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White Paper

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the question. Why not do both?

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You have virtualised your datacentre reducing multiple points of hardware failure. But is that enough? Simply leaving your datacentre in this state is not completing the task. You're still exposing the heart of your business to considerable risk of application failure with possibly no mainstream support from vendors. And what's more there could be thousands of pounds worth of licensing costs unrecovered.

Data platform consolidation is often overlooked because it just seems too difficult. It doesn't have to be as our featured case study proves.

Mark Jones of dsp explores the next phase of datacentre consolidation; the database layer which can increase application resilience, deliver software licensing cost savings of up to 80% as well as greatly reducing administration overhead.

The consolidation landscape

Many companies, both large and small, have embarked on IT consolidation projects. Server virtualisation is a common means of achieving savings and over 50% of companies now use it. IDC forecasts that over 70% of server workloads will be virtualised by 2014.

The benefits of this approach are:

- Reduction in hardware
- Improvement in hardware utilisation
- Increased availability and reliability
- Reduction in datacentre running costs including power consumption

But unpeel the layer of server virtualisation and some ugly truths are revealed.

Is this far enough?

Most companies and organisations commission projects that are insulated from other systems within the datacentre. Solutions are normally delivered on individual hardware, databases and software. Integration occurs via an interface or separate service which passes data to and from each application as and when needed.

This creates application islands within the datacentre. There are many good reasons why this approach to solution delivery occurs: as among them reduced risk of disturbing other applications as well as reducing any possible software incompatibility brought about by different versions of the underlying database.

When a server consolidation project is instigated, the most common option is to maintain these islands within virtualised environments or not to virtualise at all depending on the size of the application. This leads to a number of missed opportunities which are:

- A greater reduction in hardware
- A greater reduction in software licensing costs
- A more simplified and resilient architecture

- A simpler architecture to manage

What's more, by not considering database consolidation as part of the datacentre rationalisation project, a number of other benefits are lost including:

- Ensuring software support continues for applications delivered on old versions of the database. For instance, Microsoft SQL Server 2008 R2 ends mainstream support in 2014 and poses a risk to companies relying on continued high availability. Leaving core business applications exposed to lack of support could cost the company hundreds of thousands of pounds per day in lost revenue
- Making use of new performance enhancements and feature brought about by consolidating to the latest version of the database. Microsoft SQL Server 2012 delivers twice the performance of SQL Server 2005 and provides business Intelligence features that are viewed by Gartner as being fit for the enterprise and in the "magic quadrant". Many other database vendors charge extra for these features
- More comprehensive resiliency enabling always-on applications for businesses running 24 hours a day. Microsoft SQL Server 2012 provides the most comprehensive set of resiliency features available including geo-redundancy

The data platform consolidation conundrum

So why don't IT departments instigate database consolidation exercises as part of their datacentre rationalisation project? Quite simply, many consider this task as "too risky", "not possible" or famously, "you can't consolidate databases".

A consolidation programme is a complex task that requires a detailed plan and timeline for success and a strategy for administering the consolidated environment. However it can also yield a high amount of savings in infrastructure, software and operational costs. And the good news is that the task has become easier thanks to massive improvements in the data platform (SQL Server) that has made the technically impossible now a reality.

Here's real-life example of the sort of financial benefits that can be realised as a result of a data consolidation project within a Microsoft SQL Server customer.

What you could achieve

A large [mail] logistics company had a significant estate of databases accumulated over many years of expansion and acquisition. With over 50 business critical applications, SQL Server sprawl consumed over 250 CPU cores and a warehouse of server hardware and disk arrays. Some virtualisation had taken place to rationalise the datacentre but it did not go far enough to provide a simplified and manageable environment. The IT Director was also faced with further headaches:

- 80% of the server hardware was over 3 years old leading to increasing risk of failure
- 92% of the Microsoft SQL Server instances were out of mainstream Microsoft support
- Multiple versions of SQL Server and Windows Server added to the complexity of management including applying patches and fixes where necessary
- Some major systems did not have any high availability or disaster recovery capability. Restoration of local backups could take up to 24 hours meaning the business was at risk of being out of action for unacceptably long periods of time. The financial consequences of major systems outage could have run to £200,000 in losses per day
- The datacentre configuration contributed to 8 instances of downtime in 3 months and numerous performance issues

Following a major consolidation project within the two datacentres, the company saw immediate returns including:

- A £500k operating expense saving over 5 years
- An 80% reduction in administration costs
- A 75% reduction in server churn meaning a reduction in capital expenditure and maintenance
- 250 CPU cores were reduced to 50. This resulted in a significant reduction in licensing costs and will reduce the cost of future upgrades by 75% - approximately £300,000

In addition the company now has:

- A highly available architecture allowing systems to be accessible even during catastrophic failure at a datacentre
- A massively reduced deployment time for new applications - 3 days down to 4 hours
- A future proofed environment that is “Big Data” ready, highly scalable and infinitely more manageable

So how is it done?

Clearly a project of this importance and significance to the business requires a structured approach using skilled technicians and involvement by IT management in all aspects of planning, design and implementation. And there's more. Here are four tips that have been learnt from a number of successful data consolidation projects.

1 Begin with the end in mind

If you are embarking on such a complex project then the rewards for successful completion must be high. Don't just think of immediate cost-savings - think strategically. For instance:

- What are your target savings? What would this spare cash be used for? Can it be used for further improvement in IT services?
- What are the company's future plans for growth? Are there going to be any acquisitions or expansion into new global markets?
- Will you be planning upgrades or additions to major applications in the next five years?
- What are your software licensing options? Will you have to renew existing licensing agreements within 5 years? Do you have upgrade rights?
- What are your plans for migrating systems to the cloud? Will this be a better option for some applications?

2 Befriend the CFO

There is nothing more frustrating for financial directors than trying to approve an IT project that excludes a more strategic look at the business and the benefits that can be accrued over a number of years. Shifting from a tactical to strategic outlook will not only improve your chances of having the project approved but will persuade the FD that the data platform is an important part of any long term investment plan. The benefits of this approach will include:

- A better relationship with one of the most important members of the board
- Less wear on the office carpet reducing the need for constant trips to the finance office for approval of minor tactical projects which rarely show return on investment in the long term
- A strategic project with a clear demonstration of alignment with business objectives and a strong financial return on investment

3 Modernise and capitalise

Embarking on a data consolidation project is the perfect time to review your software and hardware estate. If you are going to be migrating applications to new or upgraded environments, why not ensure you have the latest and greatest versions of the software and hardware platform. This brings additional savings as well as new features that could not only improve user satisfaction but also increase performance and availability of applications. For instance:

Hardware

- Improved processor design at a lower cost means fewer CPU's will be needed for a similar performance saving on licensing costs as well reducing power consumption
- Increased hard disk capacity at a lower cost means fewer disks will be needed to house the current databases. This will reduce points of failure, reduce power consumption and increase the potential capacity for future data
- Improved network performance and resilience using less power means increased bandwidth providing users with faster response times to complex data searches

Software

- Windows Server 2012 provides improved manageability, increased scalability and greater resilience. This means less servers will be needed to provide the same performance as well reducing the number of points of failure. Many features including clustering support, backup and network performance have been enhanced or added to make Windows Server fit for purpose in years to come, scaling as the growth of data increases
- Microsoft SQL Server 2012 brings with it not only increased performance and resilience but also “Always On” availability allowing you to conduct backups at any time for instance without affecting database response times. SQL Servers’ comprehensive business intelligence features and integration with other Microsoft applications like SharePoint Server and Microsoft Exchange provide users with a simple means to create powerful reports. These features combined with greater scalability ensure that any future projects will be accommodated without having to consider replacement of the underlying data platform
- Hypervisors are able to add additional layers of redundancy to the data platform whilst reducing hardware requirements. They also allow for isolation of critical workloads at the operating system level which may be required to comply with business compliance rules. Virtualising the data tier also allows “golden master builds” to be built which will streamline the deployment process moving forward.

By modernising your platform at this point you won't be facing a similar situation a few years down the line.

4 Follow the rules

Here are a few rules on how to design a modernised platform

1. Virtualise whenever possible and build in redundancy at multiple levels
2. Build a “balanced architecture”. CPU, RAM and hard disk storage should all be aligned so there are no bottle necks in your system
3. Build a database tiered solution, that is - business critical, non-critical, legacy as a convenient method of referring to applications for people outside of the project team so that they understand what the impact of consolidation will be

4. Implement a SQL administration server that houses central maintenance plans, a reporting warehouse and SQL policies. SQL Server does a fantastic job of looking after other SQL Servers
5. If something looks too hard to upgrade then leave it to last. By the time you get round to consolidating the application there may be plans to replace it. If not, you can always run the application as a legacy system
6. Break your SQL Estate into application groups. Think “services” not “databases” and group these services together
7. Speed is of the essence. Identify your “low hanging fruit”. The easiest and most straight forward consolidation would be with databases that are:
 - a. Low business risk
 - b. “n” or “n-1” versions of SQL Server supported applications
 - c. Single database applications. Typically these make up 60-80% of database estates
8. Don’t forget to invest in some training early. Architects and designers need to know about new features before they design so they can test prior to implementation

So what now?

We have only given you a flavour of what can be achieved by consolidating and modernising your data infrastructure and how to plan for such a project. We’d love to hear your thoughts on how you are addressing your data platform challenges. Visit www.dsp.co.uk and leave your comments on our blog page.

In summary

- Data consolidation is often overlooked in datacentre rationalisation projects
- Considerable cost savings can be made by consolidating database applications
- Data consolidation projects present the perfect time to upgrade and modernise the database infrastructure
- Data platform upgrade projects will deliver a higher return on investment by including a data platform consolidation exercise at the same time
- Understand what the end goal is. Think strategically
- Follow the rules
- Employ experts that have successfully carried out these sort of projects before to lower project risks