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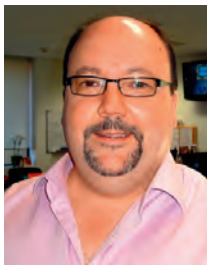

It is with great excitement that I take over the reins of *Technology Decisions*. Andrew Collins has stepped back from the role of editor to concentrate on his studies, but will continue to contribute as senior writer. On behalf of the whole team, I thank him for his hard work in producing such a fine magazine, and we wish him well with all his endeavours.

I take over as editor at a time when the ICT field is going through lots of big changes, from BYOD to the cloud. The cloud in particular has changed just about everything - from where we store our data, to how we work collaboratively with colleagues in any part of the world.

But as is true with all new technologies, there are always pluses and minuses. Our lead feature in this issue looks at OpenStack, the open source cloud platform, and finds that while the platform has gained wide acceptance, it still has a few challenges to overcome.

How important is the cloud to your enterprise? Would you be lost without it? I'd like to hear your thoughts on this and any other ICT matter that you feel strongly about. You can email me at: jonathan@technologydecisions.com.au.

Jonathan Nally, Editor

jun/jul 2014

INSIDE

FEATURES

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Growing pains

for the cloud's open source platform

Andrew Collins

OpenStack vendors are increasingly claiming that the open source cloud platform has reached maturity - but is it truly ready for the enterprise market?

For the uninitiated, OpenStack is one of a few open source cloud platforms available to organisations that don't want to rely on proprietary cloud platforms. This could include companies wanting to deploy their own private clouds or cloud service providers looking to offer public cloud computing services to their customers.

OpenStack was launched in 2010 by Rackspace and NASA in 2010, both of which contributed code to the first iteration. The project is managed by the OpenStack Foundation, an organisation formed in September 2012.

The OpenStack code is freely available under the Apache 2.0 licence and is open to contributions from the general public. According to the project's official website, "an open development model is the only way to foster badly-needed cloud standards, remove the fear of proprietary lock-in for cloud customers, and create a large ecosystem that spans cloud providers".

From a distance, OpenStack seems quite impressive. More than 100 organisations - including major vendors such as IBM, Cisco, Dell and Hitachi - contribute to the project. It also features some pretty impressive users, such as Harvard University, Sony, PayPal and even the US National Security Agency.

"From a distance, OpenStack seems quite impressive. More than 100 organisations contribute to the project and it features some pretty impressive users ..."

OpenStack has come in for criticism in the past, however. These criticisms included, but were not limited to, supposed community infighting and politics, a lack of enterprise features and low-quality contributions from the community.

Recent times have seen OpenStack's proponents claiming that the project has emerged from its difficult teething period and is now (or is on the verge of being) ready for the enterprise.

But some commentators believe problems remain.

Kevin McIsaac, analyst at IBRS, says that implementing OpenStack is labour intensive and costly.

"Most people I talk to about this [say that OpenStack] takes an awful lot of people and a lot of money to implement and make work. People are saying that it's still quite amorphous, there are many distributions of it, and implementing it and making it work actually becomes quite expensive and quite complicated," McIsaac says.

In a report titled 'An overview of OpenStack, 2014', Gartner analyst Lydia Leong writes: "OpenStack requires significant expertise to implement and operate for anything other than a trivial nonproduction deployment. Do not expect that you can simply send an engineer on an OpenStack training course in order to acquire the necessary skills. When considering the cost of an OpenStack solution, ensure that you factor in the labour costs."

When asked about reports of burdensome implementation, Mark Potts, CTO of HP's Cloud unit, says his own company's public cloud efforts provide a case study for OpenStack's progression.

"We've been running a public cloud at scale based on OpenStack, going all the way back to Diablo [an OpenStack release from late 2011]. The maturity around some of that in Diablo and [subsequent version] Essex was problematic. It was a very new project, that's for sure. If you compare [the even more recent] Icehouse now to Diablo, it's markedly different in terms of the experience, robustness and scalability," Potts says, adding, "Now that doesn't mean there is not work to be done."

Potts points to HP's hand in advancing the project's TripleO program as an example of how OpenStack has developed over time.

"The TripleO project is really about how you stand up an OpenStack-based cloud environment, and then how you manage the life cycle of that. Because one of the things customers want is that innovation and that fast cycle, but that can be very, very disruptive if you're upgrading every three to six months. So we've been spending a lot of time on TripleO and the installation to make it a lot easier," Potts says.

HP runs all of the infrastructure for OpenStack itself, he says, including contributions, testing and CICD (continuous integration/continuous deployment).

"We've learnt an awful lot. What we're doing with our distributions is bringing a lot of that knowledge and understanding from the public cloud, from running the OpenStack project and distribution in a CICD process, in to TripleO," he says. "[And also] supporting that for customers as they start to think about adopting and building out and having to deal with releases and upgrades at that type of frequency."

Potts does concede that OpenStack "still has room to improve", but he maintains that OpenStack is now "very mature".

"HP runs a public cloud at scale. Rackspace runs a public cloud at scale, on top of OpenStack. We both run on the newest versions, and we would not have the service level agreements that we can put in front of customers if OpenStack was still as immature as it was a year ago."

Locked in?

Gartner's Leong is not so sure of OpenStack's maturity. She notes that OpenStack is a framework divided into multiple components.

"Because components can, to some degree, be adopted independently of one another and each project has its own technical road map and leadership, OpenStack projects vary in their maturity, speed of development, development community participation and level of customer adoption.

"Although significant efforts have been made to stabilise the most widely adopted OpenStack components, OpenStack as a whole should be considered relatively immature software and new projects continue to be added to the integrated releases," Leong says.

There's also doubt about whether the open source nature of OpenStack truly does away with vendor lock-in.

McIsaac says: "You've heard these stories [about interoperability] from vendors before. 'You take my magic pixie dust, rub it on some other stuff, and now it's good.' And to a degree those claims really are magic pixie dust."

According to the analyst, we're likely to see increasing vendor lock-in as time goes on.

"That was kind of the Unix [promise] as well: open systems and no vendor lock-in. Well, no. The lock-in is less severe in the case of Unix, and even less with the case of Linux. But you go down a Red Hat Linux route, there's a degree of lock-in. There's always lock-in," he says.

Gartner's Leong feels similarly, writing: "OpenStack is open source, but that does not equate to open standards, broad interoperability or freedom from commercial interests.

"Interoperability across OpenStack-based clouds, whether public or private, is currently challenging and, on a practical basis, limits portability between different OpenStack-based clouds as well as the ability to use OpenStack for hybrid cloud solutions. At present, there is no less lock-in for customers adopting OpenStack than for those adopting proprietary CMPs," she writes.

But lock-in isn't necessarily a bad thing, according to McIsaac.

"You don't want to avoid lock-in. What you actually want is to strike the right balance between lock-in and value. Because if you're not committed to anything, you probably won't get any value out of anything either. And there's huge value to be had from being locked into the right stuff.

"Microsoft, for example. You can get a lot of value out of the Microsoft stack, and you are firmly locked into it, but if you really exploit the features and the benefits, you can drive enormous value. What's the problem with the lock-in? Well there are problems - contract negotiations, for example - but if you've got such great value out of it, who cares?" he says.

But don't be cavalier - lock-in may be the price for getting value, but that compromise must be made with full awareness of what you're getting out of it.

"You need to be very careful where you do get locked in. There'll always be some layers you get locked in to. Be clear what they are, and be very clear about how you drive value when you're locked in, and how you might get away from it at some other stage," McIsaac says.

Parallels

On top of talking up the maturity of OpenStack, vendors are also employing some interesting rhetoric while plugging their OpenStack-based products. HP CEO Meg Whitman, for one, was widely

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reported as saying in May, "Just as the community spread the adoption of Linux in the enterprise, we believe OpenStack will do the same for the cloud."

IBRS's McIsaac is dubious of the parallels between OpenStack and Linux. OpenStack lacks a leader figure to keep the core of the project together, he says.

Potts, however, believes that customers will be able to dictate how far vendors' offerings stray from vanilla OpenStack, and therefore avoid the fragmentation of Unix.

"I think the customer base will demand that it stays close to trunk, and doesn't become proprietary and closed, because they've been bitten by that before," Potts says.

"Although significant efforts have been made to stabilise the most widely adopted OpenStack components, OpenStack as a whole should be considered relatively immature software."

"Unlike Linux, I don't see the equivalent of a Linus Torvalds, who describes himself as 'a benevolent dictator for life'," McIsaac says. Instead, "Each one of these corporations - like Red Hat and HP - is doing their own thing and they're adding their own flavour to it, and then they're building their own distributions, and then they're trying to commercialise it."

Rather than mirroring Linux, McIsaac believes OpenStack is instead a repeat of the Unix story from the '80s, "where the big vendors all went off and took a great idea - Unix - and then added all the things they thought were necessary, and then made it commercial and proprietary to themselves. So Unix was still Unix, but everybody's flavour was different and moving between them was quite hard.

"Whereas Linux, even though there is a bit of a split - Red Hat versus Debian, for example - that level of split is much, much smaller, because you've got the benevolent dictator for life who controls the core of Linux," McIsaac says. OpenStack is "likely to be more fragmented like Unix, which was standard but was somewhat fragmented in implementation."

Hardball

Some vendors involved in OpenStack are copping flak for their particular approach to making a dollar from the project.

In May this year, in a story called 'Red Hat Plays Hardball on OpenStack Software', the *Wall Street Journal* reported that Red Hat's rivals, partners and customers feared the company was using its dominance of the Linux market to block organisations from using OpenStack products from other vendors.

Specifically, the *WSJ* claimed that Red Hat had chosen not to provide support to its commercial Linux customers if they use rival versions of OpenStack. This denial of support could discourage customers from employing cloud products from other vendors, the line of argument went.

Red Hat reportedly said it would cost too much to support different versions of OpenStack, and that its cloud software needed to be tied tightly to its Linux distribution.

"Red Hat has taken the art form of closed open-source to a new level," the *WSJ* quoted Martin Fink, the GM of HP's cloud business unit. As the *WSJ* notes, HP sells and supports Red Hat's brand of Linux, but competes with Red Hat in the OpenStack market.

The article also outlined Red Hat's relationship with a company called Mirantis. The two companies partnered up, with Red Hat using Mirantis consultants and tools to help its own customers build clouds using its version of OpenStack.

But the *WSJ* said that after Mirantis began selling its own OpenStack software, Red Hat decided to dissolve the services partnership, and the company's senior leadership encouraged at least one large Red Hat reseller not to partner with Mirantis.

"The problem is that … the majority of [Red Hat's] business is based on Red Hat Enterprise Linux, and of course what they've got to do is continue to push Enterprise Linux," says HP's Potts.

So, with OpenStack, Red Hat is "doing a very closed stack, where [host OS, virtualisation and OpenStack distro] are very tightly integrated, and you buy a package. Obviously they don't want to support other Linux, because that's not in their interests."

Not all vendors are following that path, however. Potts naturally mentions HP's own model as a comparison.

Red Hat has gone down a path with "a different business model, and it's a different approach - a fully, tightly integrated stack that doesn't have different layers and options", says Potts. "We've gone for a different approach - we come with a fully integrated stack, but we actually have support for different Linux, and we have support for different hypervisors."

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As the business world transitions to "the third platform"[1], which is built on mobile devices and apps, cloud services, big data analytics and social media, today's businesses face tremendous challenges in keeping up with the rate of new technology, evolving IT consumption practices, cost pressures and 24/7 customer expectations.

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1. http://www.idc.com/research/Predictions13/index.jsp

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Virtualisation brings savings, simplicity and flexibility

Hornsby Shire Council is replacing its traditional Windows XP/SAN environment with an advanced virtual desktop environment based on the Nutanix Virtual Computing Platform and VMware View. This change has become necessary as it prepares not only to meet current IT requirements but also to build a foundation for a more mobile future.

Hornsby Shire, located north of Sydney, is one of the largest councils in the state of New South Wales and is known for having a 'switched-on' community with an active base of IT-savvy residents and council employees.

"The key benefits of virtualising soon became clear - cost savings, simplicity and flexibility," said Craig Munns, information, communications and technology manager at Hornsby Shire Council.

Munns and his ICT team manage the computer network comprising 500 desktops, 100 laptops and 80 printers used by around 750 personnel across 20 sites in the shire. These are deployed in diverse locations from council administration buildings and depots to libraries, childcare centres, sports centres and other community facilities. The council uses a suite of cloud-based business software applications and other specialist applications used by individual council services where necessary such as engineering, mapping and graphic design systems.

The council reconsidered its traditional PC-based, Windows XP environment and legacy SAN in May 2014 as the leases were due to expire in a few months. "This created an opportunity to consider what new solution could not only meet our immediate IT needs but also support our needs over the next 10 years," said Munns. "Our options included moving to a like-for-like environment, using a SAN-based VDI solution, or VDI based on VMware, and an all-in-one appliance offering combined server, memory and storage."

The council chose the Nutanix/VMware solution as it would reduce outgoings by approximately $100,000 per year in IT costs alone, as well as being easier to manage and more flexible. "Being a scale-out system we can buy more capacity as we need it, which fits our budget strategy perfectly," Munns said. "We ran a proof of concept and the solution was quickly embraced by staff. Although the Nutanix technology is next-generation it proved to have the maturity and stability to fit our VMware environment."

The rollout was expected to be completed by June 2014.

One of the key benefits of the Nutanix platform has been the simplicity it has brought to the council's IT environment resulting in lower support costs and faster implementation.

"Having the storage and compute functions in one box, and the single pane management, means we don't have to manage multiple environments," said Munns. "This was particularly important for us given we have a relatively small IT team with many business requirements to satisfy."

In addition to the Nutanix solution and VMware View environment, Hornsby Shire Council's new IT architecture also includes a UniDesk virtual desktop infrastructure (VDI) management solution.

"For the last couple of years we have seen more and more mobile devices being used by staff. They are using both Apple iPads and Android devices … [We are now] able to give everyone instant access to their desktop, no matter what device they are using or whether they are in the office or out in the field," said Munns.

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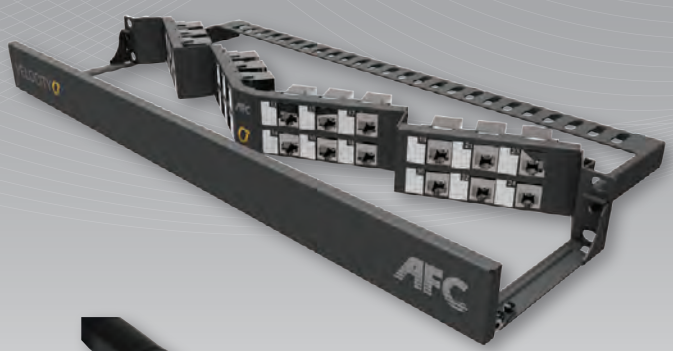

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PEER 2 PEER

Hard questions to ask your data centre

Providing state-of-the-art facilities is one thing, but data centre providers should do more to raise the bar of customer service.

Kris Kumar has served as Digital Realty's Senior Vice President and Regional Head of Asia Pacific since March 2012 and is responsible for overseeing the company's corporate and operational activities in the Asia Pacific region. Prior to this role, he served as Vice President Corporate Development and Regional Head of Asia Pacific from May 2010 to March 2012. He has over 30 years of experience in the IT/data centre infrastructure, real estate and maritime industries.

An increasing number of companies in Australia are outsourcing their technology infrastructure. Outsourcing to data centre providers is growing significantly, with Frost & Sullivan's Australian Data Centre Services Market 2013 report forecasting a market growth of over $1.5 billion by 2019.

To help their clients succeed, data centre providers must monitor the evolving needs of clients closely and continue to innovate. State-of-the-art facilities and service are important, but more needs to be done.

Reduce waste. Many companies still consider technology infrastructure investment as a cost, rather than an asset from which they can profit; however, models such as these are becoming obsolete. Developing a new business case for investments and improving the quality of the end-user experience is something that all companies must do.

One way to do this is to reduce waste. The National Australian Built Environment Rating System energy rating tools provides a valuable benchmark of performance for Australian data centre providers to ensure they are committed to being energy efficient.

However, energy efficiency is only one aspect of this. When it comes to data centres, this fundamental change in outlook must span design, construction and operations. It should even address how we build awareness of - and say 'no' to - practices that promote waste: by cutting down on water or electricity use and becoming more efficient in tapping human resources and processes.

Hard questions need to be asked. Do 50 people run your data centre instead of five? Are they over-maintaining it? How can this be managed to decrease waste?

Improve transparency. Increased operational transparency should also be a focus. Clients should be aware of exactly what they are paying for, such as what each component of the service costs and how much usage there has been per billing cycle. While there is a measure of transparency today, different data centre providers may report usage and bill for services differently.

Establish industry-wide benchmarks. Benchmarks can go a long way towards setting the right expectations. While many data centre providers do maintain historical benchmarks, adopting industry-wide benchmarks will set clear guidelines about the relative quality of data centre solutions, allowing clients to make truly informed decisions.

Regulatory compliance. Change can only be effectively conceptualised and implemented in collaboration with other players in the data centre ecosystem, including governments. For example, in 2013, industry-specific regulatory changes began to emerge in the Asia Pacific for technology outsourcing that data centre providers must adhere to, covering the financial services, healthcare, oil and gas, pharmaceuticals and biotech sectors.

Data centre providers must offer creative business models that increase their clients' return on investment. Only in this way can they remain relevant to their customers.

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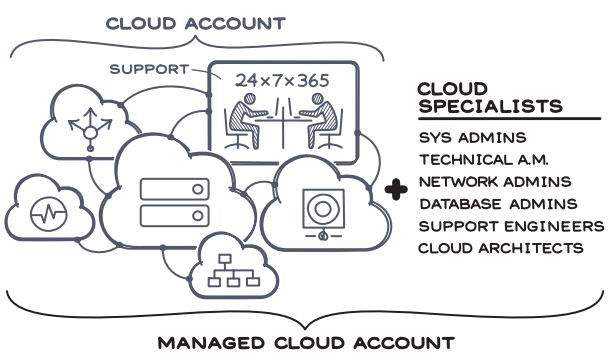

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TECHNICALLY SPEAKING

People, processes and technology: the perfect combination

Max McLaren, Regional Vice President and General Manager Australia and New Zealand, Red Hat Asia Pacific

Organisations that begin a journey towards adopting cloud must begin with a clear understanding of the destination, or be left with disappointing results.

From being a buzzword, cloud computing has transitioned to become a critical and strategic component for businesses across all sectors in today's digitally connected world. The challenge now for IT decision-makers is to sort through the proliferation of information to find that which is most relevant, which in turn will help them make the right choices. They need to focus on a holistic view of all aspects within the organisation, going beyond just IT and including people, process and technology. By doing this, decision-makers can effectively define and build a complete cloud implementation (whether private, public or hybrid) that can lead to a total business transformation marked by expedited product delivery and reduced IT costs.

Making the right move

Just as in the wider IT world in general, cloud implementations are increasingly moving towards a more hybrid infrastructure. Furthermore, spanning heterogeneous infrastructures, supporting multivendor environments and bridging existing business workflows to this hybrid cloud world requires open approaches such as open source - just as leading public clouds have done. But within this broad open and hybrid framework, there's also a need to take into account the specific needs of each individual business.

Using a cloud methodology that addresses unique business needs, aligns with regulatory constraints and optimises for individual performance, cost and risk requirements will allow for improved speed-to-market, near-limitless scalability, cost savings, increased accessibility and reduced operating risks.

With the flexibility, efficiency and scalability offered by cloud technologies also comes the challenge of building out an implementation that maximises the business's potential. Organisations must carefully examine their businesses to determine where and what type of cloud will be the most appropriate given their existing IT deployments, and based on workload-specific requirements around cost, risk and performance.

Finding the right balance

Transforming the current enterprise IT model to a hybrid cloud model is not as simple as just completing a technology transformation. Treating it as such will make the transformation that much harder and the benefits even harder to realise. To uncover the right approach and reap the intended benefits - no matter what the size or goals of the organisation - it becomes critical to ensure businesses find the right balance of people, process and technology.

People. Given the rapidly changing technology landscape and the necessity to use that technology to drive business value, most businesses face a quandary when it comes to internal business and IT staff. One such issue is that many valued but veteran employees don't always have the knowledge of new business process methodologies, or of newer architecture, design and implementation skills as they relate to the cloud.

The problem can be addressed through a compelling solution by engaging with customers with deliverables-based engagements. These engagements allow projects within newer business models and technologies to be implemented, while simultaneously using a proven, hands-on mentoring process to foster the development of internal staff. This will enable customers' staff to be operationally ready to work with the new cloud infrastructures built.

Process. At the core of most enterprise IT organisations is a rigid, process-laden approach to platform delivery, which can exacerbate any enterprise architecture difficulties. With the introduction of cloud, which can greatly simplify an infrastructure, organisations must lay the foundation for proper governance and processes, or else the web of infrastructure will become even more complex and unmanageable.

To meet customer demands, a more agile, collaborative and iterative process for systems management is necessary. However, many organisations employ a classic waterfall model to systems procurement, a methodology that has consistently been shown to be extremely inflexible to meet changing business needs and which can often lead to delays in product delivery. While stringent processes may be required, especially in regard to security, using a cloud model to automate platform delivery can greatly enhance an organisation's capabilities to deliver both faster and more consistently. By focusing on optimising process early in a cloud implementation, an organisation can ensure that its cloud maximises the organisation's potential.

Technology. There are many technology options when it comes to a cloud implementation. The right solution will be dependent on the organisation's goals and challenges. Ideally, organisations must use secure, open source products to build their cloud solution. Additionally, specific technologies allow those organisations to manage a variety of hybrid cloud infrastructures. This in turn enables them to quickly mobilise and scale up across multiple cloud deployments as their business needs increase.

Shaping your cloud strategy

Moving to the cloud involves embracing new technologies, new service and deployment models, and substantially new IT skill sets and processes.

Organisations that begin a journey towards adopting cloud, without a clear understanding of the destination, are typically left with disappointing results.

Therefore, one needs to take into consideration various factors while defining a clear cloud strategy. This includes the expected impact of cloud on the business, identifying applications that could be moved to cloud, how to maintain security and policy compliance in the cloud, and choosing the best-suited cloud deployment model.

@work

A safe and secure digital environment

As one of Australia's most progressive and creative K-12 educational institutions, St Michael's Grammar School (founded in 1895) sits at the leading edge when it comes to implementing technology for its staff and students. Not only does it offer easy access to applications and the internet through its computer laboratories and workstations, it also has a fast wireless network covering the school grounds.

The infrastructure allows its 1300 junior and senior students and 300 full-time staff to comprehensively access its IT resources and to collaborate on projects and instructional materials. However, with children as young as seven in its care, St Michael's takes no chances when it comes to safety and security, especially online security.

"It is critical for us to ensure that our students, especially the younger ones under our charge, are adequately protected against various forms of inappropriate content lurking in cyberspace," said Jai Ross, manager of St Michael's ICT department.

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While its old firewall seemed to be doing an acceptable job protecting the school's network, it was determined that a broad-based appliance preventing generic categories of content was insufficient to meet the school's needs.

"Catering to such a wide range of age groups and academic levels, it is important for the school to have the flexibility to manage what it deems to be appropriate content for different levels," said Ross. "We needed a strong but fine filter to be able to quickly sift through content without affecting performance."

After considering many options, St Michael's settled on Barracuda Networks' Web Filter 610. As an integrated content filtering, application blocking and malware protection appliance, it suited St Michael's needs perfectly.

"We could immediately enforce internet usage policies by blocking access to websites and internet applications that are not applicable to the school, as well as eliminating the entry of spyware and other forms of malware," said Ross.

"One of the great features the Web Filter 610 has provided is that even inappropriate ads are blocked on safe websites," he added. "Unfortunately, a lot of websites hosting valuable content do sometimes have unsafe content on them as well, but with the 610 we don't have to be so discriminating."

In addition, the filter also gave St Michael's the flexibility needed to enhance the productivity of its users. The device integrates with Microsoft's Active Directory to provide real-time access to the different users and groups managed by the directory server with different policies applied to each.

From an IT administration standpoint, St Michael's also found Web Filter 610 to be highly effective. "It is surprisingly easy to manage and allowed us to produce highly customisable reports," noted Ross. "It is also very reliable and we've never had any unplanned downtime."

The scalability and power of the Web Filter 610 also meant that the school needed to install only one system to manage all its users, saving time and money. Most importantly, it serves its primary role well. "The primary reason was to protect our students from the unsafe content out there," said Ross. "It has helped keep our students safe on the web."

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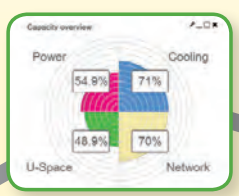

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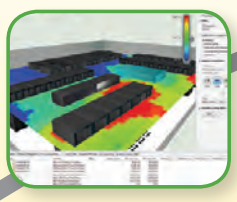

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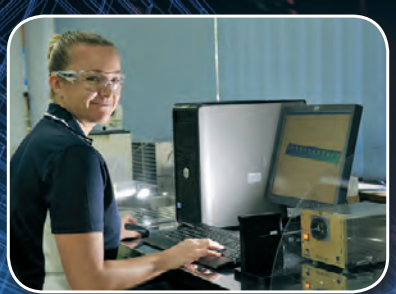

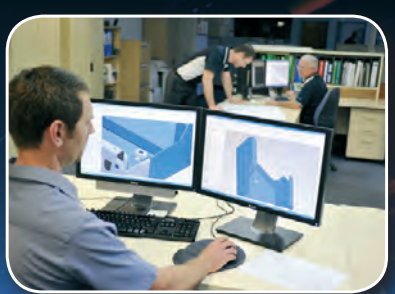

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FROM THE FRONTLINE

Does your desktop have a desktop?

Jonathan Nally

Analysts have been predicting the death of the desktop PC for many years, but what do IT managers on the frontline think? Will tablets take over, or is there still a place for the beige box?

We've all read the headlines. Sales of traditional desktop PCs are dropping like lead balloons and our offices are transforming into hip young places full of bean bags, basketball hoops and tablet computers everywhere.

While the sales figures can't be denied, when you speak with those who make decisions about IT infrastructure for their companies, the story isn't as clear-cut. For while the desktop does seem to be on the way out for many users, for others it still has a firm hold.

Mark Naidoo is IT infrastructure manager for public transport company Transdev Australasia. He's one of the ones who views desktops in decline. "At Transdev, we are currently replacing desktops with thin clients connected to a Citrix XenApp Desktop environment. Thin clients are cheaper, easier to manage and much less of a security risk compared to traditional desktops and laptops," he says.

"We do not expect to replace desktops and laptops for all our users, as there will always be applications and situations where the XenApp environment does not suit," adds Naidoo. "We will still need to deploy some laptops and desktops for these situations but these are minimal. "With our next rollout in mind, we are also investigating replacing thin clients and some laptops with dockable tablets," says Naidoo. "Tablets should be able to fill the thin client function but also give all our users the added flexibility of being able to take a tablet into meetings or attach a keyboard and use them like a laptop.

"As with thin client, we do not expect tablets to replace all our devices. Tablets by themselves are perfect for consuming data; however, in order to create something substantial, you can't beat a keyboard.

"Whichever direction we choose, I believe we are seeing the death of desktops."

Power users

Sydney-based firm Hostworks is a provider to the online and digital media industries. Greg Koen, general manager, product factory (infrastructure), sees a place for certain desktops still. "Tablets certainly threaten the low- to mid-spec desktop, but not the power user's workstation - well, not yet, anyway," he says.

"In my previous life in the finance industry, traders needed the power of workstations with typically four screens attached," Koen adds. "Complex apps need lots of compute power and plenty of pixels; tablets aren't able to do that. Perhaps a tablet's form factor means that they never will.

"Multiheaded displays make it easier to monitor many systems and specific metrics while you still have your email and IM clients running - that's a big part of our life, which tablets won't be able to replace for us."

Cloud and managed service provider The Cavalry, also based in Sydney, is right at the cutting edge of technology due simply to the nature of its business. Peter Low, one the company's directors, is another who doesn't see every desktop PC vanishing anytime soon.

"The answer for us is no - you'll always need high-powered users, and rather than cannibalisation [of the desktop market] we've seen multiple devices per person. Whereas before someone might have had a computer or laptop, who now doesn't have a smartphone and a tablet in addition to a desktop or a laptop?" he says.

This raises the associated issue of BYOD (see From the Frontline, Technology Decisions, April/May 2014). "You're seeing a lot more devices needing management than before," says Low. "And also the expectations of how people relate to technology are far less tolerant than they used to be. When they connect up to their cloud and their software they expect it to work.

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OUR PANEL

David Arkles, GM, Enterprise Solutions (ANZ), Motorola Solutions

Peter Low, Director, The Cavalry

Greg Koen, GM, Product Factory (Infrastructure), Hostworks

Mark Naidoo, IT Infrastructure Manager, Transdev Australasia

"With the BYOD pitch, a lot of the work functions that are being provided today to workers isn't across company supplied devices," adds Low. "We've seen it in our own company. We offer our staff technology, but people come in and they're an avid Apple supporter and they love their iPad and they want to use it. They actually refuse … they say, 'Thanks a lot for supplying computer X, but I'd rather use my own.'

"On the desktop issue … At the moment we deploy laptops to our team. We haven't seen a suitable device to replace a laptop with a tablet for the way we work."

David Arkles is Motorola Solutions Australia's general manager for enterprise solutions in Australia and New Zealand. As you might expect from a company that is a world leader in enterprise-grade

mobile computing, the Motorola offices are places for innovation when it comes to workplace devices.

"We do embrace technology [and we] certainly encourage people to," says Arkles. "My iPad for example is my own, it's not a business one; but I don't have any issues having it in the network - as long as we operate according to the very strictly controlled security standards to ensure that our overall network is protected. But in terms of tools to make your business and yourself more productive, we embrace those."

But tablets and other mobile devices aren't for everybody. Arkles cites the example of a major multinational corporation which, nine months ago, decided to move to issue its workers with consumer-grade mobile devices, partly because of staff desire. It hasn't gone well. "They put a stop to it in the last month, and they're now engaged with us around putting enterprise-grade Android smartphone devices in," says Arkles.

So overall, it is a case of horses for courses. While tablets and smartphones have their place at present, and will carve out an ever-larger chunk of the desktop market as the years progress, the humble PC perched on your office desk will still be around for a while yet.

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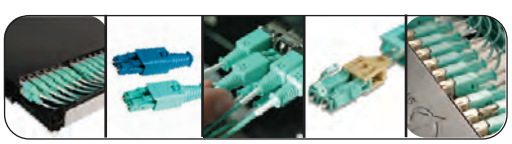

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IT budget cuts put Australia behind competitors

In its annual global survey of CIOs, Gartner Executive Programs found Australian IT leaders face significant challenges compared to their global counterparts.

The survey found that, while Australian businesses expect IT to support growth, many were cutting IT budgets and falling behind the rest of the world in digitalisation, raising the prospect of a digital leadership vacuum.

Australian organisations have fewer chief digital officers (1.8% compared to an average of 6.6% globally), outsource less and consume fewer public cloud services than worldwide averages.

With IT budgets shrinking by 0.1% (compared to global growth of 0.2%), Australian IT leaders have less money to fund growth. A closer look at IT spending shows 26% of IT spending will be outside of the IT budget. This could raise integration issues in the short term and governance issues in the long term.

"If Australian IT leaders are to 'tame the digital dragon', they need to address three top priorities: developing digital leadership, renovating the core of IT, and building bimodal capability," said Gartner vice president Andy Rowsell-Jones.

A digital leadership vacuum

According to the Gartner report, most businesses have established IT leadership, strategy and governance, but have a vacuum when it comes to digital leadership. To exploit digital opportunities and ensure the core of IT services are ready, there must be clear digital leadership, strategy and governance.

Gartner recommends that all business executives need to become digitally savvy. Yet in Australia, less than 2% of businesses have appointed a chief digital officer, compared to 6.6% globally.

When it comes to using the cloud, survey data shows that one-fifth of Australian businesses and governments have made significant investments in public cloud, placing them slightly behind their global peers.

The other striking difference between Australian IT leaders and their peers is the type of cloud services being purchased. Only 43% of Australian businesses have invested in SaaS, compared to a staggering 72% globally. This could lead to Australian businesses missing out on the flexibility benefits of SaaS, which offer turnkey solutions to IT service needs.

IS HP'S HELION PORTFOLIO THE MISSING LINK IN CLOUD EVOLUTION?

Technology powerhouse Hewlett-Packard has revealed their plans for the ground-breaking Helion portfolio with the announcement of $US1bn investment in Cloud Computing. Since HP opened its doors in 1939, the company has been committed to open standards and interoperability. Their stewardship of the IEEE-488 (GP-IB and HP-IB) interface is a good example of this. HP's patronage of the OpenDaylight Foundation's open networking initiative has helped drive the Software-Defined Networking market and their commitment to OpenStack for the Cloud demonstrates HP's support for open source applications.

If we could start again and build Cloud computing from the ground up, what would we change to deliver a better solution? What would a new Cloud environment look like? Let's imagine we could build the new structure and framework and call it Cloud 2.0. What would our core design goals be?

Let's put the critical design goals of Cloud 2.0 in the spotlight

- It's open and interoperable
- It's adaptable and easily managed
- It's secure and provides easy access to your digital assets without performance barriers
- Service provisioning and capacity management are easily accomplished

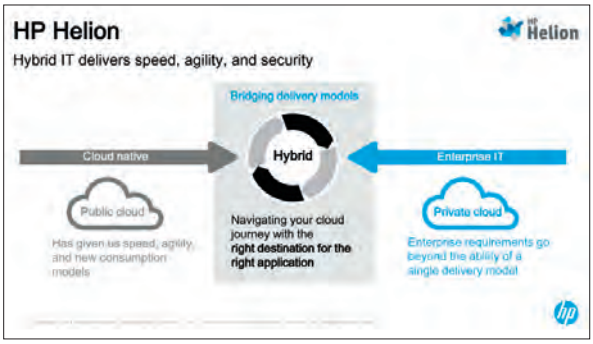
Let's examine the business drivers that could lead to creating a unified cloud ecosystem that offered users a vast array of choices while reducing change-based risk.

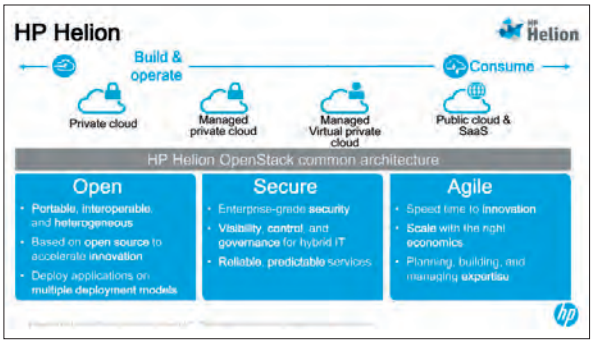
Open Standards would drive development of the new Cloud 2.0

Cloud 2.0 would be built on industry-ratified standards that ensure all systems were transparent and interoperable. This would enable comparative testing and benchmarking, permitting clients to select the vendor or solution that best fulfils their business need. Ideally there would be an independent authority providing oversight who is able to set uniform service levels that comply with accredited standards. Typical examples would include locating data in seismically stable environments or highly secure military zones. Because the framework is built on open standards, embedded systems and dedicated appliances could be built with plug-and-play functionality coded into networking and authentication protocols. Unlike current architecture and topology, the new operating environment would support legacy applications and operating systems by providing easily customisable "hooks" built into application interfaces. This would guarantee that integration between the hardware and software was seamless.

Reduce the high costs of enterprise technology ownership by building plug-and-play protocols

Legacy applications are often retained because migration costs are exorbitant and capital expenditure is difficult to justify. Cloud 2.0 would provide uniform middleware that could plug into legacy systems and leverage the enormous





strides made in advanced virtualisation technology. A subscription model to fund the start-up could be used to kick-start the initiative with major contributions coming from vendors who stand to gain from making the project viable. The minimum functionality required would be to provide seamless migration of physical or virtual applications to and from the cloud, on-demand. Users could migrate end-of-month processing to the Cloud and produce reports in minutes. The process of "out-processing" would be easily configured by end users with the activation of Cloud computing as simple as selecting a printer and hitting the enter key! This general concept could be extended to mirroring and real-time replication with the connectivity protocols and security authentication embedded in the software. It's feasible that autonomous functions could kick-in to load-balance computing tasks, depending on the level of resources required.

Cloud Neutrality and independent indemnity that reduces risk

There are numerous Cloud frameworks that claim to be "open", "adaptable" and "secure". CIOs must weigh up their existing investment in physical and virtual technology against the risk of change that Cloud migration poses. Cloud vendors claim that they already meet the provisions required for elastic demand or "bursts" of instantaneous compute power. What customers need is a comfort zone that enables them to select a Cloud partner who is an accredited member of a Cloud association. Stakeholders would be required to contribute financially to insure and indemnify themselves against data loss. Underpinning the structure would be trust mechanisms that are open and independently audited. Professional indemnity that funds policyholder remediation against unforseen events would certainly find favour with customers.

Independently audited Service Level Agreements (SLAs)

One of the issues that causes much angst amongst Cloud customers is the inconsistency between vendor SLAs. The industry lacks independent auditing and monitoring of performance and compliance. In Cloud 2.0 a better approach would be to set minimum performance standards and price these services accordingly. Classifying the value of your data and the guaranteed minimum seek time required would be a useful first step. High performance computing would be allocated to solid state disk arrays while low value archives could be stored on tape libraries. At its most base level, the product selected by a customer would be based on the grade of service required. Independent value-added specialists could monitor performance metrics to ensure compliance with SLAs.

What is HP Helion?

- HP Helion is a portfolio of cloud products and services that simplify how organisations build, manage and consume information in their IT environment.
- Helion combines the agility of cloud computing, the innovation of open source, and the security and reliability that organisations demand.
- The vision for HP Helion is to become the flexible data fabric of an organisation and an integral part of their business operations.

Good strategy is guided by a clear vision for the future

Hewlett Packard's clarity of vision could reinvigorate the Cloud market and cement the company's market leadership. Gartner's recent magic quadrant shows that HP now occupies the number two spot in global networking and their storage and converged infrastructure products continue to garner customer accolades. HP's Helion has the potential to unify customers and change the way business deploys Cloud solutions well into the future.

HP Helion

Find out more about HP's Helion cloud at: www.hp.com/go/cloud

TECHNICALLY SPEAKING

Are zombie machines coming to get you?

Charles Clarke, Technical Director for APAC, Veeam Software

The ancient human instinct not to throw away anything useful is leading to VM sprawl - the rise of zombie virtual machines that refuse to die.

There is no such thing as an IT department with too much money. That's always been true, but budgets right now are universally tight. For many organisations I deal with, the question is not which 'nice-to-have' optimisation to leave off the list this year, but which essential project to delay.

This is not the only thing driving more and more organisations to virtualise their IT environments - there are many other factors like speed, reliability and flexibility - but making the best possible use of scarce resources is a big factor.

According to IDC, Australian companies that virtualise their servers and physical infrastructure can save $6 billion in costs between now and 2020. In addition, 6.4 million tonnes of CO_2 could be avoided from 2003 to 2020 as a result of virtualisation.

The savings of virtualisation come from the fact that the more virtual servers you can run on a single physical machine, the more energy you will save and the less often you will have to buy new hardware. In most organisations, the business case for virtualisation is built on the assumption of a 'consolidation ratio' of between 10 and 20 to one - in other words, that every physical machine will host 10-20 virtual machines (VMs).

Once virtualisation has been implemented, though, users quickly notice many other

advantages. One of the key benefits is the sheer convenience of creating new virtual machines. Instead of going through a lengthy procurement process to buy a new server, a development or project team can commission as many new VMs as they need in minutes.

This is great - but if you don't do your housekeeping properly, the proliferation of VMs can slow your environment to a crawl and fatally undermine the business case for going the virtual route in the first place. It's such a common problem it even has a name: VM sprawl.

Undead virtual machines

Part of the reason VM sprawl happens is the ancient human instinct not to throw away anything useful, 'just in case'. So even though the project is wrapped up - all the files are archived and there are full backups of all the VMs that can be restored at a moment's notice - people still hesitate to delete the VMs themselves. Often the machine is unregistered so it's easy to forget about, but it's still there in a kind of undead zombie state.

Superficially it seems less risky to let your old VMs hang around in case you need them one day - after all, hardly anybody ever gets in trouble for NOT deleting something. But in reality, it's VM sprawl that poses the real risks.

The first risk is the one that really kills your business case: every zombie VM is still using up valuable system resources, especially expensive storage. Let's say it's been allocated 500 Gb of data - even if that storage space is empty, it still can't be used because it's reserved for that VM. It's like putting a traffic cone in an empty parking space - it instantly turns free space into wasted space.

Combine zombie VMs with other junk data like old ISO files and defunct system snapshots and you can push an entire storage array to breaking point surprisingly quickly. The larger the organisation, the more people there are contributing to the sprawl and the faster trouble will happen, no matter how well resourced you are.

There's also a compliance risk: how many operating system licences do you have? Every zombie VM is using up one of them. When the vendor comes to do an audit and finds you over the limit, "Whoops, we seem to have overlooked that one" is not going to be a good enough excuse.

Keeping a clean machine

Business processes that prevent wanton creation of new VMs are one way to solve the problem - but a process that overcomplicates things also undermines the flexibility benefits of virtualisation in the first place.

You also need to implement thin provisioning, particularly for SAN storage space, which is notoriously expensive. Thin provisioning means you can configure your VM with all the storage you think is required - but actual storage space will only be released when it's needed, up to the maximum you have configured for. With this you can ensure the most efficient use of your entire available storage pool.

Another solution is to be rigorous about clearing out old and unused files - but to do that, you first need to find them. This is not a job that can be done manually - it needs specialised tools that can not only identify junk files but also enable you to delete them safely.

Another problem that undermines the business case for virtualising is misallocation and over-allocation of system resources.

The easiest way to create a new VM is to do it from a template - every new machine gets, say, two CPUs, 8 Gb of RAM and 100 Gb of storage space. That's a good, average spec - but unfortunately, not every VM has average needs. Some will need more resources and some will need much less - and it's very seldom possible to know in advance which is which.

You need expert systems

Assigning too many resources is wasteful and inefficient - it needlessly ties up resources you could be using somewhere else. But assigning too few resources hurts performance.

Finding the right balance between efficiency and performance needs the right tools - by which I mean tools specifically designed for managing virtual environments.

Virtualisation works because it allows us to overcommit resources, knowing that

most processes don't need as much as they are allocated. It's like the way airlines overbook flights, knowing that there's a fairly predictable proportion of people who won't turn up. Because of this, and the multiple layers of abstraction created in the process of virtualising, it is almost impossible to understand the true resource usage of any VM using the same tools and approaches we use in physical environments.

You need the right monitoring and reporting tools to ensure that virtual overcommitment doesn't become real. These tools will also allow you to manage your VMs dynamically, allocating and taking away resources according to their needs.

Because the rules of virtual environments are so different, it's important to choose monitoring tools that give recommendations, not just reports. What you need is not just one more report, but an expert system that contains a lot of the specialist knowledge any organisation running a virtual environment needs.

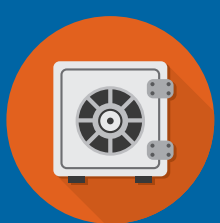
You also need a system that can identify problems affecting specific servers, departments or applications. Throwing more RAM at a slow machine, for example, isn't always the right solution. What if the real problem is disk related, or an application with a memory leak? Monitoring tools need to supply that information - in the specific context of a virtualised environment with overcommitted resources.

Human decision-making is always paramount, of course, because humans know things about context and the future that machines can't. If the monitoring tool notices that between January and June a particular server was underutilised, it may recommend switching resources away from that machine. The human who knows that the company's financial year-end is coming up in July will also know not to implement that particular recommendation.

Between an IT manager's knowledge of the business context, and a good monitoring tool's knowledge of the virtual environment, it is possible to run a virtualised IT shop that delivers both better performance and lower cost, meeting the ROI targets set by the business.

There is no doubt that organisations will increasingly continue to virtualise their IT infrastructure. Traditional IT policies, legacy management and reporting tools are fast becoming inefficient in meeting the demands of an environment delivering increased performance, scale and availability. A rethink of IT management to meet these demands and ensure you reap the most from your virtualised infrastructure is a no-brainer. This will eliminate the potential pitfalls that could seriously undermine the business case for virtualising.

Gartner Summits



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Cloud and database services provide the right fit

Founded in 2005, MapMyFitness is a leader in connected fitness, offering GPS-based tracking apps that have topped both Android and iOS stores' fitness categories since their inception. The company has steadily grown and now boasts more than 22 million registered users.

To address seasonal demand, scale strategically and maintain its rapid growth, MapMyFitness uses a variety of Rackspace services - including dedicated and cloud servers, RackConnect and MongoDB management services from ObjectRocket.

"What initially drew us to Rackspace were cost and reliability," says Jesse Demmel, vice president, engineering at MapMyFitness, "as well as the ability to get the benefits and performance of a dedicated environment without any of the hassle of managing it.

"As we've grown, one thing that has kept us at Rackspace is the cloud, and the RackConnect to the dedicated side, which gets us really low latency from cloud to dedicated," says Demmel.

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MapMyFitness's customer base has at least doubled every year since it began. In addition to this consistent growth, data volume fluctuates in a predictable pattern each year.

Demmel explains, "Every year we are growing at a rate of 2.5x in terms of the data that we have to support. Our traffic is very cyclical: summer is our peak, and it starts trickling down during the autumn until it gets to holidays and picks back up with New Year's resolutions. We're at least doubling page views and mobile sessions year over year on top of increased user engagement."

To address the steady growth and fluctuation, DevOps has been a crucial component of MapMyFitness's strategy. "We make heavy use of Puppet to fully automate our environment, and we practise continuous deployment, deploying to production daily for the web and as often as we can for mobile," Demmel says. "We integrate tightly with development, embedding DevOps personnel with our development team as they're building features to ensure that we can handle the performance and that we're building out the infrastructure appropriately at the right time."

Demmel sees the addition of Performance Cloud Servers as an exciting step that will further enable the company's journey towards total automation.

"We're getting 5x better performance out of the Performance Cloud than the previous generation of the cloud," Demmel says. Yet despite this success, they still find dedicated to be the best solution for their database needs. "We've wanted to keep the databases on dedicated hardware due to the need for high IOPS," Demmel explains. "In recent years, it's been shown that high IOPS for databases is possible in the cloud as well, but the cost and reliability of dedicated hardware is still much better than the cloud."

While MapMyFitness's MySQL databases average more than 9000 queries per second (spiking at twice that volume), the company looks to MongoDB as a solution that will allow it to grow cost effectively.

"What led us to Mongo was that classic relational databases scale vertically, and aren't cheap to do right," Demmel says. "It was a cost choice. You look at the company and how fast it's going to grow and where we're going to be in five years, 10 years, and a vertically scalable solution like MySQL was pretty cost-prohibitive."

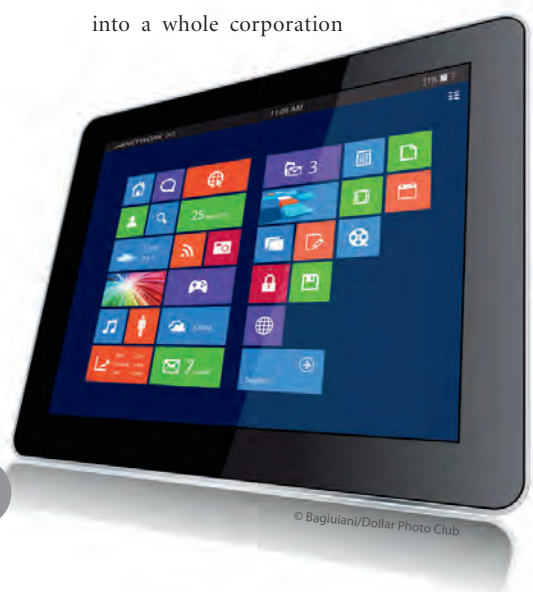
ANALYSE THIS

Will Microsoft survive
the next decade?

It seems there are now two Microsofts. The first, as it is characterised in the technology industry and related media commentary, frequently misses opportunities - it ships outmoded, overpriced products to a market that doesn't want them anymore. It has not innovated and is usually outsmarted by its rivals.

The second Microsoft - the one known in the financial sector - has strong fundamentals, good products, very strong revenues and has worked through management challenges and is looking forward to a good future. The sentiment amongst financial observers is bullish on the stock, and the company is a strong buy recommendation.

These two Microsofts can't be the same. The reason there are two versions of the corporation is that it depends on the perspective and the reading that is given to particular items of data, whether that is sales shipments or revenues. In turn, how that individual information is transformed into a whole corporation narrative colours interpretation. For example, the primacy of the desktop - upon which Microsoft's current business hinges - has waned, but the finances of the corporation do not directly reflect despair or a trend to very negative terms of business directly correlated to falls in PC sales. Interpretation of Microsoft rests on relative magnitude and degrees, not absolutes.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The technology industry picks on specific Microsoft products, which have been either late to market or poorly performing. In general terms, the technology industry tends to extend a negative product instance into a whole-of-corporation failure - which makes for dramatic, though not very accurate, commentary.

The financial industry, on the other hand, interprets Microsoft through the numbers alone. The return on equity, earnings per share, and operating revenues, for instance, are base guides for performance and market competitiveness, and they are very strong across the main measures. The financial analysis is valid and fully qualified but the technology perspective points to weaknesses that Microsoft has to fix. (There is insufficient space here to offer the alternative view that the focus on quarterly returns and earnings per share is the reason product innovation and other core business strategies have not performed well; that, in other words, the business is too financially motivated.)

A more durable future?

The dichotomy in perceptions over Microsoft matters for customers. An accurate version of the company is important because an unflattering depiction of its situation may influence strategic decisions on the implementation of products and services. In this sense, Microsoft is a strategic partner with many organisations that use the vendor's products. Just as in any risk analysis, the vitality, innovation and competitiveness of a major supplier are factors that affect long-term arrangements with a vendor.

If the technology industry views are to be believed, Microsoft may not exist within a five-year period. The financial analysis, however, tends to support a more durable and vital future for the company. If the latter perspective is correct, organisations can be confident on the outlook for many years ahead. Microsoft's record revenue for the December 2013 quarter showed that its Surface and cloud offerings were attractive.

Unlike other vendors that have collapsed rapidly, Microsoft is large and extensive and - due to its scale - has unusual capabilities that can help it withstand steep competitive erosion through, for example, legal devices, or through market strategies such as pricing. It has billions in cash that can be used to buy companies and enhance its products. The marketing cloud addition to its CRM suite, Dynamics, which will be phased in over 2014, is one such example.

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An ongoing theme in the technology industry's perspective of Microsoft is based on direct technology performance, the value of the products and the experience of many customers. On those three criteria the company has a mixed report card. Relative product performance, value and competitive pricing can be debated endlessly. It is a fact that - even removing the bias that enters such debates of vendor versus vendor - Microsoft must rectify weaknesses in its products portfolio; it must have a clearly articulated evolution for the future and must also be able adapt to changing business environments.

Demise is not imminent

Even with its endemic strengths, Microsoft has one of the most difficult tasks ahead - managing change across its operating markets, the technologies, its financial models and even through to management. Large corporations don't manage change well - not before it becomes apparent to the executive that procrastination is not acceptable to the shareholders. In its last earnings call of October 2013, Microsoft accepted that it was on a path to change. But it has to be better at communicating what it can do because perception is the most elastic element of brand quality.

Microsoft is a complicated organisation to deal with and some customers have decided to end their agreements with it. There are several reasons customers find other suppliers. For some, the cost of using Microsoft's products and services may be marginally higher. As the vendor gradually modifies its business model, customers should try to make the vendor endure any cost disadvantages. Should that action be widespread and have an impact on operating costs, Microsoft may alter practice as a result of customer action. Such a degree of influence is likely to be greater from US customers rather than Australasian.

Organisations can look forward to a continuous working relationship with Microsoft, but need to consider three things: the cost and durability of being locked in with the company on several platforms over a 10-year period; the flexibility and agility that may be realised from other options; and that both courses of action mean accounting for business processes and costs, including opportunity costs.

In conclusion, debate over Microsoft's mixed record of successes and slow innovation during the last decade has incited conjecture as to its long-term durability. As many highly successful vendors have disappeared very quickly, it is reasonable for some to wonder if the same might happen to Microsoft at some point.

But while Microsoft has been 'disrupted' in the sense that it has not adjusted smoothly to new conditions, its demise is not imminent. Yes, the corporation has to fix several parts of its business, which will not be easy, but it is financially sound and growing. Microsoft customers need not fret over its longevity. However, they ought to examine how much they depend on Microsoft and perhaps consider other flexible options over the next five years.

Guy Cranswick is an IBRS advisor who covers Google (Apps and Search), broadband/ NBN, Web 2.0 technology, government and channel strategy, including areas of business productivity. He has worked both in Australia and overseas for many major analysis firms.

Privacy policies must be clear and simple: OAIC

Australian privacy laws changed significantly in April, with the introduction of a set of Australian Privacy Principles (APPs) covering the handling of personal information.


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To kick off Privacy Week, the Office of the Information Commissioner has launched guides to developing a privacy policy that complies to the new standard, as well as to undertaking privacy assessments.

"The OAIC's community attitudes to privacy research shows that 95% of Australians want to know how their information is handled. However, we also know that most people don't read privacy policies because they are too long and complex," McMillan said.

"The challenge for organisations and agencies is to develop privacy policies that allow individuals to make informed decisions about their privacy."

Privacy Commissioner Timothy Pilgrim added that Australians are becoming increasingly concerned about how their private data is being handled.

"Privacy complaints to the OAIC are on the rise with the OAIC having received almost 3000 complaints this financial year. That represents over a 50% increase on the previous year's figure," he said.

"We also know that a majority of Australians (60%) have chosen not to deal with organisations because they were concerned about how their personal information would be handled."

Speaking at the launch, Pilgrim said that companies that proactively notify the OAIC about a data breach will be looked on more favourably than those who don't, IT News reported.

He said ANZ spared itself an investigation into a 2011 incident involving a security hole that potentially exposed customer statements to unauthorised eyes by directly informing Pilgrim about the breach.

"But if an organisation doesn't tell us about a breach and we find out about it through the media, we will have to start an investigation because we don't have the background information that we need," he said.

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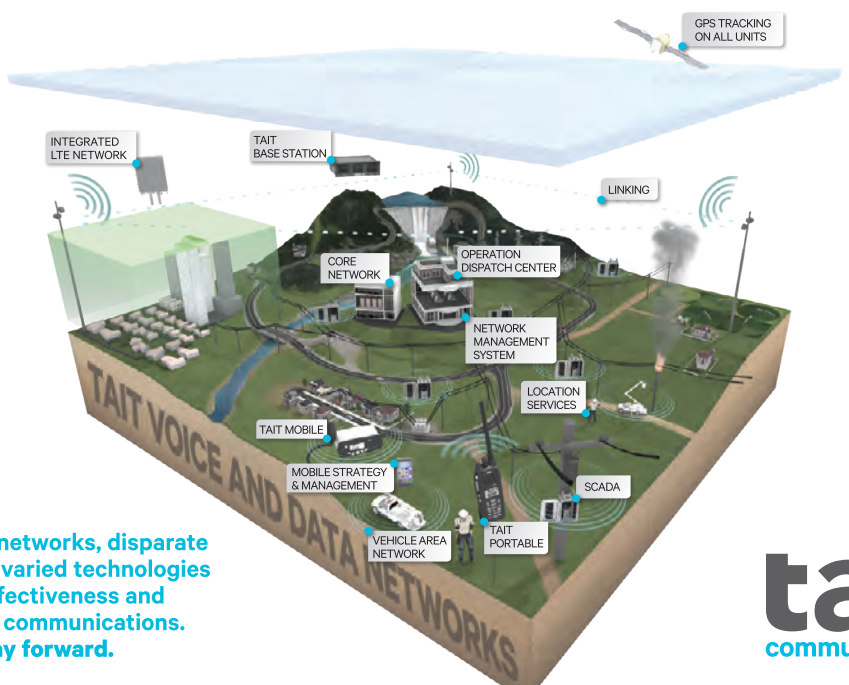

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OFF THE CUFF

Cloud solutions
require a consultative approach

With the growth of IT, smart devices and the Internet of Everything, the systems and the data centre environments that support them are becoming increasingly diverse.

Today, organisations can choose their own 'data centre ecosystem' which may include on-premise data centres, co-location facilities, hosted or managed services, or the endless cloud options available such as private, public, community or hybrid. The trend towards an outsourced model is validated by IDC, which believes cloud services and data centre services will grow by 24% and 14% respectively year-on-year.

For organisations looking for solutions that are mapped to their individual IT applications and business processes, the question is, "How can I best deliver this application to my business?" We call this application-dependent data centre architecture.

Whether the application is email, web services, CRM, ERP, supply chain management or any other business process, organisations should consider each application against criteria such as security, sovereignty, latency, criticality, financial and political to establish the best means to deliver this service.

When weighing up the benefits of integrating different types of data centre architectures, all the risks involved need to be considered. For example, the various IT ecosystems specific to verticals such as finance or telecommunications often need to keep their critical data in a location close to their premises. However, those looking to host offshore also need to evaluate how Australian Privacy Principles could affect their operations.

The different types of 'clouds' available offer their own advantages. With the public cloud, the services provider owns the entire physical infrastructure and software. Businesses purchasing access to these resources are billed only for time, bandwidth and storage used. This model is often integrated when organisations are not constrained by security or data sovereignty concerns.

In comparison, private cloud allows businesses to host resources in a dedicated, virtualised environment. While this addresses the risks associated with multiple users and shared resources, it does require a substantial initial investment and capital expansion as additional capacity is needed, and does not provide for short-term bursts of growth.

To help businesses realise their cloud needs, there is a hybrid solution that uses a secure, private network to connect services and servers or private clouds within the corporate network to more flexible resources within the cloud. This way, the user realises the low-cost adaptability of cloud computing with the security of its own servers, all through a single management interface.

Those who wish to implement cloud services are best served by employing vendors who are focused on consultative solutions over those who simply deal in components. However, organisations should also have a clear-cut plan that assesses their data ecosystems and performance.

Adam Wilkinson has 18 years of experience in the IT industry with leading system integrators, distributors and vendors, including 10 years with the Schneider Electric IT Business (formerly APC) in Australia.

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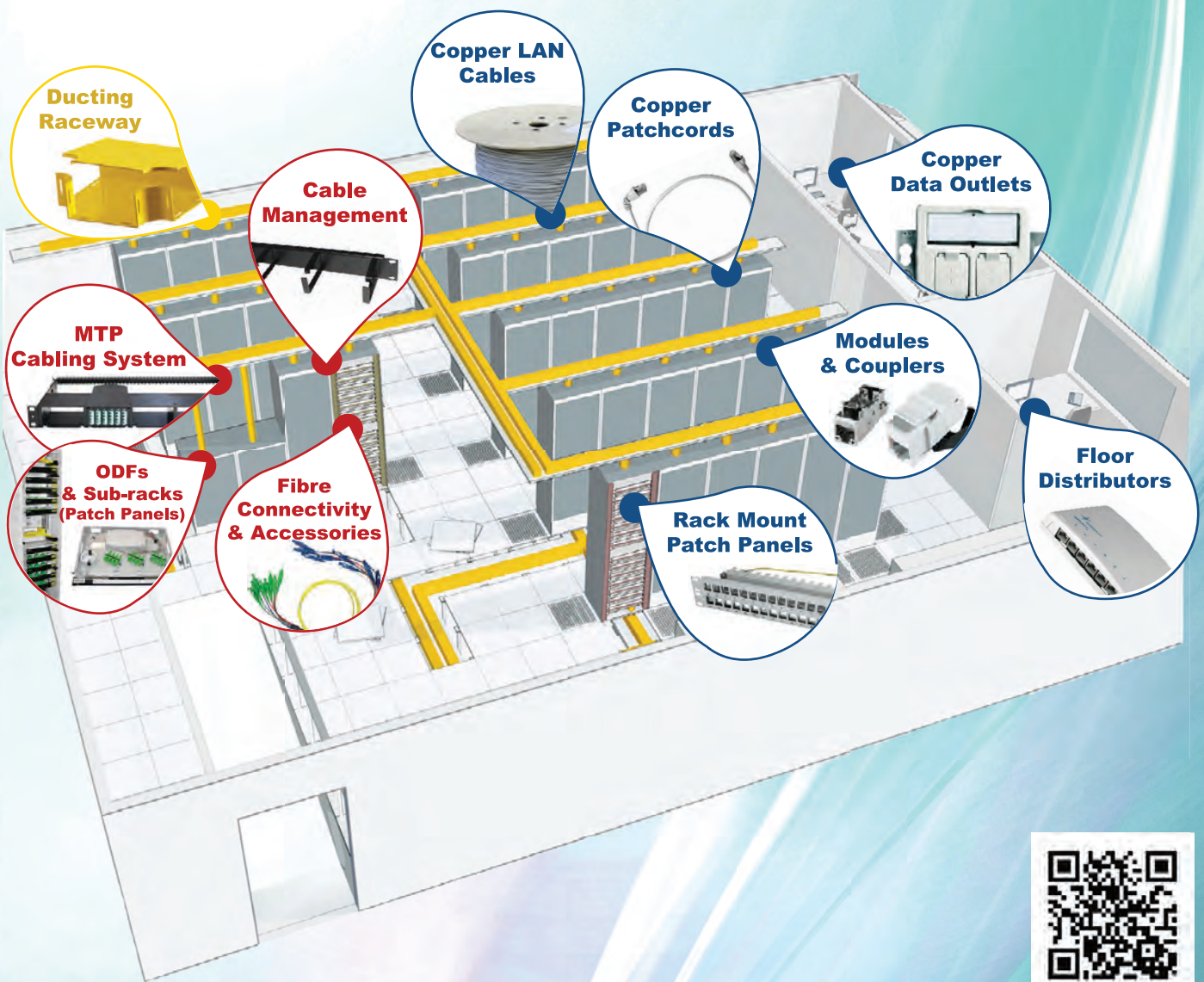

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