Data centre transformation and the **adoption of converged infrastructures**

Executive summary

Against a backdrop of cost challenges and a drive for greater efficiency, businesses are overwhelmed by the opportunities technology offers to streamline, modernise, and evolve the data centre.

Pressures exist to support flexible, virtual ways of working, meet demands on capacity, extract more value from business data, and be nimble enough to adapt in an ever-changing environment.

A range of options, from on-premise to private and public cloud hosting – or a hybrid of all three – provide a host of advantages and disadvantages.

Arriving at an optimal tailored solution requires the right tools to map and assess the current infrastructure, a deep understanding of how the outcome will support business objectives and the necessary expertise and skill sets.

Successful transformation programmes will simulate transitional change before it happens, thereby paving the way for a smooth data transition with minimal downtime and protection against data loss. It will equip the business to improve operations beyond IT delivery through efficient, automated processes and procedures and in-life management tools.

Six stages manage the processes of engagement, initiation, discovery, construction, recommendation, and execution. These six stages support the transformational journey from legacy to next-generation infrastructure, focusing on business outcomes.

The right tools, expertise, and in-life management will ensure current rigid, legacy infrastructure isn't replaced with infrastructure that will itself be rapidly eclipsed, but rather establish the foundation of an agile solution that equips the business to meet current and future demands.

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Data centre challenges

The data centre is under increasing pressure. The volume of data and the breadth and interdependency of applications in the modern business demands infrastructure that is responsive and scalable.

This is a challenge for businesses because, for the most part, the data centre is a significant expenditure and not a part of the business that easily or rapidly evolves. At the same time, it needs to support the business effectively and be cost-effective. Despite data volume growing all the time, the data centre is not immune to the pressure on all business operations to cut costs and drive efficiencies. Capacity demand continues to go up, while budgets continue to go down.

New business demands on the data centre need to be met more quickly – the days of lengthy IT projects are gone. If businesses are to capitalise on opportunities, they have to evolve operations rapidly. Yet during change, downtime needs to be minimised.

Today is the age of data. This gives businesses the capability for tremendous customer and business insight, acted on faster than ever before because data is created all the time. The data centre has to keep pace with this expectation of 'real-time' information and access. It has to be more agile and responsive than it has been to date. It isn't – or shouldn't be – a passive repository that doesn't evolve or move with the times.

The way businesses operate has changed. Global business means round-the-clock working and shared access to resources across international locations. Flexible working locations require remote access to applications and data. 'Lite' desktops call on applications as and when they are needed, with minimal licences across users and more resources hosted on shared infrastructure.
The ability to work remotely negates travel to office locations to gain access to resources which helps minimise carbon footprint.

Today is the age of data. This gives businesses the capability for tremendous customer and business insight, acted on faster than ever before because data is created all the time.

As with all business operations, there is natural wastage: applications become redundant and servers become under-utilised. Data centres need to self-monitor and regulate. If assets aren't recycled then storage will become a cost drain through burgeoning capacity. The need for capacity to scale has to be met quickly for business opportunities to be realised and there's no spare budget to waste on under-utilised infrastructure.

Ongoing running costs also come under scrutiny when it comes to making savings. Legacy infrastructure can be an energy guzzler. Modern, energy-efficient solutions not only help meet cost-cutting objectives but also business directives around environmental impact.

While being nimble, adaptive, efficient and streamlined, the data centre still has to be safe, secure, and resilient. Data loss and data breaches are always top of mind for businesses that must comply with regulations and data laws.

Most organisations have a desire to evolve the data centre to operate more efficiently, meet business objectives and be equipped for future challenges. However, ICT transitions are nonetheless fraught with complexity and challenges. Technology evolves at a rapid pace, sometimes even as options are being assessed. Solution implementation can be complex and migration strategies have to safeguard against data loss and service outages.

Cloud data storage provides many benefits of accessibility, scalability, and cost-effectiveness. For many, data centre infrastructure is a hybrid IT framework of on-premise and off-site, servers, network infrastructure, and storage. Some applications may be accessible virtually and others bound to local networks.

If the current infrastructure can't be discovered or measured, then businesses are challenged to reach an understanding on what it will take to make it more efficient. And identifying the gaps that threaten the meeting of future demands becomes a far more complex task.

Meeting digital ambitions

Data centre modernisation must meet the objectives of reducing operating costs and environmental impact, increasing efficiency and agility, maximising resource utilisation, and supporting the organisation's digital transformation.

Trends driving the need for change are cloud technology, the unabated growth of data and evolving mobile working practices. To stay competitive, businesses need to take a holistic view of their infrastructure and their needs and embrace flexible, digital solutions.

An effective data transformation strategy delivers three critical outcomes:

1. A smooth data migration – during transformation and in the future
2. Automation of as much procedure as possible
3. In-life storage management tools

Through these three deliverables, cost-efficiency, flexibility, and resilience can be realised.

Preparation holds the key

Data centre transformation is a complex issue. It's unrealistic to expect to simply deploy technology and have business outcomes met. Careful, considered, and comprehensive planning is required to ensure the transformation project delivers an outcome that will serve the business in meeting its objectives.

Dimension Data's Data Centre Development Model is a proven consulting methodology for ensuring that an organisation's data centre is always fit for purpose. This highly collaborative and assessment-led consultancy service recognises that each business is unique, with different operating models as well as security and networking requirements.

It systematically guides organisations from the planning stage right through to the completion of the data centre transformation, following Dimension Data's ADAPT approach:

A **Assess:** this initial assessment stage includes workshops involving participants from across all functions of the organisation. The objective is to discover what applications are important to the business and why, as well as to understand the company's overall business objectives, organisational structure, and processes

D **Discover:** this stage uncovers exactly what data, technology, applications and security solutions are deployed and where, so the organisation has a clear and definitive view of its 'current state'.

A **Align:** once the current state is defined, it is then possible to make informed decisions about what applications and hardware should be retired, reinvested in, retained, or 'replatformed' in order to support the organisation's overall objectives.

P **Programme:** this stage focuses on creating an actionable roadmap, setting out exactly how the transformation project will be implemented and who is responsible for each part of the process.

T **Transform:** once the four previous planning stages are complete, it is then possible to transition or migrate the organisation's applications from current to 'desired' state, whether that's taking advantage of the cloud, managed services, on-premise applications, or colocation services.

NetApp OnCommand Insight (OCI)

A data centre resource management tool that gives you:

- a complete view of performance across your data centre infrastructure – applications and storage
- insight into existing asset utilisation so that underused or surplus capacity can be reclaimed, maximising efficiency and cost savings
- reporting at the application/ business unit level to support internal cost planning and chargeback
- the ability to implement policies around aspects such as security and sharing
- planning tools that run simulations of changes such as migrations, before they're made to identify any problems they could cause, such as outages
- predictions of how much storage will be required in the future to aid infrastructure planning and business decisions
- infrastructure monitoring, risk detection, and compliance audit reports
- easy-to-use storage manager dashboard

Case study

To find out how Norfolk County Council achieved efficiencies and cost savings through NetApp OCI, visit **http://www.netapp.com/us/system/pdf-reader.aspx?m=cs-6627.pdf**

Discover, assure, perform, and plan

NetApp OnCommand Insight (OCI) is resource management software. The software analyses IT infrastructure, provides insight into current capacity and utilisation, and automates the planning of data centre migrations and delivers post-migration analysis.

Through the six stages of data centre transformation (see Appendix I), NetApp OCI helps businesses:

- understand the current IT infrastructure environment, its performance, strengths, and limitations
- scope the optimal data centre solution to support current and future business objectives and activities
- explore opportunities for consolidation and performance improvements
- define a solution that optimises cost-savings, efficiency, and environmental benefits
- reduce energy consumption
- optimise current technologies
- explore the benefits of a hybrid model that combines in-house IT resources with private/public cloud-based services, tightly integrated through a secure network
- align data centre infrastructure and associated processes and practices with compliance and security requirements
- automate processes for greater efficiencies, resource optimisation, agility, and improved performance
- align IT infrastructure with current and future business demands for application virtualisation
- adapt and scale rapidly with business growth and demand evolution

Through NetApp OCI, businesses can expect to reduce current operating costs and better utilise the transformed infrastructure for a faster return on investment.

The right expertise

The data centre is at the heart of business operations and the prospect of change is unsettling for IT and business leaders alike. A digital transformation involves an overhaul of infrastructure to deliver cost, efficiency, business, and environmental benefits. However, new services are not introduced in isolation – a successful implementation means changing and aligning management processes.

A systematic approach begins with translating business objectives into tangible requirements, understanding the current infrastructure and its limitations, and identifying the gaps a new solution needs to fill.

An ICT solutions and managed services provider manages the end-to-end process – from requirement definition to solution design to implementation and in-life management, saving the business from recruiting personnel with the required skills for both the transition and ongoing maintenance of the new infrastructure.

The complete breadth of available managed and cloud-based services will be considered, including a hybrid mix of on-premise, hosted and public/private cloud, to deliver a bespoke solution individually tailored to key business needs and desired outcomes, with flexible consumption models.

A managed service solution maintains the technology flexibility of the data centre while taking care of the infrastructure across the network, server, and storage for both on-premise and cloud environments.

An end-to-end custom data centre management service will:

- introduce the right solutions mix and appropriate technology upgrades with flexibility for the future, while avoiding significant business interruptions
- design a bespoke solution to achieve the right business outcomes
- support process change
- deploy the required skillsets during project definition, design, implementation and for ongoing management

A transformation is the ideal time to make **operational improvements** and **equip the business** for agile working and ongoing evolution.

Planning for success

Any data centre transformation must take into account current and emerging technologies, as well as the role the data centre plays in the operational efficiency of the business. The starting point isn't the technology but the business needs and objectives.

IT is a fundamental enabler to the success of business units meeting their goals. Through a full understanding of these goals, business will arrive at an optimal data centre model – be this on-premise, cloud-based, or a hybrid model.

A transformation isn't an isolated IT project. It is a change programme to deliver efficiency through people, processes, and software working together and adapting to change. The voice of the end user needs to be heard loudly throughout programme delivery to ensure their current and future needs are met, in terms of performance, accessibility, virtualisation and ease of use.

Businesses on the whole strive to break down operational silos in favour of collaborative working practices that increase efficiencies, reduce duplication, and maximise cross-business opportunities. In the same way, the data centre strategy must be a holistic strategy for the overarching business, rather than tactical for application and departmental needs.

A transformation is the ideal time to make operational improvements and equip the business for agile working and ongoing evolution. It provides a significant opportunity to think about how business information is currently utilised, and if this can be improved. Central to this is how the solution will be managed in-life.

The skills of in-house data professionals may be better utilised by extracting value from business data through analytics, rather than managing infrastructure. Day-to-day management can be handed over for managed service provision, which also removes the need to train or recruit professionals skilled in the technologies the transformation will introduce.

A digital transformation also offers the opportunity to drive greater levels of automation. This can have a long-term impact on workload reduction, duplication, and consistency. Through the automated application of rules and policies relating to application and storage use, security can be optimised and business practices can be auditable and traceable.

A data centre transformation shouldn't be the swap-out of one hard-wired, fixed infrastructure for another. Rather, it should achieve an outcome that is flexible and that can continue to adapt as the business grows and evolves.

Ultimately, a successful digital transformation will integrate the technology platform, the organisational model, and the operational processes of the business and align these three elements to its unique business strategy and market position.

Using the ADAPT transformation framework an organisation can build a roadmap for the journey to its digital future while applying the Data Centre Development Model to ensure that all domains are appropriately considered.

On-Command Insight complements this by providing real data about the current operational conditions, thus allowing information-based decision making. Together these approaches and tools combine to provide a methodology to design and manage the organisation's transformation programme, delivering measurable progress towards the desired business outcomes.

Appendix I: Six stages of data centre transformation

The IT roadmap needs to consider inter-dependencies across all data centre domains including compute, server, storage, network, security, and cloud.

A digital transformation with the right business outcomes can be achieved through an effective six-stage process model:

Engage

the data centre programme shouldn't be viewed as an isolated IT project, but rather as a transformation programme at the heart of business improvement. It needs senior support and collaborative execution. A RACI (responsible, accountable, consultative, and informed) matrix can help agree the project approach. To avoid later 'scope creep', all stakeholders must contribute in this early phase and remain engaged throughout.

Initiate

at this stage, current infrastructure and operations are reviewed. An audit of the environment will establish what exists and how it is performing. This audit needs to be automated, not fixed in time, as the environment is constantly changing during the assessment, planning and implementation process.

Discover

this stage involves an assessment of the current state identified in stage two and an assessment of future needs. It is essential to define and understand business requirements, not only for what needs to be achieved to meet current expectations around cost, reliability, flexibility, and efficiency but also to meet future demands.

In an IDC survey, 42% of respondents identified meeting service level agreements on performance, availability or recovery as an enterprise data centre pain point. The resulting transformation will need to support growth and evolve with the business, both in terms of functionality and capacity.

Construct

assessment output is analysed and recommendations prioritised. Measurable objectives for the transformation should be set so that prospective solutions can be benchmarked against their capability to deliver.

Recommend

during this stage, recommendations and the roadmap are presented. Over a quarter (28%) of respondents to IDC said, when it comes to enterprise data centres, planning/ implementing migrations and technology refreshes are pain points.i By simulating change before implementation, all considerations are taken into account and any issues or obstacles are unearthed.

Execute

the recommendations are put into effect. There should be no surprises with the actual data migration, provided the planning stages have been comprehensively covered. Sensible timing to minimise the disruption of downtime is critical.

Post-project, an analysis of how the planning and execution went not only provides an assessment of the project's success but also a rapid upfront view of the performance of the new solution for senior management and stakeholders.

With a clear understanding of the performance of the previous infrastructure and the objectives and targets that were set for the new, this comparison can be largely automated with the right solution.

In-life, ongoing management and continuous improvement of the modernised infrastructure should be simpler and more effective, provided the implemented solution has the

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