The automation conundrum

Dynamic IT requires scalable management

By Andrew Buss, February 2011

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Our research tells us that the move to virtualisation on volume servers is now well and truly under way. It also illustrates that we are still very much at the beginning of the virtualisation age. Today server virtualisation is being used primarily to consolidate workloads while making use of existing networking and storage infrastructure, architectures and operations. Virtualisation has the potential to bring a whole new approach to IT, especially by taking advantage of the flexibility virtualisation brings to create a dynamic IT services environment. This vision is frequently called the 'Private Cloud'.

Many IT vendors would blithely have you believe that it's a completely natural progression from consolidation initiatives to the deployment of a private cloud. The reality is very different. Culturally and operationally, many businesses are not yet ready to take advantage of the transformational change that comes with moving to private cloud. For those companies where dynamic IT can add value, getting it right is still not cut and dried. There's a lot of investment and work required across many parts of both IT and the business – including diverse areas such as architecture, business process re-engineering, systems management, service delivery, licencing, cross charging and procurement - in order to make dynamic IT a long-term success.

Of the many challenges, arguably none is more important for laying the foundations of private cloud than automation, and with it the need to adopt an integrated approach to systems and service management. The scale of the challenge is often under-estimated, but it is very real. Our recent research [1] shows that the top challenge faced by many server and datacentre professionals is that operations staff are overstretched, and face many difficulties in managing and operating the IT infrastructure. The situation today is that IT management processes are heavily dependent on skilled people doing things. This poses problems when looking to manage at the scale and speed that virtualisation promises, as there are limits to how many tasks human operators can accomplish and the speed at which they can work. This puts the brakes on dynamic IT while keeping the costs of management high due to the manpower involved. The extensive use of manual interventions also increases risk as people can get things wrong, especially when undertaking monotonous tasks repeatedly.

One of the biggest contributors to this situation is that IT management in many companies is not very structured, integrated or scalable. This is a legacy of the evolutionary nature of IT, where the infrastructure has developed haphazardly into a fragmented patchwork of applications and tools [2]. The end result is an IT management set that struggles to adapt and cope with traditional IT architectures let alone the new virtual wave. Dynamic IT amplifies the problem, and without being

addressed, risks stopping virtualisation projects in their tracks as the management drawbacks begin to outweigh the advantages.

Process and structure

Let's begin with process and structure, as without it the best tools in the world will struggle to have any positive impact. Process is a difficult thing to get right. It requires a lot of attention, skill and pragmatism to balance the needs of the business with the need to keep things in check. It is perhaps tempting to think that implementing a standard or framework such as ITIL is what is required, but for most this is overkill.

What we see is that for most companies, unless there are regulatory requirements or issues of competitiveness that rely heavily on IT applications and services, a lighter touch is preferred. This means taking elements of the framework that are relevant to the business and help to solve a pressing need. With time, more process and structure may well make sense to implement, but trying to do it all upfront is a big ask. A pragmatic approach to "best practice" process adoption is usually the most effective route forward.

Joined-up management

The next issue is that of management integration. Few companies claim to have a joined-up approach here, with most reporting either quite a few gaps in integration or no integration at all. This is a critical element responsible for enabling dynamic IT - getting systems to work together to deliver end-to-end services. Some of the problems resulting from disjoints in management that particularly affect dynamic IT are the difficulties of getting coherent view of the status of different systems that make up a service. This acts as a barrier to the automation of processes and causes time to be wasted moving between systems that are physically separate.

So what is the key to success for end-to-end management? Those companies that have implemented the most effective and joined-up management tend to have two things in common: The first is the use of a consolidated set of tools with a focus on a single main management suite supplemented by a limited set of "best of breed" solutions where it makes sense. The second is they make regular, rolling investments in management tool modernisation.

There is also a more subtle effect at play determining the effectiveness of management integration, and this is the need for interoperability and integration between systems. Our research shows that this has a big impact on the quality of IT services delivered to the business, and is again a key focus point for moving to the private cloud.

If joined-up management is so important, why does it lag so much? The difficulty is that senior business management often does not appreciate the link between investment in management capabilities and the quality of IT services delivered to the business. It will be crucial to make the case for this investment in any private cloud initiative.

Automation and scalability

So finally we come to the crux of the matter, which is automation. Even if we've got the processes and integrated tools working together to manage and deliver end-to-end services, the move to dynamic IT will be problematic unless we can change the way management works in practice. This comes back to operations staff being overstretched. We see from our survey on systems management that even where management is highly structured and integrated that there is very little automation in practice. Scaling management for most companies today means adding more people.

Changes and process are generally implemented and effected by people, not systems – and this places a brake on the scalability and responsiveness of IT management. More people are required to manage the virtual systems, but they are a limited resource that work in human timescales and are prone to the odd error. Without automation, the private cloud is likely to be unworkable in practice.

So what can we do to enable automation? Part of the reason for the slow move to automation is political. There is often a fear that automation will mean job losses in IT operations. Done right, automation can help to add value to IT by enabling staff to work on optimising high value services

rather than being stretched beyond limits keeping on top of routine work such as patch management and performance monitoring.

Trust is also a big element. Many IT managers feel uncomfortable having systems make automatic decisions in real-time, and prefer to be able to confirm any changes. Putting in place service monitoring and alerting systems can help to begin the process of automation by alerting managers to issues or problems and proposing recommended courses of action.

If you're embarking on the journey to private cloud for whatever reason, our recommendation is to place management early on right at the heart of planning and investment. The results of our surveys tell us the operational management of servers and infrastructure is challenging today, and virtualised systems will make it more so as deployments scale and systems run over extended periods of time unless action is taken.

Further reading

[1] x86 Server virtualisation check point, Andrew Buss
http://www.freeformdynamics.com/fullarticle.asp?aid=1241

[2] IT Services and Systems Management, Andrew Buss
http://www.freeformdynamics.com/fullarticle.asp?aid=1245

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