SearchDataCenter.com
E-Guide

Expert strategies for data center consolidation

Many organizations have looked to data center consolidation to reduce IT costs and increase capacity. However, data center consolidation is complex and risky, and cost reductions are not guaranteed. This e-guide from SearchDataCenter.com explains how a data center consolidation strategy can benefit from the ITIL lifecycle. Discover how your organization can gain from these ITIL lifecycle phases: service strategy, service design, service transition, service operations, and continuous improvement. And find out about best practices for data center consolidation with disaster recovery in mind, including the pros and cons of centralized backup facilities and pairing data centers.

SearchDataCenter.com
E-Guide

Expert strategies for data center consolidation

Table of Contents

Data center consolidation strategy can benefit from ITIL lifecycle

Data center consolidation best practices for disaster recovery planners

Resources from DLT

Data center consolidation strategy can benefit from ITIL lifecycle

By George Spafford, Contributor, SearchDataCenter.com

Many organizations have looked to data center consolidation to reduce IT costs and increase capacity. The rationale is that newer technology and fewer data centers can cut operating expenses. However, data center consolidation is complex and risky, and cost reductions are not guaranteed.

Some IT organizations have mature data center processes that can support the transition of services from one data center to another. There are many dependencies to take into account during a data center consolidation, and an experienced IT staff understands that a holistic service perspective is needed to analyze what must be moved.

When IT delivers a service, there's more involved than just hardware and software. For a successful migration, all crucial elements must be taken into account.

In contrast, the majority of IT organizations tend to lack the experience and process maturity to undertake consolidation with predictable outcomes. These groups need to develop their capabilities quickly.

For organizations that are constrained by deadlines, it may not be possible to spend months designing and implementing full-blown integrated processes; instead, tactical processes must be rapidly assembled. The IT Infrastructure Library (ITIL) can be beneficial as a source of reference to identify key considerations during the movement of services, even if the consolidation is done in an accelerated manner.

One reason that ITIL is relevant to data center consolidation initiatives is the concept of a service. When IT delivers a service, there's far more involved than just hardware and software. For a successful migration, all crucial elements must be taken into account. Everything may not be replicated, but management must at least understand the requirements and make well-educated decisions.

If we look to the ITIL lifecycle, the processes that underpin each lifecycle phase can be used to suit the needs at hand.

Service strategy

It is important to understand the objectives of the data center consolidation. You must identify the candidate services and make sure you understand the business processes that each service supports. From there, you can design a roadmap for the services from a design and capacity perspective. Then you can create a prioritized list of services to move, taking risks, opportunities and dependencies into consideration.

Service design

Each candidate service must be thoroughly understood. This includes configuration item relationships between hardware, software, people, documentation and facilities. It also means that knowledge about the services' design and operation must be captured, codified and transferred. Organizations cannot afford protracted learning curves while site personnel in the new data center become familiar with transplanted services. Instead, supporting knowledge for design and operating specifications must transition as well. It's equally critical to understand service-level expectations (even informal ones), capacity requirements and events related to each service.

Service transition

The candidate services need to be project-managed and governed by change management. Production releases must be carefully coordinated, with dependencies and risks taken into account. You must undertake proper testing and validation to help ensure that services will run as expected in the new data center.

Service operations

Technical operations, service desk and resolution-process staff, as well as relevant stakeholders, must have the training to support the technologies and ready access to repositories such as the service knowledge management system that identify how to

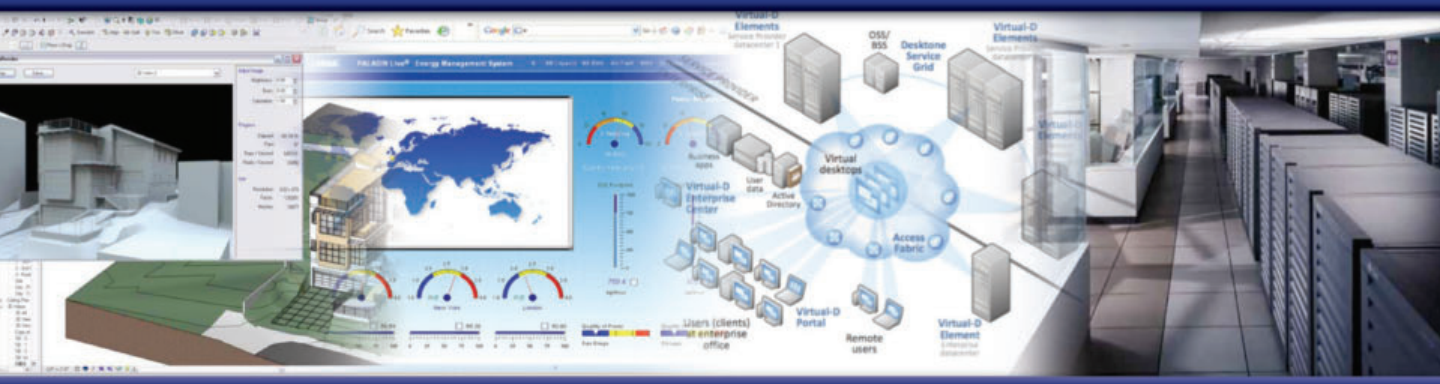
maintain the services. If there are challenges, engineering must be engaged to revise procedures and checklists in a controlled manner.

Continuous improvement

There must be a formal method, based on lessons learned during the data center consolidation, to improve the transitioned services and update the processes that support consolidation and production. If the previous site had improvement plans, those need to become part of the transition as well.

The above considerations are examples, and the main point is that the ITIL lifecycle can teach us a great deal and we can use it as the basis of expedient processes for data center consolidation. The initial discovery-related processes will need to identify and document the current state of the data center, where there are opportunities to improve, what needs to be done to transition each service and how to operate the services in the future.

No two customers are alike...



Each customer has their own goals, objectives, and challenges. No matter what phase of IT consolidation your agency is in, DLT Solutions has the expertise and solutions to help you through it. From the early research phase to the in-depth technical questions, we have the resources for you.

Visit **www.dlt.com/consolidation** to learn more.

DLT SOLUTIONS

800-262-4DLT | dlt-solutions@dlt.com | www.dlt.com

Data center consolidation best practices for disaster recovery planners

searchDataCenter.in

Many companies and government agencies are engaged in consolidating data centers. The largest of these organizations have data centers around the country and even around the world. In many cases, they have grown by acquisition and have added data centers along with their new subsidiaries.

Data center consolidation isn't only an issue for disaster recovery (DR) planners in large companies. Smaller organizations, often with only one physical location, find themselves with distributed servers and data storage scattered around their office premises. However, the distributed data centers often lack the safety and access control of a centralized facility. Similarly to larger organizations, these companies also see a need to consolidate their processing.

Data center disaster recovery considerations

Moreover, for both large and small organizations, the needless duplication of personnel, real estate, heating and cooling, and network connectivity have become a financial drag at a time when expenses are receiving increased management scrutiny. Thus, these organizations are consolidating the equipment in numerous large and small facilities into data centers intended to serve their enterprises as a whole. The drivers for this consolidation are both technical and economic, but the result is the same: more processing power and storage in fewer locations.

When there are many data centers, the loss of one has limited effect. But if the number of disaster recovery sites is reduced, for example, from many to a relatively small number, the loss of any one of the DR facilities would be devastating. However, the difference of scale also renders many previous economic and technical calculations moot. For most companies, it's not economical to build a data backup site for each consolidated data center. And there are few, if any, commercial disaster recovery services that can accommodate the new mega-data centers.

Assuming that the decision to consolidate is made on the basis of a combination of technology, risk management, cost and customer service considerations, it is clear that recoverability requires a different approach than many companies have taken to disaster recovery in the past. There are a number of factors that might be addressed with regard to the structure of recoverability and resilience among consolidated data centers, and companies should give them consideration in their decision-making.

What kind of backup sites, and how many?

The viability and adaptability of legacy data centers to serve as a backup for large sites built for modern systems should be viewed with caution. For example, data centers originally designed for mainframe operations do not adapt well to large-scale implementation of blade servers, large Unix servers, concentrated storage and intense network activity. The heat generated by the equipment is difficult to dissipate in an older data center, which typically has 12-foot ceilings. The heat often leads to irregular air-flows within the data center and hot spots in a number of locations. Also, the 1½- to 2-foot raised floor found in older data centers makes it difficult to provide and manage sufficient power for server and storage arrays. Legacy data centers were designed for power loading of 35 to 45 watts per square foot, but keep in mind that highly concentrated equipment may draw up to 100 watts per square foot. Many older data centers are laid out with a relatively large area for raised floor and less for mechanical, electrical and plumbing (MEP) equipment. And modern data centers often reverse the ratio of raised floor to MEP space.

In addition, in legacy data centers, the sheer number of cables necessary to link numerous servers, storage and networks becomes a tangle in restricted spaces. Plus, the cabling throws heat that needs to be dissipated under the floor.

One approach is to design the consolidated data centers to back up one another. If the sites are to be consolidated to one, it is clear that an alternate site is also required. If there are two, one might back up the other. With three or more, it might make sense to have one act as a disaster recovery center for the others.

The problems with a centralized disaster recovery facility

A core assumption contained within a centralized disaster recovery strategy is that the backup facility contains enough equipment to run the production operations of any of the other sites should one of them be affected. The implication is that there is sufficient consistency in the hardware and software used within each site that the applications and infrastructure of any one could run on the servers and storage located in the recovery center. Of course, 100% overlap is nearly impossible to achieve, but the broader the skewing among configurations at the primary site, the more diverse the equipment that must be installed at the recovery site. If configurations are significantly diverse (as would be the case in data centers obtained through a merger), the equipment installed in the backup site would be a multiple of any of the others, which is an uneconomic proposition. Server and storage virtualization help with this, but if physical configurations are not comparable, a price will be paid in capacity.

Many organizations have found that they have significant business requirements for recovery with little or no data loss. The equipment and network requirements for synchronous or asynchronous data replication will constrain the use of a single backup site. A centralized disaster recovery site would need to have storage on the floor for those applications in all production sites that require data replication. If there were a need to use the facility for recovery purposes, and if server virtualization were not employed, it would be necessary to run servers equivalent to those in the affected site (with the concerns noted above) while continuing to receive and store replicated data from the other two sites. Moreover, with the disaster recovery site running production, it would also be necessary to have the bandwidth to support both production applications and on-going replication from the surviving sites. If a company has a reliable plan for bandwidth on demand, this may be feasible. Without such arrangements the investment in excess network capacity could be daunting.

Pairing data centers

Pairing data centers is a strategy where two data centers replicate to each other and serve as each other's recovery site. Pairing data centers with similar configurations and relying on virtualization to enable increased utilization of physical platforms in an emergency may be a

more effective strategy than a centralized disaster recovery site. While virtualization has helped some companies to alleviate constraints imposed by a lack of hardware available for recovery purposes, many companies are just now seeking to deploy virtualization for mission-critical applications and may not yet be in a position to leverage its full benefits for resilience and data recovery.

There are many financial, technical, operational, risk and service-level analyses that go into the strategies for both consolidation and recoverability. No single solution is correct or incorrect. If these analyses are well documented and convincing, they should lead to conclusions that satisfy production needs and recoverability within a realistic budget. Some companies may benefit from a shared disaster recovery facility, others may find success from a commercial recovery service and many benefit from paired sites. Regardless as to which option you choose, it's important that all aspects of data center consolidation have been given appropriate consideration.

Resources from DLT

Data Center Consolidation

Strategies Of IT Consolidation Government Panel Video

IT Consolidation In Government E-Magazine

About DLT

For nearly twenty years, DLT Solutions has been the IT software and solutions provider of choice for federal, state & local government and education customers. By hand selecting its manufacturer partners including Autodesk, Google, NetApp, Oracle, Quest Software, Red Hat, Solarwinds and Symantec, DLT fulfills its mission to be a value-added reseller of only the best software and hardware products and services, as well as a premier provider of technical support, through its many government contracts. The company specializes in carefully-selected solution areas — Cloud Computing, Data Center Consolidation, Geospatial Data Systems and Computer-Aided Design for Transportation, Utilities and Manufacturing. For more information or to place an order, contact DLT Solutions at 800-262-4358; email **sales@dlt.com**; or visit **www.dlt.com**.