"More than half of the 178 IT executives surveyed are hatching plans to upend the status quo and institute a new IT model within three years." *Forrester Research*

Looking at the last 50 years or so of industrial history, you can easily find examples of substantial change to how some things are done.

Manufacturing, for example, used to be labour-intensive with a vertical orientation. Now we live in a world of automation and flexible supply chains. We are still making things, but we do it much more efficiently. Similar examples can be found in power generation, distribution, telecommunications and other industries. The interesting point is that in each case there have been one or more radical changes that have transformed the economics of how we do something.

The same process is now happening in the data centre. The rapidly growing trend of allowing employees to work anywhere and on any device is driven by productivity benefits, and is requiring a new model for how applications and data are delivered to end users. Cloud computing is also changing the economics of the data centre by using new architectures that integrate everything: the network, computing and storage platforms. The result is a shift from the data centre environment as we know it – where over 70% of the IT budget goes towards "keeping the lights on" – to one that enables innovation and agility, and supports a changing workplace environment.

Does your data centre infrastructure allow you to:

- Effectively delivery applications to any device?

- Secure your data in the private and public cloud?

- Rapidly scale to meet changing business demands?

- Automate application and server provisioning?

- Spend most of your IT budget on innovation, and not maintenance?

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Why the need for change?

In a typical company, approximately 80 to 90% of the IT budget is locked in to non-discretionary funding, or "business as usual": running, operating, maintaining, supporting and adding minor enhancements to the existing environment. Conversely, just 10 to 20% is discretionary.

Changing the shift in spending so that 70-80% of the IT budget is on innovation requires fundamental change, and most of this change is in the data centre. Like any IT transformation, not everyone is ready to make this move today, and many organisations will take a staged approach. Whether you are looking at an evolutionary journey or a more rapid transformation as you "cross the chasm", we can help you plan and execute your data centre strategy.

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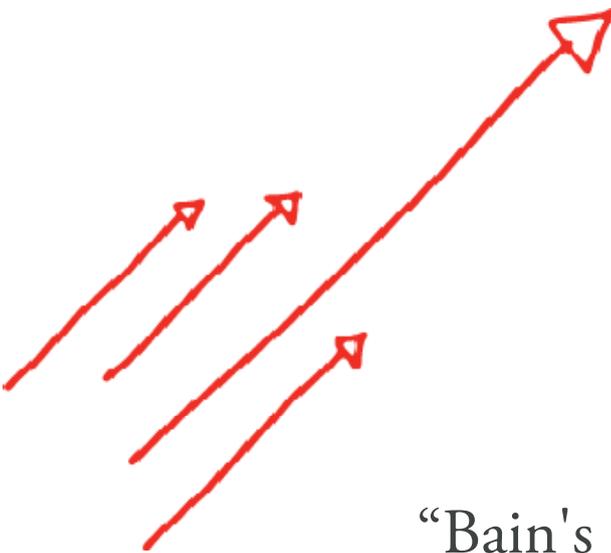
"Bain's IT practice chief, Rudy Puryear, poses a question that every CEO should ask their CIO right now: "*How do we maximise discretionary spending?*"

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"50% of Enterprise Class data centres will be technologically obsolete within 24 months" *Gartner*

Three major factors are driving cost and complexity, which are straining traditional data centre infrastructure.

Data centres are reaching their limits in terms of power, cooling and space.

This is a significant constraint for most companies and – combined with the increasing operational and administrative overhead of managing growing numbers of servers – is driving a real need for change. According to IDC's research and forecast data, the amount of storage shipped to the Australian marketplace will increase by over 240% between 2010 and 2014. By 2020, data objects will grow 67 times, while data will grow 44 times.

The vast majority of IT investment is spent on upgrading various pieces of infrastructure and providing redundancy and recoverability. These activities alone consume approximately 60 to 80% of IT expenditures without necessarily providing greater business value or creating innovation. More importantly, it prevents the IT function from being able to deliver the kind of innovation that meets user needs for better and more agile services.

Organisational pressures are also mounting. Mergers and acquisitions are jamming more technology into tighter spaces. Increasing computational demands create crowded equipment racks. Staggering power and cooling requirements cripple budgets. In general, a high percentage of data centres are reaching the end of their life cycles and becoming increasingly expensive to maintain.

In addition to the risks organisations are taking in terms of interruptions of service and outright failure, they are also missing opportunities to leverage signifi cant technical advances. Much has been written, for example, about the savings in dollars and energy that can be the direct outcome of a comprehensive strategy of server and storage virtualisation and consolidation. But those savings cannot be fully realised unless corresponding changes are implemented in the data centre.

Sizing the "digital universe"

→ Storage shipped in Australia will increase by over 240% between 2010 and 2014 *IDC)*

→ By 2020, data objects will grow 67 times, while data will grow 44 times. (*IDC*)

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Data centre infrastructure complexity is growing much faster than IT budgets.

The challenge faced by IT departments is how to manage an accelerating increase in data (44x), while the rate of IT staffing is projected to increase 1.4 times. Smarter technology and improved operational efficiency will play an important role.

A clear example of the need for better operational efficiency is highlighted when looking at projected growth of server infrastructure spending. While costs of server hardware are flat, the costs of managing an increasing number of servers are increasing significantly.

Users expect to access data and applications from any device, anywhere.

The trend to "Bring Your Own Device" means a greater centralisation of data, but also the need to make applications and the associated data available to users regardless of whether they are on the corporate network, and in a format that works on any end device. It also places pressure on IT Departments figure out a way to manage security and compliance obligations across multiple many-to-many relationships. Organisations are also looking at more flexible business models, such as partnering with like-minded companies or better supply chain integration – again, this means the network is becoming more permeable and the complexity of how to secure data more complex.

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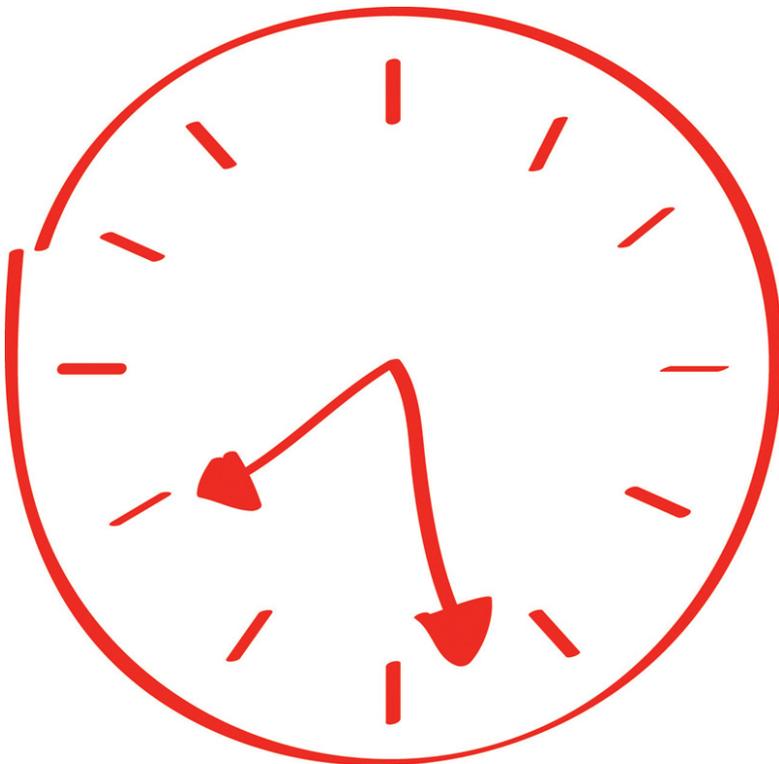
A Cloudy Future…

"Most Australian organisations, even if not pursuing a deliberate cloud strategy, are experiencing a shift of some computing to the cloud by default." *KPMG*

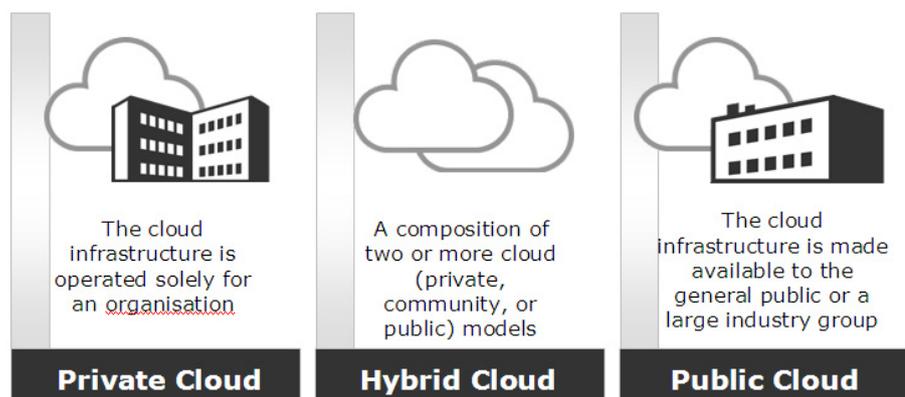TOMORROW

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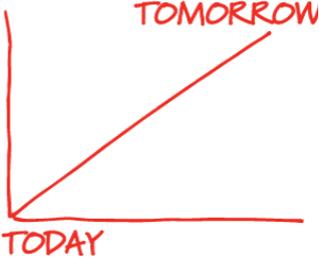
How big is "the cloud" in Australia?

→ Projected to increase from 5.5% of total data centre spend in 2010 to 9.5% in 2014 (22.5% CAGR). *IDC*

→ 45% of companies in Asia Pacific, excluding Japan (APEJ) are either currently using or planning Cloud initiatives –up from only 22% in 2009. *Springboard*

→ Public cloud services adoption will grow at over 4x the rate of the IT industry. *IDC*

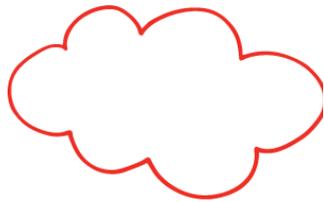→ 2011 will be a big year for private cloud services adoption and deployment, *IDC*

Despite the relative immaturity of public cloud services, the "cloud phenomenon" is real with Australian organisations showing a strong intention to continue adopting cloud computing. This includes enterprises that have already embraced a zero software strategy.

However, it's important to remember that cloud computing covers both external and internal resources to meet the needs of an application system. That combination, which is totally under enterprise control, may change moment by moment, depending on user needs. Processes may run both internally and externally, using a central control point for workloads. With a unified management tool and a user-centric view, it allows IT to make the best decisions – in real time – about which resources to use.

Both "private" and "public" cloud computing are based on qualities such as self-service, pay-as-you-go charge-back, on-demand provisioning, and seemingly infinite scalability. The key is a **trusted architecture.** As a result, organisations can adopt flexible computing without sacrificing security or control.

The cloud infrastructure is operated solely for an organisation

Private Cloud

A composition of two or more cloud (private, community, or public) models

Hybrid Cloud

The cloud infrastructure is made available to the general public or a large industry group

Public Cloud

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Defining "the cloud"

The **National Institute of** Standards and Technology or NIST defines various cloud deployment models various cloud deployment models:

- **Private clouds** are operated solely for one organisation. They can be managed by the organisation itself or by a third party, and they can exist on-premises or off.

- **Public clouds** are open to the general public or a large industry group and are owned and managed by a cloud service provider.

- **Hybrid clouds** combine two or more clouds (private or public) that remain unique entities, but are bound together by technology that enables data and application portability.

- **Community clouds** have infrastructure that is shared by several organisations and supports a specific community. They can be managed by the organisations or a third party and can exist on-premise or off.

As well as cloud delivery model, different service models may be offered from the cloud:

- **Infrastructure as a Service (IaaS)** provides computing infrastructure resources, such as processing, storage, networks, and others. The user does not manage or control the infrastructure, but has control over operating systems, applications, and programming frameworks.

- **Platform as a Service (PaaS)** enables applications to be deployed onto the cloud infrastructure. The user does not manage or control the underlying infrastructure, but has control over the deployed applications.

- **Software as a Service (SaaS)** enables users to access applications running on a cloud infrastructure from various devices (generally through a web browser). The user does not manage or control the underlying cloud infrastructure or individual application capabilities other than limited user-specific settings.

Cloud Computing Discovery Workshop.

Uncover the real strategic, technical and financial possibilities of cloud computing in your own environment. We analyse the current infrastructure to determine the current state of server consolidation, virtualisation and optimisation levels and provide recommendations and "next-steps".

But Is Cloud for You?

"Cloud computing promises to bring sweeping changes to the way organisations use information technology. It is currently a focus of attention in business, government and the IT industry. Despite this, decision-makers are still struggling for insights on what it really means in practice… *KPMG*

Moving to "cloud architecture" – whether it's delivered via on-premise infrastructure or a public cloud (or a combination) – can offer many benefits. There are fundamentally two questions that need to be asked in evaluating the value of cloud:

- **Does the cloud model make sense:** Is there business value in delivering "IT as a Service", based on a service catalogue?

- **Where should the cloud be:** Private, public or a hybrid solution – each will offer different benefits and challenges.

As Chuck Hollis, EMC's CTO stated in his blog, "You have a roster of 30 to 300 applications in an IT organisations and it is pretty clear which ones need to run in the data centre and which ones could run somewhere else or some combination".

There is a sophisticated economic discussion on the financial benefits of cloud computing on Cloudomics.com. Fundamentally, "a pay-per-use" solution obviously makes sense if the unit cost of public cloud services is lower than dedicated, owned capacity. And, in many cases, clouds provide this cost advantage."

The greater the peaks in usage, the more sense it makes to choose a public cloud-based solution. An in-house data centre will need to be built with the capacity to handle peak loads, even if this is rarely required.

The classic challenges stand in the way of a full migration to cloud, including proving how to secure, manage, trust, govern, and fully exploit the benefits that cloud computing can offer.

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What does Tomorrow's Data Centre look like?

A well-maintained data centre operates at peak efficiency, maintaining optimal balances between server and storage technologies, space, power usage, heat produced, and the cooling necessary to prevent overheating.

Automation techniques make it possible for data centres to perform a wide range of procedures on their own—simplifying maintenance and freeing the IT department to focus more on business-driven initiatives. In fact, a data centre that is operating correctly does little to raise attention. Data centres in need of help, however, have many ways of getting your attention. For example, If you walk into your data centre and you see cables everywhere, different types of servers in and out of racks—all cooled by a bunch of fans and portable air conditioners, you know you have issues.

Architected

While data centre's are getting increasingly complex, Tomorrow's Data Centre is a defined by a simpler architecture that viewed as a as a fully integrated compute system, rather than individual server, network, and storage components. This unified approach has prompted a move away from the manual assembly of individual components and toward deployment of converged systems. These converged systems deliver the benefits of centralised computing to today's modern data centre.

This consolidated, fully integrated stack is available to all applications with a single orchestration and management tool across private & public clouds. This enables the delivery of "IT as a Service" within the business, with a single service catalogue.

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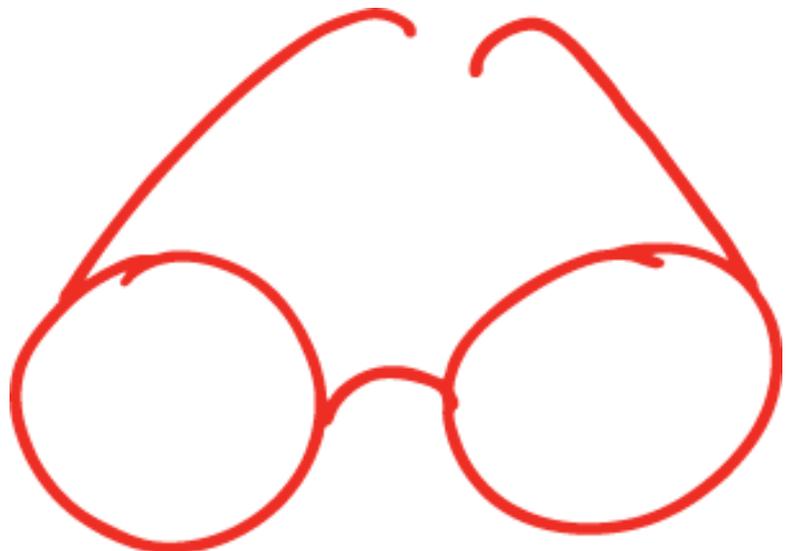
Automated

The benefits of virtualisation cannot be fully achieved as long as the task of managing virtual infrastructure and getting it to perform well is an art and not a science.

Automated configuration can change an IT organisation's approach from reactive to proactive. The result is more time for innovation, less time spent on maintenance, and faster response times. These efficiencies allow IT staff more time to address strategic business initiatives. They also enable better quality of life for IT staff, which means higher morale and better staff retention—both critical elements for long-term efficiency.

Integrated

Application silos thwart any attempt to uniformly manage cost and capacity in a logical and coherent manner. Even refreshing server infrastructure is tedious and error prone when attempted in siloed architectures. Automation means rapid deployment, reduced opportunity cost, and better capital resource utilisation.

Application silos were in the past thought to be a good idea. They have failed in execution because they are over-provisioned by necessity, they impede resource sharing, and they limit flexibility and agility. All of this reduces a data centre's efficiency and cost effectiveness.

Too many tools and too many steps to accomplish routine administrative tasks increases costs. More important, this complexity imposes time-to-market opportunity cost.

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"While 75% of the information in the digital universe is generated by individuals, enterprises have some liability for 80% of information in the digital universe at some point in its digital life." *IDC*

Secure

Data security and integrity are key to the success of any data centre or cloud environment. it is essential to ensure that your most valuable asset (your data) is secure at all times.

Security within the data centre is no longer limited to the perimeter. In a world where multi- tenancy is on the rise exponentially, it is imperative to ensure that shared resources are secured right through the perimeter, edge, remote access, virtual networking, server and storage.

- **Perimeter Security.** The use of firewalls and Intrusion protection at the perimeter is used to control traffic "north and south" of the data centre. These devices will inspect the traffic as it arrives from unsecured public networks into the DC and look for patterns that indicate possible attacks.

- **Virtual Security.** Protection is applied to traffic that travels between virtual machines. Up to now, securing traffic as it travels within the virtual network of the chassis has been a major problem for IT, especially in multi tenanted environments where different customers share the same resources. Virtual security can save significant expense because services that reside in different security zones no longer need to be located on separate physical appliances. Servers within a DMZ can easily reside on the same physical devices as servers in more secure or restricted zones.

- **Storage Security.** Storage within the SAN is critical within data centres, especially where critical information is stored on the same storage platform as general company data. Effective storage security encrypts the traffic as it travels through the network to the SAN.

Flexible

As employees look to working on devices of their choice, and employers adopt flexible working models that enable "Bring Your Own Device", the data centre is being required to securely deliver applications and devices to an unprecedented number of different devices across widely different access links.

The present day data centre is driving the ability for business to move away from the standard operating environment (SOE) and tailor their service offerings to meet a world used to mobility and freedom of choice.

This does not only apply to tablet and mobile devices, but also to the corporate supplied "desktop" offerings. Standalone desktop PC's are quickly becoming a thing of the past due to the cost, security and the lack of mobility that they offer.

There is a huge shift towards thin clients that employees can take with them as they leave the office. A thin client or VDI (virtual desktop infrastructure) allows the delivery of applications to users along with the mobility and security that comes with the fact that these applications are now being delivered directly from a secure data centre rather than from the client device itself.

Virtual desktop environments also offer the benefits of power and space savings. These devices can now be powered directly from the network switch so save on electricity and the cost of needing to deploy power sockets everywhere. They can also attach to the back of a Voice of IP (VOIP) phone to save on cables and the need for larger desks to support a PC.

Hosting applications from the data centre allows enterprises to have a level of control over the security threats that are posed by BYO devices on the corporate network. Rather than allowing these devices direct access to the network, a well architected solution can simply restrict locate non corporate devices to a segregated security zone. This zone will enforce checks on the device to ensure they pose no threats, and then simply allow them access to remote desktop software which will be used to deliver their applications and services from the data centre.

The Benefits of moving to Tomorrow's Data Centre

"Cloud computing has become a consideration in all aspects of business strategy, from organisation structure through to workplace collaboration, acquisitions, divestitures and the launch of new services, and it is being used by organisations to create competitive advantage."

Simplified administration has enabled GPT to keep staff numbers stable despite a rapidly increasing number of environments and databases. "We are now able to get new environments commissioned much faster than previously, which makes the Technology Group much more agile in meeting the business needs"

Reduced Cost and Improved Agility

"Enterprises that had pursued virtualisation and pooling of computing resources within the enterprise, with relatively little adoption of external cloud services, also reported significant saving." (KMPG)

Consolidating servers, storage, and networking infrastructure into a cloud service with simplified management (or utilising a public cloud offering) delivers improved utilisation of resources.

IT cost/efficiency expectations for cloud computing were born out in practice, in a study if Australian organisations by KPMG. Respondents reported they were getting very good value for money out of the transitions, especially due to reduced capital outlay on hardware and reduced costs associated with computer operations and software maintenance. Savings were associated with not purchasing more computing capacity than was necessary.

It also consolidates the necessary IT staff skill sets (and reduces diverse vendors and equipment/ technologies are reduced) which translates to also reduced maintenance costs and increased support efficiency.

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By using the modernisation of its data centre architecture as a catalyst, Corporate Express has reshaped its IT organisation to become a strategic driver of transformation within the company. By reshaping the people and process of IT and shifting resources to allow for cross-skills training of the IT team, Corporate Express is unlocking the tremendous potential of virtual computing and providing ongoing career progression opportunities for IT staff which together underscores IT's critical importance to overall business strategy.

Business and IT alignment

The people here are not spending all day writing procedures to load something from a database or put it back into a database. They're actually working on building business logic.

KPMG's cloud computing research found that removing information technology complexity from the organisation freed valuable personnel that had been occupied with day-to-day technology operations. In most cases, managers did not seek to translate this into a reduction in overall headcount, but instead chose to reallocate people to higher value projects:

Personnel were typically reallocated to activities with a much more direct contribution to the bottom line, such as the design and implementation of new systems to service customers. This was considered a very valuable outcome.

Business agility

Translated into business outcomes, respondents described the ability to open offices, move staff and operations around without compromising access to business systems, put new ideas into practice, and to meet new business requirements more quickly than they could do before.

Agility' is an overused term in the IT industry, with countless claims of technologies conferring this attribute on organisations. In the context of cloud computing, however, it is a most appropriate word to describe the outcomes achieved. Many of the KPMG respondents felt that the use of cloud computing was directly translating to a more responsive, adaptive and competitive business.

How do I get to Tomorrow's Workplace: The Logicalis Roadmap

Several forces restrain organisations from transforming their data centres. The life cycle of a data centre project is long and involved, requiring a diverse set of skills to achieve success. In fact, one of the biggest challenges Logicalis sees customers facing when evaluating data centre options is getting all of the different points of view involved to converge into one coherent strategy.

Different departments view data centres in different ways. The IT department looks at them in terms of the servers, storage devices, and switches humming away inside. The facilities department, on the other hand, sees them as physical structures with structural, mechanical, electrical, and plumbing challenges. Meanwhile, CFOs see them in terms of capital expenditures, ROI, and budgetary constraints.

Although it obviously involves information technology, developing a data centre strategy requires an architectural approach that few IT departments or traditional systems integrators have the skills to provide. Our value is in partnering with you to design, build and support the most appropriate data centre strategy for your current and anticipated business requirements, to align your IT and business environments, streamline IT services and ultimately target IT-aaS.

"You have to take a holistic approach," Stan Sotiropoulos , Logicalis Ausralia's Data Centre Practice Manager says. That means bringing together a number of specialists who don't typically interact with each other.

Logicalis recommends a phased approach beginning with a period of discovery and assessment that consists of a review of the existing and planned data centre space requirements and overall IT infrastructure.
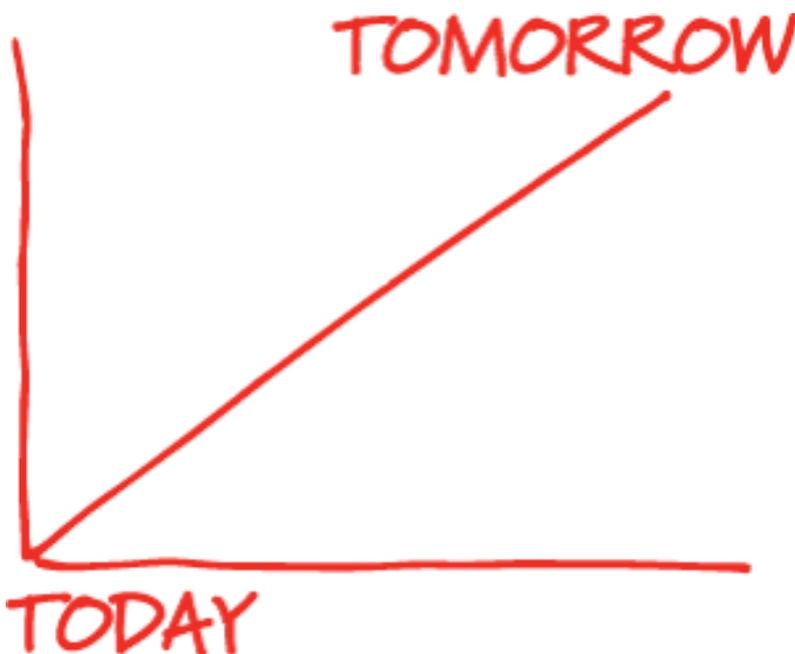
TOMORROW

TODAY

Consolidate

Consolidation is a key to reducing complexity and cost in an environment. When reviewing a client's environment to make recommendations, Logicalis begins with the consolidation phase as it focuses on the underlying foundation of a data centre. By understanding your requirements and challenges we can determine what form/s of consolidation will assist either tactically or strategically to provide the highest return of investment or mitigation of risks.

We typically asses:

- **Server Virtualisation**, the most common and highest value form of consolidation.

- **Network consolidation** simplifies the data centre network architecture and creates a unified, "wire-once" fabric.

- **Storage consolidation** simplifies the storage infrastructure.

- **Centralisation** of many distributed data centres or remote infrastructure servers / desktops into one or more consolidated data centres.

Protect

Independent of the consolidation phase (although many benefits will be realised with a consolidated environment), the protect phase focuses on the protection of data through the forms of backup and recovery solutions, disaster recovery techniques and long-term data retention (such as archiving solutions).

Disaster Recovery and backup solutions operate much more effectively in a consolidated environment as the assets and data are centralised / virtualised, which allows for more simple and cost effective solutions to be implemented. The centralisation of desktops (through virtualisation) also provides an opportunity to protect user information from a central location, providing added levels of security and protection consistent with the server environment.

Logicalis aims to understand the criticality of the data and provide an associated level of protection for each case, using a set of developed assessments to audit existing environments.

Consolidate
- Server Virtualisation
- Storage Consolidation
- Network Consolidation
- App Rationalisation

Protect
- Backup
- Disaster Recovery
- Data Protection
- Security

Manage
- Orchestration
- Monitoring
- Management

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Manage

We are moving into a new era where organisations are demanding more from technology services: higher availability, higher service levels, and faster response times to requests. Businesses are accelerating their processes to respond to the increasing demands and competition in their respective industries. This translates into an expectation from IT to accelerate and innovate as well and provide the flexibility to respond to business needs.

Logicalis through the management phase optimises the processes and tools to provide a more agile and cost effective IT environment managed against SLAs. This new approach provides dramatic reduction to the cost of delivering services and increases agility to rapidly changing requirements.

We can also a managed service that takes responsibility for all operational aspects of your UCS, VMware, storage or back-up environment. The process starts with assessing business requirements and the current infrastructure, before we develop a service catalogue backed by a Service Level Agreement.

Mr Sotiropoulos is careful to draw a distinction between outsourcing and managed services. "Managed services is not outsourcing. It's more like co-managing and can co-exist with either an in-house or co-lo data centre. Our managed services offering, for example, can take on all or some of the management of a client's IT, so they get some of the features of outsourcing but for a much better price. And the customer always stays in control," he adds.
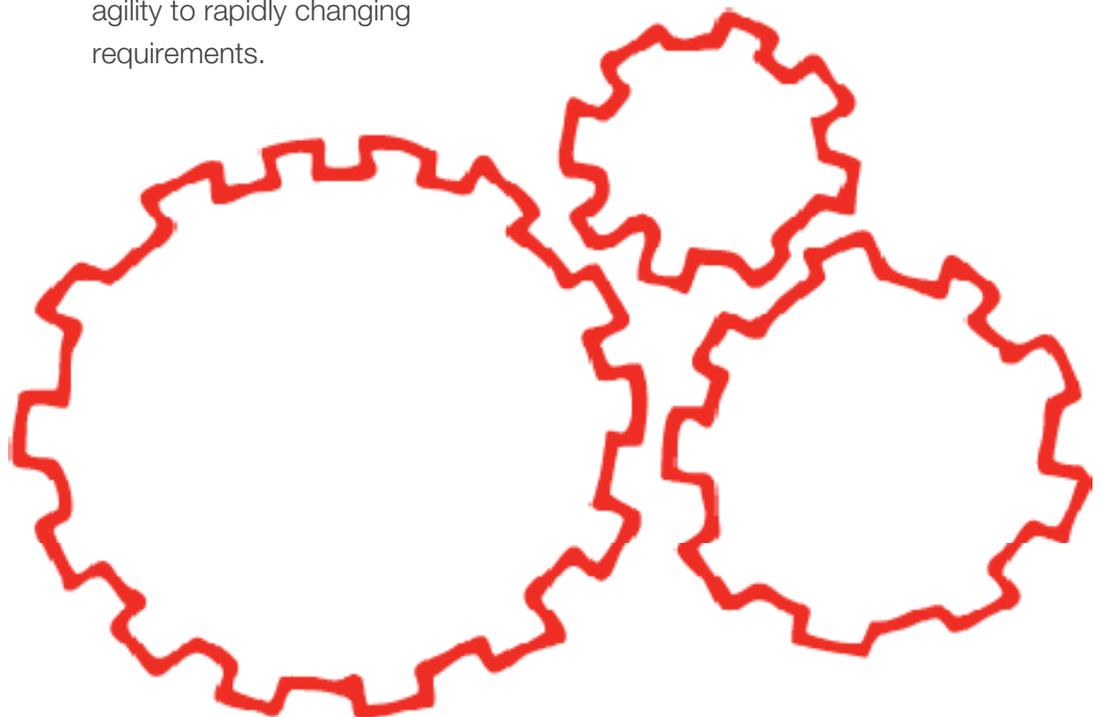
Where do I start: A Get Fit program for your data centre!

Many data centres have become obsolete or operating inefficiently due to the extreme technological advances of computing equipment and an aging support infrastructure not designed for today's IT environment. We work with you to assess your current data centre performance and requirements, and identify the business and IT goals that need to be addressed. The outcome may be a complete data centre refresh or longer term upgrade strategy.

Our "Get Fit" program combines multiple assessment services to get your data centre into top shape:

- **Data Centre Assessment.** An objective review of your environment in terms of its ability to perform and support your mission-critical applications, Comprehensive reports includes comparisons to industry best-practice, current risk assessment rating and recommendations.

- **Virtualisation Assessment.** Analyses your server infrastructure and quantifies the CapEx and OpEx savings you will achieve through server virtualisation and consolidation. Delivers a detailed report in an easily understood format.

- **VMware Health Check.** Ensures that your virtual infrastructure follows best practices and employs the latest in virtualisation solutions with recommendations for getting the greatest ROI from your VMware environment.

- **Storage Assessment:** Reviews the current storage or SAN environment including capacity (taking into account projected data growth), performance and management.

- **VDI Assessment:** Takes all of the guesswork out of getting your organisation to the next generation desktop. The assessments uses a set of tools to observe application and user consumption of network, storage, CPU, memory and other compute resources, providing the basis for a solutions oriented next generation desktop.

- **Back-up & DR Assessment:** Massive growth in the volume of data and increased compliance requirements are placing pressure on the back-up process for many organisations. We look at how back-ups are currently performed and identify risks, improvements and the relevance of technologies like data de-duplication.

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Logicalis is changing how organisations design, build, pay for and manage IT solutions. Recently named by Cisco as "Virtualisation of the Year" Partner in ANZ, Logicalis is highly skilled at delivering technology. We work with customers in all major industry sectors and public services to improve the experience of both front-line workers and back-office IT professionals.

**www.au.logicalis.com/tomorrow
marketing@au.logicalis.com**