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EXPRESS COMPUTER

INDIA'S FOREMOST ENTERPRISE IT MAGAZINE 1-15 JANUARY, 2014, ₹75



E-GOVERNANCE, THE APPS WAY

How the
Government of India
is reaching out
to citizens through
mobile apps

DELL GOES SOFT

The company shares
its software vision

OUTLOOK 2014

CIOs and senior industry execs talk about technologies that
will have the most impact this year



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COMPUTER

INDIA'S FOREMOST ENTERPRISE IT MAGAZINE

edit
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KEJRIWAL & CO.



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INFORMATION
TECHNOLOGY
HAS A KEY ROLE
TO PLAY IN
MAKING THE
GOVERNMENT
TRANSPARENT

Before you jump to any conclusion from the headline and dismiss this article as one of those snarky pieces, let me clarify.

That Arvind Kejriwal is the man of the moment is doubtless. Love him or hate him but you just cannot ignore him, what with honest intentions wrapped around the guy as snugly as his muffler.

The & Co. element is what needs elaboration. For one, the company of politicians has been mired in greed, abuse of power and opaqueness for so long in this country that people are simply incredulous when a Kejriwal comes out of nowhere and quickly launches several pro-poor measures. "There must be some grand design behind it," say some. "How can he take the support of a party he has been calling corrupt?" aver others.

Whether the Delhi government lasts or leaves good stuff that lasts will soon become clear. But there is overwhelming evidence that the proverbial common man is indeed getting disillusioned and disgruntled after being taken for a ride by the political establishment.

Two things will be critical in Kejriwal's experiments with the political truth (besides proving his own honesty again and again, the clamor for which is not going to let up). One, whether the company he chooses to keep (not Congress but the AAP folks) will continue to be in sync with his ideas of governance (the & Co. element, again). Two, whether more government actions will be brought into the public domain, making transparency the hallmark of a new era in the world's largest democracy.

In the second thing, transparency, information technology will play a key role. In the past couple of years, India has seen a surge in online opinions shaping the political discourse. Alongside, various e-governance measures—which, by their very nature, must make things more transparent, besides easing the pain out of the system—have been in different stages of implementation.

To cite but one instance of the power of such measures, just think of the impact that putting FIRs online and making them accessible to citizens as well as judiciary can have on the creaky, harrowing justice system of the country.

Once information is unleashed by technology tools and once the rule of law puts the fear of wrongdoing in the hearts of what-I'm-afraid is an alarmingly growing crop of rapsallions in this part of the globe, it would be quite possible for more honest-minded folks to join forces with the Kejriwals of the world. Or start similar movements, political or otherwise.

As we have seen, this is already happening. Let's hope it keeps happening to take the idea of an equitable, progressing nation to a welcome conclusion.

Happening New Year 2014!

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E-GOVERNANCE, THE APPS WAY

The Government of India is taking the necessary steps to build an e-gov app store and mobile service delivery gateway for better e-services

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MD, Riverbed Technology India

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Amit Luthra
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'MOSTLY CLOUDY' SEASON

Srinivas Tadigadapa
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NAS TO GET STRONGER

Subroto Das
Director - India and South Asia, Western Digital



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Trends that matter



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**PHOTO
FEATURE**

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COLUMNS

Glimpses of the **Future**

What does the year 2014 hold for the enterprise technology domain?

Will the buzz words like big data, mobility and social media remain, well, buzz words, or will they morph into something more concrete?

Which technologies are likely to have the most impact?

Express Computer asked a cross-section of CIOs, other IT decision makers and senior industry execs. Here's what they foresee

OUTLOOK 2014



SANJAY PUROHIT

Senior VP and Global Head, Products, Platforms and Solutions, Infosys

By all accounts, 2014 will belong to the SMAC stack. Based on CXO conversations, we see a 10% increase in the number of enterprises using at least one cloud platform. More than half of enterprises worldwide will integrate cloud budgets into overall IT spending. We also expect 30-50% of enterprises to clearly articulate their cloud roadmap.

Analytics will progress beyond establishing obvious relationships among data to uncover new and unexpected correlations. Big data will also spell the end of master data management in analytics.

On the mobility front, enterprises must wake up to BYOD reality. They should also consider mobile application management to secure only corporate apps and data to preserve user experience.



PRASHANT GUPTA

Head of Solutions, India, Verizon Enterprise Solutions

In 2014, we expect to see a sharp focus on how enterprises and governments use technology to enhance customer experience and enable innovation. Enterprise success will be measured by how well organizations can use technology to meet user expectations and harness innovation.

Key trends in 2014 will include, M2M as a service, which will overcome issues that have previously prevented organizations from fully embracing M2M. Also, with cyber attacks becoming more sophisticated, hiring executives with relevant skills will compel organizations to demand a substantial increase in security investments. Lastly, organizations will use cloud for more than just development and testing.



BARUN LALA

Director, Storage, HP India

Businesses today are demanding faster access to new applications, transparent mobility of data across systems and scalability to support an influx of new data types and sources.

In 2014, we expect organizations to move towards converged storage solutions, designed to eliminate fragmented complexity and replace it with a single approach to storing, protecting, and retaining data in all forms. The next generation of storage will enable greater agility by boosting utilization and providing federated data mobility. It will save time and reduce complexity with common, open management that is cloud-ready. It will deliver more value for better decisions through intelligent integration into analytics software.



SANTHOSH D'SOUZA

Director - Systems Engineering, NetApp India

In 2014, enterprises will turn to horizontal scale-in and unification of storage platforms to manage growth without adding complexity. The lines between storage networks and IP networks are blurring. Vertically scaled monolithic storage will start to go the way of mainframe and RISC/UNIX computing in the server marketplace. The desktop will become increasingly

virtualized as enterprise mobility and BYOD become important parts of enterprise IT strategy.

Software defined data centers are emerging as a strong trend in the industry and software defined storage is going to be of big interest in 2014. Indian enterprises have begun to realize that smart unified storage systems are a practical solution for handling very high data volumes.



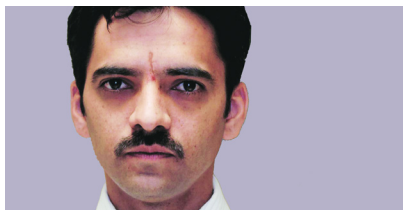
RAJAT SHARMA

President – IT,
Atul Limited

In my opinion, technology trends that will have the most impact in 2014 include mobility and the convergence of computing and proliferation of services platform. The major concentration of mobility has been on MIS, BI and line-of-business apps that integrate processes, products and people by bringing more sophisticated functionalities and

enabling access to enterprise software and infrastructure.

There's a paradigm shift in the IT landscape, as there's more penetration of the services platform — be it on the sales, business analytics, multi-tenancy of applications, or virtualization. There are a host of services being offered on a pay-as-you-use basis, which is proving more beneficial to enterprises.



HARSHA KODNAD

AVP & Technology Architect,
Tally Solutions

In 2014, connected world, electronification of money (e-payments), the post-PC era, big data and analytics would be the technology buzzwords.

With the connected world and discovery of 4G, there has been expansion in bandwidth, making data transmission faster and better. Also, with innovative payment gateways adopted by banks, public sector offices and e-friendly RBI guidelines, we are heading towards a cashless society.

Today, the continuous digitalization has resulted in huge chunks of unmanageable data. Going forward, technology shall enable analytical processing to convert this data into useful information. Most importantly, this information would be available to all enterprises beyond their walls.



SUBHASISH SAHA

Chief Technology Officer,
Apeejay Surrendra Group

I think retail is one industry that will witness data explosion. In the past, storage was expensive but with hardware cost coming down, things have become much simpler.

While the cost of hardware has come down, the storage usage patterns have changed tremendously. Access to data now needs to be in real time. For that, enterprises will need to invest in technologies that support that.

SSDs are therefore coming up in a big way. In 2014, the penetration of SSDs is bound to increase. Backup consolidation will be a highlight in the upcoming year.



PRATAP GHARGE

President & CIO,
Bajaj Electricals

Data volumes are growing at an unprecedented pace, and this growth is not unique to our industry. Enterprises across

verticals are upgrading storage. However, the environments are getting complicated with some applications being on premise and the rest being on cloud. To an extent, the volumes part can be taken care of with technologies like deduplication; the real challenge is in managing the storage silos, which now the industry is looking at resolving.

A lot is being talked about software defined storage (SDS), which has already become a reality for several organization like ours. In 2014, we will see greater adoption of SDS



SWAMINATHAN K

Vice President, Robert Bosch Engineering and Business Solutions

Among the big strides being made in various technologies relating to enterprise applications, mobility is the number one topper with an ever-expanding scope of possibilities. Mobile apps will in due course expand to field functions and to even routine jobs of executives due to the sheer ease of use and compactness of user-infrastructure.

Analytics as a topic is gathering momentum in India and will see further increase in focus over the next few years. On-the-fly analytics and predictive analytics will be the biggest thrust areas for technology to ramp up and deliver. This means that a combination of mobility and analytics – mobile analytics – will be the next big thing.



GIRISH NAYAK

Chief – Service, Operation and Technology, ICICI Lombard

The top three technology trends in India in 2014 include 'digital convergence,' 'data, data and data,' and the 'Internet of things.'

With BYOD becoming almost mainstream and a plethora of connected devices, every business and process is going digital, leading to digitization, resulting in software-defined technologies (network, virtualization, storage and infrastructure) and the emergence of IaaS.

While huge data (structured and unstructured) volumes are getting generated, enterprises need to ask questions around right data collection, its storage and security, data exchange and can it offer predictive insights for the organization.



YATEEN CHODNEKAR

Group CIO, Writer Corporation

The three top technologies that will have the biggest impact on enterprise computing in India in 2014 are new age

IT (which includes big data, cloud, analytics, social media), applications for mobiles and tablets, and the Internet of things.

The CIO is replacing success metrics to gauge project management "from time, cost, and resources" to "value, capacity and time-to-market metrics". Enterprise apps with improved JavaScript performance will begin to push HTML5 and the browser as a mainstream enterprise application development environment. In 2014 the Internet of things will move from hype to reality.



BOBBY JOSEPH

Country Director, India and Middle East, Plantronics

In India, UC solutions are being increasingly adopted by larger enterprises that have multiple offices spread in different geographies, and where collaboration

between teams across locations is extremely critical for the business. With the UCaaS (Unified Communications as a Service) market starting to take off, in the next few years, SMBs would get an opportunity to leverage these solutions within their limited budgets. Also, the managed UC

market is set to gain momentum amongst the large enterprises who would want to offload the operational and management jobs of their UC infrastructure to a vendor and focus on the core business functions.

Going forward, enterprises should watch out for emerging technologies in the space of mobility and cloud, which would dynamically influence UC solutions currently being offered in the market and change the way businesses communicate and collaborate.



NIRANJAN BAL
PMO and CISO (GM – IT),
Hindalco



While the IT world today is talking largely about technologies like cloud computing and concepts like BYOD, I have a feeling that we are undermining areas like institutional technology requirements and government spending in the area of infosecurity. The world today is ruled by devices, and all technologies revolving around mobility will be on the uptake going forward. One of the latest Gartner reports

indicates that about 75% of IT spending will be on the devices side by 2017.

Manufacturing sector requirements in India will gain a lot of momentum going forward. With inorganic growth patterns due to mergers and acquisitions, and a reasonable lack of IT centralization, areas like business continuity planning and central IT compliance management are increasingly becoming an area of concern for many large manufacturing houses.



SATISH WARRIER
Chief Information Security Officer,
Godrej Industries



According to me, securing the mobile devices — more specifically smartphones — would be one of the key challenges in 2014. With the proliferation of smartphones and the ever-increasing computing capabilities of these devices, more and more employees would demand access to corporate applications from such devices. Smartphones have slowly started replacing the laptops. The always online feature of smartphones and limited control over the applications installed on them (some of them being rogue applications), introduces several risks. Furthermore, there is also a risk of such devices being stolen or misplaced or compromised.

The second risk would pertain to data privacy, as usage of cloud infrastructure increases.



SHARAD SADADEKAR
Associate VP - IS, Governance & Tech.
Services, HDFC Life



Enterprise mobile apps coupled with mobile device management for BYOD, would be the next big thing to happen. I also believe Advanced Persistence Threats (APTs) would have a strong impact. Highly effective, persistent, targeted and complex in nature, these threats will make the job of CISOs increasingly difficult.

The challenge for CISOs is to manage the crucial links between information security and operational performance. A holistic approach along with a comprehensive incident management program is required to address the challenges of identification, classification, and limit the use of sensitive and personal data.

Context-based identity coupled with attribute-based access control will be the next need.



VISHAL SALVI
CISO, Information Security Group,
HDFC Bank



Information Technology Governance Risk and Compliance solutions, which act as a glue between the security technology stack and the controls standards framework, will be big in 2014. These tool will help in bringing about a step change in the maturity of the information security program for a given organization.

In the past 2 years, there has been a sea change in the threat landscape and we all know how Advance Persistent Threats are impacting organizations today. To counter this, there is a need to have an upgrade of the security architecture with the new generation SIEMs and other advance malware protection/detection tools.

Security analytics will be key: real-time correlation is important to baseline your organization patterns and then identify outliers for investigation.



ARUN SHETTY

Head - Unified Communications,
Avaya

The year 2013 has seen businesses demand more effective access to scalable, sophisticated, real-time collaboration tools. The need for an integrated approach to telephony, video, networking and security has been pivotal as businesses opted for manageable, out-of-the-box packages that helped them manage costs and increase efficiency. Similarly in 2014, unified communications will increasingly become core to business efficiency — both from the customer perspective and from the business collaboration standpoint.

Another trend that we at Avaya foresee is the increase in mobility and the convergence of video into UC. With Gen Y becoming a huge part of today's workforce, mobility is going to be on a constant rise in the coming years.



SAURABH SANGHOO

Head of Global Services - India,
Orange Business Services

Unified communications has become central to an organization's ICT strategy. We are moving to the 'new workspace' with complete collaboration and anytime-anywhere access. The adoption will continue to grow and will be all pervasive across multinationals and small enterprises. The upcoming wave of unified communications will be on the cloud and it will not just consolidate but synergize the workspace and personal space onto a single device. The social enterprise will mean integration of social media into the official environment with an aim of improving productivity and encouraging an instant communications-based organization.



ONKAR NATH

Chief Information Security Officer,
Central Bank Of India

It is ubiquitous for BFSI to use information technology for delivering their products and services. On the other hand, disruptive technologies and just-in-time production of tech-lets is enlarging the threat vector. In this contemporary scenario, the growing size of the data is slowing down the correlation and analysis/alert process. The next step in information security is how quickly can analytics help zero in on the threats, and automating the prevention process. The technology which will enable to configure with positives will help organizations to speed up alerts and prevention process. Last but not the least, technology which integrates multiple engines will help the CISOs at large.



VIVEK AGARWAL

Senior VP, Dun & Bradstreet
Technologies and Data Services

In 2014 and beyond, we expect rapid growth in the adoption of analytic solutions in medium size organizations, thanks to the declining costs of building and deploying such solutions. New generation BI tools will reduce IT's involvement and empower business users to seek analytical interpretations from raw data on their own. We also expect major advancements in capabilities and

adoption of column-oriented databases and NoSQL databases, allowing for the manipulation of large volumes of data in short time frames to facilitate the models to evolve on a dynamic basis and become both self-correcting and therefore, more accurate over time.



THOMSON THOMAS
Senior VP - Business Systems and
Technology, HDFC Life

The top technology trends will be mobility, cloud, social and big data. Smartphone usage is increasing in India, further aided by the improving network in the country. Cloud adoption in the SME sector is rising, large enterprises too are moving non-core pieces, especially DR, into the cloud. Social is picking up but is slower than the others, as customers are using it for making complaints in a very fast way. Many organizations are now facilitating real-time or near real-time decision support systems.



A.S. RAJGOPAL
MD & CEO, NxtGen Data Center and
Cloud Technologies

Most enterprises are now in a transformation process enabled by cloud technologies. Considering the enterprise requirements of private networks such as MPLS-VPN and the legacy investments on hardware and applications, hybrid hosting is emerging as the choice.



RAJESH JANEY
President,
India & SAARC, EMC

In the next year and beyond, we will see big data being a lead factor in decision-making, as against traditional factors. From a technology perspective, enterprises will use big data beyond just predictive analytics; there will be a trend towards technologies like high performance computing/SW cache, enterprise content management, Hadoop/MapReduce and distributed architectures, in-memory databases and scale-out storage.

SURAJIT SEN
Country Manager (India) – Data
Protection & Availability Division, EMC

Even though the world is going bonkers about everything on cloud, including storage and backup, India needs to reach an inflexion point of cloud adoption, which we hope to happen in 2014. Once that happens we will see greater uptake of things like backup as a service, archival as a service, etc. Governance and compliance are two major drivers for this market. A trend that is fast catching on and will continue to dominate in the year ahead is combining of workloads for governance and compliance running both on the same infrastructure.



RAJESH RAMASWAMY
Head - Data Warehousing,
BI and Analytics Practice, Marlabs

The mid-life crisis that Hadoop had encountered temporarily is over and the resurgence is on in full swing. The next big wave will come in the visualization of big data. The visualization experience shall not only cover newer techniques of display, but also that of interactivity and background processing.

SANJAY SHARMA
Regional VP and Head,
Southwest Asia region, Amdocs

Among the major technologies that will shape the communications landscape in 2014 are: big data and virtualization technologies. Service providers will look to realize the value of big data, after tackling the operational challenges of managing it. They will also look to technologies such as cloud, NFV (Network Functions Virtualization) and SDN (Software Defined Networking) as a way to ensure best ROI from their investments in next-generation networks. These technologies allow decoupling and abstracting IT functions in order to make these functions more efficient.



**RAMAN
SANTHANAKRISHNAN**
MD, LSI India R&D Pvt. Ltd.

We see the need for higher-performance storage is driven by applications like Web 2.0/cloud infrastructure, OLTP and BI. How can a 12Gb/s SAS meet today's high-performance challenges for IOPS and bandwidth while providing enterprise-class features, technology maturity and investment protection, even with existing storage devices?

Another trend will be sharable DAS: Data centers of all sizes are struggling to provide high performance and 24/7 uptime, while reducing TCO. Flash for virtual desktops will also continue to grow.

Having validated the value of big data analytics from various proof-of-concept projects, businesses will look at an enterprise-wide adoption of big data analytics in 2014. To achieve this, IT departments will be entrusted to create a scalable, maintainable data architecture that will cater to the requirements of different departments. At a functional level, a clear-cut value proposition for big data analytics will emerge. It will help in creating new business opportunities and deliver a smart, secure and connected experience



ANTHONY BARTOLO
Senior VP, Unified Communications & Collaboration, Tata Communications

In 2013, collaboration tools devised for the workforce have been low on usability, high on awkwardness and frequently fragmented.

In 2013, Gartner ranked collaboration fourth in its list of top 10 CIO business and technology priorities and it is one trend that will take center-stage in 2014. It is estimated that collaboration technologies could contribute \$900 billion to \$1.3 trillion to the economy by improving productivity and consumer focus within and across enterprises. The increase of SIP connectivity and open API-based collaboration tools are the key to seamless collaboration.



SALIL GODIKA
Chief Strategy & Marketing Officer and Industry Group Head, Happiest Minds

across the customer lifecycle.



VIPIN KUMAR
Group CIO, Escorts Ltd

The two big highlights for 2014 are backup on cloud and consolidation of storage silos. The real challenge for CIOs will lie in formulating designs that will help support seamless transfer of huge volumes of data to the cloud and secure it.

Besides, CIOs will also have to justify the investments that they will make on consolidating the storage silos.



SRIRAMA EVANI
Principal Director, DST Worldwide Services India

A prominent trend coming in the big data space is the hybrid cloud, which will make organizations think on these lines: How do we build a cloud which has structured data and combine it with unstructured data coming from various Internet channels like Facebook, Twitter, mobile, etc?

▶ MAKING SENSE OF BIG DATA



DINESH JAIN

Country Manager, Teradata India

Most companies have realized the importance of big data. Now is the time to delve deeper into its true implications

The year 2013 has been one in which most organizations — small or large — have understood what big data stands for in real terms. It has been clearly understood that this is an animal that everybody needs to tame before it morphs into a beast. By now, everyone has realized the potential and the influencing power that social media, web, mobility, etc. have on the purchasing decisions of customers both retail and corporate.

The confusion that persists now relates to the following areas:

1. Is big data relevant for my type of business?
2. How do I drive business value out of it?
3. How do I create a business case to



justify an investment in a proof of concept?

4. Where do I begin?
5. What if I fail?
6. What type of budget should I set aside for this?
7. What should be my choice of technology and architecture?
8. Where do I take advice when it is new for everybody?

2014 will be a crucial year, wherein people would delve deeper to get answers to the above questions. A few pointers to get the required clarity are:

1. Firstly, each organization will have to assess the impact of big data on their respective business. For instance, in a B2C business like bank, telco, auto etc., the impact of social, big data, is

far more pronounced than in traditional companies operating in the B2B space like infrastructure, capital goods etc. It is even more pronounced in dot com companies which rely solely on e-commerce as a way of doing business.

2. Size of business has a definite correlation on the impact of big data. For SMEs in the B2B space, it is far less relevant than large organizations even in the same business segments.

3. After establishing the relevance of big data, the next step is to find the use cases to help business. These may be difficult to come by, but a few guidelines can be handy:

▶ Find the new business problems being faced due to online transactions or social media. It can be related to fraud, negative publicity, customer churn etc. The next step would be to try and find a solution that can help resolve that. Mostly it will lead to some big data analytics.

▶ Many big data vendors have developed use cases that are in various stages of implementation across global customers. It is useful to study them and have a business workshop to understand the relevance.

▶ Conducting a brainstorming session with the business is very important, as it is likely that they will throw up ideas based on market intelligence.

4. Having established a business case, the next logical step is to define a Proof of Concept (PoC) and have business buy in on the outcomes of a successful PoC. The PoC should be comprehensive to cover different scenarios and business areas to ensure some good outcome. Too small a POC may not yield good results and will create hindrance for any advancement in this area internally.

A successful POC will yield the results for long term strategy to deploy a big data solution within an organization.

► TECHNOLOGY PREDICTIONS FOR 2014



AMIT CHATTERJEE

Country Director - India, HP Software

What will the year ahead hold for enterprises in terms of potential technologies and adoption trends? New style of IT, powerful analytics and cloud, to name a few

The year ahead will be driven by the New Style of IT. Disruptive technologies such as the mobile internet, cloud and the automation of knowledge are transforming the way people live and work.

As organizations strive to deliver powerful capabilities for consumers and employees to create and connect, they need a secure, reliable technology

infrastructure. Many businesses are moving towards converged systems that provide powerful, mobile internet-scale applications while meeting the pressure to streamline operations, drive growth, cut costs and improve business efficiency.

Connectivity realized

According to IDC, worldwide vendors are forecast to ship more than 1.8 billion mobile phones this year, growing to over 2.2 billion mobile phones in 2017. The smart device has shifted from a cutting-edge communications tool to an essential component of everyday lives with consumers and employees demanding anytime, anywhere access to sophisticated personal and business services.

To show that they are embracing this trend, organizations are focusing on mobile applications that drive innovation and growth. For example, in financial services, banks are developing advanced self-service mobile applications to ensure customer loyalty, lower the cost of

customer acquisition and enhance brand visibility. Healthcare organizations are pushing the boundaries of mobile innovation by connecting medical devices to mobile phones for remote monitoring of patient health.

The trend of Bring-Your-Own-Device (BYOD) and Choose-Your-Own-Device (CYOD) also continues to gain momentum. However, in 2014, businesses and government will move the focus beyond the device and towards building the applications, business process and services that realize the benefits to be gained from better customer and employee engagement.

For an organization to be successful in 2014, it will need to have proper policies and processes in place to address data, device and network security, as well as the privacy issues associated with having personal and company-owned data on one device. It is time for enterprise-grade mobility that delivers manageability, serviceability and security with the experience that customers and employees crave.

Tackling security risks

Cybercrime continues to increase, with 92 percent of Forbes Global 2000 companies reporting data breaches in the last 12 months. Cyber criminals have become increasingly sophisticated through sharing resources and techniques to mount advanced attacks. This increased collaboration amongst adversaries has resulted in the sharing of resources and techniques.

This is a great time to enter this market with a compelling Next Generation Fire Wall (NGFW) offering. Every enterprise today is vulnerable to stealthy online infiltration by attackers, who want to steal valuable proprietary information given the increasing BYOD and CYOD adoption.

In 2014, enterprises need to join forces and collaborate to beat hackers at their own game. By sharing background intelligence on threats in real-time, businesses can create a unified industry defense and reduce the risk of financial, competitive and reputation losses.

Removing the guesswork with powerful analytics

Today, IT environments are larger and more complex than ever before. With the increasing use of virtualization and cloud technologies, IT organizations no longer know or control all the technologies in their environment, making it difficult to foresee potential issues. Yet, IT is accountable for ensuring the availability of IT services and fixing issues when they arise.

IT teams are increasingly relying on big data analytics to better understand their environments. IT professionals are using modern analytics to collect, store and analyze massive amounts of information to predict and prevent performance issues. As a result, HP believes that operational analytics are going to dramatically change IT jobs over the next few years.

In 2014, more companies will look to embrace core technologies across big data and operations management to provide actionable insight into all aspects of an organization's IT operations and enable optimal performance.

Big Data

Every day more than two billion people access the Internet to search, buy, click, comment and review. And, the sheer size and scale of this creates issues. Think about the big data problem in three categories:

- **First: Machines data** – which is the information that spills out of interactions with technology. At one level, this is all the information that's spills out of telemetry systems or sensors, but it's all the records that are created almost incidentally as you interact with a website or move between cell towers or almost anything else that you do that interacts with technology. It's growing on a massive scale, and it's highly structured.
- **Second: Business data** – which is the output of your CRM or ERP systems. This is stuff that's created in a typical data warehouse.
- **Finally: Human information** – which is the data created by us in the form of video,



We are at an inflection point where the delivery and consumption of, as well as the business model for technology are all being redefined

audio, text, email and any other form of communication.

As an enterprise, the sheer volume of data, and how enterprises collect, manage, secure, extract and apply meaningful insights will be the difference between being a market leader or a laggard, between being an innovator or a follower, and ultimately between thriving and failing in the 21st century.

Cloud Computing

According to Gartner, "Cloud services in India will be strong across all cloud

services market segments through 2017."

We are at an inflection point where the delivery and consumption of, as well as the business model for technology are all being redefined. The way infrastructure is built, applications are developed, and information is delivered, is changing. On-premise, proprietary computing resources are gradually being complemented or replaced by massive, agile and open computing resources of the cloud.

In fact, a research commissioned by HP indicates that hybrid delivery will be critical to driving successful outcomes and innovation. According to the research, 75 percent of business and technology executives in India believe that cloud computing will be at least as disruptive to the technology landscape as the impact of client and server technology or the internet. The survey also revealed that though adoption of public and private cloud services will increase by 2020, traditional technology will remain integral to the enterprise. Hybrid models enable organizations to maximize their existing infrastructure and retain internal control while also being able to use public cloud resources where required.

► TECH TRENDS THAT WILL DRIVE CHANGE



VENKATESH KRISHNAN

VP - Systems Business, Oracle India

While 2013 saw a persuasive growth of flash, the year 2014 is expected to see a sharp focus on how enterprises will use technology to enhance customer experience and enable innovation

With every passing year, faster processing speeds, bigger data sets, greater storage capacity and more advanced software come alive. Trends like big data analytics, cloud and The Internet of Things have been hot topics of discussion for some time now, with more tangible innovations such as the proliferation of storage solutions beginning to find acceptance.



Some of the biggest storage trends of 2014 that will redefine the IT ecosystem:

Cloud storage

Cloud computing technology is one of the most hyped topics in the last few years — not surprising though after seeing its benefits and business acceleration. This means we can certainly expect to see cloud services increase massively in the

coming year, given the wide-reaching benefits they can provide to businesses of all shapes and sizes.

Cloud technology is the latest iteration, and it is delivering great flexibility to storage users. As cloud storage technology evolves, it can be difficult to define what its capabilities and benefits will look like years from now. However, two areas of cloud storage already seem to have very persuasive benefits — using the cloud for storing archives and for storing unstructured data.

The current trend to consolidate unstructured data into large-scale repositories in the cloud signals that another category of storage is emerging — tape in the cloud — which is further bolstering the economic model for the cloud as a preferred repository for archiving. Tape's existing cost advantages might become even more compelling as future cloud technology developments occur.

By taking a cohesive look at today's interrelated cloud/tape landscape, we conclude that there is a definite place for tape in the cloud services landscape.

Converged infrastructure

Oracle sees a lot of excitement around converged infrastructure. Companies now want to spend more on improvising their business rather than operational costs, and engineered systems are helping in consolidating large data centers into fewer racks. Additionally, with growth in business and expansion, capacity, power and space requirement for all data has increased. We see a positive trend towards adoption of engineered systems in India and globally.

Simplification of IT

With data being used in so many ways, the IT infrastructure has to accommodate constantly fluctuating demands on processing and storage, since traditional distributed approaches to infrastructure and architecture lack the flexibility required to maintain processing speed and scalability. Organizations are seeking solutions that help in reducing capital costs, time

The Global Software Defined Data Center market will grow at a CAGR of 97 percent over the period 2014-2018, and driving this trend is the increasing demand for cloud computing

utilized for deployment and help in accelerating performance.

Consequently, we expect simplification of IT as the next big trend for the coming year. Driving this trend is the user's desire for lower cost, simplicity and more assured security. The year 2014 will see an increase in the adoption of pre-integrated converged infrastructure solutions that exemplify 'simplified IT'. Engineered systems are going to be a game changer in the world of enterprise IT as they reduce the cost and complexity of IT infrastructure.

Flash storage

The adoption of flash technology seems to be the hottest upcoming trend in the year 2014, though till now it has been prohibitively expensive. The advent of flash storage has improved data centers and has helped in providing faster access to data and saving energy. However, advances in storage technology have also brought the prices down.

The reason why this technology is fast catching up is because flash drives are basically faster accessing devices when compared to traditional fiber channel drives. Industry experts and reports suggest that by 2018, flash storage will become cheaper than high-end disks.

As enterprises adopt flash technology, they eventually reduce data center energy consumption and accelerate application performance. Flash storage combined with high-capacity hard disks,



drives into a hybrid storage pool, IT organizations can rebalance systems, eliminate I/O bottlenecks and improve the end user experience.

Software defined storage

Observed as a hot upcoming trend for 2014, SDC is viewed as the most popular storage concept at the moment. It involves virtualizing abstract software intelligence and separating it from the hardware, thereby allowing hardware technologies of different generations to co-exist with newer software. It has been forecast that the Global Software Defined

Data Center market will grow at a CAGR of 97 percent over the period 2014-2018, and driving this trend is the increasing demand for cloud computing.

Today's business manager enjoys real time access to stock market activity, hourly weather forecasts, airline flight status updates, and push alerts when someone mentions them on Facebook or their dry cleaning is ready to be picked up. They want no less from their business systems and, now, it's not too much to ask. The combined effect of these trends will change the face of enterprise IT like never before.

► IP TECH: AN ENABLER FOR BETTER BUSINESS



SUDHINDRA HOLLA

Country Manager, Axis Communications India

A look into the upcoming key trends for the global Internet protocol (IP) surveillance market and how these can help shake things up for the better

Nobody wants to buy a camera today: they want to buy an efficient and effective solution. The switch from analog to IP enables more functionality to be built into the video camera and security solution, including at the edge recording, analytics and even smarter access control. Subsequently, it encourages the move to more intelligent and proactive video surveillance, which not only helps improve security, but also brings business benefits to organizations of all sizes.



Integrating cameras with BI

This opens up new business possibilities. Retailers can now deploy network cameras capable of integrating seamlessly with existing BI applications through the use of open platform infrastructure and APIs. An increasing demand for the new generation of intelligent network cameras is supported by the appeal of running a wide range of video analytics software within the camera itself.

For continuity and reliability, the

intelligent network camera is never idle and supports the operator 24 hours a day, seven days a week. It is constantly on guard, waiting for an impulse to start recording or sending an alarm to the operator.

Additionally, intelligent video systems can extract video and data from surveillance video streams and integrate that information with other applications, such as retail management systems or access control systems, creating new benefits and opening up new business possibilities through add-on functionalities including people counting, demographic analysis and queue alerts.

A new world of physical access control

The rise of IP technology in the surveillance market also drives an increasingly popular trend of migrating another security technology to a network environment – physical access control.

The global physical access control market is valued at about USD 3 billion (2012) and will grow to approximately USD 4.2 billion by 2017, which represents an annual growth of 7 percent, according to market research firm IHS.

For many businesses and particularly in new intelligent buildings, the migration of access control systems to a digital environment is sure to bring many benefits, such as lower installation costs and easier configuration and management, while simultaneously enhancing the versatility of the systems and opening them up for integration with other security products.

The transition to IP-based solutions will make the implementation of access control systems far more attractive. It will also resolve many of the limitations of existing traditional systems, and enable additional functionalities that go far beyond conventional door control.

Integration with video is one example of a very common requirement that will be much easier to meet with IP-based solutions. In fact, a common, standardized digital environment has the potential to create countless opportunities to integrate other systems



such as intrusion detection, fire detection, and so on into uniform, manageable and user-friendly systems.

Very much like in the video surveillance market, a shift to IP in the access control industry will surely also mean a transition from proprietary systems to open solutions. And these solutions will most likely be based on international industry standards.

Making access control systems based on TCP/IP will bring new and existing business opportunities. Integrators will, for instance, appreciate the easy installation and the possibility to integrate access control with other systems. Distributors will find new markets and new customers when they are free to bundle different components from different manufacturers to create useful and attractive business offers. And end users, finally, can take advantage of an affordable, yet flexible, future-proof and adaptable technology that can help to secure and protect valuable assets.

Smarter solutions for the brighter future

Since the first centralized IP camera

Very much like in the video surveillance market, a shift to IP in the access control industry will surely also mean a transition from proprietary systems to open solutions

was invented in 1996, it has come a long way, from perhaps a more passive surveillance equipment that watches over our shoulders for potential threats, to an enabler for many proactive, add-on solutions. These solutions not only protect us from potential dangers, but also enhance business benefits to open up endless new possibilities. The use of open platform infrastructure and APIs also encourages everyone to design and develop even smarter solutions for a brighter future.

SIX OTHER PREDICTIONS IN IP SURVEILLANCE FOR 2014 AND BEYOND

► High Definition TV (HDTV) is to become the standard for surveillance cameras. It is able to achieve both resolution and sensitivity in good balance, creating a more secure surveillance system that can even be utilized for identification purposes. We predict the main interest for HDTV will move from 720p to 1080p in the year of 2014.

► 4K is a natural step on from HDTV to improve image quality even further. For the security market, 4K is appreciated in situations where there are high demands on image quality and detail.

► Color-at-night and high contrast sensitive cameras will become significantly more important and almost mandatory over the next few years, due to an increasing demand from end users and technology availability.

► Thermal imaging as a "detector" will become an integrated part of a security solution.

► Mobility solution make it possible to look at the surveillance video anywhere and anytime, and the image size and bandwidth files can be adapted to accommodate different usage.

► Surveillance cameras will become more intelligent as more functionality can be run on the device itself. It means that the camera will only pick up and notify the central system once a change or a movement occurs. It will also be possible to set up alerts to notify the central system if one of the local cameras is broken or needs attention.

► 4 THINGS THAT WILL STIMULATE ENTERPRISE MOBILITY



SUNIL LALVANI

Managing Director, BlackBerry India

A few driving forces such as security and traction among SMEs will further boost enterprise mobility in 2014

Mobile computing has had a bigger impact on the enterprise than anything in the past. Starting with something as basic as email to empowering the workforce to better productivity using big data — mobility is ubiquitous in the organization. But, it comes with its own set of challenges in terms of management and security.

CIOs are always on the lookout for new technologies that will empower the enterprise and help reduce costs. On the other hand, CIOs are also looking for

solutions that would help them manage and secure, the quickly expanding landscape of devices that they need to manage on their networks.

We feel, the following trends are worth looking out for in the coming year for enterprises:

COPE (Corporate Owned, Personally Enabled)

With organizations moving away from COCP (Company Owned Company Provided) to IOIP (Individually Owned Individually Purchased) devices, even the most cutting-edge tech leaders are feeling overwhelmed by the frantic pace of change in the marketplace. They have to support a variety of devices, which feature all kinds of operating systems in various versions, as well as a clutch of hardware options.

While the organizations save on devices, they end up paying a bomb for managing them. The upcoming trend of COPE or Corporate Owned, Personally Enabled is gaining popularity in the BYOD

world. The COPE model will offer businesses a different conceding and embracing consumerization, by giving some control back to IT without depriving users of devices that make them more productive. COPE is a win-win situation for both employees and employers treading the fine balance between security and privacy concerns. This gives companies flexibility in terms of remotely wiping out sensitive, confidential data that resides in an employee's phone whenever the need arises, without deleting their personal information. Needless to say, there is still a need for continued efforts and investments to create a scalable, secure and manageable mobility infrastructure to support BYOD, and capitalize on the merits of this pervasive and growing trend.

Boom in cloud and mobile solutions among SMEs

With the growing importance of the SME sector, several service providers have woken up to the huge opportunity awaiting them. 2014 will witness a boom in Enterprise Mobility Management (EMM) solutions for the SME segment in India. Solutions tailor-made for the sector have already found their way into the market and promise to address the issues that have held them back so far from going mobile.

The three main issues that plague the adoption of EMM solutions in the enterprise are capital investment, manageability and scalability. EMM on the cloud will be key in providing solutions for this sector while addressing these key issues.

Secure work spaces on mobiles

With the proliferation of BYOD, flexibility has taken precedence over security in the enterprise. This year would see enterprises laying increased focus on this aspect of their implementations.

The challenge will not be in securing the devices but in ensuring that the implementation retains the flexibility offered by smart devices, without compromising the data on it. One of the solutions is to use secure work spaces or containers in the same device for

► ENTERPRISE IT TRENDS IN 2014



SAMIRON GHOSHAL

Partner & Leader - IT Advisory Services, E&Y

As India undergoes uncertainty and excitement in the political sphere, certain winds of change will sweep its business technology shores

"Prediction is very difficult, especially about the future."
— Niels Bohr

While notables as great as the Nobel laureate Niels Bohr have cautioned against the act of predictions, predicting trends one year hence in 2014 should be less hazardous task. 2014 is a landmark election year and a lot of the sentiment will depend on whether the power will remain in the hands of the two main parties or will be diffused amongst the regional parties. Since sentiment drives business which in turn drives IT spending this will be



crucial fulcrum on which a lot will depend.

Notwithstanding the political scenario, a few trends are obvious:

► **Enterprise IT investment will grow albeit carefully:** As enterprises get set for the next phase of growth IT investment will grow. Most organizations have been focused internally towards cost and resource optimization of IT assets over the last 2 years looking at the challenging economic scenario worldwide and in the country. The unbridled growth of the mid 2000s is not likely to return as

enterprises take a measured approach to investments. Anything that does not meet the return-on-investment criteria is not likely to make the cut. As the prospects for growth improve, enterprises will look towards revenue maximization and invest in technologies which directly impact the topline. Customer facing technologies, supply chain technologies should see investments.

► **Enterprise IT will focus on newer technologies:** Enterprises will go to the next phase of IT investment with a note of caution and with a touch of creativity and panache. The four big forces of IT: social, mobile, analytics and cloud will influence a lot of the spending. In particular, the hybrid cloud is likely to see quite a few takers due to its lack of upfront investment in skills or hard cash. Cloud services providing infrastructure like storage are already quite popular, but the push into cloud will come from business functions like human resources, customer experience and procurement. This way, enterprises are likely to toe-dip in the cloud technology.

► **Analytics get deeper:** Analytics has exploded as a market over the last few years as usage of applications such as ERP, core banking and other core transactional system matures and provides quality transactional data for analytical applications. 2014 will see increasing experimentation around predictive and prescriptive analytics, as having tamed the historical data monster, enterprises will take the next steps to find out what future predications they can make from the data. Enterprises will increasingly exploit social media and other external sources to their analyses for better decision making.

► **Risk management gets bigger:** Governance, risk and compliance is set to see big growth as enterprises learn from their mistakes of the yester years and put adequate controls and risk measurement and mitigation measures.



At the forefront will be banking & financial services organizations followed by technology and communication sectors. Technologies which deal with protection of internal data will also grow as organizations experiment with BYOD and mobile technologies.

► **Customer will be the king:** A lot of the businesses will focus on technologies that surround the customer experience: Mobility & CRM will be two of the most exploited technologies for the year.

► **Open source technologies will become more mainstream:** Enterprises are facing complex licensing terms and increasing cost of software from large IT

The improving quality and increased reliability of offerings from local players around open source technologies will push larger numbers of enterprises towards them

vendors. The improving quality and increased reliability of offerings from local players around open source

technologies will push larger numbers of enterprises towards them for newer technologies. Open source technologies once patronized by large government organizations and small enterprises are looking to increasingly break into the stronghold of larger well established global giants. Newer platforms like mobility, analytics and big data are the new battlegrounds for such guerrilla warfare.

All in all, 2014 promises to be an exciting year for enterprises as they look to scale the next big business challenge and move on the growth paradigm.

Manoj Jha, Associate Director – IT advisory services, EY, also contributed to this article. Views expressed are their personal views.

► SECURITY PREDICTIONS FOR 2014



SAJAN PAUL

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The year ahead will see technologies such as malware as a service and active defense catch on among enterprises, just as the nature of threats will undergo changes

With the changing threat vectors and more sophisticated application level advanced threats, heuristics based technology with coordinated threat intelligence will become inevitable in critical installations. Multi-channel threat analysis will mean adoption of big data technologies and the rise of many managed security monitoring and

counter-security solutions in the coming year.

Here are the top 10 security predictions from Juniper Networks for 2014:

► **Customized Malware-as-a-Service (MAAS):** The availability of new malware creation services in underground markets will make it easy for attackers to create customized exploits with little skill or effort. These tools allow malware authors to upload malware, run tests against all the popular AV engines and identify which ones will not detect the threat. The tools then give the malware author customized HTML code they can inject into various web pages to cause people visiting those pages to load the malware in a hidden iframe.

These “MAAS tools” are being commercialized on the black-market and only take a few dollars to distribute customized attacks. Some even let attackers build malware in a tool by

dragging and dropping features into an interface without even needing to know how to write code. Ultimately, this will lead to a further reduction of efficacy of signature-based defenses as the customized malware becomes more common.

► **More popular trusted websites will host malware:** Driven by the diligent blacklisting efforts of Google of illegitimate websites hosting malware, attackers will look to use techniques such as Cross-Site Scripting to place malware on legitimate sites. As attackers increasingly find their own channels blacklisted by Google and find it much harder to rely on sites dedicated to hosting malware for distribution, only those leveraging an extreme degree of specificity and evasion will have success in the long run. Everyone else will fail miserably.

► **Security will become the killer app for Software Defined Networking (SDN):** In 2014, SDN will foster the rise of virtual networking focusing on activation, configuration and service chaining — the ability to direct traffic flows along a designated path. Security capabilities will begin to be distributed intelligently at the service layer making it easier for companies to quickly deploy in data center environments.

► **Active defense will gain acceptance:** Companies will look to adopt more active measures in response to the daunting task of protecting against ubiquitous, evolving and more sophisticated threats. Active attackers, and the threats they pose, take advantage of a fundamental asymmetry created by the passive nature of traditional security defenses. In response, more companies will adopt active defense techniques, like Intrusion Deception, to dynamically identify attackers and take real-time action to disrupt and frustrate their efforts. While the ethical and legal debates about the proper rules of engagement for companies will continue, acceptance of many active defense techniques is

likely to grow.

We are also likely to hear more about outright offensive cyber-attacks and cyber-espionage between nation-state actors. It's quite possible that a rogue nation state actor could move beyond espionage to actively disrupt critical infrastructure with attacks.

► **DDoS attacks will get more sophisticated:** DDoS attack techniques will continue to diversify. Historically, DDoS attacks have been volumetric (Layer 3 & 4) in nature. These attacks will continue to grow to scales where they could potentially reach sizes that bring down the internet backbone, let alone one site. However the noteworthy trend for 2014 will be the accelerating use and sophistication of Application (Layer 7) DDoS attacks, because this style of attack is far more difficult to detect as it typically bypasses traditional uni-directional volumetric DDoS mitigation technology and services. In 2014, the attackers will develop a more powerful portfolio of Layer 7 tools to exploit DNS, Database & Content server vulnerabilities. In response to this alarming increase in the complexity of DDoS attacks, many organizations that deliver online services 24 x 7, will adopt a hybrid DDoS mitigation policy using a mixture of off-premise DDoS mitigation services to manage the volumetric attacks and on-premise DDoS technology to manage App DDoS.

► **Data privacy concerns will change user behavior:** With revelations of widespread surveillance by the NSA, there is much more concern over privacy than ever before. This will lead to more people and businesses taking precautions to protect information from surveillance. For the security community, this will likely mean an increasing demand by companies for new and stronger encryption. For consumers, we are likely to see an increase in the use of privacy enhancing technologies like the TOR network, HTTPS Everywhere, Ghostery, VPN, and private e-mail services.

While positive for privacy, it is an unfortunate development for security, because as more users adopt these technologies, security administrators will begin to lose visibility and control over the traffic in their networks. With less ability to differentiate between desirable traffic and undesirable traffic, administrators and security solutions will be less able to defend their networks. As an analogy, imagine the ease at which a police officer can spot a suspicious vehicle on the highway from a speed trap. Now imagine how difficult/impossible that task becomes when you enclose the highway in an opaque tunnel, preventing the officer from seeing any vehicles.

► **Android adoption – and Android malware – outpaces competitors:** The

The noteworthy trend for 2014 will be the accelerating use and sophistication of Application (Layer 7) DDoS attacks, because this style of attack is far more difficult to detect

current trends in smartphone and tablet adoption will continue, if not intensify. The result will be an even more tilted mobile ecosystem, in which Google's Android consolidates its position as the most popular mobile operating system, and the primary target of attack for malicious actors interested in compromising mobile devices. While direct attacks on Android are possible, we expect that the current focus on Trojan-izing mobile applications to continue, as attackers are still garnering plenty of success in penetrating official and third-party Android application marketplaces.

► **Uptake in ransomware:** As attackers look to more quickly monetize their efforts, there will likely be an uptake in new and sophisticated versions of ransomware. These attacks are popular with cybercriminals because they often lead to quick profits and don't require many steps to turn stolen information to profit. These new cases of ransomware are likely to prevent users from accessing their software or files until a fee has been paid to the attacker. Some new examples of this type of malware may not be sophisticated and will be addressable with commercial AV solutions, while others will be sophisticated enough to require the effected user to pay the ransom if they wish to recover their access. CryptoLocker is a very strong example of a sophisticated implementation of ransomware with no known remediation beyond paying the ransom.

► **SQL injection and other well-known web attacks will continue to be effective:** Despite significant awareness of known web-based threats, such as SQL Injection and Cross-Site-Request-Forgery, many data breaches will be caused due to these attack methods. Websites provide a large attack surface and fixing all the potentially vulnerable code is difficult. Further, even newer web applications still pass large amounts of information from the application to a database, creating the possibility for attacks.

► **Mobile security will shift from securing the device to securing the data:** Corporate BYOD initiatives will mature to focus both on protecting the device and its connection back to the network. The increased adoption of security containers on devices to separate corporate and consumer data will usher in a new focus on providing the same level of granular protection for connections back to corporate networks. Baked-in per-app VPN will become commonplace and authenticating with multiple apps will become a thing of the past.

► DECODING THE ANALYTICS MARKET



SHOBHIT BAHADUR

Head – Research Services, Ma Foi Analytics

Indian businesses now have the same opportunity to benefit from analytics as their global counterparts

India is unique. While many leading global analytics providers are either based out of India or have a strong Indian presence, relatively few Indian companies have actually embedded analytics in their DNA and are able to derive competitive advantage from it.

The reasons for slow adoption have included lack of reliable data and the prohibitive cost of putting in place the needed infrastructure and resources, including talent.

However, global technology trends



and their adoption by consumers now provide Indian businesses the same opportunity to adopt and benefit from analytics as their global counterparts. As much as 70% of global businesses claim they have adopted data analytics in some form or the other by 2013. The following are the key trends we see going into 2014:

► **Personalization of analytics:** Most consumers of analytics at the business end are not experts in the field and are therefore often unable to derive value

91%

Indian CIOs regard analytics as being critical to decision making

68%

Indian CIOs believe the way big data is used will separate the winners from the losers in the industry

60%

CIOs plan to use the cloud for analytics

from it, even when someone else helps analyze their data for them. In fact, statistics suggest over 47% of businesses globally have no big data or analytics capabilities whatsoever! There is now some good news for the long suffering users. Analytics providers are working on making analytics: a) Simple and easy to use with intuitive data visualization that is interactive and consistent; b) Available as and when needed, often in real/near real time (i.e. analytics on demand); and c) Consumable on mobile devices and compatible with different OS and device types.

► **Decision oriented:** 91% of Indian CIOs regard analytics as being critical to decision making. Little wonder then that a lot of companies are now focusing on adapting analytics to automate routine, high volume decisions for businesses. A lot of this is powered by predictive analytics that uses conventional as well as new age data (videos, images and geographical information).

► THE YEAR OF VERTICAL DEPLOYMENT



RAJESH AWASTHI

Director - Telecom & Cloud Service Provider,
NetApp India

The need for the industry is to understand the expectations of enterprises across verticals and cater to not just better system integration but a stable virtual workplace

In the IT world, there is no “tomorrow”. Disruptive technologies are being invented by the hour and with new technology concepts and annotations being introduced (and in several cases re-introduced) everyday, it has become imperative to analyze and understand what needs our utmost attention.



One such trend we all have heard of is the cloud. People across the world have been working in the cloud for years now; for example, unknowingly saving files in email drafts (this is prior to the popularization of services like Dropbox and Google Drive) and simply clicking “remember my password” in their browsers. What has evolved today and will continue to dominate 2014 is how the same computing power is harnessed

by enterprises everywhere.

Enterprises today have realized the potential of cloud computing and have started to take advantage of its mobility and storage capabilities. However, a major hurdle for an absolute cloud infrastructure is the real and perceived lack of security.

Time and again, discussions have been in motion to make cloud safe for enterprise data, and it is time for organizations to understand that there is no such thing as absolute security, and probably, never will be. Hence, one of the key areas cloud computing should be moving towards is not how to make it safer, but how to make it difficult to crack — the dynamics change when the perspective towards a problem changes.

While the motive of security continues to gather momentum in 2014, there will always be a “balance point” from an enterprise perspective, which will be the ‘best’ mix of local computing and storage, on-site data centers and networking and cloud. This balance point will also continue to evolve in the coming year as companies try to experiment between different proportions of the business processes that exist in the ‘cloud’ and on ‘ground’. These will be relative to cost-optimization, processing power, storage capabilities and data communication changes that take place in the coming year.

Cloud services will, in the near future, outstrip other service models and the journey will hopefully be embarked in 2014. The industry has the largest range of possible outcomes, depending on the aggressive embrace by enterprises and the suite of services on offer by vendors. Like the previous year, the next generation of cloud infrastructure and services will have a major impact on the industry beyond its forecast.

On the vendor side, companies will have to keep pace with enterprise evolution, keeping up with the pace to meet the ever-growing capacity and operational management needs, while trying to tackle possible roadblocks in



terms of system integration, diverse web of users, multiple applications, platform and overall infrastructure harmony. Hence, it will be essential for vendors to work out their solutions from the ground-up to be better in tune with forthcoming market dynamics.

The future for cloud computing therefore looks predominant. It is likely to be at a stronger position if factors like security and the overall stability of cloud infrastructure are addressed successfully. While the forecast for 2014 extends to computing services, storage services, back-up solutions and content delivery, a harmonious framework and universally acceptable and recognized quality control is the need of the

Time and again, discussions have been in motion to make cloud safe for enterprise data, and it is time for organizations to understand that there is no such thing as absolute security

industry which will give enterprises the confidence to embrace the technology driver for tomorrow. It is also essential

to extend the potential of cloud to public sector, with focus on healthcare, education and retail .

While SaaS (software as a service) model has been an important element in generating a shift from traditional IT to cloud, it is essential for vendors and service providers to harness its potential throughout 2014 to ensure further growth in adoption. In fact, the industry needs to supplant “SaaS” with the term “cloud application” within the next two years.

To conclude, it is important to note that the need is to understand the expectations of enterprises across verticals and cater to not just better system integration but a stable virtual workplace.

► NETWORK AS A SERVICE



JIM FAGAN

President - Managed Services, Pacnet

Cloud computing is not evolutionary; it has spurred a revolution that is sweeping through every facet of IT, including the network

The massive paradigm shift that is cloud computing has transformed how compute resources are consumed and utilized, and the manner in which applications are constructed and delivered. We have truly entered the age of everything-as-a-service.

From the early days of cloud and the introduction to Software-as-a-Service, Infrastructure-as-a-Service, and Platform-as-a-Service, you can now get almost anything on an “as-a-service” basis. However, the network, one of the most crucial and important components in the IT stack has yet to join this revolution.



While cloud computing has been rapidly changing IT architectures around the world, the underlying network that links these services has been slow to catch up. At this juncture, there is no Network-as-a-Service (NaaS) per se, at least not for wide-area-networks, and certainly not for networks across an entire region.

Yes, you can turn up 1,000 servers on a cloud provider’s platform in minutes, but connecting those servers in a reliable, secure, and scalable fashion on an Enterprise class platform — not just best effort over the Internet — could still take months.

In today’s network dinosaur world, the process to implement this type of network is still a tremendous undertaking for customers. First, you have to estimate the amount of bandwidth you will need and find the service providers that can provide that bandwidth to where you need it to go. Then you have to determine which provider can give you the best value in terms of price and performance. Finally, you have to negotiate and sign a contract. So after may be eight or nine weeks, you will finally have your data centers and cloud applications networked.

Probably the most disruptive attribute of cloud computing is that you can turn off those aforementioned 1,000 servers as quickly as you’ve turned them on. On the network side you can’t just give the connection back — you are either stuck paying for the network connection in a prolonged contract, or have to pay a hefty early termination fine.

Today, rigid network commercial practices remain one of the biggest obstacles when it comes to tapping into the full benefits of the cloud computing model. The solution: Make the network available “as-a-service” to match the capabilities of clouds.

The network delivered as a cloud

So what is NaaS? In a nutshell, it is the cloud computing model applied to service provider networks utilizing software-defined networking.

Ideally, NaaS will allow customers to log on to a web portal, or access a programmable API and, pick the route they want on a network, pick the bandwidth they want, select the quality of service parameters, and order that connection with a single click — just like they would do in a cloud computing environment with the number of servers and the amount of storage.

The customer will then pay for only the amount of capacity they use, and they can turn that capacity off any time they want from the same web portal.

All this is enabled by SDN, which allows service providers to control their

► SMAC IT TO THE TOP!



RAJESH RAJAN

Associate Director –
Technology Consulting, PwC India

The unique but complementary technologies of Social, Mobile, Analytics and Cloud can drive business transformation for a host of enterprises

The last two years have seen businesses being exposed to volatility, randomness, disorder and uncertainty due to changes in global economic and market structures. These circumstances have forced CIOs to explore 'disruptive technologies' such as social media, mobility, big data analytics and cloud computing (also called social, mobile, analytics and cloud services [SMAC]) to effectively respond to customer demands. Though each of these technologies is unique, they complement each other and act as catalysts in driving business transformation.

As businesses cope with these



disruptions and try to settle down, they strive to emerge as 'antifragile'. The term 'antifragile' has been coined by Nassim Nicholas Taleb in his book *Antifragile: Things That Gain from Disorder*. According to PwC's Technology Forecast, solving the engineering productivity challenge, an antifragile system is one that responds positively to a shock. A fragile system is affected and suffers from volatility, but an antifragile system tends to emerge stronger from disruptions.

The concept of antifragile is also different from stable or robust. While a robust system resists shock, it manages

to remain the same. But an antifragile system evolves positively and becomes less prone to future shocks or disruptions. We at PwC believe that for an enterprise to become antifragile, it has to evolve by continuously adopting technology. Along with SMAC, we see DevOps and the Internet of Things (IoT) as the other emerging technology trends that will drive business agility and innovation in the near future.

Today, businesses need to be agile. As soon as an opportunity is identified, it must quickly tap into it with newer products and services to stay ahead of the competition. Traditional models of software delivery with lengthy and separate cycles for requirements, development, testing, and deployment fail to keep up with the pace of today's fast-changing business scenario. DevOps, an approach to continuous delivery, can be an enabler for enterprises to achieve an antifragile state. Historically, the development and operations teams have been operating in silos. Dev+Ops=DevOps is a design to reduce this alienation and encourage closer collaboration between these two teams through extensive automation and redesign of traditional software development processes and workflows.

In this model, developers frequently release or deploy small bits of code to the production environment in a manner that does not disrupt the environment. Each step in the entire software delivery process includes extensive monitoring, testing and a feedback loop. As a result, if there is any problem with the code that the developers have deployed, the system can be rolled back to the previous state with minimal disruption to business. On the other hand, if the code works fine, it results in a significant improvement in the user experience. Such a 'deploy-and-fail-fast' mindset that constantly reacts to market changes can lay the base for antifragility.

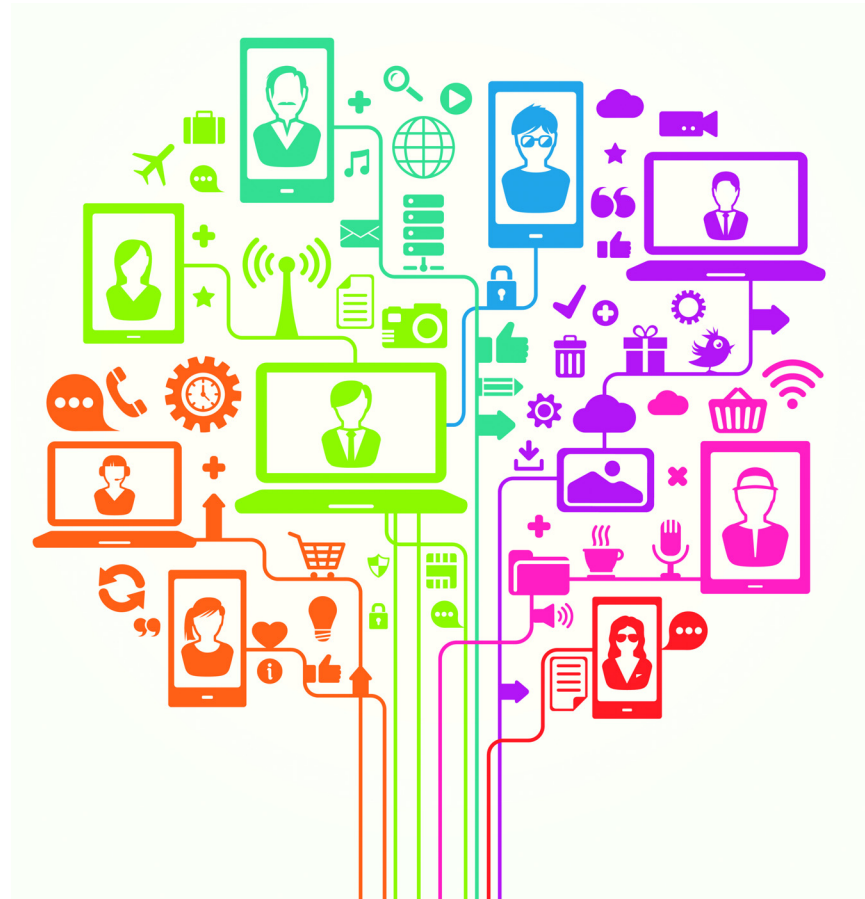
The IoT is another key trend that will shape the future and go a long way in making businesses antifragile. Historically, businesses have concentrated on the transactional aspect of their customers with the objective of

The estimated number of internet connected devices will range from 50 billion to one trillion by 2020

marketing a product or service. As a result, the focus has been on transforming the 'pre-transactional relationship' with potential customers, also referred to as e-commerce. However, with increasing digitization of consumption, this will change. The growing trend is of devices connected to the internet.

According to PwC's Technology Forecast, Internet of Things: Evolving transactions into relationships, the estimated number of internet connected devices will range from 50 billion to one trillion by 2020. With advancements in miniaturization technologies and network capabilities, the cost barriers of adding sensing devices and networking capabilities to products are declining rapidly. Businesses can use these to go beyond the concept of 'single transactions' to 'goal-oriented post-transactional relationships'. By effectively analyzing the information obtained from the sensors embedded in their products that are linked to smartphones and to the cloud, businesses can track and then guide the use of products and services that are better aligned to customer goals, thus reinventing the entire customer engagement process.

What makes this approach possible is a set of emerging technologies collectively called the IoT which includes, wireless communications, cloud-based processing, sensors, embeddable computers, and real-time big data



analytics. This digitization of consumption and convergence of both the physical and digital worlds holds immense potential to deliver value-added services and in turn, elevate the overall experience of the customer.

Though the DevOps and IoT models hold immense potential to make an enterprise antifragile, adopting these require a well-defined roadmap formulated after proper assessment and due diligence of current business drivers and challenges, existing tools, processes, workflows and the technology landscape. A one-size-fits-all approach may not work. It is not that every organization will need, or most importantly, is ready to move to a continuous delivery model. For instance, some legacy applications may not be suited for the cloud, or fully automated deployment of some sensitive

applications may not be an option for some highly regulated industries. It is also important to appreciate the fact that embracing DevOps and IoT will call for a drastic shift in the corporate culture of an enterprise in terms of how it has operated traditionally.

The business needs that drive DevOps and IoT such as better customer engagement, speed, quality, efficiency, agility, reuse and low cost, are intensifying. Hence, the onus is on the CIOs to educate themselves and the entire organization in this new IT mindset and the technology stack that enables it, so that they are ready to make the leap if not now, at least in the near future.

Ritesh Pal, Senior Consultant, PwC India, contributed to this article.

► THE POWER OF CHANGE



ANIL BATRA

MD, Riverbed Technology India

In 2014, enterprise IT teams should seek to harness technologies that can help them differentiate business and win customers

Savvy IT organizations understand that the right technology can positively impact their business. These organizations are responding to the need for change by seeking to harness those technologies that can differentiate their business, provide a better customer experience and ultimately help them gain a competitive edge.

In order to help companies embrace change, deliver a positive user experience and focus on solving business performance challenges, Riverbed has put together a list of the top 10 trends that will impact IT organizations in 2014.

► **DevOps teams become the norm, not the exception** – DevOps started as an

offshoot of Agile development, with a focus on achieving continuous delivery, will continue to catalyze change across IT departments in how teams from different IT domains will collaborate, which tools are employed to facilitate friction-less delivery, and the skill-sets that become increasingly desirable. Today dedicated DevOps teams are found in hardware and software companies, as well as a fraction of progressive enterprise IT departments. In 2014, expect specific DevOps team to sprout up in all large enterprises.

► **Industrial Internet gets vertical (sometimes called the Internet of Things)** – As more objects become embedded with sensors and gain the ability to communicate, the resulting information networks promise to create new business models, improve business processes and reduce costs and risks. Many industries are gaining a competitive advantage from “connectedness” – among them: fleet management (for tracking goods and vehicles), consumer electronics and retail (stock control). Manufacturing, oil and gas, automotive, security, transport and even environmental management (smart cities) are gaining in this area. In

2014 adoption increases as companies continue to search for competitive advantages that also drive cost savings.

► **Monolithic cloud strategies fade** –

Companies are moving towards automating the dynamic shifting of workloads from one cloud service to another for optimum performance, price and availability. IT will gain experience and confidence in moving a workload out of the path of a mega-storm (like Sandy), or to a lower cost service provider, or to a service provider closer to the end-user so that the latency is minimized. In 2014, companies will move beyond the “I have a cloud strategy” to “I have a multi-cloud strategy”.

► **Software defined everything hits production** – A software-defined

infrastructure is about decoupling the hardware that executes the data transactions from the software layer that orchestrates them. Rather than individual elements (compute, storage, and networking), infrastructure will be treated as a set of resources required for specific workloads. The goal is to use software to create an underlying infrastructure that can be managed holistically as part of the business. In this world, the application, end-user and the business are king.

In 2014, we’ll see organizations finally implement software-defined architectures to achieve continued flexibility and control. Expect individual terms like “software defined networking” and “software defined storage” — which are just means to an end — to give way to larger concepts around the software defined data center and software defined branch.

► **Enterprises start monitoring**

personal clouds – A personal cloud allows users to have access to use whatever device they want all while having constant access to the content and services they want to use, whether community (Facebook, news sites, etc), personal (photos, hobbies, music) or professional data (work related applications). In 2014, personal cloud services will outpace the growth of

Individual terms like “software defined networking” and “software defined storage” will give way to larger concepts such as software defined data center and software defined branch

enterprise cloud services due to the continued growth of mobile computing, the growing number of mobile applications, and the growth in number of devices owned and used for personal use (personal cloud can drive an average of upto 3 devices per employee.) IT won't “own” or regulate these clouds, but will start monitoring them in 2014 to ensure sensitive data is not at risk.

► **Consumerization forces IT to measure customer satisfaction –**

Consumerization shifts power from the IT organization to the users (whether employees or customers). As the power of the individual continues to grow, IT organizations must adapt to their users – whether employees or customers. User expectations are transforming the way IT organizations do business. In 2014, IT organizations will respond by implementing metrics and measuring the satisfaction of their employee “customers.” Expect tried-and-true concepts like Net Promoter Score to become a mainstay in how IT evaluates its overall effectiveness.

► **Big data drives public cloud storage –**

In 2014, big data gets even bigger with the additional information being created by the “Internet of Things”. In 2014, companies will have evolved their people, process, and technology enough to yield significant business value from big data investments. This rise of big data applications puts unprecedented



pressure on storage strategies and technologies. In 2014 expect two things: 1) in house, companies need to find a combination of robust storage hardware and software that allow for quick access to relevant information; and 2) as data storage needs increase, more companies will turn to cheaper and more available public storage cloud services to offset spiraling costs.

► **Government role in innovation increases (globally) –** Governments will increasingly become involved in technology, investing in a broad range of applications — from home-grown innovation incubators to local manufacturing sites that create jobs and manage geopolitical risk. For example, in China, the Beijing Academy of Science and Technology has built the country's largest industrial cloud-computing platform, designed to serve small and medium-sized enterprises in government-supported industries, including biotech, pharmaceuticals, new energy and knowledge-intensive manufacturing. In 2014, expect other governments to follow suit as this trend will drive economic growth and competitive technologies across the globe.

► **Mature app stores shift focus to proprietary apps for the enterprise –** Currently people get most of their apps through online app stores. But as companies build up their mobile app

development skills, there will be a shift towards developing proprietary, company-specific apps. Adoption and delivery of these apps will be facilitated by companies' private enterprise app stores. These company-created apps will enable them to include industry, geography, and role-specific features that boost productivity. These same enterprise app stores will also help regulate the use of third party apps that users can install.

► **Massive open online courses (MOOC) enable IT to keep pace with technology changes –** A MOOC is a web-based class environment aimed at large-scale global participation and open access via the internet. MOOCs have been dubbed a potentially disruptive technology trend (especially for traditional higher education).

As these courses gain traction, future employees, engineers and researchers will receive a significant portion of their education through MOOCs and associated digital learning methods and tools. Because technology is evolving faster than individuals can absorb, in 2014 this new trend will enable IT organizations to more rapidly evolve their skill sets and ultimately more effectively keep pace with technology changes. Specifically, MOOCs will help IT ramp up quickly with analytics, mobile development, and agile methodologies to help with big data, consumerization, and DevOps, respectively.

► FLASH FOR EVERYONE



AMIT LUTHRA

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For the Enterprise of 2014, flash storage at the price of disk presents the ideal situation where storage comes at high performance with standard costs

About three decades ago a Japanese Scientist by the name Dr Fujio Masuoka revolutionized storage by building the first NAND flash storage device — an easy to use storage device for fast information storage. Flash storage is different from the otherwise used disk storage as retrieving information from flash is much faster. Lacking in any mechanical parts, flash memory also has a minimum susceptibility to damage.

These features of flash devices, also known as solid state storage devices, made it very popular in the manufacture



of consumer electronic devices which require a limited amount of storage and can benefit from its minimum susceptibility to damage. However applying it to storage in the enterprise space, though beneficial, was a distant dream, mainly because of the cost involved in building flash storage devices of such capacity.

The year 2013 has increased storage demands with the growing volumes of data and the increasing need for High Performance Computing. Storage demands of enterprises today have

changed drastically. Today, they extend far beyond the need for volumes of space to better performance and support of I/O-intensive applications for big data analytics, database transactions etc. In 2014, it will therefore become necessary to find a storage solution that can strike the balance between cost and performance. Luckily for enterprises, flash, or solid-state memory, and tiering have evolved to the point where, when combined, they provide the speed, agility, and cost-efficiencies without having to “rip and replace” the existing storage infrastructure. And, when deployed intelligently, businesses can get flash performance at the price of disk today.

Flash ensures high performance

Flash storage typically ensures better performance and greater speed. The benefits of flash can range from increased cost for performance — the dollar per IOPS (input/output operations per second) is over seven times cheaper for flash than for hard disk drives — to lowering rack space and power consumption costs. Beyond the infrastructure, flash also helps in boosting employee productivity and helps meet business critical SLAs.

Additionally, when IOPS is used as the key parameter, then flash clearly outperforms disk. While a conventional 15k HDD delivers approximately 200 IOPS, a single SSD of the similar form factor can provide thousands of IOPS.

There are two popular flash technologies that exist in the market today — a single-level cell (SLC) and multi-level cell (MLC or enterprise-class). SLC flash technologies are more persistent with a three times faster sequential write, comparable sequential read. However they are four times the cost of MLC.

Flash storage also comes in various formats and is being deployed in both all-flash and hybrid — a mix of flash and HDD — models and inside servers (i.e. PCIe cards), as well. SLC flash is generally used in commercial and industrial applications and embedded systems that require high performance and long-term reliability. Multi-level cells can be used in cases where such high



performance is not required.

Because of the benefits that flash offers, enterprises are adopting flash, with 30 percent already using solid-state storage and another 32 percent planning to deploy it. Forrester analysts expects that flash will become commonplace in transaction-heavy environments, not just performance-sensitive ones, in the near future.

Enterprises cannot completely do away with disk

Though all-flash storage excels in high-performance use cases, disk and hybrid systems will continue to serve major roles in data centers. Unstructured data growth dictates the need for dense, affordable bulk storage of less critical data that disk drives most affordably support. Unless you are having thousands of people accessing the same file at the same time, like in a web front application, hard drives still make sense. Hence, a complete shift to flash does not make sense for most enterprises.

The solution lies in tiering

Storage tiering, the assignment of storage in different categories of data to different types of storage media, in order

Because of the benefits that flash offers, enterprises are adopting flash, with 30 percent already using solid-state storage and another 32 percent planning to deploy it

to reduce total storage cost in such a situation, is the solution for CIOs to seamlessly bridge the price/performance chasm and assign data and applications to the most appropriate storage medium. It involves assigning different categories of data to different types of storage media to ensure optimal performance and the lowest total cost.

Tiering ensures an automated workflow that knows which “packages” of data require “immediate express delivery” and places them on that first tier (in this instance flash) and which “packages” of data can be safely stored on

less expensive and slightly slower second tiers. Additionally, tiering can extend to the allocation of data across write-intensive SLC and read-intensive MLC SSDs. This helps in improving the performance of data-intensive applications and workloads in a high-performance storage solution that can achieve over 300,000 IOPS.

This feature which allows tiering across SLC and MLC is relatively new and has many advantages in terms of greater overall cost for performance. Additionally, flash reliability in cases where an array leverages the more vulnerable MLC flash tier mostly for reads while the capacity of the more expensive SLC tier can be kept to a minimum, just large enough to handle inbound write traffic. This model hence dramatically reduces the overall cost to implement flash.

While a major chunk of the storage challenges are solved by tiering, many vendors offering only all-flash arrays today typically lack full enterprise-class features (e.g. advanced replication, replays and management) and industry integrations that the more established vendors offer. A storage infrastructure that allows you to easily morph into a hybrid array, one that mixes SLC, MLC and disk, can further reduce costs and increase capacity — offering a much lower price point per/GB than all-flash arrays while providing the performance of flash. As a result, businesses are able to get flash performance when it's needed, and do so at a price that's comparable to an all-disk solution.

For the Enterprise of 2014, flash storage at the price of disk presents the ideal situation where storage comes at high performance with standard costs. Making use of this innovative approach to storage, helps improve storage performance while staying closer to the cost of a disk solution. It gives enterprises the best of both worlds: data is written to the fastest tier using SLC drives and as data ages, the data is automatically moved to MLC drives, and eventually to slower and much less expensive traditional HDD drives.

► 'MOSTLY CLOUDY' SEASON



SRINIVAS TADIGADAPA

Director - Enterprise Solution Sales, Intel South Asia

In 2014, the industry will turn to maintaining peak cloud performance for business through two simple and surprising ways to cool data centers

It's a cloud burst! With the explosion of public and private cloud services—social media, cross-device data syncing, and online storage—to name but a few—cloud-based services are spreading exponentially. To that end, more companies and service providers are heavily investing in high-performance and efficient data centers that can effectively cater to the ever-increasing demands of the public, without having to impact the environment or the company's wallet.

Running green and efficient data

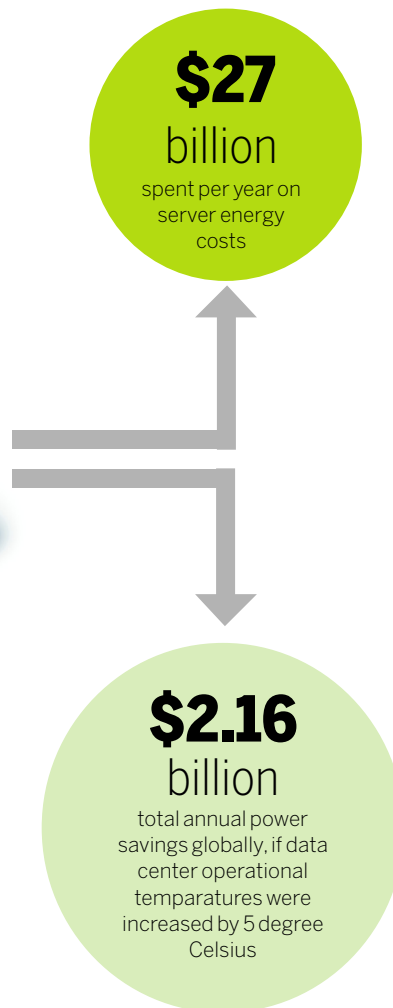


centers, however, is a costly operation. According to analysts, roughly \$27 billion is spent per year on server energy costs. Data center hardware spending is projected to surpass \$126.2 billion by 2015. This represents a huge increase in just five years, compared to the \$87.8 billion spent in 2010. With so much money on the line, it is only natural that great emphasis is placed on the efficiencies of data centers to ensure healthy returns on the investments.

In order to run a cost and energy efficient data center, a holistic and integrated approach is required. Here are two ways to look at it:

► **Gearing up to bear the heat:** To improve the efficiencies of data centers and ensure that cloud offerings or storage solution investments are environmentally considerate and profitable, we need to approach data center cooling differently. Cranking up the thermostat to save on cooling costs may sound crazy, but perhaps this is exactly what we need to do to curb the ever-increasing energy bill.

Data centers 10 years ago were typically cooled to 18-21 degree Celsius



for a number of reasons—including warranties on servers that stipulate the need for this temperature range.

However, this may no longer be the case, especially with warranties on servers now set closer to 35 degrees Celsius.

For every one degree rise in operating temperature, there is an estimated four percent operational saving. To put this into perspective, if data centers were to increase their operational temperatures by five degrees Celsius, there could be a total annual power savings of \$2.16 billion globally. More than just financial savings, a data center operating at this level of efficiency is also considered a 'green'



data center. Achieving such significant results requires innovative solutions in modernizing, managing, and maximizing both the infrastructure and cooling methods of data centers

► **Re-thinking energy:** Currently, there are a number of hardware and software products already in the market to help cool data centers, with significant development in technologies such as Power Thermal-Aware Scheduling (PTAS) paving the way to more efficiency. PTAS is a new concept that manages metrics such as CPU consumption, memory consumption, input, and output temperatures at the workload level.

Traditionally, this data would be separately aggregated into a capacity planner along with other building management data, if it was done at all. But, by capturing these computing

By capturing computing metrics at the server level, we could use analytics to migrate workloads that are creating “hot spots” to cooler areas in data centers

metrics at the server level, we could use analytics to migrate workloads that are creating “hot spots” to cooler areas in data centers — bringing yet more cost and energy savings to the data center.

In fact, trials of this concept in building management systems at data

centers in India and Taiwan have started; systems are interacting with air-conditioning units to efficiently cool specific areas on demand. This automated solution is far more intuitive than the traditional method which, in some cases, is wasteful because all air-conditioning units are utilized at the same time.

Green, cost-saving data centers

By cutting operational costs the green way, Asian businesses can recognize a stark return on their investments in data centers, and at the same time, provide ‘green’ solutions to customers. Only when industries stop and think about how their data centers are operating, can they truly see the rewards and benefits of a more sustainable and cost-efficient operation.

And so we continue our journey through the clouds...

► NAS TO GET STRONGER



SUBROTO DAS

Director - India and South Asia, Western Digital

In the year ahead, network attached storage will grow significantly among SOHOs, SMBs and enterprises alike

The year 2013 saw the rise of innumerable startups and small offices and 2014 looks set to add to the already substantial count. A thriving atmosphere for businesses has led these home and small-offices to demand products that are designed specifically to meet their growing needs, one of which is storage. However, the trend today is not just to demand high storage capacity but also to expect remote accessibility, data security and platform independence as part of the package. All of this automatically makes network attached storage (NAS) the preferred form of storage for these growing businesses.

Home- and small-offices face several challenges that need to be addressed. It's not uncommon for SOHOs (small office home office) to have their employees deal

with more than just simple spreadsheet grids and documents. These organizations work with heavy graphics, audio and video files and other rich content, all of which demands careful data management. What makes matters more complex, is the need to have secure access to data regardless of whether the staff are in office or on the road. Factoring in the vast amounts of data generated by individuals and the business as a whole, running out of capacity at an inopportune moment is also a very real possibility. And with multiple users logging in simultaneously to view and work on data, it becomes imperative to centralize all the data on a robust storage system that provides rock solid data redundancy. To tick all of the aforementioned check-boxes, an organization need only turn to a robust open-source NAS device.

Today, it's possible to purchase open-source NAS devices that are designed for SOHOs, SMBs and even enterprises. SOHO-aimed NAS devices offer between 1-to-5 drive bays and in the case of a fully populated 5-bay NAS, organizations have the ability to choose from one of several RAID (Redundant Array of Independent Disks) options to balance storage capacity, data protection and performance. RAID 6 is a good choice that balances these three aspects — in

fact this particular form of RAID can recover data even if the NAS experiences a failure from two drives.

Modern NAS systems are designed to be easy to setup and with storage vendors offering purpose built drives that have been qualified to run in hundreds of SOHO NAS devices, it's now very easy to deploy a NAS with no IT knowledge. In some cases, picking the right drive is just a case of choosing the right color in a vendor's NAS portfolio. Today's 1-to-5 bay SOHO NAS drives offer true plug and play compatibility, as well as advanced technology such as NASware 2.0, which ultimately enables users to set up and begin using the NAS in a matter of minutes.

As a result of the flexibility of NAS devices and the availability of purpose built NAS hard drives, the global market for NAS is growing at a high rate and is projected to reach US \$3.08 billion in 2014. It is expected to further grow as high as US \$7.0 billion by the year 2017.

India is poised to see a surge in data generation driven by the number of home and business networks, and the growing need for data archiving and data backup. By 2023, digital information in India is expected to grow from 40,000 petabytes to 2.3 million petabytes, which is twice as fast as the worldwide rate. With increasing amount of data and connected devices, the amount of consumer and enterprise data will also grow exponentially. The data generated through other sources like social media, proliferation of video surveillance, audio/images and machine generated data is also expected to contribute significantly to the total data generated. The year 2014 will see a lot of emphasis on business continuity planning, an increased need to empower employees with remote access to data will, in turn, make NAS adoption more widespread.

Owing to the storage capacity, breadth of features, which includes sharing data across multiple platforms and remote accessibility, as well as data security that NAS systems offer, the adoption of these devices in the SOHO, SMB and enterprise spaces is expected to grow significantly in the coming year.

MURLI MOHAN
DELL INDIA

Murli Mohan, who has just taken over the reigns of Dell's newest entity as Director and General Manager, Software, Dell India, talks to Mehak Chawla about the growth path and vision of Dell Software in India

“Software is the glue we need for long-term engagements with customers”

Dell Software is the newest entity in the Dell stable. How do you plan to gain your footing in this domain?

While we are a very new part of Dell's overall strategy, we are by no means insignificant. We are about \$1.5 billion in revenues globally, with a user community of over two million clients and a team of over 6000 members. The entire evolution of this software portfolio is a function of some key mega trends globally. We have looked at the right areas to strategically align our offerings with these trends.

The first big trend is the huge influx of data- both structured and unstructured. It is emerging as a key CIO challenge. Other mega trend troubling CIOs of today is the aspect of devices. About 60% of all assets used by employees today are corporate owned, while 40% are employee owned. We expect this figure to exactly reverse in the next 5 years, presenting a huge challenge for IT heads in ensuring hygiene factors like security and access while giving employees the flexibility.

The next big trend we see is the business transformation, both of critical and non-critical environments, through cloud. Over 85% of businesses will use cloud, either in a moderate or a big way in the next 3 years.

The final defining trend is that of security with respect to both applications and end-points. A wall around applications is not an answer to all threats any longer. Attacks are not restricted to apps or network. Security has to be looked at from a more holistic and data protection point of view.

How does Dell Software fit into Dell's recent efforts of completely repositioning itself as an end-to-end player?

Software clearly plays a critical role of a differentiator in the end-to-end services that Dell is aiming to offer. We already have state-of-the-art hardware that our clients are used to, we also have growing services capabilities for our customers to choose from in a Dell or non-Dell environment.



What is the kind of evolution that you foresee for Dell Software in India?

We are looking at bringing Dell Software to our common partner umbrella and not at creating a specific Dell Software partner ecosystem. The focus as of now is to bring about the broad awareness that Dell now provides software and software services that can make a difference to your organization. Though we are only 6 months old and have a lot to figure out from an evolution perspective, we believe we have a good story in terms of offerings.

Software will give us the glue that we need for a long-term engagement with our customers. It is definitely a profit driver and gives us a great opportunity to work in areas that pose a challenge in today's IT environments. Its about ensuring that you have offerings across the spectrum for customers.

Dell has been strong on the customer engagement front globally, whether it is through direct sales or channels. We have got a big foot-in-the-door advantage in that regard. There is a huge demand, even from the partner side, to align our software capability with hardware.

The software space in India is already pretty crowded. What are the key areas of growth that Dell Software is betting on?

We are not pitching ourselves as a platform vendor. We are looking at addressing some key challenges through our software offerings. Take for example Business Intelligence (BI). We are not looking at providing traditional dashboard type BI because there already are well established players there.

Our differentiation is in bringing that capability down to the workforce as we work very well with the established principles. So there is a complementary tone to the entire portfolio that we have. For example, we have a suite of offerings under this umbrella called data center and cloud management. We have offerings that help you migrate to Microsoft Exchange, Active Directory etc. We also have offerings around database development and management.

In most cases, we bring in extended capabilities that go way beyond the offerings of a traditional software. We have also released offerings pertaining to BYOD. The articulation is very specific and very clear, and while we certainly have aggressive competition in areas like analytics and performance management etc., we believe we shall have a big role to play regardless of the installed base of other vendors.

e-GOVERNANCE, THE APPS WAY



The Government of India is taking the necessary steps to build an e-gov app store and mobile service delivery gateway for better e-services

BY HEENA JHINGAN

When the Indian Ministry of External Affairs launched its app for Android and iOS, little did it hope that it would become one of the most downloaded government applications on the Apple store, that too in less than 24 hours of launch.

Surprisingly, within a month of its release, the MEAIndia app had recorded nearly 94,000 downloads (on Android and Apple platforms). The Ministry is said to have received response beyond its expectation and now it is thinking of providing the app on Windows as well.

Well, that is the status on just one of the government applications; there are many more in the making. Soon, a mobile app of the union Ministry of Tourism will be ready to take the users on interactive 'walking tours' to key monuments across the country.

The Delhi Tourism and Transportation Development Corporation (DTTDC) is also set to launch its official mobile application, which will provide varied information such as Delhi Metro routes and fares, bus timings, places to visit, hotels and where to eat in the city.

It looks like the government departments are warming up to mobility. In addition to ramping up their e-governance mechanisms, various government agencies are getting increasingly aggressive on the mobile front.

The government sector is the one of the biggest markets for all vendors across the world, not in India alone. A recent worldwide government IT spending priorities survey (across 13 countries, including India) by Gartner indicates that the public sector units (PSUs) are geared up to adapt to the ensuing IT revolution.

The survey finds that the focus of the agencies is mostly around IT modernization, mobile technologies, and cloud computing. In fact, many of them have already begun showing interest to grow in professional services and big data.

The research firm estimates that the Indian government is slated to spend \$6.9 billion on IT in 2013, a 10.5% jump from \$6.2 billion in 2012, spanning internal IT and IT personnel, hardware, software, external IT services, and telecommunications. The highest growth segment for government IT spend is predicted to be software, recording an 18% increase, led by investments in desktop and infrastructure software.

While a large number of government agencies in India are yet to be automated, the ones with basic IT infrastructure in place are faced with a greater challenge of developing the applications to leverage the existing infrastructure and minimize losses, fraud and abuse of resources due to improper payment systems. Interestingly, the problem is not unique to India. Even some of the developed nations too have failed to benefit from new age technologies like cloud computing and open source due to complicated public procurement procedures.

To counter such roadblocks, central government agencies, such as the General Services Administration in the US and the Cabinet Office in the UK, established cloud stores hosting service offerings from vendors. A model, which is quite similar to mobile applications are sold to customers through Apple or Android app stores or the enterprise apps stores provisioning mobile applications to the employees, helps

WHY MOBILE MAKES SENSE FOR E-GOV SERVICES

- As per Gartner, India's current mobile penetration that hovers around 51% will grow to 72% by the end of 2016. The total number of mobile connections will cross 900 million.
- According to India Mobile Landscape (IML) 2013 study by Juxt, India has 554.8 million mobile users. More than 298 million, about 54%, of these device owners, are in rural areas as compared to 256 million in cities and towns
- An i-cube report finds that in June 2013 there were 21 million active mobile Internet users in rural India — a huge 5.3 times growth over 2012 and nearly 47 times over 2010. By June 2014, the number of Internet users in rural India is expected to reach 85 million.

With about 165 applications in all, the Mobile Seva platform is currently open to about 525 departments



The development of the app store will be a phased exercise. As it evolves, some of the popular applications will be developed as products.

Renu Budhiraja,
Director & Head of Department of
e-Governance Group, Department of
Information Technology



We see exciting times ahead as the Government of India has realized the power of mobility and is now working on several mission mode projects and mobile initiatives.

Mathew Thomas,
Vice President - Strategic Industries,
SAP India

departments to buy solutions at ease.

A concept, presented under the UK IT Strategy as G-AS (Government Application Store) is now being explored by others, including India, but with its own flavors and twists.

Agrees Mathew Thomas, Vice President - Strategic Industries at SAP India. He says that the government agencies across the globe now realize the strength of IT in better and structured governance and are proactively investing in IT solutions and applications that can help them become more efficient.

"Globally we are working with governments, and we are committed to bringing those solutions to India too. We see exciting times ahead as the Government of India (GoI) has realized the power of technology and is now working on several mission mode projects with e-governance and mobile initiatives, and we will see them rolling out interesting citizen-facing applications. Mobile will play an important role here. Things need to change within the department for employee use and also on citizen facing services."

"We are already working with on Accelerated Power Development Programme (APDP) projects across 18 states that involve modernization of substations, transmission lines and distribution, consumer meters, high voltage distribution system (HVDS), consumer indexing and computerized billing for improving the financial viability of state power utilities, we have also covered about 133,000 post offices. We are working with several state governments' treasury departments to build platforms to automate their revenues and receipt systems. Definitely, the government has developed an appetite for the apps," he elucidates, adding that the software vendor has even developed SAP-HANA based platforms like SAP Rakshak and TracOHealth in order to help government agencies to automate several operational areas including tracking & control; streamlining of procurement systems, budget and expense management, project & scheme implementation, so that they can turn data into actionable

information and deliver services efficiently.

Thomas says that they work with 1,250 public sector organizations in 70 countries. In India, the list of government clients includes names like the Power Grid Corporation of India Limited, Government of Andhra Pradesh (Treasuries and Accounts), Ministry of Company Affairs, Bharat Dynamics Limited, Electronics Corporation of India Limited, Assam Power Distribution Company Limited and Andhra Pradesh Power Generation Company Limited.

The e-Gov cloud

The Indian government's endeavor to have 'ready to deploy and replicate' applications has resulted in the pilot version of an e-gov application store. The app store has been developed and hosted by the the Department of Electronics and Information Technology (DeitY) through its National Informatics Center (NIC).

According to Renu Budhiraja, Director & Head of Department of e-Governance Group, Department of Information Technology, the app store, in its current form, is like a repository of apps, components and web services that can be used by all government agencies and departments.

"The app store at present is being hosted on the NIC infrastructure, which can be scaled if needed. Also, it hosts apps which can be replicated across central and state levels, and can be hosted on the cloud. The development of the app store will be a phased exercise and at present these applications are not available as products. As it evolves, some of the popular applications will be developed as products and made available on the eGov AppStore to be used as SaaS," she says. Most of these applications are still being further developed and experimented with.

"At present, there are over 20 applications and most of those have been developed by NIC. In due course, this app store will be augmented to include applications and components developed by various departments and agencies at the center and states, and also by private players. A complete ecosystem will be established (including mechanism for

POPULAR APPS ON E-GOV APP STORE

PRIASoft - 2.0

Implemented by Ministries:

Ministry of Panchayati Raj

Implemented by States: Andhra Pradesh, Assam, Chhattisgarh, Haryana, Madhya Pradesh, Rajasthan, Tripura, Uttar Pradesh

Developed as a part of the Panchayat Enterprise Suite (PES) under e-panchayat Mission Mode Project (MMP), Panchayati Raj Institutions Accounting Software (PRIASoft) is meant to keep track of all the in-flow (Receipts) and out-flow (Payments) of the PRIs.

It acts as a Centralized Accounting Software for maintenance of accounts by all the three levels of Panchayats viz, District, Block and Village Panchayat. Developers believe that the financial management tool can help make the system more transparent and enhance credibility of Panchayats and their processes of devolution of funds to Panchayati Raj Institutions (PRIs). This in turn helps higher authorities monitor funds and plan better for these institutions.

CO-OPERATIVE CORE BANKING SOLUTION (CCBS)

Implemented by Ministries: Ministry of Communications and Information Technology

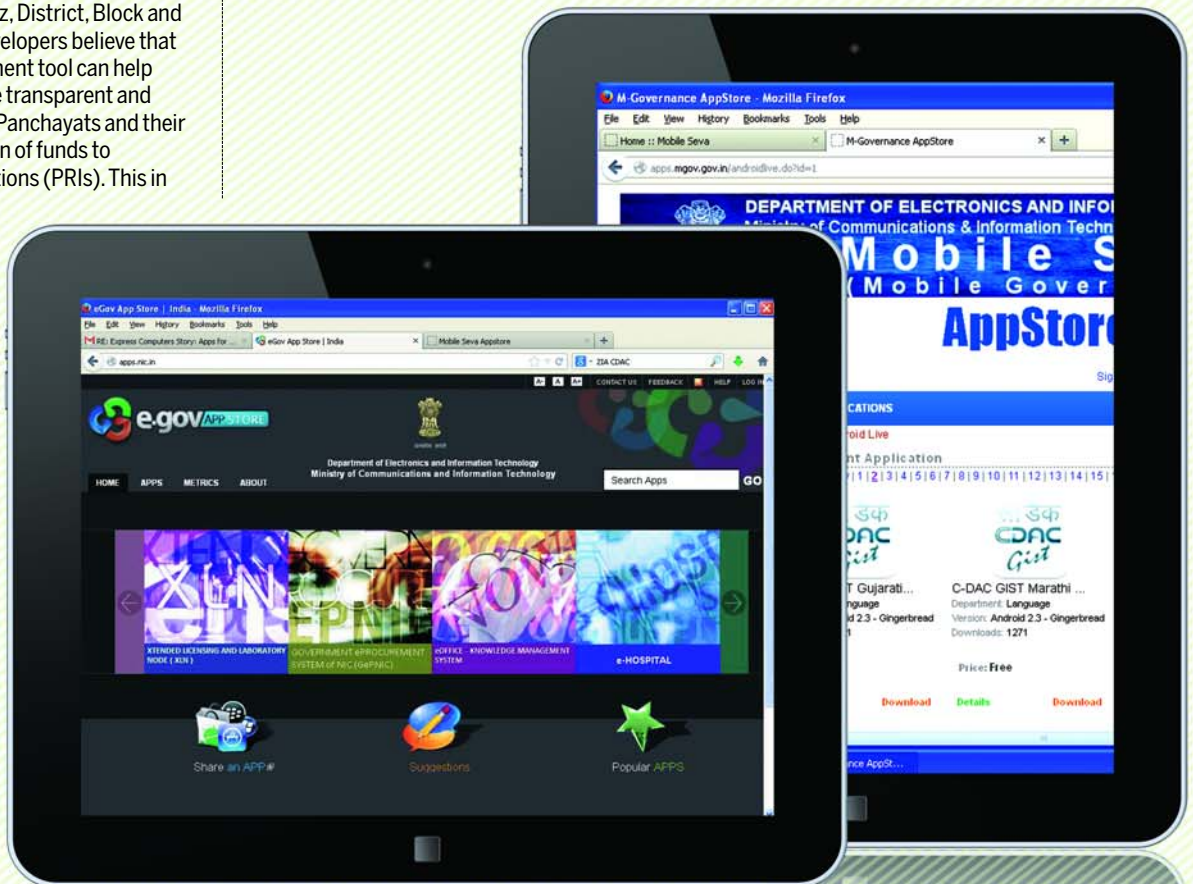
Implemented by States: Chhattisgarh, Meghalaya, Rajasthan

A runnable application on the e-gov app store, Co-operative Core Banking Solution provides an interface for all the three tiers of a Co-operative Bank – SCB (State Co-operative Bank), DCCB (District Central Co-operative Bank) and PACS (Primary Agriculture Credit Society). It is a solution with a web-enabled interface.

eDistrict KERALA - 1.4

Implemented by States: Kerala

A state-specific, downloadable application, e-District is a mission mode project under National e-Governance Plan (NeGP). In Kerala, the project is piloted in two districts. The project is intended to provide Government services to citizens through Common Service Centers (CSC) which are easily accessible. Services from different departments are brought under one umbrella at any CSC. The rollout of the project in the remaining 12 districts has already been started.





The government's initiatives to develop apps are encouraging, but it is not going to be easy for third-party app developers to find space on these platforms.

Keshav Karunakar,
Vice President - Mobile Apps,
PathPartner Technologies



The plan is to evolve the Mobile Seva platform into a call center kind of environment so that even the rural folk can access citizen services through mobiles.

Zia Saquib,
Executive Director, C-DAC

funding, charge back, contract management, SLAs) and this platform will become a part of the Gol's cloud initiative," she explains.

Serving through mobile

The government is putting similar efforts to push citizen services to the mobile platform. For this, a Mobile Service Delivery Gateway has been created by the Centre for Development of Advanced Computing (C-DAC).

Zia Saquib, Executive Director, C-DAC, says that discussions around m-governance started two and a half years ago when they proposed the m-gov framework. Also, it was around that time that the NeGP (National e-Governance Plan) was picking up pace.

"C-DAC's task was to prepare the proof of concept and create five mobile applications that could be demonstrated. "We developed the platform in January 2012 and came up with applications for acquiring birth certificate, income certificate, domicile certificate, etc. Based on the success of this, we ended up developing 50 applications; this was beyond our own expectations," Saquib recounts.

With about 165 applications in all, the Mobile Seva platform is currently open to about 525 departments.

Saquib says that the penetration of smartphones is still low, so most applications have been developed keeping that in view. The apps are based on Unstructured Supplementary Service Data (USSD) and Interactive Voice Response, technologies that are supported on a majority of handsets. The plan is to evolve the platform into a call center kind of environment so that even the rural folk can access citizen services through mobiles.

However, given the complexities of the Indian market and the long time governance projects usually take, it will hardly be a smooth ride for the government.

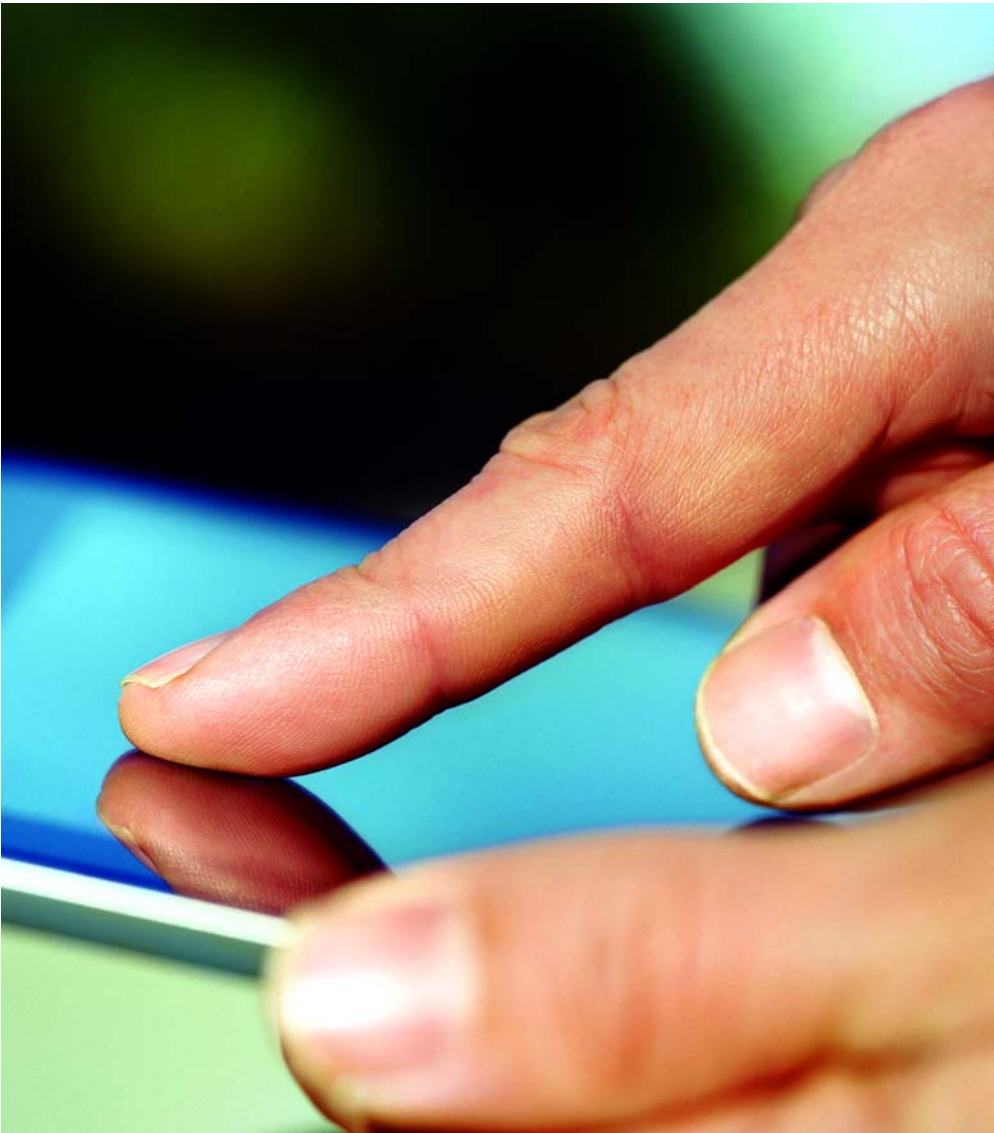
The app disconnect

One of the challenges is how the government app store will be able to connect with private, third-party app developers, which might be necessary to take adoption to the next level. Keshav



Karunakar, Vice President - Mobile Apps, PathPartner Technologies, says that the government's initiatives to develop apps to accelerate delivery of citizen services are encouraging. However, it is not going to be an easy task for the third-party app developers to find space on these platforms.

He says that the company had developed a mobile application called ppinng!myPF that helps users track their Provident Fund account, which is available on Google Play store and they had to make sure it was not just an extension of the the web portal of the



Employees' Provident Fund Organization. The challenge arose from the fact that the EPFO website is not always updated. "Since the website is not always updated, the data is usually not real time. So, our app uses a different calculation method based on an employee's salary. A lot still needs to be done at the government infrastructure to be able to make such applications work," says Karunakar.

The Indian mobile app market is currently valued at Rs 1,800 crore, and growing. However, when it comes to developing applications for government,

things get difficult because it is not always possible for private developers to work on the lower costs. Besides, the pace of things is quite slow: at times, by the time the rollout happens, the technology is already outdated.

Thomas of SAP agrees that delayed decision-making and complicated tender processes have been hindering the innovation that can be brought to the public sector.

The complexities around public tender processes have already put the Mobile Seva work in a limbo. According to Saquib, the government was doubtful

whether C-DAC could handle the kind of pressure and scale that Mobile Seva would entail (as many as 27 crore messages related to e-gov services on the Mobile Seva platform were received between January 2012 and October 2013). So a public tender was floated, inviting telcos and system integrators to manage the Mobile Seva platform. However, due to several complex expectations in the RFP, the government could not reach a decision.

Saquib says that the government RFP requires the applicant to be a company with a broad scope and one that should be able to further develop the platform as well as aggregate service applications. This implies very few companies can qualify. "To ease things we might see the RFP being modified," he says. Until that happens, C-DAC will continue to manage the platform.

He further explains that it is not a C-DAC mandate to build applications, so they will be empaneling third parties to do so. "We will be empaneling 6-7 agencies that will be attached to the government departments to study their MIS and back-end systems and build applications accordingly," he says. Also, while the apps are free at the moment, in case commercial apps from thirty-party developers are rolled out, then revenue share models will have to be worked out — which, again, will be a time-consuming process.

Budhiraja of DIT sounds more positive: she says the government processes might appear complicated, but they have to be fool-proof. "The government has taken a well-calculated approach. While the e-gov app store is focused on the government departments, to develop their applications to be implemented and replicated, the departments need to ease processes." Moreover, she reasons that the Mobile Seva platform has been designed to support citizen-facing applications through mobiles.

She further explains that effective implementation of these platforms will need a complete ecosystem, facilitating seamless flow of information across platforms.

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TORU HASEGAWA
PANASONIC INDIA

A late entrant in the Indian B2B space, Panasonic has set ambitious targets to capture the market. Toru Hasegawa - Divisional Managing Director, System Solutions Division, Panasonic India, talks to Pupul Dutta about the company's plans

“We are trying to put more emphasis on enterprise solutions”

What are your offerings in the B2B segment and what is your go-to-market strategy given that you are a late entrant in the Indian marketplace?

Panasonic has a plethora of offerings in the B2B segment, divided in categories like security and surveillance, projectors, imaging and printing, enterprise telephones, display panels, PBX/KTS, fax machines, Toughbooks, etc.

We have a large and diversified set of products. Our go-to-market strategy is based on customizing them to the requirements of customers and supports our sales strategy, providing us with greater agility. With an extensive network of highly committed and qualified channels, equipped with the right framework, tools, and resources to capture the enormous opportunities, we make all possible efforts to provide our customers with a seamless experience right from the time of the first walk-in, till sales, until the after-sales service points.

Our go-to-market strategy primarily depends on the type of product that is on offer in addition to the target consumer that we aim to reach out. For example, for the product range in the security and surveillance segment, our strategy is more enterprise driven, instead of reaching out to the target market directly. Also, in order to deliver the finest of our product and services to our customers, we empower our partners and provide them with adequate training time and again, so that they can cater to each and every need of the consumers. We do periodic technical trainings for our partners and their sales teams on product and application skill sets so as to keep them updated on technological upgradation.

Panasonic has solutions in security and surveillance as well as products like Toughbooks. How is the market response for these products in India? Also, how do you plan to boost the sales of the same?

The Indian market has a humungous scope for all products, be it security and surveillance or the toughbooks. Despite being a price sensitive market, the acceptance of security and surveillance products is increasing. The country is witnessing strong demand for high-end



What is your growth target this year and how do you plan to achieve it? Also, what percentage does India contribute to your total revenues?

We are targeting about \$1.45 billion in the financial year 2013-14. While consumer business continues to grow in India, we are trying to put more emphasis on enterprise solutions and focusing on areas such as energy and security and surveillance. Energy generation management solutions will be a key growth segment for us. Out of the total revenue share, India contributes over 1% to the total overseas sales.

security solutions from both public and the private sector. Recurring terrorist activities are necessitating round-the-clock intelligent surveillance of public infrastructure, sensitive installations of enterprises as well as residential communities. Today, due to advances in technology, video surveillance cameras are better than ever and can be used along with computers to handle complex situations.

India is a high growth market for us globally and we are making aggressive investments in this region on products, talent, marketing, service support, R&D and manufacturing. The key strategy for growth in India is to accelerate product developments and business promotion to meet the local needs. In order to keep the customer count increasing, we intend to develop versatile technology for the modern-day users which would enable them to multi-task easily.

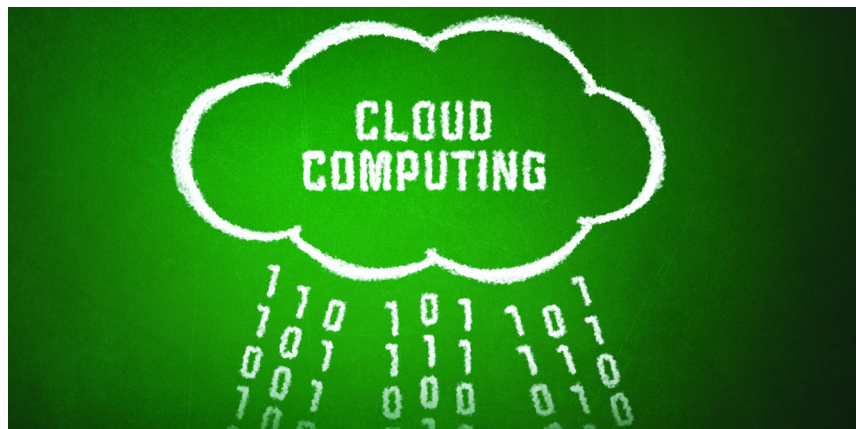
What kind of solutions do you offer for video conferencing and how can companies customize the same?

Panasonic has introduced a true high-definition 3D video conferencing solution which is easy to setup and use for its consumers. We have infused 3D technology with HDVC. Under this range we have two models - Panasonic KX-VC600 and KX-VC300.

Of late, there is an upward trend in utilization of video conferencing in order to not only reduce travel and accommodation cost or time, but also to increase overall productivity of the business through enhanced collaboration. SMEs can use video solutions for different tasks such as job interviews, meetings, product demonstrations, trainings, remote healthcare etc.

For the healthcare industry, the availability of specialized full HD or 3D secondary camera (along with main PTZ camera) can be used to view human body part images and videos which can be transmitted to a health specialist sitting at any remote location. Similarly, manufacturing companies can deploy this solution to show minute parts of their equipment designs at high resolutions to customers sitting at other locations.

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Now, a service to enable enterprises process streaming data in real time

AMAZON WEB SERVICES has announced that Amazon Kinesis, a fully managed service for real-time processing of high volume, streaming data, is now broadly available for use.

Using Amazon Kinesis, a customer can store and process terabytes of data in an hour from hundreds of thousands of sources, making it easy to write applications that take action on real-time data such as web site click-streams, marketing and financial transactions, social media feeds, logs and metering data, and location-tracking events.

Amazon Kinesis-enabled applications can power real-time dashboards, generate alerts, drive real-time business decisions such as changing pricing and advertising strategies, or send data to other big data services such as Amazon Simple Storage Service (Amazon S3), Amazon Elastic Map Reduce (Amazon EMR), or Amazon Redshift. Customers can create an Amazon Kinesis stream with a few clicks in the AWS Management Console or through a simple API call.

To build applications that rely on “fast-moving” data, many companies have developed their own systems or stitched

together open source tools, but these are often complex to build, difficult to operate, inelastic and hard to scale, and can be unreliable or lose data, according to an AWS release.

Amazon Kinesis claims to help solve these problems by providing a fully managed service that takes care of all the “heavy-lifting” for developers, providing easy data ingestion and storage, high data durability, and the ability to scale seamlessly from kilobytes to terabytes an hour — at a fraction of the cost and effort.

Amazon Kinesis can also integrate with third-party products, giving developers control and freedom to choose their preferred method of data processing, including popular open source products.

With Amazon Kinesis, customers can quickly and easily add real-time analytics and other functionality to their applications, claims the release, turning today's explosive data growth into an opportunity to build competitive advantage and innovate for their customers. Amazon Kinesis is currently available in the US East (N. Virginia) Region and will be rolled out to other AWS Regions in the coming months.

BlackBerry launches enterprise solutions centres in India

AS PART OF its commitment and focus on the enterprise mobility market, BlackBerry has announced the opening of BlackBerry Enterprise Solutions Centres in Mumbai and Gurgaon. The centres, will cater to the needs of enterprise customers and provide them with a walk-in experience of BlackBerry's enterprise mobility management solutions including BES10, BlackBerry Enterprise Server 5 and BlackBerry Enterprise Server Express, hosted and cloud-based options, and in-market BlackBerry smartphones.

The BlackBerry Enterprise Solutions Centres will detail for enterprises the BES10 security architecture and how mobility can enhance corporate productivity. The centre will train BlackBerry Enterprise VARs (Value Added Resellers) and customers on deploying BlackBerry Enterprise Service 10, and plans to offer courses for BlackBerry certifications for IT administrators who are currently managing a BES infrastructure or want to enhance their skills on BlackBerry Enterprise Solutions. India will be the third country to roll-out a BlackBerry Enterprise Solutions Centre after US and UK.

Sunil Lalvani, Managing Director for India at BlackBerry said, “These first-of-their kind centres in India reflect BlackBerry's deep and long-term commitment to the country and our customers. The initiative focuses on the growth and opportunities of the enterprise mobility market and ‘bring your own device’ trends in India, highlighting how BlackBerry's leading EMM solutions can help businesses improve the productivity of their mobile workforces.”

Intel bets big on Internet of Things, HPC & big data

AS PER THE roadmap outlined for the business in 2014, Intel expects areas like Internet of Things (IoT), High Performance Computing (HPC), big data to be major growth drivers for the business with a continued focus on expanding the footprint on the National Digital Literacy Mission (NDLM).

The company claims its Quark technology will help extend its reach to rapidly growing areas, from the Internet of Things to wearable computing in the future. With Quark technologies, Intel is looking to extend the flexibility and scalability of the x86 ecosystems which encompasses more than 40 years of compute innovation and standards into new markets. According to the company releases, this trend is being driven by increasingly connected devices, seamless connectivity from sensors to the data center, cloud economics for compute and data and the acceleration of big data analytics to extract value from data. The IoT offers businesses the opportunity to



develop new services, enhance productivity and efficiency, improve real-time decision making, solve critical problems, and develop new consumer experiences.

With on going technology innovations in the area of HPC, Intel expects India to have more supercomputers listed in Top 500 in the year 2014. Additionally, increased collaboration with leading experts in CSIR, DST and industry is expected to further propel the application of HPC in India with more scientists and researchers getting access to parallel computing clusters. Intel will

continue engaging with researchers to increase the efficiency, scalability of their code.

Intel believes that cloud services will be critical for delivering services to billions of connected devices. According to Intel, having 15 billion connected devices in the next few years is achievable. The biggest question is around where the data will go when these devices connect and the best way to make use of that information. This will prompt a whole industry to grow around predictive analysis and raw data. Big data will help make companies smarter, more progressive and give them a business advantage. Governments will soon follow.

"This will be an opportunity for Intel as the changes in computing will lead to a requirement of 16x storage and 20x compute capacity by 2015," said Srinivas Tadigadapa, Director-Enterprise Solution, Intel South Asia.

Dell, Accenture to offer tech solutions and services to mid-market

DELL HAS SIGNED a world wide agreement with Accenture to tap opportunities in the area of business transformations by jointly offering enterprise solutions that include cloud, application assured platforms and security services.

Under the four-year global go-to-market agreement signed by Dell and Accenture, both firms will jointly develop and sell a new set of offerings designed to deliver improved enterprise efficiency, higher security, and better business outcomes. Both companies will work together to build, implement and manage data center solutions for mid-market and select enterprise customers who want to drive business innovation while

controlling costs and reducing risk.

For the new initiative, Dell will use its end-to-end portfolio of infrastructure, software and services with Accenture's capabilities as well as Avanade's, which was created in 2000 as a joint venture between Accenture and Microsoft.

This pact augments Dell's existing cloud capabilities in hardware, software and services. In addition, Dell has signed a four-year agreement with Accenture to develop the joint solutions that support Dell's global market expansion. The new solutions include cloud solutions, application assured platforms and security services.

"Accenture is viewed as a worldwide leader in developing the strategy to

architect data centers for some of the world's leading brands – a strategy that complements our scalable datacenter solutions and business strategy," said Cheryl Cook, Vice President - Partner Programs, Dell. "This expanded relationship will provide our current and future customers with solutions that offer greater business value and more choice, flexibility, efficiency and cost-savings. This is just the beginning with tremendous opportunities on the horizon."

The three initial Dell/Accenture solutions will be available in North America in mid-2014 and available in multiple countries around the world in 2015.



Nikom - An ISO 9001 Company and member of IGBC (Indian Green Building Council-CII) has an integrated capability to design and build state-of-Art World class green Datacentres on a turnkey basis for large and medium enterprises. Having successfully designed, implemented, and executed various turnkey datacentre projects for enterprises with server farm space of 200 sq. ft. to 15000 sq. ft., Nikom has won "BEST-IN-CLASS" Award in Asia Pacific Japan Region for their significant contribution in the field of Green Datacentres and Energy Management Solutions. Nikom InfraSolutions Pvt. Ltd. one of the Elite DC Partners of many leading global brands, have been winning consistently and delivering various prestigious Datacentre projects. All the Datacentres and Energy Management Solutions designed, and implemented by Nikom are with highest standards of project excellence, and technical expertise.

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e-Inclusion to e-Services

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BLOCK YOUR DATES

The 15th edition of the Express Technology Sabha is here. It will explore new trends and innovations that are transforming strategic priorities and enabling superior e-governance solutions that add value to the citizens. Since



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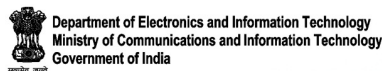
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Infosys rejigs top management

INFOSYS RECENTLY ANNOUNCED major changes to company's board of directors, including former CFO and member of board, V. Balakrishnan announcing his resignation and induction of new members.

V. Balakrishnan has conveyed his intention to resign as a member of the board and from the services of the company. The resignation is effective December 31, 2013.

The board places on record deep sense of appreciation of the services rendered by V. Balakrishnan during his tenure as the member of the board, Chief Financial Officer of the company and then as the member of the board in-charge of Infosys BPO, Lodestone, Finacle, India Business Unit and Global Immigration, said the company release.

N. R. Narayana Murthy, Executive Chairman said, "Bala has been an early adopter and a keen anchor-builder of Infosys. It is difficult to imagine Infosys without Bala's passion, commitment, and intellect. The board and every Infoscion thank Bala for his wonderful contribution and wish him great success in his future endeavors."

S. D. Shibulal, CEO and Managing

Director said, "Bala during his two decades of association with Infosys, has played a pivotal role in building the finance function and has been a key driver behind all of our achievements in areas of investor relations and corporate governance. Over the last few years, he has also provided leadership to BPO, Finacle, India Business Unit, Global Immigration and most recently, to Lodestone. I would like to wish him the very best in all his future endeavors."

Balakrishnan said, "I have enjoyed every moment of my stint at Infosys and it was a great learning experience. While my heart will always be with Infosys, my mind wants to do something beyond Infosys. I thank all my colleagues who supported and encouraged me during my career at Infosys. I wish Infosys all the very best in its future endeavors."

U. B. Pravin Rao has been inducted as a Whole-time Director and Kiran Mazumdar-Shaw as an independent member of Infosys. The board of directors will adopt appropriate resolutions on the above recommendations of the nominations and governance committee, at the meeting scheduled for January 10, 2014.

Cisco launches Desktop-as-a-Service solution for cloud providers

CISCO HAS ANNOUNCED a new Cisco Desktop-as-a-Service (DaaS) solution, which adds highly agile, cloud-based desktop virtualization solutions to its existing desktop virtualization product portfolio.

The Cisco DaaS solution is built on the Cisco Desktop Virtualization Solution, enabling cloud providers to offer their customers a Cisco powered, virtual desktop subscription service.



For business customers, the solution claims to provide increased choice and flexibility. Customers can choose to build their own on-premise desktop virtualization solution or buy a cloud-based, as-a-service solution, with Cisco powered performance, scalability, and security.

The solution includes deployment options from industry-leading ecosystem partners Desktone by VMware, and Citrix and is available through partners including ChannelCloud, Logicalis, Proxios, Netelligent, and Quest in the Americas; Dimension Data in APJC; and Adapt and ANS Group in EMEAR.

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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 November 30th, 2013:

- Over **200 actions** conducted across India by the enforcement authorities
- Counterfeit ink and toner cartridges worth approximately **USD 3 million** seized along with packages, labels, machines and equipment
- **233 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
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
Bharuch	Indraprasth Complex, Zadeshwar Road, Station Road, Pruthvinagar
Bhopal	M.P. Nagar, Fine Complex, Bankari Kolar Road
Bhubaneshwar	Saheed Nagar
Chennai	Ammalaiyappan 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 1 st 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	Shakarapur, Bhikhaji Cama Place, Ranjeet Nagar, Nehru Place, Sadar Bazar, Nayi Sadak, Roshanpura, Barakhamba Road, Connaught Place, Daryaganj, Rao Tula Ram Marg, Delhi Cantt.
Dhanbad	Urmila Tower, Bank More
Gaya	Balaji Market, Dighi Tank, Ambedkar Market, GB Road
Ghaziabad	Shiva Tower
Goa	Panjim, Ghavase Towers, Patto Centre Building, Near KTC Bus Stand
Hyderabad	Aditya Enclave, Ameerpet, Vanasthalipuram
Indore	Silver Mall, RNT Marg, Silver Centre
Jaipur	Nehru Place
Jabalpur	Gada Road, Madan Mahal, Right Town, Near Jyoti Talkies
Jhansi	Manik Chowk
Kanpur	Somdukt 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 Road, Biplabi Anukul Chandra Street
Lucknow	Akbar Nagar, Kukrail, Faizabad Road, Kesar Bagh, Sahara Shopping Centre, Faizabad Road, Indira Nagar

Ludhiana
Malda
Mathura
Mumbai

Mehsana
Nanded

Nagpur

Nashik
Noida
Patna

Pathankot
Pune

Ranchi
Rohtak
Roorkee
Secunderabad
Sirohi
Siwan

Solapur
Surat
Tezpur
Thane

Vapi
Varanasi
Vishakhapatnam

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
Vimal Super Market-Apna Bazar, Modhera Circle
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
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

Mobile Authentication
Scan the QR code with your smartphone to validate as authentic HP.

Security Seal
Tilt the security seal for the presence of a shifting image.

Online
To validate, visit hp.com/go/ok and enter the serial number from the label.

To report a counterfeit incident, log on to http://www.hp.com/sbo/product/supplies/fraud_report.html
To know more email at in.contact@hp.com or call **1800 3003 3003**