Mitigating Risk in Data Centre Migrations

A guide for IT Professionals

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Contents

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Introduction

A data centre migration may seem a fairly straightforward project on the face of it to many IT teams, particularly if the majority of time is going to be spent focused on servers and infrastructure. After all, how hard can it be to move some servers and storage devices from one location to another?

The answer is - easy, if the business does not require access to them during the move. In the majority of cases, you will still require access to servers and storage units being moved, as well as most or all of your business services.

This is where data centre migration becomes complex and 'How do I move these storage devices and servers?' becomes 'How do I relocate business critical IT, and make sure that of my services are still functioning during relocation?'

A successful data centre migration has been achieved when virtually no-one, outside of your IT team, is aware that it has taken place.

To do this, you require a methodology and a plan. Wanstor's approach to data centre migration provides a proven and repeatable solution.

One of our methodologies developed specifically for the purpose of data centre migration for organisations comprising 100 employees or more consists of six stages, across five towers, with 50+ specific activities documented over the course of the migration. This roadmap encompasses inbuilt flexibility, enabling the execution of various stages and activities in parallel.

Once our client has agreed to the methodology of migration, the next tasks are to understand and define the programme, and highlight any limiting factors or areas of failure which could hinder progress.

Once we have agreed the specific methodology for rollout of migration with a client, a programme is defined with special attention being paid at the outset to limiting factors and weak links within the IT domain.

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Challenges from the usual suspects

We often find most data centre migration projects operate under three primary constraints: time, cost and risk. In most cases all three are fixed at the outset, with a specific deadline, budget, and little appetite for business and technical risk. Data centre migration programmes nearly always operate within these constraints.

For example, when considering a deadline on migration, improvement activities before the move could be minimised with the infrastructure migrated on a 'ready state' basis. This would prioritise the deadline, with improvement activities registered as secondary to time constraints.

Personnel and equipment resourcing present the second challenge. Often, a business will approach this with in-house resource, simply adding to the day job of skilled data centre operatives. Historically, this practice does not work.

A data centre migration programme requires significant and dedicated resource; this often means turning to independent contract-based staff. Whilst contractors provide fast access to skilled resources, experience shows that each contractor will operate in a distinct and unique fashion.

We find the most effective approach to be partnership with an IT business that provides a core team specialising in data centre migrations using standard and shared methodologies.

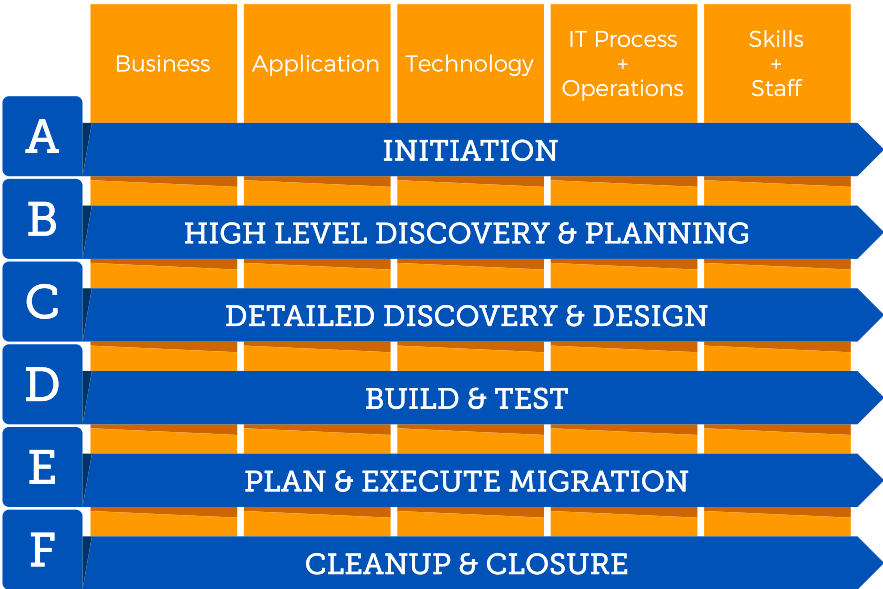This team may be augmented by contract staff, with the exclusion of a Systems Integrator.

figure 1 : Stages in a simplified Data Centre Migration Roadmap

Allocating this role by default to internal resources is not preferable. Installation of a dedicated Systems Integrator will deliver benefits over the long term as this individual should be focused solely on the migration and nothing else.

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Get the Basics in Place

Create a Project Plan which documents key objectives, owners and activities required throughout the project lifecycle, and includes:

- A clear definition of the programme and why it is taking place with importance to the business highlighted

- Objectives and scope of the project

- Guiding principles and who to contact regarding decisions concerning specific areas of technology

- Risk Assumptions Issues Dependencies (RAID) analysis, to cover control and mitigation

- Baseline discovery data defining programme scope in terms of assets migrated

- Organisational structure identifying how personnel will be deployed and responsibilities throughout the programme

- Breakdown of work programmes and team responsibilities with data relevant to timing, dates and available budget

- A High-level plan covering milestones allowing senior managers access to progress reports

Whilst data centre transformation activities can be included within any migration, a strict rationale for inclusion should be defined. We believe these activities may include:

Pre-migration transformation : Performing transformational activities prior to migration may facilitate the process. These may include server virtualisation, data separation or server platform upgrades. Restricting pre-migration transformational activities to those that ease or accelerate migration and reduce risk is preferable.

Migration transformation : Transformational activity during migration may be required - however, to reduce complexity and risk, these should be kept to an absolute minimum. It is essential that the migration may be paused in order to address issues that occur during the project.

Post-migration transformation : A common activity for many businesses. Once migration services have been transitioned to 'business as usual' the programme should be concluded as quickly as possible.

Post migration activities should be managed as separate projects as the added complexity and extended timescales these involve should not be underestimated.

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Breaking down the data centre migration project

We know that detailed and accurate planning is key to the success of any IT project, and data centre migration is no different. The simplest way to overcome technical challenges and deliver a successful outcome is to break a project down into manageable areas of work.

One approach here is to create a work breakdown structure. The work breakdown structure takes your migration method (developed at the outset) and generates a number of discrete work related packages that will deliver the programme once combined.

An example structure is provided in the figure illustrated. Its scope addresses source and target data centres, sequenced in a lifecycle structure. Each work package is described in detail, including objectives, scope, milestones, deliverables, RAID analysis and resources.

Together, these define the full programme; it is important that each package can be managed from the top down. Formal reviews of each work package ensure there is consistency across the programme, with gaps and overlaps resolved as they are identified.

Diagrams split into lanes link a paper trail to each action, and enable programme managers to identify work packages and deliverables on the path to critical success.
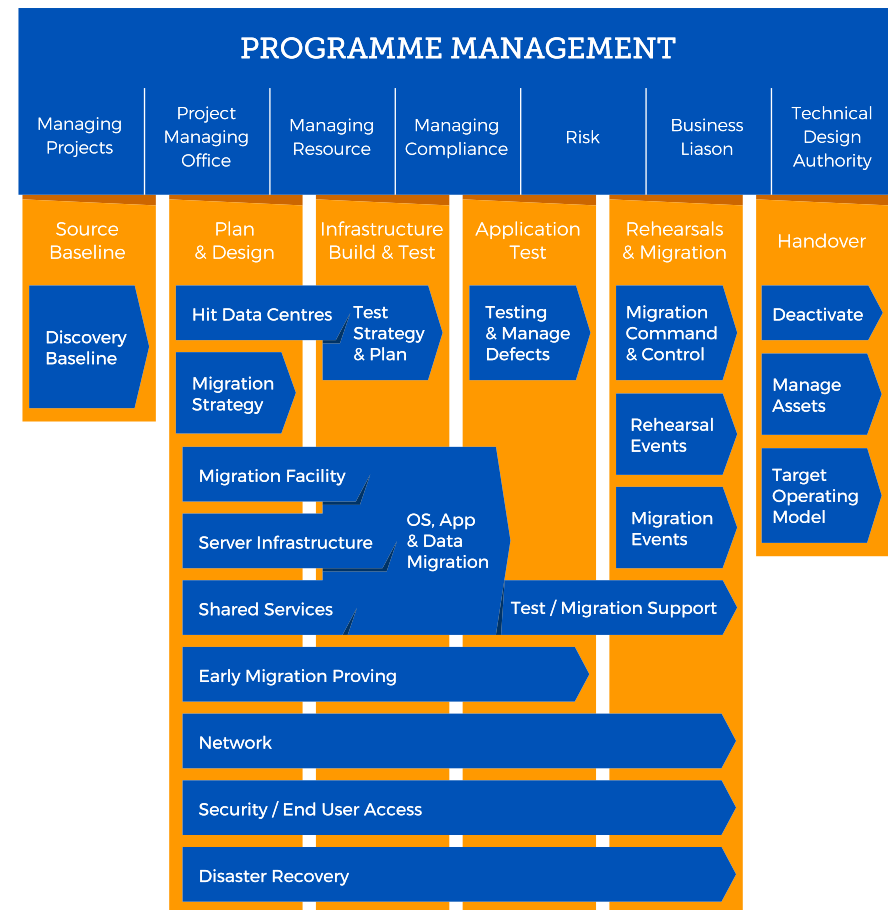

figure 2 – A Data Centre Programme Management Model

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Be careful of what you find in the discovery section

The discovery process represents an oft-overlooked facet of any project. When designing and planning complex data centre migration, work from an agreed data set and shared information.
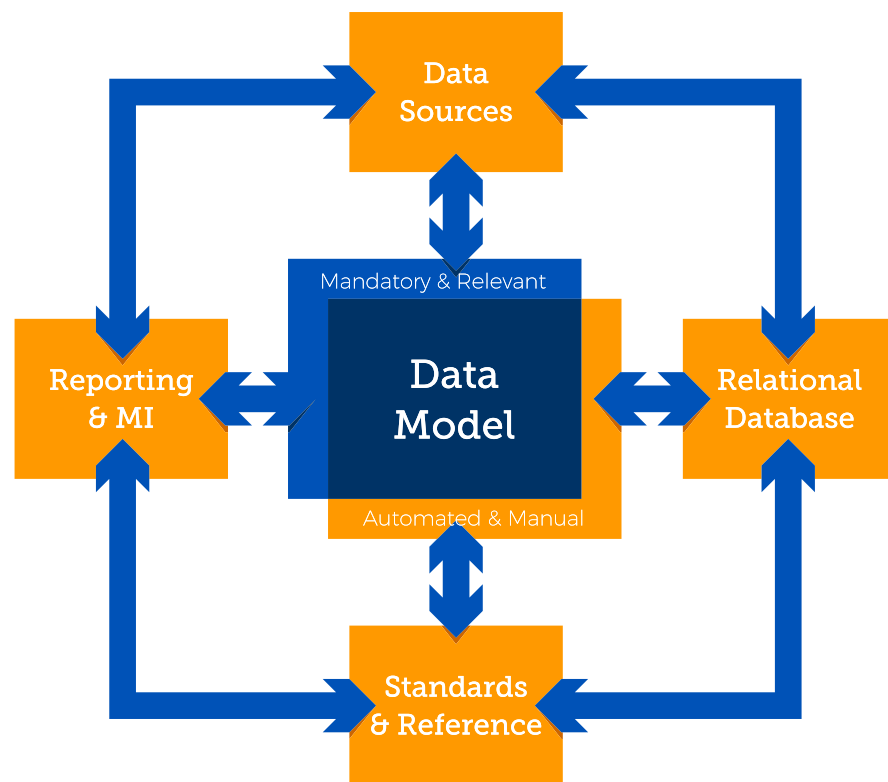

figure 3 - Wanstor's Data Discovery Model

Fragmented, incomplete and siloed data within a business has implications for cost, timing and risk. Before any migration project a single version of 'data truth' should be the goal, encompassing hardware and software inventories, application information, interfaces, middleware, shared services and support.

Unearthing the right data

The data model we use provides a focal point for consistency and completeness within all components related to baseline data. Our discovery model will:

- Normalise collection from data sources

- Organise data into mandatory and relevant classifications

- Identify relevant import mechanisms of data sources through automation or manual entry

- Drive the standards and formats for presented data sources

- Recognise requirements for ongoing maintenance processes throughout migration period

- Provide a confidence layer for data quality reporting and management information

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Once discovered this data needs to be mined, sifted, organised and assessed for completeness, generating management information that can be used for planning and quantifying risk.

Its value will be in how digestible it proves to all involved with the migration at any point in the project lifecycle.

The business benefits of discovery can be related directly to:

- Applying a method and remaining consistent throughout

- Developing a plan and estimating size of the project

- Outlining design and specifying target technology and build approach

Discovering and establishing the planning baseline is a challenging proposition and a vital part of any programme management system. Discovery should be supported by a dedicated set of tools and techniques, integrated into overall migration methodology.

Using data discovery to help with planning

Once a trusted data discovery baseline has been established, discovery management information can be extracted, allowing detailed planning to begin. The diagram in figure 4, opposite, shows potential input into data centre migration planning.

Some inputs will act as enablers, while others will act as constraints; project management must highlight these to the wider project team so that people are clear on risk, dependencies and outcome.
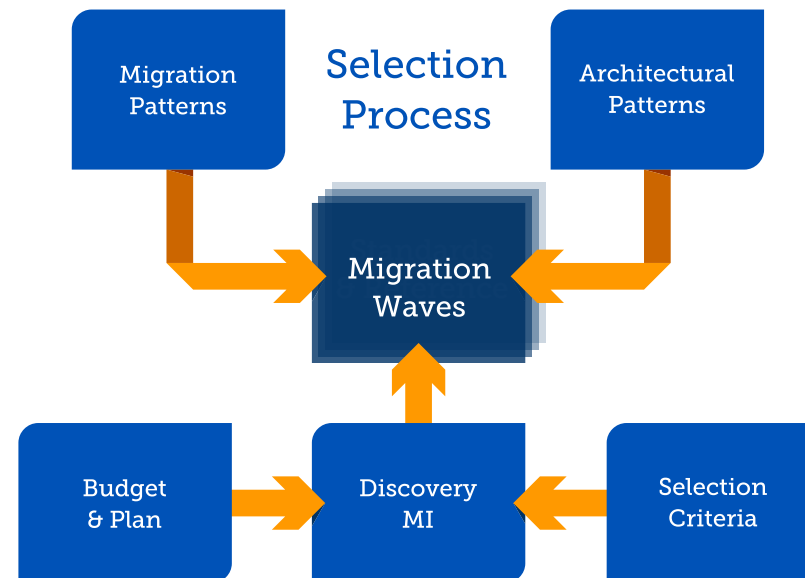

figure 4 - prospective input data into Migration Planning

Hidden programme constraints exist which could include business critical availability periods, other major business or application change programmes, and impostions on timing indicating an IT freeze.

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Any business must be fully engaged in a data centre migration project. Migrations are not simply IT programmes that can be planned and executed in isolation.

Server Infrastructure : This provides all physical hardware in the new data centre. Infrastructure may consist of procurement, installation and infrastructure verification testing.

Shared Services : This provides all systems management and business shared services. Typically these would include databases, management tools, security and authentication functions.

Practice, Preparation and Actual Migration

Just like any major theatrical performance, practice and preparation are key to overall success. Prior to a data centre migration rehearsal, fully documented procedures and work instructions should exist. Rehearsals provide the opportunity to test instructions and amend with lessons learned, if necessary.

We usually find most businesses require three to four full rehearsals in orchestrating a migration. Rehearsals and migrations are typically difficult to resource, with 24-hour cover required, often in three shifts from close of business on a Friday until the rehearsal or event is completed early Monday morning. Although a rehearsal is labour intensive and is usually completed over a weekend, the payback in terms of testing, refining and minimising risk is priceless.

Lessons Learned

Wanstor has over 15 years' experience of successful data centre migrations for a variety of customers across a range of industries. Some of the most common pitfalls we have seen as to why many data centre migration projects fail include:

- Inadequate time dedicated to baseline data discovery

- Poor programme management and leadership with parts of the project team operating in silos

- Lack of current software licences with no upgrade budget

- Non-compliance with in-country data management regulations or lack of consideration towards regulation prior to migration

- Premature change due to poor communication in teams

- Unnecessary user access to data, compromising security

- Confusion between data centre migration programmes vs data centre transformation programmes leading to excess work

- Lack of rehearsal prior to migration, leaving businesses exposed by way of application, data and project management

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Final Thoughts

By taking the time and care in preparing for a data centre migration, your project has every chance of success. As a leading IT service provider in the UK, Wanstor has a wealth of experience in managing, planning and performing data centre migrations - our experience comes from real-world projects which we have successfully planned, managed and delivered.

We are able to offer an end-to-end single integrated method and approach, delivered by highly experienced Programme Managers, Project Managers and Architects.

At Wanstor we understand that no two businesses are alike, and that data centre migration is historically extremely challenging for incumbent business IT teams to successfully deliver alone.

Because of our expertise and experience in data centre environments, we have a successful track record of complex data centre migration projects. Wanstor's success in data centre migration projects is because we have developed a proven data discovery methodology and adopt a pragmatic approach to executing data centre migration strategies.

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