

opinion piece

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# Swing to Data Centre Consolidation



Although globalisation of the value chain is now the order of the day for most large organisations, there is a marked trend towards consolidation of data centres – to achieve not only cost savings but consistency of service.

Clearly, the cost savings are significant. As David Cottingham, Dimension Data's global professional services director for data centres and storage, points out,

“cutting 30 or 40 data centres all over the world down to five or six in more appropriate locations provides a level of savings on real estate and maintenance and management staff that are difficult to ignore in the current economic climate.”

However, the impetus for consolidation goes beyond pure operational and capital expenditure considerations. Greg Bowden, Dimension Data's group vice president for data centres and storage, says that a multiplicity of facilities inevitably means a multiplicity of architectures and operating procedures as well as different ways of recovering data or being resilient to disaster.

“By contrast, with only a handful of strategically-positioned centres, you can ensure that they are all equally well architected. You can link them optimally so that they provide common levels of service. And you can guarantee the right levels of recovery across the board.”

In other words, simplification of the management of infrastructure and standardisation through having a common architecture in fewer geographic locations provides better agility, better resilience, and better utilisation of assets

“In the quest for these types of improvements, organisations are also asking themselves whether they should be owning and managing their own data centres at all, or whether they should be outsourcing or co-locating them,”

continues Bowden.

“Inevitably, of course, that discussion takes one in the direction of the private or a public cloud.”

“However, well before you can consider entrusting your data centres to the cloud, you need to know exactly what your data centre strategy is. You can't expect a cloud provider to optimise a data centre hosting service for you if you don't know what sort of service you need.”

There is a marked trend towards consolidation of data centres – to achieve not only cost savings but consistency of service.

### Audit your assets

For most organisations, therefore, the process of consolidation – usually via virtualisation – and an eventual move to the cloud, has to start with an audit of the organisation's current data centre assets followed by mapping of those assets to the data centre services the organisation wants in both the medium and long term.

“You can't craft a service level unless you know which of your data elements are truly mission critical and important to running the organisation and which are not,”

says Cottingham.

“If you can say: this is my platinum level data and I cannot lose any of it, then you know what you are prepared to spend to protect it. At the gold level, you can decide to lose, say, six or eight hours of it and budget accordingly for that level of protection. By the same token, if you know that, at the silver level, you have only employee music files and family photos, you can choose not to spend any money to ensure its security.”

Dimension Data's principal consultant for data centre solutions in the United States, Kris Domich, believes that when the consolidation and virtualisation 'perfect storm' currently sweeping the data centre industry clears in three to five years' time, there will be more centralisation of data processing and information storage as retail services – and a decline of in-house operated enterprise data centres.

“Every organisation has different requirements for a data centre and thus there are an infinite number of 'ideal' data centre designs. One could argue that every data centre should be a Tier-IV and have a partner data centre in a different geography that can load share. Ultimately, either data centre could absorb a company's entire critical load at any given moment, with any real downtime measured only in milliseconds. Of course, while every CTO would be basking in the glory of such a divine architecture, CFOs would be exploding!

“The reality is that, more often than not, the data centre that actually does get built is one resulting from a lot of value-engineering and will invariably have many hidden shortcomings. That's because most organisations are not in the data centre business but, because of their reliance upon information systems, they feel they must manage a data centre. In fact, they do not have to manage one and, most of the time, they should not. Far better to carefully choose an outsourcing partner.”

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## Location, location, location

The challenges to optimal operation of a data centre are legion... Just choosing a site, for example, involves no fewer than 90 decisions covering areas such as building structure and land – including whether or not to use an existing building or create a new one, zoning parameters, government permits, availability and size of loading docks, accessibility to utilities such as electricity and water (including a chilled water provider), location risk factors such as earthquakes, floods, and proximity to major rail lines, flight paths, and chemical production facilities, access to transport for employees, parking space, fire services, access to both multiple and diverse network providers and the necessary bandwidth, expansion capacity not just of the building but all the other facilities, place for a roof-top antenna farm, security of the technology as well as apparently mundane things such as stairwell and elevator access, and amenities for staff such as housing, schools, sports grounds.

Consulting global network providers and systems integrators, of course, usually ensures that an organisation covers most of these and other bases. Domich also acknowledges that

“nearly all data centres today have adopted many of the basic principles of proper physical layout and design. More often than not, the essential alternating hot/cold aisles are in place and much more conscious efforts are being made to keep floor plenums

tidy in order to allow for maximised air volume and flow. This is crucial for data centres that rely on pressurised floors for their primary cooling source.”

Also, most organisations are aware of physical security measures and take steps to ensure that physical boundaries exist between zones of varying security levels. For example, main distribution frames (MDFs), analogous to the central nervous system of any data centre, are more commonly secured with cages or walls, whereas historically they’ve been part of the data centre’s general area.

### There’s a ‘but’, however...

## Power struggles

The most common problem Domich sees is a lack of understanding of how to measure and therefore manage the overall capacity of the data centre. Many sub-components that make up the overall capacity are easy to identify and cure; when you run out of servers, you buy more, run out of storage, simply buy more.

“When you run out of power or the ability to keep the equipment cool, you may not find the remedies to be as simple – or possible. Data centres have been becoming increasingly dense in terms of power and heat, and will continue to do so for the foreseeable future. Based on anticipated trends in density, within five years we will see power densities on a per rack and per square foot basis that were unfathomable five and more years ago.”

Domich explains that this poses a serious problem for those who house data centres in buildings designed some time ago, as the power densities we are destined for were not part of those buildings’ original specifications.

“This is one reason for the spike in data centre relocation projects and a movement by many organisations to outsource their enterprise data centres to co-location providers – resulting in a global shortage of quality co-location space.”

There’s a need, then, for a trade off between all the benefits that consolidation offers and the new challenges that consolidation triggers. As Cottingham puts it:

“If you’re going to have all your eggs in fewer baskets, best those baskets be a lot better than the old ones.”

## A holistic approach

Ensuring such improvements entails having a holistic data centre strategy that takes into consideration three major factors: placement of centre, the level of centre, and architecture.

Placement includes making sure that your centres are in places that can provide you with, most importantly, access to power, access to the right talent, and access to the right bandwidth. It’s also important to understand local regulation, specifically in terms of moving data across borders. Level of data centre and architecture include considerations of resilience, firewalls, and failover.

Bowden says:

“If you’re not in the business of designing or running data centres, get advice from people whose business it is. Bear in mind, too, that utility computing is almost upon us. As with telephony, where people just need dial tone and don’t want to know how the network functions, users don’t care that the application they are using lives on a server in the basement of the building they work in. They simply want sub-second access and protected data.”

**So, find experts who can give you the easiest, most cost-effective way to achieve that.**

“For most organisations, therefore, the **process of consolidation** – usually via virtualisation – and an eventual move to the cloud, has to **start with an audit** of the organisation’s **current data centre assets** followed by mapping of those assets to the data centre services the organisation wants in both the medium and long term.”

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