CLOUD COMPUTING
WORLD

Issue 4

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the changing nature
of the data
centre market

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a new approach to cloud security

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Is there security in the cloud?

Hello everyone,

Welcome to the February issue of Cloud Computing World, your monthly fix of IT news, features and opinion. There's a definite forward-looking feel to this month's issue, featuring as it does our Cloud Expo Europe preview. Elsewhere, Owen Cole delves into app performance management and the benefits of monitoring cloud apps through wire data. We also hear from Director – Head of Data Centre Valuation at CBRE, Martin Miklosko, who charts the changing nature of the data centre market.

As cloud computing continues to experience exponential growth, it's increasingly clear that the majority of enterprises adopting cloud are, in fact, running hybrid models. We're also seeing a shift away from apps that use the storage of the client device towards cloud-based management, which is fuelling the ongoing debate between the merits of public and private cloud. However, as more businesses move data into cloud servers security remains the major concern. "We wouldn't be without cloud storage," I overheard one IT Consultant exclaim this week. "It's no replacement for a hard copy, but I just can't see how businesses that operate multi-site or remote workers can manage without it." Cloud computing can certainly turn out to be cheaper, faster and easier to maintain. Yet, providers still need to address issues related to security in order to expand in the future. "No thanks!" Was one response to our IT Consultant. "Memory, hard drives, USB drives and SD cards are as cheap as chips now. There's no need to store my private files on someone else's server. That's like handing your computer over to a total stranger." Luckily, Steven Harrison, Lead Technologist & Head of Products at Exponential-e ltd, is at hand to assure us that done correctly, there's no reason at all why a cloud shouldn't be more secure than your old on-premise IT. Find out more on page 14.

Finally, I'd like to thank everyone who has emailed in this month. If there's anything you'd like to see in these pages, then we want to know about it.

Best Regards, Nick Wells, Editor, Cloud Computing World

CCW NEWS

Dimension Data, the global services and solutions provider, has announced it will hire an additional 300 data centre experts over the next 18 months. This is vital to the group's ambition to quadruple its data centre business from $1 billion to $4 billion by 2018.

Steve Joubert, Group Executive of the company's Data Centre Business Unit says their success has always been based on the quality of its people. "Demand for our next-generation data centre skills and services sees Dimension Data growing faster than the market, and we need great people to help us continue this growth. As a provider of solutions and services, not an equipment manufacturer, we are dependent on the quality and skill of great people to help us deliver the best service to our clients." Joubert also pointed out that Dimension Data continues to make big investments in a number of new consulting, managed and cloud services to enable its clients to do things better and faster in the data centre. "This is why we want to hire the best people available in the market: to enable our clients with the best possible solutions and to drive our data centre business forward."

Dimension Data will be recruiting across Singapore, Hong Kong, India, New Zealand, Australia, South Africa, West and East Africa, the UAE, UK, Germany and the US. The Group is also building out central teams to focus on ASEAN and Benelux, as well as France. For more information about Dimension Data's recruitment plans, visit

www.jobsdatacentres.com

Iomart, one of the UK and Europe's leading cloud companies, has been awarded a place on G-Cloud 6, the UK Government's Digital Marketplace. iomart's backup specialist, Backup Technology (BTL) has also been accredited, having been on G Cloud since it was first created to make buying cloud services easier for the public sector and to open up competition for contracts to SMEs. In total, iomart and BTL now protect more than 100TBs of data for public sector organisations including the Agriculture and Horticulture Development Board, two councils in Northern Ireland, and Essex County Fire & Rescue Service, one of the largest county fire services in

the UK. Angus MacSween, CEO of iomart, says, "For public sector organisations the benefits of procuring services through G Cloud are manifest because they don't have to go through costly and time-intensive due diligence on potential service providers. Cloud services can be bought off-the-shelf quickly and easily because the background checks have already been done." Jan Swanwick, Head of ICT for the Essex County Fire and Rescue Service, explains, "Traditionally procurement has been a long, protracted process. With G-Cloud it is very straightforward because all the supplier and product information has already been collated and validated."

iomart has been accredited to supply Infrastructure as a Service (IaaS); Platform as a Service (PaaS); Software as a Service (SaaS); and Specialist Cloud Services. Among the services it offers are: vCloud and vCloud IaaS - self-managed and hosted virtual infrastructure services based on a VMware vCloud environment; Desktop as a Service; Hosted Exchange and Storage; Business Mail plus Mail and Web Filtering; File Sync and Share; and Advanced DDoS Protection using Arbor Network's Peakflow solution.

www.iomart.com

Cloud and virtualized data recovery specialists, Zerto, has reported revenue growth of 140 per cent. To support this tremendous growth, the company has opened multiple new offices including premises in the UK and Australia. Zerto also increased its partner base to 500 worldwide channel partners and 170 cloud service providers. "The company's tremendous growth in 2014 demonstrates how Zerto Virtual Replication has disrupted the traditional hardware-centric market for disaster recovery," said Ziv Kedem, co-founder and CEO." We'll continue to keep enterprise and cloud IT running 24/7 by expanding our continuity solutions to include BCDR for Microsoft Hyper-V and Amazon Web Services. Using Zerto Virtual Replication, hundreds of enterprises will be able to select their IT infrastructure based solely on their business needs."

www.zerto.com

Kaseysa, a leading provider of cloud-based IT management software, has announced the availability of Release 9 of its product portfolio. This release delivers a new, comprehensive solution for mobility management, and also includes the launch of Kaseya's new private cloud infrastructure, which is built from the ground up using flash memory and enhanced perimeter protection with built-in Identity and Access Management, Network Intrusion Detection, system redundancy and quick failover capabilities. "We are thrilled to offer our customers a cloud environment. It delivers levels of scalability, security and performance that they simply could not afford to build on their own," said Yogesh Gupta, President and CEO of Kaseya. "Release 9 will allow us to deliver on our mobility initiatives with the highest levels of security, availability and performance, while also driving significant time savings," said Glenn Kemp, Director of Technical Services for Clear Concepts Business Solutions. "Because Kaseya's EMM offering is fully integrated with our existing Kaseya management suite and controlled from a single interface, we can achieve automation across all of our clients' devices, both mobile and traditional. The time-savings here will enable us to focus our team's time on the revenue-drivers for our business, and translate directly to our bottom line."

Kaseya EMM offers a streamlined interface for mobility management and integrates seamlessly with IT management solution, Kaseya VSA, so IT administrators can centrally manage all of their mobile devices, PCs, servers, and networks. "Empowering a mobile workforce requires a unified approach to provisioning and securing business IT resources on any device at any location at any time," noted Steve Brasen, Managing Research Director with analyst firm, Enterprise Management Associates. "With the introduction of Release 9, Kaseya has integrated key MDM and BYOD capabilities to deliver a centralized management experience that will simplify administrative efforts while strengthening security and enhancing mobile user productivity."

www.kaseya.com

BUSINESS CONTINUITY PLANNING

Russell Cook makes clear the best approach to data recovery

By Russell Cook, Managing Director at SIRE Technology

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The advent of the cloud offers significant benefits in terms of Business Continuity of Service.

"Taking the time to plan for the unthinkable will bring you a lot more than just peace of mind."

Introduction

When it comes to preparing for the unthinkable many companies overlook continuity planning, which should be an integral part of their daily management procedures. Even though the cloud is now a recognised and familiar term, research suggests that nearly 50 per cent of businesses do not have a continuity plan and run the risk of extended interruption. Of those businesses without a plan:

- 90 % that lose data will shut within two years
- 80 % will fail within 13 months
- 53 % never recoup their losses
- 43 % will never re-open after the disaster!

What Makes Your Business Tick?

A wide range of assets come together to create the entity that is your business and all must be safeguarded against any number of hypothetical eventualities. The tangible assets that are vital to your operations are relatively easy to protect. What about the truly vital assets, without which your business couldn't even function?

- The communications, transactions, contracts and records that represent the results of years of trading - can they be replaced?
- What about the applications required to support and manage all of this accumulated knowledge and intelligence?

Technology in the shape of communication mediums and CRM systems mean less paperwork is generated, but as more and more business-critical information is held digitally, businesses are more exposed in the event of a disaster. While most businesses take the threat of data loss seriously and put in place backup procedures, it is the speed and quality of the recovery process that's critical. Solutions that offer damage limitation are not sufficient. You need to know that in the event of any incident, all your business applications and data will be instantly and completely available to you, ensuring you can continue trading with minimum disruption.

Business Continuity Benefits

The advent of the cloud offers significant benefits in terms of Business Continuity as a Service (BCaaS), where the system you select will mirror your server to the cloud. This offers up to 38 per cent reduction in infrastructure cost, provides protection for your business and is accessible at a flick of a switch and with instant visualisation.

Another benefit, that's often either forgotten or not fully appreciated, is the systems ability to de-duplicate data. Much of the data on your organisation's live system will be copied time and time again. For example, when you cc an email to other people in the business the same data is saved multiple times across the business. With a modern disaster recovery (DR) system only one version of the email will be stored. At its most effective this de-duplication system can deliver a staggering reduction in data storage of up to 95 per cent! So, disaster has struck and it is your busiest time of the year, what do you need from your business continuity support? Hopefully the system you have in place has a simplified backup administration that delivers a scalable solution, encompassing the virtual environments, databases, email and enterprise resource planning. These various elements are best delivered via the following components:

- Image-based back up efficiency; data is converted directly to virtual machines. Since each backup is a fully bootable virtual machine there is no need for a conversion to occur before performing a restore. Data is always available as there are no complicated rollup or restore processes.
- Instant virtualisation in just seconds; backups can be virtualised, either locally or on an appliance such as Reviiver, or in the remote cloud. CPU, memory and network resources can be dynamically configured allowing changes to be made without restarting the virtual machine.
- Centralised management accessible; if using Reviiver all the appliances can be controlled through a central web interface that provides access to critical statistics and remote management to remote servers and virtual machines through a secure VPN connection.

Conclusion

We all hope that we won't need to call on the insurances we take out, but taking the time to plan for the unthinkable will bring you a lot more than just peace of mind. So, as you draw up your objectives for 2015 make sure that your business continuity planning is not right at the bottom of the list again.

CLOUD SECURITY

Shyam Oza discusses the benefits of shifting to a cloud strategy.

By Shyam Oza, Senior Product Manager, AvePoint

Introduction

In 2014, businesses and individuals alike considered a plethora of opportunities to leverage the cloud. From iCloud for personal use to Office 365 for enterprises, there was a major shift to using online data storage and collaboration platforms. Just shy of the IDC prediction, the global cloud market is now worth $95.8 billion. Further growth in 2015, projected at 23.2 per cent, indicates that many organizations are ready to realize the benefits of shifting to a cloud strategy. We're presented with a world of opportunity where users are no longer shackled by storage or computational barriers, and content is easily shared across all platforms.

Cyber Vandalism

But we've come to learn that with opportunity also comes risk. These risks could result in potentially irrevocable damages for businesses – not only tarnishing a brand name, but also affecting the overall outlook on future technology or even the future of a company. From 2013 to 2014, the damage from Target's monumental data breach resulted in the leak of 110 million customer credit card numbers and other records. In 2014 Apple acknowledged its largest breach to-date, exposing iCloud documents, images, and other content of its users – including high-profile celebrities. Codespaces, a SaaS provider that hosted and helped manage source-code for developers, was even put out of business by an attacker who deleted the company's data and backups. The now infamous attacks by North Korean-sponsored hackers as well as a group of cyber vandals known as Lizard Squad on Sony and Microsoft closed out the year, foreshadowing a new world of cyber vandalism and proxy wars.

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2015 should be a year in which we do not fear the cloud or online services.

Join **Dimension Data** on **stand 1160** at **Cloud Expo Europe** to **understand how your business can move** towards a **next-generation** data centre

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Security Measures

In order to prevent and combat against such events, organizations have begun taking measures to beef up security and boost confidence:

Physical Security: Today's data centers are equipped with biometric countermeasures and sophisticated surveillance, as well as thorough employee vetting prior to entry. To further instill confidence, organizations also provide virtual and guided tours of their sites.

Data Security: Robust technology can easily encrypt, shred, and secure a user's data in ways that render direct attacks from a hacker nearly impossible. Dedicated networks ensure that traffic never leaves a specific physical location or travels over open channels where packets can be intercepted.

Despite these efforts, a disconcerting takeaway from 2014 was that data security didn't line up with the majority of ways data was actually breached. For example, the 'Heartbleed' vulnerability allowed hackers to access information from the Canada Revenue Agency and Community Health Systems. Many of the infamous data breaches we hear about in the news don't come from sophisticated exploitation of such vulnerabilities or 'hacking.' These leaks come from compromised accounts or accidental breaches, while most service disruption is often the result of brute force attacks – not a complex intrusion.

While I commend the efforts of many cloud providers and online services (and they should continue to bolster their defenses), some of the major culprits still exist:

• Cross-site scripting (XSS): A type of computer security vulnerability typically found in Web applications. XSS enables attackers to inject client-side script into Web pages viewed by other users. A great example of such an exploit was recently fixed in Microsoft Office 365.

• Denial of Service (DoS): An attempt to make a machine or network resource unavailable to its intended users. Although the means to carry out, the motives for, and targets of a DoS attack vary, it generally consists of efforts to temporarily or indefinitely interrupt or suspend services of a host connected to the Internet. While many were calling the attacks on Sony's PlayStation Network and Microsoft's Xbox Live service hacks, there were no actual intrusions. The services were bombarded and overloaded with false requests around the holiday season, crippling their ability to answer legitimate requests from actual customers.

• Phishing: A classic technique where falsified communications (emails and IMs) are sent to users disguised as a legitimate communication. First appearing in the mid-90s, this classic attack is

> "Many of the infamous data breaches we hear about in the news come from compromised accounts or accidental breaches, while most service disruption is often the result of brute force attacks - not a complex intrusion."

still responsible for some of the largest and most catastrophic attacks today – including Target and Home Depot.

Conclusion

Keeping these basic threats in mind, I recommend organizations implement different approaches for securing their cloud operations. Here are four ways to protect sensitive data from future attacks:

1. Just-in-Time Access: Access is granted on an as-needed and only-at-the-time-of-need basis. After the predetermined duration expires, the user loses access. This type of protection is most helpful when dealing with contract-based or temporary employees.

2. Traceability: Overcoming non-transparency concerns by reproducing and displaying the chain of events from log information indicating human operations, file transfers, and process activity as well as information from related systems – such as authentication and equipment management systems. This is traditionally achieved through the use of watermarking, auditing, and paper trails.

3. Decentralization: An attempt to improve speed and flexibility by reorganizing networks to increase local control and execution of a service. This also helps prevent maximum damage from data breaches by spreading data out. Take the Codespaces example – without a decentralized approach to data storage, hackers were able to wipe all content and eventually destroy the business.

4. Front Door: Think of your organization as a home to your data. The primary point of entry in a home is the front door. Make sure you have a sturdy lock installed by preventing instances of accidental breach (e.g. users having too much permission, leaving passwords out in the open or too simple), social engineering, or exploiting password reset. Host training sessions for your employees on security best practices such as password design and storage.

2015 should be a year in which we do not fear the cloud or online services – it should be a year we entrust providers like Microsoft, Amazon, Google, and Rackspace to safeguard our critical information on their platforms and fortify our efforts to guard the front door.

DATA CENTRE SUMMIT 2015
NORTH

30th of September 2015

Manchester's Old Trafford Conference Centre

Data Centre Summit North is the first in a series of new one-day conference focussed events, with the first set to take place at Manchester's Old Trafford Conference Centre on the 30th of September 2015. DCS will bring all of the industries thought leaders together in one place, with the industries leading vendors and end users. The focus of the event will be placed on education, networking and debate, It will provide an open forum for delegates to learn from the best in the business.

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Air Management Solutions

REDUCING THE COST OF COOLING

Mark Hirst reports on effective cooling solutions

By Mark Hirst, Head of T4 Data Centre Solutions, Cannon Technologies.

Introduction

Facility teams and data centre managers know that to survive in a world where low cost cloud infrastructure dominates, they need to cut costs to the bone. The hardest thing to cut has always been the cost of cooling. As air temperatures creep up inside the data centre, techniques such as free air-cooling and airside economisers become effective cooling solutions.

Containment and Hotter Input
The two biggest improvements in data centre cooling have been the introduction of aisle containment and the ability of servers to manage higher input temperatures. Containment is a solution to air management that can be retrofitted to data centres. It has been responsible for both extending the life of older data centres as well as enabling higher densities without having to invest in expensive refits of cooling systems.

Ashrae, the industry body responsible for data centre standards, have promoted higher input temperatures. Just 10 years ago, many data centres were still cooling input air to 65F (18C) while today they are working at 79F (26C) and even higher. This ability to manage higher input temperatures has also been helped by new generations of silicon and motherboards.

Using Natural Resources

Despite these changes, more still needs to be done to help cut the costs of cooling. This has led to a group of techniques known as free air-cooling. The idea is to use as much ambient air as possible to remove the heat from the data centre. The stated goal of most of these systems is to have no mechanical cooling at all.

It sounds great but the reality is that there are few places on the planet where the outside air temperature is low enough to cool most data centres all year round. It is not just ambient air that is a challenge, the type of technology under the free air-cooling banner that is chosen comes with a number of additional challenges from data centre design to particulate matter.

Ambient Air

Using pure ambient air inside the data centre is not a technique that can be retrofitted to existing facilities. The first challenge is getting a large enough volume of air below the room. A large volume is needed to create the pressure to push the air through the data hall. The Hewlett Packard data centre in Wynyard, UK uses a five-metre hall to create the required volume of air.

To help create the right pressure to draw the ambient air into the data hall, the hot air has to be expelled via a chimney. This needs careful design in order to not only extract all the hot air, but to do so in such a way as to create a partial vacuum, which then draws in the cold air behind it.

To ensure that the air does not contain any particulates that would impact the internal performance of the equipment in the data hall, you need very large filters. Air inside cities tends to have high lead and other particulates, especially from diesel vehicles and general dust. It also tends to be warmer than air in the countryside and this can severely limit the number of days where ambient air can be used without secondary cooling.

The air in country areas can be even dirtier from a data centre perspective. Pollen, dust, insects even swarms of bees and wasps have been reported being caught on the filters that guard the large air halls. The ambient temperature is often lower than in city areas but here wind can be a problem as high winds can force small particles of dust through filter screen.

Humidity and Dew Point

Data centre managers are acutely aware of the risk of humid air inside the data centre - too little humidity and the risk of static electricity rises. When this discharges over electronic equipment it causes havoc and destroys circuit boards. Too much humidity leads to condensation, which can short out systems and cause corrosion, especially in power systems.

When using conditioned air inside the data centre, this problem is handled through the use of the chillers and the dehumidifiers. Free air-cooling, however, creates its own problem. The most obvious of these is on rainy days or when there is a very cold ambient temperature being drawn into a hot data centre. In both these cases, water in the air tends to condense very quickly and if not handled properly is a disaster waiting to happen.

Some data centres are being built near to the sea to take advantage of the natural temperature change between the land and sea. This looks like a good strategy at first, but the massive damage from salt water in the air can destroy data centre equipment in a fairly short period of time. Any use of free air-cooling in these environments requires

a significant investment in technologies to clean the air of salt before it is used for cooling.

To get around this problem, free air cooling systems mix existing air from the data centre with the air being drawn in from outside. Where the air is extremely cold, this helps to heat it and reduces the risk of cold damp air condensing on processors, storage devices or power systems. Where the air is simply very heavy because of the external humidity, there must be dehumidifiers available that can be brought online even though this adds extra cost to the power budget.

Airside Economisers

A technology that gets the most out of free air, reduces the particulate and dew point issues as well as being capable of retrofitting into an existing facility is airside economisers. They bring ambient air in, filter it and then mix it with exhaust air to raise the temperature if required. The air is then passed either through an Air-to-Air heat exchanger (indirect) or direct and through a backup water or DX air coil in order to get the right air input temperature for the room.

The advantages of using airside economisers is that they are not a single approach to free air-cooling. By dealing with the issues identified and by having the ability to filter, have both direct and indirect exchange and additionally cool or heat air, they can reduce the cost of cooling and get the most out of ambient temperatures.

The Green Grid estimates that even data centres in hot environments such as Florida, Mexico, Texas, Portugal, Southern Spain and even the Middle East should be able to manage 2,500-4,000 hours per year of free air-cooling. Much of this will be at night and during the winter months.

In more temperate climates such as the UK, Northern France, Netherlands, New York and parts of California, this can rise to 6,500 hours. Further north and data centre owners should expect up to 8,000 hours although there will be additional costs in removing excess humidity and heating air before injecting it.

To get the most from airside economisers, however, it is essential that users understand the requirements of the technology. One of the most common failure points is poor pressure management. If there is insufficient pressure to draw the air through the data halls then air will remain stagnant and just increase in temperature as it is poorly circulated.

It is also important to ensure that the temperature sensors are effectively placed. These should be integrated with the Data Centre Information Management (DCIM) systems so that operators can quickly identify any temperature hotspots. One problem caused by poorly placed sensors is that too much return air is added to the airflow causing the input temperatures to rise unexpectedly. The opposite is also true if they are located too close to a heat source where air will be given additional cooling creating a large difference between hot and cold and exacerbating the risk of condensation.

When integrating airside economisers into modular solutions, it is essential to allow enough exterior space in order to install the equipment. This is why modular equipment manufacturer Cannon Technologies has designed its own solution specifically for modular data centres. Depending on the climate, the target PUE can be as low as 1.1.

Conclusion

In one survey, Intel looked at the impact of airside economisers where the outside air temperatures were 90F (32C). They estimated that a 10MW facility would save almost $3 million per year and that the risk of increased equipment failure was so low as to be insignificant.

In the temperate climate of the UK and mid US, free air-cooling is able to deliver a Power Usage Effectiveness (PUE) as low as 1.05 against an industry average of 2.0. What this means is that for every 1kW of power consumed in the data halls during winter months, just 1.06kW of energy is actually consumed. This means that non-IT equipment usage of energy is 6% of the total energy bill.

A New Era of Automated Remediation.

SECURING THE CLOUD IN 2015

Steven Harrison looks at the emerging field of context aware security.

By Steven Harrison, Lead Technologist & Head of Products, Exponential-e ltd

Introduction

With the computing world well and truly on its way to 100% cloud adoption, issues continue to arise with regards to the security, or lack thereof, inherent in the cloud. Let's begin by dismissing the myth that the word cloud is interchangeable with the word Internet. It's true, many clouds are accessed via the Internet, but this is only one possible design. Let's look at recent cloud security incidents and think for a moment about whether it was the cloud at fault, or the user.

Cloud Security

If we use a simple analogy that most business executives would understand, let's say that your data bytes are instead pounds, and the cloud provider is instead the financial institution you deposit them in. In the same way as financial institutions offer many types of accounts, so too do cloud providers. Now if one of those account types offered you the convenience of a debit card that could be used at any ATM on the public high street, and with only a simple set of credentials you could access your money quickly and easily, like most consumers you'd say "Brilliant! I'll have one of those please, for my day-to-day use."

Let's then say that some of your money (remember we're talking about data bytes here) was more important than the rest. You'd probably ask for an account that didn't have a debit card, but instead required, for example, dual-signatures on paper delivered privately to the branch to access it.

If it were then the case that someone stole your debit card, and gained your pin, you would not lose your most important money. Likewise, I doubt very much that you would blame the ATM machine on the high street for fulfilling its function of dishing out money when presented with a valid card and pin.

Strangely however, people routinely blame the cloud's version of that ATM, the web-access portal, for doing just that. You see it's not the cloud's fault that your name and password were stolen, nor is it the cloud's fault that when in possession of those bits of information it served up your data. The reality is that your most important data should never have been accessible in that way.

Denial of Service

This situation becomes critically important when we look at the prevalence and increasing severity of distributed denial of service (DDoS) attacks. Any Internet facing IP address is a point that can be attacked. All the VPN's in the world won't stop the attackers from simply flooding your VPN appliance and shutting it down. Encryption here is not the answer. We need to take the most mission critical applications completely 'off-net'. This was interestingly the norm back in the mainframe days, where connections to the mainframe were only ever highly secure private leased lines. We've not lost the technology to do this for the cloud, but the willingness and understanding of why we did it that way in the '80s has faded and we need a reminder.

With that out of the way, it's clear that understanding cloud security depends very much on using the right type of cloud for each situation,

we see that it becomes much more complex to know what acceptable behaviour is. Here we begin looking at the emerging field of context aware security. This is a security system that understands at a more intimate level the difference between say, a user, let's call him Bob, accessing the data he normally accesses on the company servers, from a network that he normally uses, at the hours he normally works, on a machine he normally uses than say the same username and password accessing data not normally accessed from an Internet café in Thailand in the middle of the night. If we're reliant on traditional access – authentication – accounting (AAA) system and traditional VPN or remote worker technologies, we're sunk. The answer of the day has been security information event management (SIEM) systems, but these are history professors. It's ultimately not that useful to know that 'Bob' downloaded your customer database from an Internet café in Thailand last night. We need to move away from logging, auditing and compliance to a focus on remediation.

Hybrid Cloud

The reality is that with the increase in typical IT environment complexity, and as we enter the era of the hybrid cloud environment, there's just no way using static policies is going to work. More to the point, there's just no way to ensure that you won't be hacked. Being hacked is inevitable. It will happen. It may be a new exploit, Trojan, worm or crafty piece of malware; or it may be a user who insists on writing down passwords, or just a gap in the policy, but the hackers will one day get in. Finding out what they did, after they've done it, won't help. You need to think about how you'll respond when they get in. How quickly will your systems react, and how quickly will your teams be alerted so that damage control and remediation can happen.

Enter the new era of automated remediation. A few security vendors are looking at the future of our connected world and finding ways of teaching expert systems how to learn, audit and monitor behaviour. Not in the intrusive, in-your-face big-brother way, but in the metadata way. Sure, netsvc.exe is a valid windows process, but why does this laptop suddenly have two extra copies running? What has changed on this computer since yesterday? Why don't I just stop those extra two copies and then confirm with a human specialist that they were authorised? How about instead of blocking social networking at work I monitor the use of social networking?

Conclusion

Is there security in the cloud? Absolutely! Just remember the tools and the designs of the network will be different. Done correctly, there's no reason at all why a cloud shouldn't be more secure than your old on-premise IT, in the same way as your bank is (hopefully) more secure than when you kept a cash-drawer or safe in the office. It's not about where the data is stored, it's about who's storing it and what protection mechanisms are in place to monitor it and control access to it.

Is There a Silver Lining for Data Centre Real Estate Investment?

THE CLOUD EFF

Martin Miklosko charts the changing nature of the data centre market.

By Martin Miklosko, Director – Head of Data Centre Valuation at CBRE

ECT

Introduction

Given the rapid emergence of cloud technology over the last decade, there is a common misconception that the role of data centre real estate, including investment into this sector, will become less significant. Driving this belief is the inherent flexible nature of cloud, meaning data centres can now theoretically be located anywhere, regardless of any issues of latency. Therefore, some hold the view that the advent of cloud is causing the data centre sector to become less reliant on the real estate industry for investment.

A crucial factor, often missed, is that real estate and data centres have gone hand-in-hand for decades. Born in the late 1980s, companies began to move IT infrastructure from in-house server rooms to purpose-built enterprise locations, and later on colocation data centre facilities. Over time, investment into data centres from the real estate sector has created some of the largest owners and operators in the world. Many of these are now listed as Real Estate Investment Trusts (REITS). The last 12 months has seen the creation of a further number of data centre REITS and this trend suggests that data centres continue to be seen as an investable real estate sector.

Critics would argue that this could be short lived given the increasing dominance of cloud and the number of facilities being constructed by the large cloud providers themselves. Importantly, and in many cases, such data centres are in remote locations where there is restricted or no sustainable colocation demand, or the potential for other high value uses. Furthermore, such cloud data centres do not benefit from underlying real estate-style contracts, or leases, as seen in colocation facilities, which ultimately create the secure income streams so prised by real estate investors. This means there is often limited scope for investment into such facilities from the real estate sector.

However, the perceived threat of diminishing real estate investment into traditional colocation facilities is not as bleak as some predict. There is still room for investment, irrespective of the emergence of cloud technology.

The Data Centre Proposition

In order to understand the future for real estate investment into data centres we first must delve into its attraction. Like any good asset, the potential for secure long-term income streams cannot be understated. The difficulty for users to relocate once deployed given the risks and challenges of data centre migration, in addition to the expense of the initial fit out means large scale end users typically enter into long leases, or contracts. The main intention of this is to minimise the risk of having to relocate in the short term, with the knock-on-effect being a perception of customer or tenant 'stickiness'. Furthermore, in order to effectively forecast expenditure, annual rental payments are either subject to pre-determined periodic increases or linked to inflation. This also creates investment appeal, as the rental income tends to go one way, which is up. Finally, the largest

data centre space requirements were historically taken by global corporates including banks and financial institutions, providing extremely strong income security.

Is Cloud The End Of The Colocation Model?

The main question, often posed, is whether colocation will remain a sustainable data centre model going forward. Or, will the impact of cloud result in a move of the majority of companies' IT infrastructure to the growing number of facilities owned and operated by the cloud providers themselves. Current indicators and our own CBRE research suggests that rather than threatening the colocation model, it appears that the growth of cloud is actually driving increasing colocation demand. While cloud companies continue to build large data centres in traditionally non-core locations, the need to have a presence in the established data centre markets with high levels of connectivity and proximity to end users appears to remain.

In 2013, 68 per cent of cloud providers' servers were housed in colocation data centres, up from 65 per cent in 2012. Even more tellingly, the proportion of servers located in their own data centres actually decreased from 39 per cent to 34 per cent over the same period. At this stage it is impossible to predict to what extent, or for how long, this trend will continue given the investment by cloud operators into colocation facilities over the last few years. That said, any reversal does not appear particularly imminent at this stage.

Does Cloud Make Colocation Facilities Less Attractive Investments?

While cloud technology does give end users greater flexibility in terms of IT infrastructure, the actual cloud providers are far less mobile when it comes to the facilities they use. While the corporate and financial institutions that drove data centre growth during the 1990s and early 2000s took vast quantities of space, much of this remained unused. This resulted in a perceived weakening of income security and lower likelihood of lease renewal on expiry. Today, cloud providers are taking up colocation space in smaller initial quantities. However, given the growing demand for their services and potential for attracting new customers to facilities, once a cloud provider is established and has invested in a colocation facility, the risk of them vacating is significantly reduced and potential for future income growth increased.

The Future

With growing demand from cloud providers for, and continuing expansion within, colocation facilities, such assets can undoubtedly continue to provide long term secure income streams for investors. This, after all, was how real estate investors became attracted to the sector in the first place. While the nature and dynamics of the data centre market may be changing, real estate very much continues to have a pivotal role to play in the sector as a result of the growth of cloud.

UNDERSTANDING PUE

Alex Rabbetts takes a closer look at tier standards

By Alex Rabbetts, Migsolv Data Centre Solutions

Introduction

Sitting here in the depths of winter, (well it is February after all!), we find ourselves reflecting on the state of the data centre industry. It is, after all, pretty much coming of age now. The industry, as we know it, has really only been around for coming up to 20 years. So why, if it is coming of age, do people within the industry continue to use childish ways of communicating their messages? Take, for example, PUE, (Power Usage Effectiveness), why do people think that their customers care about them – or take them any more seriously – when they engage in this ridiculous boast of 'Mine's smaller than yours'!

Size Doesn't Matter

And this is the same for data centres. Nobody cares if your PUE is smaller than someone else, what they care about is what you do with it. They care, of course they care, about how efficient your data centre is, but they don't care about how big or small your PUE is. Like the teenage boys who make a rather similar claim – everyone knows it isn't size that matters, it's what you do with it! And just for the record, a very low PUE usually means that you've measured it in a different place from where you should to make it look better, or you've failed to include everything that you should have done. It isn't particularly clever and only the really stupid will be impressed!

Talking of claiming to be something your not, let's just examine something else. Ah yes, "my data centre is Tier 9 Plus"! No. It isn't. Tiering is a standard that was developed by the Uptime Institute. Now, if you don't like it, don't use it, but don't try to be clever! There is no such thing as Tier 3 Plus or Tier 3 Star, there are no data centres in the UK that are certified for their construction as Tier 4, (there are only 7 in all of Europe), and there are only two Tier 3 data centres certified for their construction in the UK. Teenagers love the 'my bike's better than your bike' argument, but leaving the completely unfounded, unqualified, unaccountable claims to them is probably wise! If it isn't certified by the Uptime Institute, it isn't Tier anything.

It Isn't Rocket Science

Ever heard a bunch of teenagers discussing sex? More often than not they have absolutely no idea what they are saying. Have you heard about the data centre operator that claims he has a Tier 3 Plus data centre? He's the same! Let us be quite clear here – there is no such thing as Tier 3 Plus! (Or Tier 3 Star, or Tier 4 Minus, or Tier 4 Plus!) There are four Tiers; I, II, III and IV. Like the teenager, he thinks he knows what he's saying but he is actually demonstrating his ignorance.

'Ah!', claims the teenager data centre operator, 'But my data centre is uber efficient and it has everything that a Tier 4 data centre would have, I just didn't pay for the Uptime Institute to certify it.' Let us just take a closer look at that statement. Start with the last bit, 'I just didn't pay for the Uptime Institute to certify it.' OK, so what that actually says is, 'I don't have any proof what-so-ever of what I am claiming, but I just expect you to believe me.'

Let's see about the middle part of that statement, '… it has everything that a Tier 4 data centre would have …'. Really? How do you know? Can I see evidence that you know what a Tier 4 data centre would have? Nope, thought not.

And finally, the first part, 'It's uber efficient ...' OK, so can you please explain how this data centre is uber efficient when you are telling me that it is Tier 4? In other words, for every one of everything that is needed it has two. Each must run on standby as a minimum, (and probably actually sharing the active load), so by its very nature it must be inefficient. It isn't rocket science, but then teenagers aren't that great at rocket science!

And so, let us address just one final point. Find anywhere, yes anywhere, on the Uptime Institute's website – or indeed anywhere else that anyone with any knowledge or experience has strung a few words together – where it says that Tiering is a measure of quality. Yes, it is a measure of resilience and redundancy. Yes, the higher the Tier, the less efficient it will be. Yes, the higher the Tier the greater the PUE will be. But no, nowhere will anyone find anything that suggests that placing a self-claimed badge of a Tier rating on your data centre is any kind of suggestion of quality. Just like a teenager that claims, 'my house is cooler than your house,' it probably isn't!

Conclusion

Beware of anyone claiming 'Mine's Smaller Than Yours' for their PUE, or that claims to be 'Tier 3 Plus', (or any other Tier unless they are listed on the Uptime Institute's website for a 'constructed' tier), because like any boasting teenager, they are merely demonstrating to you their level of ignorance and naivety. They have no experience and they don't know what they are doing.
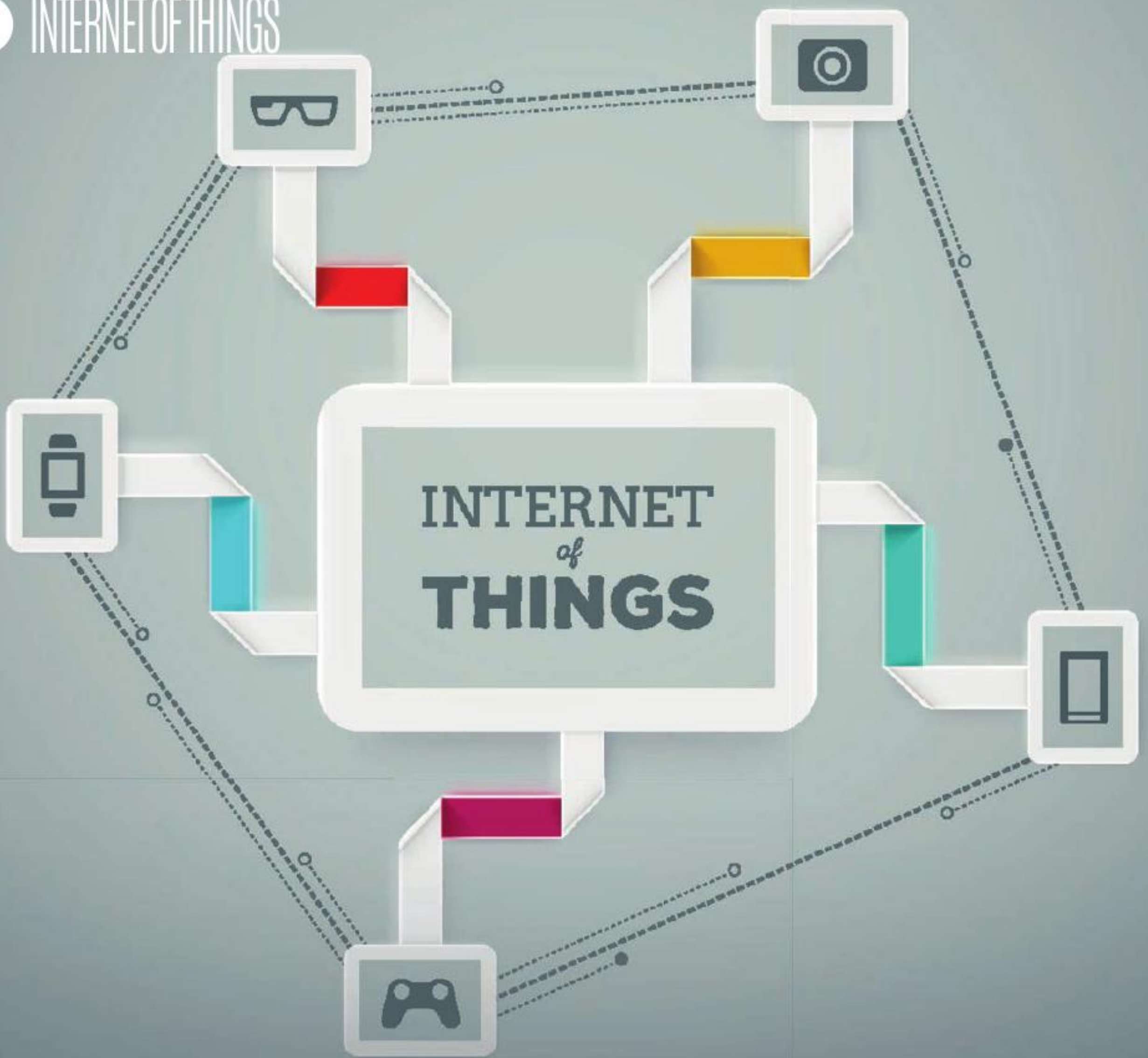
THE INTERNET OF THINGS

David Fearne identifies new opportunities
for cloud service providers.

By David Fearne, Technical Director at Arrow Electronics

Introduction

The term Internet of Things (IoT) was first coined in 1999 by Birmingham-born technology pioneer Kevin Ashton to describe a system where the Internet is connected to the physical world via ubiquitous sensors. By 2020 (less than a generation from its conception) Gartner is predicting that IoT will include 26 billion installed units and IoT product and service suppliers will generate incremental revenues exceeding $300 billion, mostly in services.

A quick look at the crowd funding website, Kickstarter.com, reveals that three of the top four technology projects by popularity are IoT devices. While IoT is driving innovation in the hardware space, connected devices alone aren't of tremendous value. A quick dive into the synopses of these start-up projects reveals that each has a point method for delivering the data to a mobile app or website, but that's as far as it goes. It's not a bad start, however. One project has already secured funding to the tune of nearly $1.5 million despite only asking for $50k. So, the appetite for investment in IoT devices, particularly in the consumer space, is huge.

Securing investment in product development, whether they are wearables, smart-metres, connected cars or smart homes, is one thing. Delivering an end-to-end solution is quite another. Yet this, according to Gartner, is where the real revenue opportunities lie. So, what are the challenges facing Cloud Service Providers if they are to capitalise on these opportunities and make the Internet of Things a reality and not just a buzzword?

The Digital Supply Chain

Before exploring the specifics of how cloud service providers (CSPs) should work, it's worth clarifying what we mean by a CSP and, in particular, whether the emphasis is on the 'cloud' or the 'service'. For the purpose of this discussion, a cloud service provider is defined as the provider of hosting, colocation or storage services – the likes of Rackspace, Softlayer or Amazon Web Services. A cloud service provider integrates devices, applications and data through a set of value-added services and solutions.

To understand what these service providers can offer we need to understand the digital supply chain for the Internet of Things. A recent commercial example of this is i2O Water – the developer of smart pressure management solutions for water distribution networks. i2O Water provides water utility companies with a complete solution consisting of sensors, devices, embedded and platform software, data analysis and storage that enables them to deliver a SaaS solution to help save water. Devices out in the field record time series data for multiple physical channels over the GPRS mobile phone network

"Cloud service providers need to be able to demonstrate vision, flexibility and confidence if they are to make the Internet of Things a reality."

through to the Internet. They also record how the water company's network topology changes over time, allowing it to evolve as new zones and devices are added and created. In addition large amounts of spot event data is stored over time, such as alarms or faulty equipment. This complete solution helps water utility companies to reduce the pressure in their water networks, which in turn saves water.

A more generic consumer example is the GPS running watch. While in use the watch is constantly creating location, timing and personal performance data on where the runner is, their elapsed running and lap time and their heart rate throughout the run. Raw data is then sent back to a gateway either tethered to a smartphone or via its own machine SIM. This raw data is then collected by a service provider and turned in to a value added service that allows the runner to track their performance via a web portal where they can also bring up historical data from previous runs to compare and contrast performance over time.

Where to Start

So, having identified the opportunities, where do you as a cloud service provider start? The first step is to identify the scope of the services you can supply across the supply chain. Devices and sensors are the first point of data collection. Partner early with an Independent Hardware Vendor and hedge your bets. By partnering early you have the chance to steer the direction of the hardware development to deliver the best possible services solution. Look at trends in the technology to predict what may be the next big thing and develop offerings to support and scale them.

Connection management is often overlooked, but once you start to connect tens of thousands of devices it is critical. Having a simple platform to aggregate the connection through will help deliver the consistent experience that the end user expects. Value-added services here could include guaranteed secure delivery of data. This might sound like overkill but take the running watch for example; the last thing the runner wants is someone being able to track them while out on a long run. Integrated security may be the last thing on the IHV's mind while it could be a significant differentiator for the consumer.

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The appetite for investment in IoT devices, particularly in the consumer space, is huge.

And what about hosting services? In the case of i2O, Rackspace provided the virtualized environment giving the service provider the flexibility to scale to match peaks and troughs in demand for compute and storage. Depending on the infrastructure you have in place and your willingness and ability to invest in the development and maintenance of an increasingly software defined data centre, you may choose to host, co-locate or partner as the way to deliver these services.

Analytics of device data ensures that the digital supply chain is fully optimised. Pure device and usage statics can help to fine tune future development of the product, so it's important to ensure quality of service and provide detailed usage statistics. You also need to accelerate and simplify the adoption of value added analytics of raw data. Hosted analytics platforms can simplify the consumption of the raw data from Internet of Things devices and ensure the delivery of information to value added services at scale.

Finally, CSPs need to ensure they have the systems in place to be able to monetise connected devices and enable simple, highly accurate and automated service billing. The value that a hosted turnkey solution can offer to an Internet of Things company is huge in terms of the time and costs associated with administering the solution across multiple clients or clients with diverse or dispersed requirements. Being able to offer different billable services to augment or enhance your data is not an insignificant task for a CSP, yet it is a highly valuable method for increasing and securing recurring revenue per user.

Conclusion

Cloud service providers need to be able to demonstrate vision, flexibility and confidence if they are to make the Internet of Things a reality. They need to be able to spot trends, identify up-and-coming product innovators and ISVs and be prepared to invest time and resources in them from the outset. They also need to build relationships with the established infrastructure providers in order to offer competitive services through third parties if they want to avoid investing in them themselves. They also need to be flexible and competent enough to define certain customer-facing service offerings 'out of the box' that deliver rapid time to value for customers. This might mean having the best API or hosting secure web front-ends. If they don't have the skills themselves, this can be achieved by partnering with a web development company who can help build out these solutions on their own infrastructure. Ultimately, making the Internet of Things a reality will depend on CSP's confidence and self-belief that anything is possible.

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Analytics of device data ensures that the digital supply chain is fully optimised.

Five ways CSPs can make the Internet of Things a reality

- Devices and sensors
- Connection management
- Hosting services
- Analytics
- Automated service billing

THE POWER IS IN
THE ARCHITECTURE

Global leader in the cement industry builds the best of both worlds.

Introduction

With over 155 years of experience in the cement industry, KHD is a global leader in cement plant technology, equipment, and services. The German-based company offers a wide spectrum of products and aftermarket services for the cement industry, and is a leader in energy efficient and environmentally friendly products for the grinding and pyro-processing sections of cement plants. In addition to its high quality product offering, the technology-focused group includes process engineering and project management among its core competencies. As KHD's business has expanded globally, so has its data growth rates and challenges with legacy IT infrastructure. Costs were increasing and KHD needed a new solution, based on fundamentally new data architecture. KHD found SimpliVity.

The Challenge

KHD is an organization that specializes in business process and operational improvement. Its use of technology and its continuous improvement in operational excellence are its trademarks and its core competencies, which has seen it through the last century and a half as a leader in the cement industry. Joerg Ludwig, Chief Information Officer of KHD, describes common challenges: "Our CEO would come into my office on an almost daily basis and ask: 'How can we reduce our IT costs? Why don't we move to the cloud to increase IT's agility?'" The cause for concern was really two separate but related elements:

- Growing complexity within the data center: to keep up with not only data growth but also the performance requirements of enterprise applications, KHD was forced, over time, to deploy numerous different deduplication, compression and optimization appliances from WAN optimization to tiered storage.

- Increasing cost: capital costs were rising in terms of added storage, various appliances and software licensing. But perhaps a bigger issue was the mounting operational expense. Administrators were spending countless hours on menial maintenance tasks instead of focusing their time on innovation to drive the business forward. And in certain countries, where staff turnover rates are typically high, lack of trained IT resources was impacting growth.

This was not sustainable for KHD. They didn't just need a new piece of technology. They needed a new architecture with a new operational paradigm.

The Solution

"What I needed was a solution where I could say to my CEO: "Look, I've provided the benefits of the cloud and I've improved IT productivity while keeping our data safe and secure,'" said Ludwig. The cloud. Perhaps the most used terms by executives today, but what does it really mean? It means fundamentally three things:

- Simple provisioning and ongoing maintenance
- Elastic and scalable infrastructure
- A new business model tied to VMs, not hardware

SimpliVity provides the Best of Both Worlds: x86 cloud economics with enterprise capabilities. Typically, the issue with the cloud is that is forces customers to give up capabilities in order to benefit from its promises of cost reduction and business agility. With SimpliVity, these tradeoffs are eliminated.

SimpliVity provided KHD with the cost and efficiency of the cloud, while keeping its data and applications on-premise with its simple, scalable, modular 2U buildings blocks built on x86 commodity hardware. This is true hyper convergence. How is this possible?

Conclusion

The power is in the architecture. SimpliVity's OmniStack software, packaged into the 2U appliance called OmniCube, provides two fundamental technological advances: the data virtualization and global unified management at the VM-level. The Data Virtualization Platform offers deduplication, compression and optimization of all data inline, at inception, once and forever across all stages of the data lifecycle. "The data efficiency that SimpliVity offered provided the ability for KHD to move data between global locations and eliminated the need for separate WAN optimization products. It also improved KHD's disaster recovery capabilities," said Ludwig.

When combined with the Data Virtualization Platform, SimpliVity's global unified management provides a powerful solution. All SimpliVity resources globally – whether physically located

in Germany or India – can be managed from a central location, from a single pane of glass, VMware vCenter. "We realized dramatic operational effectiveness by reducing the number of products for which the IT staff needed to be trained. Everyone knows VMware vCenter. That is all they need. It's important in markets like India where average employee turnover rates are high."

SimpliVity's solution, providing the best of both worlds, allowed KHD to keep their IT resources on site, while providing the benefits of the cloud: cost reduction, efficiency, agility, and ultimately, the ability to keep pace with business demands.

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SimpliVity allowed KHD to keep their IT resources on site, while providing the benefits of the cloud.

Executive Summary

Company Overview
Global leader in cement plant technology and business process engineering.

Challenges
- Ensure IT keeps pace with business demands
- Cost: CAPEX and OPEX
- Global IT management
- Increasing data center complexity
- High employee turnover in certain geographies

Key Applications
- Microsoft Exchange, SAP, SQL Server, Documentum

Solution
- OmniCube Federation in two data centers: (5) CN-3000 in Germany; (2) CN-3000 in India, currently expanding into datacenters in US and Russia.

Benefits
- Increased global operational efficiency. Eliminated the need for ongoing training on new management screens. Data efficiency rates increased >100:1, dramatically improving data mobility and management.

CLOUD EXPO EUROPE PREVIEW

The largest dedicated cloud event in the world for IT decision makers.

Just as you thought you had ticked all your organisation's cloud boxes, along comes a new development, a different application or a fresh product. It can be difficult to keep up. But help is at hand - you can discover what's new and what's next at Cloud Expo Europe 2015, the largest dedicated cloud event in the world for IT decision makers. Taking place at ExCeL London on 11th - 12th March, the event is free to attend and packed with over 300 expert speakers and 300 leading suppliers to help you choose and implement the right business and technology solutions for your organisation, wherever it is in its cloud journey.

The Cloud - A journey, not a destination.
The cloud is not a fixed solution for your business needs, but rather an avenue to new possibilities.

Now in its sixth year running, Cloud Expo Europe 2015 reflects the dynamism of the industry with a range of new and expanded elements, including the Open Cloud Park, partnered with Open Stack, OW2 & Open Nebula, the Internet of Things Theatre and a Cloud Security Alliance conference stream. The show will feature a record 300 cutting-edge suppliers showcasing the latest technology solutions and services, including Arista Networks, Cisco, CenturyLink, Equinix, Ingram Micro Cloud, Telstra, Adapt, Vodafone, Digital Realty, Dimension Data, NaviSite, Nexenta, Iomart, Pure Storage, SoftLayer, SunGard Availability Services, T-Systems, Veeam and many more.

In 2015 the compelling conference and seminar programme will be spread over 11 conference theatres covering all the major

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Cloud Expo Europe will be spread over 11 conference theatres covering all the major technology and business issues.

technology and business issues, including Virtualisation, Infrastructure, Storage, Cloud Management, Applications, Security, Cloud Innovations, SDN, Data and Analytics and Internet of Things. Over 300 expert speakers including, top rated CIOs, acclaimed global cloud leaders, cloud gurus with huge twitter followings, real practitioners from blue chip organisations including Tesco, Greenpeace, Virgin Active, eBay, Diageo to name but a few, will be present to share their expertise.

In 2014 Cloud Expo Europe, co-located with Data Centre World for the first time, attracted a total attendance of 12,188 senior decision makers. The event provides the perfect opportunity to network with thousands of your peers, industry visionaries, leaders and people who have faced – and overcome – the same challenges as you. Cloud Expo Europe 2015 provides the perfect platform to explore the industry's new and upcoming business and technology solutions. In addition, visitors will be able to access the co-located event Data Centre World, the world's largest and most influential gathering of data centre expertise, free of charge.

Data Centre World - A unique gathering of data centre expertise.

Situated alongside Cloud Expo Europe for the second year, Data Centre World requires little introduction. Firmly established as the only event of its kind in the industry, this event is now in its ninth year. Data Centre World 2015 will assemble data centre expertise from all four corners of the world: 200 world-class speakers, 300 leading international suppliers and thousands of data centre professionals will come together at ExCeL London on 11th - 12th March to create the world's largest and most influential gathering for data centre professionals and the data centre industry.

The exhibition includes a staggering range of companies from the industry's biggest names to SMEs. This is the place to discover new technologies, meet existing suppliers and place fresh orders, all in the same day. Panduit, Excool, Borri, GEA, Trend, Uninterruptible Power, Piller, Huber Suhner, Munters, Riello, Stulz, Sempertec, Pentair Schrodd, Vattenfall, Puffin Solutions, AF Switchgear, Powershield, Eaton Electric, Bluebox, E&I Engineering and Schneider Electric will all be present.

Over 200 data centre experts and real practitioners from blue chip companies and leading organisations including Tesco, Ford Motor Company, Microsoft and Deutsche Bank, will share their experiences in a world-class, case-study led conference programme. Four conference theatres will cover all the major technology and business issues from Power, Cooling, Heating and Ventilation to Security, Risk Management and Virtualisation. Record visitor numbers are predicted in 2015, highlighting the importance of the event to the data centre community. With such a huge range of industry expertise on hand and brilliant networking opportunities, this is the one business event that you should be sure to attend in 2015.

Steve Gold (1956-2015)

A Tribute to Steve Gold

Cloud Computing World founding Editor, Steve Gold, died from complications arising from heart surgery on January 12th 2015. Steve was an internationally renowned expert in the field of IT crime and cyber terrorism and had interviewed many leading figures from within the IT industry including Bill Gates and Steve Jobs. Having carved out a distinguished career in his role as Senior Internal Fraud Investigator for the NHS, Steve rose to fame in the early 80's when he hacked the BT Prestel system with friend and fellow journalist, Robert Schifreen, most notoriously leaving a message in Prince Phillip's voice mailbox.

As a journalist Steve specialised in data communications, cloud computing and IT security for almost thirty years. He wrote on a freelance basis for a number of titles, including Accountancy Age, Computer Weekly, the Daily Telegraph, the Daily Mail, Euromedia, the Guardian (IT and healthcare sections), IPTV, Micro Decision, Mobile News, Personal Computer World and The Times. He assisted and co-wrote later editions of seminal communications book, the Hackers Handbook, alongside Professor Peter Sommer, which was published in six editions and sold in excess of 100,000 copies.

Steve started his full-time journalistic career as a staff writer on Microscope in 1986 and the following year helped launch PC Dealer, a trade computer reseller magazine. He progressed from Technical Editor to Editor in the space of just four years, before leaving to pursue a freelance career in 1991. His next task was helping Paul Robinson to found SC Magazine, the world's first dedicated IT security news publication. In tandem with his work on SC Magazine, Steve also helped a team of U.S, Canadian and Australian writers launch and evolve a pioneering IT newswire, Newsbytes News Network, which was eventually sold to the Washington Post in the early 2000s. In 2004 Steve joined Info Security Magazine and became Technical Editor, assisting a succession of editors in evolving both the print and online publications as the IT security industry developed and matured.

At the time of his death Steve was group Editor at LGN Media, which publishes Cloud Computing World. He was instrumental in the launch of CCW and also Networks Ireland Magazine, which was to be the last title he would work on. "What struck me about Steve was his humility," said LGN Media MD Ian Titchener. "He was so down to earth and so honest that it was almost impossible not to like him. Many of the clients I've spoken to over the past few weeks have all said that they felt as though they'd known him forever, even though many hadn't even met him. Its very quiet In the CCW office without him."

CONNECTIVITY

Jonathan Arnold determines just how much connectivity choice is really on offer at a data centre.

By Jonathan Arnold, Managing Director, Volta

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It is essential to ask some pertinent questions before making the data centre decision.

Introduction
Whether the requirement is Internet connectivity for cloud-based applications or links to a private WAN, most organisations now recognise the importance of a carrier neutral data centre. However, while the list of possible connections available may look compelling – some data centres boast hundreds of carriers – it is important to look beyond the top line promises.

Fibre Provider
When it comes to data centre connectivity organisations have diverse requirements, from cost to quality of service, and choice is key. But what does that choice actually mean? Telcos routinely route traffic over each other's physical networks – indeed, often just reselling each other's services. So, if a company opts for a connection from a given provider, the chances are that the traffic is routed over networks belonging to a variety of other telcos.

This is a great model for creating competition, with Tier 2 providers aggregating services from different Tier 1 providers to offer different Service Level Agreements (SLA) and cost models. It is not, however, so good for resilience – especially if a company opts for primary and secondary connections from different carriers that are actually routed over the same physical infrastructure from a Tier 1 provider such as BT or Level 3. If anything happens to damage that physical cable – from road works onwards – both connections will fail. Therefore, it is essential to ask some pertinent questions before making the data centre decision, from the number of different entry points into the building to the number of Tier 1 and Tier 2 carriers that are providing connections within that data centre.

Digging Deeper
The first question for most organisations is whether the data centre has a relationship with its incumbent WAN provider. If so, it will be easy to connect into the network and get operational quickly. If not, there will be a number of challenges facing that carrier in creating a link to the data centre that could add significantly to the cost.

How many diverse entry points are there into the data centre building? Don't just assume that because a data centre provider boasts hundreds of carrier relationships that there are many different physical connection points: indeed, many data centres have just two. As a result, choice is limited and the carriers will be constrained in the SLAs they can offer simply due to the limitations of the infrastructure.

How many Tier 1 providers and how many Tier 2 providers are there – and which is the underpinning carrier network being used by each?

To ensure resilience an organisation needs to use different infrastructure coming into the building at different entry points.

To ensure choice a data centre should have not only multiple entry points but also lots of Tier 2 carrier relationships. This will enable both competition and the creation of different cost/quality of service packages to meet diverse business requirements.

How much will it cost to get a connection from your office location to the data centre? For example, to get a 10Gb connection from a central London office to an office outside the M25 will cost significantly more than connecting to a central London data centre that is located just around the corner.

What are the options for connectivity outside the UK – to Europe, the US and/or Asia Pacific? Depending on both current and predicted business requirements, access to a carrier with excelle nt international connectivity capacity could be an important consideration.

Planning Ahead
While organisations typically only review the WAN provider every three to five years, it is important to remember that the data centre relationship is likely to last even longer. What happens in three years' time if the company decides to change carrier for the WAN and the new provider does not have a relationship with the data centre? While it will be possible for the new carrier to connect to an existing service within the data centre, the process will not be straightforward and the company is likely to incur additional costs – costs that may undermine the business case associated with the carrier decision. Ensuring the data centre has a broad range of Tier 1 and Tier 2 providers on board is key to avoiding either additional costs or constraining carrier options further down the line.

Indeed, during the typical life of a data centre relationship an organisation's connectivity requirements will evolve in line with business changes – from the company looking to add cloud services to the managed services provider expanding into new markets. Hoping that a data centre will add carrier relationships during this time may be a little risky – especially when it comes to those critical Tier 1 relationships that add resilience.

Conclusion
The truth is that once a data centre is in place, adding new physical connections is far from easy: it incurs all the cost, complexity and legal ramifications of digging up roads to lay fibre. So, if a data centre only offers two physical connections into the building, the likelihood is that two is all it will ever offer. And that may be fine; it will still enable a number of Tier 2 carriers to offer a variety of services across the infrastructure – but it does limit a company's options in the longer term.

From resiliency to cost, choice to quality of service, accurately ascertaining the true quality of the carrier relationships on offer with a data centre should be an essential component of any decision making process.

CLOUDS MUST LEARN THEIR ADCS

Keith Archer simplifies the next generation of cloud platforms

By Keith Archer, Regional Sales Director for A10 Networks.

"ADC technology has advanced to form an integral part of most cloud deployment."

Introduction

Cloud, in all its forms, has left its infancy and is now heading into adolescence. The first generation drivers of building scalable architectures along with a viable business model have been largely solved. The next hurdle is refining the underlying technology to improve the concept across public, private and hybrid use cases.

The virtualisation platforms and, to some degree, the storage layers within clouds of every type, are becoming increasingly commoditised. In contrast the systems that automate cloud provisioning and the potential advantages offered by software-defined networking are still in a state of mass evolution.

ADC Technology

The overarching aim for the operator is to serve the needs of an increasingly demanding customer that's past the 'one hat fits all' mind-set and wants cloud to become aligned to the exact business requirement of the customer at the lowest possible cost. As a response, cloud operators are examining advanced service automation and virtualised services provisioning on per tenant and per workload basis. Another major consideration is building overlay networks to allow the creation of bespoke private clouds along with the enforcement of per tenant network segmentation.

One of the key enablers for delivering these goals is the Application Delivery Controller (ADC) that sits at the gateway into and between cloud platforms. In the last few years ADC technology has advanced from simple tasks, such as load balancing and SSL acceleration, to form an integral part of most cloud deployment. ADCs are now a mature and established tool for cloud and network designers and have proved extremely effective at providing application acceleration, high availability, application level security, IPv4/v6 migration support, and large scale Network Address management. ADCs could be considered the Swiss army knife of application delivery; robust, no-compromise, multi-purpose tools that are required to operate non-stop at the heart of any data centre. Sitting at the boundary between data centres serving clouds and the wider Internet, ADC's effectively act as a load balancing proxy and intelligent cache for application transactions and content. ADCs get a complete view of the whole messaging stack (L1-L7); both un-encrypted and (if required) encrypted, and are routinely involved in packet manipulation such as IP address, port mapping and URL rewrite.

In Use

While the most obvious use of the ADC is for load balancing, high availability (HA) and content caching across application servers, because of this privileged position of trust and oversight in the network topology it is becoming increasingly common for ADCs to provide value-add security and performance features to improve information security and availability. These security features include SSL offload, SSL intercept, pre-authentication, Web Application Firewall (WAF),

and DDOS mitigation. Typically, a high-end ADC will also include custom scripting to enable deep packet inspection (DPI) and manipulation of both traffic and endpoint information. Although there is a huge range of potential use cases for the ADC, some of the most exciting centre on cloud automation and software defined networking.

The newer ADCs now offer integration with cloud orchestration platforms such as Microsoft System Center Virtual Machine Manager (SCVMM), OpenStack and VMware vCloud Director. This means that the ADC propagates dynamic enforcement of centralised per tenant policies as new workloads and application services are created. For example, a new workload can benefit from automated policy inheritance that will automatically implement load balancing, security and other application networking services. This model can also integrate with and propagate policies between the new wave of SDN controller platforms such as Cisco's Application Centric Infrastructure (ACI), and IBM Software Defined Network for Virtual Environment (SDN VE) to ensure that network security policies are accurately and automatically provisioned across the environment.

Another ADC function that cloud builders are deploying is support for the VXLAN and NVGRE overlay tunnelling protocols, commonly used in VMware and Microsoft Hyper-V virtualized environments. Support for both protocols provides automated enforcement of network segmentation policies by applying the appropriate tags on the traffic entering into the networks. These overlay protocols allow operators to create scalable services architectures with end-to-end isolated network domains for tenants. This makes life easier for administrators as multiple isolated virtual overlay networks can be provisioned with tunnel encapsulation protocols without changing the existing network. Applications running in a virtual Layer 2 domain in one data centre can be extended over Layer 3 networks to another, regardless of IP addressing or geographical location. This innovation allows disparate datacentres to become unified under a single network topology.

Conclusion

The ability of the ADC to both define and inherit policies that can be propagated to the cloud orchestration, software defined networking and security layers is a major boon for organisations aiming to simplify the next generation of cloud platforms. The current state of the art platform has supplemented purely hardware-based ADCs with multiple virtual instances on a single physical server. This virtualisation of the ADC provides a more flexible and scalable option especially within multi-tenancy situations where allocating the CAPEX/OPEX cost of a physical appliance offers an altogether more challenging business model.

DOWN TO
THE WIRE

Owen Cole examines how enterprises are solving the issues of managing performance and troubleshooting apps as they head into an increasingly cloud-centric delivery model.

By Owen Cole, Vice President EMEA, Extra Hop

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Wire data can either sit as a virtual application inside the cloud or on any segment of the network.

Introduction

Cloud-based applications have proven their worth in enabling exciting new business models and reducing the cost and complexity of scaling IT resources. Netflix's video on demand, AirBnB accommodation booking service and the Foursquare social network all use public cloud operators such as Amazon Web Services and Microsoft Azure. In many cases, the services would not be commercially viable without the cloud. Yet with evolution comes a whole new set of technical challenges.

Benefits of the Cloud

The benefits have become well understood. Based on a pay for what you use model, cloud offers little CAPEX, an ability to scale in line with demand and, in some cases, well defined SLA's. However, closer to the coal face, IT managers charged with keeping applications running from the cloud must contend with a number of challenges.

Although the headline grabbers that are 100 per cent cloud-based or use simplistic processes are clearly well served, the majority of enterprises adopting cloud are, in fact, running hybrid models. In a 2013 survey by the Cloud Industry Forum, although 78 per cent of companies already use cloud services for at least one application, 85 per cent still operate their own data centres or on-premise hardware. Furthermore, three quarters of these enterprises use their own in-house IT staff to manage these cloud environments.

The hybrid environment where cloud is just part of a service delivery makes sense for a number of reasons. Firstly, there are many practical considerations such as applications that require external data sources or specialist hardware that cannot reside within the private cloud. For example, a financial services application where data sources are held securely in a private data centre for security and compliance requirements. Another instance could be services that are in fact made up from multiple applications that are hosted by a third party site or in a different cloud provider. For IT managers charged with keeping applications running while delivering the required performance, the distributed nature of a cloud-based software stack makes performance management and troubleshooting a challenge.

Every Second Counts

To give a synthetic example of a hybrid cloud application, imagine an insurance company with a web-based application that serves its brokerage affiliates, call centre staff and is also used by customers for account queries and policy management. For availability and scale, the application front end is delivered from a public cloud, while separate systems used for its brokerage affiliates are maintained in its private data centre. This private data centre also hosts its mission critical databases running on a dedicated Oracle cluster. Its call centre is actually based in India, so these remote agents run a third application that takes data from both the front end in the public cloud and from its private data centre. Although it sounds complicated, this is a relatively simplistic setup compared to the reality of many financial institutions. This picture could be further complicated by business continuity requirements and legal restrictions around which country data needs to reside for legal jurisdiction.

In this scenario, a common issue such as application performance degradation or a set of users unable to login is not an uncommon problem, but tracking down the root cause is potentially complex. With the insurance company now losing revenue and unhappy users, the IT manager needs to find out if the problem resides with the cloud application, the cloud service provider's infrastructure, communication links between the different elements or maybe even an underlying problem with server hardware, firewalls or switches.

Unfortunately, gaining deep visibility into the shared infrastructure of a public cloud is difficult. The network probes and physical hardware is not available for inspection and due to the interconnected nature of the applications involved, a small problem, say in the cloud-based load balancer, may well ripple to other areas of the service leading to seemingly unrelated issues.

Faced with this situation, IT managers have tended to resort to examining machine data, typically found in log files to identify problems.

Hardware devices, SNMP, and WMI that spot overburdened machines and unusual activities supply this machine data. Network elements also generated vast amounts of logs, but not all of these devices may be under the prevue of the IT manager. In some cases, these logs are supplemented by agent data gleaned from inspecting application code, which is useful for spotting programming errors or badly behaving scripts that may have led to an issue. In addition, external data from synthetic transactions and service checks might also help IT teams to test common transactions from locations around the globe to help isolate the cause of the problem.

Down to the Wire

However, the inherent problems with all these troubleshooting tools is that they are carried out in isolation and not well suited to building a real time picture of the relationships or flows between the parts applications. A new technique that enterprises are using for monitoring cloud apps is through wire data. Instead of sampling data from logs or creating synthetic transactions, wire data examines each transaction as it moves between different parts of the services. This includes running inside the cloud to examine how these cloud applications are actually performing and communicating with constitute internal or external applications and users.

So, in our example, the wire data analysis tools will examine data flowing from both within and between the cloud, the private data centre and the Indian call centre at an IP level. The wire data tools can peer inside each packet, decipher the contents, and build an understanding of how each application is performing and also the responsiveness of each client using the service.

The wire data tools can also look at other traffic moving along the network connecting the insurance firm's application and then analyse these conversations to see how they may impact on the delivery of the core service. For our synthetic example, the root cause of the web application slowdown might actually be a performance issue with the database, or another application consuming too much bandwidth on a shared communication link to the overseas call centre. Because wire data can look at real world transactions, it can spot that maybe certain types of quotation process requests is resulting in an unanticipated drain on processing capacity which, in turn is resulting in an overall performance issue.

Conclusion

The reason wire data is becoming so prevalent in cloud delivery is because it does not require any modification to workflows or physical access to the public cloud data centre. Instead, it can either sit as a virtual application inside the cloud or on any segment of the network. While

IT Operational Intelligence Architecture

Machine Data

Synthetic Data

Wire Data

Agent Data
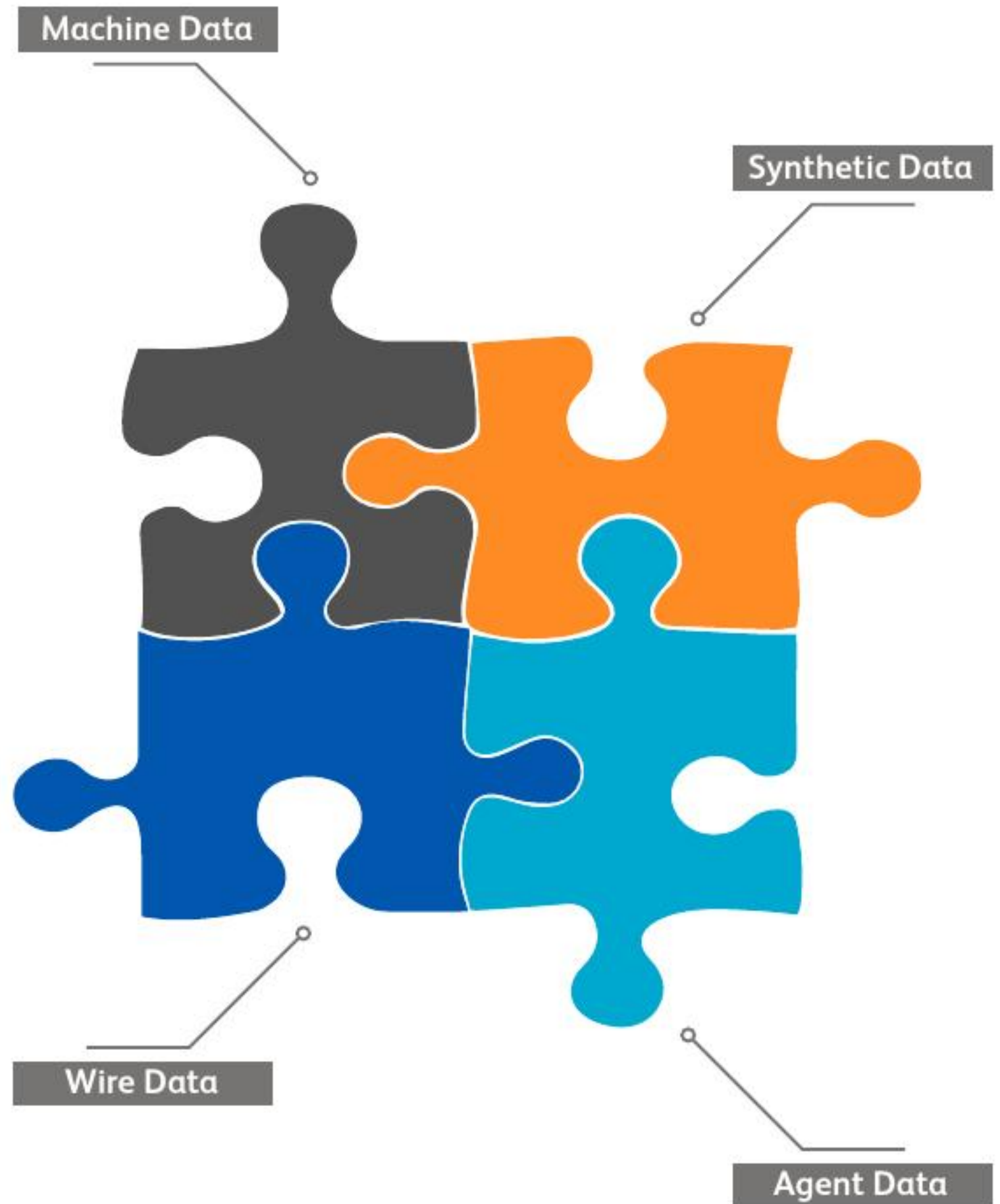
sitting passively, it non-disruptively monitors and decodes the contents of millions of IP packets per second and reconstructs the conversations between thousands of transactional processes. In addition, this wire data can then be fed into other systems that collate machine, agent data and synthetic data to provide even more granular understanding of application performance. These insights can also be used for spotting security issues, compliance failures and the longer terms trends useful for capacity planning tasks.

Wire data is finding its complementary role within the world of cloud-based apps and the next generation of technologies are now being used to examine other uses cases such as the Internet of Things and to solve big data problems by analysing data as it moves across networks. For the IT manager trying to solve application challenges in the new world of hybrid cloud, it is potentially a game changer.

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For the IT manager trying to solve application challenges in the new world of hybrid-cloud, wire data is potentially a game changer.

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DRIVING BUSINESS FORWARD

Leading ICT support specialist utilises CentraStage to spearhead business growth.
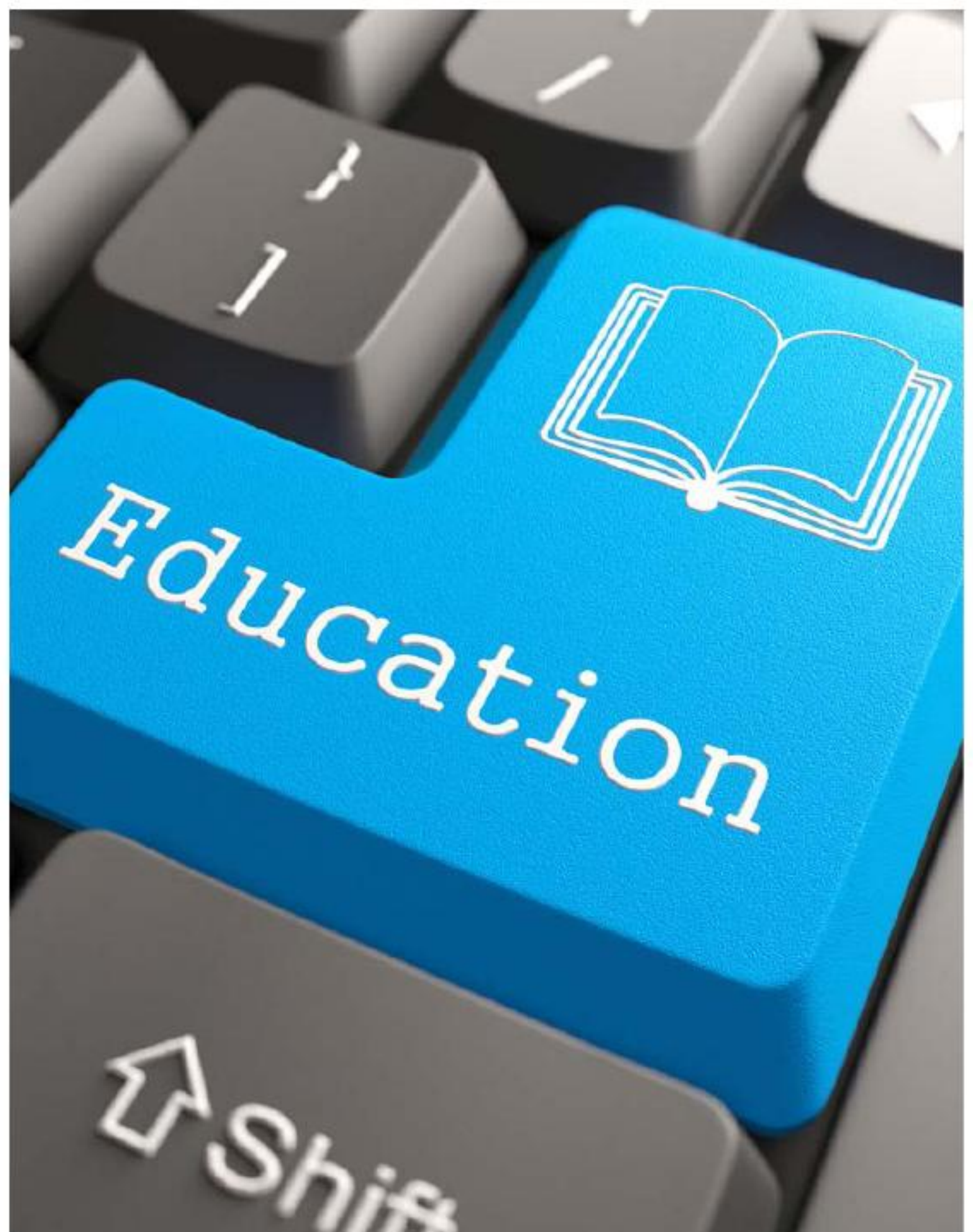
Introduction

Integrex is a leading UK designer and manufacturer of innovative, interactive electronics and IT products for a number of sectors including retail and education. With over 40 years of experience, they specialise in the design, manufacturing and installation of interactive special needs education and teaching tools. The company is also an IT reseller and offers ICT support to a number of institutions. It currently holds IT support contracts for 12 schools within the Derbyshire area.

Challenges

As a diverse and expanding company that has seen considerable growth within the education sector, Integrex currently looks after over 1000 devices in a number of schools in the Derbyshire area. However, without effective remote access to these devices, a technician was required to visit each individual site for one day a week; using valuable time identifying and then fixing any issues.

This was proving time-consuming and increasingly unsustainable due to Integrex's growing customer-base and the increasing number of devices at each customer site. The schools were also beginning to ask for faster support with less downtime for their environments due to an increased reliance on IT within the curriculum. Previously, if there were an issue that required urgent attention, they would have to wait for a technician to become available and a site visit to occur. If an issue were less urgent, they would typically wait for an already scheduled visit, which could result in waiting 1-2 weeks for the issue to be resolved.

Furthermore, there was a growing need from schools to audit the hardware and software in their environment so that they could better plan IT upgrades and updates in advance and ensure they had appropriate licensing at all times. Prior to

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Integrex currently looks after over 1000 devices in a number of schools.

the introduction of CentraStage, the schools were unable to plan ahead or audit their environment, resulting in outdated devices being overlooked or budget not being allocated as effectively as possible.

Solution

Integrex recognised the need for an endpoint management technology that would enable them to work smarter and more efficiently. Having looked at four other solutions, they met with Redstor in December 2010 and began discussing CentraStage as a remote management and monitoring tool for their education customers. In 2011, they placed an order for CentraStage to enhance the overall support they offered to schools.

CentraStage is a SaaS platform for managing endpoint devices such as servers, desktops, laptops, tablets, and phones. It provides real-time, proactive visibility, monitoring and management which was previously unused by Integrex.

Andrew Langley, Technical Manager of Integrex, said: "We met with Redstor in late 2010 and after a web demo and training session, realised that CentraStage was ideal for our particular requirements. It does have a wealth of functionality such as deploying updates and patches and providing remote monitoring and auditing all through a single platform."

He added: "The implementation process was very smooth and we've only needed support on a couple of occasions but Redstor have been fast to respond and help with any issues."

Results

After implementing CentraStage in July 2011, Integrex is now able to successfully remotely monitor and manage over 900 devices within 10 schools; including laptops, netbooks, servers and tablets. This has meant that on-site visits happen much less frequently and it frees up the technicians to make better use of their time.

Andrew Langley said: "Being able to remotely monitor and manage each device has provided a huge time saving for Integrex. In the past we required a technician to spend one day a week on each site and as we secured contracts with more schools, it was proving unrealistic to sustain this approach without increasing our internal resources."

He added: "Each site visit would require approximately 1 hour travel time, which, when having to visit multiple sites per week, meant that the technicians' time was often wasted and could be better utilised elsewhere. Now we can remotely monitor each customer's environment and can ensure that time is better spent with each site visit."

Conclusion

The solution allows Integrex to respond faster to critical issues meaning that system downtime is kept to a minimum. Support can be provided to a

Executive Summary

Challenges

- Provide on-site ICT support to over a dozen schools and over 1,000 devices throughout Derbyshire with minimal remote access to servers
- Reduce time spent on each site managing the IT infrastructure and fixing any issues with the devices
- Provide faster support for critical issues and software audits to minimise down time and analyse the condition of the devices

Solution

- Redstor provided CentraStage - a remote access and endpoint management platform

Benefits

- Integrex currently uses CentraStage in 10 schools to manage over 900 devices
- CentraStage has minimised the time technicians spend on-site and freed up employee travel time
- The software allows schools to monitor the age and condition of devices to help plan ahead for hardware and software refreshes
- Integrex has seen continued growth and is looking to deploy CentraStage in other areas of the business to drive efficiency gains

device without interrupting the user, minimising impact. It also deploys updates and patches automatically to ensure the IT infrastructure is up to date and safely patched against threats. Furthermore, CentraStage enables schools to monitor the health and condition of devices, which allows schools to plan ahead and budget for when hardware and software is likely to become out of date and require upgrading.

Following the success of deploying CentraStage for their education clients, Integrex are planning to utilise the service in other aspects of their business as part of their overall strategy to continue driving growth while improving efficiency.

Langley concludes: "Internally, the staff are thrilled with the service provided by CentraStage and the support from Redstor. As a business working in a number of different sectors, we're already looking at deploying the service in our kiosks in the near future.

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The solution allows Integrex to respond faster to critical issues meaning that system downtime is kept to a minimum.

HOW CLOUD CRM IS
EMPOWERING BUSINESSES

CRM

Eurocloud UK Board Member &
Cloud Industry Forum Governance
Board Member

By Ian Moyse - Sales Director, Workbooks Cloud CRM

Introduction

Over the years CRM has evolved from physical help desks and legacy contact management software, through to heavy complex systems, a wide range of vertical and horizontal solutions and over 400 CRM-type tools that are now on the market. Salesforce, a pioneer in the SaaS market, came from pure CRM foundations and displaced the leader, Siebel, with a cloud-based system that was easier to digest, use and implement, which led to a regeneration of the CRM market that was led by cloud solutions.

Today the market sees 40-50 per cent of new CRM sales happening in the cloud and expectation is that within a few years this will rise to 70 per cent of all new selections. So cloud is rapidly becoming the de-facto standard for CRM implementations and is bringing a great deal of positive value to organisations.

Introduction

However, if you study reports that look at data from customers of failed CRM projects there is an average of 46.3 per cent of failures. The data varies greatly, likely due to different analysis methodologies.

Cloud-based CRMs can slash costs in comparison to legacy on network and more complex systems and increase top and bottom line benefits when implemented in alignment to specific business needs. This allows small and mid-sized businesses to mimic larger rivals in customer service and sales effectiveness.

CRM in its own form, when selected correctly and matched to business needs, can bring far reaching value to a company. This can take the form of increased sales efficiency, improved staff activity awareness, visibility and efficiency, faster quote to cash, improved efficiency in business processes delivering bottom line savings, greater KPI, management visibility and awareness of business metrics, enabling better decision making.

The cloud form factor enables a business to focus on these top and bottom line factors rather than the infrastructure issues of deploying a CRM. Let's take a look at some of the areas where a cloud CRM can empower your focus.

Deployment

Cloud is an attractive proposition when compared with traditional in house approaches from the likes of Siebel, Goldmine and ACT. Deploying a CRM in-house system involves buying the hardware, software, operating system and often the database. You need to install and configure all of this onto your network and deal with any issues that crop up along the way. This is before you can even start configuring it to your specific requirements. Any updates to components will also need time spent on them.

Resilience

Next comes resilience, a key requirement if your CRM system is to become the important business system that it should. You need the system always to be available and accessible. Users rely on the system for putting out information as well as putting it in. So, any component failure, database corruption, system or OS patch will need to be fixed and maintained on your local system. We all experience things breaking and it is not unusual for a failure to occur at the most inopportune time. Here cloud excels as all of this is done for you. A good cloud CRM vendor will include contractual SLA's as to the availability they guarantee and will happily share their track record. Here it's good to speak to an existing customer who has been on the system for three to four years to understand the experience they've had.

Backup

The data in such a system is critical and constantly fluctuating as you update, add to and maintain your customer details and interactions. Best practice for this is regular (daily) backups to an off-site location, but this is hard and typically doesn't happen. A failure of the core database is devastating, but only being able to restore backup data from a period ago has an added bad taste. Good cloud providers include this as standard. Expect daily backups automatically included in the price and any failure on the database will be something monitored and fixed by the cloud provider at no cost or effort to you.

> "Ensure that you consider cloud as a viable and attractive option when comparing CRM systems for your business."

Mobility

In today's ever on, ever accessible and from anywhere world, users expect just that. Delivering this using traditional systems has always been hard and clunky. Cloud CRM, by definition, makes this easy. Be it from a desktop, tablet, phone or from within an email system. With cloud CRM you can expect access from any device or operating system, such as Apple or Android, to be made easy. Today's users have an expectation of easy to use interfaces and access to the information they want from their chosen (multiple) devices from anywhere they choose.

Scalability

Because cloud-based systems are inherently flexible in providing capacity and performance, you can rely on adding users or data being easy and quick architecturally. Cloud systems provide a wide range of flexibility and an ease of change in this area that traditionally has taken more time and been harder to do. In the cloud space expect to make a phone call or email and have your changes provisioned quickly if not instantly.

Licensing

SaaS (Software as a service) CRM providers deliver many options here in terms of flexibility and benefits. Gone are the days of worrying about under licensing and the legal aspects of software

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Cloud-based systems are inherently flexible in providing capacity and performance.

license as the cloud provider has a clear measure of your usage and licenses at all times. Options provided by a variety of cloud providers in CRM include different billing periods such as annual, quarterly or monthly, mixing or not mixing license types and optional functional modules that often keep the pricing down by excluding them. Cloud licensing is also typically more flexible when adding users mid-term and having it pro-rated into the contract costs. The actual licensing needs to be assimilated once you've made a shortlist of possible providers.

Conclusion

Cloud CRM systems are evolving more rapidly than we have seen in previous business applications and with palatable and practical benefits even for the smaller businesses. When comparing and evaluating CRM systems ensure that you consider cloud as a viable and attractive option and evaluate the pro's and cons, pricing up not only the hardware and software costs, but the costs of support, upgrades (including effort), delivering mobile access, resiliency and backups and the likely unexpected cost of replacing components or recovering data in case of any failures.

Many cloud providers offer freemium entry level packages for a few users, meaning a micro business can benefit from the basic contact and tracking of client information without any inherent cost until such time that they wish to expand on the base function with paid support or some of the more key functions.

Cloud CRM that's configured to your specific benefit and business needs can deliver an attractive outcome, saving money and delivering upsides that far outweigh any costs, day on day, month on month. A great independent cloud and crowd sourced resource to gain comparison of CRM systems is available at www.G2crowd.com, which is a sort of Tripadvisor for IT applications that enables users to gain feedback from real reviews from real users of the systems. Many now use such comparisons to help shortlist those CRM's that they will consider for their own needs.

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IT Services Firm Goes Global with Desktop as a Service

CISCO VALIDATED ARCHITECTURES

Cisco help Quest expand their customer reach into the Internet of Everything

Introduction

Since 1982, Quest has been a trusted technology consulting and management firm, delivering technology products, professional services, and cloud and managed services either on-site or from its secure Service Delivery Centres located around the world. Quest saw an opportunity to allow its clients to 'invest in the capability, not in the product' with cloud and managed services and began offering these options to clients in 1999.

The Challenge

As the Internet of Everything continues to gain momentum in the marketplace, Quest decided more recently to begin offering Cisco Powered cloud-based Desktop as a Service (DaaS) to its customers and those of its channel partners. "Our clients were experimenting with desktop virtualization on their own and having difficulties because in many cases it was beyond their current capabilities," said Tim Burke, President and Chief Executive Officer at Quest. "Yet they saw the value of virtualized desktops and wanted to achieve those benefits. We wanted to give them the advantages of virtualization without the burden of deploying and managing the environment themselves."

In addition to delivering the typical benefits of virtualized desktops to its clients, Quest also envisioned a solution that would support its clients' bring-your-own-device (BYOD) strategies as well as integrating communication and collaboration into a multimedia desktop experience for end users. For all these reasons, Quest turned to its trusted partner, Cisco, to help make DaaS a reality.

The Solution

A Cisco Gold Certified Partner for nearly two decades, Quest also earned the CMSP master level designation for their DaaS offering. In addition to being a reseller, Quest relies on Cisco technology for its Service Delivery Centre infrastructure as well. "What's great about Cisco is that it offers validated and fully tested architectures specifically designed for the cloud," says Mike Dillon, chief technology officer at Quest. By leveraging the Cisco Desktop as a Service Solution in partnership

Executive Summary

Customer Name: Quest
Industry: IT Services
Location: Sacramento, CA
Number of Employees: 125

Challenges
- Capitalize on Internet of Everything (IoE) market opportunity with new managed service.
- Deploy scalable cloud infrastructure to support business and customer expansion.
- Utilize new services to expand client base internationally.

Partner Solution
- Cisco Powered Desktop as a Service (DaaS) solution delivers performance, scalability, and ease of management.
- FlexPod pre-designed and pre-validated data centre platform

reduces time to deployment, improves agility.
- Quest has earned the Cisco Cloud and Managed Services Program (CMSP) Master Specialization designation for DaaS.

Business Results
- Rapidly grew Desktop as a Service business to more than 100 customers worldwide.
- Accelerated Quest's ability to deploy and expand their Cisco Powered DaaS offering.
- Leveraging newfound insight into end-user business needs to generate new services opportunities.

with VMware's Horizon DaaS platform and NetApp storage systems and management expertise, Quest is able to deliver cost effective, full-featured virtual desktops to any device on demand.

FlexPod is a pre-designed and pre-validated data centre configuration built on Cisco Unified Computing SystemTM (UCSTM), Cisco NexusTM data centre switches, NetApp FAS storage components, and software infrastructure options from other Cisco partners. According to Dillon, "We knew that FlexPod would provide the performance, scalability, and manageability we needed as the core infrastructure for our cloud and managed services offerings and our new DaaS offering." As part of both FlexPod deployments and other data centre infrastructure implementations, Quest now has 24 Cisco UCS

C-Series chassis and more than 150 Cisco UCS B-Series blade servers running in its global Service Delivery Centres.

By utilizing Cisco Powered Desktop as a Service, Quest can deliver its offering today with the flexibility to expand to a unified workspace as a service in the future. The Cisco Desktop as a Service Solution serves as the core infrastructure for delivering a complete unified workspace solution (voice, video, and virtual desktop) as a Cisco Powered service to Quest's customers and its partners' clients.

A powerful capability of Quest's Cisco Powered DaaS offering is the ability to deliver cost-effective, full-featured, cloud-hosted virtual desktops to any device on demand. "BYOD is growing dramatically. Customers have mobile users who need to access their desktops from their mobile devices, whether they are smartphones, tablets, or other appliances," said Burke. "Now, they can utilize those devices with a DaaS client and have full, secure access to their desktop no matter where they are."

Conclusion

Today, Quest provides Cisco Powered DaaS to more than 100 of its clients around the world, making DaaS one of the most rapidly growing portions of the IT service provider's overall business. "From supporting a mobile sales force to disaster recovery, from educational settings

to healthcare, there are so many great use cases and benefits for Desktop as a Service," says Burke. "In all those cases, we can provide secure access to the desktop wherever the individual happens to need it. We're reducing the cost of ownership for our customers while supporting mobility in a secure way."

The Cisco infrastructure gives Quest the foundational capabilities that it needs to meet evolved Internet of Everything customer needs not only in the United States, but worldwide as well. "Cisco gives us the scalability, performance, and efficiency to deploy and expand Desktop as a Service rapidly for our customers, no matter where those end users are located," says Burke: "Today, if a customer needs 500 desktops in Europe, they can get that capability very rapidly and cost effectively without having to build the infrastructure on their own."

Quest has also discovered that Cisco Powered DaaS is serving as a way to gain access into new areas of its customers' businesses where it previously did not have a strong presence. "Desktop as a Service is a unique opportunity for us to engage more with our customers," said Dillon. "We're now directly interfacing with end users and seeing the capabilities that various areas within the business require. This puts us in a position to help them with more than just infrastructure. Now we can assist with applications and business functionality, too."
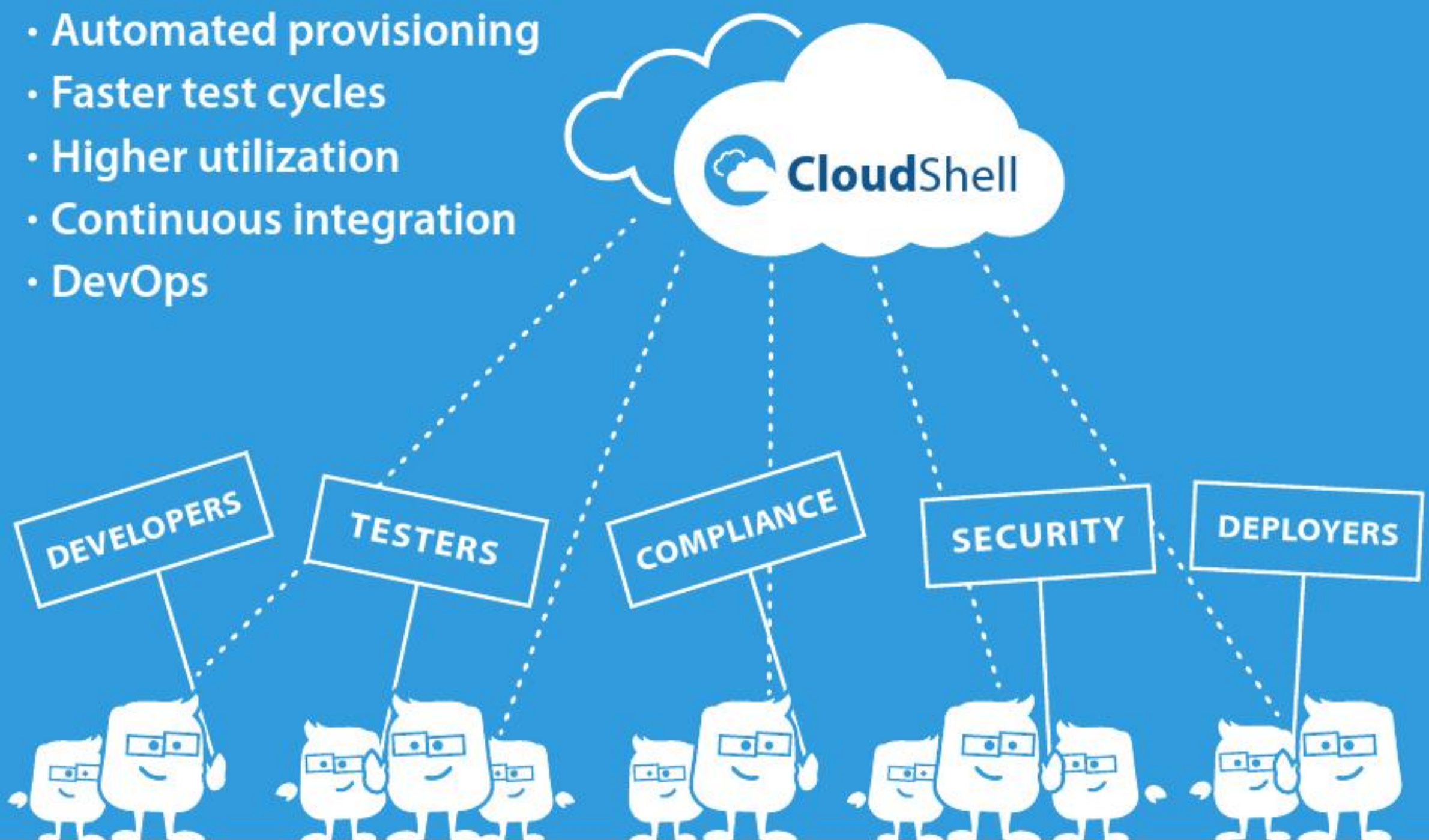
POWERING CONTINUITY

The key to optimising continuity in our modern virtualised world is integration.

By Stefan Coote, Product Manager Small and Medium Data Centre Solutions at Eaton EMEA.

Introduction

Quite rightly, today's IT professionals have little interest in the technical niceties and nuances of their power infrastructure – their overwhelming concern is business continuity. Let's be totally honest – if you buy a Uninterruptible Power Supply (UPS) from a reliable supplier, provided that you've specified it correctly, it will almost certainly do exactly what you'd expect. That is, it will protect your loads against most types of power problem and, if the utility power fails, it will support those loads until its batteries are discharged. If maximising business continuity is your main objective, therefore, almost any high quality modern UPS will provide a good starting point. However, a starting point is all it will be.

Business Continuity

These comments should not, of course, be taken to mean that there are no performance differences between UPS units from different suppliers. Some, for example, are more efficient than others, some have better battery management functions and some offer easier scalability. It's right and proper for these details to be considered as part of the specification and purchasing process, but it's how effective the overall solution is in supporting business continuity that is by far the most important concern and decision criterion.

To be fair, not many years ago, when individual servers were still tied to a particular piece of hardware, specifying a good UPS was just about all that could be done to optimise business continuity. Today, however, with the almost universal adoption of virtualisation, it is possible to do much more, provided that the right power infrastructure solution is chosen. Let's look at a simple example: what happens if, during a prolonged power interruption, the UPS reaches the end of its runtime?

Before virtualisation, the answer was simple: the servers would be shut down in a controlled way to await the return of mains power. There was no data loss, but neither was their any

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If maximising business continuity is your main objective, a high quality UPS will provide a good starting point.

business continuity. In a virtualised environment, there's a much better option. The power infrastructure can be configured so that migration of virtual servers to alternative hardware – or to the cloud – is triggered as the UPS approaches the end of its runtime. Operational continuity and, therefore, business continuity, is maintained.

What must be borne in mind, however, is that the route to providing this very useful functionality is an integrated power solution of which the UPS is only one component. Other major components

are power management software and a means of providing flexible and effective control over power distribution, such as an ePDU (enclosure power distribution unit). These components then work together to provide a power solution that is much more effective than the sum of its parts.

Compatibility and Integration

Before looking in more detail at some of the components of this solution – in particular the power management software and the distribution systems – let's first examine how it is possible to be sure that these components are, in fact, 'well chosen' to work together efficiently.

In principle it would be possible to do this by very carefully checking out the characteristics of each component and assessing their compatibility. In practice there's a much easier, much more certain and much less time consuming approach: go to a vendor that offers complete and fully integrated power solutions. That way, compatibility is guaranteed. In addition there are other less obvious, but equally important benefits such as a single point of contact in case of queries or problems, no divided responsibilities if there should be a malfunction, and a single comprehensive service contract to look after the health of the whole power solution.

Returning to the individual components of an optimised power solution for virtualised environments, an essential element is the power management software, and here there are big differences between the offerings from various vendors. By no means does all power management software, for example, offer tight integration with virtualisation software. However, the best power management software will integrate fully with all popular virtualisation platforms including VMware vCenter, vSphere, vMotion and Microsoft Hyper-V.

This is important, as only with this level of integration can the power management software be configured to trigger the migration of virtual machines under power fail conditions, which is essential for optimising business continuity. There are also other important benefits to be gained from tight integration between power management and virtualisation software, not the least of which is that it means the same dashboard or pane can be used for monitoring and managing all aspects of the IT installation, including the power infrastructure. This is a big aid to both convenience and efficiency.

But where do the ePDUs fit into the picture? The latest of these do far more than simply provide a convenient way of connecting power to the racks – in a fully integrated power solution, they provide additional options for optimising operational continuity. In conjunction with the right power management software, ePDUs can, for example, power down non-essential hardware if the mains supply fails, thereby allowing the UPS system to support the essential hardware for a longer period.

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ePDUs also make it possible for individual items of hardware to be isolated while the rest of the equipment in the rack remains operational, which means that maintenance and servicing can be carried out with minimal disruption to operational continuity. Some versions even include billing-grade energy monitoring down to individual load level, which is invaluable for billing purposes.

Conclusion

The challenge faced by all IT professionals today, and not least by the increasing number of IT resellers that are now taking on the additional role of cloud service providers, is to eliminate downtime and to ensure availability 24 hours a day, 365 days a year. Power infrastructure has a big role to play in meeting this challenge but, as we've seen, the time has passed when implementing the right infrastructure meant delving into the details of power technologies.

In today's virtualised world, by far the best approach is to choose a complete integrated solution that simply delivers, efficiently and reliably, the power that your loads need and also provides the tools, such as convenient power management, automatic migration of virtual servers and selective load shedding, that will keep your systems operational come what may.

The final ingredient is to choose power solutions from a reputable supplier that you can be sure will deliver products of the highest quality and will also reliably provide the services needed to ensure that those products have long and cost-effective service lives. In short, choose an integrated power solution from the right supplier, and you can look forward to business continuity headaches becoming a distant memory!

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