

WHITEPAPER

Datacenter Migration

Think, Plan, Execute

Datacenter migration is often regarded as a purely technical, almost trivial side-project, to be delivered by existing IT staff alongside their day jobs. With core business services reliant on IT, a datacenter migration can expose the business itself to a significant degree of risk. This article discusses the case that it is essential to plan, manage and execute a datacenter migration with the appropriate level of rigour and control, utilizing proven methods and expertise to ensure the business can continue uninterrupted.

The datacenter is at the heart of the enterprise - a complex, interconnected array of equipment, software and data that drives the business and powers every aspect of the operations. Yet change is inevitable, and as the business grows, companies may find there are mission-critical reasons why such a move makes sense. Some of the reasons companies decide to relocate a datacenter include:

Business reasons

Businesses are increasingly dependent on their IT infrastructures to drive mission-critical operations throughout the enterprise, from high-volume financial transactions to web-based, global commerce to always-on services. For many businesses, that means significant cost savings can be realized through datacenter consolidation and rightsizing. For others, a merger or acquisition drives the need for broad scale integration, and a spike in the demand for data storage. Increasing regulatory requirements also play a significant role, as companies struggle to meet compliance, archiving, data management and security requirements. And every business needs a business continuity plan that includes disaster recovery, backup and remote operations. For some companies, the reasons for datacenter migration are simple: market success has resulted in explosive growth that has rendered the current facility obsolete.

Datacenter migration projects typically involve a broad spectrum of internal and external stakeholders. Each stakeholder views the datacenter migration project uniquely, based on his or her charter. Typically, the CFO views it as a cost, while the CIO considers it a business challenge. The datacenter manager perceives it as a logistical nightmare; the systems administrator views it as a technical challenge; and the business units see it as a potential outage, and a threat to the revenue stream.

Technology reasons

The continual evolution of infrastructure technology is transforming the modern datacenter. Acres of individual servers and miles of cable are being replaced by high-density clusters of rack-based equipment, reducing the need for physical space. Advances in network bandwidth are making it possible to store and access mission-critical applications and data remotely. At the same time, more processes, documents and data are being digitized, increasing the need for more advanced datacenter configurations. No matter whatever drives datacenter migration, the goal is to minimize the downtime of business-critical applications and systems while making the move.

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Most important, it represents a potential inconvenience to customers, and perhaps even a reason for them to go elsewhere. It is, therefore, important and necessary to address each key stakeholder's concerns and work with them to design and implement a plan with the least impact upon customers.

Most organizations make significant investments in their new datacenter facilities, leading to a state of the art physical plant. High security and redundancy of the facility and utilities are common. A frequent oversight, however, is carrying over poor processes, procedures, architecture, and documentation into the new site. In order to achieve the desired availability of applications and data, the maturity level of the IT infrastructure and processes must meet or exceed the design criteria of the facility.

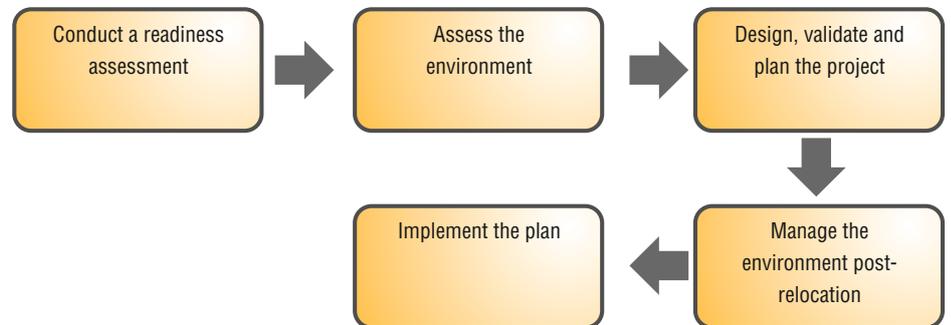
Determine scope through organizational readiness analysis

In order to understand the scope of preparations and investment required for a smooth migration, an organization must first evaluate its readiness to undertake the initiative. The maturity of an organization's IT infrastructure processes, procedures and documentation has a direct correlation to the complexity of the undertaking, and the level of complexity is a major factor in an initiative's cost and risk to the business.

Organizations with well-documented, actively-managed asset management, disaster recovery, monitoring and management, and change control programs have the essential elements required to successfully undertake a datacenter migration. They will not have to invest in the discovery, validation or development of information and processes in order to prepare.

Conversely, gaps in these processes and documentation must be addressed prior to or in conjunction with the project. Failure to address gaps will introduce a high degree of risk to the project and could lead to outages that negatively impact the business.

Steps to a successful datacenter migration



Carry out a readiness assessment

Performing a best practices check-up for infrastructure management provides a baseline of the organization readiness to undertake this initiative. The objective is to evaluate the accuracy and completeness of processes, procedures and documentation. Focus areas include:

- ▶ **Support Structure** – Are problem management, notification and escalation processes current and documented?
- ▶ **Service Level Agreements** – Do they exist? Are they documented? Are they current?
- ▶ **Documentation** – Do the five basic documents (configuration, startup, shutdown, backup, recovery) exist for each asset? Is there a central repository? Is there a document control system? Is the documentation current?
- ▶ **Asset Management** – Does a current system exist that reflects all assets and related portfolio information?
- ▶ **Maintenance Contracts** – Are these consolidated into a single data source, preferably the asset management system? Do the maintenance contracts reflect service levels proportionate to criticality and usage of the assets? Are contract expirations proactively managed?
- ▶ **Financial Management** – Does all information related to environment lifecycle costs exist in a central repository (asset management system)? Does a total cost of ownership (TCO) model exist for each asset?
- ▶ **Change Control** – Is there an actively managed process that tracks and audits all changes to the environment, including facilities, hardware, software, applications and data structures?
- ▶ **Architecture** – Is the IT architecture well defined and documented? Is the architecture team involved in the design and validation of initiatives?
- ▶ **Capacity Planning** – Does an automated system exist to track the usage baseline and deltas in the environment at a component level?
- ▶ **Performance Management** – Does an automated system exist to track the baseline and deltas of the environment's performance to a component level?

- ▶ **Monitoring and Management** – Does an automated system exist to track the availability and service levels of the IT environment? Are support and escalation procedures automated and current?
- ▶ **Business Initiatives** – Is there an overall perspective on the parallel initiatives that will be undertaken by IT and the business during the life of the datacenter migration project? Are the impacts and resource requirements understood and documented?
- ▶ **Stakeholder Management** – Have the basic requirements and value proposition for the datacenter migration project been communicated to the business and internal/external partners? Has a communication plan been established and implemented?
- ▶ **Resource Availability** – Is there a commitment of resources from each of the stakeholder groups in direct relation to the project timeline?
- ▶ **Industry Regulations** – Are the compliance ramifications of the project understood and overseen by a certified organization?
- ▶ **Logistics** – Have the decisions related to the location of the destination facility been finalized? Is there a strategy for the location of assets by class by facility?
- ▶ **Migration Project** – Has the project executive defined the basic initiative timeline? Is there a dedicated project manager? Does a corporate project management office (PMO) exist and has this initiative been registered with the PMO?
- ▶ **Disaster Recovery Plans** – Do current validated plans exist for each environment? Because a datacenter migration is essentially a managed disaster recovery event for which the IT environment will be reestablished at a different location, disaster recovery is the most pertinent area to the success of the project. A thorough disaster recovery plan provides key information about the interrelationships between the infrastructure and the business, the criticality of applications and data, and the mechanisms to mitigate risk.

Based on the project timeline, a determination needs to be made for each gap area on whether to implement a long-term or interim solution.

Assess the environment

This phase of the project involves gathering, combining and correlating information about assets and their use in support of the business. Analogous to a disaster recovery plan, this step baselines the environment and begins the process of asset classification. Each asset must be identified and the portfolio of information regarding its use and interrelationship to the whole environment must be established and documented. The output of this phase is the asset repository that reflects the current inventory, technical and business interrelationships, and supporting asset lifecycle information. Best practices include automated asset discovery and tracking, and the use of an industry standard repository such as a configuration management database (CMDB) that is capable of providing a comprehensive view of all aspects of each asset.

Design, validate and plan the project

Building upon the assessment, each asset must be correlated to the business function it supports. This step parallels the disaster recovery process of defining recovery groups; for the sake of this project, these groups will be referred to as "move groups." Each move group represents a consolidated collection of assets that support a key business function or IT support function.

Each move group is analyzed for its criticality to the business and assigned a corresponding ranking. The disaster recovery plan for each move group is consulted, along with the technical architecture employed for availability and recovery. The result is a migration methodology tailored for each move group based on the service level agreement, risk mitigation capabilities that currently exist and an approved business case for additional investment required to support availability or limit risk during the migration.

The output of this project phase will be an overall project plan that includes detailed task plans, time budgets, and resource and contingency plans. A migration calendar should detail the timing of move events in relation to business initiatives and cycles. A communication plan and command center structure should be documented and validated with all stakeholders.

Implement the plan

This phase is where the detailed analysis and planning pays off. Each stakeholder should understand his or her role and tasks. Decisions regarding contingencies and timelines have been established. The command center coordinates the activities, tracks and communicates progress, and performs problem management and escalation coordination. Successes and failures are documented and utilized post-migration to improve the process for subsequent events.

Manage the environment post-migration

Upon completion of the datacenter migration, it is imperative to take one additional step: the incorporation of knowledge, updated processes, procedures and documentation into the normal support structure of the IT infrastructure. The migration project will have validated or generated current information about the IT infrastructure. As change is constant in information technology, this information will have a limited shelf life. In the normal course of business, these processes, procedures and documentation all too often become a low priority for compared to the demands of the business on IT organizations. Quickly incorporating this information and implementing a process to continually refresh it will achieve a far greater long-term result than solely the migration of assets.

The benefits of a successful datacenter migration

The benefits of carefully planned and executed datacenter migration go well beyond what meets the eye of the user or customer. Done correctly, the end result is not only a seamless transition for the business, but also the creation of a set of business continuity disciplines that can validate or provide groundwork for disaster recovery and business continuity planning – as well as IT and physical security, asset management, systems documentation, change control, operating standards and processes, capacity planning, maintenance and license management, service and operating level agreements, business alignment and datacenter facility management.

In other words, successful datacenter migration can completely transform the overall operating environment – its processes, procedures, documentation and personnel – in a way that has significant, lasting benefits for an organization's disaster recovery readiness as well as day-to-day operational efficiencies.

Datacenter migration checklist

Stage 1: Planning & Design

- ▶ Define the scope & size of the project
- ▶ Plan, agree and allocate resources & budget
- ▶ Agree key determining factors, limitation, (network, security etc)
- ▶ Undertake a risk analysis and complete due diligence activities
- ▶ Create project plan identifying the critical path & key resources
- ▶ Complete inventories of existing systems and interdependencies
- ▶ Identify future system requirements (pipeline for growth)
- ▶ Create a step-by-step decommissioning, rebuilding equipment plan, including health and safety procedures
- ▶ Determine interim equipment requirements to keep systems operational during the migration
- ▶ Devise a contingency plan to include illness, accidents and damage to equipment
- ▶ Define connectivity requirements and allocate adequate time for new connections
- ▶ LAN design/ WAN detailed diagram
- ▶ Consider your company's operational requirements and plan the move to cause minimal disruption
- ▶ Undertake a "dry run" to test if the plan is achievable

Stage 2: Pre Migration

- ▶ Check for readiness of racks, power circuits, cage and biometric reader
- ▶ Ensure back-up systems are in place & operational
- ▶ Data Backup (prior to migration)
- ▶ Check that transportation and buildings can cope with equipment size & weight
- ▶ Check for common surveillance camera covering new customer cages

Stage 3: Migration

- ▶ Review deployment teams tasks & timelines
- ▶ Plan new space configuration and reference racks I grid
- ▶ Install and test new data cabling (certification to be issued)
- ▶ Ensure all identified processes and procedures are followed
- ▶ Checking on connectivity between hardware equipments
- ▶ Test network and application components
- ▶ Arrange for M&E engineers, hardware and software experts to be on-call
- ▶ Advise users of changes, and provide contact points for issues

Stage 4: Post Migration

- ▶ Post implementation review
- ▶ Re-balance air-flow systems
- ▶ Check electricity quality
- ▶ Closely observe all building and equipment monitoring systems
- ▶ Test security systems
- ▶ Detailed diagrams rack / network / patching / LL connectivity
- ▶ Infrastructure deployment complete signoff from the customer

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