TechTalk

Issue 54, December 2016

Galaxy to Focus on Emerging Hyper-Convergence Market in India

Galaxy Office Automation, a leading IT Solutions provider, announces that it will tap into the growing opportunities in the hyper-convergence integrated systems (HCIS) market in India in the coming year. Galaxy is one of the few solution providers in India to have developed the technical, sales and marketing capabilities around this new technology. Hyper-convergence makes use of software-defined architectures that integrates compute, storage, networking and virtualization resources along with other technologies in a solution supported by a single vendor. Recent market studies indicate that the steady acceptance of cloud, mobility and Internet of Things (IoT) is also driving the demand for HCIS. Among other verticals, communications & media, IT & ITES, banking, government, and retail (including e-commerce) are expected to be early adopters of HCIS.

According to Gartner, HCIS will be the fastest-growing segment of the overall market for integrated systems, reaching almost $5 billion, which is 24 percent of the market, by 2019.

To address the growing demand in this space, Galaxy has formed a dedicated team of specialists to assist customers with the implementation of the hyper-convergence infrastructure. It has also been actively building partnerships and engaging with prospective customers through industry events and technology forums. The company recently showcased its solution offerings around hyper-convergence at a flagship technology event for IT leaders.

IN THIS ISSUE

MD Speaks

"Dear Readers,

What a month! The US Presidential elections results, demonetization of 86% of India's currency and finally the referendum results in Italy have sent shockwaves across three continents.

The world is dreading whether Donald Trump will actually do what he threatened to do during the campaigning phase. From an ITES perspective, if he cracks down on outsourcing, it will mean an immediate loss of business in the short term. American businesses that are saving by outsourcing, will see their profitability and even existence could come under threat. However, we are at a point where such a decision might actually give automation technologies just the fillip they need and actually replace low cost workers in developing countries with automated systems and robots. Not exactly what the POTUS elect had in mind!

Demonetization in India is in the same basket. While, the intentions are honorable, the results are not exactly what the Indian PM had in mind. Large scale money laundering in connivance with 'bankers' & 'financial consultants' have seen a large amount of money just going out of circulation causing a great loss to national productivity and a greater loss to the weaker sections of the society. On the upside, it will flush the existing counterfeit notes out of the system. However, unless follow up measures are taken to prevent the creation of 'black money' and harsh punishment to the guilty, we will be back to square one. The Rs. 2000/- currency note, certainly does not seem to be a step in the right direction!

The Italian referendum and the PM's resignation has set tongues wagging about 'Italeave', on the lines of 'Brexit'. If the concept of a common European market is threatened, the consequences could well have a global impact.

On the brighter side, USA might prosper in a pro American business environment, India, in its attempt to go cashless, will see a lot of penetration of technology and education and the Euro may emerge stronger. Galaxy will play its part in enabling its customers to automate processes and go cashless by providing technology solutions to achieve those ends.

Happy Reading."

The Future is Now

Take A 360-Degree Tour of an Eye Hospital Curing Blindness at 30k Feet

Over 340,000 eye surgeries have been performed.

This is the Orbis Flying Eye Hospital, an astonishing aircraft that is capable of curing blindness, teaching those how to cure blindness and educating people so they can prevent it in the first place.

The aircraft was donated in full by FedEx and will travel to countries like Peru, Mongolia, China and Zambia, offering either emergency medical care or educational facilities.

To help further knowledge about the plane and its mission Orbis has released a special 360-degree tour which is narrated by Oscar nominated actor Djimon Hounsou.

The modified MD10 is a marvel of engineering and efficiency, cramming a huge number of facilities into a space remarkably compact.

On board you'll find:

- **A 46-seat Classroom**
- **Administration Room**
- **Audiovisual/IT Room - so surgery, filmed and broadcast in 3D, can be streamed**
- **Laser Treatment Room, with a cataract simulator training machine**
- **Observation Area**
- **Operating Room**
- **Sterilization Room**
- **Recovery Room**

The concept of the Flying Eye Hospital has been going on since 1982 when Orbis launched their first ever converted DC8 aircraft. At that time their evolving fleet of aircraft has visited over 78 countries and in the last five years alone the previous aircraft and its other facilities have trained over 100,000 doctors, nurses and biomedical engineers.

Driverless Cars in California Don't Legally Need Humans Anymore

Driverless cars have made an important step towards freedom.

In tech talk issue, 26 of August 2014 we published an article "UK to allow driverless cars on public roads in January". this seems to be in reality not only in UK but another developed country too.

A bill has been signed into law in California which legally allows driverless cars onto public roads without having a single human inside them. That's right, no drivers and now no passengers either. While it might sound slightly terrifying this is an important step for allowing driverless busses, taxis and utility vehicles to function.

California has been leading the regulation on self-driving vehicles and it currently allows public testing with over 15 automakers and technology companies all taking part. What sets this decision apart from previous bills is that it now allows the creation of vehicles that won't have a steering wheel, accelerator or brake. Instead these will be fully-autonomous, designed purely to transport humans, equipment or perform automated tasks.

A French company Easymile has already taken advantage of the bill and will be deploying a fleet of driverless shuttles in a park in the city of San Ramon.

Easymile already use their driverless shuttles in Europe but will now be testing them in California for a period of six months. Each shuttle can travel at up to 25mph. It's believed that these types of vehicles will be the first real-world examples of driverless cars.

Technology Focus

Five approaches to IT resiliency that Don't need new hardware

With new application architectures, snapshots, containerization and other technologies, IT resiliency goes up while the server count stays the same.

IT resiliency isn't just a concern for top-tier enterprise-class applications -- organizations developing and deploying software for web-based storefronts, mobile users and a myriad of other tasks are increasingly concerned with how resilient the workload is. Traditional hardware-based clusters are still a powerful choice to ensure IT resiliency for critical applications in the data center, but these five options bolster application resilience without major hardware investments.

1. Fault-tolerant software platforms: The idea behind clusters is to load balance application traffic across multiple duplicate servers. If a server fails, the other servers take up the load and the workload's operations continue unaffected. One alternative to the traditional server cluster is server fault tolerance or high availability. These models typically duplicate and synchronize VMs across multiple physical servers.

In the fault tolerant mode, duplicate VMs share the load in a hot/hot configuration, like a traditional hardware-based cluster. If one VM fails, the other continues without disruption, though some traffic may drop because load balancing is not as comprehensive as hardware clustering techniques. Thus, the application is tolerant of faults not yet immune to them. In the high availability mode, the duplicate VM is kept idle and synchronized with the working VM in a hot/warm configuration. If the working VM fails, the standby VM becomes active and takes on the traffic load. There may be a small, usually brief, amount of traffic disruption during the switchover. Fault-tolerant and high availability deployments use software tools, such as Stratus everRun Enterprise and Vision Solutions Double-Take, capable of creating, synchronizing and failing over to redundant workload instances. The workload's importance to the business dictates whether high availability or the more rigorous fault-tolerance configuration is the right resiliency clustering choice.

2. Redundant cloud architectures: Some enterprise applications are developed and deployed in public clouds, such as Amazon Web Services (AWS), Google Cloud Platform and Microsoft Azure. Public clouds allow rapid and scalable VM and storage provisioning. Now, they also offer IT resiliency features for software developers, operations staff and cloud administrators. AWS, for example, provides clustering with Auto Scaling services, which allow administrators to create groups of Elastic Compute Cloud (EC2) compute instances. EC2 instances increase or decrease manually, or automatically with changes in workload traffic. AWS' Elastic Load Balancer services distribute traffic on cloud instances. Organizations need no upfront capital hardware or software platform investment to create workload resilience in a public cloud deployment. The public cloud provider handles all of the hardware and management and the business pays for the compute resources that are actually used -- this amount will vary as EC2 instances and other associated cloud services scale up or down over the course of a billing cycle. To increase IT resiliency against regional disruption, consider cloud providers with international installations, across numerous geopolitical regions.

3. Take a snapshot: Almost every enterprise workload needs some level of operational protection. Not all of them require the real-time protection of clusters, fault tolerance and high availability platforms. Secondary applications or applications in test and development can tolerate some amount of downtime and data loss, and those applications may receive adequate levels of resilience with ordinary VM snapshots. VMs are basically complete OS, driver, application and data instances running within a server's memory space. A snapshot essentially captures the current state of that memory space or the changes to that memory space since the last snapshot, and saves that content to a disk file such as a *. vmdk or *-delta.vmdk file. If the VM fails, administrators restore the snapshot to restart the VM in a matter of minutes. This usually recovers the application to the point of the last snapshot. There may be some data loss and time to recover, so consider the implications of recovery point objective and recovery time objective before choosing snapshot-based resiliency. If the application can tolerate the potential downtime, this option minimizes hardware commitment by using only one server for the Major virtualization platforms such as VMware vSphere include powerful snapshot tools that can capture, organize, consolidate, manage and restore VM snapshots.

4. Resilience in application designs: IT resiliency isn't just a deployment or operations issue. Resiliency is also a vital development consideration, and a workload's resilience can be profoundly influenced by the integrity of that application's design and implementation. In simplest terms, application resiliency is responding as elegantly as possible to problems or errors in that application's components, rather than creating nonsensical responses or crashing. Applications with specific hardware dependencies can pose serious failover or restoration problems. Similar issues arise when workloads depend on specific OSes, drivers, database structures and other software components. Complex software with poor security or inadequate vulnerability testing leaves open many possible attack vectors, which also compromises the application's resiliency. Proper design techniques and comprehensive testing can't prevent every problem, but do help ensure that versions released to production continue service or fail gracefully when they encounter bugs and other errors. Integrating log and data collection capabilities into the application will help record error conditions and pinpoint performance problems.

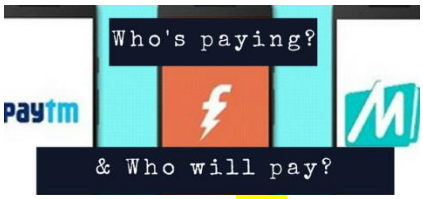
5. Containers and micro services in application design: Workload resiliency is increasingly affected by scalability. If the traffic demands outstrip the available compute resources of a workload instance, the workload's performance suffers, or it crashes entirely. Virtual machine clusters and load balancing are well-established means to scale an application; modern application design can capitalize on micro services architecture, deployed in virtualized containers. Instead of monolithic workload designs deployed as VMs, functional components communicate through application programming interfaces to enable the application's functions. The advantage of container-based micro services are that containers share a common OS, allowing faster scaling with much less compute overhead. The containerized workload can scale in an independent fashion, allowing for clustered and load-balanced containers for each functional area rather than full iterations of the entire application. Functional components are updated and upgraded more quickly than monolithic apps, requiring less regression testing and posing less risk of unintended consequences.

It's a more complex deployment scheme, but the reward for that additional work is felt in IT resiliency as applications scale further than traditional physical or virtual machines while using less total computer hardware.

Tech News

Who will pay? The Bank, The Wallet Co. or Us?

Everyone's rushing to load their smartphones with e-wallets due to the recent demonetization. While a lot has been written and read about the advantages of the digital economy etc, one subject is not receiving adequate mention is the "Transaction Charges" for these digital wallets.



We attempted to check for the charges of the top 3 wallets, and was surprised at the level of difficulty to get clarity about the transaction charges from their websites. Although most wallet transactions are currently free, due to these VC funded companies' rush for new client acquisition, how long will the 'free'dom continue cannot be predicted. Most of the ewallet websites do not have an easy menu navigation button called as "Fees" or "Transaction Charges". For eg. The charges for paytm were seen under about us-> our policies-> a small section on a long page which looked like this attached screenshot.

3. Paytm reserves the right to levy charges/ charge commission upon any amounts loaded upon your Paytm Wallet using Paytm Wallet.

Nature of transaction	Charges
Loading money into Wallet	NIL
Purchase at merchant site	NIL
Wallet to Wallet transfer	NIL
Wallet to bank transfer - Basic customer	1%
Wallet to bank transfer - KYC customer	1%
Wallet to bank transfer - KYC customer (registered as business)	NIL

This charge is on the total amount being deducted and not on the amount being transferred.

So it will be wise on our part to enlighten ourselves and be prepared for the longer term "cuts" out of our money by these new breed of wallet apps. We need to remember that these charges could be over and above any bank charges. Another wise step would be to use our own bank's wallet instead of third party apps, assuming that we may be charged only once within the value chain of bank-account-to-wallet-to-vendor.

In the long run the charges could be levied on every transaction (like the NEFT * ATM charges in banks), so the thrill of making small digital payments to our grocer or vegetable vendor may turn to gloom when we notice a few rupees being deducted on each transaction which cumulatively (monthly) may be higher than when we transact in the old cash world. Let us keep a watch on the unfolding of the new India's digital journey, and at the same time also keep watch for any holes in our e-pockets.... :)

Google Acquires AWS Cloud Training Partner Qwiklabs

Global software company Google, recently announced the plans to acquire Qwiklabs, a startup that developed commercially available training courses for public cloud infrastructure services. With the acquisition, Google intends to use Qwiklabs to directly support the Google Cloud. Interestingly, Qwiklabs's existing portfolio is entirely focused on educating people about offerings from Amazon Web Services, including Alexa skills. By acquiring Qwiklabs, Google intends to expand the use of its cloud platform and stands to gain when developers and IT professionals get a handle on making applications run in the cloud. The company will create tools to help get people up to speed on the Google Cloud Platform and G Suite productivity service, Jason Martin, the director of professional services for Google Cloud, said in a blog post. For the time being, offerings for AWS will be available, he said. "We plan to continue to offer lab learning credits and subscriptions for sale on Qwiklabs.com," Qwiklabs CEO Enis Konuk said in a blog post. "Owners of existing credits and subscriptions continue to enjoy the same access to our library of hands-on labs. Our partners who deliver instructor-led training sessions and events can continue to do so", he added.

This move comes after Google acquired Synergyse earlier this year. That technology has since been incorporated into Google Apps. However, this isn't the first time the tech titan has bought an AWS-focused cloud company, though. In 2014, Google acquired Stackdriver, a service designed to help people manage the performance of their cloud compute resources. At the time, it only worked with AWS. Now, it handles both AWS and GCP workloads.

Amazon will likely have to find a new education partner to fill Qwiklabs' void. In September, the cloud provider announced it would give customers on its Enterprise Support Plan free Qwiklabs credits. Qwiklabs, founded in 2012, offers step-by-step instructions for using popular cloud services. It also lets users test different use cases and train teams. More than half-a-million users have collectively spent over 5 million hours on the platform.

Japan to build world's fastest supercomputer. Not for Pokemon Go

Japan wants to reclaim the title for world's fastest machine and use it for medical research, car software and building robots. No word about video games. Japan is spending nearly $175 million to build the world's fastest supercomputer, according the BBC, in an effort to reclaim the record from China. The AI Bridging Cloud computer is expected to run at speeds as high as 130 petaflops, the BBC reported. That would be faster than China's Sunway TaihuLight, the current titleholder, which has a theoretical maximum of 125 petaflops (but generally slacks at just 93 petaflops).

A petaflop equals a quadrillion floating point operations conducted in one second. A floating point operations, or FLOP, is a step in a calculation.

AIBC, which Japanese authorities hope to complete before the end of next year, will be used to analyze huge datasets and could be used for medical research, improvements in autonomous car software and designing robots.

"As far as we know, there is nothing out there that is as fast," Satoshi Sekiguchi, head of Japan's National Institute of Advanced Industrial Science and Technology, told BBC in a statement. The institute will oversee the development of AIBC.

AIST didn't respond to a request for comment. But its webpage shows the agency is actively pursuing a range of projects, including the development of Electro-Conductive Transparent Plastic Wrap.

Japanese businesses will be able to rent time on the AIBC, something the government hopes will dissuade them from using similar services run by US companies.

Special Focus

Dell EMC code contributions restructure OpenSwitch architecture

Fresh from the SDN blogging world: One networking expert analyzes survey results about software-defined WAN pros and cons, while another discusses a new open source container security project and upcoming changes to OpenSwitch architecture, thanks to contributions from Dell EMC and SnapRoute.

Packet Pushers' blogger and IT expert Drew Conry-Murray wrote about the latest changes to OpenSwitch architecture. According to Conry-Murray, Dell EMC and SnapRoute -- an open source software startup based in Palo Alto, Calif. -- contributed code that will be an essential element to the OpenSwitch architecture.

Hewlett Packard Enterprise originated the OpenSwitch project with the intent to develop an open source network operating system. Now, much of the original code will be substituted with code from Dell EMC and SnapRoute, Conry-Murray wrote. Dell EMC's Operating System 10 Open Edition software will act as the base layer for the operating system, providing the file system and management.

SnapRoute contributed its modular software, which offers features such as Border Gateway Protocol, MPLS and support for IPv4 and IPv6. According to Conry-Murray, SnapRoute's software allows both manual management with a command-line interface and automated management with tools like a Chef and Puppet.

SD-WAN advantages and disadvantages

Over the past year, SD-WAN has become an increasingly popular technology. This awareness brings discussions about SD-WAN's potential advantages and disadvantages. In a recent blog post on The Elastic Network, Jim Metzler, vice president of Ashton, Metzler & Associates, based in Sanibel, Fla., discussed survey results that showcased SD-WAN's increasing familiarity and the resulting contemplation about its pros and cons.

According to Metzler, 33% of the 110 network professionals surveyed said they were either very or extremely familiar with SD-WAN, an 18% increase in the number of respondents who provided the same answer in a 2015 survey. Metzler said this familiarity could, in part, be due to the growing amount of informational articles and webinars about SD-WAN.

Respondents appeared to be less certain, however, of SD-WAN's benefits and drawbacks. To illustrate how SD-WAN is perceived in the enterprise, Metzler used three forces -- security, cost management and support of real-time applications, like voice and video -- that most affect traditional enterprise WANs.

Respondents, he wrote, were split regarding whether SD-WANs would improve security. But he said many believed SD-WAN would significantly reduce Opex, and although the survey didn't specifically mention voice or video, respondents tended to say they expected SD-WAN tools to increase application performance.

Trireme container security a work in progress

As containers became more common in networking, an important security consideration emerged: Should multiple containers be allowed to communicate with each other? Aporeto, a cloud security startup based in San Jose, Calif., approached this challenge with its latest open source project, Trireme. In another Packet Pushers blog post, Drew Conry-Murray discussed this latest venture.

According to Aporeto's site, Trireme uses authentication and authorization to attach security to the specific application running in a container. Or, as Conry-Murray said, Trireme identifies attributes assigned to each container upon creation and authorizes communication among containers, based on established policies -- it essentially acts like a TCP proxy server.

First, Trireme identifies the container label and signs it using elliptic curve cryptography. Then, "a second Trireme agent validates the signature, checks the label and attributes of the container, and then checks its policies to confirm whether the sending container is authorized to communicate with the recipient," Conry-Murray wrote. Once the identity is confirmed, Trireme moves out of the way and permits the network connection.

Trireme's approach is relatively simple, utilizing the unique attributes and functions of each container. Conry-Murray said it was a sensible approach. However, he also noted Trireme needs to prove itself in live production, especially at scale, and how well it integrates with management and orchestration systems.

About Galaxy

- One of the most respected Information Technology integrator of the best of breed products and solutions for Enterprise Computing, Storage, Networking, Security, Automation, Application Delivery, ERP and Business Intelligence.
- An ISO 9001:2008 organization, founded in 1987.
- Committed team of over 200 skilled professionals.
- PAN India presence.
- Trusted IT services provider to more than a 1000 companies.
- Experienced consultants certified on a wide spectrum of technologies.
- The Galaxy Technology Innovation Centre, a state-of-the-art integrated hardware and software laboratory, allows customers a hands-on look at the latest storage, backup, security, application delivery and virtualization technologies.
- Customer list includes many of India's leading corporations, banks and government agencies.
- Four business units collaborate to provide a full spectrum of services and ensure smooth projects. Together, they provide our customers with truly end to end professional IT Services.

Galaxy Business Solutions
System integrators of best of breed technologies to deliver solutions to the problems and challenges that confront enterprises

Galaxy Technology Services
Skilled pool of resources consistently maintains and delivers enterprise class service levels

Galaxy Network Solutions
One of India's most trusted active and passive networking specialists

Galaxy BI Consulting Services
Helps organizations to deliver and leverage business intelligence to create substantial business impact

NEWSLETTER COMPILED BY

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VISION

"To become the most preferred technology solution partner by listening to our customers, anticipating their needs and providing reliability, flexibility, responsiveness and innovative products and services. Achieving market leadership and operating excellence in every segment of our company."

MISSION

"Total customer satisfaction; through innovative insights, quality service and excellence in technology deployment."

VALUE PROPOSITION

"We understand the need of a common vendor for all your IT needs. Hence, we are committed to long-term partnerships by delivering on our commitments."