani of Dell.

To sum up, no one size fits all. So, while migrating to IDCs would be a great idea for some companies, for others being loyal to captives is a more cost efficient approach. Hence, before making the decision to move, one should take into account things like reliability, scalability and cost advantages over the other options available.

The cloud impact

Cloud computing is leading the transition for evolution of data centers and has been key in rapidly changing IT architectures around the world. Enterprises nowadays need more flexible and easily scalable data center environment to handle the dynamic demand, and they are looking for an on-demand, pay-as-you-use service model. "With the exponential growth of IP traffic and data driven by the trends of cloud computing, mobility, video, social media and big data, businesses across industries are increasingly outsourcing their data centers," notes Sunanda Das, Managing Director for Pacnet India.

Though the adoption is still in its nascent stages, it is getting picked up by SMEs, nevertheless. Given the space and cost constraint, SMEs don't need to be worried about either but just need to buy space in cloud.

Another reason why businesses are increasingly looking to adopt cloud is due

to its sheer capability to scale up with demand. “Businesses need to roll out new products and services quickly to gain first mover advantage. They need to scale seamlessly as their services succeed and attract large numbers of new consumers. Simultaneously, they have to keep costs of operation down. Scheduled maintenance windows are a thing of the past, as businesses cater to global audiences. Cloud computing introduces fundamental changes — in technology, architecture, people and processes that if properly implemented, can address all of these requirements,” explains Abhilash Purushothaman, Head of Service Assurance Business, India & SAARC, CA Technologies.

With cloud, data center operations can be streamlined, automated and driven by Quality of Service (QoS) policies. Cloud computing architectures have also enabled new business models wherein businesses or individuals starting a speculative venture do not have to invest in data centers, infrastructure and IT staff to support their product or service. They can simply obtain it all from an appropriate public service provider.

However, despite so many advantages, CIOs are still wary of cloud-based services. As it is true in all other technologies based on cloud, security remains a prime concern for CIOs. Khorana explains that the laws of the land too are not very favorable in terms of hosting your data center on the cloud. “According to RBI regulations, banks are required to have their data stored in the country. This is the precise reason why cloud has failed to pick up in India,” quips Khorana.

Turning points and caution lines

While a number of IT trends are resulting in the transformation of today's data centers, the use of flash storage has begun to play an important role in the enterprise market in India. New flash technologies have developed in many forms and have achieved high reliability and extreme performance at impressively low latency.

Besides, software defined data center architectures are increasingly prominent in redefining IT frameworks as they redefine the manner in which such



“IDCs provide an attractive option for organizations that are starting out, or those that have limited in-house resources for infrastructure design/operation.”

Amod Ranade,
GM – Data Center Business
Development, Schneider Electric
IT Business India

infrastructures computes, stores, secures and networks. Every fundamental infrastructure component in a data center can be provisioned, operated, and managed through an API. “Clustered storage is driving increased adoption as it helps to scale the data infrastructures out (horizontally) as opposed to exclusively scaling them up (vertically), while delivering enterprise class performance, reliability and serviceability,” explains D’Souza of NetApp.

In the coming years, it is expected that mobility, social media, and cloud computing adoption will significantly influence the demand for data centers and transform the way they will be designed, operated, and managed.

Some other trends expected to evolve are data centers architectures that will incorporate increasing adoption of 10 Gigabit Ethernet, new technologies such as Fiber Channel over Ethernet (FCoE), and increased interaction among virtualized environments.

Lastly, as Khorana says, “You never really finish your decision-making cycle regarding data centers.” Organizations have to be quick to catch the next wave of change in data center technology in order to stay ahead in the market.

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BIG DATA ANALYTICS

TAKING A DEEPER DIVE



PANKAJ MARU

There is indeed a growing awareness about big data analytics, but wider adoption of the technology is hindered by lack of talent and doubts over quantifiable benefits



The road to big data analytics is not easy as it might appear. It's an exhaustive, time-consuming journey that would test the skills, understanding and knowledge of CIOs as well as the patience and perseverance of enterprises. But there is little doubt about companies across the board embracing big data solutions.

Several research reports and industry estimates point to the growth of big data analytics market globally.

According to consultant Wikibon's projections, the sale of big data-related hardware, software and services will grow from \$7.3 billion in 2011 to as much as \$50.1

billion by 2017. A Forbes.com report cites IDC as predicting that the market for big data will reach \$16.1 billion in 2014 — much lower than Wikibon's projection of \$28.5 but still quite significant.

Research firm Ovum's recent study states that the banking industry will be a key driver for the big data segment. It expects the global spending on management information systems (which includes big data solutions) in the retail banking industry to reach \$9.3 billion by 2018 end (up from \$6.9 billion in 2013).

The big data market in India is only beginning to take off. During CY2013, the big data market touched \$55 million with

a 36% year on year growth compared to CY2012, according to Shalil Gupta, Insights and Consulting Director, IDC India. Gupta says that the growth is happening because today, enterprises have been able to find some processes and methodologies around big data technology usage and deployments, which was not the case a few years ago.

Quoting a recent IDC study on big data adoption covering 250 Indian enterprises, Gupta says only 15% of surveyed enterprises have adopted and deployed big data technology. "Though 15% is not a very high adoption rate, it shows that these organizations have been



Today, enterprises have been able to find some processes and methodologies around big data technology, which was not the case a few years ago.

Shalil Gupta,
Insights and Consulting Director,
IDC India



Internet-based companies have understood the business value that big data brings to them better than traditional businesses.

Rangarajan Vasudevan,
Principal Consultant - Big Data,
Teradata International

able to place some kind of matrix to measure ROI and gain value for business,” observes Gupta.

The study suggests that the adoption and deployment of big data by Indian enterprises is more of an experimentation at the moment.

Bracing for market opportunities

American firm Teradata, a global player in analytic data platforms, applications and related services, is highly banking on its vertical-specific approach to tap the attractive market of big data analytics.

According to Rangarajan Vasudevan, who is based in Chennai and works as Principal Consultant - Big Data at Teradata International, the Indian market and local enterprises are a bit conservative toward big data; however, Internet-based companies have understood the business value that big data brings to them better than traditional businesses.

But there are segments among traditional businesses, such as BFSI and telecom, which are embracing big data solutions.

“Today, even the traditional industries like banking and insurance are using mobile and Internet as new business channels. They are looking at big data solutions to capture the data generated through these channels and are trying to understand the business value and insights from that data,” says Vasudevan.

“To capture sensor generated data, traditional businesses need technology like big data that can help to provide insights into their business. Most of our customers are looking at the business aspect of big data analytics and not just the technology,” says Vasudevan.

In general, the awareness and interest level in big data analytics among Indian enterprises is quite encouraging. According to Santhosh D’Souza, Director - Systems Engineering, NetApp India, enterprises are demonstrating a definite interest in the application of big data analytics to their operations.

“There is widespread awareness of the insights an enterprise can obtain from all of the data residing in various applications supporting their businesses.

There is also a realization that enterprises need data science skills in their IT departments to translate business questions into analytical queries which can then result in actionable insight,” says D’Souza.

The company has seen enquiries for big data solutions from several sectors, including financial services, energy, telecom, retail enterprises and even government agencies delivering citizen services.

According to D’Souza, there are two things that are making Indian enterprises turn their attention to big data. One, their application infrastructure is getting increasingly standardized, consolidated and virtualized, and they have relatively matured data warehouse implementations. And two, conventional analytics applications and data stores have been supplemented recently by in-memory computing, next generation filesystems and NoSQL databases – technologies that better facilitate processing of huge amounts of data.

Churning the existing data volumes into more meaningful information for business purposes is where the real power of big of data analytics comes into play.

“In our view, big data is about putting intelligence on top of traditional data,” says Vasudevan.

Big data bottlenecks

Compared to global markets, India is still an emerging market and even the local enterprises are not at par with their global counterparts in terms of maturity levels when it comes to big data analytics adoption.

Analysts believe that cost and shortage of skilled tech professionals in India are among the factors slowing down the pace of big data analytics adoption. Besides, most suppliers and vendors are finding it hard to convince enterprises to invest in big data technology because of lack of easily quantifiable RoI. The majority of companies in India are following the ‘wait and watch’ policy on the big data analytics arena.

“There’s a lack of clarity over big data

BIG DATA: KEY FACTS

BIG DATA MARKET



2011 **\$7.3 BILLION**

2014 **\$16.1 BILLION**

2017 **\$50.1 BILLION**

BIG DATA REVENUE IN INDIA



\$40.7 MILLION
2012

\$55.7 MILLION
2013

GLOBAL SPENDING

On management information systems (which includes big data solutions) in the retail banking industry

\$6.9 BILLION
2013

\$9.3 BILLION
2018



One of the biggest challenges in big data analytics for CIOs is actually defining the outcome of big data.

Arvind Sivaramakrishnan,
CIO, Apollo Hospitals



The big data activity is an ongoing process wherein the technical and financial analysts work in a group to build insights for functional level leaders.

Satyadev Adurti,
Senior Vice President – IT, Uflex Limited

analytics. Enterprises actually want to understand the value that big data can create in a measurable way,” points out Gupta of IDC India.

Going by industry definitions, organizations with around 100 TB data or more and having an average data growth rate of 60% per year, are considered large enough to venture into big data.

Today, businesses are witnessing exponential data growth and big data analytics is invariably becoming inevitable for them. Many companies are generating sensor-based data as well, which needs technology that can help provide cross-functional value across departments.

That's where big data scientists and business analysts can play a significant role in order to derive business insights from volumes of organizational data. Cross-functionality of data, though highly beneficial to organizations, is quite a challenge, points out Gupta.

The question of talent

Talent has a huge role to play in driving big data analytics to mainstream across verticals. Ideally, for big data analytics, the talent needs to have a mix of technology skills, domain knowledge and work experience. However, with the short supply of talent in the market, the solution to the problem lies in the creating industry partnerships and collaborations.

“Though there's a short supply of skilled professions in the area of big data analytics, an ecosystem of resources can be developed by providing trainings and knowledge sessions through industry partnerships. It will take 3 to 5 years to reach a maturity level where industry can start to take full benefits of big data analytics,” says Gupta.

While the IT industry is looking for tech professionals in the roles of data scientists and business analysts, Vasudevan, who himself has worked as data scientist in past at the same company, says that organizations and enterprises actually need to find staff internally, which has strong fundamentals around data and business domains. “Staff can be trained with the help of CIOs and strategic business units within organization,” suggests Vasudevan.

Despite issues around cost and talent shortage, industry analysts expect a matured big data analytics ecosystem over the next 3 to 5 years time. Besides telecom, IT and ITeS, verticals such as financial services sector including banks, insurance firms, manufacturing and retail are seeing some traction in India. The big data related revenue moved up to \$55.7 million in CY2013 from \$ 40.7 million in CY2012, according to Gupta of IDC India.

Wide opportunities

Big data analytics brings wide opportunities for technology suppliers and service providers. However, it's the enterprises and their CIOs that are actually going to drive those business opportunities for these technology vendors and suppliers; and would boost big data analytics to some maturity levels in the coming years.

But for CIOs, taking the big data analytics path requires putting more effort — right from planning and designing, resource allocation and technology utilization to investments and a reasonable time frame to reach a desired set of goals. However, this doesn't mean that enterprises and their CIOs are shying away from investing and taking advantage big data analytics offers to businesses. But the decision to adopt big data analytics is highly dependent on the nature of business or industry in which it operates.

So for instance, companies operating in domains like banks, financial services, insurance, telecommunication, retail and others are more likely to invest and benefit from big data technology.

Tesco, the U.K. based retail giant with 6,600 stores globally is among the top enterprises that deals with enormous size of data. Beside data generated from more 80,000 tills (cash registers/PoS) spread across all stores located in 12 countries, the retailer also has offers online and mobile channels to customers, which too generates data of significant scale.

And that is where Tesco started to encounter big data in the classical definition of four vs. many decades ago. To address the exponentially growing data, the world's third largest retailer

with a \$115 billion revenue, came up with Tesco Hindustan Service Center (HSC) at Bangalore in 2004. This key center provides all the operational and technology support to Tesco's retail business in different countries.

"Tesco is among the first enterprises in the world to start loyalty membership program (known as club card) for its customers many decades ago. Today, there are over 70 million club card members, out of which, 20 million are active cards. Beside those physical stores, Tesco has the mobile and internet channel for sales," says Vinod Bidarkoppa, Group Director and CIO, Tesco HSC.

Given such a huge customer base and burgeoning number of transactions across channels, the rate at which data is generated at Tesco is massive. However, it is the Bangalore center with over 6,500 staff that manages all the customer data, as well as provides key insights and foresight to Tesco, both on business and customer behavior using a mix of customized big data analytics solutions and platforms like Hadoop, ETL (extract, transform, load) and others, according to Bidarkoppa.

At Tesco, the applicability of big data analytics is largely in three key areas — operational efficiency, customer services and personalization. "All the three areas are equally important to us, and data generated in those three areas is crunched and analyzed with a mix of technology, domain knowledge and right resources with the right skills, to create meaningful information. That's what makes Tesco a leading retailer in the world," says Bidarkoppa.

For example, Tesco uses video analytics to understand customer behavior but at the same, uses video feeds to monitor supply and inventories at shelves in its stores. Importantly, Bidarkoppa points that customization of big data analytics solutions is necessary as per the industry and nature of business.

He is of the view that presently, many organizations are focusing more on unstructured data coming from internet, social media and mobile channels but are not taking a holistic approach, to

combine their existing structured data with the unstructured. Overall, big data is a journey and enterprises need to have a congregation of domain knowledge and technical skills, says Bidarkoppa.

Like Tesco, the Chennai based Apollo Hospitals Enterprise Limited also has been using big data analytics solutions not only for clinical research but also for clinical systems.

According to Arvind Sivaramakrishnan, CIO, Apollo Hospitals Enterprise Ltd., the healthcare industry always has been dealing with large volumes of data since the concept of data came into existence. "The healthcare industry, predominantly large hospitals like Apollo, are dealing with huge data volumes which can be said of the big data nature," informs Sivaramakrishnan.

In Sivaramakrishnan's view, dealing with big data analytics remains a tough challenge for any CIO. "One of the biggest challenge with big data for CIOs is actually defining the outcome of big data. And in the process of defining the big data outcome, the CIO is required to have a systematic designing of the existing organizational data and try to understand it more from business perspective," he says.

"Working on big data analytics has two main parts — technology and business. So while planning the big data outcome, it should be based on existing volumes of data and the CIO has to have a technology design aligned with the business domain and its requirements," Sivaramakrishnan adds further.

He says that the designing of big data needs to be based on the nature of business and not looked at just from a technology point of view.

With the focus on business insights, Uflex Limited, a Noida based flexible packing company has placed a multi-layered big data strategy to drive new business initiatives, where it uses its big data architecture to get business insights, and then shares it with various business vertical heads to support the decision making processes.

"As a part of this strategy, the lowest layer collects a range of databases to form a large data warehouse. Then using



There is widespread awareness of the insights an enterprise can obtain from all of the data residing in various applications.

Santhosh D'Souza,
Director - Systems Engineering,
NetApp India



Customization of big data analytics solutions is necessary as per the industry and nature of business.

Vinod Bidarkoppa,
Group Director and CIO,
Tesco HSC

the tools, these large database are segmented into small data marts for analysis, to support business initiatives. Based on business initiatives, analysts interpret data in the form of statistical information that business heads rely for effective decision making processes,” explains Satyadev Adurti, Senior Vice President – IT, Uflex Limited.

“The activity is an ongoing process wherein the technical and financial analysts work in a group to build insights for functional level leaders that help to meet the company’s big data analytics objectives,” says Adurti.

It’s more of the large enterprise and organizations that have deployed big data analytics to an extent, however, striking a right chord between technology and talent is equally challenging for CIOs in India like anywhere else.

“Definitely, the skills and talent aspect is challenging for CIOs. It’s a combination of business and technology, where we need to find IT or technology people with capabilities and skills to understand and churn volumes of big data into more meaningful information,” says Sivaramakrishnan of Apollo Hospitals.

Moreover, one of the key aspects about talent in the big data analytics space in any organization, is that the IT team needs to align and augment with the business team, as it can help in the process of designing the big data solution, selecting the right technology and driving the desired outcomes.

Tackling the talent shortage

In view of Adurti, organizations need to work strategically, create new positions with required roles and responsibilities to drive this key business initiative and mitigate the manpower shortage.

“Creating C-level positions for big data analytics helps add sustained focus and prepares the organization for achieving big data related strategic objectives,” says Adurti.

Organizations need to identify staff with techno-functional and analytical skills, which can work with the chief business analytical officer to drive the big data strategy, for result oriented decisions, suggests Adurti.



The room for growth is tremendous and the scope for analytics has never been more pronounced.

Mohan Jayaraman,
MD, Experian Credit Information
Company and Country Manager,
Experian India

However, Adurti points that the shortage is mainly because of non-availability of professional business analysts and strategic business interpreters. He adds, “The same can be managed by developing the in-house functional people with the knowledge of technology for big data analytical requirements.”

While these suggestions and ideas looks perfect, not all enterprises and their CIOs would be in a position to leverage their internal staff. Large size organizations and companies having specific business requisites, backed by strong finance, can actually leverage in-house staff through strategic investments in skill and knowledge enhancement initiatives.

Tesco HSC for instance, has instituted a comprehensive two dimensional structured training initiative for all staff, that includes technical trainings and domain knowledge. The technical trainings are combined trainings through in-house practitioners and online trainings in areas of technologies that are inline with the retail industry.

Secondly, company invites industry experts from Gartner and others

agencies to be part of conferences where the staff can interact and get learning opportunities with the experts.

“Basically, our in-house practitioners are people having long working experience at Tesco coupled with sound knowledge of retail industry and business processes. Training is very essential because most freshers come with technical skills and knowledge, but lack domain understanding and work experience,” says Bidarkoppa.

Few years ago, besides the technical trainings, the Tesco management also decided to set up a Retail Certifications program based on domain curriculum specifically designed as per the company's business processes and needs, as it operates in a multi-country and multi-channel business environment.

“We have three certifications – Brown, Silver and Gold. Every one joining Tesco by default needs to have the Brown certification in one year's time. It provides in-depth understanding of retail industry. The Silver certification is a more detailed course with 30-odd modules over six months time, and is mandatory for staff at certain levels,” explains Bidarkoppa.

“The Gold certification is more like a mini-master degree course focused on staff with Brown and Silver certifications. Here, the certified staff are exposed to pure technologies like Hadoop cluster, ETL, data warehousing, micro strategies and others, which enables the understanding of big data analytics to drive the business of organization,” adds Bidarkoppa. He summarizes that data analytics is all about marrying technology, business processes with data and coming out with meaningful information.

Certainly, Tesco's approach towards training staff in the area of big data analytics is quite illustrative in nature for other companies to follow, but requires good efforts and investments in developing such courses and trainings, in-house.

Serving the analytics demand

Following Tesco's style of training would be more suitable for large or very large

FOR CIOS, TAKING THE BIG DATA ANALYTICS PATH REQUIRES THEM TO PUT MORE EFFORT INTO THE DOMAIN — RIGHT FROM PLANNING AND DESIGNING TO RESOURCE ALLOCATION AND ACTUAL UTILIZATION

size organizations. But mid or small size companies with tight budgets and limited resources, need to look at other options like outsourcing data analytics services or consulting experts from the industry.

However, some industry experts differ on the whole idea of outsourcing analytics, as data is considered quite critical and they reckon that in-house staff would be better to handle that data rather than external resources.

And today, there are several data analytics service providers available in the market, that cater to local and foreign organizations. Among them, is a U.S based data analytics consultant and data management services firm LatentView founded in 2006. The company has set up a global delivery center in Chennai for its clients.

“At LatentView, we have been seeing significant traction in the market and we have been doubling our scale, year on year. The primary verticals that drive the demand for data analytics are those with a strong consumer focus—consumer packaged goods, retail, technology, etc. Also, historically we have done a significant amount of work in the BFSI sector,” says Venkat Viswanathan, Founder and Chairman, LatentView.

On the data analytics services demand, Viswanathan points that the demand has definitely grown

tremendously in the last five years as companies have realized the value of data they are sitting on.

“Data is seen as an asset that needs to be utilized. Traditionally, organizations have looked at their owned internal data when running any analysis — let's say from their ERP systems. Nowadays, companies have realized that this is no longer adequate, and they need to map external data sources onto their internal ones,” says Viswanathan.

He adds examples of external sources of data could be social media, location based data etc. This realization, coupled with the plummeting cost of data storage, has led to numerous technology innovations in the big data space.

Even Mohan Jayaraman, Managing Director, Experian Credit Information Company of India Pvt. Ltd. and Country Manager, Experian India, holds the same views on the potential of data analytics services.

“Banking, telecom and insurance are three verticals that have been engaged in identifying and understanding the application of data analytics initiatives within their businesses,” says Jayaraman. He points out that internet and mobile device-based retail transactions generate high volumes of data, and ask for a well-managed data service that can reduce turnaround times and enhance business efficiency.

Buoyed by the market demands, Jayaraman strongly feels that clients are highly enthusiastic and are looking to use data analytics at every stage of customer interaction. “Having said that, in the banking industry, risk remains the stronghold of data analytics, though marketing initiatives are increasingly looking to use quantitative techniques as well,” points out Jayaraman.

Big data analytics is gaining ground in the enterprise world and the industry is seeing a shift from hype to reality. Encapsulating the overall industry mood around big data analytics, Jayaraman says, “The room for growth is tremendous and the scope for analytics has never been more pronounced.”

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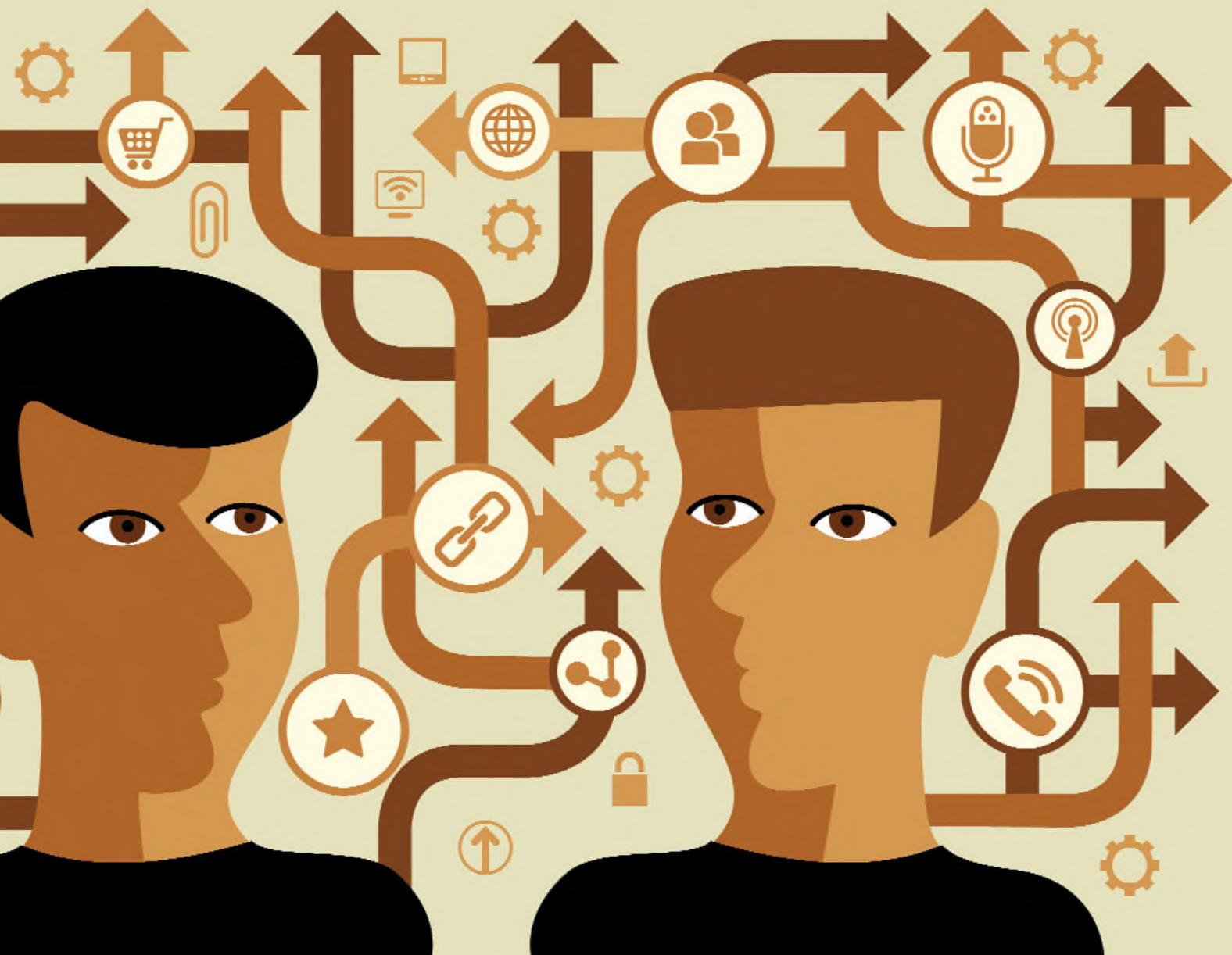
CUSTOMER EXPERIENCE MANAGEMENT

THE GOSSAMER FABRIC OF CEM



JASMINE DESAI

Companies should no longer be content with selling products to customers but instead weave a whole new experience for them at all the touch points



Customer interactions have become like a complex code that needs proper decoding in order to serve them better. As consumers use multiple touch-points to access information, exchange reviews and buy products and services, organizations are clearly finding it difficult to integrate systems and leverage social technologies to optimize the quality of customer interactions. In a world driven by ever changing market and customer priorities, acquisition, retention, loyalty and satisfaction are keywords for your customer management strategy. Each time your customer transacts with your

brand, they are engaging in an experience.

According to Sudhir Narang, Managing Director-India, BT, "Customer Experience Management (CEM) is one of the most critical elements of any business running across the world. While it allows companies to widen its customer outreach, adding depth to its engagement with one of its most important stakeholders, it also helps them differentiate in the competitive landscape and opens up avenues of superior growth in the market."

The need of the hour is to address the new realities of CEM and ride the wave of future growth, in order to establish market leadership. Presently, the journey that

CEM is headed towards is of avoiding bad customer experiences in the first place.

And to achieve this, technologies like social media and mobility are emerging as preferred platforms and tools to deliver end-to-end services in today's dynamic business environment. It is important to blend disruptive technologies like big data, analytics and social media to create a holistic view of customer priorities. These tools are helping companies monitor consumer perceptions and trends to enhance the overall customer experience. Adopting these technologies will help businesses address their challenges and will establish better CEM practices as an



With big data techniques, it is possible to analyse massive amounts of unstructured data – not supplied by the customer.

Raj Mruthyunjayappa,
Managing Director,
APAC & EMEA,
Talisma Corporation Pvt. Ltd



Mobile apps are more user centric rather than transaction centric.

Ramesh Loganathan,
Vice President and Managing Director,
Progress Software

important discipline for their overall growth and success.

Challenges in CEM

Technology plays several key roles during the customer journey. It facilitates “any time, any media” interactions such as voice, self-service, Web chats, and more. Social media and mobile innovations also bring new opportunities to better serve customers in their preferred environment. At the same time, technology can be a cause of concern for those who do not deploy it effectively. Handling increasingly complex types of calls and customer expectations with quality, requires hiring, training and retaining highly skilled agents, as well as leveraging technology and the depth and breadth of solutions, which takes additional investment. And all these need to be balanced with cost-effective service delivery that clients expect from their BPO/BPM partners.

Wrong technology choices, such as using multiple stand-alone platforms to store customer details, product information, history of past interactions, current and past orders, shipping, and billing can result in poor customer service and in turn, reduce the overall lifetime value of the customer. Bad experiences will of course be amplified using social media.

According to Johnson Varkey, Director - Contact Center Sales - India & SAARC, Avaya, “Technology can play a critical role in delivering a differentiated customer experience. However, just 8% of organizations surveyed by Forrester have implemented multichannel customer service technologies. At the same time, the majority of respondents recognize the benefits that technology can offer, such as improved agent productivity, improved quality of service, and the delivery of consistent service across all channels.”

Therefore, in order to offer an excellent customer experience and maximize the lifetime value of a customer, it is vital to have an integrated multichannel approach. Also, standing out from all the noise and fluff around engaging with customers is the most critical challenge.

Explains Ramesh Loganathan, Vice President and Managing Director, Progress Software, “Getting creative to

offer something very interesting that captivates the customer and thus create that positively pleasant experience for the customer, is a key part of CEM. The tools are all available, we just have to get creative in how these are leveraged to engage with the customer.”

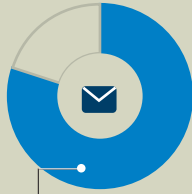
Customers today tend to handle simpler transactions through self-service, resulting in an increase in the volume of complex customer service calls. Customers also expect their concerns to be resolved on the first call. Furthermore, their loyalty to a product or service nowadays is also impacted by how well companies are able to personalize or provide a truly differentiated, highly-satisfying customer service experience for them. Says Sanjit Bal, Director for Business Development, Convergys India, “For us in the customer management business, two trends we see impacting customer service are call complexity and changing/evolving customer expectations. With a lot at stake, an outdated, one-size-fits-all service becomes a low customer service standard.”

It's the front-line contact center department that bears a hefty burden. This is the place where customer service or sales agents directly interact with customers. Without the ability to know who they are or how best to connect with customers on an individual basis, or have the right tools to address the complex nature of customer issues, contact center teams are not set up to do the best job possible. More likely than not, customers will end up getting impersonal, inconsistent, and perhaps inaccurate responses to their complex problems and thus, end up as unsatisfied customers.

According to Raj Mruthyunjayappa, Managing Director, APAC & EMEA, Talisma Corporation Pvt. Ltd., “Successful companies differentiate from the competition through their customer experience. However, many companies still have not come to terms with the pace of change in digital customer transparency, nor have they laid out strategies that will serve them in the coming years. These companies are highly vulnerable to those competitors that have their customer experience strategy in place.”

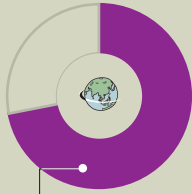
WHY CUSTOMER EXPERIENCE MANAGEMENT MATTERS

HOW CUSTOMERS CONNECT



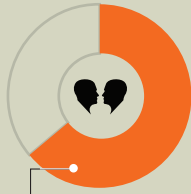
80%

USE EMAIL



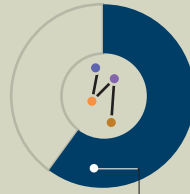
72%

USE WEBSITE



62%

PREFER FACE-TO-FACE



60%

CONSTANTLY CHANGE THE WAY THEY CONTACT



“Customer Experience Management (CEM) allows companies to widen its customer outreach adding depth to its engagement with one of its most important stakeholders, it also helps them differentiate in the competitive landscape and opens up avenues of superior growth in the market.”

Sudhir Narang,
Managing Director-India, BT

IN CASE OF A BAD EXPERIENCE...



83%

will avoid the company and its products
will advise friends and family to avoid the company

ONLY

4%
will do nothing



70%

prepared to pay more for excellent customer service

63%

Customer rating for a company delivering consistent service across different channels



CEM and the big data angle

Big data is a crucial element for innovation, competitive advantage and productivity and especially marketers, are adopting big data technologies to make sense of what is otherwise an overwhelming amount of information.

As per Sanjit Bal, Director for Business Development, Convergys India, "Our contact center operations become a rich source of insight into customers as well as ourselves as a service provider. But often, such information is siloed across different systems, some of which the contact center has no control over. As a result, customer service agents have no single view of the customer and no rich insights to pull from big data. The key is putting Customer Intelligence to better use."

Advanced BPM process mining, allows a better understanding of the customer behavior from internal data, social networks, and other external sources to enhance experiences, extend targeted offers that grow relationships and boost customer lifetime value. Usage of behavioral analysis tools combined with "next best action" and "next best offer" can transform the process's competitive weapon, thereby helping companies gauge and optimize as to how customers experience the situations and the choices that confront them.

According to Mruthyunjayappa of Talisma, "CRM has always involved data, but most of it is structured data, such as contact information, latest contacts, products bought, etc. With big data techniques, it is possible to process, store and analyse massive amounts of unstructured data — not supplied by the customer, and can be used to gain additional insights. Using big data technologies, CRM can finally become a true revenue driver."

However, organizations must keep in mind that it is not just about data collection but also about how to use that data to understand customers better, and to derive purchase cycles. Institutions must invest in data analysis and treat it with the same enthusiasm as data collection.

Solutions that combine real-time decisioning and analytics can build on that

integrated customer information and to provide guidance on how to help the customer. For example, in the contact center context, these systems can identify incoming calls, assess customer history and value, route them to the most appropriate agent, and create a tailored recommendation to serve that customer in terms of what to say and do, what information to gather, and so forth in real time. Analytical tools can even provide predictive guidance about whether a customer is likely to defect or respond to an up-sell or cross-sell offer.

According to Sanchit Vir Gogia, Chief Analyst & Founder, Greyhound Research, "CIOs are very keen to utilize analytics to better serve customers and improve the customer experience. Asian Paints is one example of a company which is using web-based analytics to target customer references. Through this, the company is better able to tap into the customer behavior during multiple stages of the website experience and look out for the stage at which the customer usually opts out."

There are contrasting views as well when it comes to big data. Mentions Ramesh Loganathan, Vice President and Managing Director, Progress Software, "Big data is hyped majorly. I don't believe any of the challenges or opportunities are new. The only thing new is some of the data sources hitherto not easily available, are now available given the widespread use of cloud solutions in enterprise applications."

BPM and CEM equation

BPM was always an integral part of CEM. But as things stand today, BPM has become more tightly interwoven with CEM and is considered as one of the pillars of CEM. According to Loganathan, "BPM has been a mainstay in most enterprises already. And most of BPM use was when it comes to human workflow, be it internal within the enterprise or the extended customer. With mobile apps and enterprises seriously trying to leverage the same to connect with the customers, BPM can be leveraged to offer self-service business interactions with the enterprise more easily."

Customer-centricity should be in the

DNA of any organization who is in the customer management business. We all know intuitively that today's customers are continually connected, inherently better informed, and armed with the power to make a difference in a brand's reputation based on their experiences with the company.

The mobility angle to CEM

Mobility, coupled with wireless connectivity and social media, is proving to be a game changer in Customer Experience Management (CEM). Mentions Bal of Convergys India, "Mobility is increasingly empowering consumers and for service providers, that means more interaction channels to touch the customer. Companies are proactively making smart use of mobile technologies to initiate touch points with customers rather than other way around."

For example, there is the trend of location based services, wherein service providers leverage the mobile location to provide service offerings to their customers. Additionally, mobility has expanded the customer market to non-English speaking emerging markets, which increases the demand for non-English services.

According to Loganathan of Progress Software, "Unlike normal apps that are more transactional in nature, mobile apps are more user centric rather than transaction centric. They connect the user's present context, location et al with the business opportunity which that user may want to perform. It enables a richer experience and interaction breadth for the user, even as the user is performing a normal business transaction."

For example, mobile apps may be get lookups based on users' current location, location juxtapose don map, or get reference information like say weather in a city relating to the transaction being performed on. Over the past few years, the industry has seen an onslaught of technology improvements and innovation in the mobility space and this has enabled greater connectivity, and even new types of delivery, such as mobile commerce.

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**STORAGE, DR AND
BACKUP**

KEEPING A TAB ON DATA



 **JASMINE DESAI**

Let us dig deeper into how storage, DR and backup are presently being perceived in the midst of latest innovations, unimaginable data growth and consolidation



While customer expectations from the storage market keep on increasing, storage technology itself is taking customers on a journey with its fast-paced innovations. It is a chain reaction set in motion wherein, an area like DR immediately affects data backup and in turn storage. As data growth escalates, so does storage investments with it. According to Gartner, the IT spending on data center systems in 2014 will US \$1,443 billion. One of the most talked innovation this year in storage has been flash and SDS.

The flash and SDS combo

Flash is definitely the future of storage. Richard Fichera of Forrester Inc. mentions in a blog post that the introduction of flash in main memory DIMM slots, has the potential to completely disrupt how flash is used in storage tiers, and can potentially break the current storage tiering model, initially physically, with the potential to ripple through memory architectures.

There has been a lot of concern around potential architectural challenges when it comes to usage of flash. However, abating those concerns Akhil Kamat, Volume & Storage Leader, STG, IBM,

India & South Asia says, “Flash does not have architectural challenges, because the way enterprises have segregated the data, is in tier 1 and 2. SDS gives the entire intelligent layer and flash gives the performance layer. Customers today know what they want to do with flash in their environment.”

Mentions Mehul Doshi, Country Manager – Servers, Fujitsu India, “Flash storage has been a breakthrough storyline for all customers who are seeking faster IOPS on their critical applications. Real-time based applications are especially being tested for their performance betterment.”



Flash storage will be tried and implemented at nearly every Fortune 1000 enterprise within the year.

Santhosh D'Souza,
Director - Systems Engineering, NetApp
Marketing & Services Pvt. Ltd India,



IT leaders should use backup for operational recovery and deploy archiving for discovery and long-term record retention.

Arun Chandrasekaran,
Research Director,
Gartner



Flash storage, with its fast accessibility will begin to replace tier-one storage in many data centers. These data centers will also look for new ways to maximize storage utilization on solid state storage to reduce cost of implementing flash storage. According to Santhosh D'Souza, Director - Systems Engineering, NetApp Marketing & Services Pvt. Ltd India, "We have seen a significant increase in solid state/flash storage adoption in recent years, to the point that flash storage will be tried and implemented at nearly every Fortune 1000 enterprise within the year."

Also, the flash/SDD market still has a healthy number of start up organizations that are making strong in-roads into the data center. However, they are rapidly being consumed by larger traditional storage companies.

Giving a deeper perspective Arun Chandrasekaran, Research Director, Gartner says, "Flash memory is creating an opportunity for vendors to garner in-memory computing for very high performance applications. SSDs can be economically and successfully deployed in storage architectures; the question is where and to what degree. The determining factors are tradeoffs

between the business benefits and the operational and capital costs."

Thus, if customers have not adopted it, they are considering it very seriously. SSDs may be placed within a server, as a dedicated storage device on a shared network or most commonly, within a shared disk array.

On the other hand, Software Defined Storage (SDS) is an area of considerable interest to Indian enterprises, as data growth continues to outstrip all efforts to manage existing storage environments, and as organizations increasingly become data-centric, in their pursuit of top-line and bottom-line growth. Placement of SSD technologies within a storage infrastructure offers a variety of advantages and challenges depending on their proximity to the processor.

According to Jim Simon, Senior Director of Marketing Quantum Asia-Pacific, "SDS has higher performance and higher reliability. Flash storage is becoming more affordable and therefore its adoption rate is increasing. Organizations are using it as a separate tier of storage by itself, as a primary storage and they use disk array for secondary storage and tape for tertiary storage."

As per Tarun Kaura, Director,

SYMANTEC RECOMMENDS A FEW BEST PRACTICES FOR DISASTER PREPAREDNESS :

Start planning now

The best thing to do is to get started immediately on a disaster preparedness plan, if it isn't already in place. Only 45% of SMBs in Symantec's 2012 SMB Disaster Preparedness Survey have a plan or are creating a plan, which means many organizations not prepared to recover business critical data in the event of a disaster. In addition, the adoption of virtualization, cloud and mobility can complement disaster recovery planning process.

Implement strategic technologies

Cloud computing and virtualization, work hand-in-hand with a comprehensive backup and recovery plan to improve disaster preparedness, with the ability to have off-site storage and physical machines quickly available in a virtual environment if a disaster were to occur. Businesses that are implementing these popular technologies have seen a positive effect to their disaster preparedness. 71% of those that have adopted server virtualization, report improved disaster preparedness, as well as 41% using public cloud and 43% using private cloud.

Protect your information completely

It is more important than ever to back up ones' business information. It is advisable to combine backup solutions with a robust security offering to protect businesses from all forms of data loss. In the survey, 34% of businesses reported that disaster preparedness played a part in their decision to virtualize servers, and 37% said the same for mobility and private clouds, respectively.

Review and test your disaster preparedness

At least once per quarter, organizations should reevaluate their disaster preparedness strategy and test its effectiveness. Organizations should run frequent tests that measure their ability to recover the information needed in a specific time frame, required for smooth day to day functioning.

KEY FACTS: STORAGE, DR AND BACKUP



UNSTRUCTURED DATA constitutes a large percentage
75 to 80% of the overall data that we use on a day to day basis

STRUCTURED DATA constitutes the remaining
15 to 20%



\$1,443 BILLION

IT spending on data center systems in 2014. According to Gartner. One of the most talked innovation this year in storage has been flash and SDS.



DRaaS

During the past few years, enterprise DRaaS adoption has grown steadily to 19% today, with another 22% planning to adopt.



40% are implementing cloud computing while 45% SMBs have a plan or creating a plan to recover business critical data in the event of disaster



Reason behind Server virtualisation:

34%: to face disaster preparedness

37%: mobility and private clouds



Flash Storage has been a break through story line for all customers who are seeking faster IOPS on their critical application.

Mehul Doshi,
Country Manager – Servers,
Fujitsu India,



The key benefits of software-defined storage over traditional storage include flexibility, automated management and cost efficiency.

Tarun Kaura,
Director, Technology Sales, India &
SAARC Symantec

Technology Sales, India & SAARC Symantec, “The key benefits of software-defined storage over traditional storage include flexibility, automated management and cost efficiency. The backup window for storage processes is also reduced.”

Also, the SDS software can be executed on any type of server hardware and does not have to be installed on dedicated hardware. Over-provisioning is a problem born out of a variety of constraints trying to deliver high levels of performance on a small data set for instance. And SDS will be the culmination of these phases kicking in to abstract and automate the virtualized data storage platform.

The deal around DR-a- a-service

The Forrester Wave: Disaster-Recovery-As AService Providers, Q1 2014 mentions that during the past several years, a slew of DRaaS offerings have hit the market with the promise of faster recovery in the cloud at the same or lower price points, and more flexible contract terms compared to traditional recovery methods. While this may sound too good to be true, many who have taken the plunge report that these claims are not as far-fetched as they seem at first glance. During the past few years, enterprise DRaaS adoption has grown steadily to 19% today, with another 22% planning to adopt.

According to Prashant Gupta, Head of Solutions, Verizon Enterprise Solutions, “There is certainly a market need for DR-as-a-Service. No one wants to invest in a capacity that is not utilized. Security is a key concern here in terms of access to the data, who has access to it, also where is the data going in terms of geography and what are the laws of the land the data is going to reside in.”

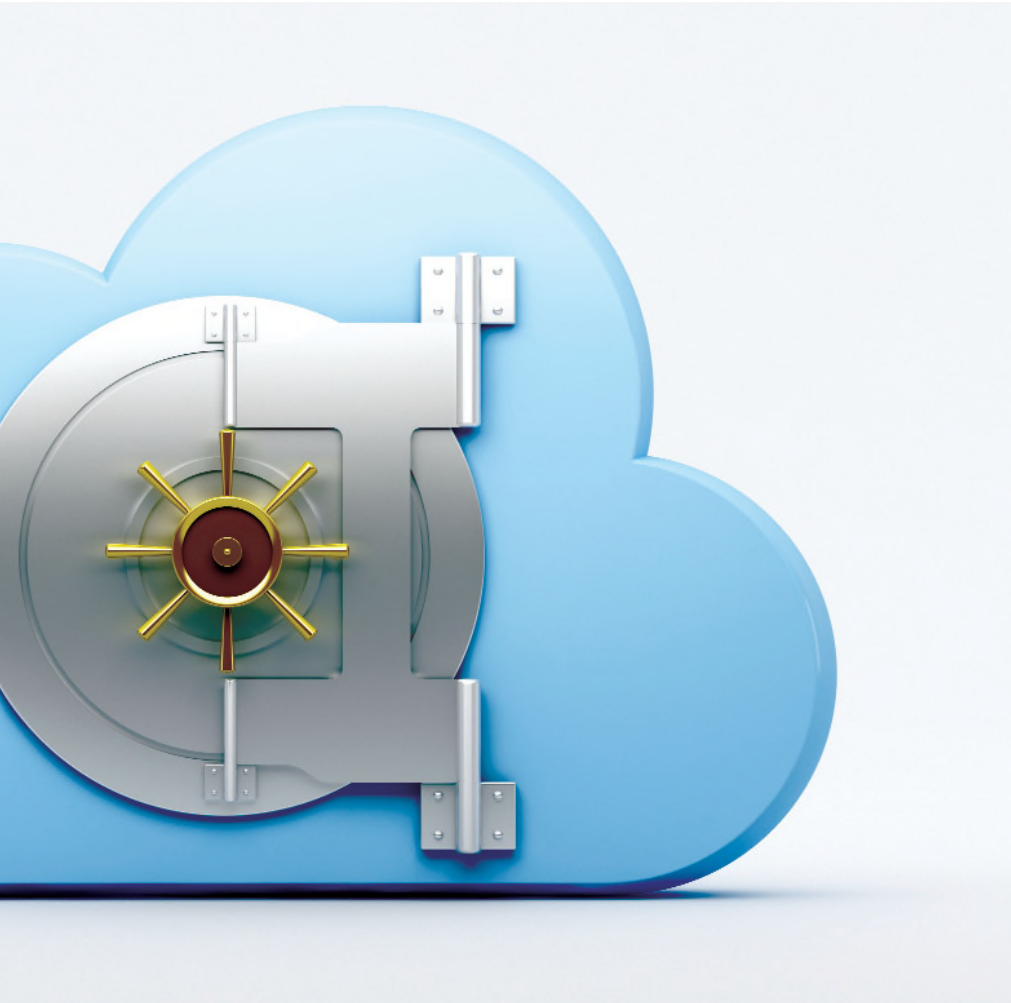
While providers can mitigate some of the security concerns through better identity management; data eradication; role-based access; and compliance with standards such as SSAE 16 SOC 2, ITAR and PCI, the real onus of ensuring data privacy still lies with the customers.

DR as a Service also helps save organizations a lot of operational costs.



Citing an example, Kamat of IBM says, “Everyone needs to be prepared for DR in an organization right from the process piece of it. There was a DR drill done in an organization and a fake rumor of earthquake was spread. People who moved out of the building first, were the ones who were supposed to take care of DR. An organization can have the most sophisticated technology in place, but without a proper process in place, it does not amount to much.”

The provider who gives the flexibility to choose geography, will have much more value in this area. Says Simon of Quantum, “It is mostly relevant for SMBs. They have had to buy backup



ORGANIZATIONS SHOULD PLAN FOR DISASTER SCENARIOS BASED ON THE LIKELIHOOD OF THAT SCENARIO OCCURRING. ONE CONSTANT WITH GOOD DR PLANS IS THAT THEY ARE WELL-ORGANIZED, EASILY NAVIGATED AND EASY-TO-USE

systems traditionally that would not only fit their current needs but future needs. DR-as-a-Service becomes OPEX as one is paying on a monthly basis.”

With the recent spate of natural disasters, DR is becoming more and more

a major focus for I/O professionals. Anand Ghatnekar, Senior Director, BRS, EMC India Center of Excellence says, “High-availability is the one and only one thing that I/O professionals need to remember while preparing DR from

natural disaster perspective. The IT infrastructure environment in today’s data center is way too complex and high availability is a system design approach to ensure required measures are taken to avoid SPOF’s (Single Point of Failures).”

I/O professionals play a key role in eliminating the SPOFs by properly architecting the storage requirements in a data center. They can be eliminated using a combination of ‘redundancy’, ‘failover’ and ‘fallback’ mechanisms. This generally entails deploying high-availability storage solutions that utilize technologies such as RAID, multiple/redundant storage controllers, remote mirroring, multiple I/O paths, and clustered storage systems.

According to Nitin Mishra, Senior Vice President - Product Management, Netmagic, “When it comes to natural disasters and preparing the DR, location becomes very important. One has to ensure that the data is available and up-to-date. Location and operational readiness including DR drills and monitoring it on continuous basis is the key.”

Chandrasekaran of Gartner says, “Thus far, Recovery-as-a-Service (RaaS) has been adopted far more broadly by small and midsize businesses (SMBs) than by larger enterprises. A key reason for this is that large enterprises are more likely to have established recovery facilities, as well as the in-house expertise and mature processes needed for sustainable recovery assurance.”

He emphasizes that organizations should plan for disaster scenarios based on the likelihood of that scenario occurring. Scenarios based on criteria such as notification time (e.g., “a tornado warning is in effect starting tomorrow at noon”), type of disaster and potential business impact should be established only if there are material differences between the response and recovery procedures for that type of event. Unlikely (low-probability) events should be identified; however, rather than developing full-scale plans. One constant with good DR plans is that they are well-organized, easily navigated and easy-to-use.



However, organizations typically fail to update their plans frequently enough to keep pace with the rate of personnel changes associated with the individuals who are assigned recovery responsibilities. One effective way is to avoid the use of individuals' names and contact information in the recovery document; and instead, use roles and job titles.

Data backup and recovery mash

The DR question inevitably leads us to look at data backup and recovery. This has been an ever daunting question that today's storage and backup administrators are facing as mobile devices continue to proliferate data formation which is mostly in unstructured form. Unstructured data constitutes a large percentage — 75 to 80% of the overall data that we use on a day to day basis, while structured data constitutes the remaining 15 to 20%. Most of this unstructured data is in the form of emails, raw text, metadata, health records, file services (audio, video, images) etc. The volume of unstructured data has posed a huge challenge from a backup and recovery perspective. A good way according to Gupta of Verizon is, "To reduce the recovery time, firstly there needs to be categorization of data. Organizations should know what they are trying to protect or replicate."

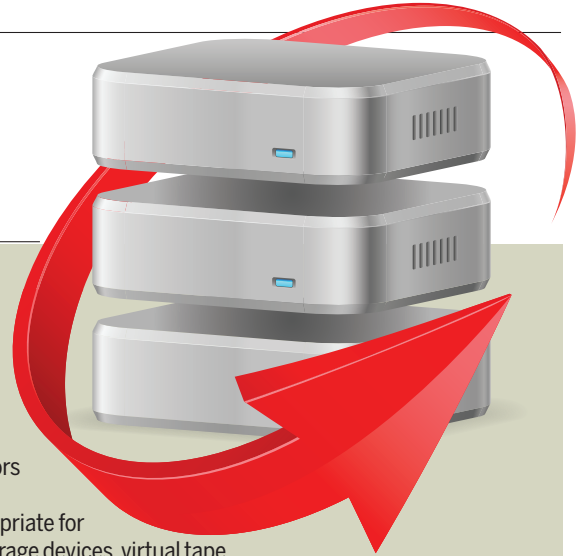
According to Kamat of IBM, "Unstructured data is huge. All of it cannot be stored on primary storage. Organizations should ask themselves what is the RTO (Recovery Time Objective) and RPO (Recovery Point Objective) they can afford."

They need to keep in mind that no data protection technology can yield better recovery time if the recovery objectives are not well thought of. Mentions Simon of Quantum, "Even with data de-duplication, organizations tend to back up the same data. They also do incremental backup. One can opt for object storage. The overhead associated with redundancy here is much lower. One does not need 100% redundancy here, but around 40%."

TIPS TO REDUCE DATA RECOVERY TIME

1

Cost of recovery - Data classification and urgency are factors that determine technology appropriate for recovery; disk storage devices, virtual tape library, or traditional tape libraries to be used. This will also greatly reduce resources needed during recovery and will account to a faster data recovery time.



2

Define Service Levels - Data protection solutions come with an SLA driven approach which allows selection of the lowest SLA to meet near to zero recovery time versus high SLA that encompass days or even weeks of recovery time.

3

Decide on storage technology - Solutions with low recovery time typically use disk based backups due to the performance factor of disk storage devices and involve some variant of replication or snapshot based techniques for implementing fast recovery

4

Sizing considerations - Network and storage bandwidth defines the amount of data that needs to be restored in a given amount of time. Larger bandwidth will account for faster recovery

5

Automated disaster recovery testing - These days most of the data protection and availability vendors provide features such as P2V (Physical to Virtual), V2P (Virtual to Physical) and V2V (Virtual to Virtual) recovery solutions, that can be used to do fire drill testing for ensuring DR readiness and reduced recovery time.

Source: EMC



There are many solutions that are available today from various backup vendors that can assist the back up of unstructured data. Mentions Ghatnekar of EMC India Center of Excellence, “ILM (Information Life cycle Management) is key to addressing this specific problem. There are many backup management schemes that are used in ILM such as de-duplication, retention and replication technologies that can assist with unstructured data backup depending on the RTO.”

These technologies assist in resolving the cost of storage and recovery time, but it really comes down to archival when companies need to decide what data they need to keep and where do they store it.

According to Chandrasekaran of Gartner, “The problem of the ‘shrinking backup window’ continues to be ever-present. Backup complements archive



TO REDUCE THE RECOVERY TIME, FIRSTLY THERE NEEDS TO BE CATEGORIZATION OF DATA. ORGANIZATIONS SHOULD KNOW WHAT THEY ARE TRYING TO PROTECT OR REPLICATE

and archive complements backup theoretically. In reality, what Gartner continues to see is that these technologies are deployed in silos in most environments. IT leaders should use backup for operational recovery and deploy archiving for discovery and long-term record retention.”

There is a lot that goes into this planning considering the disaster recovery and business continuity aspects

that an organization needs to have, and this may vary with organizations based on their business critical applications. Organizations need to plan upfront for their Recovery Time Objectives (RTO) and Recovery Point Objectives (RPO). These two parameters influence the kind of backup and recovery infrastructure that needs to be deployed.

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**ENTERPRISE
APPLICATIONS**

REBUILDING FOR THE DIGITAL AGE



 **HEENA JHINGAN**

CIOs are increasingly focusing on applications that are customer-centric and enabled for mobility and the cloud



The enterprise applications market in India is growing steadily in terms of overall size and penetration across various sectors. As per IDC, the market was pegged at \$400 million in 2013 and is expected to grow at an average of about 12.8% till 2016.

According to Manoj Khilnani, Country Marketing Head – Enterprise, BlackBerry India, despite economic uncertainties, large organizations and mid-size companies continued to steadily increase their software investments in 2013 so as to respond in time to the changing market dynamics and enhance their competitive edge. Large organizations continued to be

the primary drivers of enterprise application spending. In 2014, mobile enterprise applications will emerge as the force that will drive enterprise mobility into the future, creating new ways of working and transforming existing business processes.

As analyst firm Gartner calls it, the 'nexus of four forces' (the convergence and mutual reinforcement of four interdependent trends social interaction, mobility, cloud, and information) will have a significant impact on the growth of the applications market as well.

Till a few years back, enterprise solutions were marketed in the areas of

enterprise resource planning (ERP), customer relationship management (CRM), human capital management (HCM) and supply chain management (SCM) applications with niche vendors providing these solutions. However, trends like consumerization of IT and enterprises embracing mobility and cloud, the vendors are now compelled to offer more comprehensive solutions that can be seamlessly integrated with security and mobile device management pieces.

Rajamani Srinivasan, Lead MD office, SAP India makes interesting observations about the way enterprise



At this point of time, one sector which is investing a lot in enterprise software is the government, be it municipalities or state utilities.

Rajamani Srinivasan,
Lead MD office, SAP India



CRM is now a matter of greater strategic planning, especially in the context of digital landscape in the world of Internet of things.

Sunil Jose,
Vice President, Application Business,
Oracle India

software adoption has shaped up in India. He says that the market has shown significant growth in the adoption of technology. Indian enterprises too are accelerating the adoption of technologies in globally emerging areas like mobility, in-memory computing and analytics, which increase the velocity of doing business.

“While enterprise software has been deployed in verticals such as consumer packaged goods, retail and automobiles, it is the newer verticals that are fueling growth for the segment, including government, healthcare, education, agro-based industries, e-commerce and telecom. At this point of time, one sector which is investing a lot in enterprise software is the government, be it municipalities or state utilities, there is a heavy focus on enterprise apps,” he notes.

Cloud: beyond productivity

One of the most disrupting technologies for the industry has been cloud. As per software vendor SAP that claims to be the world’s second largest enterprise cloud business, it has the largest subscriber base with more than 35 million cloud users worldwide and over one million in APJ.

Srinivasan of SAP says, “As a part of our strategy, all of SAP core offerings are now converging to run on one unified SAP HANA Cloud Platform. We have seen a triple digit growth in our cloud business in India in 2013 and our aspirations are much higher.”

At Zoho, the enterprise cloud application emerged as one of the fastest growing divisions in 2013. “Some enterprises want to migrate from their existing non-cloud applications while others want to adopt cloud enterprise applications for their new projects, especially for the sales, marketing and support software needs,” informs Hyther Nizam, Vice President, Product Management, Zoho.

Industry experts say, adoption of cloud computing as a business model is definitely growing and happening in line-of-business functions like HR, procurement, sales and marketing etc. Organizations are much more open to

cloud solutions here, apart from the infrastructure side of things. This will be one of the biggest growth drivers in 2014 and beyond.

Ramesh Babu, Chief Delivery Officer & Business Head – ERP on Cloud, Ramco Systems Limited, agrees, saying that there has definitely been a surge in demand for cloud applications from enterprises.

He explains, “Large enterprises that are already running on an existing legacy systems are now eyeing the cloud space, to minimize their increasing IT expenditure, both in terms of software and hardware. They now prefer to opt for the cloud for additional modules to co-exist with their existing applications. For instance, large enterprises which are already tied to a legacy ERP choose to go the cloud way when they set up new subsidiaries or need to connect their extended ecosystem. This trend is now commonly known as 2-tier ERP deployment. The vendors continue to invest in product development bringing out newer solutions on cloud like dealer management solution (DMS) helps organizations connect their network of suppliers and vendors with a common ERP.”

Saying industry is definitely seeing a critical mass building around adoption of cloud-based enterprise applications, Sunil Padmanabh, Research Director at Gartner India, explains that all these years the Indian enterprises needed solutions that were simple and customizable, which is now possible through cloud. “So much so that now rival vendors can co-exist in a system providing different components of a solution, for instance an enterprise can be using payroll management from SAP and another HCM component from another vendor. The enterprises now evaluate not just best of breed, but also best in class solutions.”

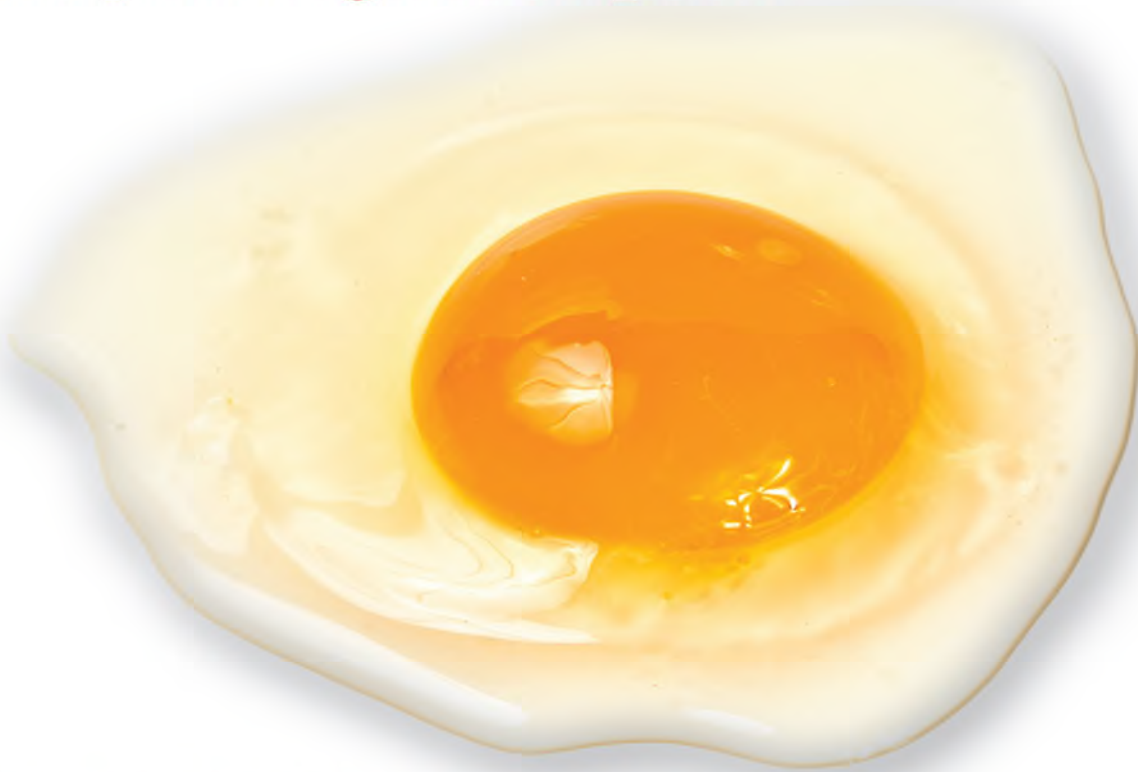
So, when PSUs like Bharat Petroleum start relying on cloud for things like talent management, it is a clear indication, that cloud based applications are moving beyond pilot efforts.

“In fact Indian CIOs and CFOs are getting more familiarized with SaaS,

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Vipin Kumar,
Group CIO, Escorts



Explosion in the number of devices, ubiquity of broadband and consumerization of IT are shifting the balance in software purchasing.

Ramesh Babu,
Chief Delivery Officer & Business
Head - ERP on Cloud, Ramco Systems



THE EXPLOSION IN THE NUMBER OF MOBILE DEVICES, THE UBIQUITY OF BROADBAND CONNECTIVITY AND THE CONSUMERIZATION OF IT ARE SHIFTING THE BALANCE IN ENTERPRISE SOFTWARE PURCHASING FROM THE SOFTWARE VENDOR TO THE INDIVIDUAL USER

impressed by the ways it has shrunk deployment time from months and years to a matter of few hours or weeks,” Padmanabh adds.

Another trend that the industry is witnessing in this space is that organizations are looking at revamping their CRM. The adoption of CRM apps is much faster in both B2B and B2C segments.

“In B2B, organizations want to use CRM to connect with their dealers and distributors to bring them on one common value chain. While in B2C, telecom, consumer products, media and retail are actively looking at CRM adoption,” says Srinivasan of SAP

Says Sunil Jose, Vice President, Application Business, Oracle India, “CRM is now a matter of greater strategic

planning, especially in the context of digital landscape in the world of Internet of things where social integration becomes one of the differentiators here.”

Research firm IDC predicts that social collaboration software is set to grow by 40% until 2016. According to IDC, companies will increasingly want to integrate and even embed social software into all enterprise applications, so it is essential for vendors to provide open APIs and capabilities to put social software into the enterprise workflow.

Explaining that social is emerging as the new consumer channel, Padmanabh says that enterprises are focusing on strategies on having structured, meaningful interpretation from these channels. For this the integration has been done effectively.



Big data is increasingly playing an important role in various verticals such as automobile, retail, government, banking and financial services and telecommunication.

Murli Mohan,
General Manager,
Dell Software Group



The thrust on building customer-centric applications with usability at the core will surge ahead in 2014.

Manoj Khilnani,
Country Marketing Head - Enterprise,
BlackBerry India

ERP-CRM INTEGRATION DELIVERED THROUGH CLOUD CAN GIVE A COMPLETE VIEW OF AN ORGANIZATION'S ORDER TO CASH AND PROCUREMENT TO PAYMENT CYCLES AND HENCE HAVE A POSITIVE IMPACT IN COMPANY'S TOPLINE AND BOTTOMLINE

platforms and this provides great opportunity for enterprise developers. Gartner projects that by 2017, 25 % of enterprises will have an enterprise app store for managing corporate-sanctioned apps on PCs and mobile devices.

In the year ahead, Mobile ERP will see a surge in demand. This can be attributed to two major factors — increasing number of new-age mobile workforce and demand for service improvement and better interaction with customers. Already, fully functional ERP and HCM offerings on mobiles and tablets are available in the market.

Vipin Kumar, Group CIO, Escorts, believes mobile technology has completely changed the way blue collared employees in an enterprise were treated. "All our workflows are mobile enabled and can be accessed on employee owned devices. These workflows are controlled by authentication and employee profiling. This has made the lives of employees simpler; they can access information and get approvals on the go—all this in a secure manner."

While technologies play their role, information forms the fulcrum around which everything revolves. The industry's focus is on leveraging the information for enhancing customer experience.

The age of the customers is forcing firms to redefine how they engage with digitally empowered customers. According to Forrester, 87% of Indian CIOs say that addressing customers' rising expectations and improving satisfaction is a high or critical priority. For this, CIOs must shift their organizations' focus to target the customer experience, altering governance processes, job descriptions and IT performance metrics.

The research agency also finds that customer engagement will drive Business Intelligence and analytics investments. About two-thirds of Indian CIOs plan to increase spending on business intelligence and real-time customer and business analytics. Indian companies must understand rapidly changing customer behavior to better win, serve, and retain customers — but CIOs must focus on ROI and link spending to clearly defined business outcomes.

Murli Mohan, General Manager, Dell Software Group, says, "Big data is increasingly playing an important role in various verticals such as automobile, retail, government, banking and financial services and telecommunication, vendors see a huge opportunity to enhance their offerings by being mobile enabled, scalable solutions and increase local support to drive their own growth which reflects in the industry's growth as well."

The CIOs are now harnessing the information for predictive analysis and to further develop customer loyalty and other engagement strategies, Jose says.

Padmanabh says going forward, industry will see greater integration between different systems, and for example, ERP-CRM integration delivered through cloud can give a complete view of an organization's order to cash and procurement to payment cycles and hence have a positive impact in company's topline and bottomline.

Going forward

In midst of the mega and micro trends, Mehul Doshi, Country Manager - Servers, Fujitsu India, observes the crux of the matter is that CIOs are looking at solutions that offer high scalability, real time data analysis, flexibility, end to end visibility, last

but not the least operational excellence. “Automation, customization and optimized resource allocation is what they primarily look at while picking products.

So, far, enterprise apps have played and will continue to play vital role in enhancement of enterprise mobility. In 2013, awareness about enterprise apps was still limited and organizations were looking at deploying standard apps. However, in 2014 the requirements of organization will become more specific and clear as they start taking decisions around MDM solutions. Interestingly, IDC finds that by 2016, 20 percent of enterprise bring your own device (BYOD) programs will fail due to enterprise deployment of mobile device management (MDM) measures that are too restrictive.

Enterprises will focus on having applications that are exclusively based on their requirements. Customized coded enterprise-apps will result in increased work efficiency of employees. In addition, well designed business-to-consumer apps will also deliver a great user experience to clients. Overall, enterprise-focused app development is going to get bigger in 2014. At the same time, industry will see enterprises adopting and securing the most popular productivity apps for internal use.

“In 2014, the cloud adoption trend is expected to continue with enterprises looking for applications with in-built analytics and mobile access. The thrust on building customer-centric applications with usability at the core will surge ahead in the year to come. 2014 will see more of user-centric technologies gaining center-stage, such as mobility, gamifications and social media integration,” says Khilnani.

Though currently more number of applications are server aided, in the near future, more and more applications will move to the web. To illustrate further, the applications will be supported on the web browser enabling easier management and productivity across multiple platform of devices. As per Gartner predictions, improved JavaScript performance will begin to push HTML5 and the browser as a mainstream enterprise application development environment through 2014. The developer focus will be on creating expanded user interface models including



Some enterprises want to migrate from their existing non-cloud applications while others want to adopt cloud enterprise applications for their new projects.

Hyther Nizam,
Vice President,
Product Management, Zoho

richer voice and video that can connect people in new and innovative ways.

The industry will also start seeing enterprises adopting more applications that help improve employee productivity. The next evolution will be in the end-user experience not restricted to mobility like email and social media, but applications in the areas of ERP, CRM, SCM, sales force automation, unified communication and billing. With increasing requirements for security in instant messaging, enterprises will also start evaluating secured instant messaging options restricted for work use.

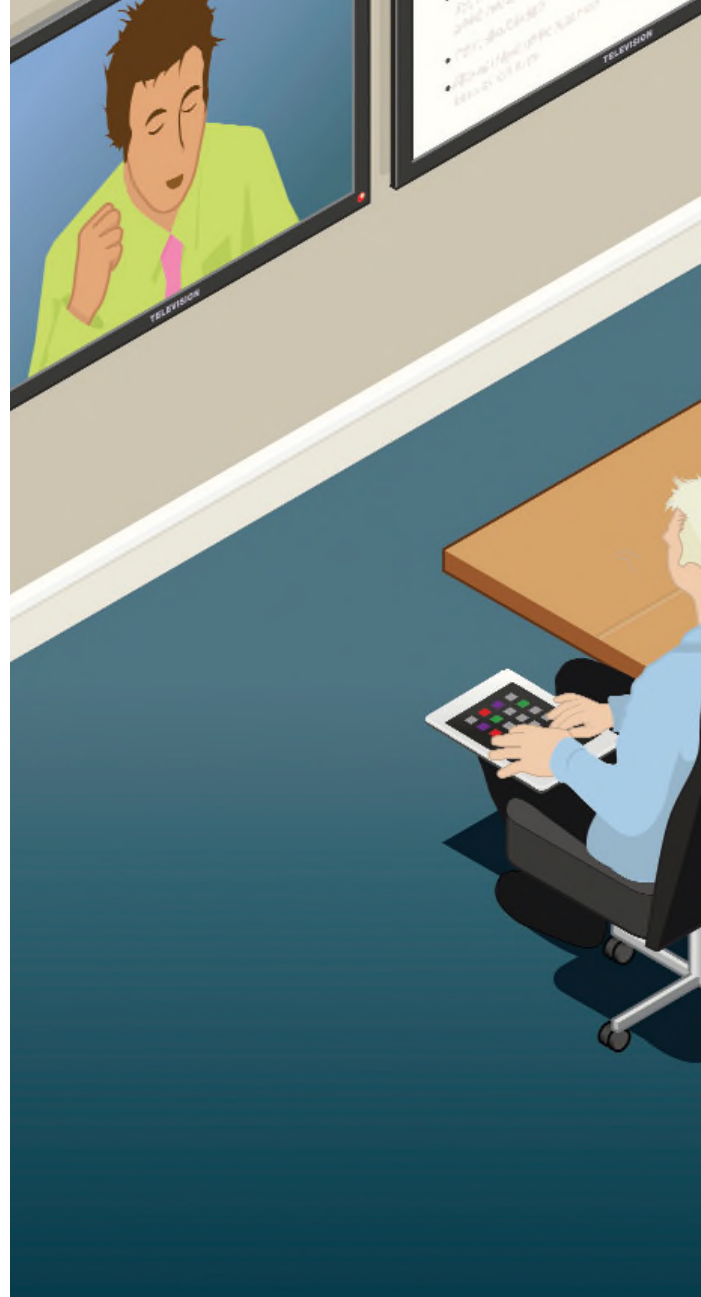
The applications of the past focused primarily on function rather than the form or design language. There will be increase in intuitive business applications, which will be able to run on multiple devices and platforms. Finally, as more companies adopt cloud based offerings, integration and compatibility become important factors. There will be more focus on developing applications which can integrate with other applications and services.

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UNIFIED COMMUNICATION

GAINING GROUND



PUPUL DUTTA

With increasing pressure to increase bottomlines and revenues, organizations are slowly waking up to unified communication to trim travel cost, improve collaboration and step up productivity



KPIT Cummins, a product engineering and IT consulting company, wanted to provide its employees, customers and partners a unified collaboration platform which would bring down costs and enhance communication. As most of its business deals were off-shore, employees were incessantly using office phones for overseas calls. With frequent travel, the situation was further worsened, putting pressure on the company's bottomline. Relying mainly on email communication did not help, as it resulted in a huge gap between planning and execution.

In this backdrop, the company decided

to deploy Microsoft's UC suite, Office Communications Server 2007 R2, and Microsoft Exchange Server 2007 to integrate with the existing Microsoft Outlook platform. The solution gave its users, a single interface that brought together telephony, instant messaging, conferencing, and presence capabilities on their computers. Communication costs were lowered by about 25%, and communication and collaboration were improved at the same time.

While UC globally is seeing a huge uptake, about 15-20% growth year-on-year, India is yet to warm up to this technology. Research firm Frost &

Sullivan notes that the size of the UC market in the Asia Pacific region is expected to rise to \$6.5 billion by 2015 from \$4.3 billion in 2010. The report further says that Indian enterprises are estimated to have spent over \$1.5 billion in hardware and software solutions related to UC over the past four years. However, the market for UC in India grew only by 7.5% over previous year.

"Higher growth in the market is expected in the coming years as more enterprises experience the requirement of collaboration solutions and move toward adopting higher priced and better quality solutions," the F&S report notes.



The total experience of audio and video as well as feature-rich content on the mobile is driving the UC market.

Minhaj Zia,
Managing Director,
Polycom



We see open standards such as WebRTC as the next step for our evolution in collaboration applications.

Anthony Bartolo,
Senior VP,
Unified Communications and
Collaboration, Tata Communications

Integration of various collaboration technologies such as video, Instant Messaging (IM), presence in web conferencing, email and contact center solutions, will not only provide complete end-to-end collaboration but also prove to be a money spinner for companies in the coming years. Companies today are fast moving toward a richer experience – a mixture of audio, video and content. This in turn is expected to drive the UC market further.

Moreover, with the masses being gung ho about touchscreen devices, the need for collaboration on the go has only gone up. While on-premise UC solutions are preferred by large enterprises which have high collaboration and security requirements, cloud-based UC is also expected to give a fillip to the demand in the future.

Current trends

The UC market is being driven by a number of trends like a growing mobile workforce, bring-your-own-device (BYOD), increasing internet penetration and the use of video. In the current business environment, with a growing mobile workforce, UC ensures that the communication costs are kept in check even as user satisfaction grows and long-term support costs are brought down.

Minhaj Zia, Managing Director, Polycom, explains, “Most enterprises today want to enable video as part of their communication tools. Also, the total experience of audio and video as well as feature-rich content on mobile, is driving the UC market. The content should be available on mobile devices and not just restricted to desktops.”

The ongoing proliferation of 3G and broadband internet services are also driving the UC market in the country. According to research firm IDC, video conferencing too is becoming a larger part of vendors’ overall UC offerings as organizations continue to push for video as part of their UC initiatives.

“With the improvement in communication infrastructure, increased pressure of controlling cost and increased awareness on industry trends such as social collaboration,

virtualization, cloud communication and mobility, the UC market in India is witnessing rapid growth,” notes Bobby Joseph, Country Director, India and Middle East, Plantronics.

Another popular trend is the growing use of WebRTC, an open, free project that aims to embed web browsers with real-time communication capabilities through the use of simple JavaScript APIs (application programming interfaces). The project is supported by Google, Mozilla and Opera.

“We believe that a true collaboration tool needs to be accessible to the widest possible community of users, which is why we see open standards such as WebRTC as the next step for our evolution in collaboration applications. We are certain about the huge potential that these technologies hold for enriching the ecosystem and experience of collaboration tools. Sitting in the background, working with applications, WebRTC will increasingly allow browsers to become multimedia communication hubs. For individual employees, this means access to video and voice calling, as well as instant messaging — all embedded within the browser they keep open all day long on their desktop,” says Anthony Bartolo, Senior Vice-President, Unified Communications and Collaboration, Tata Communications.

Mobility and UC

Mobility has been the absolute key factor in driving unified communications’ growth.

With the Gen Y becoming a huge part of today’s workforce, mobility is going to be on a constant rise in the coming years. This in turn indicates a rise in the BYOD adoption amongst the employees. A report from IDC predicts that by 2015, the world’s mobile worker population will reach 1.3 billion, representing 37.2% of the total workforce. According to Springboard Research, India’s mobile workforce is slated to grow from 134 million in 2011 to 205 million by 2015 and about two-thirds of it would be using smartphones.

Organizations are also utilizing

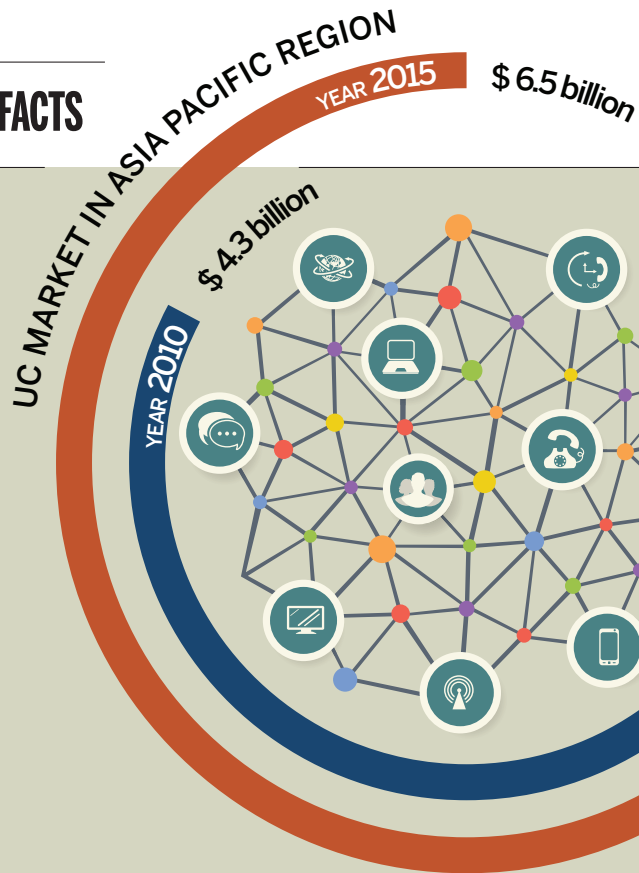
UNIFIED COMMUNICATION: KEY FACTS

\$1.5 BILLION

Estimated spend by Indian enterprises on hardware and software solutions related to UC over the past four years.

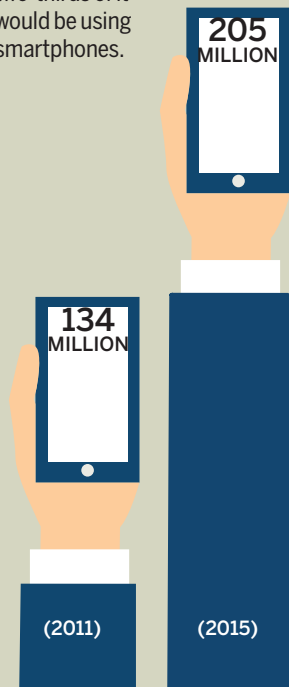
7.5 PERCENT

growth in the market for UC in India over previous year.



MOBILITY AND UC

Growth in India's mobile workforce according to Springboard Research. About two-thirds of it would be using smartphones.



\$45 BILLION

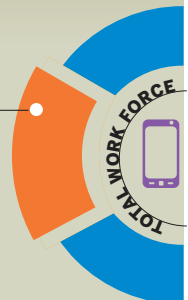
Size of the tablet market by 2014 according to the Yankee Group.

27.3%

Anticipated CAGR growth in cloud based conferencing services over the next 7 years

1.3 BILLION

Expected mobile worker population by 2015 as per a report from IDC, which represents 37.2% of total work force





It's a huge challenge to choose the best-fit solution. Lack of knowledge about the best UC solutions and vendors is a big hindrance.

Edgar Dias,
Regional Director,
India, Brocade



Security is a major concern with hosted solutions and this pushes enterprises to adopt on-premise models, which tend to be more expensive.

Ramkumar Pichai,
General Manager,
Microsoft Office Division

unified communications solutions to reduce operational costs while simultaneously lowering response times and enhancing employee output.

"Telephony and contact center markets are reaching maturity and would see low growth rates, whereas e-mail, IM/presence, and mobility are gaining high traction and hence have good growth prospects in near future. The key application to look forward to in coming years would be conferencing and collaboration, for which, very high growth rates are anticipated," says Zubair Alam, General Manager, Sales and Marketing, NEC India.

However, the flexible BYOD trend comes with its own set of challenges in terms of managing mobile UC sessions. "IT managers need to put products and policies in place so they can track, secure and monitor these interactions. The key to a successful mobile UC deployment is finding a solution that is BYOD ready, a solution that maximizes the benefits of BYOD while eliminating the challenges,"

quips Ashish Gupta, Director- Carrier Sales, Blackberry India.

Moreover, though the market is full of solutions offering collaboration tools for enterprises adopting BYOD, India is yet to see a very high uptake. According to Frost & Sullivan, while this trend is seen to be picking up in other countries, the Indian customer is still wary of UC on the go, due to lack of uniform high broadband availability that affects quality and impacts the user experience while trying to connect.

On the other hand, there are some enterprises which are open to allowing personal devices into the enterprise network. Various reimbursement methods are also being seen across industries. Some of the common practices include organizations providing their own mobile device or allowing a personal device only above a certain organizational level.

On-the-go collaboration

When we talk about UC, on-the-fly



collaboration tools are indispensable. E-mail, IM, audio and web conferencing are the most popular solutions for on-the-go collaboration.

Some of the popular on-the-go collaboration features/applications are Microsoft Sharepoint, Cisco Webex meetings and Blackberry enterprise instant messaging. While Microsoft's Sharepoint ensures that users have the latest information with real-time updates — as colleagues edit important documents, such as proposals and contracts, or update the status of a project; Cisco's webex allows users to easily attend, schedule and start a webex meeting from their Blackberry 10 smartphones.

Blackberry enterprise instant messaging, on the other hand, extends desktop enterprise instant messaging solutions like Microsoft Lync and IBM Sametime to “on-the-go” executives. This helps optimize communication and collaboration with real-time, secure one-to-one and multi-party instant messaging including the ability to seamlessly escalate a text chat into a voice call.

However, applications such as video conferencing which require high bandwidth, are not preferred since the voice and picture can become distorted or grainy when the user hits pockets with low bandwidth availability.

Conferencing in the cloud

In recent times, what server is to data center, cloud is to videoconferencing. Some of the startups in the IT sector have actually reaped success because of their pioneering efforts in cloud videoconferencing, while traditional videoconferencing stalwarts are re-imagining their product-based portfolios. The cloud and all that it bequeaths has turned the traditional videoconferencing network infrastructure into something that till now was unimaginable, inspiring a debate over the future of hardware infrastructure.

Cloud based conferencing is extremely popular across all modes in India - audio, video and web conferencing. The small and medium business (SMB) segment in particular are high adopters



THE SMBs ARE HIGH ADOPTERS OF CLOUD ONFERENCING SERVICES DUE TO LOWER CAPITAL INVESTMENT REQUIREMENTS, UNAVAILABILITY OF IN-HOUSE IT DEPARTMENTS, ATTRACTIVE PRICE MODELS AND BUNDLED OFFERINGS FROM SERVICE PROVIDERS

of cloud conferencing services due to lower capital investment requirements, unavailability of in-house IT departments, attractive price models and bundled offerings from service providers. “Cloud based conferencing services are anticipated to witness a compounded annual growth rate (CAGR) of 27.3% over the next 7 years,” notes the Information & Communication Technologies Practice of Frost & Sullivan.

However, big firms do not find cloud-

based conferencing as attractive as their SMB counterparts.

Sanjay Chowdhry, Head – IT at General Cable explains why he doesn't find cloud based conferencing solution exciting enough. For him it not only means a higher cost but also a security concern. “We have our own conferencing system. Recurring cost is much larger (in cloud) than one time capital cost. The company will never have their own asset till they use a cloud based system.



ASCERTAINING CONCRETE ROI FOR UC SOLUTIONS IS ANOTHER PAIN AREA FOR CIOS. CONCRETE BENEFITS SUCH AS REDUCTION IN TRAVEL COSTS MAY NOT BE ENOUGH TO ARGUE A CASE FOR UC TO THE TOP MANAGEMENT

A company can have as many audio and video conferencing with no limit to hours and yet pay nothing since it is totally IP based and free of cost," he says.

Issue of security

Security is one of the issues which has remained constant in a connected world. It is important for organizations to secure their assets and have a policy that secures their infrastructure. UC presents unique security challenges because it brings together disparate technologies. A UC business phone system combines VoIP, video, chat, email and presence together into one unified messaging

system. As the technology has become more complex and more accessible from the public internet, the security threat has increased.

"In many ways, it is easier than ever to attack business communications. Companies must be diligent to protect their communications as they are vital to business operations," says Sreedhar Venkatraman, Director - Sales Engineering, India & SAARC, Avaya.

Reiterating the same thought, Chowdhry of General Cable says, "Security is definitely an issue if a company is going to adopt UC on mobile devices. However, vendors are providing

mobile devices control to the administrator sitting at the office."

Consumerization of IT does bring in an element of security concern. Bring your own device introduces a wide array of unauthorized, unsecured devices into the workplace. Social media, video, IM, smartphones and tablets have erased the line between business and personal communication tools. "According to the Yankee Group, the tablet market will reach \$45 billion and the smartphone application revenue will triple to \$26.5 billion by 2014. Enabling BYOD empowers employees and maximizes their productivity," Venkatraman says adding that this however also increases the threat to security.

The sectors most affected by this threat are BFSI, IT and government, which deal with highly sensitive information. As a result of this, these verticals tend to adopt on-premise solutions or hybrid cloud solutions. For example, web conferencing that enables files to be shared would be on-premise, but audio conferencing will be done on the cloud.

Vendors are addressing security concerns by enabling the enterprise to select the model of cloud deployment which they would be most comfortable with. For example, If an enterprise wished to deploy on-premise equipment, the provision of managing the service is given without allowing vendors access to sensitive data. Adds Chowdhry, "Presently, vendors are providing two portions on the mobile devices, one for official and other one for personal. The user has been given the rights to delete personal data but not official data. Other built in security features are also being provided by the vendors."

Challenges

Since no technology implementation is bereft of any challenges, so is the case with unified communications. For a CIO, the biggest challenge is the budget required. Other challenges include policy creation and wider adoption by users.

In addition, the issue of interoperability between multi-vendor UC platforms continues to be an inhibitor. "It's a huge challenge to choose the best-fit solution. Lack of knowledge about the best UC solutions and vendors is a big hindrance. Bandwidth issues too are causing blocks in the path of UC adoption," notes Edgar Dias, Regional Director, India, Brocade.

Ascertaining concrete return on investment (RoI) for UC solutions is another pain area for CIOs. While most of the highly touted benefits include increase in employee productivity, improvement in speed of decision making processes, increase in employee satisfaction and being environment friendly, these need to be quantified in terms of monetary gains. Concrete benefits such as reduction in travel costs may not be enough to argue a case for UC to the top management. However, initiatives such as RoI calculators are being taken by service providers to help CIOs make better informed decisions when it comes to investing in UC.

Next, security remains a bone of contention for CIOs. Explains

Ramkumar Pichai, General Manager, Microsoft Office Division, "Security is a major concern with hosted solutions and this pushes enterprises to adopt on-premise models, which tend to be more expensive. Hence, it comes back to making sure the RoI is worth the investment."

Moreover, complicated licensing and payment models and dealing with multiple service providers creates resistance in enterprises for adopting UC collaboration solutions. Lack of awareness and perception about the benefits of collaboration versus the investment needed in licenses, technical teams and infrastructure, adds to this resistance. This is especially true for the SMB segment.

Competition provided by the free models of conferencing, e-mail and IM is high, especially in non-tech savvy verticals in the SMB segment.

Nevertheless, the demand for unified communication continues to grow. Also, people are moving up the social intercultural platform. Vendors are trying to reduce office delays, companies are moving to more and more cloud based unified communications and organizations are adopting more and more feature-rich UC solutions. Another trend that both vendors and CIOs feel will evolve is the integration of CRM with social computing platform, giving companies instant connection to their customers.

On the positive side, the cost of communication would go down and the quality would go up. BYOD is also expected to pick up as the number of 3G and 4G users increases across the country, thus bringing down overall communication costs for enterprises while improving collaboration.

Lastly, CIOs are also expecting an evolution of technologies that can be worn, something like Google Glass, which can be worn like spectacles and displays information in a smartphone-like hands-free format, and that can communicate with the internet via voice commands.

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Telephony and contact center markets are reaching maturity and would see low growth rates, whereas e-mail, IM/presence, and mobility are gaining high traction.

Zubair Alam,
GM, Sales and Marketing,
NEC India



The key to a successful mobile UC deployment is finding a solution that is BYOD ready.

Ashish Gupta,
Director - Carrier Sales,
Blackberry India



ENTERPRISE SECURITY

MAKING SECURITY INTELLIGENT



HEENA JHINGAN

CIOs and CISOs are looking for comprehensive, smart solutions that can help them not only detect threats, but also analyze, correlate and respond to incidents in real time



The year 2013 was a testing one for the global IT security market, including India. According to Cisco's 2014 Annual Security Report, globally, overall vulnerability and threat levels reached their highest in 2013, ever since the company began tracking the trends in May 2000.

The report reveals that 2013 was a "particularly bad year", with the cumulative annual threat alert levels increasing by 14 per cent since 2012.

While skeletons tumbled out of whistle blower Edward Snowden's closet, making glaring revelations to the world

about the US government's snooping tactics, one of India's sensitive organizations — the Defense Research and Development Organization (DRDO) became a victim of security attack (perceived to be an Advanced Persistent Threat). Though it wasn't the first time that a government agency's IT security had been breached. It had happened in the past to Border Security Force, IRCTC and Andhra Pradesh government as well, but this time, the country's most critical systems had been intruded.

According to the data compiled by the Indian Computer Emergency Response Team (CERT-In), more than 1,000

government websites, storing critical and sensitive data concerning national security, have been hacked by cyber criminals over the last three years. The DRDO breach was yet another evidence of the vulnerability of the country's systems.

The Government of India later responded by announcing the National Cyber Security Policy 2013 to safeguard both physical and business assets of the country. However, the concerns around IT security do not get resolved here alone as data security threats dog the country's public and private enterprises alike.

A recent Dell Global Security Survey finds that over 6 in 10 IT decision-makers



With cloud adoption picking up pace, there shall be more focus on identity and authentication and how this can be used to secure access to applications.

Amal Bhattacharya,
GM & Head - Presales and Strategic Opportunities (ITS - GIS), Wipro Ltd



The requirement is to bring together event, threat, and risk data with security intelligence to facilitate real-time decisions.

Jagdish Mahapatra,
Managing Director, India and SAARC, McAfee

surveyed from Indian companies, claim that security will be their top priority in the next 12 months, compared to the global average of 38%. Security has thus, emerged as a top priority for IT heads across the country.

So much so, as Tarun Kaura, Director-Technology Sales - India & SAARC, Symantec puts it, "The budget sanctions for security solutions are now coming directly from the CEOs' offices. Despite the currency fluctuations and IT budgets being slashed by at least 30% for most enterprises, the business for the vendors like us did not take a hit as orders continued to pour in," he says.

Jagdish Mahapatra, Managing Director, India and SAARC, McAfee quotes an industry report that estimates the total enterprise security market in India to be US \$ 234 million for the year 2014, contributing the highest growth for APAC region at 16.3% CAGR. He says, "Next generation firewall, endpoint, web gateway, email gateway among others, constitute the biggest growth drivers in this market."

Research firm Gartner finds that the three main trends shaping the security market moving forward, are mobile security, big data and advanced targeted attacks. With an increasing influence of bring your own device (BYOD) on the IT landscape, it is one of the major drivers of growth for security solutions today.

Trends presaging the security space include increased threats to the "Internet of Everything" or (IoE), more and bigger data breaches, and law enforcement challenges.

Gartner predicts that security of embedded technologies that organizations have right now, may be the most important operational responsibility for them in 2020. The firm says digitalization will create new infrastructures and new vulnerabilities to these infrastructures. It recommends that enterprises build a portfolio of security vendors because no single vendor addresses more than a fraction of the problem, and establish more agile security processes.

Over the last couple of years, business needs have evolved, companies seeking

greater flexibility and agility are embracing mobility, virtualization and cloud computing. The nature of threats has evolved as well, taking advantage of more open networks with targeted and persistent attacks. Security companies must also respond with flexible, adaptable data and threat protection that follows the data wherever it goes, as in the era of the cloud, the enterprise data could be residing anywhere.

Besides, these changes are a sign of the tectonic shift that has happened in mindset and the focus from just infrastructure to information or data. Market analysts say data is the most valuable asset in the entire ecosystem. 64% of India organizations responded to Dell's Global Security Survey saying losing critical business data is the greatest concern for them.

The new threat scope

If an enterprise today thinks it is fairly secured, Surendra Singh, Regional Director - SAARC at Websense says its time to rethink as the attackers are also investing in ways to outsmart these solutions.

The enterprise security invasion game has changed from script kiddies (unskilled individuals, who use scripts or programs developed by others to attack computer systems and networks), hacktivist groups, organized groups to nation states being involved.

"Cyber criminals today use the advanced targeted attacks (ATA), also called Advanced Persistent Threats (APT), methods to breach security controls of large networks that usually focuses on penetrating commonly deployed security controls such as signature-based antivirus and signature-based intrusion prevention. Once they successfully breach security controls on an organization's network, they constantly try to target the organization's internal network using secondary attack strategies. To mitigate such threats, enterprises need strong defense strategy across multiple security controls," says Govind Rammurthy, MD & CEO, eScan.

Therefore, says Dhanya Thakkar, Managing Director, India & SAARC,

SECURITY RESOLUTIONS FOR 2014

1) Focus on what matters: Identify and document the business-critical functions and information assets that must be safeguarded against cyber attack.

2) Get real about risk: No matter how strong your current security measures, cyber criminals likely know how to circumvent them. That's why you need a risk-based approach to cyber security, one that prioritizes risks based on their likelihood and impact, so you can effectively manage your cyber risk exposure.

3) Know your friends: In a recent Deloitte Touche Tohmatsu survey of technology, media, and telecom companies, 92% of participants felt an average or high level of threat from third parties. To help combat this, inventory your extended relationships — supply chain, outsourcing, partnerships, clients, vendors, contractors, etc. Include anyone who has access to your IT infrastructure, and seek assurances from these parties that they are vigilant in addressing cyber security.

4) Become a detective: Develop capabilities for detecting threats to your business-critical functions, information assets, and operational continuity. By centrally monitoring your systems, you can detect cyber threats in real time, enabling you to respond quickly enough to mitigate negative impacts.

5) Draw up emergency plans: When it comes to cyber attacks, prevention is only half the battle. Even the best systems and most vigilant organizations can be compromised. That's why you need to establish procedures to react to cyber attacks, from fiduciary, legal, technical, business, organizational, and branding standpoints.

6) Crash your own gates: Cyber simulations can help you test the effectiveness of your emergency



responses and the ability of your systems to detect intrusions and withstand attacks. This enables you to hone both your resiliency plans and your defensive strategies so you can recover quickly and get back to business.

7) Protect what's vulnerable: Cyber criminals increasingly evade current security controls to target vulnerable applications. To protect your business-critical systems, make sure to apply timely patches and software updates to your most exposed assets.

8) Get smart: Enhance your organization's ability to proactively detect and mitigate imminent and emerging cyber threats by leveraging the knowledge of industry associations, as well as commercial and open source intelligence sources. Whether you build the skills in-house or outsource, the key is to establish proactive cyber threat intelligence capabilities.

9) Guard your reputation: Companies that suffer a cyber attack face more than financial loss. They also risk brand

damage and the loss of public confidence. To protect your reputation, you need to know who's talking about your brand and what they're saying. By consistently monitoring your brand on the Internet, you can often prevent trademark, copyright, and other intellectual property infringement. More significantly, by improving your cyber security stance, you can even protect your corporate assets and sensitive customer and employee data from the outset.

10) Foster cyber awareness:

The weakest link in your cyber security isn't your technology; it's your people. Social engineering attacks that use targeted phishing emails or other techniques often hoodwink users into revealing confidential information or trick them into downloading malware. This makes it easier for cyber criminals to penetrate your network, without even resorting to more traditional hacking methods. Educate your employees to make sure they're aware of these risks and threats.

Source: Deloitte



The year 2013 has witnessed a sudden increase when it comes to large-scale tablet and smartphone deployment.

Govind Rammurthy,
MD & CEO, eScan



The new RBI guidelines around access, authentication and self-service password have generated interest in advanced solutions.

Venkatesh Swaminathan,
Country Head,
The Attachmate Group India

Trend Micro, “An optimum IT security should encompass effective solutions to protect the business, a complete solution that enables enterprises to detect, analyze, adapt, and respond to targeted attacks against the organizations.”

“Although organizations often focus on protecting against existing threats and known vulnerabilities, the next generation threats have become more sophisticated and are previously undetected, resulting from mega trends and behaviors as organizations deal with BYOD, big data, cloud, mobile computing, Internet of Things, and mobile apps. Today, organizations need to be well-equipped to ensure protection from both existing and previously undetected threats and a predictive and context aware security fabric that will evolve and adapt to business needs,” adds Murli Mohan, General Manager, Dell Software Group, India.

Of mobile and cloud

India’s security understandings and needs are maturing at a rapid pace. Rammurthy of eScan observes while a couple of years back, BYOD had absolutely no or a miniscule influence on the security landscape, 2013 has witnessed a sudden increase when it comes to large scale tablet and smartphone deployment.

Going by IDC estimates, India will emerge as a very strategic market for smartphone shipment in the next couple of years. While the unit shipment was expected to reach 155.6 million in 2013, which is a phenomenal increase the research firm believes, last year, the smartphone sales in India surged almost three-fold.

Rammurthy points out that though till recently, Linux was touted to be the next best thing, to save on license and deployment costs, but that OS has now been relegated to the back bench, with Android and Chrome taking over Linux’s place.

A trend that Trend Micro observes to have kept security experts on heels, was an increase in mobile threats, something that is expected to continue in 2014. Thakkar notes, “Among the familiar threats, an increasing sophistication in

attacks against mobile banking, mobile malware was noticed and is expected to cross the 3 million mark for Android in 2014. And the expiration of support for both Windows XP and Java 6 together will create an unprecedented pool of vulnerable users for attackers. Therefore, the security piece has become utmost important in the mobile device management (MDM), extending not to just device, but application as well”

Another technology trend that has been making waves across the world and in India is cloud. While cloud impresses, CIOs from a TCO optimization perspective, it is a platform where they resist putting their business-critical data.

Dell Global Security Survey finds that many organizations today use cloud computing, potentially introducing unknown security threats that lead to targeted attacks on organizational data and applications. The report finds that 73 % of respondents in India currently use cloud and of which, 21% said cloud apps or service usage were the root cause of their security breaches.

Jayantha Prabhu, Group CTO, Essar, explains that both virtualization and cloud are kind of platforms that offer substantial 'sharing' solutions which is quite far from the legacy isolated and dedicated in-house host-based environment. This adds up more concern about the applicability of security measures.

He says, “At Essar, a simple but robust policy for virtualized environment provided a solid base for a secured environment. In case of public cloud, a detailed assessment of selecting applications based on their criticality was done before hosting them in the 3rd party environment. Low critical applications were hosted out in public cloud and security related to that environment has been dealt with accordingly.”

He feels that the new IT and threat environments have led the CIOs to revisit their security strategies and adopt solutions that are smarter, more comprehensive and offer greater control.

Advanced and persistent

So, the vendors are now thinking beyond the traditional anti-virus solutions,

sprucing up their offerings to include anti-advance persistent threats solutions, next generation firewalls, application security solutions, privilege password management solutions and DDoS and data leakage protection solutions. These solutions protect organizations against the advanced threats that are proliferating in the network, points out Amal Bhattacharya, General Manager & Head - Presales and Strategic Opportunities (ITS - GIS), Wipro Ltd.

Organizations have recognized the importance of securing the endpoint and have upgraded the anti virus at the endpoint to endpoint security solutions, covering anti-virus, host-based firewall, and host-based IPS. Additionally, encryption for endpoints has also been a key focus for organizations to protect the data at the endpoints.

With security breaches in large organizations causing monetary damages and loss of brand reputation, organizations have started focusing on security with greater caution. Additionally, regulations in verticals like Banking and Telecom have necessitated organizations to focus on security compliance and invest to ensure that they are secure and meet the regulations.

“In 2013, we picked up some of the major deal security solutions deals from state governments and some large deployments with telcos to meet advance security threats were also taken up this year,” he says.

However, Singh of Websense says, not all segments of security solutions grew. In fact it has been a mixed bag .

Venkatesh Swaminathan, Country Head, The Attachmate (Novell, NetIQ, Suse, Attachmate) Group India agrees, saying that there has been an increase focus on identity and access management and end point security.

“Enterprises demand solutions that can help them collate logs and do intelligent reporting, including behavioral patterns. The new RBI guidelines around access, authentication and self service passwords have generated interest in advanced solutions.”

According to Mahapatra, SIEM

(Security Information and Event Management) is no longer a viable solution, unless it provides the ability for real time incident analysis, compliance and response taking into consideration every device connecting and communication within an organization. The requirement is to bring together event, threat, and risk data with security intelligence which will facilitate rapid incident response and the ability to make real-time decisions as to the security posture of the organization and how to make better informed decisions on how to protect the organization.

Swaminathan cites the example of a mutual fund company that uses their solution for about 15 lakh users and the concurrency rate there, is about 200,000 users. For this, the company uses their single sign-on solution. Similarly, he adds that a large government client (power sector) uses its identity access management solution for its 40,000 employees.

Interestingly, it is not just the telcos and BSFI users that are aggressively investing in security, verticals like Pharma are showing amazing pace of adoption of security solutions. Another FMCG client uses their privilege management solution for 200 servers and the system is managed by the administrator.

Kaura of Symantec says that the industry now expects management of entire life cycle of security. He picks up another example of an insurance company that claims to close all insurance buying processes with the help of their field staff on the move.

“The staff has tablets and they key in all the customer information on the device. In such cases, securing the information processing is a challenging task. In all verticals like BPO where the attrition rate is high, securing information at each level is critical,” he says.

For this, the enterprises need to have a well defined policy to guard the C-level information. The IT head must have a control over who and what devices have what information. While formulating security policies, enterprises should focus on development of local and



The new IT and threat environments have led the CIOs to revisit their security strategies and adopt solutions that are smarter and more comprehensive.

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The expiration of support for Windows XP and Java 6 will create an unprecedented pool of vulnerable users for attackers.

Dhanya Thakkar,
Managing Director,
India & SAARC, Trend Micro



The IT head must have a visibility of and control over who and what devices have what information.

Tarun Kaura,
Director - Technology Sales,
India & SAARC, Symantec

external threat intelligence, testing and educating employees against social engineering attacks, formulate mitigation and cleanup strategies in case of an attack, deploy custom defense solutions to protect against APTs and protect company data through data protection and management solutions.

An area where most Indian enterprises lack, is management of these security solution. Data centers hosted in India are becoming increasingly common, security for data centers by managed security service providers (MSSP) is a big trend. As per CERT-In reports, India faces a shortage of about four lakh trained cyber security professionals, and therefore, enterprises are increasingly relying on managed security services.

While most systems and CIOs are reactive to security threats, very few have the capability to simulate threats.

Dhiraj Gaur, Senior Engineer- IT, Power Grid Corporation of India, feels that the organizations need to be proactive and must test their preparedness to deal with threats from time to time.

He says that at government agencies like theirs, the critical infrastructure is always air-gapped and no confidential data is shared on Internet-connected machines, and even on the employee side, several checks and balances have to be put in place. They have IPS firewall solutions and then they run correlation on logs. "We have DLP (data leakage prevention) solutions in place. Security has become so important that we think of it even while procuring non-IT infrastructure, checking the source of codes, etc. so that there is no back door control, especially by hostile companies like China."

"One of the easiest ways of testing one's security strength is by participating in the mock drills conducted by CERT, where virtual machines run in parallel, and the agency poses various threats. The organizations are later rated on the basis of their responsiveness and ability to deal with the attacks," Gaur explains.

In an era when almost every component of IT is available as a service,

security too is available on demand.

Buy SaaS with care

With cloud-based security, eliminating the cost and hassle of provisioning, managing, and scaling security hardware and software is an easy route for the enterprises. However, as of now, it is a phenomenon among the small and medium enterprises.

As per management consulting firm Zinnov, Indian SMBs have adopted SaaS at par or more than the rest of the world, may be more because many Indian organizations are not limited by regulatory or compliance requirements compared to their western counterparts, therefore giving them freedom to choose and adopt cloud more quickly. As a result, the market is ripe for more widespread adoption of SaaS to help SMBs reach greater levels of profitability in India. Security SaaS allows SMBs to focus on their business while leaving the security of their endpoints, email, web, and vulnerability management to the security experts

Bhattacharya explains, "Major offerings today in security as a service are in content security space – to getting secure emails before it hits organization's email servers and also securing the employee Internet access. With cloud adoption picking up pace, going forward there shall be more focus on identity and authentication and how this can be used to secure access to applications." In any case, the enterprises will have to choose their solution provider with caution.

While 2013 has been a challenging year and full of threats, 2014 holds a bigger challenge, with mobility penetrating further into enterprises. CIOs will have to watch out for more sophisticated models of attacks and developing skills around security management. And not to forget that yesterday's viruses and malware are still lurking out there, requiring vigilant updating of traditional defenses. In this backdrop, CIOs need to develop new immunities, and keep updating the traditional shields.

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**PRINTING AND
DOCUMENT MANAGEMENT**

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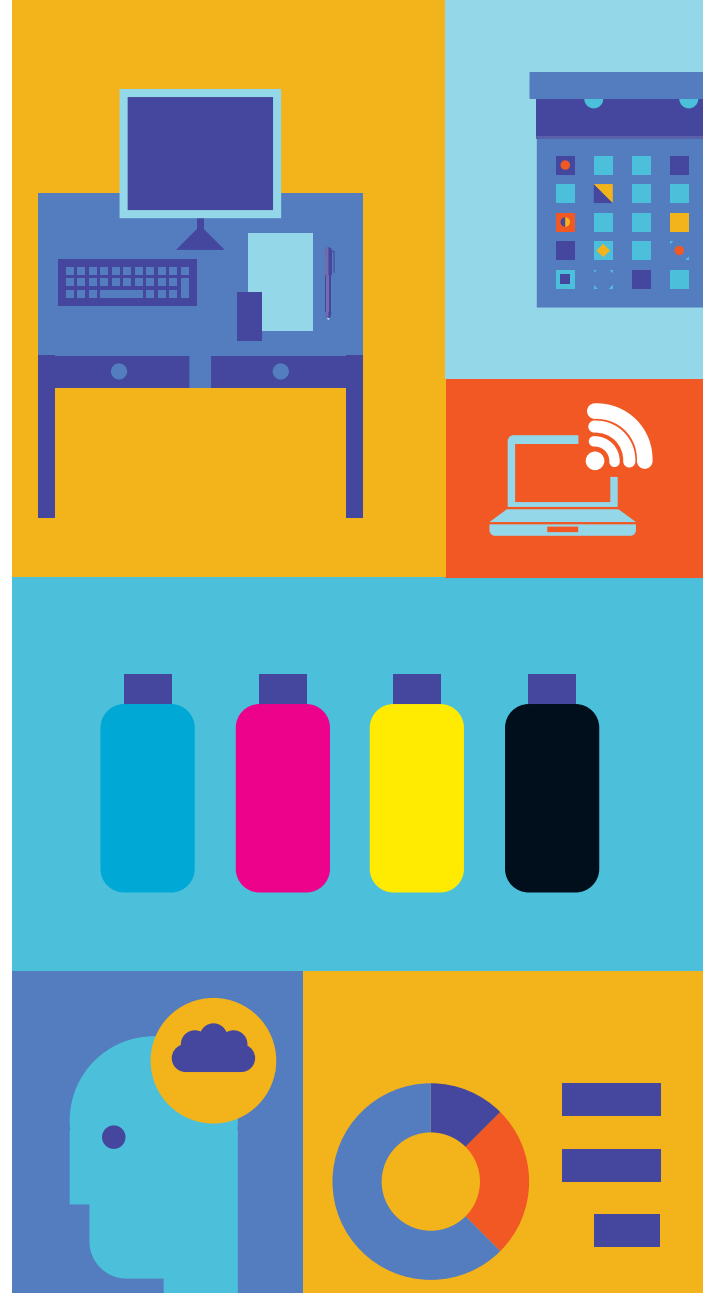


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PRINTING AND DOCUMENT MANAGEMENT

CHANGING DYNAMICS



PUPUL DUTTA

Mobility is at the core of all major solutions today, and printing and document management too is being swept away by this phenomenon



The printing industry in India has been on an upward growth trajectory over the past few years, riding high on the demand for multifunction printers (MFPs) mostly due to their affordable pricing. Secondly, there is a shift in consumer preference for printers which support technologies like mobile printing, Wi-Fi, duplex printing and touch-screen interfaces. Consumers today want to be able to print remotely and wirelessly.

“Wi-Fi printing has now become outdated. The latest trend is that of Android (mobile) based printing and Airprint (iPhone),” says Bhaskar Joshi,

Senior Marketing Manager, Office Imaging Solution, Canon India.

3D printing is another emerging trend in the market, given its capability to create an exact version of almost any physical object. What was once made on a factory floor including combs, dentures, hairclips or prosthetics can now be churned out through a desktop using 3D printing.

“The capabilities of 3-D printing hardware are evolving rapidly. They not only build larger components but also help in attaining greater precision with a finer resolution at higher speeds and reduced costs,” notes Ajay Madan,

Product Head, Digital Imaging System, Panasonic. He further states that it is expected that 3D printing will see a compound annual growth rate of 23% over the next seven years. Among all the application sectors, automotive industry, consumer products, aerospace, and healthcare are the main areas from where the adoption is coming. Moreover, aerospace and healthcare are estimated to grow exponentially in the coming future.

The printer market in India has seen a surge in demand in the last few quarters. According to Gartner’s quarterly report (Oct 2013 – Dec 2013), the combined serial



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Bhaskar Joshi,
Senior Marketing Manager, Office Imaging Solution, Canon India



3-D printing hardware not only build larger components but also help in attaining greater precision with a finer resolution at higher speeds.

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Product Head, Digital Imaging System, Panasonic

inkjet and page printer, copier and multifunction product (MFP) market in India totaled 861,212 units, marking a 13.2% increase in sales as compared to same period last fiscal. Total end user spending declined 9% from the same period last year totaling \$223.7 million. Both the monochrome and color markets posted increase of 12% and 28%. The report clearly shows that Indian organizations are still largely paper driven, though there is a surge in digitization and the need to access information anytime, anywhere.

The alternative to printing and keeping physical records i.e. digitizing of records or in other words Document Management Systems (DMS) too are witnessing a sea-change owing to mobility.

Current trends in DMS

The scope of document management has expanded in the past few years to encompass creation, scanning, storage, archival, sharing, and retrieval of documents. It is also expected that the market for DMS will grow consistently over the next few years with newer technologies such as cloud and mobility driving adoption by small and medium sized organizations.

With the business environment changing every day, the expectations from document management systems too are increasing. Also, with the increase in number of devices and software for producing content, knowledge workers want to use rich media to deliver better context around information and produce more engaging, compelling content. This is fueling the shift from static documents to dynamic documents. “Unlike traditional static documents, dynamic documents of today are interactive. These documents not only include links and buttons but also embedded calculations, and rich content, including drawings, images, videos, embedded web pages, and forms. Dynamic documents display and behave as intended across platforms. They are also easy to create, can be shared with others using existing means, can be secured, and can be quickly integrated

into existing document-based processes or document management systems,” explains Joshi of Canon.

DMS has become a top priority given the ever increasing volumes of structured and unstructured data processed each day by enterprises.

Some other trends that are fast catching up are customizable document management solutions. Enterprises today demand a solution that is customizable and can be integrated with workflow solution. Says Joshi, “Besides, the standard product that is available in the market, vendors these days are also offering solutions that are not only customizable but also integrate with workflow solutions. This makes approvals easier.”

Secondly, companies are now also demanding lesser file size conversions. Given the problem of storage and the need to store documents for 100 years, files are compressed to take as little space as possible.

Market size

DMS is originally a component of ECM (Enterprise Content Management) but is a preferred term used by enterprises. “Given the usage of the term DMS, it is also reflective of a market in its early stages. In comparison to global markets which typically exploit a full range of components spanning from workflow or business process management, image processing applications, records or web content management, social content and analytics, India is using a very small component of the entire gamut of services,” notes Ramkumar Pichai, General Manager, Microsoft Office Division.

DMS is one component of Enterprise Content Management (ECM), and exact market figures for it are unavailable. ECM, however, continues to demonstrate value and growth, as the market grew 7.2% in 2012 to a worldwide market size of \$4.7 billion. “Many enterprises are moving well beyond the basic uses of ECM (such as secure file storage in organized libraries) to tackle deeper business requirements that need strong process efficiency as well. This has led



HP fights counterfeit toner cartridges in India.



Counterfeit cartridges are those cartridges which have been illegally packaged to resemble genuine HP cartridges. This usually involves packaging a reman/refill cartridge in a box that closely resembles genuine HP packaging in order to deceive customers and pass the print cartridges as original HP product. To protect its customers, HP runs a Global Supplies Anti-counterfeit program (ACF) to raise awareness among partners, customers and local authorities.

Counterfeit Seizures

HP Anti-counterfeit team boosted its drive against counterfeiting in the year 2013. Here are the key highlights of raids conducted from January 1st to December 31st 2013:

- Over **250 actions** conducted across India by the enforcement authorities
- Counterfeit ink and toner cartridges worth approximately **USD 3.5 million** seized along with packages, labels, machines and equipment
- **242 people** detained by the enforcement authorities

Following table captures the details of locations where the raids were done. These raids were conducted by local authorities and based on their own assessment targeted against specific retailers in these localities. These raids were not targeted against the entire market.

Ahmedabad	Madalpur, Shreeji Complex, Relief Road, Vitthal Complex - New C.G. Road, New C.G. Road, Sabarmati, Chandkheda
Alwar	Jay Complex
Amritsar	Nehru Shopping Complex, Lawrence Road, Tarantara
Aurangabad	Connaught, CIDCO, Bajarang Chowk, CIDCO, Jaisinghpura, Gulbandi, MIDC Area, Waluj, New Gulmandi Road, CIDCO, Pandaribad Road
Ahmednagar	Sub-Jail Road
Ankleshwar	GIDC, Sardar Park -2
Bengaluru	Old Madras Road, Purushottam Road, Ulsoor, Domlur Layout, Sampangirama Nagar, Old Airport Road, SPA Plaza - OTC Road, SP Road, Kamanahalli Main Road, Banaswadi Main Road, Surajandas Road
Bharuch	Indraprasth Complex, Zadeshwar Road, Station Road, Pruthvinagar
Bhopal	M.P. Nagar, Fine Complex, Bankari Kolar Road
Bhubaneswar	Saheed Nagar
Chennai	Ammaiyappan Street, Royapettah, V.V. Koil Street, Vellala Teynampet, Thousand Lights, Vellalar Teynampet, Nungambakkam, Egmore, Pudupet, Royapettah, Nambi Trade Centre, Narasighapuram Road, Maruti Complex, Wallers Road, Chindaripet, Aziz Mulk 1st Street, Thousand Lights, Woods Road, Arumugam Street, Shree Krishnapuram Street, Kiragaya Illam, Kallimanpuram, State Bank Road, Mount Road
Daman	Somnath, Centre Point, Somnath Junction
Dehradun	Rajpur Road
Delhi	Shakarpur, Bhikhaji Cama Place, Ranjeet Nagar, Nehru Place, Sadar Bazar, Nayi Sadak, Roshanpura, Barakhamba Road, Connaught Place, Daryaganj, Rao Tula Ram Marg, Delhi Cantt, Nai Sarak, Shastri Park, Wazirabad, Urmila Tower, Bank More
Dhanbad	
Gaya	Balaji Market, Dighi Tank, Ambedkar Market, GB Road
Ghaziabad	Shiva Tower
Goa	Panjim, Ghavase Towers, Patto Centre Building, Near KTC Bus Stand
Guwahati	Baruah Road
Hyderabad	Aditya Enclave, Ameerpet, Vanasthalipuram
Indore	Silver Mall, RNT Marg, Silver Centure
Jaipur	Nehru Place
Jabalpur	Gada Road, Madan Mahal, Right Town, Near Jyoti Talkies
Jhansi	Manik Chowk
Kanpur	Somduitt Plaza
Kolhapur	Prabhakar Plaza- Station Road, Rajarampuri,
Kolkata	Chatterjee Complex, Nawab Sirajudoula Sarani, Khetra Das Lane, Pollock Street, Baretto Lane, Metcalfe Street, Bentink Street, Radha Bazar Street, Broubon

Lucknow

Ludhiana

Malda

Mathura

Mumbai

Near Mango lane 4, Radha Bazaar Street, Metcalfe Street, Braboune road, Akbar Nagar, Kukrail, Faizabad Road, Kesar Bagh, Sahara Shopping Centre, Faizabad Road, Indira Nagar

PAU, Chandi Suhasi Chowk

Rabindra Avenue, Subhash Pally, Ashwani Shopping Complex, Ramkrishnapally Vikas Market

Saideep Shopping Centre, Chembur (East), Renwel Centre Premises, Govandi Station Road, Govandi, Sai Pooja Chambers, C.B.D., Vindhya Commercial Complex, C.B.D., G. K. Marg, Lower Parel (W), Sunmill Cross Lane, Lower Parel (W), Keshav Vasant Building, Panvel, Municipal Complex, Old Panvel, Panvel Municipal Complex, A.P. Road, Panvel, Om Saidham CHS, Jawaahar Nagar, Malad (W), Nariman, Ghatkopar (W), Vashi, Kopar Khairane, Navi Mumbai, Bomanji Lane, Mahalaxmi area, Sant Kabir Marg, Vashi region, D.N. Road, Bandra Kurla Complex, Janmabhoomi Marg, G.D. Lane, Arun Chambers- Tardeo

Mehsana

Nanded

Nagpur

Nashik

Noida

Patna

Pathankot

Pune

Ranchi

Rohtak

Roorkee

Secunderabad

Sirohi

Siwan

Solapur

Surat

Tezpur

Thane

Vapi

Varanasi

Vishakhapatnam

Swami Ramanand Teerth Marathwada University Vishnupuri, Vishnu Complex - VIP Road, Lotiya Complex- Shivaji Nagar

Lokmat Bhavan, Wardha Road, Sankrutik Sankul, Sitabuldi, Sadar Bazar, Jitendra Building, Chhindwada Road

Ashok Stambh, Jadhav Market, M. G. Road

Sector 27 & Sector 18

Patna Super Market- Fraser Road, Grand Plaza- Fraser Road, Kumar Complex, Opposite Hariwansh Parwati Complex, Jamal Road, Jyoti Tower- New Dak Bungalow Road

Dhangu Road, Mahajan Complex-Old Shahpur Road

Sadashiv Peth & Shukrawar Peth, Hatti Ganpati Chowk, Vande Mataram Chowk, Ramanbaug Chowk

Sainik Market

Sheela Bye Pass Delhi Road, Old Session Court, Delhi Road

Mission Compound- Haridwar Road, Civil Lines

CTC Complex, Parklane,

Sadar Bazaar, Near Rajmata Dharamshala

Babuniya More, Parbati Guest House, JK Chowk, Durbar Complex, New Micro Sun Info- Babunia More, Lalan Complex- Behind Punjab National Bank- Babunia More

Sidheswar Chowk Road, Kanna Chowk

Niva Apartment, Court Road, Nanpura, Complex, Nanpura

N.B. Road

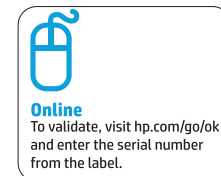
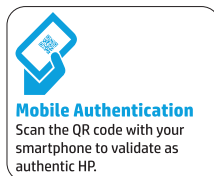
Rajdarshan Society- Dada Patil Wadi- Naupada, B Cabin Road- Dada Patil Wadi- Near Hanuman Mandir- Naupada, Panckutir- Powai, Keshav Vasant -Building- Opp. Tahsildar Office, Panvel, Panvel Municipal Complex- A.P. Road

Bass Shopping Center, Amidhara Complex, GIDS

Chaukaghat, Hukulganj

Dondaparthi, Medicherla Tower

How to spot a counterfeit cartridge



To report a counterfeit incident, log on to

http://www.hp.com/sbso/product/supplies/fraud_report.html

To know more email at in.contact@hp.com or call **1800 3003 3003**

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In comparison to global markets, India is using a very small component of the entire gamut of services under document management.

Ramkumar Pichai,
General Manager,
Microsoft Office Division



More ECM vendors are offering a lightweight cloud-based environment to address emerging market needs.

Gavin Tay,
Research Director, Gartner



organizations to increasingly regard ECM as an environment for solutions that fit their business needs,” asserts Gavin Tay, Research Director, Gartner.

In any case, the demand for DMS has been on the rise given the growth figures of the entire ECM segment. According to Gartner, 15% of all ECM being undertaken is document management, with BFSI, IT/ITeS, retail and healthcare being the greatest adopters. “In future, the industry will witness more and more enterprises outsourcing their document management needs to leading global players like us for whom it is a core business. Therefore, the major growth driver for the printing and document industry is the increasing need for

effective document management and outsourcing services that will manage end-to-end document workflows in an organization. Many enterprises are moving well beyond the basic uses of DMS (such as secure file storage in organized libraries) to tackle deeper business requirements that need strong process efficiency as well. This has led organizations to increasingly regard DMS as an environment for solutions that fit their business needs,” says Vishal Awal, Executive Director - Services, Xerox South Asia.

DMS on the cloud

In today’s business environment, majority of the employees do not spend



their entire day at their desk using just one computer and taking calls on a single phone. And though mobility has changed the way we do business, it has also complicated the way documents are managed. This is especially true if one needs quicker access to a file that is buried within a cabinet or file server located in another city. Hence, to make things easier and in order to improve productivity of employees, organizations are now turning to cloud based document management systems. The cloud provides all the benefits of an on-premise document management system such as a content library, records of changes to each document and audit trails, at any time and from any device.

Cloud presents a new, cost-effective alternative to traditional DMS. Without committing to huge initial investments on hardware and licenses associated with on-premise installations, cloud allows businesses to start reaping the benefits of a mission-critical solution instantly.

Notes Tay, “More ECM vendors are offering a lightweight cloud-based environment to address emerging market needs and possibly to prevent their client bases from exploring the popular cloud-based file sharing environments (Dropbox, Google Drive etc.), which only offer a fraction of the full functionality of ECM. This area of

technology may become a common feature in ECM systems during the next few years. As the use of ECM begins to increase on mobile devices, we expect to see a generational makeover, with ECM moving further away from its roots in networked back-office environments.”

An apt example is that of Microsoft’s solution — Microsoft SharePoint Online, a Microsoft Office 365 service for businesses of all sizes. Instead of installing and deploying Microsoft SharePoint Server on-premises, any business can simply subscribe to SharePoint Online to provide their employees with an enterprise-grade solution for creating sites to share documents and information with colleagues and customers.

Team collaboration often focuses on documents, and the easier it is to communicate about those documents, the easier it is to move projects forward. Having two-way conversations about documents in real time, from within the documents themselves, can not only enhance communication, it can also improve employee engagement and spark innovation. Basically, a cloud-based document management system not only lets employees access files anytime and from anywhere but also costs much less to enterprises. Although in-house document management

WEB CMS FOR INFOSYS.COM

Infosys had outgrown its existing website, which was built on .NET technology. Without a full-blown content management solution (CMS), the online marketing team was confronted by several challenges, which were a drain on their resources. With strong growth coming from Europe, United States and emerging markets, Infosys had a greater need to create and maintain its website in multiple languages for its global customers. To reduce the strain on the production team, Infosys wanted to de-centralize creation, publication, management, and control of its large, dynamic collection of content.

Infosys then decided to invest in Microsoft Office SharePoint Server (MOSS) to streamline its process for creating and publishing websites. SharePoint not only met Infosys’ need for web content management, but also provided a wealth of features for content writers and designers to work with.

India Printer, Copier and MFP Unit Shipment Estimates, 3Q13 (Thousands of Units)

Vendors	3Q13 Shipments	3Q13 Market Share (%)	3Q12 Shipments	3Q12 Market Share (%)	3Q13-3Q12 Growth (%)
HP	443.2	51.5	384.9	50.6	15.1
Canon	177.8	20.7	170.9	22.5	4.0
Epson	73.7	8.6	70.2	9.2	4.9
Samsung Electronics	58.1	6.7	62.6	8.2	-7.1
Others	108.4	12.6	72.1	9.5	50.2
Total	861.2	100	760.8	100	13.2

Note: Totals may not add up to 100 percent due to rounding

Source: Gartner (December 2013)

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CIOs today demand a solution that allows users to create, capture, share, process, archive, or retrieve documents using a mobile phone or tablet.

Diwakar Nigam,
Managing Director, Newgen



Document management is one of the most neglected parts in most organizations in spite of the crucial role it plays.

Vishal Awal,
Executive Director - Services,
Xerox South Asia

systems are customizable, they are also expensive and typically have more features than a company would ever use.

DMS and mobility

In the current business scenario, solutions catering to mobility have become an important requisite of companies. It's a trend that needs to always follow-through to make sure that it does not get misplaced in the market. Use of key business programs from smartphones or tablets accelerates work and offers immediacy, reduces down time and facilitates the duties to become carried out, which ultimately means a much better utilization of company's assets.

Mobility represents an opportunity for businesses to share and collaborate on documents, and access critical information from anywhere, anytime, and using any device. "CIOs today demand a solution that allows users to create, capture, share, process, archive, or retrieve documents using a mobile phone or tablet. Along with cloud, mobility is certainly a key factor that will drive innovation in the way businesses manage documents," states Diwakar Nigam, Managing Director, Newgen.

According to Gartner, mobile devices and mobility will be key technologies through 2017. A report from ITU estimates that there will be more than 2 billion mobile broadband subscriptions globally by the end of 2013, with most in Asia/Pacific. This figure is up from 268 million in 2007, giving an average annual growth rate of 40%. "Reallocating parts of long-established businesses to the web and mobile devices isn't easy, but it is increasingly convenient. CEOs are rapidly acknowledging this and demanding more digitization for their employees, processes, customers and suppliers. These days, entrepreneurs and new ventures are greatly facilitated by web-native business models and instant worldwide exposure. This expediency is creating interest in cloud offerings and content-centric ones in particular, because content mobilization is an essential step toward a digital business," explains Tay.

Challenges

While vendors and analysts go on blowing

the trumpet about mobility and cloud based solutions, they somehow choose to ignore the issues which crop up simultaneously with each adoption. There is a trade-off between always being connected, having reliable security or confidentiality and the risk of simply a poor user experience. Embracing BYOD while maintaining control of corporate data requires a fine balance between flexibility and control.

Besides security, which is a major challenge, other concerns such as power shortage, connectivity and bandwidth issues, and need for local language support hinder wide-scale adoption of DMS in India.

Educating the enterprises and making them realize the relevance of optimized document usage and its benefits is the need of the hour. "Document management is one of the most neglected parts in most organizations in spite of the crucial role it plays in enabling operations, and its contribution to productivity and efficiency of the organization. The reasons are evident, the ownership is split across functions, RoIs are not visible and impact on organizational efficiency and productivity not measured," explains Awal.

Joshi further explains that by taking control of the end-to-end processes for each document, applying six sigma methodologies, processes and using market-leading solutions and services, we ensure that the entire lifecycle of documents is managed using appropriate technology and process framework in adherence to appropriate standards. "What most enterprises do not realize is that the costs of having a fragmented, decentralized document strategy are staggering. It's more than simply paying too much to create, manage and produce documents," he says.

Moving on

All said and done, lack of a proper document management system can cost enterprises millions of dollars in liability, reduced efficiency, and lost productivity every year. These costs are likely to only balloon further in future with expansion



in business operations and enhanced compliance and security requirements. Hence, it becomes critical to maintain proper document management infrastructure/program to ensure data privacy and security, regulatory compliance, control and access to information, and cost control associated with information processing. In addition, unleashing incremental productivity and delivering superior end-user experience are some of the collateral benefits.

Moreover, the operational costs associated with management, retrieval, transfer, and disposal of physical documents are huge. Further, working in a paper-based environment restricts access to information, hindering internal work processes and collaboration. While larger enterprises look at on-premise enterprise-class document management applications to address this challenge, small and medium sized enterprises (SMEs) are constrained by the cost and complexity of deploying a

mission-critical application.

Nevertheless, industry and government regulations are equally stringent for all businesses, irrespective of size. Coupled together, these factors pose a massive sustainability challenge for SMEs. To ensure compliance, cut costs, increase profitability, and boost their contribution to the economy, SMEs need to drive innovation, and explore newer technologies to address this challenge. Such firms can rely on cloud-based DMS for cutting costs in at least one critical aspect of business, i.e. managing critical documents. Cloud-based DMS presents an opportunity for SMEs to efficiently manage, store, retrieve, and exchange information, in a legally compliant manner. Further, it offers the flexibility to pay a monthly rental fee, depending on the number of users and volume of documents. Such a solution will eventually become an essential component of the overall IT strategy of every small enterprise.

Going forward, some of the future trends that are expected to evolve are rich media handling capabilities, social engagement, search and intelligent user experience, wherein the solution understands the search pattern of people and presents data intelligently when they (users) come back again.

To sum up, all businesses — large or small — need to realize that the challenge posed by physical storage and movement of documents is too massive to ignore. With the emergence of newer delivery models and channels, the time is apt to re-consider IT strategy and align it with the future needs of business. However, one must consider a long-term view of IT roadmap before acquiring a document management solution. Even before beginning to evaluate the various options, companies need to assess their current and anticipated document management needs.

pupul.dutta@expressindia.com

NETWORKING

THE UNSUNG HERO



PANKAJ MARU

Networking technology has covered an enormous distance from simply connecting multiple computers and devices to becoming the backbone of businesses in today's Internet and mobile age





Consumerization of IT, BYOD, VDI and gamification of applications are among things that we have seen in recent years and there's no escaping from these things.

Edgar Dias,
Regional Director and Country Manager - India & SAARC, Brocade Communications



We are seeing radical shifts toward cloud and mobility, with growing presence of BYOD among enterprises.

Sajjan Paul,
Director of Systems Engineering - India & SAARC, Juniper Networks

vendor multi-application environment,” says Subhasish Gupta, Country Manager – India & SAARC, Allied Telesis.

As the networks are pushed for higher speeds, Dias points that from a networking speed perspective, 10 Gigabit per second has become the de facto standard and customers are looking to move towards 40 Gigabit kind of infrastructure in future.

“With the increasing traffic, another key aspect of networking that we are seeing is simplicity, automation and configuration. More and more customers are saying they want to reduce complexity of networks as today, a lot of applications are not on physical instances or hardware but are moving into on virtual environment like VMs (virtual machines) sitting on servers, and so networks need to be virtual as well,” elaborates Dias.

Dias points that networks should be aware of virtualization and be able to automatically configure as well as scale up in a very autonomous fashion.

On virtualization, Gupta of Allied Telesis stresses that concepts like virtualization have become a standard offering from multiple networking vendors and today, it has become an industry standard.

The huge impact of IT has brought new challenges as well for networking. With the rise of cloud, mobility and BYOD, today the demands of high bandwidth and faster speeds are increasingly growing and networks are faced with complex problems and management challenges.

“As an IT manager or network administrator, you are loosing control of the networks as those devices and applications are putting immense load and pressure on the security and performance of the networks,” points out

Paul. More so, he adds that enterprises moving towards hybrid clouds and converged infrastructure further impacts networks to an extent.

According to research firm IDC, LAN and WLAN distinction would further thin out due to increased acceptance of hybrid networking setup.

Certainly, going by the views of networking players, it is quite easy to gauge the kind of changes and impact the networking industry has witnessed over the past years. Importantly, from an enterprise stand point, the technological shift in networking space has a strong connect with the way businesses and organizations are operating today, according to industry experts.

Changing business models

With networking coming under a significant impact and overall changes in the IT domain, the technology is also faced with new challenges that were not present in the past.

Most of the organizations and enterprises today including governments as well as private firms, are trying to reach out to more number of people and customers respectively that are based in semi-urban and rural areas of the country, according to Naresh Singh, Principal Research Analyst, Gartner.

“For the government, its about taking various public welfare schemes and governmental initiatives to masses under a range of e-Governance projects. While for private companies and businesses, it is about reaching to potential customers across India. And so, networks are of high significance and integral for businesses,” says Singh.

From a geographic perspective, Singh points out that India is a very complex, wide (terrain) and tough market to cater. “So networking has huge role to play in

WITH THE RISE OF CLOUD, MOBILITY AND BYOD, THE DEMANDS OF HIGH BANDWIDTHS AND FASTER SPEEDS ARE GROWING RAPIDLY; NETWORKS ARE BECOMING COMPLEX AND DIFFICULT TO MANAGE

MADHUKAR SWAYAMBHU
ZYXEL INDIA

Madhukar Swayambhu, Vice President - Sales, ZyXEL India, talks about the shifts happening in the networking space and ZyXEL's plans

“Quad play is history, consumers now need penta play networks”

Please tell us about ZyXEL's performance in India in 2013 vis-a-vis your market share in the service provider and enterprise space.

We play in all three segments of the market — service provider, enterprise and home users. Service provider or telecom is a significantly large business for us. We work with the large service providers like Tata Communications, TTSL, TTML, Airtel, BSNL and MTNL in the country. For telecom customer, a solution provider cannot offer piecemeal kind of solutions; the offerings have to be comprehensive end to end, in fact core-to-the-customer.

We are the only company in India, which allows the customer to choose the media for their network, as we can build the network on any possible media, be it coaxial, electrical cable, Ethernet, single mode fiber, multimode fiber, wireless, dead copper, 3G or 4G.

Going product wise, we are the number one player in the GEAPON, IPDSLAM and MSAN space. We are still establishing ourselves in other carrier technologies like LTE, GPON etc.

2013 has been a good year for us, we grew by over 200%, and we made incremental business last year in all the three industry verticals including telecom, enterprise & consumer business. Going forward, we expect higher growth.

Software defined networks is the biggest trend in the networking space with driver technologies like virtualization getting more real. What is your SDN preparedness?

I believe SDN at present is relevant to data centers and enterprise networks looking at DR, migration or reverse. For the service providers, it is still bound to layer II. While in India we are still building backbones, SDN is more for mature markets where backbones are in place. It is, however, restricted to data centers and high end enterprise networks.

Rather than calling it an era of SDN, I would call it a period of “penta play”. Interestingly, the industry had long been promoting triple play, comprising voice, data and video communication, but there were hardly any takers. Quad play is history; the customers now need penta play networks. Suddenly, in 2013 we saw the demand for penta play picking up, adding surveillance and



How does ZyXEL plan to expand its footprint in the Indian market?

For us, India is a market for long term relationship. We have been increasing investments in the market and recently set up a new corporate office in the national capital. We are hiring experienced workforce as a part of increased focus on building up more channel partners and system integrators. We also plan to set up a manufacturing facility in the country, but the time lines for this are not finalized yet. In fact, the company has plans to go public in India as well.

cable TV to the voice, video and data networks. This is likely to grow further in 2014-15.

However, it is important to know that surveillance, which essentially is a video component, actually is quite different from traditional video communication. A video conference will at the most last for 2-3 hours, but surveillance will be 24x7. The camera will be capturing and uploading continuously, since the camera will only be uploading and there will be no download, a normal network in such a case will not work.

Similarly, the industry is now heading toward integration of cable to the network where each channel has a different bandwidth, under normal circumstances the network would have collapsed, but well in time, the industry had started rolling out Fiber to the Home (FTTH), which supports such requirements.

Apart from the migration layers, I see little impact of SDN as of now.

10G Ethernet is gradually becoming a norm of the day. How are ZyXEL customers responding to the trend? What are some of the deployment patterns you are observing?

10G Ethernet is definitely happening in India, and one of the fundamental drivers for adoption is the affordability factor. About five years back, while companies like us were busy working on 40G and 100G, the capabilities to deploy 10G did exist, but there were no buyers due to its sheer price factor.

While the companies might be at different levels of IT maturity, they all want to leverage the latest technology. For example, in the case of our Telco customers like BSNL, they might have legacy networks; they were the first ones to deploy GPON and GEAPON. Within their network they have multiple networks. We must understand, for players with legacy networks, rip and replace is not always the way forward. It is important to understand the users that depend on these networks and their requirements.

You cannot just do away with legacy, but look at solutions that can help legacy and new developments co-exist. ZyXEL does precisely that. We have solutions to support data traffic on co-axial and even electrical cables.



Transportation of voice, video and data virtually everywhere through ubiquitous, secure, reliable and high-capacity connectivity can radically transform business operations.

Tarun Kumar,
CTO, Tikona Digital Networks



The networking and infrastructure domain is changing from structured networks and data center setups to cloud services.

KN Phani Raj,
Director and CIO, CriticalLog India



the area of communication or connectivity,” says Singh.

Today's business model is more customer centric than ever before. It's all about reaching to potential customers and users rather than expect them to come to businesses. Internally, on the other side, enterprises and organizations are slowly transforming themselves to the concepts like BYOD, centralized IT resources and application.

BYOD, SDN

BYOD, for instance, is largely a youth workforce oriented concept many organizations are adopting in recent years. With a lot of pressure to reduce operational cost, organizations are also open to allow work from home or anywhere, which has resulted in centralized cloud-based enterprise applications getting being accessed outside enterprises environment.

Concepts like BYOD, SDN, social media and others are adding lot of

pressure on the IT within the organization along with networking. “Networks have not changed but there's high expectations on networks to adopt to those changes in the IT,” says Singh of Gartner.

Singh points out that for instance, SDN offers features like decoupling of software and networking, networking based security, intelligence and programming. He says that such features on networking were unavailable before and that is where managing networks is very crucial today.


Research firm IDC observes that the increased adoption of the BYOD concept in enterprises would ensure the demand for next generation .ac wireless products promising Gigabit speeds as well as associated network infrastructure.

Gupta of Allied Telesis says that managing networks is an expensive affair for large scale companies and organizations, which is where most vendors are trying to make networks that are simplified in nature and less complex. “From a business and

ZyXEL

Only Nature Can Network Better

planning IT for the PLANET



ZyXEL has, ever since the beginning, endeavoured to implement all eco-friendly processes and methods to protect the environment while pursuing its goal of business development. And the mission continues unabated.

GPON/GEPON, MSAN/DSLAM, Switch & Security, Powerline, EoC & STB, 3G & LTE

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Middle Circle, Connaught Place,
New Delhi - 110 001

Tel: +91-11-47608800 Toll Free: 1800-102-9995 Email: info@zyxel.in
Website: www.zyxel.in



Compared to half a decade ago, today most enterprise apps and hardware devices are IP based.

Subhasish Gupta,
Country Manager –
India & SAARC, Allied Telesis



Most organizations and enterprises today, including governments, are trying to reach out to more number of people that are based in semi-urban and rural areas.

Naresh Singh,
Principal Research Analyst, Gartner

GIVEN THE COST PRESSURES TODAY, THERE'S A GROWING ADOPTION AND ACCEPTANCE OF NON-PROPRIETARY, OPEN SOURCE TECHNOLOGIES

customers perspective, networks are becoming highly traffic intensive and need to be in real-time and customers cannot afford to have to any downtime,” explains Gupta.

With networking vendors trying to push SDN-based products to enterprises, Gupta informs, “We are trying to reduce complexities for enterprises through simple and intelligent networking solutions and switches. Our simple intelligent switches are SDN equivalent and helps organizations in networking automation.”

SDN would continue to gain traction as a concept from the vendor perspective however end user adoption would take more time, as per IDC.

Changing role of networking

The role of networking infrastructure has become extremely crucial to support businesses and services. This role is not restricted just to IT, ITeS, telecommunication and media domains but today it is almost becoming omnipresent and ubiquitous in nature, spanning across industries and segments like banking, insurance, financial services, logistics and so forth.

According to Mumbai based Tarun Kumar, CTO, Tikona Digital Networks Pvt Limited, a reliable data network is a mission-critical asset for most enterprises including banking, financial trading, logistics, healthcare and many more.

“The transportation of voice, video and data virtually everywhere through ubiquitous, secure, reliable and high capacity connectivity can radically transform business operations beyond just ERP connectivity. CIOs/CTOs need to look beyond conventional leased line/VPN approach and take advantage of Cloud and connectivity options available,”

explains Kumar.

“The networking and infrastructure domain has changed from structured networks and data center setups to cloud services. Cloud services have caught the market rapidly and is changing lot of dynamics,” says KN Phani Raj, Director and CIO, CriticalLog India Private Limited, a Bangalore based customized logistics services firm.

Sharing the experience from the logistic industry, Raj says that the logistic domain has now evolved from traditional client server technology to cloud-based SaaS or PaaS services and the network infrastructure has moved from x25 network to internet based VPN and Frame Relay services.

“The field force which depends mainly on a 2G or 3G network, still face network issues and the cost for 3G services is still high taking into consideration the amount of field staff in a logistics company. These services have to be more stable and cheaper to penetrate into the domain,” explains Raj, talking about how the network infrastructure plays part in the operations of logistic company.

According to Kumar of Tikona Digital Networks, enterprises are increasingly looking for on-demand provisioning of services spanning across multiple service providers. “Service delivery networks are increasingly using Software Defined Anything (SDx) and virtualization to cater to such demands. Mobile applications are redefining how and where computing takes place,” says Kumar.

“The mobile application client running on an internet-connected device takes a load of computing while the application servers are hosted in an increasingly elastically scalable cloud computing platform. With increasing use of mobile application and cloud computing, Wi-Fi is



clearly emerging as preferred delivery network inside homes and offices,” adds Kumar.

While quality services remain core to businesses and enterprises, it is the networking infrastructure that comes under tremendous pressure to deliver services without getting disrupted due to technical glitches or maintenance based downtime.

All this demands the networking infrastructure to be highly scalable, robust, secured and reliable to meet service demands. And to enhance the networking infrastructure, companies would require to make with investment of sizable amounts.

According to IDC, data offloading to Wi-Fi hotspots would gain traction as the service providers are looking at alternatives to cater to increasing bandwidth demand from consumers. Further, Access and edge routing spend would continue to grow as the service providers would continue to enhance network coverage while 4G service would trigger fresh investments but would pick up with time, the research firm IDC observes.

“Investment in networking infrastructure to ensure there is connectivity across offices is critical. Thus investment in both network

infrastructure and network security plays a key role,” explains Raj.

On the other hand, the evolution of virtualization, SDN, cloud, wireless mobility, 4G or LTE and Internet of Things are pushing networking and network infrastructure to its extreme levels. Such evolution in technology is directly linked to the kind of service demands (both consumer and enterprise related) and costs that are seen in the market today.

Though some of these technologies are yet to mature, Raj of CriticalLog India opines that there is still a long way to go in terms of network stability and reach across India. “Though telecom players are introducing new technologies, the stability and service provided is not in line with the customers expectation, hence failing in lot of areas,” says Raj.

“Consumer services will continue to demand more value (read GB) for money. Affordable and reliable services shall be key. Service providers shall adopt technologies which can lower cost per GB while improving capacity and coverage,” explains Kumar.

Open source technology

Given the cost pressures today, there's a growing adoption and acceptance of non-proprietary technologies also termed as



The increased adoption of BYOD in enterprises would ensure the demand for next-generation .ac wireless products promising Gigabit speeds.

Manoj Iyer,
Market Analyst – Networking,
IDC India



Internet of things would transform business processes, decision making and, essentially, the customer experience.

Gaurav Sharma,
Research Manager – Infrastructure,
IDC India



open source technologies. Off-late the networking industry is moving into open technology and following open standards like Open Network Foundation driven OpenFlow to provide based solutions. However, Singh of Gartner observes that open standards did exist before, but were not moving fast and in parallel with proprietary.

“Open source software alternatives are gaining huge traction in enterprise space. Coupled with cloud services, enterprises shall focus on taking cost advantage from newer technology components while improving security and reliability in their network,” informs Kumar.

Kumar, however stresses that with the increasing complexities in enterprise networks, the need for managed services shall be even more acute. Past many years, organizations have become more dependent on service providers and the concept of managed services has become a standard norm in IT consolidation as well as reducing the overall operational expenses of large enterprises.

Continuing with Kumar's view, Paul of Juniper Networks says that CIOs are looking at reducing the cost of ownership and looking for cost advantage. “Enterprises in next 2 to 5 years will move into an opex model and will be more dependent on service providers and managed services. Large enterprises are looking for data center consolidation and are moving into primary data centers and data recovery (DR) sites,” explains Paul.

Consolidation though has its own downside as Paul points out that the effect of consolidation is like baking too many things in one bucket. “Enterprises are concerned with complexity, network outages, downtime, management and upgrade issues of software and hardware that coming from the service provider's side,” says Paul.

Growing demands

Obviously, with so much rapid and radical changes happening in the technology space over the past few years, there is an emerging demand in the networking segment within the IT domain.

However, from an enterprise

THE IT INFRASTRUCTURE MARKET COMPRISING SERVERS, STORAGE AND NETWORKING EQUIPMENT IS EXPECTED TO REACH \$3.01 BILLION BY 2016, ACCORDING TO GARTNER.

perspective, the demand for networking products and solutions is typical in nature, largely defined by the business needs as well as technology competitiveness. Today, vendors and technology suppliers do understand and value what enterprises and their CIOs are looking for.

Compared to IT refreshment cycles, networking and network infrastructure upgrades takes place every 5-6 years on an average, as per industry experts. Given such extended refreshment cycles, for enterprises, investments in networking technology or related procurements are heavily scrutinized.

According to Dias of Brocade Communications, the BFSI is one of the most digitized and networked vertical because everything happens over the network.

“When you compare verticals like IT, ITeS, retail, manufacturing or any other sector, today from my perspective, networking is the underlined fundamental layer for businesses. In today's time where businesses are running from telephony, videos, voice, mission-critical apps to SAP, CRM and etc., the network is at the heart of the body and you cannot do away by investing in low cost computing,” comments Dias.

However, Dias says that Indian enterprise customers are at par with global customers and points that in today's time, customers are not looking for vendor brands but are looking for technologies and innovations in terms of automation, integration with

virtualization, network function virtualization. These are trends that most CIOs are looking for when it comes to networking technology.

From CIOs' perspective, Dias explains that with bandwidths and networking hungry applications and high data traffic, the important aspect that CIOs need to look for is networking characteristics such as, how quickly can they configure networks in a simple seamless manner and functionality aspects.

Brocade Communications in the enterprise segment is largely focused on storage area networking, Ethernet campus switches and data center virtualization. In India, the company is seeing demands for storage area networking solutions from telecom and banking. For their IT products, there's demand coming from government, IT, ITeS and education sector, according to Dias.

Even Gupta of Allied Telesis points that the networking demands are largely coming from IT and banking verticals, besides that demands are seen in the infrastructure, energy and power sectors as there are several government projects in progress through public private partnership (PPP) and joint ventures.

Meanwhile, Gupta points that most CIOs while procuring networks and networking infrastructure are highly concerned on the total cost of ownership, reliability and scalability as well as automation, so that they can reduce cost of manpower in managing networking infrastructure. Beside large enterprises, Gupta adds that SMBs and small organizations today are also investing in networking.

Though the networking industry is all geared to tap any opportunity that comes its way, analysts are closing monitoring the market sentiment amidst the prevailing uncertain sluggish business environment in global markets.

Overall, the networking market looks tough given macroeconomic scenario and demands are not looking very strong, observes Singh of Gartner. He is of the view that networking vendors will need to evolve to remain relevant in the market. “They will try to support SDN or OpenFlow technology to sell their

products and solutions or will try to bring new technology that can look at fulfilling requirements of customers,” says Singh.

With technology standards getting more standardized today, Singh reckons that for vendors there are two areas to focus on — emerging markets with new technologies and the established or matured markets for technology upgrades related requirements.

Unlike IT refreshments, the networking technology upgrades happening mostly after 5 to 6 year's period, and Singh cautions the market to prepare itself to face tough challenges in the year. “Overall, the market is going through tough challenges with demands on the slower side and technology changing more rapidly than before,” explains Singh.

The IT infrastructure market comprising of servers, storage and networking equipment is expected to reach \$3.01 billion by 2016, according to Gartner. The enterprise network equipment market in India, which includes enterprise LAN and WAN equipment, is expected to grow from \$861 million in 2012 to \$1.2 billion in 2016, estimates Gartner.

ITeS, government, BFSI and manufacturing, besides IT and telecom as potential growth sectors for the IT and networking industry, predicts Singh.

In addition, analysts expect more movements in the area of WLAN, SDN and Internet of Things.

“In WLAN segment of enterprise networking, data offloading to Wi-Fi hotspots would gain traction as the service providers are looking at alternatives to cater to increasing bandwidth demand to take off pressure from their existing network,” says Manoj Iyer, Market Analyst - Networking, IDC India.

“The increased adoption of BYOD concept in enterprises would ensure the demand for next generation .ac wireless products promising gigabit speeds,” adds Iyer.

The overall switch market in 2013 is set to grow by about 0.3% and routing market by about 0.8%, compared to 2012, according to Q3 Enterprise Networking



THE ENTERPRISE NETWORK EQUIPMENT MARKET IN INDIA, WHICH INCLUDES ENTERPRISE LAN AND WAN EQUIPMENT, IS EXPECTED TO GROW FROM \$861 MILLION IN 2012 TO \$1.2 BILLION IN 2016, ESTIMATES GARTNER.

tracker, IDC. However, the more dynamic and the comparatively smaller WLAN market is set to grow by a whopping 36% for the same period, the report reveals.

BFSI, ITeS and government are the driving verticals for LAN segment while manufacturing, construction, media and entertainment are emerging focus verticals. LAN segment is pegged to register a growth of less than 5% year-on-year in 2014 over 2013, estimates IDC.

Further, education, healthcare and hospitality are emerging verticals in the WLAN space where the last mile connectivity is preferred to be Wi-Fi. The WLAN segment is expected to grow in the range of 15-20% year-on-year growth in 2014 over 2013, says IDC.

About SDN, Gaurav Sharma, Research Manager - Infrastructure, IDC India says that every vendor has their own SDN offerings; however, it's more at a conceptual stage and adds that vendors

have geared up as SDN-ready, looking at future demands.

Like big data analytics, Internet of Things is the latest concept popping up in the networking industry. Interestingly, the Internet of Things concept is being driven by different vendors in different ways, say analysts.

“Internet of things would essentially transform the way humans and machines connect and interact. This would essentially evolve to an \$8.9 trillion market worldwide by 2020 (according to IDC) and would transform business processes, decision making and essentially the customer experience. The journey has already begun with an increasing number of cars, machines and electronic devices being plugged into the network,” says Sharma of IDC India.

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ANISH KANARAN
EPICOR

Anish Kanaran, Channel Director for Epicor in the Middle East, Africa and India, answers questions about the differentiators for his company's ERP, the cloud model and the implementation challenges faced by enterprises in an e-mail interview to Sanjay Gupta. Excerpts...

“Cost of ownership of our ERP is one third that of larger systems”

Epicor is a relatively less known name in the Indian enterprise tech space. How are you positioned vis-à-vis other ERP vendors and what are your top differentiators?

Epicor ERP was officially launched in India in May 2011 and we have made excellent progress during the last two years. We have a range of customers, primarily manufacturers, who are using Epicor ERP in India.

While the larger tier 1 vendors have a head-start on us vis-à-vis their visibility in the domestic market, Epicor ERP repeatedly gets a thumbs-up from customers when they compare our product to the competition. So, when we are able to display the functionality and features of the Epicor solution, customers see that it is a product they can rely on well into the future.

Some of our specific differentials include an agile business architecture based on 100% SOA (service-oriented architecture) to help companies quickly adjust to changing business conditions, a modern interface that fits into today's workplace, global functionality to conduct business worldwide and still meet local regulations, and about a third of the cost of ownership compared to larger ERP systems.

One of the other points of differentiation is our aspiration to add a social voice to ERP by integrating status updates, news feeds and broader SharePoint communities to provide an even more powerful tool to achieve best-in-class business performance. These technologies will further empower knowledge workers by leveraging contextual information about them—the environment, processes, communities and various personas employed when interacting with computing technology—to improve the quality of those interactions.

Which vertical segments are you particularly looking at in India?

Manufacturing is the biggest industry segment for Epicor in India. With its extended manufacturing functionality, industry-specific features and a modern and flexible platform, Epicor ERP is the ideal choice for



At one point, ERP implementations were bogged down by too much customization and project delays. How has the situation changed, if at all?

Epicor, with its 100% SOA business architecture, provides customer the flexibility to make business process changes without actually touching the code of the product. This eliminates two problems: one, the product is able to suit customer needs, they can have the product behave the way they want it to; and two, if a new version comes out, they are able to upgrade to it without requiring migration.

manufacturers in India who want to continue to grow their business, both nationally and internationally.

Could you please share details of your on-premise and cloud-based licenses and how is each segment growing? Does that reflect the general trend in the industry?

In a report published by Gartner last year, spending on cloud services is expected to grow 17.7% through 2016 worldwide. Even though there are some variations between cloud services segments, overall the outlook is very positive. Additionally, a rapid growth is also predicted for SaaS based services such as cloud-based office suites and ERP solutions, supported by a strong growth in cloud application infrastructure services, or PaaS (platform as a service).

However, we currently don't see as strong a demand for full fledged SaaS ERP solutions here in India as we see in other countries, such as the USA.

What, according to you, are the key challenges faced by Indian enterprises that have already installed some ERP solution?

Too often, companies are not completely satisfied with their ERP implementation or the system that they have chosen. This is very distressing, considering the positive change that can be initiated with a proven ERP system that is skilfully implemented.

Some of the most common problem areas that can sink an ERP implementation even before it takes off pertain to: understanding of the customer's pain areas that will allow an ERP provider to tailor the implementation to suit the unique requirements; ability of the ERP system to scale with the needs and budgets; enough resources available with the ERP provider for implementation; understanding about the full depth of the product offering; commitment of top management; clarity of project objectives and milestones; and user training.

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**S.C. MITTAL, SENIOR ED
(MANAGEMENT SERVICES & IT),
GROUP CTO, IFFCO, & DIRECTOR,
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GAME CHANGER

**Information technology
can't just align with the
business; rather, the
technology has to enable
and drive the business.
How CIOs use IT can
change the game**

The past 4-5 years have been unprecedented in history when business economics has undergone a major change. As they say, “the fittest is going to survive,” but who is the fittest? Is it the muscle power? Probably not. It is by the knowledge of trade and how fast one adopts the change. Innovation, transformation, optimization, transparency and integrity are the key factors.

Since every organization/trade has a lot of data, one has to churn this data through business analytics to make use of it for the organization’s goal. It is to be converted into knowledge, wisdom and intelligence for business growth. Naturally, adoption of information technology and latest analytical tools are going to be the game changer and so will be the role of CIOs.

Information technology can’t just align with the business; rather, the technology has to enable and drive the business. On the one side, CIOs have to face the challenge of manpower retention, and on the other, fast development in technology and its exposure to business community is demanding more and more from CIOs.

Again, on the one side, CIOs have to continuously learn the requirements of business, and on the other side, they have to continuously upgrade their knowledge of technology by de-learning and learning. They have to play the role of a mentor/inspirer to retain manpower and, side by side, motivate the team to learn new tools and innovate — for instance in analytics — to provide a platform to decision makers for business growth and new avenues. The CIOs have to associate the team with them in all

facets of an IT project, from the conceptual stage through to delivery.

Change management is another threat area for CIOs whenever some new application or technology is deployed. Data protection and continuity of the computing facility are the other major responsibilities.

The new technologies of cloud, big data and BYOD are posing further challenges of usability, security, migration from one platform to another, SLAs, etc. While these technologies are providing a platform to all, particularly the small and middle level enterprises, the technologies are still evolving and getting matured. These technologies can act as a catalyst in business growth and CIOs have to prepare to adopt these technologies whatever be the challenges.

Normally, it has been seen that “half IT educated” users consider themselves as IT experts and put a lot of hurdles in the way IT has to take shape. This results in a lot of customization in the packaged solutions developed on global standard practices, and delivery of “not fully tried” solutions, etc. As a result, half matured solutions are rolled out and the cost of maintenance is going to be quite high in the long run.

CIOs have to possess a lot of persuasion capabilities and patience for understanding the requirement and develop the solution accordingly. So the role of the CIO has to evolve in a multifaceted dimension and is going to be quite significant in the new business dynamics. They have to play the role of a process expert to redefine the process and get involved in implementation of the business strategy.





VIJAY SETHI, CIO AND VICE PRESIDENT - IS & HR HERO MOTOCORP LIMITED

STRATEGIC INNOVATOR

The role of a CIO is undergoing a huge transformation today. Consumerization of IT, changing profile of the workforce (where people now have a very high level of IT awareness), increasing penetration of technologies like social media, mobility, analytics and cloud (SMAC) and trends like BYOD (bring your own device)/CYOD (choose your own device) and “work from home” are having a major impact, not just on the IT landscape of organizations (both big and small) globally but also on the way IT departments are structured and the way CIOs operate. Innovation is a front-runner for all business leaders today and they realize IT (and the CIO) can play a key role in changing the culture of the organization.

The expectations from the IT department and hence the CIO, are very different today from what they were just a couple of years ago. The rate of adoption of technology in companies, is increasing at a frantic pace as everyone within the organization is aware of the value that IT brings to the table. As such, one sees a never-ending list of user requirements and a need to get things at a pace never seen before. At the same time, gone are the days when the project durations ran into years or quarters or even months; today a CIO is expected to deliver in weeks — if not days or hours.

With rapid changes in technology and the growing usage of IT in all spheres of our lives, today the role of a CIO in an organization has become much more strategic. A CIO today, needs to focus on how the organization can use the power of technology not just to meet its goals but also to innovate the organization’s business models and processes — and ensure customer delight and not just “keep the lights on” — while ensuring

A CIO today needs to focus on how the organization can use the power of technology not just to meet its goals but also to innovate its business models and processes



compliance and mitigating all possible risks that emanate from increasing digitization.

In such a scenario, while CIOs do have to deliver value to the organization, at the same time, they need to ensure that the IT function is much more nimble and customer-centric now.

The top 5 priorities of a CIO as I see today are:

- Using the power of technology to innovate; to increase engagement and satisfaction of customers, partners and employees; to reduce costs; to improve productivity and workforce effectiveness; and to deliver value to business.
- Provide the ‘right’ information to business at the ‘right’ time to help the organization become ‘smarter’ and take ‘effective decisions’ and make the organization more agile.
- Help improve compliance levels in all aspects of working of the organization.
- Help improve environment and help the organization in discharging its social obligations.
- Build an IT organization that is contemporary in its skills, approach, thinking and actions and is agile, and have policies and processes that are customer-centric.

For making this happen, the CIO will have to lead from the front and ensure an agile and a customer-centric IT setup. While CIOs need to ensure IT teams have good business knowledge, project management skills and communication skills, they also need to ensure that the IT team’s approach, behavior and IT processes/policies, etc., do not become bureaucratic. The CIO himself/herself will also have to upgrade his/her skills and approach to make it more “business savvy.”



RADHAKRISHNA PILLAI,
CIO, SUPER RELIGARE
LABORATORIES LIMITED

THE BALANCING ACT

CIOs need to achieve a balance between business and technology by collaborating closely with business users and constantly adapting to changing technologies

It is a very challenging time for CIOs right now. CIOs need to urgently realize that if they only focus on the technology space, then there will be no role for them to play anymore in the near future in their organizations.

For example, with cloud computing, mobility, etc., coming into the picture, the decision to adopt these technologies can be taken by marketing and other user departments directly. CIOs need to change their approach towards these technologies. CIOs have to understand the business need so they can suggest the right technology at the right time.

CIOs need to evolve according to the changing scenario, or else they will have limited role in the future. They need to spend more time with the business users — whether it's marketing, sales, finance or logistics. Unless we understand the business and understand business users' pain areas and come up with solutions in which they see value, we just cannot remain indispensable as technology experts. Once a business unit knows that as CIOs we understand their pain areas, the acceptability of the technology is much higher.

Since CIOs have a view of the complete enterprise, they can be called as future business visionaries. From that perspective, they are in the best position to move ahead to higher pastures. However, they need to achieve a balance between business and technology. To create this balance, there needs to be collaboration with business users

and they need to adapt to changing technology. However, if it is not a right-fit for the business, one does not need to push the particular technology.

Presently, CIOs are in a perfect role to drive the enterprise strategy, considering they have an overall visibility in an organization. They also have an insight into each and every function within it. Thus, if a CIO chooses to play a critical role, he very much can. Once in this position, the CIO has to look at topline as well as the bottomline. I firmly believe that CIOs can contribute to improving the bottomline in their businesses.

In healthcare, the CIO community has a different advantage, because in terms of technology adoption, this vertical is still in a nascent stage of consuming technology, except for a few top companies. Compared to other verticals, healthcare has different priorities in technology. In healthcare, mobility is going to play a major role. Cloud computing can also have a major impact, but the challenge of last-mile connectivity will be a problem. However, healthcare delivery can be completely revolutionized in the cloud.

The evolving CIO needs to understand business. If he understands business, then 50% of the work is over. He needs to understand technology in terms of matching it to suit the business needs. He also needs to manage the user group. He needs to act as a change agent. CIOs need to change from being technology leaders to business leaders. Without this transition, there is still a long way for CIOs to go.





VIVEK KHANNA VICE PRESIDENT
- FINANCE & INFORMATION
SYSTEM, HAVELLS INDIA LIMITED

THE JOURNEY OF A CIO

From processing data in secluded rooms to earning a seat in the board room, the CIO has come a long way

During the last three decades the CIO's role has continuously evolved from a technology manager to an enabler and now to visionary. IBM, in one of its studies, has appropriately remarked "CIO: Career is Over? That's hopelessly out of date. Maybe a more modern version might be 'CIO: Careering...Into Opportunities.'"

In the first decade, which can perhaps be termed as the mainframe era, a CIO used to be a hard core technology person, sitting in AC rooms with his machines and team engaged in electronically processing data. Their area of operations were mainly related to repetitive data initially of HR department; later on, as things matured they started capturing accounts data. The objective and focus at that time was to bring accuracy and saving in human cost by removing the clerical jobs.

The role of the IT manager – precursor to the CIO – was predominantly that of an operational manager. With the dominant supplier dictating the pace and direction of application development and procurement strategy, the key task of the IT manager was to implement the new system within time and budget and thereafter to operate it. He needed to be a hard core technical person who could take care of his machines with other normal facets, such as good interpersonal relationships, communication skills, etc.

As the era evolved, more and more financial applications moved into the IT portfolio, including operation accounting. While the level of challenges and visibility of the IT team kept increasing, their head remained at middle-level management reporting to established functional

heads, often the first application champions — the Finance or Operational Head.

In the next era, the computing machines came out of their secluded rooms on the desks of operations persons, bringing IT in the hands of users. Communication technologies with

local and wide area networks and the new IT landscape of client/server computing brought the applications even closer to the users.

This was the era when package software in ERP (Enterprise Resource Planning) came out, covering almost all the requirements of back office and manufacturing departments — accounts, finance, sale, purchase, HR, store, manufacturing, quality, planning, etc. These software have given — and continue to give — a good return to the organizations in the form of efficiency, reduced cost, and improved and standardized processes, etc.

The CIO as enabler

The CIO used to require less knowledge on software development but more of its installation and availability. But with the knowledge of business processes, CIOs have become more effective as they are able to proactively identify the business requirements with the solutions backed by appropriate technology —making them as "enablers." Later, outsourcing of data centers and network management further reduced the requirement of technical knowledge and a good number of successful CIOs came from line functions, mainly from finance and accounts.

Today, IT is more important than ever before, thanks to the digital economy wherein digital technologies have an impact on every aspect of business. New domains have changed the profile of the CIO. He now needs to come up with ideas as to how the current technologies can increase the organization's topline and not just reduce the cost or improve productivity.

So the role of the CIO is evolving in all directions. To be really effective and



CIOS WILL NEED A COMPLETE UNDERSTANDING OF BUSINESS PROCESSES, AS THE ROLE EXPANDS TO INCLUDE PROCUREMENT AND MANAGEMENT OF PROCESSES AND THE FACILITATION OF INNOVATION

successful, he needs to know every aspect of business as well, if not better than, as the domain leaders.

The reporting lines are also getting changed. In the old days, the majority of CIOs were reporting to the CFO as IT was treated as a cost center. This is changing fast and the CIO is now reporting directly to the CEO (around 42% as per IBM CIO Leadership Forum Survey 2006). This is also because IT is now quite pervasive and runs like the bloodstream through the organization. CIOs now spend more time with production and marketing functions, especially with marketing, helping them to create a new customer platform or sales model, thus reducing the proportion of their time with accounts to 50% or even less.

Organizations have started recognizing the CIO's strength as the driver of change, with the capability to create new models for the market. They are increasingly being involved in all strategic discussions. Their deep knowledge of business processes, meticulous thinking and perfection in execution, has provided them a seat in the board room. Such organizations are often seen outdoing the competitors and coming out shining in the industry.

What the future holds

The future role of the CIO is even more wide-ranging, challenging and indispensable than the one that exists today. Dealing with the increase in power and influence within the organization, and the way it affects other C-level colleagues, will demand political skills of the highest order.

Managing and executing IT will remain important but the other skills which have already become part of the



CIO's job will put him in pole position in the race for senior appointments.

Their relationship and partner management skills, which they acquire by handling the complexities and challenges from outsourcing various IT activities, will come in handy in the future.

CIOs always had to be communicators, whether explaining technology in the old days to people who didn't really understand or value it, or alerting colleagues about the business possibilities today. In the times to come, when the CIO will be helping to shape business strategies and drive innovation, communication as a skill will still be important.

They will certainly need a well-rooted technology skill set, but in addition, the expanding and evolving role will demand

high levels of business skills. CIOs will need a complete understanding of business processes, as the role expands to include procurement and management of processes and the facilitation of innovation. They will need highly developed negotiating skills to support contracting with technology and service providers.

With all the above qualities, the CIO is in fact stepping into the spotlight, moving up from a supporting act to taking the leading role, a bigger role where he has the opportunity to showcase his entrepreneur skills. Yes, he is well qualified to take the role of the Chief Operating Officer or even the CEO.

I believe many of the CIOs have reached that stage and soon they will embark upon the next phase of their journey.



SUNIL MEHTA,
SENIOR VP & AREA SYSTEMS
DIRECTOR - CENTRAL ASIA
JWT

CIO TO CEO

Technology expertise makes sure that the CIO is in a great position to drive the organization's strategy the way it is expected to be

Presently, a CIO's role is definitely evolving into that of a business visionary. His role is in the center of an organization, and among all functions that involve technology. Technology is involved in every department or aspect of a business: be it HR, administration, finance, marketing, manufacturing, or procurement.

Any function that you can correlate in any kind of company and in any sector, it uses technology and the CIO happens to be in the heart of the operation. CIOs know exactly what the entire operation is all about. They are the ones who know the entire business, how it functions. They are technology-driven and are, in turn, able to drive the business better. Thus, they automatically learn about the business from every possible angle and get automatically molded into business visionaries.

It is more of a de facto process, but it also requires effort to have an open mind and contribute effectively into helping and enabling each and every department in doing better than what is anticipated. The CIO has to be smart enough to be a business person and do a value-add to each department.

Presently, each strategy across organizations is technology driven. There are two aspects to it. There is one which is a complete business strategy, which is oriented toward sales. However, the enablement of that strategy would be done by technology, technical means or infrastructure that enables managers to pull off the operations. Technology expertise makes sure that the CIO is in a great position to drive the organization's strategy the way it is expected or desired to be.

In my sector, what we were

traditionally, and what we are today, the role has completely changed. Two decades back, it was not very IT savvy. Presently, it is one of the savviest organizations in the world, as a lot is expected from a media company to give any kind of help or value-add to any of its clients. The clients look at us as more IT or digital savvy and we have to be on our toes all the time. Therefore, the CIO's role is much stronger in media companies than it used to be. Currently, my role also involves in helping the business grow, more than just being a technology leader.

The evolving role of the CIO requires that every CIO should have a mind-set which is open. They have to be very supportive of the business and they must communicate about where the business needs to grow to the top team. In the evolving role of the CIO these are essentials. He has to be a contributor more than a listener all the time.

These days, in every forum people are talking about the transition from CIO to CEO. It is a major transformation that people expect. It is because the CIO understands the complete functionality. One does not need to have a complete hands-on experience, but one needs to be aware and CIOs are aware of these functions. However, the transition will only happen if CIOs prove their capabilities. Being CEO is the next best step. If a CIO proves himself in small projects as well as large, then the organization will have faith in his capability—and will let the CIO lead the company and transform it in the digital world. I believe these are the words at the crux in the evolution of a CIO: leadership, vision and growth.





NAZ HAJI CIO – ASIA-PACIFIC & SR. VP – GLOBAL IT CLIENT SERVICES, QUINTILES

BEYOND THE NUMBERS GAME

CIOs are transforming from information officers to innovation officers where agility and decision-making capability are key

The life-sciences industry is highly complex and regulated, wherein the delivery of technology requires deep domain expertise and the ability to understand and navigate regulatory complexities across markets. Given the growing cost of drug development, the need for biopharmaceutical companies to make faster go/no-go decisions, and the pressure to reduce time to market, technology plays a critical role in improving our customers' probability of success. Technology can enable safer trials and help bring valuable new drugs to patients faster and with lower development costs.

Given these realities, the role of the CIO is becoming even more strategic, taking on a leadership role in developing solutions that directly impact business decisions and customer success. At Quintiles, for example, we have combined our clinical domain expertise with technology to develop Quintiles Infosario, which seamlessly integrates data, systems, processes and our therapeutic expertise to unlock faster, better-informed decisions.

As CIO, Asia-Pacific, my role is to ensure that our technology solutions have both the scale and innovation needed to address the evolving needs of our customers. Historically, we have innovated and piloted new technologies in the West. With the technical skills and the appetite for technology that we have in Asia-Pacific, my focus is on driving technological innovation in this region, which I believe is an evolution in the role of the CIO as global organizations expand their presence across geographies. Given the nuances and differences across markets in this region, I am closely involved with regional teams in adapting global solutions to local needs as well as

developing unique, localized solutions.

Partnering with internal and external business stakeholders is another growing need of today's CIO. CIOs have to collaborate more closely across businesses and functions. Developing relationships with industry stakeholders is vital everywhere in the world, but it's even more so in the Asia-Pacific region, given the influence that governments and other stakeholders in many countries have on technology adoption.

Another big challenge is the changing



dynamics of the information workplace. Big data, cloud computing, social media and mobile computing are creating a more challenging role for CIOs. Today the role has extended beyond traditional architecture, development and support models, and investment in capital intensive on-premise infrastructure continues to decline. Over the last few years, we have assembled a highly flexible and adaptive portfolio of clinical applications and patented technologies that are used internally, integrating and then virtualizing them as they are stored in our private cloud. From our cloud, they are available and can be accessed from any device with an Internet connection.

Another evolving trend with the emergence of a younger workforce is the consumerization of enterprise technology. Employees are increasingly bringing their personal devices to work, be it a smartphone or an iPad. Devices and solutions once considered non-standard within the enterprise will grow exponentially in their use. This is forcing organisations to think differently about how they need to adapt and ultimately embrace this technology evolution.

I believe there are challenging and yet exciting times ahead for CIOs. With the rapid pace of technological change, the arrival of the cloud and the realization of the immense value of integrated data and analytics, CIOs are at a very interesting cross-section of technology and business. They need to build an enabling and engaging digital environment for employees, businesses and customers. Their roles are transforming from information officers to innovation officers where agility and decision-making capability are key. No longer will numbers be their only measure of success.



MG RAGHURAMAN,
CIO, MPHASIS

CIO IN A DISRUPTIVE TECH WORLD

The traditional role of the CIO as the Lord and Master of the IT architecture is moving to where the real business action is

The changing role of the CIO is one of the most discussed topics in the CIO forums. More than the changing facets of IT's role in business, it is pertinent to note that business paradigms have been shifting in the recent years. Entrepreneurs weave the IT solutions into the business fabric right from the very start. IT innovation has actually contributed to emergence of radically new businesses and far from being a business enabler, IT has virtually got integrated into business today. There is no new business which is not built on some aspect of IT or the other.

Naturally, the traditional role of the CIO from being the Lord and Master of the IT architecture has changed as well. The CIO slowly and steadily has been moving center stage where the real business of action is. Company branding, business strategies, employee engagement, customer service, new business solutioning and in every facet of the evolving company, IT plays a key role. This phenomenon outlines the ever-growing importance of a CIO and we see them becoming key participants in nearly every business decision.

Today's CIOs face a unique set of trials and tribulations that are in many respects, on par with those of their fellow C-level executives. The present crop of CIOs not only run the business of IT but also simultaneously manage the technology backbone of the business on an everyday basis, while keeping a firm gaze on the future planned on growth, while constantly adjusting to warp speed changes in technology. They are no longer mere CIOs but in actual terms, they are now Change Management Leaders, in command of driving the direction and implementation of IT

throughout their organization.

Most companies have an inherent challenge in dealing with legacy IT infrastructure. Certain trends have been set by the hungry-for-change IT consumers, who are constantly upgrading themselves with the latest mobile applications supported by newer and more powerful devices.

Herein lies the danger for the CIO. Enterprise users have started expecting the same flexibility, ease of use, mobility in their workplace like the IT consumers in the marketplace. But legacy modernization is not so straight forward — not only is there a prohibitive transition cost, but the usual perils of business disruption and possible immediate negative impact on client experience, call for a well-orchestrated change management plan. The CIO's challenge is not embracing new technologies but socializing, preparing the organization and effecting a smooth transition. The CIO has an onus to work towards a phased implementation strategy to accommodate newer innovations which can be quickly integrated with the existing IT infrastructure.

The Mphasis best practice has been a hybrid solution to this challenge. All new applications and solutions are being implemented either through cloud pay-for-use solutions or through modular development architecture that focuses on a framework that is easy to integrate and simple and easy to make changes. This way, we at least stop adding to the complexity of the legacy IT framework. But this is a tough and long journey for the CIO.

One of the key expectations from the legacy simplification and modernization from the CIO is empowerment of the





THE BEST JUDGE FOR THESE INVESTMENT DECISIONS IS THE CIO HIMSELF, WHO NEEDS TO QUICKLY GET A STRONG UNDERSTANDING OF THE BUSINESS INTRICACIES OF THE COMPANY BETTER THAN THE TECHNOLOGY HE IS FAMILIAR WITH

employees, his business leaders and sales teams to do business-related actions significantly faster and with a lot more ease than before.

The way forward

One common question that confronts the CIO: How does he balance the ratio of his budget spend between IT innovation and IT for keeping the lights on? What is he truly measured on?

This question is gaining increasing relevance, what with the nexus of forces of SMAC ruling the business world in modern times. Speed and acceleration in business are measured by the shortness of distance and time between ideation and results from implementation. Without the involvement of cloud and mobility, such speeds cannot be achieved. How does the CIO manage his IT spend to siphon from the hygiene spend to innovation?

Fortunately, while legacy modernization has a heavy cost tag, such IT innovations do not always come with cost. Using technologies for collaboration in the workplace, bringing simultaneity in the organizations by real-time employee engagement, reducing time and effort spent on overhead activities by managers and by enabling decisions while on the run, the CIO can bring in great value with a little tweaking of budgets.

However, when it comes to planning and enabling revenue and business growth, well planned and carefully thought out IT investments would be needed to ensure that the company does not miss the right bus. The best judge for these investment decisions is the CIO himself, who needs to quickly get a strong understanding of the business intricacies of the company better than the



technology he is familiar with. IT solutions cannot any more be a reaction to a business requirement. They have to be proactive seeds for business ideation and solutions.

At Mphasis, the CIO is measured by a single metric — cost of IT over the revenue of the company as a percentage. This is an interesting measure, which requires the CIO to be constantly aligned with the business ebbs and flows, and he should ensure that every dollar spent yields the best value.

In today's dynamic business environment, a CIO's involvement in the development of a company's IT infrastructure in accommodating new technologies will shape the success of its

growth. By significantly driving in business efficiency and agility, a robust unified IT infrastructure will help to equip organizations in becoming highly competitive whilst extracting optimum performance from its people, process and technology.

A key area for a CIO's success is in being seen as a value deliverer to business, and not as a technology support entity. So there is a clear difference between how the business was looking at the CIO earlier and now. Therefore, the value we deliver to business has to be in the form of getting them to do whatever they are doing, only faster. The requirements now are speed, user experience, and IT simplification.



JITENDRA SINGH, CIO
NAGARJUNA FERTILIZERS AND
CHEMICALS LIMITED

STRATEGIC PARTNERS

A few years ago, when CIO designation was created, it did not really make a difference in the basic role of the IT head. Organizations started using the new designation to attract talent, but could not really think of enhancing the role. Till recently, the CIO's role was limited to managing the IT infrastructure, applications, etc.

I'm sure the creators of this role must have considered the much elaborated and enhanced profile, beyond an IT Head, but I sincerely feel that most of the organizations did not really recognize the larger picture and the 'CIO' word became a replacement for "IT Head" designation. For most of them, CIO was supposed to maintain the IT setup — in other words, keep the lights on.

I am saying this because I have witnessed the existence of separate departments like MIS, Business Analytics, Process Excellence, etc., where the respective CIOs had no association to begin with. CIOs were still being expected to just provide what was being asked for, including the reports and dashboards as directed. More often than not, CIOs were the last ones to get information on the business direction.

Some enterprising CIOs, however, could visualize the importance of this new role and started utilizing the inherent definition in the true sense, by participating in business discussions and providing their valuable inputs. The benefits realized by businesses through this active participation led to the beginning of an evolution in the role of a CIO. More and more companies started recognizing and realizing the business acumen of CIOs and appreciated their role beyond the "keeping the lights on" profile.

The ever-increasing dependence on data, coupled with a win-win partnership between business stakeholders and CIOs, fueled the evolution of this role into one of strategic importance

The ever-increasing dependence on data, coupled with a win-win partnership between business stakeholders and CIOs, fueled the evolution of this role into one of strategic importance.

Today, in a matured organizational thought, CIOs are not treated as IT heads only, but are looked upon as strategic partners in business sustenance and growth. Some of the CIOs are treated at par with other CXOs and are an active member of the Board.

Current generation CIOs are handling multiple roles and responsibilities like

strategy, business excellence, etc., and are pivotal to the success of any organization. Businesses have been appreciative about the contribution of CIOs in areas beyond IT and are leveraging on their business process knowledge.

Today, we do not talk about cost incurred in IT, but about business efficiency and benefits. This cannot be solely attributed to the CIOs' efforts. The recognition and participation by business in the journey has strengthened this partnership, resulting in direct impact on growth and sustainability.

Today, CIOs are an active member in strategy and roadmap building for the organization, supplemented with the additional responsibilities like process excellence and optimization.

With more and more basic IT management related areas like data center, application development, etc., moving toward outsourced/standardized/stabilized (cloud, standard applications, etc.) environment, the CIOs have to keep evolving in their role by participating more in the business discussions and decisions. They will have to start thinking (if not already thinking) in business language, instead of being a technology provider only.

A few CIOs have been able to showcase these capabilities and have benefited accordingly by graduating to the role of CEO/COO in certain organizations, thereby opening a path of a much evolved role beyond that of a technology provider.

With constant dependence on data based decisions, the role of the CIO is going to be much more challenging yet satisfying in providing the value expected of them.





**KNC NAIR, GROUP CIO
MUTHOOT GROUP**

DIGITAL HARVESTERS

The explosive changes in IT over the last three decades have greatly impacted the role of CIOs, presenting immense challenges as well as opportunities in today's digital realm

To start within the mainframe computer era, the focus of IT was on automating the business processes and attain speed, efficiency and productivity. The CIO's main role was to set up and keep the systems running with all the information captured, processed and maintained centrally with a high level of security and control.

This has changed drastically with the emergence of client-server technologies, which enabled distributed computing possible at department or business unit level.

The CIO had to face the challenge of integrating the silos of information and enterprise wide disparate systems to achieve required control and ensure data integrity. Again, the Internet and web technologies brought in explosive changes in access to information crossing the boundaries of time and geography which again led to centralization of systems and servers for better control and efficiencies.

Presently, the cycle has come back to decentralization and distributed computing again with the emergence of web 2.0 technologies and solutions. They have tempted the business unit managers to try varied IT products & services directly without going through the CIO route.

This has put the IT team and the CIO in an unenviable position of integrating and securing these disparate systems. It may be a matter of time to realize the pitfalls of this ad hoc approach and return to a holistic approach involving the enlightened CIO with deep enough insight into the business domain and processes.

In the absence of adequate digital literacy among the stakeholders, CIOs

used to face resistance and impediments in the pursuit of e-transformation initiatives in their organizations.

This has changed to a great extent over the last decade with the proliferation of internet and mobile access, leading to consumerization of IT. However, the democratization of IT has brought its own challenges to the CIOs.



IT vendors increasingly target business unit managers pitching their products, which are procured independently by the users. Integration of many such systems and solutions so as to ensure their efficient, effective utilization and adequate security can be a nightmare for the CIO.

The traditional role of CIOs was to keep the systems up and running, managing IT budget and infrastructure, mainly as enablers and facilitators of IT.

In the new environment, he has to cross the boundaries and don new roles of aligning IT with business strategies, change business processes to achieve better efficiencies, innovate and create new IT driven products and services, manage the risks, etc.

He should lead the process change through IT initiatives across the organization rather than waiting for the leads from the business partners.

The new CIO will be the chief of infrastructure, integration, intelligence and innovation in the organization. This will put enormous pressure on him to perform and needs collaborative decision making, changed approach from build to buy for IT applications and solutions to reduce time to market. The emerging mobile workforce, proliferation of applications through web, cloud, social media, analytics and BYOD, etc., will pose big challenges to the CIO's task of centralized coordination and ensuring security.

But this will provide the adaptive CIO with immense opportunities to innovate and proactively address expectations of all the stakeholders to bring about change, competitive advantage, new revenue streams and profitability.

The time has come for CIOs to be digital harvesters instead of tending IT.



FRANCIS RAJAN, CIO
BANGALORE INTERNATIONAL
AIRPORT LIMITED

THE NEW AGE CIO

The role of the CIO has evolved over a period of time, from being technology-centric to more business-centric

Many CIOs like myself have had an opportunity to see a paradigm shift in how IT has shaped business and, consequently, the role of CIOs as well as the role of the IT department—from the 1980s to the current date. So within our own professional carrier span, we have seen the transformation of the role of CIOs and the challenges for the CISOs.

If one rolls back the clock, even in the 80s, we did witness the long wait list to get landlines and to get point-to-point data circuits. Fast forward to today, the monopoly has given way to competition and also the technology has shaped up for faster realization; it enables anytime, anywhere access and always-on connectivity.

The way to transact business has changed so dramatically, one could safely say that technology per se has been the game changer — to influence the pace and impact of change in how an enterprise works and how its ecosystem of partners collaborate. Consequently, this has shaped the new role and responsibility of the new age CIO.

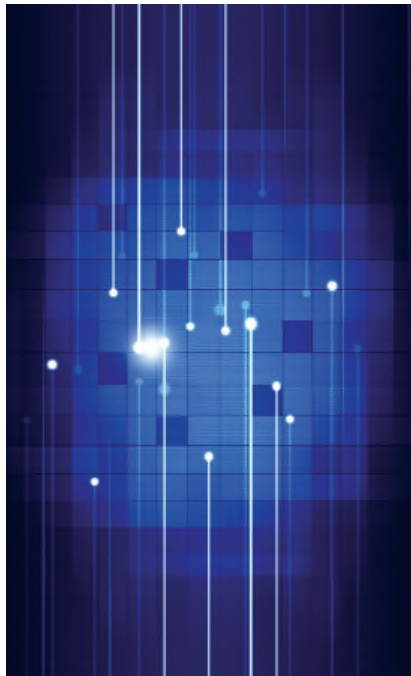
CIOs like me have walked the IT space of 2 to 3 decades with the mainframes, dial up and slow speed modems and low bandwidth with CRTs; and we are now seeing the transition to desktops, and then laptops with digital and high speed routers and Internet et al. The technology overdrive and the churn that happens has indeed impacted life styles of people and the work practices and consequently, the way the current day CIOs need to handle the pressure points in much lesser time frames.

The mobiles and pads and phablets and touch screen laptops are all competing in the workplace and it is a

tough call for the CIO, to decide which would be the ideal platform and form factor to sustain corporate apps and mobile apps. With BYOD or CYOD of enterprise procured and managed devices, the complexity of satisfying staff in the workplace is very challenging. With big data, cloud, virtualization, mobility, social networks and Internet of Things all competing for space, with the current day business leaders seeking a direct participation in services, the current day CIO sometimes is forced on a tight rope walk to balance business interests and technology roadmap conceived for the enterprise, and of course, the limitation of budgets hanging as the proverbial sword over the head.

The ecosystem has more interplay than at any time with enterprise business and time to market and for the enterprise to be competitive and turnaround times that are shrinking. As innovation and technology largely shapes the roadmap and sustainability of the enterprise in the market place, the current day CIO needs be a positive thinker and a good strategist. He needs to have a full understanding of business and the market forces to bring to the table, to leverage innovation and technology for an accelerated growth and customer experience. Agility with leading edge technology and an open mindset with a reasonable risk appetite is the hallmark for today's CIOs.

Like CIOs, the role play for CISOs has also equally become too challenging. In the earlier era of closed networks, areas of incursion was reasonably identified and ring fenced. But as we have passed through the decades, IT security challenges have equally grown. The business needs today, anytime and anywhere access,



THE CURRENT DAY CIO SOMETIMES IS FORCED ON A TIGHT ROPE WALK TO BALANCE BUSINESS INTERESTS AND THE TECHNOLOGY ROADMAP CONCEIVED FOR THE ENTERPRISE



with commercial transactions being carried out using internet and now through mobiles as well. Both customers and the current day staff expect social networks to aid business and business interactions. This consequently is creating a challenge to allow at the workplace, ready access to social networking sites which were a taboo in the enterprise access policy! Now, the CISO needs to figure out how to ring-fence servers and applications, and yet allow the enterprise and customers to be seamlessly engaged.

In today's world, the severity and the spread of security attacks on the customer and enterprise data is fraught with very tough calls and challenges to manage. We do witness even so called secure networks and enterprises having been compromised, and have witnessed a large number of credit cards details or mails and data files being stolen, We have also seen enterprises, customers and sometimes even the government getting compromised because of security breaches.

The threat to the IT landscape for an

enterprise is always real and out there. People strive to break in for different reasons and triggers, and no CISO can safely say that there would be no breaches to worry for the business. Many enterprises are yet to have IT security as a practice and with the complex security requirements, this discipline needs a focus from the corporate with adequate budgets and engagement of executive management, to give the support that IT security practice demands. IT security NOC needs to be in place with an active 24X7 monitoring.



ASHISH CHANDRA MISHRA,
CISO, TESCO HSC

THE NUANCES OF SECURITY

Sophisticated and advanced techniques by hackers has caused the role of a CISO to become more strategic and nuanced than ever before

In today's hyper-connected world, information security has become a vital aspect of business processes. However, in the context of changing business environments and advanced networks, security threats loom large. The use of sophisticated and advanced techniques by hackers is a reality that has caused the role of a Chief Information Security Officer (CISO) to become more strategic and nuanced than ever before.

In the past, CISOs came from varied backgrounds and moved up the ladder through IT or business ranks. This has changed considerably and CISOs today are expected to be deeply entrenched in their domain in addition to laying out the IT framework of an organization. Their remit now is to place information security high up in the strategic agenda vis-a-vis treating it as a mere compliance requirement. The role demands translation of complex information security concerns into easily understandable solutions, in addition to driving engagement across the organization in an effort to manage risks.

The role of a CISO varies in different organizations, but in essence they are responsible for the following:

- Defining the strategic direction of the organization's information security programs while simultaneously developing security policies and procedures that provide adequate business application protection, without interfering with the core business requirements
- Managing security, risk and compliance matters centrally
- Balancing security needs with the organization's business priorities, identifying risk factors, and determining solutions for both

- Designing the security awareness program focused on changing behaviors and monitoring trends
- Establishing the corporate investigations program including computer and mobile forensics, loss prevention, fraud risk management, and privacy issues
- Owning crisis management and centrally coordinating the business continuity plan for the organization

Types of CISOs

The role of a CISO depends on the internal dynamics of the organization. Depending on the size and culture of the organization and the perceived importance of security, CISOs have different areas they could specialize in; though some organizations have CISOs performing all the roles

- **A Technical Information Security Officer** specializes in resolving technical security issues, operations and monitoring. He also coordinates and manages technical policies, control and assessment activities
- **A Business Information Security Officer** specializes in information security issues related to the business, such as how to securely implement customer-facing technologies and how to appropriately protect customer data. His main role is to ensure that the business unit understands that information security is a business requirement like any other
- **A Strategic Information Security Officer** specializes in translating high-level business requirements into enterprise security initiatives and programs that must be implemented to achieve the organization's mission, goals and objectives. He is also responsible for metrics, dashboards and executive



CISOS TODAY ARE EXPECTED TO BE DEEPLY ENTRENCHED IN THEIR DOMAIN IN ADDITION TO LAYING OUT THE IT FRAMEWORK OF AN ORGANIZATION

reports, and for presenting assessments of the state of security in the enterprise to the board of directors.

A significant part of an ongoing requirement for new-age CISOs is to stay updated with the latest trends in information technology. These include:

● **Data Security:** This is a main concern for organizations given the imperious growth of enterprise mobility, collaboration technologies and social media; data security threats are poised to grow in the years to come. The CISO will constantly be surrounded with the concerns of protecting the network and infrastructure from both external and internal threats

● **Mobility:** Mobile technology and application development are the fastest growing segments in the IT space and hold enormous potential for the future. The CISO will be tasked with the enormous yet very pertinent task of verifying device vulnerability, presence of malwares, access control to avoid data leakage, remote wipe of company data for lost or stolen devices, etc. to ensure BYOD does not stand for Bring Your Own Disaster

● **Social Media:** Social Media consists of various user-driven (inbound marketing) channels and poses a huge risk to the organization's infrastructure, intellectual property and government regulations. The onus lies on the CISO to quickly identify and capitalize on the emerging opportunities presented by social media while appropriately managing the associated risks

● **Cloud Computing:** The new computing paradigm brings with it grave challenges for the CISO. Before implementing a cloud based environment, he has to primarily perform thorough due diligence. For



example, clear visibility of where the data is and how it is separated from other data, choosing a service provider, where the service provider will process and store the data, and who will have access to it, what data to move to the cloud and what data to keep on-premises, for audit, assessment, and verification

● **Big Data:** Collection of sensitive and mostly unstructured data-sets by the organization, more commonly known as big data, and managing security of this big data is a CISO's responsibility. Specific aspects of this include granular

access control, real-time monitoring, privacy-preserving data mining and analytics among others.

In essence, against the background that security is fast becoming an issue that cannot be ignored, the CISO has to constantly re-invent himself and cultivate nuances that navigate the complex IT environment he is operating within. If organizations are to up the ante in terms of the technologies they are deploying, the role of CISOs will need to be expanded to manage the related risks as well.



SUNIL VARKEY, CISO
WIPRO

EVOLUTION OF THE CISO

The CISO role has evolved from a back-end technology professional to a senior management exec and a customer-facing business enabler

During the early 2000s when threats were limited, with slow propagating malware and well defined perimeters, security was all around security control products like antivirus, IDS and firewalls. Post the adoption of these basic security technologies, and security professionals getting to be routine security admins, came the wave and quick adoption of standards and certifications like BS7799, CISSP and CISA. This was a stepping stone for most of the core technologist and EDP auditors to be security professionals with broad and matured understanding of various domains in security management.

Proliferation of laws, acts or standards affecting security, such as GLBA, HIPAA, SOX, ISO 27000 and PCI-DSS, increased the demand for security professionals and provided greater exposure to matured business processes.

While risk (IT) needs to be owned and residual risk based on the enterprise risk appetite accepted by business units, information risk/security function needs to engage with business to make sure that they are assessed from a business, information and technical view point, communicated and understand the residual risk after control decisions are made. This helped security professionals to transform and adapt to the role of IT Risk Management also.

There exists a conflict between risk management and information security program principles. Risk management focuses on balancing risk while the latter focuses on securing information assets. CISOs will need to deal with this conflict and strike a balance, in order to carry out responsibilities successfully.

Keeping pace with dynamic, very sophisticated, coordinated, multi-staged,

multi-vector cyber threats and adoption of cloud, BYOD, and crowd sourcing, among others — along with existing legacy applications and new global collaborative business models — requires a high degree of technical expertise, experience and business acumen. This mandates a CISO to be a continuous learner and extremely adaptive to the changing dynamics.

Privacy rights, need for higher transparency and evolution of various statutory, regulatory, federal and state laws related to information privacy control grew considerably in recent years. Traditionally, legal departments were responsible for privacy-related activities, but with the

higher movement of data media from paper to digital, the controls required to ensure protection of digital privacy were in line with the controls required to protect any sensitive information — so the privacy function moved to information security in most organizations.

As a technical SME resource function, the reporting was mainly to IT managers/department and then the reporting has moved to CIO, CRO, CFO, CEO or the Audit Committee/Board, depending on the functions handled, segregation of duties and the maturity of the function in the organization.

The key responsibility of a CISO is to translate business and regulatory requirements into policies, standards and related controls to assure compliance and measure it continuously. Broadly the CISO has the functional responsibility of information risk management, governance, compliance, privacy, information assurance, IT infrastructure protection, threat intelligence, business continuity, IT audit, third-party/vendor risk assessment, fraud prevention, and security awareness creation.

To manage this functional range, the person should be well versed with business, technology and legal perspectives.

Information security is an interesting domain to build your career if you are good in managing a wide range of constituents with high expectations, adaptive to extremely dynamic environment/landscape, quick in response, passionate about the subject, continuous learner, metrics-oriented, and treat every experience and mistake as a new learning. It also requires you to have no strong ego, else you will get burned out quickly.





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Despite a defying year, 2014 to see bags of tech investment: IDC



THE INDIAN ECONOMY is going through a challenging phase with high inflation and a slowing growth. This coupled with the upcoming national elections has created a temporary slow-down of the broader economy.

Despite these challenges in the government segment, the broader market in India has shown resilience and has stabilized when compared to tumultuous phases in 2012 and 1H 2013 said IDC in a recent release.

According to the research firm, Companies have been spending (albeit with caution) on upgrading their IT and communications (ICT) infrastructure in order to deliver stronger value to the business. Many organizations are using the tight budgets to review and rethink the areas of investment and the modes of engagement with their technology vendors and partners.

“2014 will finally see the India IT eco-system begin a serious transition to the 3rd platform technologies of cloud and mobility, and to a lesser extent big data, and social. IDC predicts the influx of cloud and enterprise mobility technologies along with the associated

changes in architecture and IT management processes,” said Jaideep Mehta, Vice President & Country General Manager, IDC India.

“From a vendor perspective, it will continue to be a challenging environment as the general elections put a stop to government procurement, and the enterprise sectors remain cautious in their spending,” he added.

Based on these broad trends and the ongoing interaction with the market, IDC has identified the top 10 predictions for Indian ICT marketplace.

1. Integrated solutions– Solutions (from applications to silicon) will start becoming an integral part of discussions and strategy of all major hardware vendors, initial implementations and case studies will define the value proposition.

2. Automation– The automation of hardware management will continue to drive differentiation between hardware vendors. This will enable true ROI discussions.

3. Mobility– Increasing business process enabling and vertical aligned applications will drive the mobility wave.

4. Cloud– Adoption of cloud services will see a new life and greater momentum in the context of application/feature upgrade and application modernization. The influence of the business managers can be expected both in the selection of the solution and to ensure future alignment to business.

5. Security– with wider collaboration outside the enterprise, secure sharing of information and being prepared for vulnerabilities will gain more attention.

6. Smarter channel partners – OEMs and channel partners will get “Smart” to supplement shrinking IT hardware revenue.

7. Blurring Lines – Lines between SI’s, VAR’s & ISV’s partner types will get increasingly blurred as these companies try to broaden their value proposition.

8. Modernization– As increasing focus on business managers falls on applications (to drive efficiency, and industry specific compliance) there will be strong but selective investments in application modernization.

9. Repeatable Solutions– Many of the large services vendors that have traditionally focused the very large (1000+ employee) segment will start building repeatable solutions for mid-size companies.

10. Sourcing – Smaller services partners and/or smaller services engagement will drive the mindset of organizational sourcing strategies as many services contract come-up for renewals.

Despite the fact that 2014 will be a challenging year; there will be pockets of investments across multiple industry segments. These segments/pockets can be primarily defined by the maturity of the organization and willingness to strategically embed IT in the business processes. Time invested to identify these segments and the dynamics associated with each of the segments will ensure success for technology vendors and service providers.

Netmagic expands security services portfolio jointly with Imperva

NETMAGIC, RECENTLY ANNOUNCED its partnership with Imperva Inc. Imperva, an enterprise security provider, offers a new layer of protection designed specifically for physical and virtual data centers, and it's for first time that the company is offering its Web Application Firewall (WAF) platform in India.

Based on Imperva SecureSphere platform, Netmagic has invested and jointly developed a cloud-based service SecureAT, that will be offered as part of its managed security services portfolio.

Commenting on the announcement, Nitin Mishra, Senior Vice President – Product Management, Netmagic said, “Imperva is unparalleled in the Web Application Firewall (WAF) segment globally and we are pleased to have forged this alliance with them. The WAF platform is now imperative in Indian enterprises’

highly complex threat landscape and with this announcement, we have the first-mover advantage in the market.”

“SecureAT has already seen adoption in the Indian enterprise space — a leading global telecommunications company and a leading bank headquartered in South-East Asia have already deployed the service,” added Mishra.

“With its booming economy, India is a hotbed of activity. It's only natural that data security is a critical concern for organizations here. Our partnership with Netmagic will extend the power of our comprehensive data center security solutions to Indian enterprises, so their data and their customers' data will be secure and accessible,” said Stree Naidu, Vice President - Asia Pacific and Japan (APJ), Imperva.

SecureAT will be offered with

Netmagic services which include security-as-a-service, high availability of the service, bundled security operations center (SOC) support and short deployment cycle.

The solution will also include Imperva's ThreatRadar Community Defense, a crowd-sourced threat intelligence service that aggregates and validates attack data from WAFs deployed globally, to protect against hackers, automated clients, and zero-day attacks.

“The value proposition that we offer with SecureAT is the huge savings for enterprises. Deploying the WAF platform over cloud instead of a dedicated in-house implementation can save as much as 40-50% in TCO over a 3-year period, in addition to the benefits of ease of deployment with zero downtime,” added Nitin.

Tech Mahindra to manage IT infrastructure for Volvo Car Group globally

TECH MAHINDRA LTD, recently announced that Volvo Car Group has selected the company to provide end-to-end IT infrastructure support and services in key countries globally including Sweden, China and Belgium.

The scope of the partnership which was signed in February covers 2,800 servers across Volvo Cars' regional offices, global factories, global datacenter, R&D and manufacturing IT. The service also covers 4,000 factory devices in Sweden, Belgium, China and 30,000 end users and their work devices, including parts of the Volvo Cars dealer network.

The partnership also encompasses application maintenance and development, including the introduction and management of a hybrid cloud



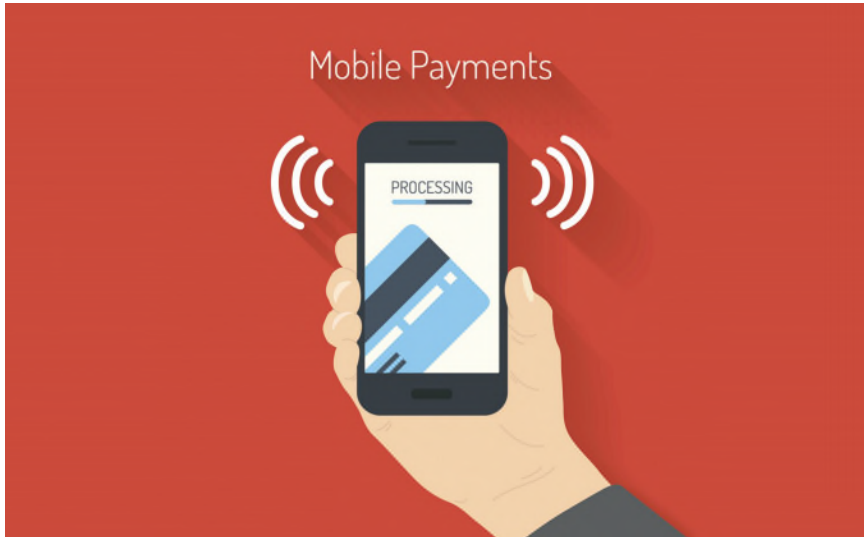
strategy, viewed as ‘transformational’ by those close to the project.

Key business objectives for Volvo Cars include operational excellence, delivering key projects successfully to support growth and business value realization.

Vikram Nair, Head – Europe (Enterprise), Tech Mahindra, said: “Volvo Cars values and goals strongly

emphasize ‘reliable products and services in all operations, from product development and production, to delivery and customer support’. The vision outlines IT as a competitive advantage for all Volvo Cars business units. Tech Mahindra is excited to be supporting and sharing that vision for quality in each business area.”

Volvo Cars will be supported by Tech Mahindra's Infrastructure Management Services (IMS) practice team. It provides holistic Infrastructure Management Services across data center, end user computing, networks, security and IT operations management to over 190 customers across industries including Telecom, Banking, Manufacturing, Insurance, Retail and Healthcare.



Mahindra Comviva launches mobiquity wallet platform

MAHINDRA COMVIVA, A global mobility solutions provider has announced the launch of its mobiquity wallet, a cutting-edge digital wallet platform. This is amongst the first of its kind fully integrated digital wallet platform that supports NFC, QR codes and Bluetooth Low Energy (BLE).

The mobiquity wallet is designed to offer a secure, easy to use and feature-rich digital wallet solution that works on multiple connected devices. It provides support for personalization, multiple value-added services and payment methods to enrich consumers' path to purchase.

Speaking on the occasion, Srinivas Nidugondi, Senior Vice President and Head - Mobile Financial Solutions, Mahindra Comviva said, "Consumer needs are constantly evolving and we are proud to launch a digital wallet solution that focuses on consumer experience and purchase journey for payments.

mobiquity Wallet aims to deliver a connected experience to the consumers and is designed to support a large and complex ecosystem."

mobiquity wallet leverages enabling technologies such as NFC, QR code and BLE for enhancing user experience by offering context aware payments. It bundles location based promotions, automated coupon redemption and loyalty card selection during checkout enabling single click payments. It can support integration into a merchant's existing mobile application or web portal through checkout or allow in-app shopping by simply integrating into the merchant's ERP.

"Our mobiquity wallet will allow businesses to re-engage and connect directly with their consumers, drive growth, and deepen their brand image by staying relevant to the change in markets and behaviours'," added Srinivas.

Tata Comm, SafeNet offer cloud based multi-factor authentication

TATA COMMUNICATIONS, HAS entered into a partnership with SafeNet Inc., to provide cloud-based multi-factor authentication as a managed service — globally. Claiming to be a first-of-its-kind service in India, the cloud-based delivery model will enable businesses to implement an additional security layer that verifies the legitimacy of a transaction and secures access to corporate networks.

The cloud-based multi-factor authentication will offer both hard and soft token authentication, creating a layered defence system, which promises to make it more difficult for unauthorized personnel to access a computer system or network.

Srinivasan CR, Vice President, Global Product Management, Data Center Services, Tata Communications said, "Our multi-factor authentication service gives customers easy access to a customizable cloud-based model, which is hosted in Tata Communications highly connected global data centers. The increase in the number of powerful end-user devices, coupled with intelligent and networked applications, makes secure access a vital ingredient to anytime, anywhere access for employees, partners and customers."

Multi-factor authentication is delivered via tokens that generate a constantly changing key code that is used in addition to the usual static password. The token provides a supplementary layer of security as only authorized users are provided with these tokens. Based on the user preference, the tokens can be installed on computers or mobile devices. Tata Communications will support this process with a 24x7 helpdesk.

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