

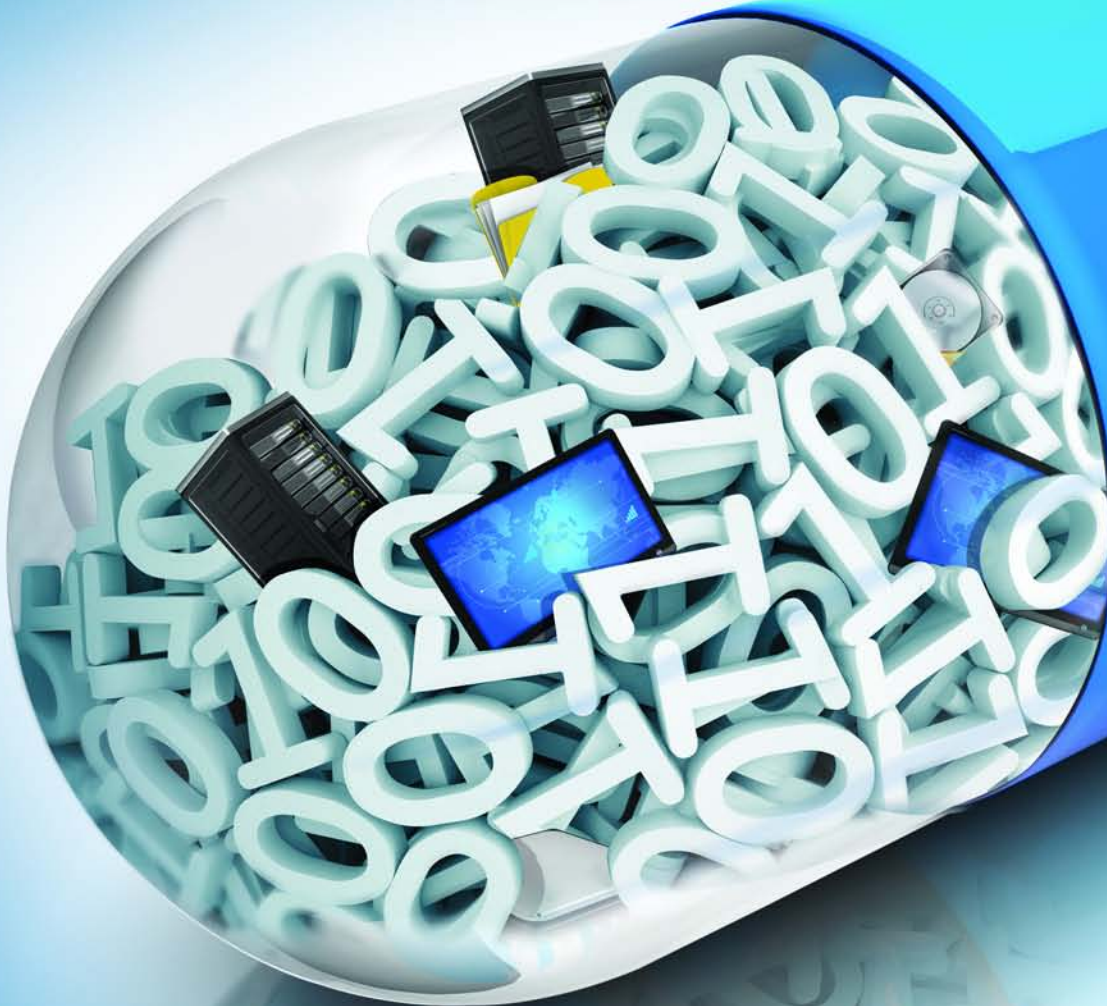
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RIGHT DOSE OF IT

Stringent regulations, quality and leakage concerns, and increasing competition are making pharmaceutical firms leverage IT to strengthen their manufacturing processes

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PHARMA BITES THE IT PILL



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THE PHARMA-
CEUTICAL
SECTOR IS
BOUND TO SEE
A LOT MORE
UPTAKE OF
LATEST
TECHNOLOGY
ACROSS THE
BOARD

Until now, India's ever growing popularity in the global pharmaceutical market, generics to be precise, was unidirectional — northwards. Along with the labour cost advantage, low production costs had remained core to the generic business models of homegrown drug companies.

Nowadays, if you eavesdrop at any Indian pharma bigwig's boardroom, you can't miss the hot topic of discussion — how can technology simplify their existing processes, boost productivity and have faster go-to-market cycles. Can IT really bring in higher efficiencies in terms of cost, quality and time? Our cover story "Right dose of IT" looks at how IT is helping some of the pharmaceutical companies compete with their global counterparts.

The pharmaceutical companies are pursuing aggressive growth strategies to foray into new markets such as Africa, Middle East, CIS countries and Latin America. But the fact is that generics business is complicated and the cost of production is rising year-on-year as regulatory standards are getting stringent worldwide. The employee costs too are on an upswing. The industry might not want to talk about it but some of the major Indian pharmaceutical companies have been in the line of fire, as the American drug regulator (FDA) and our own drug regulators have cracked a whip on their manufacturing operations in the past. After all, the safety of public health is foremost in their minds.

At a more realistic level, IT up until now was never looked at as a key business driver by the pharmaceutical firms. The profit margins and monopoly never required them to make business more efficient through IT. Each department had its own budget in the past, bought its own IT and ran applications in a captive manner, and did not feel the need to collaborate with other departments. However, the traditional method of working in silos is not helping the pharmaceutical companies, considering the steep increase in the costs of drug development and sales and marketing, nor does it enhance the productivity of manufacturing.

To reach out to newer markets and business opportunities, companies are faced with the hard fact that unless they improve their operations and comply with tough regulatory norms, they will miss the mark.

While IT adoption has progressed slowly in the pharmaceutical industry, it has come to play an increasingly important role in keeping the industry moving ahead. The pharmaceutical sector is bound to see a lot more uptake of latest technology across the board — from drug discovery, to manufacturing and on to sales and marketing. The endeavour will be to create a connected organisation.

In this long-term story, companies that can provide medicines at a reasonable cost and execute well, will succeed.

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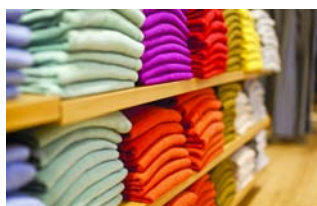
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RIGHT DOSE OF IT

Stringent regulations, quality and leakage concerns, and increasing competition are making pharmaceutical firms leverage IT to strengthen their manufacturing processes

HARSHAL KALLYANPUR

The times are interesting for the pharmaceutical industry in India. It's facing mixed situations wherein on one hand, changing lifestyles, newer diseases and stronger strains of viruses and bacteria are opening up opportunities for pharmaceutical companies to innovate and offer new drugs. However, on the other hand, a lot of these pharmaceutical companies sell to countries across the world. The fluctuating global economic scenario coupled with newer companies mushrooming within the country, has made the market highly competitive forcing pharmaceutical companies to look at newer ways to make their products innovative and have faster go-to-market times.

Also, stringent regulations, which keep seeing revisions or modifications are making things even more difficult for this already highly regulated industry.

A recent PWC report titled 'India Pharma Inc; Changing Landscape of Indian Pharma Industry' pegs the Indian pharmaceutical market at Rs. 72,069 crore as against Rs. 65,654 crore in 2012. However, the report also observes that the overall industry has actually seen a slowdown with its growth going down to 9.8% from 16.6% in 2012.

This slowdown is attributed to the new drug pricing policy and the regulatory interventions, a uniform code for sales and marketing practices and compulsory licensing. The report also notes that the implementation of the National Pharmaceutical Pricing Policy 2012 by the government has resulted in margins erosion from 20% and 10% to 16% and 8% for retailers and stockists, respectively. This decrease in the stockist margins led to a significant uncertainty among many stockists regarding the feasibility of staying in business due to lower profitability post the margin reduction.

Growing challenges and need for IT

Srinivas Tadigadapa, director - Enterprise Sales, Intel - South Asia gives a contrasting view and says that the Indian pharmaceutical industry is growing at a rate of 15% and attributes this

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INDIAN PHARMACEUTICAL MARKET SIZE (IN RUPEES)



growth mainly to large exports to U.S. and European markets. He says, "About 40% of all FDA approvals between January to July 2013 came from India." This is definitely an indicator that there is a lot of activity happening in the pharma sector within the country.

Be it countering a slowdown or tapping new market opportunities, pharma industries are forced to look at ways to tighten their processes so as to bring themselves up to speed with the changing market dynamics.

According to Rohit Sinha — vice president, head of sales (RoW), Blue Star Infotech, if we look at the entire pharmaceutical segment in a compounded manner, the typical business challenges they are facing include compliance, effectiveness of sales and marketing, the material science and productivity.

One driver is stricter regulations. FDA is playing a much larger role in drug discovery, drug development and drug marketing globally. They are taking efforts to ensure that the efficacy of a drug is maintained, counterfeiting can be reduced and co-vigilance is enhanced which is forcing pharmaceutical companies to ensure stronger compliance.

Mayur Danait, CIO, Lupin says, "From a business perspective, R&D, supply chain and sales force productivity are some of the areas of concern for us. The nature of our supply chain is changing quite dramatically. Earlier, the supply chains used to be India-based, but now they continue to get global. The biggest market for us apart from India are US and Japan in terms of orders. About 70% of our turnover comes from outside India."

He explains that customer expectations for deliveries in other markets is quite different from what Lupin has seen in India. For example in US, a customer will have five or six other suppliers besides Lupin, supplying the

same product. The only differentiators therefore are quality and service.

Furthermore, according to Ram Pazhayannur, vice president, Paxpro Business Unit, Persistent Systems, the pool of drugs with innovator drug companies are at an all time low and a lot of patents are up of grabs. If a patent expires, it helps the mushrooming of a lot of generic pharma companies which take the same formula and develop a drug at a much lower cost. This decade itself will see about 30 to 40% of the global drug patents expiring.

Says Pazhayannur, "These companies which up until now, enjoyed a fat share of the market, are going to see their profits go down significantly because cheaper drugs are entering the market and they don't have innovative drugs to compete with them, as drug development itself has become expensive. FDA is also clamping them down in terms of how they should develop drugs, which is making things even more difficult."

"This is forcing them to run business in a different manner because profitability is getting affected. IT up until now, was never looked at as a key business driver. The profit margins and monopoly never required them to make business more efficient through IT," he adds further.

However, from an IT perspective, like any other industry vertical, the larger pharmaceutical companies that have been around for more than a decade, have had home grown systems which have traditionally been more departmental in their design. They typically would have bought it in a siloed manner with a different application for each process such as QA/QC, CRM, supply chain etc. on a departmental basis.

Pazhayannur explains, "Each department had its own budget in the past, bought their own IT and ran their applications in a captive manner; and did not feel the need to collaborate with other

FDA is taking efforts to ensure that the efficacy of a drug is maintained, counterfeiting can be reduced and co-vigilance is enhanced which is forcing pharma companies to ensure stronger compliance

departments. The generic drug companies which are just coming up don't have any legacy. For these companies, time to market is the most critical driver. They are now looking at IT from a greenfield perspective."

Giving a similar opinion, Umesh Mehta, CIO, Jubilant Life Sciences says, "The traditional method of working in silos is not helping pharmaceutical companies considering the steep increase in the costs of drug development and sales and marketing, nor does it enhance the productivity of manufacturing. Hence, it is in this regard that IT is helping to create a collaborative work environment to cut down the costs drastically."

Arun Gupta, CIO, Cipla believes that challenges are around profitable growth, regulatory compliance, and operational efficiency and excellence. IT can help solve these through various generic and industry specific solutions.

The days of automation

Unlike industry verticals such as BFSI or telecom, the pharma sector was not exactly upfront in adopting IT. Technology was adopted mostly if the regulations called for it or if there was a dire need felt for the business to do so.

According to Pazhayannur, the level of IT penetration in many pharma companies is about 40% only. Many functions of a pharma company are still not automated, let alone connected. For instance, in some of the pharma companies, the artwork for packaging is still done manually. They make hard copies of the artwork, circulate the copies within the departments wherein, the changes to the artwork are annotated using a pencil or a marker pen. The artwork is then put back again in the envelope and sent to someone else for his/her approval.

While some pharmaceutical

companies use e-mail, excel sheets and pdfs, only a few have integrated work flow management systems that have all the business rules, the project management paths, automation built-in. However, the times are changing. Pharmaceutical companies are looking to consolidate their operations on a single platform that can be used by different departments such as regulatory affairs, supply chain, packaging, QA/QC so that these applications can be managed easily.

According to Purshottam Purswani, CTO, Atos India, pharmaceutical companies are adopting ERP, and the ones who have already adopted ERP are implementing manufacturing execution systems or MES to optimise their production process post drug discovery.

They are learning from manufacturing companies and using mobile devices on the shop floor, and using technologies like RFID and pick to voice or in their



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The traditional method of working in silos is not helping pharmaceutical companies considering the steep increase in the costs of drug development and sales and marketing.

Umesh Mehta,
CIO, Jubilant Life Sciences



The level of IT penetration in many pharma companies is about 40% only.

Ram Pazhayannur,
VP, Paxpro Business Unit,
Persistent Systems

warehouses. They are using telematics to ensure that a truck that left a certain warehouse can be tracked through its entire journey.

To track and maintain its assets, Jubilant Life Sciences has implemented a consolidated asset management application over a virtualised environment. Mehta informs that this centralised application that is available across all its plants, has helped the company reduce its application maintenance cost, thus reducing its overall CAPEX and OPEX cost of implementing and maintaining these assets.

For the control of the automated production facility, Jubilant uses process control systems (PCS) from ERP and batch records produced by PCS are used for validation purposes. Bill of material and process descriptions facilitate the formulation and re-use of recipes. To prevent counterfeiting, the company has adopted serialisation and track and trace methodologies using 2D barcode on tertiary, secondary and primary packaging, as per the government regulations.

Danait of Lupin while talking about the IT scenario in his enterprise says, "We implemented ERP around 10 years back. IT requirements four or five years ago, were very ERP centric. The IT department was essentially restricted to ensuring 99% uptime for these systems. However in the last few years, the focus for IT has been shifting from being an business enabler to a business partner."

"Most requirements for systems that we get today are a result of a mandate to drive higher productivity, be it at the salesforce or the supplier or the manufacturing and quality assurance side, and for better decision support from finance and supply chain," he says.

He further explains that customers regularly rate the company as suppliers on the On Time In Full (OTIF) metrics. The metrics are measured in a fairly stringent manner. Even if a single line item out of a 100 line item sales order is missed, the customer can rate the entire order as a miss. The company's overall ranking gets affected because of this.

"Our supply chain is therefore really

important to us and this is where we are investing heavily to ensure that our planning and supply chain processes work like a well oiled machine," says Danait.

For Lupin, processes such as change control management, deviation management, root cause analysis, are being automated to ensure that processes are reliable, robust and can capture precise data as opposed to manual processes. In most cases, there isn't one solution that the company can use off the shelf and therefore, ends up using a combination of solutions.

"We use SAP as a core ERP platform, and some quality processes have been automated within the platform itself. For some of the specialised processes like change control management and deviation management, we are implementing standalone, off the shelf solutions customised to our requirements.

"The data that gets generated in SAP, gets stored in the database. However, for data pulled from machines, for instance, HPLC machines, which are chromatograph machines, there is a different system called Chromeleon that handles that data," informs Danait.

Compliance driven IT

It would be stating the obvious, but given the serious implications that a wrong medication or over dosage of a drug can cause, the pharmaceutical sector is under constant pressure to ensure that all regulatory requirements are rigorously followed, right from drug discovery to the point the medicine reaches a pharmacist or a doctor.

Most of the regulatory bodies are quite prescriptive about the compliance requirements. They are easily available and can be easily integrated into a pharma company's processes. Instances of pharma companies facing implications arising out of non compliance have forced Indian pharma companies to ensure compliance because the punitive damages associated with these implications are far more than the investment required in IT to avoid them.

"The Indian pharma sector makes up 30 to 40% of the global generic drug



Tools such as PLM are helping pharma companies ensure that their products getting exported to countries such as Africa are in line with the compliance requirements

market. The US FDA is therefore ensuring that they are compliant. This is forcing pharma companies to invest in the right level of procedures, training people, and using the right technology to ensure quality is consistently maintained," says Pazhayannur

According to Purswani of Atos, Pharma companies are looking at ensuring that they comply with the CFR 21 standard which defines the criteria for electronic documents and digital signatures. They have implemented auditing tools to ensure that they are compliant and have the minimum documentation required for compliance

in place.

He is of the view that PLM, which was majorly a manufacturing tool for sectors like auto is today being looked at by pharma companies for drug manufacturing. Such tools are helping them ensure that their products getting exported to countries such as Africa are in line with the compliance requirements.

Batch records which is the entire history of production batches, today is a manual process in most parts of the world. Being a manual process, it comes with the overheads of having a maker and checker, creating and handling physical documents and subsequently legalising it,



40% of all FDA approvals between January to July 2013 came from India.

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



Our supply chain is really important to us and this is where we are investing heavily [in IT] to ensure that our planning and supply chain processes work like a well oiled machine.

Mayur Danait,
CIO, Lupin

and retrieving data if something goes wrong with the batch.

Lupin is trying to move towards digitising this process so that everything is captured at the machine level itself. Readings such as temperature, pressure and air flow can be directly captured from the machine, and automatically getting plugged into batch records.

"This comes under the category of manufacturing execution systems (MES) and we are doing some pilots within our facilities. Most of our peers are either thinking about automating this process or are also looking at pilot projects. We are looking at automating this to ensure assurance of compliance and greater reliability of the process. We have to have systems which are inherently 21 CFR compliant," says Danait.

The company has also setup an e-learning platform to ensure that all its workforce is trained on standard operating procedures or SOPs, where everyone doing any operation on the shop floor has to go through an online training program and gets certified. The training manager regularly monitors this platform.

Jubilant Life Sciences on the other hand, has invested in a Quality Management System designed specifically for Life Sciences and Pharmaceutical industry and is using it for content management and collaboration, enterprise data optimisation, innovation, business discovery and to manage business processes including change management, deviation/incident, market complaints. All these processes automated help the company in better investigation, CAPA (Corrective and Preventive Action), effectiveness and stability management.

According to Mehta, the quality management system provides real time audits for internal and external purposes and also allows having an annual product review. The solution not only helps automate the process but along with the collaborative tool, also facilitates in reacting to the market in a timely manner, which automatically leads to increased productivity and thereby reduces the manufacturing cost.

Mobility in pharma

The mobile revolution means almost



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Mobility enables pre call planning and helps in clinical effectiveness, capturing real time information, and real time monitoring with the concept of anytime and anywhere

everyone today carries a mobile phone. Most enterprise employees today have some sort of a smart phone that can be leveraged from an enterprise perspective as well. At a corporate level, this has made the trend of Bring Your Own Device or BYOD quite popular. However, in the larger scheme of things, a mobile device can help automate several manual processes and add a real-time element to employee productivity.

For instance, there is huge amount of review and approval happening in pharma companies due to stringent compliance requirements. A simple task may need to go through several physical reviews and approvals for the change to get applied. At the field force side, today, a Medical Representative or a sales person mostly receives his tasks for the day through an SMS or an e-mail or even over a phone call.

The outcome of their meetings is usually recorded physically and after

having completed these rounds, they come back the same day or the next day and then put together a report, whenever they find time. The reports are entered into the database manually by a central team.

According to Pazhayannur of Persistent, with the advent of smart phones, a lot of this is being digitised. For instance, using a mobile application, the MR can enter data into online forms while he's meeting a doctor or after he has met him. The data is synchronised with the central database almost immediately.

He gives an example of how mobile devices can help at the factory floor and says, "On the shop floor, the operators have to do a lot of audits on the manufacturing line. The same line may be used to manufacture different products, or same product for different customers. Therefore, the same drug has to be repackaged and white labeled for different customers. They have to ensure

that the right information is printed on the right drug at the right time.”

Tasks can be set up for different operators using a project management tool. The job could be to audit a particular line to see if it is manufacturing a particular medicine for a particular retailer. The artwork for that drug packaging can be sent to him on his mobile device. He can then compare the art work with a batch of drugs by randomly picking from them and check if the images match. If the image is incorrect, he can then stop the process.

Within the enterprise, Lupin too uses mobile devices to capture machine data. An operator standing near a machine will note down readings on his mobile device which can be used to calibrate the machines. This improves productivity, ensures compliance, and eliminates manual checks.

One of the highlighting initiatives that the company has taken up to prevent counterfeiting is SMS-based monitoring systems. Lupin creates a unique 9 digit identification number which is printed on the medicine strip. The end-user, on buying the strip can send the code to a service number. He then gets an SMS response authenticating the strip, giving its batch number, manufacturing date, expiry date etc.

“There is a limit to how many times this verification code can be entered to prevent any malpractice. Typically, it is made for the end customer who might be apprehensive about the medicine he is buying. We are today printing about 350 million codes covering most of Lupin's products,” informs Danait.

Gupta of Cipla informs that his company has moved workloads to public cloud and is exploring hybrid cloud solutions, while it continues to invest in mobility solutions to improve the effectiveness of the field force.

According to Mehta, mobility helps in having greater visibility of field force, especially in remote areas and respond to end users quickly and in timely manner. It also enables pre call planning and helps in clinical effectiveness, capturing real time information, and real time monitoring with the concept of anytime and



Pharma companies who have already adopted ERP are implementing manufacturing execution systems or MES to optimise their production process post drug discovery.

Purshottam Purswani,
CTO, Atos India

Instances of pharma companies facing implications arising out of non compliance have forced Indian pharma companies to ensure compliance because the punitive damages associated with these implications are far more than investment required in IT to avoid them

anywhere. Furthermore, it not only helps increase productivity but also allows socialising with end customer in real time, which has a positive impact on customer delight.

Tadigadapa is of the view that mobility helps connect the last mile at the chemist level. He also talks about how Intel is working with partners who are reaching out to pharma companies to create mobile apps for salesforce automation, that can be optimised on tablets and notebooks and help them capture data at the field level and improve turnaround times.

What lies ahead

With pharmaceutical companies increasing their attention towards IT, the sector is bound to see a lot more uptake of technology solutions on the manufacturing side. This will only spur further investments in IT across all quarters of a pharma enterprise to create a connected organisation.

Sinha of Blue Star says, “The pharmaceutical sector according to Gartner spent \$1.2 billion on IT and IT services in 2010. IT is definitely used as a lever and the spend is going up in areas which help these companies improve quality control and last mile visibility.”

Giving his perspective on the future of IT in the pharmaceutical sector, Purswani says, “In India, the spend on IT in the pharma sector would be \$55 billion by 2020.”

On one hand, these organisations are looking at how they can better leverage their ERP and technology investments to meet the expectations of the market. On the other, adoption of technologies such as mobility, is only increasing collaboration and connectivity within the enterprise.

The plethora of data generated out of this connected pharmaceutical enterprise will show the way for further investments in business intelligence and analytics to make sense of the data and create better products. It will surely be interesting to see how the IT scenario in the pharma sector pans out over the next few years.

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ONLINE PAYMENTS HIT A SNAG WITH SOFTWARE UPGRADES

With increasing software complexity, online transactions often hit a snag due to some or the other software upgrade. The question that remains is why despite so many incidents, companies are unable to resolve this issue?

BY PUPUL DUTTA

Picture this, you are trying to recharge your mobile, have paid the money and suddenly the system says, "Oops, we are sorry, the recharge couldn't happen this time". It's a common problem that we all have faced at some point or the other. The question that arises is why despite so many instances, companies are unable to resolve this one problem. Also, what is the root cause of this which leads to loss of time and energy for not only the customers, but also results in delays in crediting back the payments that were incorrectly debited earlier.

Recently, while recharging his/her pre-paid mobile connection through the site Paytm (a recharge website), an Express Computer employee faced a similar problem where the transaction could not be

completed due to software upgrade. Though the company sent a system generated apology mail, the issue (why it happened) remains unanswered. Express Computer tried contacting Paytm for a better understanding of the problem but the company refused to comment.

Components of transaction software

As more and more businesses move online, there is a growing need for robust payment systems that can efficiently capture a customer's order on an e-commerce site.

According to a study, unfortunately in India, the acquiring bank/net banking trends indicate that over 24% of pre-paid orders fail to capture payment as compared to less than 1% in the USA. "In November

2013, the payment systems collectively (acquiring banks and net banking option) was down for a total of 46 hours which is almost 6.4% of the month. Payment aggregations are working overtime to integrate multiple acquiring banks and perform intelligent routing to improve success rate. Yet these payment gateways are helpless when a bank's net banking option is down," explains Mrinal Chatterjee, corporate VP - technology & founding team member, ShopClues.com.

Most e-commerce websites use a slew of software solutions, either developed in-house or outsourced from some vendor. The components of software used by these e-tailers are: shopping cart software, secure sockets layer and network components.





While, “shopping cart” (also called a “shopping basket” or simply a “basket”) is a software used by a merchant to assist consumers with making purchases online — allowing them to accumulate a list of items for purchase; SSL is used to encrypt information sent between the consumer and merchant, and between the merchant and e-commerce payment gateway. According to PCI DSS (Payment Card Industry Data Security Standard) Requirement 4.1, payment card data has to be protected during transmission over open, public networks.

Network components, on the other hand, provide connectivity and communication between different systems (for example, between application and database servers), and between the

merchant, consumer, and e-commerce payment processor.

Failed transactions or downtime

With changing times, businesses have evolved with greater reliance on the web to attract clients, communicate with suppliers and generate revenues. Due to this transition, the cost of failed online transactions can be significant: a single hour of downtime could cost a retailer thousands of dollars in lost sales.

According to a Parallel Data Laboratory report available online, software failures and human error account for about 80% of failures (in online transactions). The incidents of software failures on the web suggest that a large number of non-malicious failures occur during routine



One prime reason for failed transactions is downtime either at the merchants' site or payment gateway or at the bank site itself.

Nitin Gupta,
Co-founder and CEO,
PayU



The infrastructure teams and CTOs need to create an application infrastructure where software upgrades can be done without a downtime.

Mrinal Chatterjee,
Corporate VP - Technology & Founding
Team Member, ShopClues.com

BEST PRACTICES FOR PAYMENT APPLICATIONS



Use SSL/TLS when transmitting cardholder data internally (for example, at cardholder data ingress and egress points) within the merchant's network.

Due to the dynamic nature of e-commerce environments and frequent changes to websites and web applications, and traditional firewalls might not having the capability to inspect the contents of encrypted network traffic, consider implementing a web-application firewall (WAF) or additional intrusion-detection technologies.

Follow PA-DSS when internally developing and implementing payment applications/shopping carts to ensure that the application will support PCI DSS compliance.

Consider using third-party payment applications that are PA-DSS validated and noted on the list of Validated Payment Applications as "acceptable for new deployments".

Regularly review any links (such as URLs, iFrames, APIs etc.) from the merchant's website to a payment gateway to confirm the links have not been altered to redirect to unauthorized locations

Assign specific team member(s) to monitor and report on any and all security alerts issued by the card brands and other security websites to stay current on emerging threats.

Consider implementing an additional firewall between the application server and the database server to further reduce risks from the Internet-connected web server.



The increase in software complexity relative to the other components of the system might be the reason why software is a dominant cause of outages

maintenance, software upgrades and system integration. "It is however, unclear whether these failures are mainly due to system complexity, inadequate testing and/or poor understanding of system dependencies. Often site owners tend to be vague about the underlying cause of the failure which leads to huge business losses," the report notes.

Nitin Gupta, Co-founder and CEO, PayU, a payment gateway company, says, "There could be multiple reasons leading up to an unsuccessful transaction. One prime reason for failed transactions is downtime either at the merchants' site or payment gateway or at the bank site itself. However, in most cases, failed transactions occur from the bank side where reasons could vary from insufficient funds, incorrect password, to faulty server issues."

What can be done?

E-commerce payment processors often provide software to the merchant to interface with the merchant's shopping cart software and to facilitate collection and transmission of consumers' payment card data.

"For any company, it is very important

that before they choose a gateway, they should evaluate it on the basis of the health of the gateway, the global probability of success of the transactions on the basis of payment method and bin (bank identification number — it is the first four to six digits of a credit card that identifies the institution issuing the card), probability of success of transactions on the basis of past transaction history, and many more parameters. This switching helps to limit failed transactions and deliver industry best conversion rate," Gupta asserts.

However, the question that remains unanswered is why despite so many incidents, companies are unable to resolve this particular roadblock? Answers Jitendra Gupta, CEO and Founder of Citrus Payment Solutions, "Generally, companies do take care to upgrade their system during mid-night and avoid any fluctuations. But, certain times, as bank systems are large and multi-functional in nature, they need to take immediate measures to fix a specific issue. To speak specifically about Citrus, we always upgrade our systems when traffic is almost non-existent reducing any impact on the merchant's business."

According to Symantec, while making a

financial transaction over the web, many a times, the system tends to undergo an automatic update. During this time, the effect can be seen directly by the end user as the system goes in downtime mode. "In such situations having a fall back environment for the complete payment gateway application (web, application and DB) is the best way to avoid a potential downtime. The fall back environment would ensure the application is highly available (HA) and the customer can continue to transact on the failback environment while the primary environment is getting upgraded and is unavailable," notes Huzefa Motiwala, country head- Presales for Information Management, India & SAARC, Symantec.

So, while software remains a dominant cause of site outages, this does not necessarily imply that software quality has gotten worse over the years. Also, somewhere it is evident that these outages are almost impossible to prevent given somewhere something will go wrong in this long trail of transactions.

Gupta rightly observes that while software complexity had increased dramatically, software fault rates held constant. The increase in software complexity relative to the other components of the system might be the reason why software is a dominant cause of outages.

Top reasons for failure

Some of the common reasons for failure of an online transaction are: buffer overflows, weak authentication or session credentials and security misconfiguration among many others.

What happens during buffer overflow is that when an application tries to store more data than the capacity of a buffer (temporary data storage area), excess data overflows into adjacent buffers, which corrupts or overwrites valid data. Due to this, modification can happen in system configurations, files can get damaged and change in confidential data becomes possible.

Secondly, if there are weak passwords, exposed protocols and services, the transactions become more vulnerable to attackers which leads to a failed transaction, due to a mismatch in the data



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Jitendra Gupta,
CEO and founder of Citrus Payment Solutions

Some of the common reasons for failure of an online transaction are: buffer overflows, weak authentication or session credentials and security misconfiguration among many others

fed earlier and in the current session.

Lastly, it is important for any e-commerce vendor to define secure configurations and apply it to the entire e-commerce environment, including: servers, applications, network components (e.g., routers and firewalls), and logging/monitoring mechanisms. Commonly exploited vulnerabilities include weak or unchanged vendor default passwords and system settings, and insecure remote access settings.

Moving On...

For any e-commerce merchant, bank or payment gateway, it is important to follow a few best practices like; in internet technologies it is crucial for software development teams to be in sync with the deployment teams. By doing this, they can better plan how the feature should be implemented and can guide the infrastructure teams when things go wrong. Secondly, always plan for the unexpected — product development and infrastructure teams need to come together to define how upgrades should be rolled out so that the service requires no downtime. Lastly, one needs to understand one thing that internet never sleeps. "There is someone, somewhere always using your service. The infrastructure teams and CTOs need to create an application infrastructure where software upgrades can be done without a downtime. This can be achieved by making all changes backward compatible and also planning a staggered upgrade where some of the servers are upgraded whereas the others are not and roll over the users to upgraded servers without affecting them," explains Chatterjee of Shopclues.com.

In summary, it is important for all involved in software development as well as the infrastructure teams to work together to develop a process where software can be upgraded without impacting users. Software has a tendency of introducing errors. Do thorough testing with all critical-use cases. Stagger release of upgrades so that not all users are affected in case something goes wrong. Finally, plan upgrades where it does not require any downtime.

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Mass level success

More than 35,000 Citizen Service Centers (CSCs) setup across the State of Maharashtra are making essential services by the government more accessible to the public



Maharashtra is the only state that has been able to adopt an inclusive approach towards implementing e-Governance. We have created well-defined policies and processes involving all the departments in the state. We have not only been able to build world class technological infrastructure but also have been able to build capacities in our staff in order to sustain these efforts. The Government is committed to providing delivery of services at faster pace and at lower costs to its citizens.

Shri Prithviraj Chavan (Hon'ble Chief Minister Government of Maharashtra)

The Maharashtra Government is committed to providing citizen services electronically and therefore as a part of these efforts, more than 35,000 Citizen Service Centers (CSCs) have been setup across the State, primarily in the rural areas. These CSCs are a one stop shop for providing citizen centric services such as certificates. The aim of these CSCs was to ensure that government, private and social sector services are available to all its citizens near their residences. These centers are called Maha eSeva Kendras which provide both Government to Citizens (G2C) and Business to Citizens (B2C) services. These centers are operated by residents of villages called as Village Level Entrepreneurs (VLEs) and managed by Service Center Agencies (SCAs).

The project was started under the aegis of the National e-Governance Plan (NeGP), funded by Government of India as one of its Mission Mode

Projects for delivery of government, private & social sector services (G2C/B2C services) to the citizen at a location near his/her residence. The Maha eSeva Kendra scheme envisages establishment of a network of 11,822 IT enabled centers across the State. Of the planned CSCs, 8,180 CSCs have been rolled out across Maharashtra.

This project facilitates availability of electronic services to citizens provided by the Dist. Collector office and 16 key services (comprising of 80% of volume of such services given by the Dist. Collector office) have been standardized and made available electronically through the e-District project.

67 services from 10 categories like Certificates and licenses, Right to Information, Public Distribution System, Pensions, Utilities, Land Revenue Dues and Recoveries, Electoral, Revenue Court etc. are covered under the eDistrict project. Of these, 35 services have been selected for priority implementation during the



The state government has been a driving force in encouraging adoption of technology for enabling better governance. The state is adjudged as a leader in e-Governance in India. Maharashtra is one of the first states to have formulated a comprehensive e-governance policy. Government of Maharashtra, through this policy, intends to ensure e-Services become a mandate for each department and are offered to citizens in a uniform manner.

Prof. (Smt.) Fauzia Khan (Hon'ble Minister of State for GAD Government of Maharashtra)



ADVERTORIAL

first phase of the state wide roll out. The Business Process Re-engineering of these services have been completed. Standardization and regulation of application forms and output formats, timelines and fees for processing of the services have been covered under the same. Some of the salient features of the standardised forms that are designed to be used in the CSCs are:

- Standardized input forms across all services, comprising of – applicant details, service specific details, self declaration and a list of documents to be attached
- Applicant details so collected to aid in creation and maintaining citizen profile at CSCs to increase citizen convenience
- Digitally signed output certificates and licenses
- Output forms to have 2D barcode for authentication and verification of document offline
- Feature for authentication of issued documents through SMS and through MahaOnline portal

The Directorate of Information Technology is working closely with other departments whose services are delivered through eDistrict project for preparing and issuing necessary administrative approvals in the form of Government resolutions and Government orders for the adoption of the standardization being implemented as part of the project. A GR for the waiver of affidavits for services delivered through eDistrict has already been issued.

Today, an affidavit forms an integral part of the citizen's application to avail G2C services. An affidavit is a sworn statement voluntarily made by

an applicant under an oath or affirmation administered by a person authorized to do so by law. It is a declaration from the applicant along with his photograph and signature that the information provided is true as per his knowledge. However, getting an affidavit is in itself an incommensurable process. It requires extra effort, time and money from an applicant and increases the processing time of the service delivery.

The Government of Maharashtra decided waive off the submission of the Affidavits required along with the application forms for most of the services offered through the CSCs. It was decided that the application form itself will serve as an Affidavit.

The focus has been on simplifying services, thus making services easier for citizens to access. The aim is to enable citizens to avail e-Services from these CSCs, thereby eliminating the need to visit government offices, which in many cases can be located far and away from the villages.

The State Government has also eliminated the need for certain services. For example, students who have appeared for the 10th standard examination from Maharashtra do not need to submit domicile certificate for admission to 11th standard. This has removed the hassle of lakhs of students queuing up at various Govt. offices for domicile certificate every year.

And all these efforts have resulted

into plenty of success for the State Government. The system has seen more than 18 crore e-Transactions this year. More and more e-Services are expected in future, which would benefit the students.

The State Government has also won 100+ awards at various national and international forums for e-Governance which highlights the exemplary work done during this period. The State Government has excelled in implementation of UID program, Implementation of Govt. Cloud, Implementation of IPV6, Launch of Mobile Applications, Localization and Accessibility, Implementation of Paperless Office, e-Tendering, Implementation of Citizen services through CSCs etc. under the leadership of Shri Aggarwal, which has now been recognized at the global level.

The state government's efforts were recently recognized by the IDG Group's Computerworld which named Shri Rajesh Aggarwal, Secretary IT, Government of Maharashtra as a 2014 Premier 100 IT Leader honoree. Speaking about the recognition, Shri Aggarwal said, "This award is a recognition of the exemplary work done by the State Government in the last couple of years. We have worked on various unique initiatives, which have led to significant improvement in service delivery to citizens. This motivates us to continue this growth path and be a game changer."



"We have worked on various unique initiatives, which have led to significant improvement in service delivery to citizens. The awards and recognitions motivate us to continue this growth path and be a game changer."

Rajesh Aggarwal, IAS
Principal Secretary (IT), Government of Maharashtra

INVESTING IN SPEED



Bajaj Capital ups employee efficiency by improving
processing speed with Dell's storage solution

BY HEENA JHINGAN

With almost 50 years of experience in providing financial services to individual and corporate investors in India, Bajaj Capital is a known name in investment banking services. Based in New Delhi, the company operates over 100 investment centers across the country.

A couple of years back, when the company invested in a storage solution, it ensured that they planned for at least two years ahead. However, the company's IT team did not anticipate that the data growth will surpass their expectation in less than half the predicted time.

Puneet Kaur Kohli, CIO, Bajaj Capital, reasons that this pace of data growth is not surprising, as unlike other sectors such as telecom, there is no time frame or limit to storing data. The financial data might be needed any time. "We being in a highly regulated industry, need to keep up with new guidelines and make changes to management and storage of data. These factors can make our storage requirements unpredictable."

She explains that during month-end closing, the company faced spikes in workload, which caused bottlenecks in application performance. Besides, the company also started experiencing threshold issues with the existing EMC solution that they had deployed. In a scenario where real time data fetching is a must, several concurrent sessions could not be supported. All these factors combined, led to delays in closing the monthly accounting period.

Bajaj Capital was battling with not just escalating performance issues, but also the inflating cost of storage due to their reliance on expensive disks for inactive and infrequently accessed data. Kohli says they needed a storage solution which could scale over the long term, and have the robustness to perform even during peak workload sessions.

For this, she pointed out, the company needed to first understand their storage structure. At Bajaj Capital, the data could vary from company files such as digitised copies of documents, voice logs of customer conversations to image files, stored for extended periods of time. Since most of this data would not be required quite often, the company needed a storage solution that could seamlessly move this static data to less costly storage disks as and when required.

Tier by tier

The company could either look at upgrading the existing EMC solution or buy a new solution. Kohli explains they evaluated EMC, Hitachi and Dell. However, after an apple to apple comparison, they concluded that Dell scored much higher on support and service. Price was equally appealing.

"Our initial calculations indicated that the average cost per user be much lower on Dell as compared to others. And after the deployment back in October last year, I feel we will be able to cash in RoI in less than two years," Kohli stresses.

So, post a detailed comparison, the firm selected Dell to configure and deploy a Dell Compellent SC8000 Storage Center array. "Bajaj Capital is using Dell Compellent Data Progression to move active data to Tier 1 storage. Migration of less active data to more cost-effective lower level Tier 2 and Tier 3 storage happens automatically," says Suraj Sabberwal, General Manager, Global 500, Dell India.

Kohli believes, what sets Dell apart is their fluid architecture. She says Dell's tiered architecture was an ideal solution for Bajaj Capital's needs as it could classify data according to usage. "We have a lot of data that requires medium levels of performance and can reside on SAS disks, while our most active data



Bajaj Capital is using Dell Compellent Data Progression to move active data to Tier 1 storage. Migration of less active data to more cost-effective lower level Tier 2 and Tier 3 storage happens automatically.

Suraj Sabberwal,
General manager, Global 500,
Dell India

FROM THE DELL STACK

- Enhanced employee efficiency due to higher processing speed
- Automated tiered storage delivers regulatory compliance and cost efficiencies
- Application performance bottlenecks eliminated through scalable, high-performance platform
- Storage management simplified through reduced complexity

With faster processing speed and greater employee efficiency, Bajaj Capital is now equipped to better focus on expanding its portfolio of financial products



requires high-performing solid state disks to ensure it remains immediately accessible to our users," she adds.

Now with active data residing on solid-state drives (SSD), the company has been able to decrease the monthly accounting time period. Kohli informs, "The Dell solution is delivering three times the number of IOPS (input/output operations per second) compared to our previous solution and we are now able to close our monthly accounting period on time. This in turn has improved the overall efficiency of the organisation."

Efficiency and simplicity

With faster processing speed and greater employee efficiency, Kohli feels the company is now equipped to better focus on expanding its portfolio of financial products. "Maintaining high levels of customer service has become easier through quick access to data. For example, employees can now generate an investment holding statement or portfolio for a customer in less than 15 seconds, compared to up to one minute in the previous system," she elucidates.

Kohli says, "The employees are benefiting from the speed with which



The Dell solution is delivering three times the number of IOPS compared to our previous solution and we are now able to close their monthly accounting period on time.

Puneet Kaur Kohli,
CIO, Bajaj Capital

they can access data needed for approvals and workflow activities and this makes us highly responsive to our customers." Time of service is very critical for financial services institutions and delays can mean loss of business. So, before Bajaj Capital decided to implement Dell solution, they conducted several instances of planned downtime to gauge the the prospective challenges during the actual implementation.

With the solution in place, Kohli says they find things going smoothly and the concurrent user size for each application has also significantly improved. Impressed by untiring support provided by Dell, Bajaj Capital is now keen on extending their association with the company to the next level. Kohli observes Dell as a company has evolved in a big way. "Dell has ventured into new IT avenues to line up a richer product portfolio. It has strengthened its software stand and made inroads into diversified fields. We would like to explore their other services like consulting and security management as well," she concludes.

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JENS ROMAUS
SAP

Jens Romaus, senior vice president & global head – Public Sector Industry, SAP, talks to Mehak Chawla about SAP's strategy for public sector in India. Excerpts...

“We are no longer entering only ERP-based discussions with the public sector”

SAP's India strategy has seen some realignment recently. Can you elaborate on SAP's India ambitions, especially with regards to government organisations?

Our strategy in India is not product driven anymore and we have a very clear strategy partner and a localisation driven approach. The purpose of my visit is to speak with partners on different models like mobile deployments and cloud models. We have strategies around mobile and cloud solutions. We are also looking to work with governments on best practices prevalent across the world because governments often look towards other countries for their case studies. We are collaborating and working with many government customers globally, and we want to share our insights with the Indian government.

SAP is no more only an ERP company. We have been trying to establish ourselves as an applications and content company and the acquisitions that we have done in the recent past, reflect that change in our strategy. We are application content providers and have offerings in applications, analytics, mobility, databases and cloud. These are the five areas that SAP is dividing its business in.

Government organisations are gradually moving beyond core systems like ERP. Could you talk about some of the buying patterns of this sector in India?

Yes, we are no longer entering only ERP-based discussions with the public sector. We are entering cost discussions around what public sector companies are doing in-house and what can be moved. We are developing roadmaps for five years because we know that in this sector, everything cannot be done at once. In the public sector especially, quite a few organisations in India have big in-house components. They come to us and say that we have so many diverse approaches but need one technology platform and a good architecture as foundation.

The advantage with SAP is that we are not new as a deliverer of technology. So, we are



Government organisations in India are quite interested in cloud offerings. The government collects a lot of information and to that end, they are keen to utilise cloud.

We expect to see the adoption of hybrid model in the public sector. PSUs want to learn how cloud works with on-premise and hosted apps, so hybrid is a clear choice. A small approach towards cloud has begun in public sector for some areas like analytics or HRMS. Next year, we hope to see more apps to see more apps going on cloud

working on reference architectures from a technical point of view and discussing with organisations how can they use SAP tools.

How intense are the cloud discussions in the public sector in India and when is the sector likely to enter into purchase cycle?

From what we have gauged in our discussions, government organisations in India are quite interested in cloud offerings. The government collects a lot of information and to that end, they are keen to utilise cloud. We do not expect any fast decisions or any black and white model to emerge anytime soon. We expect to see the adoption of hybrid model in this sector. PSUs want to learn how cloud works with on-premise and hosted apps, so hybrid is a clear choice.

A small approach towards cloud has begun in public sector for some areas like analytics or HRMS. Next year, we hope to see more apps going on cloud. We are still far from seeing any payment functionality on cloud. Also, big organisations go through a long cloud cycle but small customers are more enthusiastic — they go to the cloud with everything.

How is HANA doing in the PSU segment?

The question that PSUs have begun asking is how will HANA benefit them. We are in advanced stages of discussions with PSUs willing to leverage HANA. We expect first big deals at the end of the next year because the decision cycle is long. What is unique in Indian PSUs is that they are highly interested in new IT. They know a lot and are on top of the knowledge curve. The problem currently is that political cycles are hindering decisions. We have to be prepared for deals after the elections next year.

SAP has changed its delivery model to a co-innovation approach with the customers, so customisation in delivery is not a problem anymore. Thanks to our acquisitions in the past five years, we have expanded our customer base in government sector from 1,800 to 12,000 organisations. We are looking to sell our new technology to our installed base.



Being able to produce more out of the existing infrastructure, simply means that as a country we are better utilising the resources, especially wind and solar.

Balki G Iyer,
Chief development officer,
BLP

The Indian power sector has doubled its capacity in the last 10 years and is projected to add another 100GW in next five years. The scope of investments for renewables is estimated to be \$10-12 billion in next five years



IBM GIVES BLP A CLEAN EDGE

Bharat Light and Power (BLP) will use IBM's cloud, analytics, and mobile technologies to increase power generation and pre-empt failures

BY PUPUL DUTTA



Bharat Light and Power (BLP) is one of the clean energy generation companies headquartered in Delhi. The company uses wind, solar, biomass and hydro technologies for power generation and also explores other advanced technologies such as energy storage and smart grids to better integrate renewable energy with the grid. It aims to address India's sustainable energy challenge by increasing its renewable energy generation capacity to one giga watt (GW) over the next few years.

According to industry estimates, approximately 400 million people in India do not have access to electricity. At the same time, India's energy infrastructure is highly strained, with an ever increasing demand for energy. To sustain its growth trajectory, the country needs to meet its energy demands in an environmentally sustainable manner.

According to IBM spokesperson, the Indian power sector has doubled its capacity in the last 10 years and is projected to add another 100GW in next five years. What's more, with fossil fuels exhausting fast, a good share of this growth will come from renewable energy sources. The scope of investments for renewables is estimated to be \$10-12 billion in next five years, making it ripe for global investments in India.

Recently, the company formed a 10-year strategic engagement with IBM to drive business growth, enhance revenue and increase operational efficiency. In this 10-year collaboration, BLP will use IBM's SoftLayer cloud capabilities, built on open standards, as well as IBM analytics and mobile solutions to increase its power generation capacity.

Challenges all the way

Talking about challenges, Balki G Iyer, chief development officer, BLP explains that India is way behind in terms of energy generation and given that we (India) are also among the top five carbon dioxide emitting countries, there is a long way ahead to achieving the optimum power generation level. "The key challenge before us is the operational efficiency of these power plants. Are they performing to the standards and more importantly, can we do more than what is

happening right now?," quips Balki.

He further adds saying, the biggest driver for any power plant is fuel prices and the supply of fuel. "The best part about wind energy is that the fuel is free, so we have to see how we can leverage this resource and get more efficiency out of these plants that are existing today. Basically, a particular power plant today maybe producing 'x' units, so how do we get 'x' plus. We are trying to come up with disruptive innovation and a kind of paradigm on how we operate renewable plants here," he says.

As far as technology challenges are concerned, most of these wind or solar farms are at very remote places where connectivity and access is a problem. "Sometimes, it takes almost few hours to get to the plant," notes Balki.

"The critical thing is that when you have field staff who are typically skilled technicians, the only thing not achievable for them is that they may not have bird's eye view of what's happening at the farm level. They may be looking at certain things at certain turbine level, so how do you create the farm view? Secondly, it is important to leverage technology - big data and analytics to see trends and paradigms that are underlying and cannot be perceived from a naked eye," he explains.

With big data and analytics, streaming of a trend or problem becomes easier. What's more, pre-empting failure too becomes a reality. One can get situational awareness back at the field with the help of technology. "So, what we are trying to solve here is how do we get real time data and how do we start being proactive instead of being more reactive. Today, if the turbine stops then people go and dispatch field staff to fix it. Now, we actually take the power of data and analytics and all the concepts of mobile and social to see how we can get out quick reactions and reach the field," claims Balki.

Quick fixes

IBM is working with BLP to help the company manage, and effectively use the vast amount of data generated by the power generation sources. With efficient and predictive analysis of data, energy producers can better manage their resources, take necessary precautionary



measures, and improve overall productivity. IBM has deployed its SoftLayer cloud infrastructure as a service to centrally monitor and manage BLP's existing and future generation plants as well as store and manage the data on cloud.

SoftLayer, is a recent acquisition by the IT major which has a client base of about 21,000. With this, the company can now offer a breakthrough capability that provides an easy "on ramp" solution for governments and businesses to adopt cloud. It will allow cloud services to be created very quickly on dedicated servers rather than on virtual ones, which is the norm in the public cloud. By building out a cloud on a dedicated server, a client no longer has to worry about sharing computing resources with other companies, thereby radically improving privacy, security and overall computing performance.

"IBM and BLP's big data analytics capabilities will help gather valuable insights from the data generated, which will ensure that BLP has an integrated view of its operations and is equipped to take pro-active measures. Using IBM's mobile technology, the company will be able to provide all the information analysed on the cloud platform to its ground staff on their handsets and alert them well in advance. This will enable BLP to build smarter operations with higher efficiency and greater utilisation," explains Prashant Pradhan, business head, Smarter Planet and Industry Solutions, GTS, IBM India/SA.

BLP is now able to generate more units of electricity for the same level of CAPEX and OPEX involved. "Being able to produce more out of the existing infrastructure, simply means that as a country we are better utilising the resources, especially wind and solar. The more I can produce the

better you are utilising the natural resources," Balki notes.

"Overall, better streamlining of operations and being able to get real time information about what is working where are BLP's biggest takeaways," says Pradhan.

Pointing out the single most beneficial factor, Balki says that increased generation of units of electricity helped BLP achieve its targets soon. It has also translated into increase in revenue. BLP has currently deployed the solution in only Maharashtra and Gujarat, with a control center in Bangalore that takes real time information, assesses it through certain kind of analytics and rule engines and provides a real time situation awareness of the field. However, the company will be building scale on the same.

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SAMIK ROY
MICROSOFT DYNAMICS BUSINESS

Samik Roy, director and business head, Microsoft Dynamics (Applications) Business talks to Pupul Dutta about how the company's offerings can help retailers deliver a better customer experience. Excerpts...

“Future of retail lies in multifaceted customer engagement”

How does Microsoft Dynamics AX help retailers create a personalised offering for their customers?

The future of retail lies in multifaceted customer engagement, something we call as 'omni-channel'. Times are changing with more and more consumers making online purchases; and posting on Facebook about their buying decisions. Retail organisations are looking to expand and re-define their physical store locations to drive a more direct and personalised brand experience.

‘Connected Experiences for Retail’ is Microsoft’s vision to empower retailers to connect with people, processes and technologies. Our Dynamics Retail Solution helps retail organisations look at customers as one — be it the store, loyalty, e-commerce or m-commerce. A customer can order on the web and collect at the store. They can walk out of a shop and call up the call center, who would already have all the details of the customer. Microsoft’s solution delivers a 360 degree view of the consumer across all channels and all modes of purchase. We help organisations deliver innovative, cost-effective solutions and capabilities that resonate with consumers and lead to rich, lasting customer relationships.

Currently, the trend is to integrate CRM solutions with ERP, especially in the retail sector. Does Microsoft offer this capability?

Microsoft Dynamics for retail offers full end-to-end functionality and capability. The spectrum covers PoS, merchandising, multi-channel management, e-commerce, order and supply chain management, financials, CRM, loyalty, integration with Microsoft Kinect and much more. All of this is on one platform and is an end-to-end solution. Having said that, the solution offers full flexibility to organisations to deploy things as per the needs.

Even if an organisation has a competitive existing solution, they can deploy unique parts of our solution e.g. PoS, store management, etc. and integrate the same with the existing solution. We don’t force retailers to deploy everything at once. These capabilities can be



How is Microsoft tweaking the offering for SMBs?

For an SMB customer, the biggest hurdle is the capital for investment. Software-as-a-service (SaaS) solutions are available through subscription-based licensing models which can work with various SMB IT investment goals. Microsoft online services such as CRM Online, Office 365 and Windows Intune offer SMBs cloud-based solutions that can deliver high performance while keeping costs low. We have a number of customers live and adding more and more users every month on these solutions.

deployed as a comprehensive end-to-end solution or as “workloads” to complement existing technologies — allowing retailers to deploy in the way that makes most sense to their business.

With customers becoming the key driver in the growth of retailers here-on, Microsoft Dynamics enables a consistent view of customer across multiple channels — which is possible only by having a single source of truth as far as customer information is concerned. The same holds true for inventory as well. With consistent and seamless information of these two parameters (customer and inventory), across all the channels, Microsoft’s solution is becoming the only choice that retailers have today in their journey of becoming a true omni-channel retailer.

How is your offering different from other solutions available in the market?

When it comes to retail, Microsoft is “all in”. Our PoS today runs on tablets and phones, which enables retail organisations to give a unique shopping experience to its consumers at the stores. Imagine yourself going into a shop and having a sales person standing next to you with a tablet and showing you different designs, previous purchases, what other customers have been buying and what is the trend. Also, you can do billing from the tablet device. That is what Microsoft Dynamics Retail solution can deliver seamlessly.

This integrated with existing Microsoft assets like Office, SQL, and SharePoint etc. help retailers leverage best of available technology stack from Microsoft. An intuitive UX and the breadth of functionality of that Microsoft Dynamics solution offers, also helps retailers with allied retail business needs — like enabling franchisee on-boarding and lifecycle management, case management, store opening project management etc.

The next stage in retail is to have this unified “customer platform” and Microsoft is geared up to participate with the industry to establish India as one of the initial adopters of seamless omni-channel commerce in retail.

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CASE STUDY


RATNAKAR BANK



BANKING ON VIRTUAL DESKTOPS

How adopting desktop virtualisation helped Ratnakar Bank go to market faster, at reduced capex and opex costs

BY HARSHAL KALLYANPUR



Over 70 years in existence, Ratnakar Bank has seen a good growth, especially in the last few years. The bank saw its deposits grow by 132%, loans and advances by 116%, fee income by 219% and operating profit by 496% in just the last one year.

However, while the bank has grown leaps and bounds, so has the competition in the market. Furthermore, as an institution with so much legacy, the bank was looking to get in line with the changing market dynamics so that it can compete and continue to grow in the current market environment.

However, it faced a challenge that typically acts barrier to growth for all institutions carrying forward as much legacy along with them. Its IT infrastructure was somewhat traditional in nature and the bank would have found it difficult to keep up with the changing business demands with its then current IT infrastructure.

The bank was running a legacy core banking solution which was decentralised and every branch at the

end of the day, would push data to the core through the Extranet. There was little control over technology, huge risk and a lot of outages being experienced. Furthermore, there was no guarantee of performance. The growing business meant the bank needed technology that would offer the flexibility to be deployed quickly at branches.

Anup Purohit, Head-IT, Ratnakar Bank explains and says, "We are heavily into financial inclusion. We work on a business correspondence model. If I want to give an access to my network for certain applications, I need to ensure that that I do not expose the bank's network to the external world. We were also evaluating a move from our legacy core banking solution to Finacle. One of the key objectives was to ensure that we build a robust network, but at the same time, not spend a lot more money doing so as Finacle by itself calls for a significant amount of investment."

"We had many instances of data leakage in the past as technology was mostly decentralised, so minimising the

risk was a top priority. We looked at migrating to Finacle during Q4 of calendar year 2012. One of the key objectives was to get a virtualised infrastructure in place before going ahead with the Finacle deployment," adds Purohit.

The bank has its operations spread across over 130 branches and it was looking at adding more. However, deploying traditional desktops would mean increase in the time to deploy and would again bring in the risks associated with insecure user desktops. Furthermore, the energy requirements and investments would have further gone up.

Explains Purohit, "Had we not virtualised our desktops, we would need to work with traditional desktops that would be deployed in branches spread across even tier 5 or tier 6 locations, in places that most people would have not even heard of. The power infrastructure in these areas is not very good, and therefore a desktop taking 200 watt vis-a-vis a thin client taking 2 watt of power

would not make sense. With traditional desktops, it also becomes difficult to control data leakage. People start storing data locally which can be easily extracted and moved.”

He further informs that the bank had recently opened seven branches in completely unbanked areas of Madhya Pradesh. It was looking to start business there as quickly as possible, as it had made certain commitments to the RBI. The power availability meant the bank would need to deploy infrastructure which would have a very small power footprint.

Therefore, a decision was taken to virtualise both the server infrastructure and the desktop side to ensure that IT is consolidated and can be deployed in a flexible yet cost-effective manner. The server infrastructure was virtualised on VMware to the host the core-banking solution while Ratnakar Bank chose to go with Citrix on the desktop side.

Desktop virtualisation, also as a service

It was around June 2012, that Ratnakar bank looked at the desktop virtualisation implementation. Having had a previous experience with using Citrix in the desktop environment, the CIO was clear about using Citrix's desktop virtualisation.

According to Purohit, the key aspect was to choose an implementation partner who could help implement the solution. While many big tier-1 vendors had approached Ratnakar bank, the company looked at Anunta which had a comparatively smaller presence in the industry.

“I have seen downtime due to incorrect implementation of Citrix by partners in the past and therefore wanted a partner who would understand the complexities involved. For instance, if you don't size your backend storage, IOPS, printing correctly, the implementation can fail. These are things that can bring down an implementation,” explains Purohit.

According to him, as virtualisation was the core business of Anunta, they had a specialised team who understood these nuances and therefore went ahead with



As the sizing was done correctly, the infrastructure never crossed the threshold limit even though we had over 1,200 employees logging onto the Citrix infrastructure concurrently.

Anup Purohit,
Head-IT, Ratnakar Bank

Network costs for a bank, today, make up for almost 20 to 27 percent of the total IT budget. Adopting desktop virtualisation helped Ratnakar Bank keep network costs in check

Anunta. They carried out a Proof of Concept (POC) in just three days, wherein the bank migrated to the virtual desktop infrastructure at its Palghar branch in just three days. The bank also carried out POCs at Boisar and a location in Rajasthan and they all were done successfully. In the end, it took the bank just six weeks to complete the project.

Explains Purohit, “We were able to access the virtual desktop on a Tata Photon card on a UTM box through VPN tunneling. We were also able to access through MPLS, leased lines, wired and wireless connections, as the sizing was done accurately and the implementation was done correctly. The IOPS were defined correctly and all it required was a little bit of tweaking for a week or so.”

Ratnakar bank has an in house IT team, which oversaw the entire implementation. However, the bank's IT team was then structured in a way that they did not want to own even the centralised desktop virtualisation infrastructure, but monitor it and have a complete insight into the system.

Therefore, right from the thin client to the centralised infrastructure, everything is being delivered as a service to the bank. It does not own the hardware and only pays monthly fee to Anunta for everything including the hardware and software licenses.

Citrix's desktop virtualisation has been implemented for all users at the branch level. In fact, the bank does not allow any other protocol besides the one for Citrix for accessing the data centre from the branch. Most of Ratnakar Bank's applications are browser based be it HR, credit rating or loan systems or even Finacle and can be accessed from the virtual desktops.

However, the implementation of the solution saw custom designing of application delivery architecture using a private cloud, based on extensive user-profiling. The user profiling included the studying applications used, establishing productivity expectations of each user profile, base lining of productivity threshold for applications of each user profile and determining threshold application performance needed.

For instance, zonal offices have credit

admins that are heavy users using Microsoft Excel files going into large sizes such as 80 MB. They also use PDF files which are on average 10 MB in size and they need multiple such files to be open. Therefore the bank created a credit admin department (CAD) profile for these users.

Reaping the benefits

Purohit informs that the bank adopted Linux-based Wyse thin clients which have greatly improved power capacity sizing. He says, "Earlier I would need to deploy a 10 KVA UPS for a branch of 8 to 9 people, which gave an uptime of four hours. Now with thin clients, this uptime has gone up to 12 hours and the size of UPS has come down from 10 to 5 KVA for the same number of users. My UPS capex cost has significantly reduced."

Furthermore, network capacities also had to be planned properly. Purohit informs that the network costs for a bank today makes up for almost 20 to 27% of the total IT budget. Many big nationalised banks look at upto 1 Mbps connectivity even in villages whereas most of Ratnakar Bank's branches run on 128 kbps connectivity. Adopting desktop virtualisation helped them keep network costs in check.

Being a growing organisation, the bank also wanted to get control on the licensing. They wanted a solution that would let IT have a centralised control over licensing and avoid any compliance issues. Having branches in rural areas across the country and keeping a check on software licensing across all these locations with traditional desktops would have been a challenge. By centralising software licensing, the bank is now able to ensure better compliance and license management.

Explains Purohit, "I can now provide software licenses to users based on their profiles. For instance, I know that I need to assign Microsoft Office to my Business Operations manager, while the teller can work with Open Office. I have been able to reduce licensing costs significantly. If I had to say, 2,000 users earlier, all using a particular Microsoft software, today only 500 users are using them because they have been assigned the software as per

APPLICATIONS DELIVERED

- Core Banking Solution
- HR System
- Anti Money Laundering
- Asset Liability Management
- Credit Rating
- Ganaseva – a rural core banking solution deployed in unbanked areas in India over broadband Depository
- System Internet / Intranet

their profile."

Also, earlier the bank had to tie up with support service providers for service and support across the branches. Now the support cost has gone down significantly, as the bank does not have to pay for Annual Maintenance Contracts (AMCs) anymore.

Says Purohit, "A branch typically has 8 to 10 desktops, with one switch and a router each and three printers. If I look at the cost per branch, the desktops comprise of almost 30% of technology equipment costs. The CAPEX cost has come down significantly while the support cost has almost become zero. Support calls for desktops from branches have gone down from around nine previously to at most two calls in a month, and even those are related to other

KEY BENEFITS

- Reduced cost of application delivery
- Faster branch-level rollouts
- 65 percent reduction in power consumption
- Cooling requirement down by 50 percent
- Enhanced employee mobility
- Reduced support requirements

hardware."

From a security perspective, data physically available at branches today is zero. Earlier, every branch had customer data sitting on digital media. While he cannot control print yet, Purohit is assured that there is no chance for digital data to leak out. At the network side, the bank would need to wait for the leased line connectivity to come in. Today a branch can even connect UTM boxes with a 3G internet dongle and run secure Citrix virtual terminals.

According to Purohit, this has reduced time to setup from a few weeks to a couple of days. "Earlier the infrastructure rollout used to take 10 to 14 days. However, it now gets completed in two days," he says.

Purohit concludes, "A highlight was when we migrated to Finacle core banking, the Citrix solution also went live at the same time. However, as the sizing was done correctly, the infrastructure never crossed the threshold limit even though we had over 1,200 employees logging onto the Citrix infrastructure concurrently."

The way ahead

According to Purohit the bank has also adopted BYOD leveraging the Citrix infrastructure. There is a tablet with GSM connectivity assigned to every branch. In case of a power outage, the employee would still be able to log into the banking system through the tablet device and service the customer. He gives an instance of a branch in a village on the outskirts of Bangalore, which recently had connectivity issues, and bank employees were still able to log in through the tablet devices through the single sign on mechanism and service the customer.

Ratnakar bank is in the process of migrating its corporate office and support staff on virtual desktops. All branches, its National Operations Center, zonal offices are now virtualised and the IT team are looking at the corporate, head and controlling office. The bank has also tied up with an e-waste agency to dispose its old desktop hardware.

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DEPLOYING A FAST NETWORK FABRIC

Retail chain store Fabindia was looking to use SSDs for faster transaction speeds. An InfiniBand based storage solution helped the company eliminate the interconnect bottleneck

BY JASMINE DESAI

It has long been debated, whether Infiniband can be utilised in certain big data situations and has been compared extensively to FcoE (Fibre Channel over Ethernet) and Ethernet. However, Fabindia has been successful in utilising Infiniband based storage, to get faster transaction speeds. Fabindia, a large Indian retail chain store with over 170 stores across India and abroad, has kept its niche of retailing garments, fabrics, furnishings, handicrafts and ethnic products handmade by craftsmen of rural India. In recent years, it has also ventured into the online space for retailing its product range.

Fabindia's existing system infrastructure also handled its online transactions from all the stores across India. This infrastructure also gave the retail giant, a view of real-time business transactions and inventory stock from all stores at their central database. However, with the increase in business, the infrastructure was not able to cope with spiraling transactional demands. As the transactions were being made at a central database, the retail stores were facing time lags in completing the customer's billing.

What's more, the company had expanded their number of stores recently and did not have sufficient network as well as storage bandwidth to cater to the increased demand. Also, as the company was foraying into the e-commerce space and planning to setup their own website; the management decided to go for a complete overhaul of their data centre to meet their growing storage and network demand. They wanted a solution that would not cause any delays due to heavy traffic demands, and would also make them future-proof in a cost effective manner.

Ideal choice

Envisaging heavy traffic demands, Fabindia wanted an extremely fast storage system with high throughput and bandwidth. Explains Raja Ghosh, Head-IT systems, Fabindia, "Due to heavy traffic, we wanted to adopt SSDs in the storage servers, as SSD can deliver upto 20k to 30k IOPS as compared to a

One major reason for selecting this solution was that the overall cost of ownership with Opslag FS2 storage system along with the InfiniBand backbone, was comparatively lower than that of other competing brands



traditional 15k RPM hard-drive, that delivers merely 200 IOPS." However, the challenge they faced was delivering the high throughput of the SSDs to the central servers, as the throughput gets limited by the interconnect between server and the storage. Since, Fabindia was clear that they wanted a common storage system for their servers and not a storage residing within the servers, they had to select a proper medium of interconnect that could match the throughput of the SSDs in the storage servers, and help deliver the SSD's high throughput to the main servers. This led them to look for a solution that could be scaled up to meet their anticipated future network and storage needs.

What was urgently required, was a central storage solution that would be connected to all their branches across India, for doing online real-time

transactions. Thus, Fabindia wanted a high IOPS delivering solution.

They selected Opslag FS2, a unified storage solution from Tyrone Systems having InfiniBand as interconnect along with eight blade servers from SuperMicro to host them at their data centre. Opslag FS2 box has 72 bays with InfiniBand ports, of which, 64 bays are populated with SSDs configured on RAID 5 and are used for online transactions. The rest are connected to SAS drives which are used for volume backups.

The servers are running on Microsoft Windows Server and have MS SQL Server as the database server. One major reason for selecting this solution was that the overall cost of ownership with Opslag FS2 storage system along with the InfiniBand backbone, was comparatively lower than that of other competing brands. Also, the pricing model of Tyrone Systems was inclusive of all licenses for all the features provided by the Opslag FS2 unified storage box, so Fabindia did not have to pay any additional charges towards InfiniBand support, which was the case with other competitor products, where the license had to be bought for using InfiniBand feature.

After the deployment, Fabindia was able to fulfill their main requirement of high IOPS, as SSDs deliver 20-30k IOPS. Mentions Ghosh, "Now transactional speeds with database servers are fast, and therefore, each store across India is logging their sales activity on real-time basis rather than on a day-end basis."

Any store owner who's out of stock for a particular item, can now check the inventory status for that item and even know which other store of Fabindia is having the stock of that item. There have also been savings in terms of cost, as InfiniBand is a cost effective solution when compared to Fibre Channel. The transaction completion time has reduced drastically and the downtime have been eliminated completely. Still reaping benefits from the implementation, Fabindia has no specific plans to built-up on this solution.

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COLUMN

YOLYND LOBO

THE CASE FOR CLOUD ADOPTION BY GOVERNMENTS

How the cloud can help governments take their services to citizens in a flexible and cost-effective manner

As cloud computing progresses in the technology adoption lifecycle, it has become the most debated technology trend, transforming the way consumers and enterprises consume services. Realising its potential in enhancing citizen services and improving operational efficiencies, governments around the world are now at different stages of setting up their cloud infrastructure.

While some concerns around security are being discussed, the majority view is favourable to cloud adoption. In the words of Vivek Kundra, former federal CIO of the United States, "Cloud computing is often far more secure than traditional computing, because companies like Google and Amazon can attract and retain cyber-security personnel of higher quality than many governmental agencies."

India has been a front runner among emerging economies in cloud adoption. BSA's annual Cloud Computing Scorecard sees India move up two spots in the ranking — from 19th to 17th based on its updated IP laws and enhancements to its infrastructure. Among the BRIC nations, India is ahead of China and Brazil with regard to cloud adoption (which occupies the 22nd and 19th spots respectively), due to its more liberal environment and because of its efforts to align with global regulations and standards.

China also got a rise in this year's rating for introducing new data privacy laws, while Russia got credit for reforms made as a result of its entry into the World Trade Organisation. This year's study also finds significant progress among smaller economies, that have swiftly moved up in the Scorecard rankings by implementing key international norms and adopting

policies to build user trust while assisting innovation.

The government as a user

The Indian government, the largest data collector in the country, is working towards the use of the cloud to benefit large portions of its population via projects like Aadhaar, National Population Register and National Rural Health Mission. Services to citizens such as banking, insurance, healthcare, education and governance would be increasingly moving to the cloud, mainly because it is cost effective, has infinite storage capacities and ensures mobility. Cloud based services can be leveraged by the government to launch new e-governance initiatives quicker and with lower overhead costs.

One of the biggest roadblocks to cloud adoption in India has been low broadband penetration. The Indian government's plans to augment broadband access across the country from the current 20 million users to 600 million users by 2020 and steps such as the setting up of the Bharat Broadband Network, will create the necessary infrastructure needed to drive cloud adoption in India.

The Bharat Broadband Network holds tremendous promise for improving e-governance as it aims to lay a National Optical Fiber Network (NOFN) in India covering a total of around 2,50,000 gram panchayats spread over 6,600 blocks and 641 districts. The government cloud infrastructure would get a strong backbone with this network.

If we were to take a closer look at the benefits of cloud adoption to government agencies, cloud computing offers a powerful complement to the more established IT solutions that these agencies have long used to conduct their



Cloud computing offers a powerful complement to the more established IT solutions that government agencies have long used to conduct their operations

operations. In the right circumstances, it holds the potential to deliver significant cost savings through resource sharing and elimination of redundancies. It can also offer instant scalability to meet expected or unexpected surges in demand. But the acquisition of cloud solutions represents a new approach that brings with it a host of new considerations for government CIOs and IT managers.

Approach to cloud adoption by government agencies

Deciding on the most appropriate IT solution for any given organisational need, requires a keen focus on needs, functional capabilities and operational outcomes, a clear view of what exactly is being purchased (either physical or cloud), and an eye on economies of scale wherever possible. To help government agencies navigate this decision process, there are some guidelines for assessing how and when they should adopt cloud-based solutions to augment or optimise their IT infrastructure.

It starts with identifying the

operational priorities for the government agency or department. There is a need to fully understand the “lay of the land” and what is needed to move cloud solutions forward. This could include educating personnel and management on cloud solutions, focusing on needs and outcomes and identifying opportunities to partner with other agencies to achieve economies of scale and decrease risks.

The next step is to ask whether there is enough flexibility in the IT budgeting to allow reprogramming and pooling of funds. It is extremely crucial to understand the protocol for procuring IT solutions. The agency can start with clearly defined functional requirements and ensure that the procurement process is consistent with established rules, and is designed to identify the widest range of technology options. The process should be transparent and technology-neutral.

At this stage, the concerned agency must be careful to avoid technology preferences by casting the widest possible net for the best solution to fit the government department or agency needs. They must steer clear of sole-

source contracting. The “open-source” versus “proprietary” software debate limits choice and can obscure the right solution.

A favourable legal and policy environment is essential for a secure, cost-effective and robust cloud environment to exist. From a policy standpoint, there are certain areas that need to be addressed. Are there laws, regulations or policies that establish a standards-setting framework for interoperability and portability of data? Are there laws or regulations governing the collection, use or other processing of personal information? Are there any laws or policies in place that implement technology neutrality in government?

Government adoption of cloud solutions will go a long way in helping strengthen public trust and confidence in the cloud. No country can afford to be an island in the cloud era; a cohesive and harmonious approach will ensure the benefits of cloud reaches one and all.

Yolynd Lobo is Director - India, BSA - The Software Alliance





COLUMN

RANJIT NAMBIAR

INTELLIGENT ACCESS CONTROL

IP-based access control, NFC and gesture-based authentication using mobile phones, will define the future of access control



The ability to combine physical and logical access control on the same credential improves user convenience and security while reducing deployment and operational costs

There are a number of important access control developments to watch. These include the latest Internet Protocol (IP)-based solutions, which are bringing intelligence to the door and even further to Near Field Communications (NFC)-enabled smartphones that, in the future, will also enable users to employ gestures as another factor of authentication.

IP-based solutions simplify operation, expansion and customisation while enabling the physical access control system (PACS) to share the same network with other solutions and applications. Moving intelligence to the door through IP-based access control also reduces system failure points and streamlines system monitoring and management. Also, the open architecture of IP-based intelligent controllers makes it easier for users to enhance and modify the infrastructure when needed, since they are no longer tied to proprietary software.

As IP-based access control solutions grow in popularity, they will also be deployed using wireless locksets and NFC-enabled handsets. In the first deployment phase, NFC-enabled handsets will emulate traditional cards. Future solutions will leverage the phone's own network connection and the cloud to move access control intelligence and decision-making right into the palm of one's hand. Additionally, we will see new authentication factors that go beyond something the cardholder "has" (the card) to include a gesture-based version of something the cardholder "knows." The latter factor has typically been a password or personal identification number, but tomorrow this could be a user-defined series of hand motions.

Moving to IP-based solutions

Most organisations today have installed security, access control, video surveillance incident response, perimeter detection and alarm

monitoring systems. Despite their synergies, these are generally disparate and isolated systems that cannot easily share information, if at all. With IP-based solutions, there is the opportunity to create a single, integrated system that enables users reap more from their investments, while also realising the benefits of one system with a single interface to multiple applications. Organisations can invest in a single, unified IP network, and logically control, multiple technologies that previously co-existed only on a physical level.

The ability to combine physical and logical access control on the same credential improves user convenience and security while reducing deployment and operational costs. Plus, organisations can leverage their existing credential investment to seamlessly add logical access control for network log-on. The result is a fully interoperable, multi-layered security solution across company networks, systems and facilities. In this environment, organisations can enforce more consistent policies, while facilitating the use of consolidated audit logs throughout the enterprise.

While there had previously been concerns about the security of IP-based access control, the industry now realises that IP-based access control actually improves security in many valuable ways. Organisations gain a comprehensive view when video surveillance is integrated with access control. The ability to manage video management and analytics subsystems, intrusion devices and associated IP-based edge devices through a single user interface enables organisations to immediately combine and correlate all information, significantly enhancing situational awareness.

Building the right foundation

In order to seamlessly exchange information between previously disparate systems, organisations must



build their IP-based access control solution on an open and scalable platform. Systems based on an open architecture also simplify expansion, customisation and integration, since new technologies can be incorporated into existing architectures without requiring a software overhaul. The use of standards-based solutions also delivers the necessary flexibility to work with a variety of products and suppliers, and to customise solutions for specific needs.

The next requirement is modularity, which enables organisations to start with a lower-cost system that delivers entry-level benefits of networked security intelligence, and then add features as they need them. Earlier proprietary systems lock organisations into one system size and performance level. Much more effective is to use today's advanced

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 Gestures could be used to unlock apps, to lock and unlock doors as an alternative to mechanical keys. They also could be used by a person to secretly signal the system and security personnel when he or she is being forced to enter under duress

controllers, thin-client software, and IP connectivity to build a migration path with numerous affordable investment stepping stones, from traditional mechanical locks with no intelligence, to door solutions with full, IP-networked intelligence and functionality. As facilities expand or the organisation encounters new demands, it should be possible to easily adapt solutions to support virtually any card/reader configuration that might be required — from controlling two or three doors with a few dozen card holders, to managing hundreds of doors across many different facilities with 100,000 card holders, or more.

To ensure the highest possible security, it is necessary to use a controller platform with fully trusted connections from host to controller to reader to

credential. All reader/controllers and I/O modules should also feature security capabilities such as an on-board encrypted Hi-O communication bus, as well as elements including 12/24 VD Clock support, mounting options, and plug-and-play I/O modules that extend I/O at and behind the door.

Mobile solutions and gesture-based passwords

Wireless intelligent locksets and readers are already seeing growing adoption with the availability of new lower-cost, more energy-efficient products. We also are seeing the advent of mobile access control with NFC-enabled handsets that will enable users to carry credentials on phones and these too, will be used within the network environment. At first, these phones will simply behave like smart cards. Identity information will be communicated from the phone to a reader, and on to an existing access control system that makes the decision whether or not to unlock the door, based on a pre-defined set of access rights. This model will provide a very safe and convenient way to provision, monitor and modify credential security parameters, issue temporary credentials and cancel lost or stolen credentials.

As the next phase of mobile access control deployment, the smartphone will use its on-board intelligence and wireless connection to complete most of the tasks now performed by the access control system. With this model, mobile devices (rather than an access control system) become the access decision-maker, and doors (rather than cards) become the ID badges. This paradigm reversal, sometimes called duality, will change how the industry offers access control solutions. Organisations will no longer need intelligent readers connected to back-end servers through physical cabling — just stand-alone electronic locks that can recognise a mobile device's encrypted "open" command and operate under a set of access rules. This will dramatically reduce access control deployment costs, and the industry will begin securing interior doors, filing cabinets, storage units and other areas where it has been prohibitively expensive



to install a traditional wired infrastructure.

Gesture-based access control technology will make this access control environment even more convenient. With a simple user-defined gesture, individuals will be able to control a variety of RFID devices. By leveraging the phone's built-in accelerometer feature, it will be possible to use both two- and three-dimensional gestures. Because the phone's accelerometer senses movement and gravity, it can tell which way the screen is being held. This allows for a novel way of adding another authentication factor to the existing authentication scheme. For instance, a user could present the phone to a reader, rotate it 90 degrees to the right, and then return it to the original position for the credential inside the phone to be read, and for access to be granted.

Using a gesture as an authentication factor will increase speed, security and privacy, and make it much harder for a rogue device to surreptitiously steal the user's credential in a "bump and clone" attack. Gestures will generally provide an additive capability for ID verification. They could be used to unlock apps, to lock and unlock doors as an alternative to mechanical keys. They also could be used

by a person to secretly signal the system and security personnel when he or she is being forced to enter under duress. It will also be possible, and perhaps even desirable, to make gesture the only (single) authentication factor, although this likely would only be for access to areas within a building that have lower security requirements.

Access control continues to advance in security and convenience with developments including IP-based solutions, the ability to carry credentials on NFC-enabled smartphones, and the advent of convenient authentication factors including gesture-based "passwords." IP-based access control simplifies system operation, expansion and customisation, and enables the PACS to be integrated with many other solutions on the same network. As access control intelligence moves to the door, this also streamlines system monitoring, management and reporting, and as it moves to NFC-enabled smartphones, we will be able to secure far more doors electronically than was ever before possible, while taking advantage of convenience features including gesture-based control.

Ranjit Nambiar is Director, IAM, South Asia, HID Global



THE FUTURE IS HERE WITH WIRELESS AC

Wireless AC, the next version after Wireless N looks to displace the latter with blazing internet connectivity

Wireless AC, the latest technology innovation, is currently displacing Wireless N. Consumer adoption is ramping up on all continents and significant business adoption is expected in 2014. As with the launch of all previous wireless technologies, end users have questions when it comes to performance, compatibility, and efficiency.

The biggest advantage of Wireless AC is the incredible speeds it offers. The highest performing routers on the market today can offer wireless speeds as high as an astounding 1,300 megabits per second (Mbps). Keep in mind, the full Wireless AC specification can accommodate speeds as high as 6.9 Gigabits per second (Gbps), so even faster routers will launch to market down the road.

Two other key Wireless AC technologies improve performance. Multi-User MIMO or MU-MIMO gives the router the ability to communicate with multiple users simultaneously — a big advantage in a busy wireless environment. Wireless N routers can only communicate with one user at a time. The second technology, Beam forming, directs the strongest wireless signal to your particular location resulting in the measured throughput increasing.

Conversely, users need to be aware of two product disadvantages. The first is that Wireless AC is not compatible with Wireless N. This simple fact will create connectivity issues during the transition to Wireless AC. With the goal of reducing connectivity conflicts, all Wireless AC routers for the next few years will be dual band with both Wireless AC and Wireless N networks.

The second issue is that the wireless range for Wireless AC is slightly lower than that of Wireless N. This is due to the fact that the 5 GHz band (that wireless AC uses) has a slightly harder time penetrating building materials.



Let's talk terminology. Simply understanding the speed rating of wireless AC products can be difficult. Since routers are dual band, it consists of adding both the AC and N speeds together. For example, an AC1750 rated product is comprised of a 1,300 Mbps AC network and a 450 Mbps N network (1300 + 450 = AC1750). Similarly, AC1200 routers offer an 866 Mbps AC band (rounded up to 900 of simplicity) and a 300 Mbps N band.

Partners often ask: why would consumers or businesses adopt Wireless AC when internet connection speeds are low? Well, Wireless N is widely adopted and its speeds far exceed most internet connection speeds today. Just as in the case of Wireless N, the tipping point for Wireless AC is not internet connection speeds. It's when tablets, mobile devices, and other products ship with embedded Wireless AC. Over the next two years, we will see an incredible volume of connected devices on the market with embedded Wireless AC, thereby driving the demand for Wireless AC networks.

Wireless AC solutions are currently priced significantly higher than Wireless N solutions. However, as the market matures, Wireless AC pricing will decline and eventually match Wireless N.

Atul Jain is Country Manager, TRENDnet



The highest performing routers on the market today can offer wireless speeds as high as 1,300 Mbps. The full Wireless AC specification can accommodate speeds as high as 6.9 Gbps

PRATEEK PASHINE
TATA TELESERVICES

Prateek Pashine, president-SME Business, Tata Teleservices talks to Heena Jhingan about a plethora of ways in which service providers can build on their enterprise offerings and provide value to the SME buyer. Excerpts...

“SME market is a big focus area for us”

In most cases, the generic enterprise services are down sized or tweaked as SME offering, but that is not what they want. How do you think you differ here from rest of the solution providers targeting SME space?

We have a dedicated team that creates products and services keeping SME customers in mind and to support that, we have a dedicated SME business organisation that caters to this growing segment. We have introduced many products for this segment including the first-of-its kind SIP Trunk services for SMEs, wherein they can make full use of their installed telephone exchanges with SIP trunk. This allows the latter to replace traditional fixed lines with single physical connectivity from the service provider network. This single link can scale from a minimum of 20 to 1,500 voice channels. It helps an enterprise have significant cost-savings for things like installation, maintenance and hardware upgrades.

Our understanding of the market has consistently evolved and offers us great competitive advantage. SME is still a large untapped area for telcos and requires special attention. We are planning to actively engage SMEs through our advisory services, specialised teams and a comprehensive product portfolio to further increase our revenues from the vertical. We have around thousand dedicated people within the company serving only SME clients, and no other telco across India has that kind of dedicated approach for SMEs. Combined with our range of end-to-end product offerings, we believe we are significantly ahead.

Industry reports indicate that the big opportunity of growth for cellular operators lies with SMEs that are going to get contracts from bigger agencies and projects like APDRP etc., that will involve bringing in automation and mobility. How are you trying to tap this opportunity?

We agree that enterprise mobility is dramatically changing the face of business operations today. The impact of enterprise mobility can be gauged from the fact that its benefits transcend the business-to-employee (B2E), business-to-business (B2B) and



How has your SME business grown over the last couple of years?

Around 30% of our SME revenues come from the non-mobility services. The SME market is a big focus area for us and we are witnessing tremendous growth. In the past few years, while the industry grew at 9%, we grew at 15% and are now looking at 20% growth for FY 2013-14. We believe that our SME business is uniquely positioned to deliver a completely managed service to SMEs including storage and data management, software upgrading, backup and on-demand applications in a completely resilient and secure environment.

business-to-consumer (B2C) gamut of any enterprise. For instance, on the B2C side of a business' operations, it is possible to sell goods to customers directly via smartphones, wherein social media usage is being increasingly leveraged on, to smartly target customers based on their online and mobile activities and e-commerce is steadily giving way to m-commerce.

At Tata Teleservices, we are poised to help our SME customers with our unique set of end-to-end products and solutions, to enable them to become leaner and agile and compete in a dynamic and hyper-competitive environment.

Many cellular operators in the country are trying to tap the enterprise business with innovations around location based and machine to machine applications. What is the scope of such applications for SMEs and what has been their response to such services from you?

The wireless machine-to-machine (M2M) market is increasingly growing across the world and in India too, and covers a wide range of applications such as remote management, automotive, metering, industrial data collection and healthcare. M2M is already enabling devices such as PoS terminals, ATMs and ticketing machines.

We at Tata Teleservices are focused on creating solutions for our SME customers and already offer tracking services to them. We offer an array of various Smart Grid solutions useful for the day to day routine tasks like Smart Personal Car Tracking solutions, Smart School Bus Tracking solutions, Smart Task Mobile applications and Smart Retail Car Tracking solutions. Furthermore, there are also intelligent meter reader and cab management services which are currently functional in various parts of the country.

The intent from our end is to create an end-to-end ecosystem with partners who come with right experience and mindset. Our approach is vertical centric which will help us solve real business issue rather than creating a “me too” kind of service.

heena.jhingan@expressindia.com



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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- Energy Management Solutions.
- Project Management of Datacentre Projects.
- Complete Physical Infrastructure Operation of Datacentre.
- Datacentre Audits and Certification.

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HP, SAP to help enterprises drive business via mobile applications



HP ENTERPRISE SERVICES recently announced a new collaboration with SAP Asia Pacific Japan to deliver a mobile starter pack, which will help organisations in Asia Pacific and Japan create and manage mobile applications that improve employee productivity and generate new revenue opportunities.

The company release observed that organisations across Asia Pacific and Japan recognise that mobility enables fast and efficient business operations from any location. However, many organizations are struggling to realise these business advantages because they do not have an effective solution for rapidly creating, managing and securing advanced mobile applications.

The HP Starter Pack for SAP Mobile Platform is designed to help organisations quickly plan, build, secure and manage customised mobile applications according to their unique needs. The solution leverages SAP

Mobile Platform and an extensive portfolio of HP Servers, HP ElitePad and HP Enterprise Services for rapid provisioning, scalability and security. This provides an end-to-end mobile solution that will help organisations to interact seamlessly with customers, employees and partners on any device.

As part of the HP Starter Pack for SAP Mobile Platform, HP will deliver Mobility Opportunity Workshop (MOW) to help organisations visualise new systems of engagement through mobile channels, assess the SAP solution-based environment and mobile application architecture as well as create a mobile application strategy and roadmap. Additionally, HP works with clients to develop, integrate, test and implement pre- and custom-built mobile applications.

"To be successful, organisations across the region need to empower their

employees with anytime, anywhere business operations that are fast, reliable and effective so that they can engage with customers in real-time," said Sudhir Rao, Chief Technologist, Enterprise Services, HP India, "By collaborating with SAP, we are leveraging our joint expertise in mobile technologies to help enterprises create advanced mobile applications that generate new business opportunities."

The HP Starter Pack for SAP Mobile Platform is designed to help organisations in Asia Pacific and Japan:

- Optimize employee productivity through applications that enable fast, accurate and efficient decision-making in real-time.
- Increase revenue opportunities by developing mobile applications that enhance customer engagements and deliver a superior customer experience.
- Lower costs of operation and increase the return on investment of mobile initiatives with rapid provisioning and deployment of mobile applications.

Additionally, clients will have the option to implement the solution as a managed service in their public or private cloud, thereby minimising upfront investment and costs while allowing the business to optimize employee productivity.

"Empowering employees on the go remains a key priority for successful businesses across the region," said Bronwyn Hastings, Senior Vice President, Ecosystem and Channels, SAP Asia Pacific Japan. "By leveraging the deep technology portfolio and integrated expertise of SAP and HP, organisations will be able to deliver advanced mobile applications that support their business goals."

The HP Starter Pack for SAP Mobile Platform is available immediately across Asia Pacific and Japan.

SMBs in Tier II cities to spend \$9 billion on IT by 2017: Report

INDIA-BASED SMBs (Firms with 1-999 full-time employees) are keen to leverage technology to enhance employee productivity and collaboration, and are forecasted to display a healthy CAGR of more than 15% over the next five years in boosting their ICT infrastructure. SMBs within the Tier-II cities, contribute a significant proportion of the all-India SMB IT spending, according to soon-to-be-released study by Access Markets International (AMI) Partners.

The report titled, 'India SMB City Opportunity Analysis — an IT-based Forecast Model' finds that as the Indian economy gradually shrugs off the effects of the downturn and begin to show a 'boom' in many sectors triggered by innovative economic and investment policies, the metros or the Tier I cities are the ones that are primarily inundated with burgeoning investments in the industrial and services sector. The building-up

congestion in realty structures and a huge burden on the overall city infrastructure has forced respective governments and many companies to seek out alternative smaller cities for their future, and earmark investments geared towards Tier II and III cities.

Hence second-tier cities like Kochi, Trivandrum, Nagpur, Vadodara, Vizag etc. form the next rung behind eight metros (Delhi, Mumbai, Bangalore, Chennai, Hyderabad, Kolkata, Ahmadabad & Pune) and are anticipated to ride the growth wave in areas such as formation of new businesses and expansion of current businesses.

Consequently, it is predicted that the IT investments by SMBs within these cities will also intensify. AMI-Partners' study also revealed that SMBs in Tier-II cities exhibit a substantially higher growth-rate in terms of their IT spending compared to their compatriots in Tier-I cities; thus they

are likely to be the future growth-engines of SMB — in terms of IT spending.

"In addition to investments in basic IT infrastructure, SMBs in these Tier II and III cities are anticipated to leverage the Wave II & III technologies (as per AMI-Partners Proprietary Three-Wave Technology Theory) and cloud computing in a bid to expand their business regionally & globally and also to gain a competitive edge over their peers," said Subrata Sarkar, Senior Analyst at AMI-Partners.

This translates to a forecasted spend of around \$9 billion by SMBs in the Tier II & III cities alone in various areas of IT - such as server, storage, software and cloud based services. AMI also found that the share of Tier-II city SMBs within the all-India SMB IT spending is on the rise — the current 26% contribution of SMBs within these cities is likely to rise by approximately 23% within the next five years, as predicted by AMI analysis.

Birlasoft buys CRM cloud partner EnablePath

BIRLASOFT, A CK Birla Group IT services company has announced the acquisition of EnablePath, a CRM solutions provider and Salesforce.com Gold Cloud Alliance Partner based in Atlanta, USA.

With this acquisition, Birlasoft aims to drive specialised expertise in strategic high-end business consulting, cloud transition, implementation, integration and app exchange services developed on the Salesforce.com platform to provide full-suite of solutions around sales, service, marketing and related cloud environments value chain, in the enterprise and commercial mid-market segments.

According to the news release, the deal is a part of larger strategy of Birlasoft to leverage the shift in enterprises from 'build model' to



business process led 'consume model' and a focus on 'IT outcome' to 'business outcome' based services enabled by technology disruptions like cloud, analytics and mobility.

"There has been a significant advancement in the technology world with new, disruptive technologies available not only to enable but to drive

businesses in today's rapidly changing market environment. Even at the CK Birla group companies, we see the need for cost optimisation, faster time to market, improved post sales service and enhanced analytics for planning and execution," said Amita Birla, Chairman, Birlasoft.

"These insights have given Birlasoft, our IT arm, a headstart in identifying these trends ahead of time and I see great value in its solution portfolio, customer engagement model and acquire and align strategy," added Birla.

With CRM needing to be integrated in the sales to service value chain, cloud being one of the disruptive technologies and Salesforce.com being the frontrunner as the integration platform, Birlasoft has decided to make first investment in this space.



Via.com deploys Abacus technology to scale its regional operations

ABACUS, A TRAVEL technology provider in Asia Pacific, has powered Via dot com, one of the fastest growing online travel agencies in India with over 4 crore customers and a strategy that is establishing the brand across the region. Adopting Abacus global distribution system front and mid office solutions, will help Via.com scale its domestic and international operations.

The company is deploying Abacus to maintain its edge with the most technically demanding corporate accounts, while improving compliance to travel policy terms. Via.com has also made a corresponding investment in the leisure sector with Abacus, to enhance the shopping experience with lower-priced itineraries based on a broader set of carriers and fares. New post-ticketing automation will take care of any changes to travel plans.

Swaminathan Vedaranyam, CEO of Via.com explained, "Abacus understands Asia and its solutions are scalable and so we are excited to be using their

innovative technology to support our expansion across India and into Singapore, the Philippines, Indonesia and new markets like Malaysia and Thailand. We are confident Abacus will help us reach out to even more customers with a superior product offering and service experience."

Jeetendra Sawhney, managing director for Abacus India added, "Via.com is already on an impressive trajectory, but this investment in the latest Abacus solutions will help the brand accelerate even faster, delivering cost reductions and productivity gains that add directly to the bottom line."

Via.com has commissioned Abacus to advise on workflow and process optimisation while installing the technology to get the most from their multi-platform investment with all the related competitive advantages. This includes extending the benefit to over 100,000 retail sub-agencies accessing Via.com to service the burgeoning offline distribution grid.

Ben Fathi is the new CTO of VMware

VMWARE, A GLOBAL virtualisation and cloud infrastructure provider, has appointed Ben Fathi as the company's new Chief Technology Officer (CTO). Fathi most recently served as senior vice president, R&D, at VMware and has been with the company since 2012.

According to a company release. Fathi brings experience managing large global teams and delivering innovation, with a focus on customer needs and product quality. This appointment is effective immediately and Fathi will report to Pat Gelsinger, CEO, VMware.

"As we continue to simplify IT complexity across the entire data centre for our customers, we depend on technology leaders, such as Ben Fathi, to deliver a focus on innovation combined with a proven track record of delivering high-quality products," commented Gelsinger.

"I am pleased and excited to have Ben serve as VMware's CTO where he will lead innovative product development and programs, collaborate with the academic community and provide leadership across our R&D community for years to come," he added.

Fathi has more than 30 years of experience in the computer industry, with an expertise in developing operating system software. In his prior role at VMware as senior vice president, R&D, Fathi led teams responsible for core VMware products and product innovations that achieved new levels of scale, performance and reliability.

Prior to joining VMware, Fathi served as a senior vice president at Cisco leading the operating systems and networking protocol teams. Prior to Cisco, he held multiple roles at Microsoft over 12 years, most recently as Corporate Vice President of Development for the Windows core operating system division.

Nasscom sees growth opportunities for IT industry

INDIA'S TOP IT industry body Nasscom is positive about IT sector's growth prospects in new the year. According to R Chandrashekhar, President, Nasscom, at present the outlook seems fairly positive and the industry body expects it to be better qualitatively but would be difficult to predict it.

With the Nasscom's vision to make the Indian IT industry worth \$300 billion by 2020 in terms of overall revenue, Chandrashekhar said, "It's not just about the numbers but its about transformation and how companies can transform to attain growth using new technology like cloud and others. And this transformation is across all domains and not just in IT sector."

"Technology is evolving very fast but its adoption is slow. Transformation has complexities from technology, domain as well as government stand point but it requires different approach and collaboration," he added.

However, over last few years, India is seeing a rise of startups, entrepreneurs and investors ecosystem and it gaining



lot of support from IT industry.

"There's a powerful ecosystem of startups, entrepreneurs besides investors, venture funds, angel investors and mentors. It's in the similar stage in a way Silicon Valley went through," pointed out the newly appointed head of Nasscom.

About opportunities in the market, Chandrashekhar said that lot of companies are working to solve problems

that are not just global but also local.

"But the time has come that the industry needs to make a big impact in domestic market. The local market offers opportunities to build IP based products and solutions and make impact domestically."

In his view, Indian IT industry has lot of advantages as some of the problems faced in emerging economies and other countries, are also faced in India and hence the industry can leverage its knowledge, skills and capabilities in helping other markets by working as co-partners.

He suggested the Indian IT industry to do more to make it more relevant to international markets so that industry can leverage its capabilities.

He asked the IT industry to work in a way that can create a market in the domestic sector by collaboration using different technology and business models across verticals such as healthcare, education and government. Nasscom has predicted the Indian IT industry to grow at 12-14% during the FY13-14.

Persistent Systems, Dell partner to offer cloud-based instant DR

PERSISTENT SYSTEMS, A player in software product and technology services and provider of rCloud, an innovative cloud-based disaster recovery service, recently announced a partnership agreement with Dell. The agreement will bring to market, a complete, scalable disaster recovery solution that will provide both on-site and cloud-based instant disaster recovery service without needing to rip and replace existing environments.

The integrated offer will enable Dell AppAssure users to leverage rCloud's cloud-based disaster recovery platform for round-the-clock availability of their

services, even in the case of entire site shutdowns. The combined solution will complement both companies' individual offerings, delivering a complete solution to rCloud and AppAssure customers.

"With this partnership, we are able to extend Dell AppAssure's proven on-site backup and recovery solutions with our powerful cloud based disaster recovery service as a single, robust and easy to implement and fully cloud-enabled business continuity solution," said Nara Rajagopalan, chief product officer, Persistent Systems, Inc.

"Our integrated offering means

customers aren't required to rip and replace their existing infrastructure, they can simply build on top of it — a huge savings in time and money."

The partnership solution will harness the power of Dell AppAssure which is designed to deliver performance and flexibility for Windows and Linux backups, with flexible replication and recovery options. AppAssure promises to go beyond backup by establishing a new, highly automated standard for data protection through technologies including TrueScale Architecture for data protection and data deduplication and compression.

Dell to offer cloud application services on Salesforce platform



DELL SERVICES HAS said that it will provide its customers a complete portfolio of services to enable development and migration of applications to the Salesforce Platform, one of world's leading cloud platforms for building social and mobile cloud apps.

This offering will further expand Dell's suite of cloud-based application development, migration and managed services for customers on a platform of their choice. For customers looking to develop applications on the Salesforce Platform, Dell will offer expert advisory and application migration services and will also act as a single point of contact for design, delivery and ongoing application management.

These services will make it quicker and easier for enterprises to adopt the Salesforce Platform and realise benefits such as increased speed-to-market and agility, better collaboration across organisational boundaries, more

modernised applications portfolios, and a greater ability to manage variable demand capacity needs.

"This collaboration helps Dell customers develop new applications using the cloud, on the platform that works best for their business. Customers will benefit not only from our strong Salesforce advisory services but also from Dell's own successful implementation of the Salesforce Platform. Offering customers this type of choice and flexibility is at the heart of Dell's overarching Cloud strategy," said Raman Sapra, executive director and global head - Strategy and Business Innovation Services, Dell Service, India.

Dell will also offers its Cloud Consulting and Application Services, providing customers with guidance specific to their unique needs to help assess, build, operate and control cloud environments.

Ramco Systems selects Microsoft Office 365 on Cloud

Ramco Systems, an enterprise software product company focused on delivering ERP on Cloud, Tablets and Smart phones, has selected Microsoft Office 365 for unified communication and collaboration with its partners and customers. The solution will provide a single platform for its employees in India and across the globe to exchange information, with anywhere anytime access, ensuring increase in productivity, security and mobility.



Raghvendra Tripathi, CPO, Ramco Systems Limited stated, "We are a cloud company and all our products run on the cloud. It was important that we run our own business on the cloud and hence decided to keep nothing on premise including email. To match the growing pace of our business, we required a cloud solution that would not only reduce our CAPEX but also bring the employees closer to partners and customers. After evaluating cloud solutions from multiple service providers we decided to choose Microsoft solutions as we benefit from their pay-as-you-go model and operationally, we can collaborate with our employees, partners and customers who use familiar enterprise applications like Lync, Yammer, SharePoint, Exchange and Office. Moreover, we can now enjoy a consistent and familiar Office experience across 5 devices and be in sync."

Fortinet helps Shriram Group secure its infrastructure



FORTINET, A GLOBAL network security provider has announced that Shriram Group, one of India's largest asset financing companies, has deployed its solutions that includes FortiGate - network security platform, FortiManager and FortiAnalyzer - centralized management and reporting tools and FortiClient endpoint security client to help secure its data centre and 400 branch offices across India.

Founded in 1974, Shriram Group has 45,000 employees and manages assets worth Rs.60,000 crore for 9.5 million customers. Its core financial services are commercial vehicle finance, general and life insurance, consumer finance, retail stock-broking and chit funds.

Many of Shriram Group's branches are in tier-III cities where Multiprotocol Label Switching (MPLS)/Virtual Private

Network (VPN) connectivity is not feasible, making security and control over applications at those branches difficult. The huge data load passed onto the gateway firewall resulted in extremely low throughputs from the data centre.

To improve network performance, Shriram Group worked with Fortinet to define common policies for users to access applications by enabling a broad range of security features including antivirus, antispam, Web filtering, VPN and application control. The financial services provider also wanted to improve Internet access management at MPLS locations. Centralised management, low total cost of ownership (TCO) and hardware stability were other top criteria defined by Shriram Group as part of the vendor selection for the

deployment of this new infrastructure.

"We needed high performance firewalls to reduce latency while enabling our users to access applications," said Sendil Kumar, AVP IT - Shriram Value Services (IT & ITeS division), Shriram Group. "The FortiGate appliances, which included high throughput at the data centre and multi-functionality at the branch level, suited our needs perfectly. The icing on the cake was FortiClient, a simple yet powerful tool, which we effectively use to control user access and secure endpoints."

By providing separate firewalls for its Internet gateway and MPLS connection, which included deploying a FortiGate - 3040B cluster at the data centre, FortiGate-1000A, FortiGate-600C, FortiGate-310B and FortiGate-300C appliances at the corporate offices and more than 400 FortiGate-60C and FortiGate-40C boxes at the branch offices, Shriram Group has been able to greatly reduce network and application latency.

The security architecture, deployed as a two-layer firewall with data centre zoning, replaced all the routers at the branches, helping the group's branches provide secure network access and internet connectivity via 3G modems conveniently plugged into the USB ports of the FortiGate appliances.

The FortiGate 3040B has distributed loads across multiple Internet service provider connections and with eight 10GbE ports it has increased the firewall throughput. The FortiManager virtual appliance centralises policy management and controls the endpoints via the FortiClient software installed at the branch offices. With FortiClient's web filtering and application control features, Shriram Group is able to restrict internet and web-based application access at a granular level. The FortiAnalyzer-1000C centrally performs network analysis and reports on network anomalies.

TCS to set up world's largest corporate learning center



TATA CONSULTANCY SERVICES (TCS), one of India's leading IT services and consulting companies has said it is setting up world's largest corporate learning and development centre with a total capacity to train 15,000 professionals at one time and 50,000 professionals annually.

The proposed TCS Learning Campus in Thiruvananthapuram will be located on a 97-acre property in the Technopark area of the city. The campus will be built over an area of 6.1 million square feet and will feature residential accommodation for professionals and faculty at the center.

Prime Minister Dr. Manmohan Singh, laid the foundation stone for the project. N. Chandrasekaran, CEO and MD, TCS said, "TCS has been present in Thiruvananthapuram since 1997 and since then it has been the hub of our global learning and development efforts.

The TCS Learning Campus will be the new benchmark for corporate learning worldwide and this iconic facility will produce world class professionals to meet the future needs of the IT industry."

"We are grateful to the Kerala government officials and other stakeholders whose energy and commitment has helped make this project a reality today," he added.

The project will boost the local economy in the region and during the construction period alone, it is expected that this project will provide direct employment to over 2,000 skilled and unskilled local people for a period of 4 years. An integral part of the project will be the skill development programs run by TCS to upgrade the skills of local youth and facilitate opportunities to work in the construction project, through contractors.

The proposed TCS Learning Campus will provide a natural, contemporary vision for education by linking elegant design, ecological thinking, and modern technology. The integrated design has been organized around a centralized, iconic training facility with collaboration rooms and libraries on the high plateau at the middle of the site with residential and support buildings around it.

The master plan of the campus, inspired by the rich regional heritage, incorporates the local architecture influences and used local materials in construction. It incorporates several green concepts such as zero waste discharge with 100% recycling of sewage, energy efficient systems, large area of green cover, rain water harvesting systems and integrated building management systems.

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To know more, call **1800 425 4999**,
visit hp.com/in/mfp or mail at in.contact@hp.com



¹ For wireless direct printing, mobile device may require an app or print software. Wireless performance is dependent on physical environment and distance from the printer. For touch-to-print capability, the mobile device must support near field communications-enabled printing.