# TechTalk
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LISTENING TO BUSINESS, APPLYING TECHNOLOGY

IN THIS ISSUE

# VMware announces VIO-its own version of OpenStack. Also Debuts EVO: RAIL

## Virtualization giant preps OpenStack distribution, perhaps as part of broader move to decouple its management tools and VM offerings

At VMworld 2014 the company announced its own version of OpenStack, VIO (VMware Integrated OpenStack). The company's press release provides an intriguing hint as to how VMware sees the project, since it's described as a solution to "enable IT organizations to quickly and cost-effectively provide developers with open, cloud-style APIs to access VMware infrastructure."

From the technical side, it's a slick concept: In VIO, an OpenStack cloud can be managed using VMware's toolset. It's a winning idea because VMware's tools are more broadly used -- and arguably more polished and powerful -- than OpenStack itself, which receives constant criticism for being unwieldy, hard to manage, and more of a framework than an actual product.

If VMware's edition of OpenStack lets you use only ESX as the hypervisor, then it's less of an OpenStack product and more of a VMware one. But another possibility is in the air: VMware could be integrating with OpenStack as a way of decoupling its management tools from its actual VM offerings. This would fit with VMware's general journey away from virtual machines and toward the software-defined data center. Back in 2012, VMware acquired DynamicOps, an outfit that specializes in multi hypervisor management solutions -- the sort of technology that would be a good fit for allowing VMware's tools to manage OpenStack no matter what hypervisor is being used.

## VMware's EVO: RAIL serves as a small, flexible building block to simplify and streamline creation and deployment of virtualized environments, private clouds

VMware launched a stack of its virtualization software able to be preinstalled on hardware, for customers that want a "hyper-converged" building block for building out virtualization environments. VMware calls the building block EVO: RAIL, short for an evolutionary compute unit that slides into a 2U rack server space on a rail. The design is reminiscent of Open Compute project's hardware that slid into racks on rails for easy serviceability.

VMware's EVO:RAILs are fractions of racks: four server nodes sliding into the 2U space of a 42-space rack. By "hyper-converged," VMware appears to mean that the hardware will come with all the elements configured for the most advanced forms of virtualization, including VMware NSX virtualized networking and Virtual SAN or VSAN storage.

With such an assembly, it's easier to approximate infrastructure driven strictly by policies and software systems rather than by operations staff.

The company also wants to enable private clouds as a more automated form of virtualization. Instead of assembling their own servers, storage and networking, EVO: RAIL customers can simply order a single SKU through VMware and designate their hardware supplier of choice.

Each node in the hyper-converged infrastructure should be able, on average, to host 100 virtual machines or 250 virtual desktops. That means each 2U space in the EVO: RAIL server rack has the potential to run 400 virtual machines or 1,000 desktops, a higher concentration than found in the typical data center virtualized environment.

# The Future is Now

## How we'll pay for things in the future

### Emerging payment options include contactless cards, mobile purchases

If you're in San Francisco, perhaps you waved your smartphone over a payment terminal; if in London, maybe you momentarily tapped your funky-looking wristband on it; if in Nairobi, you probably just sent a text message. And if you're in Lund in Sweden, maybe you simply swiped your palm.

True, in any of these cities -- and in fact everywhere else -- you're most likely to reach for your old-fashioned wallet and flash those cash or debit cards you're so used to. But while this form of payment is far from dead, the way we use money on a daily basis is changing.

Whether it's via contactless cards and mobile phones, or even wearable gadgets and biometrics, new ways of paying and spending are increasingly muscling their way into the mix, leading to a rise in cashless transactions.

So, what are some of these emerging payment options vying for your attention?

*Wave and go-* Unsurprisingly, the area that's currently seeing the biggest traction in retail purchases is contactless cards -- these typically allow you to make quick and easy payments for low-priced goods by simply waving them over the reader at the till.

Even though the technology, also known as near field communication has been around for several years now, it's only recently that contactless cards have started gathering pace. Last year, a report by Juniper Research said that 249 million cards will be used for contactless payments in 2014, driven by rising adoption in countries like the UK, Australia, Canada and Poland. In Britain alone, spending via contactless payment cards hit £109.2 million last March, up three times compared to a year ago.

*Mobile rising-* Naturally, mobile is at the heart of this -- and the options already on offer are far from limited.

"With mobile phones," says Sarah Clarke editor of NFC World+, "there's a wide range of different routes that people are taking to see which one is going to be the one that catches on most with consumers and with retailers."

One of them is NFC, which allows customers to use their smartphone as a substitute to contactless cards. Google Wallet and mpass are just some of the mobile applications using NFC -- in fact, the technology has long been touted as the next big thing, but the uptake has been slower than anticipated. Another stumbling block has been a tug-of-war between mobile network operators and payment service providers over customer ownership.

Traditionally, contactless mobile payments have been enabled via a smart chip -- called secure element -- usually residing in the device's SIM card. This made mobile network operators intrinsic to the NFC ecosystem. It also allowed them to start offering digital payment solutions, much to the dismay of financial institutions.

Yet, the banks' position has been given a boost recently after the introduction of a new technology called host card emulation, which permits the hosting of payment credentials in the cloud. This allows banks to deploy mobile NFC products bypassing the need for a secure element -- crucially, Visa and MasterCard have embraced the technology while Google has included in its Android Kit Kat operating system.

*Future is here* -Away from NFC, another futuristic option being mooted is Bluetooth low energy. Already tested in the marketing arena, the technology allows the transmission of messages directly to a nearby smartphone. Yet, lately it is also being used in payments -- PayPal has recently introduced Beacon, a BLE hardware device that allows buyers to conduct hands-free transactions without checking-in. The idea behind it is that upon entering a store, the PayPal app on your smartphone seamlessly connects with the PayPal Beacon. A vibration or sound lets you know that you're checked in, while paying for goods doesn't require any cash or cards -- all you need to do is verify the purchase using voice recognition.

If this all sounds too futuristic for you, how would you feel if you just used your veins to pay for goods? After being used to verify the IDs of smartphone and computer users, as well as in airports and government buildings, biometric systems have also started entering the fast-moving world of payments.

Developed by Swedish engineer Fredrik Leifland, Quixter is a new biometric solution that aims to eliminate the need to carry a card or device completely. It allows you to make a transaction in just a few seconds by determining your ID based on the vein patterns in your palm -- all you need to is enter the last four digits of your phone number and then simply press your hand over the device's sensor.

"Combining biometrics and mobile phones is something that could also take off really well," says Sarah Clarke, editor of NFC World+. "Yet, it is very early in terms of saying which one people are going to favor."

# Technology Focus

## SSL: Finally a Matter of Life and Death

Today SSL is often the only tool standing between an oppressor and a freedom fighter, a thief and a merchant, or a stalker and a victim. The stakes around SSL have been up levelled to the limit. Whether or not it's convenient to admit it, it's time for organizations to up level their overall security posture to protect this last line of defence.

## Bringing Cryptography to the Common Man

Long before the digital age, those in power used cryptography to defend their interests—or to inflict damage on their enemies. The Roman ruler Julius Caesar was known to use ciphers to protect messages of military significance. In the Common Era, embedded ambassadors used ciphers to protect their communications with their sovereigns at home. In World War II, the Axis powers used the incredible Enigma machine to achieve 76-bit encryption. After World War II, cryptography remained in the hands of the agencies that used it in the same way it had been used before: for intelligence purposes toward the protection of the Church or the State.

For the first time in history, cryptography—in the form of SSL—is now being used to protect not just the interests of the powerful, but the communications of the common man as well. An obvious way for developing nations to achieve that education is via the Internet. States that purport to champion democracy and freedom must recognize the criticality of SSL. To that end, global organizations must embrace a higher security posture to protect SSL, the last line of defence for communication and commerce.

## Elevating Security Posture

*Counter Passive Surveillance with Forward Secrecy-*Even if an organization lies outside the jurisdiction of a state agency, that agency may be able to tap and record the organization's ciphertext and metadata for years. In the future, the agency may gain access to the key material that enables it to finally decrypt the millions of messages it has saved. This problem of long-term key compromise means messages that are safe today may not remain so forward into the future.

SSL has a passive surveillance countermeasure called perfect forward secrecy (PFS) protection that adds an additional exchange to the key establishment protocol between the two sides of the SSL connection. When PFS is enabled, an attacker or eavesdropper cannot simply recover a single key to decrypt millions of previously recorded conversations. Because PFS can be achieved by simply activating an additional cryptographic cipher (which is built into the SSL termination device itself), activists, journalists, and social media providers are quickly adopting it around the world.

*Protect Key Material-* In the spring of 2014, the world was horrified to learn that a pernicious software error (since named Heartbleed*)* in the popular OpenSSL library had been available to exploit in millions of websites for more than two years. Heartbleed, so named because of the code's location in the "heartbeat" code of the library, had a devastating effect—it would quietly leak the contents of the device's memory to the attacker. Heartbleed will likely be recorded as one of the most severe Internet vulnerabilities of all time.

In the Heartbleed incident, one class of SSL users could be confident that they were not vulnerable: users of FIPS 140-2 hardware security modules (HSM). An HSM is a separate software and hardware security boundary around a cryptographic core and key store. Keys are typically generated inside the store and never leave it. Because the keys are never transferred into the memory of the network host, they cannot be leaked to Heartbleed.

The HSM devices follow the strict FIPS 140-2 cryptographic design guidelines and they can be costly. Financial and federal institutions have been using them for years and have found ways to increase their value in terms of both management and cost-efficiency. Organizations are using HSM devices as centralized key stores (for example, one pair per data center), meaning that the amount of interface training and operational overhead is centralized as well. The centralized HSMs are accessible over the internal network to services that need key decryption, so the organization saves on capital and operational costs as well.

*Protect everything with "always-on" SSL everywhere-* Forrester Research security analyst John Kindervag writes of an approach to security called the Zero Trust Model (ZTM). The premise of ZTM is that architecture is much more robust with regards to security if every component in the network distrusts every other component and treats all inter-device traffic as if it had already bypassed other security measures. Security veterans may view ZTM as a new label on an old idea. There is adoption around this model in many network architectures, especially ones where security boundaries are particularly porous, such as enterprise-to-cloud and business-to-business-to-cloud.

For years, re-encryption of SSL data after security analysis was a practice found only in the financial sector, as driven by organizations' internal security policies, but it is now gaining wider implementation. One of the infamous Snowden files showed the NSA snooping through Google data after it had been decrypted. The revelation prompted Google to solve this problem by enabling re-encryption of data inside its security perimeter and between its data centers.

The re-encryption of data within the organization aligns exactly with ZTM as it protects data from hosts within the network that may be compromised by attackers or surveillance agencies. However, it may also hide data from security-analysis devices such as intrusion detection systems, flow monitors, and web application firewalls.

# Tech News

## Google Straps On Jetpac to Take Search to New Heights

Google has acquired Jetpac, the creator of a handful of apps, including City Guides, which analyzes Instagram photos and then automatically creates guides based on the collected data. That information translates into a lot of options for users. They can find bars that attract a younger crowd, the most scenic hiking trails, or the hippest coffee shops, for example. Jetpac has covered some 6,000 cities around the world using this approach.

Jetpac's real-time local object recognition could be applied in Google Glass or Goggles. It also could be used to enhance Google's image search. Jetpac's quirky list of best places to visit for this and that also fits well with Google's search and mapping prowess.

The one bit of speculation that has been circulating and that makes sense is the idea that Jetpac will be integrated with Google Maps. Google Maps has outgrown the standard definition of "location app" and is used more for navigation. Increasingly, they offer value-added search, which includes local landmarks, small businesses, and yes -- pictures. For instance, if you were in the Boston area and typed "concerts" into the Google Maps search field, you would get a list of attractions that included all types of venues -- from pubs to the Gillette Stadium. Then, if you tapped on the entry for Gillette, you would find reviews, distance from current location, user pictures, and tons of other information.

## High-tech kit for medical testing trials in India

A compact, inexpensive handheld device that monitors diabetes, detects malaria and environmental pollutants is being trialed in India by Harvard scientists. The device costs about $25, weighs just two ounces, and is about the size of a pack of cigarettes.

It was modelled after the inexpensive glucose monitoring devices, which are widely used. The new device can also send data over the low-tech cellphones to distant physicians, who can text back instructions to researchers, government officials tracking outbreaks and others.

"There are two buttons. Select the test and press 'go'. It should be as much of a no-brainer as possible. They have recently sent off five units to be field tested in India, and are already working on the next generation of the device, which will have more features and be able to conduct more tests.

## Microsoft Releases Visual Studio "14" CTP 3 Along With An Early Build Of The .NET Framework vNext

Microsoft developer released Visual Studio "14" CTP 3 along with an early build of the **.net framework vnext**. Some features in this release include:

*ASP.NET and Web Development vNext Updates-* This CTP includes all the Visual Studio 2013 Update 3 web tooling improvement and ASP.NET vNext alpha 3 runtime packages. It has improved tooling support for **asp.net vnext**,

*.NET Native Updates-* .net **native** is now integrated into Visual Studio "14." It includes initial support for calling WCF services within .NET Native apps and the associated Add Service Reference experience in Visual Studio.

*PerfTips in the Debugger-* In CTP 3 you can see how long your code took to execute as you hit breakpoints and step through code with the debugger.

*Visual C++ Enhancements-* The compiler now supports the thread local storage specifier, which allows objects to be stored separately for each thread. In the productivity area, Light Bulbs replace Smart Tags to show fixes to issues. Light Bulbs are both more discoverable and also offer a preview of the action before you take it.

*Roaming Custom Layouts-* In CTP 3 Visual Studio will now roam these customizations across machines that have CTP 3 installed if you signed into the IDE with the same account.

*High Resolution Icons-* In this CTP, Visual Studio supports high resolution icons in command bars, tool window toolbars (standard) and main menus when running above 100% DPI scaling.

## Online marketing to create 1.5 lakh jobs in India

About 1.5 lakh jobs are expected to be created in the digital marketing space within a couple of years as more companies tap the Internet and the social media platform to bolster business, say HR experts. India is emerging as a digital outsourcing hub for diverse services including online advertising, social media and website design, they said.

Going by estimates, around 25,000 new job opportunities are likely this year itself in digital marketing space. The rising demand is also spurred by increased use of the Internet and mobile phones besides fast growing e-commerce businesses. However, the availability of talent is less than demand.

Lighthouse Partners Managing Partner Rajiv Burman said the digital space offers opportunities to professionals working in marketing departments of corporate as well as fresh graduates.

Other areas for digital marketing growth include social marketing, content creation and management, search marketing, email marketing, analytics and video production. As per Randstad India estimates, the starting salary for digital marketing professionals is in the range of Rs 4.5-5.5 lakh.

## Intel Unleashes its First 8-Core Desktop Processor

*HIGHLIGHTS*

- The eight-core, 16-thread Intel® Core™ processor Extreme Edition is Intel's first eight-core client processor.
- This platform offers massive 16-thread performance and quad-channel memory for content creation, gaming and multitasking.
- Combined with the new Intel® X99 Chipset, this is the first Intel desktop platform to support DDR4 memory.
- Additional six-core unlocked enthusiast desktop SKUs also announced.
- Intel Corporation unveiled its first eight-core desktop processor, the Intel® Core™ i7-5960X processor Extreme Edition, formerly code-named "Haswell-E," targeted at power users who demand the most from their PCs.

For enthusiasts, gamers and content creators craving the ultimate in performance, Intel's first client processor supporting 16 computing threads and new DDR4 memory will enable some of the fastest desktop systems ever seen. The new enhanced Intel® X99 Chipset and robust overclocking capabilities will allow enthusiasts to tune their systems for maximum performance.

"Intel's new platform delivers the maximum processing power with eight cores of unstoppable processing power and supports DDR4 memory giving extreme gamers and demanding enthusiasts exactly what they need," said Wallace Santos, CEO and founder of MAINGEAR*.

Many of these new platforms based on the Intel X99 Chipset are also Thunderbolt™ Ready. When paired with a Thunderbolt 2 add-in card, this enables a blazing-fast connection to your PC at 20 Gbps. Data intensive tasks such as 4K video editing, 3-D rendering and game development all strongly benefit from the performance of Thunderbolt 2. Check with your PC manufacturer or motherboard maker for compatibility.

# Special Focus

## New EMC innovations bring enterprise-grade scale-out Data Lake to life

The new products and capabilities, which include ongoing support for HDFS, will help customers significantly advance their ability to ingest, store, protect and manage massive amounts of unstructured data. By leveraging HDFS for the Data Lake, EMC enables customers to bring Hadoop to their Big Data rather than vice versa—avoiding the time and costs involved with moving petabytes of data, , EMC said in a press statement.

Data Lakes are an order of magnitude more scalable than existing approaches for consolidation into a single file system, single volume Data Lake and, with today's Hadoop capabilities, the Isilon Data Lake is analytic-ready. New EMC Isilon software, hardware and solution offerings enable customers to build an enterprise-grade, scale-out Data Lake that leverages EMC Isilon storage and enterprise-grade services including data protection, data management, performance management and security. Core to its Data Lake offering, EMC has redefined scale-out NAS through two new EMC Isilon platforms - the Isilon S210 and Isilon X410 - and OneFS software, delivering 2X the performance and heightened agility over previous generations.

Long known for its near-limitless scale, EMC Isilon easily handles petabytes of Big Data in industries that create massive amounts of sensitive data that directly correlate to their bottom lines, including Media & Entertainment, Financial Services and Life Sciences. The new EMC Isilon offerings work together to further enhance scale per cluster, performance, agility and cost-effectiveness in these most-demanding environments.

Other solutions create "islands" of storage that are difficult and costly to manage, resulting in hot spots, inefficiencies and poor storage utilization. They also require heavy lifting to scale. The Isilon-enabled Data Lake supports multiple protocols and access methods such as NFS, SMB, NDMP, HDFS, OBJECT via ViPR and OpenStack SWIFT native Object, supporting both traditional workloads such as home directories and file shares as well as next-generation workloads such as analytics, cloud applications and mobile sync-and-share.

EMC Isilon's operating system, OneFS, is a core building block for Isilon Scale-Out NAS. The new version (OneFS 7.7.1) includes new SmartFlash, a flash-based cache enabling customers to get to their data more quickly which can scale up to one petabyte in a single cluster. The result is optimized performance with simplified management, 100 percent flash efficiency and reduced latency for traditional and next-generation workloads. EMC also unveiled the Isilon S210 and X410. The Isilon S210 runs up to 3.75 million IOPS per cluster and provides flexible configuration and deployment, making it ideal for high transactional workloads ideal for industries such as media and entertainment and financial services. The Isilon X410 offers 70% increase in throughput at 33% less $/MBPS, and its versatility easily supports Hadoop analytics, high performance computing and enterprise file applications, the statement said.

EMC and Pivotal revealed a new Big Data Analytics Solution, reinforcing EMC's position as an industry leader in Hadoop storage infrastructure. EMC is the first scale-out NAS provider to natively integrate HDFS for Big Data analytics, and the #1 market leader in enterprise shared storage for HDFS. The solution is offered as a Data Lake Hadoop Bundle, providing the ability to gain powerful analytics capabilities quickly and easily with the cost advantages of a highly efficient scale-out platform.

# 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.

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| **Galaxy Business Solutions** <br> System integrators of best of breed technologies to deliver solutions to the problems and challenges that confront enterprises | **Galaxy Technology Services** <br> Skilled pool of resources consistently maintains and delivers enterprise class service levels |
| **Galaxy Network Solutions** <br> One of India's most trusted active and passive networking specialists | **Galaxy BI Consulting Services** <br> Helps organizations to deliver and leverage business intelligence to create substantial business impact |

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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."*

# MD Speaks

*"Of late, there has been a huge furore over the leaked private pictures of some celebrities. The blame has squarely been set at the door of 'cloud computing' in general and iCloud in particular. To my mind, this is a direct result of the extremely rapid growth of the cloud without matching growth of solutions used to secure the cloud. Similar leaks happened a few years ago when the internet grew as similar speeds and security solutions took some time to catch up. The security experts will now take a cue and work overtime to latch onto this opportunity and eventually make the cloud a safer place. On the other hand, the hackers will also be working equally hard if not harder to breach the security. It is for the users to understand the risks and rewards of the cloud and make an informed decision of how to use cloud computing and storage. Well, someone surely has understood that !."*