Defragging your Datacentre
Plotting the path to a shared services infrastructure

By Andrew Buss, December 2012

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The world of business is becoming faster moving, more competitive and ever more dependent on IT. Transactions and interactions between suppliers, the channel and even customers that have traditionally been handled manually have become largely electronic. Much of the day-to-day operations and communications of the business rely on IT services to function, and failures have the potential to bring activities to a grinding halt.

With so many areas of the modern business now highly dependent on IT, it will come as no great surprise that the old saying 'if there is one constant in IT, it is that change is constant' is more true today than ever before. Yet most IT departments struggle to deliver when the business asks for something changed or new. This may be frustrating more than anything for IT and the business today. But this is likely to become a lot more acute in the future as the business comes under more pressure in the marketplace and a raft of external services such as SaaS and Public Cloud put the performance of IT in the spotlight.

Fragmentation is the rule rather than the exception

In order to remain healthy and viable to enable the business to thrive, the datacentre of the future will need to be dynamic and able to reconfigure to changing needs much more rapidly and seamlessly than today. This increased flexibility will depend on all parts of the datacentre - from the applications and servers through storage and networking, being part of an integrated whole and being able to pull their weight when it comes to change.

Yet in many companies that we speak to, these critical infrastructure elements are usually procured, managed and run separately, resulting in a fragmented infrastructure and significant, and often unrecognised, burdens. If we look at how the IT organisations that are most responsive to change organise things, the tendency is towards tighter integration (Figure 1).
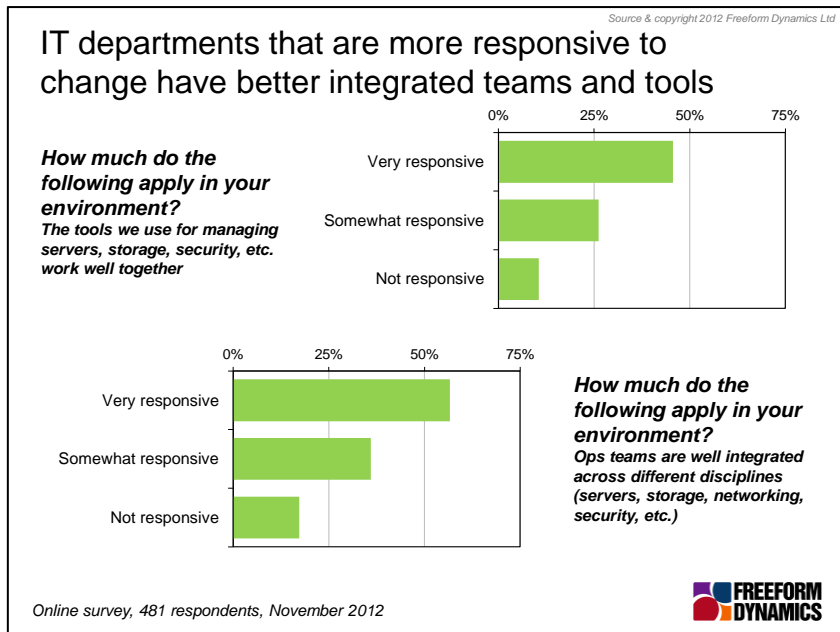
IT departments that are more responsive to change have better integrated teams and tools

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How much do the following apply in your environment? The tools we use for managing servers, storage, security, etc. work well together

Very responsive
Somewhat responsive
Not responsive

How much do the following apply in your environment? Ops teams are well integrated across different disciplines (servers, storage, networking, security, etc.)

Very responsive
Somewhat responsive
Not responsive

Online survey, 481 respondents, November 2012

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Figure 1

Turning this situation around so that the datacentre infrastructure is much more converged and better integrated has the potential to bring a lot of benefits, but it is a big job that is easier said than done. However, by recognising the problem and tackling it in stages, a lot of benefits can be realised, and fairly early on too.

Virtualisation is changing how IT needs to be run

For most companies that we survey, what IT does is typically defined by thinking about implementing and running individual systems and applications. In other words, both IT and the business typically think in terms of specific servers or software applications, such as an Exchange Server, rather than a generic service, such as Email, being delivered.

This worked reasonably if not perfectly when systems were pretty much static, and each could be individually architected and optimised for a task. But time and technology have moved on. Virtualisation has taken hold, first in servers and now increasingly in both storage and networking too.

What was once stable and predictable has become dynamic and a lot more complex and variable. Trying to run IT by doing things in the usual way may work, for a while at least. But as more use is made of virtualisation, the problems usually begin to rapidly mount up and the situation may end up just as challenging, but with a different set of problems to overcome.

So, while virtualisation is an important enabler, it isn't in itself enough to create an integrated environment so you can start to tackle the fragmentation in a more sustainable manner.

Think services, not systems

One of the best places to start when it comes to integrating and improving the IT infrastructure is to turn things around from thinking about individual systems, to instead thinking about the services that the business requires. Our research shows that the IT organisations that take this type of approach generally become better aligned with the needs of the business, are more responsive to changing requirements and also tend to have higher levels of end-user and business management satisfaction with IT.

Developing a service led mind-set can require some pretty fundamental changes and may appear daunting at first. But often it is really about having the confidence to just get started on the journey. In other words, start small and then build the capability over time. Many companies don't even have a basic catalogue of services, and as a result lack even fundamental visibility into what is involved in delivering a service or the ability to troubleshoot it when something goes wrong. Just

documenting important services, even if it is in a basic tool such as Excel or Visio, can start to deliver tangible benefits in understanding and optimising day-to-day operations.

As service delivery becomes more familiar and natural, it makes sense to become more formal at managing it. Dedicated tools can help with this, and the choice has grown in the last few years. There are integrated tools that come with servers and systems, through to third party offerings that may require more investment and integration but also ultimately more capability.

Developing a service centric approach can pay many dividends, but one of the big benefits is that when the business requests something new, the discussion should be about the expected outcome, not the delivery mechanism. In other words, the focus should be on how many users are supported, what response times are acceptable and how much downtime is accepted rather than which processor or how much memory is in a particular box.

This can then help to break the link that seems to naturally develop between business budget holders, dedicated infrastructure, and the on-going operation of the various systems by the IT department. These links are greatly responsible for the emergence of silos in the datacentre and get in the way of being able to make the case for a shared, dynamic infrastructure.

Getting different teams to talk to each other

One of the major barriers to a more dynamic and responsive IT infrastructure, and ultimately visions like private cloud, is that the applications, servers, storage and networking are usually bought, implemented and operated in siloes that are independent from each other. This may work well for each particular silo from a technology point of view, but unless they work together towards the common goal of supporting the business, many of the potential benefits are likely to be lost.

What this means is that sooner or later, the individual elements that make up the IT infrastructure need to be unified so that they fit and work well together. While some companies can afford to do this all at once as part of a transformation initiative, the reality is that the vast majority of companies cannot do this, and instead need to work on incrementally improving what they have in place already – across the teams, the tools and the infrastructure (Figure 2).

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When it comes to driving change in IT, how is it playing out, or how do you think it's going to play out in your organisation?

- Single big transformational initiative to modernise things across the board 4%
- Other 4%
- Things will be left largely as they are for the foreseeable future 19%
- Build a modern environment for new stuff, and leave older systems where they are 11%
- Build a modern environment for new stuff, and migrate older systems into it incrementally 42%
- Just let adoption of modern architectures, tools and techniques creep along in an ad hoc manner 20%

Online survey, 481 respondents, November 2012
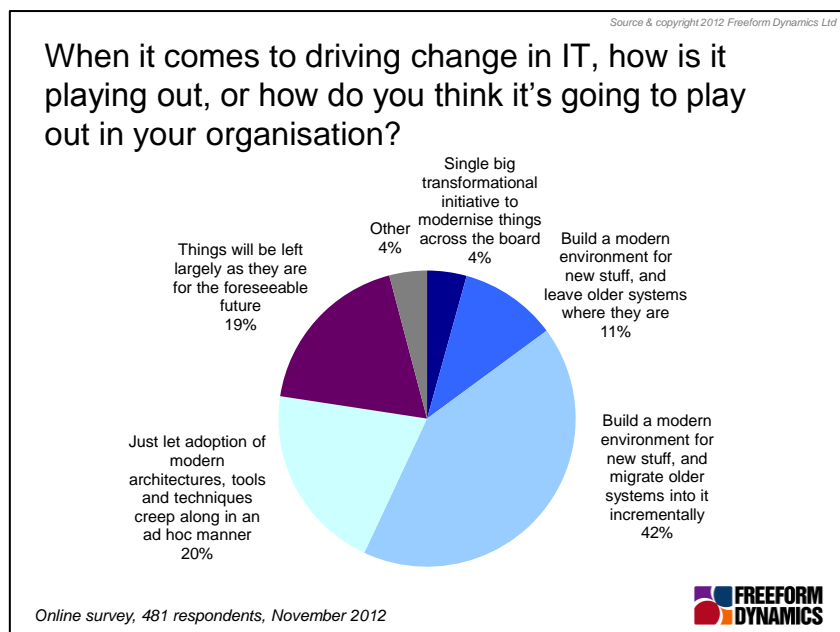
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Figure 2

One of the highest priorities is to get what is already in place working well together. While it might be tempting to think that buying some new technology may help here, often a good place to start is to try to break down some of the operations barriers by getting the different teams responsible for servers, storage and networking to interact more closely together.

It may be difficult, and politically charged, to just merge teams, given the historical responsibilities and skills. This may mean training them to become multi-skilled, but often just giving the different team members the opportunity to talk more can help. A simple but effective method may be to sit the different teams in closer proximity so that they bump into each other more often.

Bringing teams closer together is a good start to getting the IT infrastructure working better together, but on its own can only really get you so far. A perennial issue is that very few companies invest in a joined up management approach

Making the case for management integration

Most companies rely on the default tools that come with the systems that they buy, and never invest to get them working together. The end result is typically a fragmented patchwork of systems and tools that make change and day-to-day management difficult. The leading issues are summarised in the chart below (Figure 3).
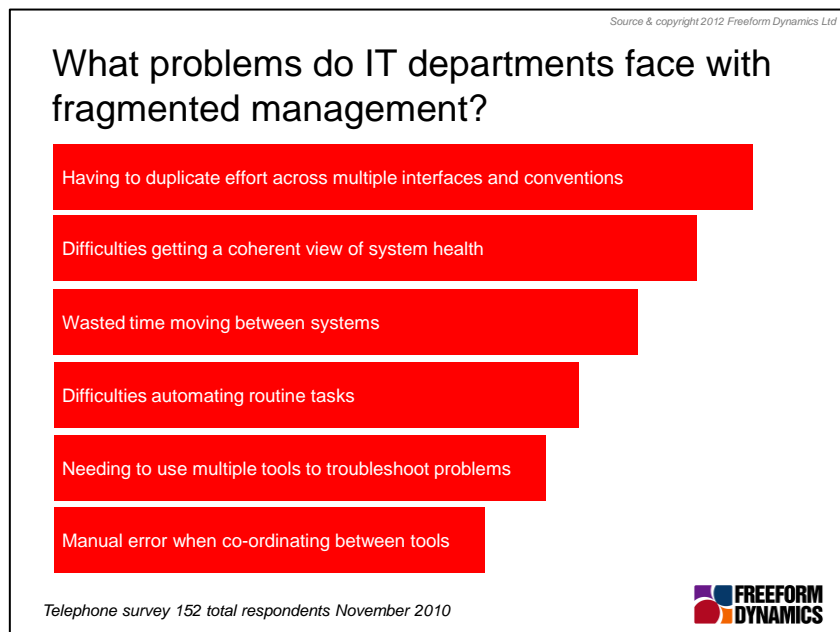
Figure 3

Given that we saw earlier in Figure 1 that around 4 in 5 companies use separate tools to manage their servers, storage and networking, you would think that the overhead of fragmentation that we see above would have IT crying out for better management tools. The reality, given the pressures on budgets, projects and time, is that few IT departments get the luxury to stand back and realise this while they are busy juggling everything else that is going on. The end result is that funding is spent on alleviating the symptoms of day-to-day operational burdens, rather than investing in integrated management that would help solve the root cause (Figure 4).
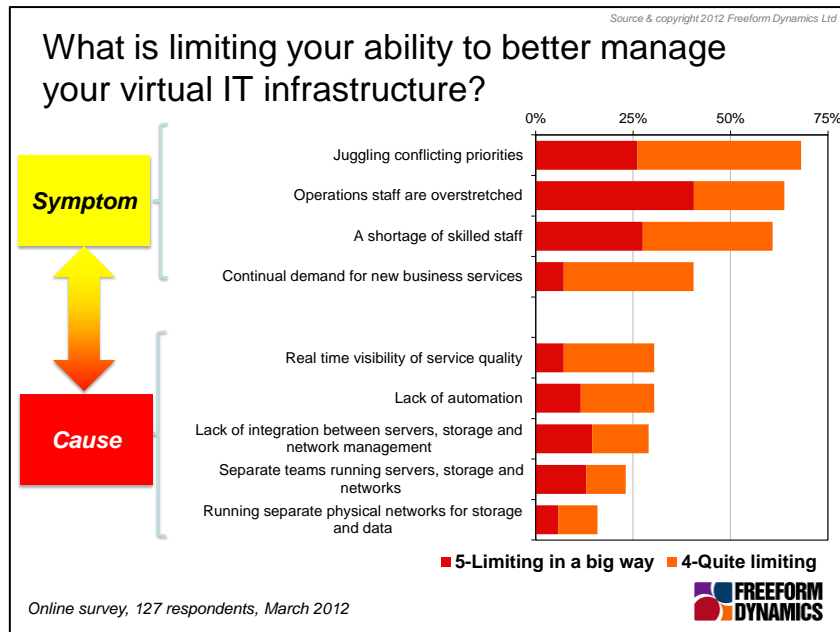
Figure 4

When it comes down to how to go about achieving integrated management, there are two main approaches that the most successful IT departments tend to use. The first is that they have a consolidated set of tools, where a single main management suite is used whenever possible. Supplementary tools are used where they bring additional benefits, but the use of these tends to be constrained. The second approach involves making regular investments in keeping the management tools up to date and integrated.

Making the case for investment in joined up management is critical if the infrastructure barriers are to be broken down. This can be a hard task to do when having to look for funding across multiple business units when projects are usually funded directly and where senior business management does not appreciate the link between integrated management and the ability of IT to deliver better quality services.

So far we've looked at service delivery approaches, operations team integration and joined up management, and not yet touched on the stuff that actually does the work. In this age of virtualisation it may be tempting to think that physical hardware is increasingly irrelevant, but the reality is that getting the hardware right, together with virtualisation, will be the approach that brings most value.

A move towards more integrated, but open, stacks

When it comes to the hardware in use in the datacentre, it is a very complex environment. Servers, storage and networking groups have their own sets of vendors, roadmaps and purchasing cycles. The upshot is that in many cases each group has to operate within boundaries that may be limiting as the elements are not necessarily co-ordinated or complementary.

As teams and tools become more integrated, this may slowly change internally such that product choice and selection becomes more aligned to the bigger picture. But if things continue as they are, the risk is that the vendors playing in the different segments have diverging priorities and agendas with the end result that the products may be patently unsuitable, or require significant amounts of investment in integration to get them to work with the rest of the infrastructure.

An upcoming trend is to have a pre-integrated stack that provides server, storage and networking components all included together with management software that covers them all. Oracle, Dell, HP, IBM, Cisco and others are all pushing their capabilities here. This helps to ensure that the parts all play nicely together, and that features that are required for certain activities are all present and correct throughout the stack.

This can really help kick-start integrated management where none existed before. Where there is an existing, overarching management framework, the integrated tools of the stack should be able to tie into existing management tools.

A big advantage of the integrated stack is in time to value and simplified operations and support. Of course, the downside is that it is often limited to specific products from a single vendor, or a small pool of vendors. If the stack was closed, this would limit the appeal to certain niche areas, and would not be very useful to the many IT departments that run a number of heterogeneous systems.

For these integrated stacks to be really valuable, they also need to have open interfaces at each level, so that third party equipment can plug into the stack and participate as a good neighbour while achieving most, if not all, of the benefits of the integrated stack. Of course, some amount of integration pain will most likely be involved to get it all to hang together properly – but that is the price to be paid for choice and flexibility.

Continue to make progress in small chunks

We've covered a lot of ground here across everything from hardware integration through management to operations and service delivery to look at how to break down the barriers that exist in most datacentres so that IT can be much more responsive and dynamic to support the business.

The main thing to realise is that every little helps. Prioritising and tackling some of the problems can lead to very real benefits, often without having to spend a huge amount. Natural upgrade cycles and new projects are an ideal opportunity to raise the bigger picture and make the case for additional investment for shared services such as management and orchestration.

Product evolution can help, much as a rising tide raises all boats. More features, but crucially also wider integration, are being included in the mainstream systems management products. This can help alleviate the cost that was associated with buying and integrating multiple third party products. Spending the time and money to get trained up and familiar with the new capabilities may be the best money you can spend in the next year.

About Freeform Dynamics

Freeform Dynamics is a research and analysis firm. We track and report on the business impact of developments in the IT and communications sectors.

As part of this, we use an innovative research methodology to gather feedback directly from those involved in IT strategy, planning, procurement and implementation. Our output is therefore grounded in real-world practicality for use by mainstream business and IT professionals.

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