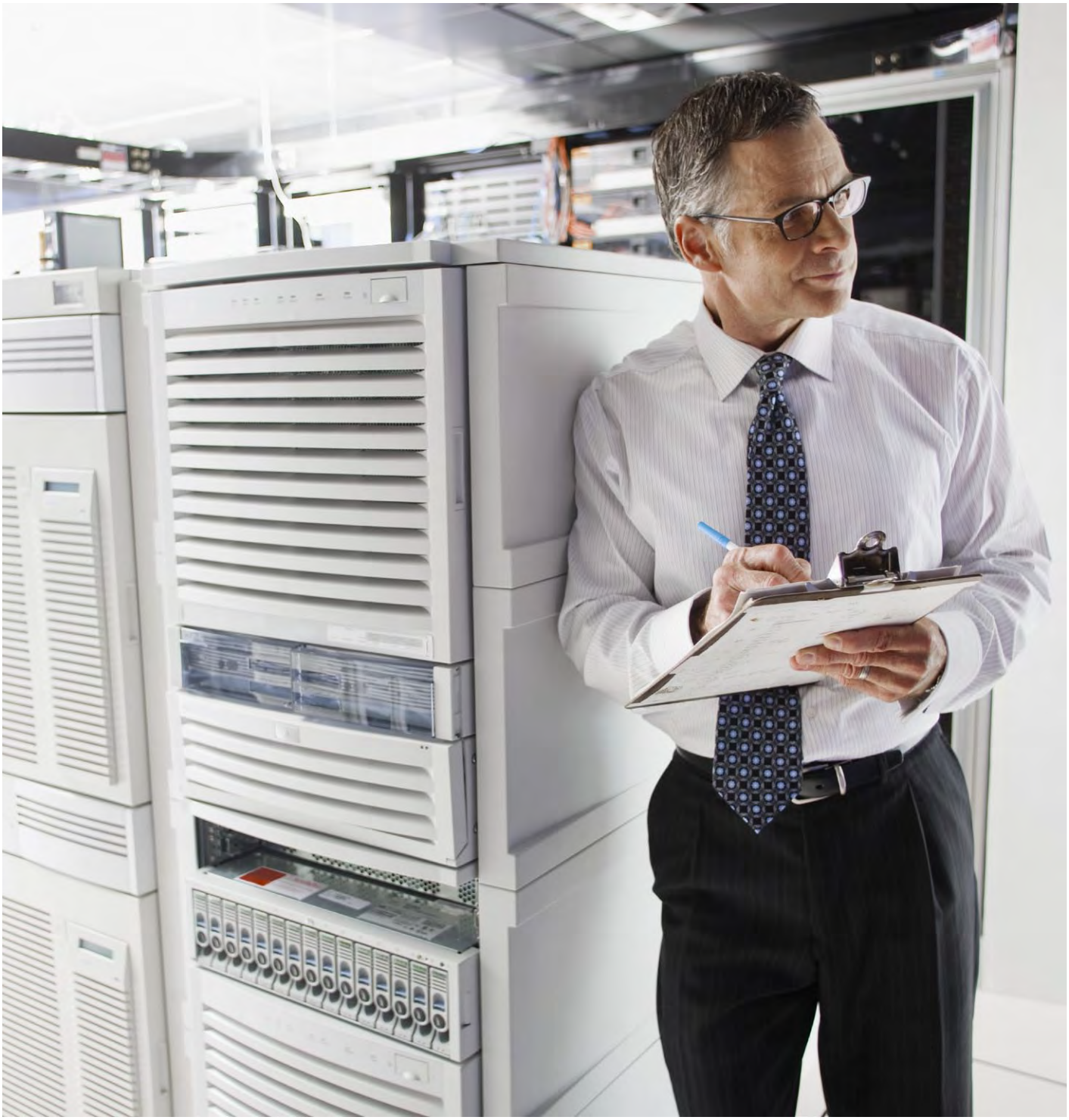
itnews FOR AUSTRALIAN BUSINESS

DIGITAL REALTY

Preparing for a data centre migration - an *iTnews* cheat sheet

Top ten tips for a successful relocation



Moving your applications from a legacy data centre to a new facility is one of the most necessary and painful projects your technology organisation might ever need to undertake.

Challenges ensue from the moment a transformation is suggested right through to the testing of applications once they are running in their target state.

Earlier this month we sought advice from a panel of CIOs, CTOs, IT infrastructure and facilities managers that have recently undertaken relocations.

We've summarised the best of their advice that you will find in a handy top ten commencing on page 11.

Bernie Glynn,
senior data centre manager,
Department of Education

EASING THE PAIN OF A DATA CENTRE MIGRATION

Migrating a data centre is too uncomfortably similar to childbirth– many months of careful planning lead to 48 hours of sheer panic, a welcome burst of momentary relief and a few months more of anxiety attacks as you adjust to your new normal.

Such is the complexity involved with physically moving the technology operations of a large organisation, a data centre modernisation tends to be one of those jobs only embarked on when it's too late to consider any other option.

It's not without irony that a project most organisations leave to the last minute demands painstaking planning.

A dozen organisations that have migrated facilities in recent months came together last month to to share their experiences and offer *iTnews* a broad range of advice, at times, divergent. But what all agree on is that data centre moves are multi-year, resource-intensive projects that grow in cost and complexity the longer modernisation of IT operations is put off.

WHY MIGRATE?

Most of the facilities managers migrated for one of three broad reasons.

A common scenario is when organisations decide to move to new offices, and have been running IT from a computer room within their existing office building.

Another is during the consolidation phase that follows merger and acquisition activity, as the newly merged entity looks to streamline its operations.

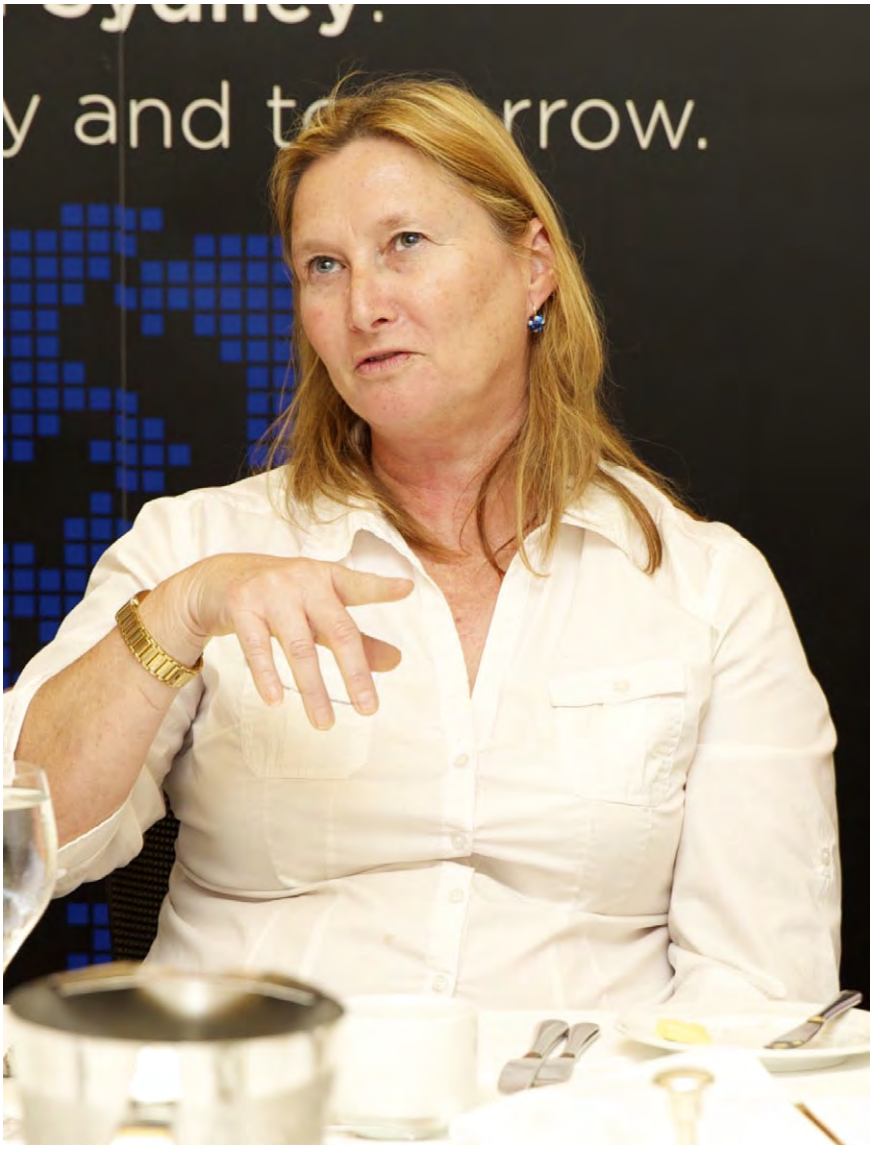
The most common driver is when an organisation is burdened with such a legacy that it cannot delay a transformation of its IT operations any longer.

For some, that might mean an upgrade of servers, storage and

networking kit – and with it the opportunity to move to a more modern facility. For others, it involves a broader adoption of cloud services, which over time can whittle the number of racks that need to be supported down to a level that co-location hosting or managed services become a more cost-effective option than running IT operations themselves.

Bernie Glynn, senior data centre manager at the NSW Department of Education has had to migrate facilities across a number of roles in the past. Usually, he said, the primary driver was simply the growth of IT versus the facilities made available to host it.

Jan Rohweder, data manager, Allens



"We were often stuck in an old computer room that was hand hewn and added onto and not contiguous," he said. "Often the core space was too small, the cooling inefficient, the security poor, the location horrible, and IT had grown to a point where the rooms had got out of control. Computer rooms that started off in cupboards had grown into rooms big and bigger. Suddenly everyone's noticed you have to be more serious about where your things were housed, particularly after you've had a couple of disasters."

More often today, the problem is the availability of power and cooling for the density of the workloads hosted, he said.

The data centre industry matured from a cottage industry into an industrialised process over a few short years. Capacity planning would ten years ago have referred to whether you had enough footprint in

square metres to cater for your growth – today the problem is heat density and availability of power.

Fewer organisations now choose to build their next data centre themselves. The prevailing trend is for the target state to be racks within a purpose-built co-location facility, enabling an organisation to take advantage of shared operating costs, cheaper network connectivity to cloud services and more efficient power and cooling.

Unfortunately, IT requirements aren't always the deciding factor when an organisation moves or consolidates offices. Facilities staff might simply put aside some extra space at their new premises, not bothering to check if it offers sufficient power and cooling, adequate floor loading or any of the other prerequisites for hosting high-density compute infrastructure.

"Then they realise that the landlord isn't going to pay for these shortfalls, so you, the tenant, end up having to pay for that to be sorted out," said Peter Wolsey, director of corporate development at Digital Realty, a co-location provider that serves National Australia Bank and IBM, among others.

Conversely, when companies do include data centre requirements into the building selection process, they "probably eliminate a whole bunch of perfectly viable office buildings that could be really good for their business" simply because they don't have the capacity to support IT systems, he said.

GETTING OUT, BEFORE YOU SMELL THE SMOKE

IT operations leaders tend to find it difficult to convince senior management of a pressing need to modernise systems and facilities, perpetuating the cycle of neglect that only makes the job harder in the future.

Beyond incremental gains in performance, users of a system don't tend to perceive enough immediate benefit from hardware or facilities upgrades, especially when compared to consumption of new applications and services. The current obsession with digital (apps and other online services) has stalled many a back-end upgrade for which business value is harder to measure.

The irony is that those IT infrastructure and facilities managers that boast the best reliability record find it hardest to secure budget for improvements in the absence of a burning platform.

“The catalyst for change for some is a disaster, but on the flipside, when nothing happens for a long time it creates complacency,” said Claude Matthews, IT Operations Manager at pharmaceutical software company Corum Group.

“Sometimes it’s easier to fix a genuinely stuffed up environment than a partially stuffed one,” joked independent IT consultant Bret Watson, because at least you’ll get buy-in from on high.

That complacency breeds conservatism. If your data centre has gone without a hiccup for ten years, and you are confident in the stability of your systems, there is less incentive to modernise, knowing that there is more likely to be an outage during the migration to the new target state than leaving things as they are.

Convincing the business to accept that transformation work needs to be done is made more difficult when a facilities migration requires outages.

“Often in the data centre world, changes and patches are held back because the users tell us we can’t afford to have an outage on this or that weekend,” one IT infrastructure manager lamented.

“So over time our network becomes terribly out of date from a firmware perspective, to the point where it can’t be supported anymore.”

Wolsey noted that many CIOs find it difficult to put a price on risk management.

Claude Matthews, IT operations manager, Corum Group

"You're managing the once in a ten year event that for nine years and 364 days, no one thinks about," he said. "Nobody thinks about the data centre and IT availability until you actually have that outage."

The most persuasive argument for transformation needs to be tied to the board's strategic objectives and backed by a conclusive risk analysis that provides the board an answer they can understand: dollars and cents.

Tempting as it might be, it's important not to explain the complexities of the migration to the broader business using technical terms, said Jan Rohweder, data centre manager at law firm, Allens. "You've got to relate it back to a business risk."

Michael Page, infrastructure director at Deloitte, said it should be expected that IT leaders can calculate operational risk just as a bank might calculate financial risk and capital offset.

"It might be as simple as to say, I'm carrying x amount of capital loss as an operational risk, and if we reduce that, we can lower the capital risk and use that capital productively."

THE NEED FOR CAREFUL PLANNING

Even after a migration has been approved and signed off, planning a data centre migration requires many months of work by technical experts in servers, storage and network infrastructure, led by experienced project managers.

The timelines vary largely according to several key factors.

The first is complexity of the current environment, and crucially whether that complexity has been clearly mapped out or documented in an asset list. Even in small and medium sized organisations, an IT infrastructure manager could require six months to develop this document and test its assumptions.

The second variable is whether the organisation chooses to use the migration opportunity to transform – be that applications or hardware rationalisation, standardising on new hardware or experimenting with new delivery models.

"The last migration I did took me six months for a lift and shift with a two month execution, while the one I'm doing now will take three years from whoa to go," one IT manager noted. "That's simply because the one I'm doing at the moment is also a transformation and remediation of the old legacy applications."

Mark Thomas, head of data centre products, APAC, ANZ

The two are also related – developing an asset list often surfaces which physical systems or virtual machines are not being used to their full potential, which often helps to make a case for virtualisation and rationalisation.

"The time and effort you spend in documenting your asset list before a migration is actually very good hygiene," said another. "It's the foundations of configuration management. You might need that not only for this episode in change management, but also for business as usual."

"You'll leave a legacy for your organisation if you do it properly."

In any case, a migration should never be pitched as a 'business as usual' activity, and shouldn't be scheduled by "simply picking a date the organisation would like to move and work back from there".

Sound project management skills are required to ensure the migration is planned according to the attributes of the workloads rather than the whims of an office manager.

Planning should begin "as soon as you know" the job needs doing, one CIO noted.

"You can be assured that if you leave it too late, you will take

shortcuts, and those shortcuts increase risk," he said.

The project is also likely to require some elements of change management across parts of the user base – which again reinforces the need to gain executive sponsorship.

"Whether the business trusts the CIO makes a big difference," noted Rohweder, who is planning a migration after the appointment of a new CIO at Allens.

Rohweder said it was important to build a network of project champions early on in the planning process, who might volunteer to be the first users of a relocated system. Application owners make for ideal candidates because they have a vested interest in ensuring their application won't be down. It's better to have them involved than to be logging support calls from them later, she noted.

Peter Wolsey,
director of corporate development,
Digital Realty

Expectations have to be realistic - the real challenge for testing a migration, she said, is not merely that an application still works, but that it works at scale.

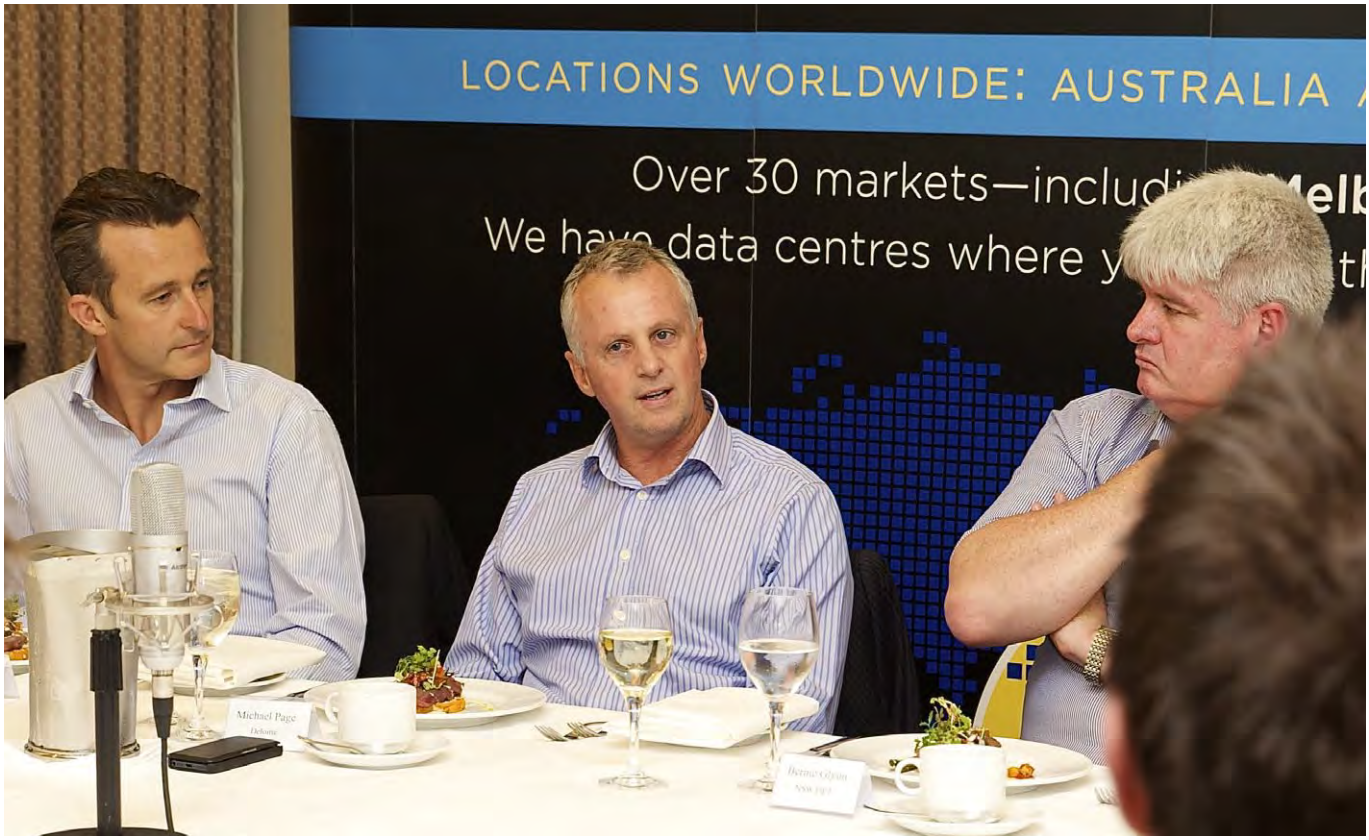
“It can be fine if a couple of people test it, but quite often it’s not okay when you get a full user load on.”

Best practice is to have a tiger team of infrastructure and application expertise ready on the Monday morning after a weekend migration for users to arrive and the load to come on.

“We can test whether the lights are still on, but for IT testing, you really need to involve the user community. Users won’t get involved unless the CEO demands it – it really has to be top down.

“You’ve got to plan that a long way in advance if you’re going to get them in at the weekend. IT people might be used to working silly hours, but users present a bigger challenge.”

Michael Page,
infrastructure director,
Deloitte



TOP TEN TIPS FOR PREPARING A DATA CENTRE MIGRATION

1. CONSIDER AN AUDIT

Data centre migrations don't tend to offer end users any immediate benefit they can perceive, and thus don't tend to be high on the board's list of must-do projects.

But delaying the inevitable will only make the job harder once facilities, hardware and firmware become too difficult to support.

It's crucial to gain strong executive sponsorship from the outset - you'll need it as the project drags on. How can you ensure they're on board?

Most of the transformation projects that do get executive sign-off tend to have relied on the reports of a third party auditor, whose independence and experience the board will trust.

"There's nothing like an audit. There is me having a whinge to my CEO, trying to compete with all the other business interests. It's a different thing when an auditor comes in and he gives a report to the CEO. It often carries far more weight."

2. ASK THE HARD QUESTIONS

If you are migrating a data centre as part of a broader office relocation, it's a rare opportunity to transform IT - whether that be via new models (managed services and cloud), a hardware refresh, virtualisation or application remediation.

Ask your executive how much change they would be willing to embrace to modernise their IT. Make sure they understand the consequences of not using the window that's just opened.

Weigh up your ambitions against the resources you've been assigned and the deadline you have to meet. Do you have enough arms, legs and budget to both transform and relocate at the same time?

3. DEDICATE STAFF TO THE JOB

Don't let anyone convince you that a data centre migration is a 'business as usual' job.

It is likely to require many months of work by technical experts in

servers, storage and network infrastructure and needs to be led by experienced project managers. There is simply too much at risk to bundle it in as a part of routine operations.

4. DEVELOP AN ASSET LIST

It is important to know precisely what it is you're shifting when you move a server, storage array or switch. You need to understand the unique availability and security characteristics of each application and what other systems it relies on; not to mention the power and cooling requirements of every piece of hardware.

For many IT shops, virtual machine sprawl has made this a difficult job.

It's essential to develop an asset list if you haven't already - and to make it a living, breathing document for use into the future.

Chances are you'll find there is a lot of hardware and/or applications that are not even in use - decommissioning them is going to give your project a much better ROI.

5. BUILD A COALITION OF PROJECT CHAMPIONS

If all goes well, your users shouldn't be able to notice the difference when they log in to applications the Monday morning after a weekend migration. But you should always assume the worst.

It's important to develop strong relationships with key stakeholders - application owners especially- to ensure they understand why the project is important, and what role they can play in testing applications once they go live at your new facility.

6. RUN SOME 'WHAT IF' SCENARIOS

Consider running through some 'what if' scenarios with your infrastructure and application teams, vendor and service partners, and document a response to any perceived problem that might arise from the move.

That way you can ensure everybody is on the same page if that problem arises.

"You really have to get buy-in at the highest level of the organisation to sponsor it."

"The time and effort you spend in documenting your asset list before a migration is actually very good hygiene."

7. INVEST IN TEMPORARY REDUNDANCY

Problems will beset the best prepared migrations, so it's always best to play it safe.

Consider building out additional redundancy of IT infrastructure to a level beyond what you have already architected for your applications, and ensure it can be on the data centre floor well before the move begins.

That might require discussions with your telco on broadening WAN links temporarily or the purchase of additional storage beyond your growth expectations.

Other IT infrastructure may be available for lease on a temporary basis. Consider cloud as a stopgap.

8. FREEZE!

It's crucial that the entire IT organisation - which includes your front-end digital developers - understand the ramifications of a migration and don't inadvertently interrupt it.

You'll save yourself a lot of heartache by instituting a change freeze to ensure that no new dependencies have been created in the time between drawing up your asset list and turning production systems back on in your target facility.

A change freeze should in the very least cover the days systems are in motion - in some organisations you might get away with applying it earlier in the process.

How early you apply the freeze depends largely on how often your developers commit code to production. Highly agile teams now commit daily, and won't have much of an appetite for a change freeze. Engage with your head of development and be prepared to compromise. In the very least, make it known that they need to document their changes and alert you should any of those be likely to impact the migration.

"If you're resource-constrained, at least consider taking one of your experts out of the BAU role and use them in the project role. I just don't think a migration works when they're still doing their day job."

9. TIME YOUR MIGRATION WITH A RELEASE

Resource-constrained organisations are likely to want to migrate in stages and not over-complicate the process.

But one curious idea for gaining executive buy-in and user acceptance is to synchronise major infrastructure changes with scheduled application upgrades.

That way, users buy-in on the premise they'll get something new from the move. They might be more prepared to accept a short window of downtime, trading off the interruption against the new features for which they've been waiting.

It's a risky move, but a masterstroke if you can pull it off.

10. HAVE A TIGER TEAM READY

It's more than likely that as the cutover draws closer, your IT infrastructure team is going to be stressed and tired from pulling some late nights. Make sure you account for some fresh troops on the ground once the cutover is complete to involve themselves in both the testing of applications as user load comes onto the systems and remediation of any issues that may ensue.

And make sure you reward your team for working so hard on a thankless task!

"The testing can only be as good as the quality of your audit."

About iTnews

This whitepaper was produced by the team at iTnews, Australia's most awarded technology publication for Australian business.

In an age where the right information at the right time can make or break a deal, Australia's technology leaders rely on iTnews for their daily fix of accurate, up-to-the-minute news, analysis and research.

Information and communications technology is the engine room of the modern business. Business leaders tell us they rely on iTnews to inform their strategy, make business cases for technology investments, set policies and chart their careers.

Collectively, the team at iTnews has won a swag of awards which include Technology Title of the Year, Best News Title, Best Editor, Best Business Journalist, Best News Journalist and Best Technical Journalist.

The iTnews team also curates technology conferences and judges the annual Benchmark Awards for excellence in ICT project delivery.