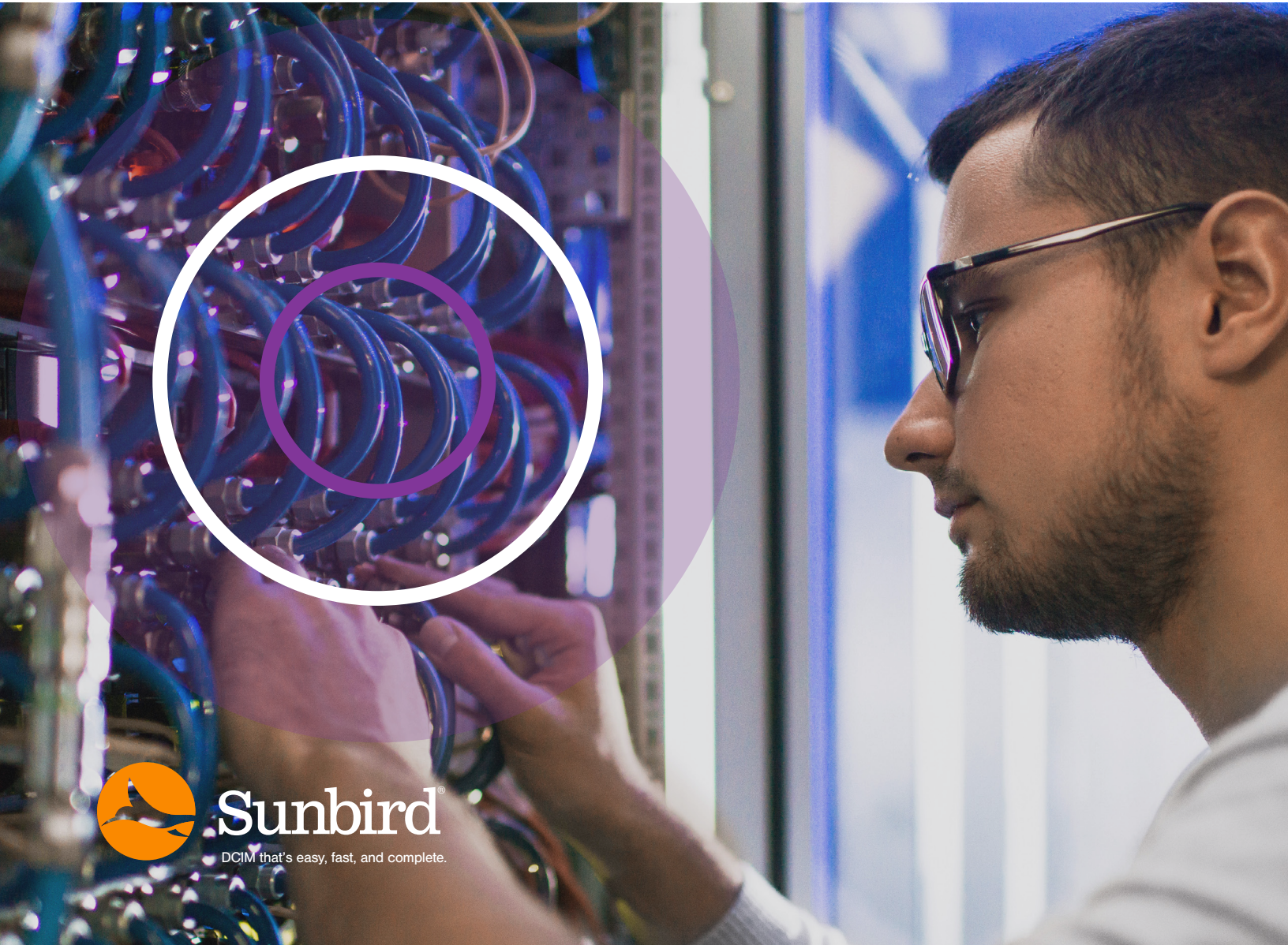
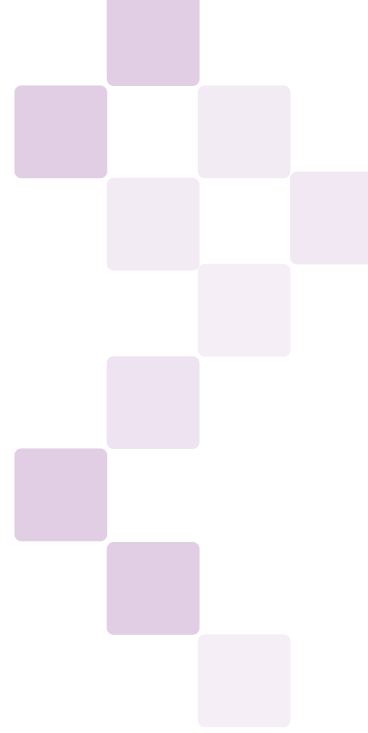


EBOOK

8 Best Practices to Simplify Your Data Center Consolidation



Sunbird[®]

DCIM that's easy, fast, and complete.

Table of Contents

Introduction	3
Key drivers of data center consolidations	4
Common challenges of data center consolidations	5
8 Best Practices to Simplify Your Data Center Consolidation	6
1. Understand your actual power utilization.	7
2. Deploy a complete data center management solution.	8
3. Inventory your assets and understand space utilization.	9
4. Automate power capacity planning to increase utilization.	10
5. Identify zombie/ghost servers.	11
6. Create a virtual buildout.	12
7. Provide clear instructions on the day of the move.	13
8. Maintain maximum efficiency of capacity utilization.	14
Conclusion	15

Introduction

Whether you are downsizing your infrastructure within a single room or eliminating half of your data center sites, a data center consolidation is a complex, risk-prone project.

Fortunately, you can mitigate many of the mistakes and unwelcome surprises that even the most experienced data center professionals find derailing their consolidation.

In this eBook, we have compiled the top eight proven best practices that we have learned from our experiences with hundreds of customers in our global user group program. Follow these tips before, during, and after your project and you will overcome often-overlooked challenges and achieve a successful consolidation.



Key drivers of data center consolidations



Government mandates.

Federal mandates like the Federal Data Center Consolidation Initiative (FDCCI) and Data Center Optimization Initiative (DCOI) aim to increase the utilization of government data center facilities. These mandates require agencies to develop and report on strategies to consolidate their inefficient infrastructure.



Migration to the cloud.

As more and more enterprises shift workloads to the cloud, the need for space is reduced. As such, organizations are downsizing their footprint to use their space more efficiently and reduce the complexity of data center management.



Reduced costs.

Managing a smaller footprint provides an opportunity to realize cost savings. Fewer physical locations and less equipment comes with reduced operational expenses, energy consumption, procurement fees, software licensing costs, and maintenance costs.



Green data center and sustainability initiatives.

Data centers around the world are at the forefront of the green movement, reducing their environmental impact and ushering in a new era of sustainability. Organizations have made it a priority to maximize energy efficiency and reduce their carbon footprint.

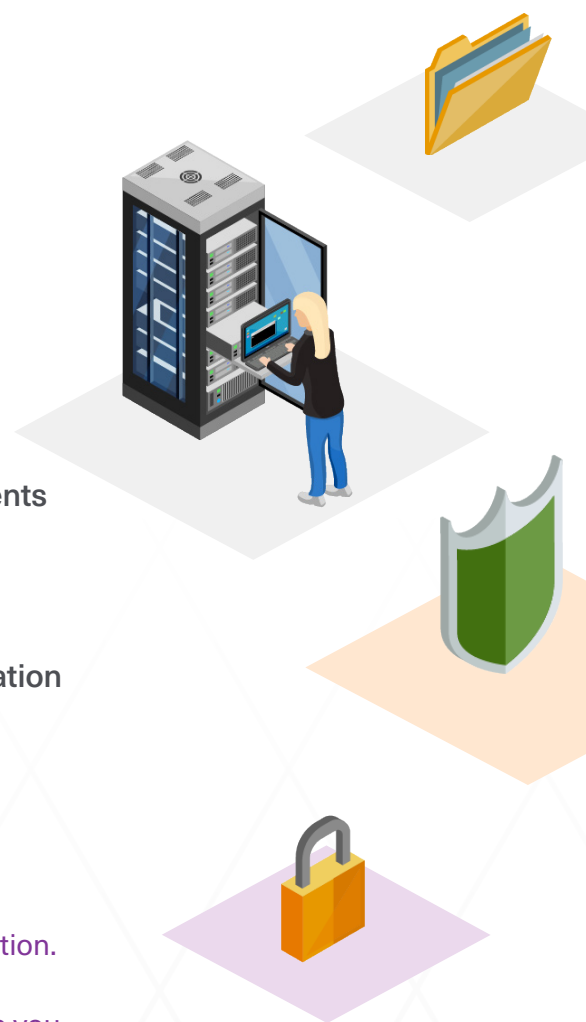
Common challenges of data center consolidations

A data center consolidation is a risky endeavor with many potential complications. Surprises and errors can happen and cause extended periods of downtime can happen in any consolidation effort.

Common challenges include:

- ◆ Not properly planning out the move in detail beforehand
- ◆ Mismanagement of teams and resources
- ◆ Ineffective use of capacity
- ◆ Inaccurate asset inventory records
- ◆ Missing or misused cabling and other hardware components
- ◆ Unfamiliarity with the new facility
- ◆ Difficulty moving all equipment associated with an application quickly and simultaneously
- ◆ Incorrect equipment installation

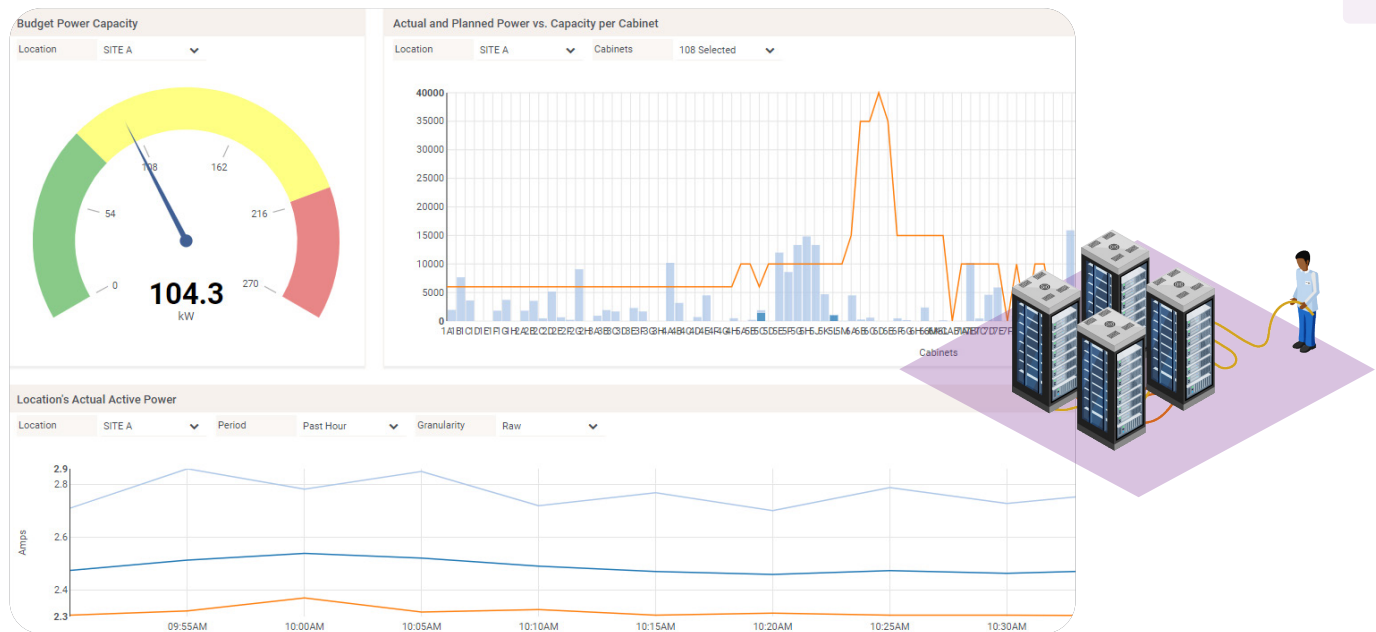
Any of these issues can impede the success of a data center consolidation. Keep the following best practices in mind as you plan your data center consolidation for a faster transition with fewer risks. These tips will help you complete your project successfully and, ultimately, achieve your goal of managing highly efficient data center infrastructure.



8 Best Practices to Simplify Your Data Center Consolidation

Understand your actual power utilization.

The first step of a successful data center consolidation is to have an accurate understanding of how much power you are using in your current environment. This will help determine how much you can consolidate later in the process.



To get useful data on the power load of your devices and infrastructure, deploy intelligent rack PDUs and other metered infrastructure in your data centers. While inlet-metered PDUs will provide readings at the cabinet-level and are useful in measuring power usage and available capacity, to properly perform a consolidation from start to finish, you need outlet-metered PDUs.

Outlet-metered PDUs provide all the benefits of inlet-metered PDUs, plus the highly valuable data that comes with monitoring power consumption at the device level. This data is a must-have to achieve the other best practices on this list and maximize efficiency.

Deploy a complete data center management solution.

Data Center Infrastructure Management (DCIM) software, when combined with intelligent rack PDUs and other metered infrastructure, forms the complete solution for efficient data centers. DCIM software transforms the data from your meters into actionable insights that help you increase the efficiency of your capacity utilization before and after the consolidation.

Some data center professionals think they can wait until after their consolidation project to deploy DCIM software. The fact is that if you do not have the proper tools and information at the very start, your consolidation is doomed to be at best an uphill battle or at worst a complete failure. Reasons to deploy DCIM before your consolidation include:



Instant accuracy. Perform one audit before the consolidation and have an accurate, real-time asset inventory from day one.



Data-driven decision-making. Turn your metered data into actionable information. Easily assess, plan, and review your strategy to make the most informed decisions for your consolidation project.



Perfect timing. A consolidation provides a fresh start to move away from manual, inaccurate, antiquated tools and towards a modern solution. DCIM software will make up only a small part of the overall project scope, so it is a great time to get funds for a cutting-edge data center management platform.



Immediate return-on-investment. Gain all the benefits of having a DCIM solution right away. Maintain uptime, improve capacity utilization, boost productivity, and reduce costs from the onset.



Inventory your assets and understand space utilization.

Next, you need to know exactly what equipment resides in your data centers to understand your cabinet and floor space capacity to simplify your upcoming consolidation.

Some data center professionals use outdated Excel spreadsheets and Visio drawings to track their assets, but you should avoid these legacy tools. They are manual, time-consuming, and suffer from poor version control that results in a multitude of errors.

Others use auto-discovery tools to search for and identify data center assets. This will set only you up for difficulties later as auto-discovery will not capture the exact cabinet and U position of assets, device owners, structured cabling, and much more information that you will need later.

To perform this step correctly, leverage a modern DCIM solution to be your “source of truth” that will:



Track all hardware and other equipment to determine what needs to be moved in the consolidation and who owns it.



Maintain detailed information such as asset name, serial number, make, model, RU height, and asset age to uniquely identify equipment.



Provide dashboard charts for cabinet and floor space capacity out of the box.



Visually document all network connectivity down to the port level and track all cabling.



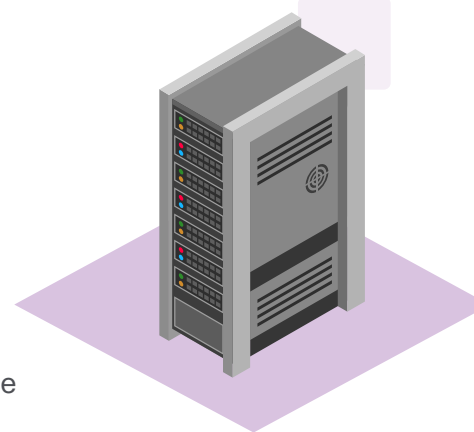
Maintain an inventory of all applications running on the hardware and track metrics like asset count by application and hosts per application to know how many resources your applications consume.



Identify, validate, and approve what will be moved, where they will be moved, and what connectors or other equipment are required for installation.



Allow for easy data accessibility via any web browser to eliminate trips to the data center and wasted time.



Automate power capacity planning to increase utilization.

At this point, you should know exactly what assets you have, where they are located, and what your real-time space and power capacity utilization is.

Now, you need to know exactly how much you can get out of your existing power capacity. Accurately planning rack power capacity is often a struggle for data center managers. The traditional approach to power budgeting—derating the server nameplate value to around 60 to 70%—is manual, estimated, largely inaccurate, and wastes money. But now, advances in DCIM technology allow you to automate power capacity planning, saving you time and money.



Leverage outlet-metered PDUs and a modern DCIM solution with an “Auto Power Budget” feature to achieve this. Auto Power Budget automatically calculates an accurate power budget number for each make and model instance of a device based upon the actual measured load of that device in your environment running your applications.

Auto Power Budget enables you to find stranded capacity and attain greater utilization of your existing cabinet power resources, providing many opportunities for consolidation. Users from customer like [Comcast](#) report improvements in rack power utilization by as high as 40%. [Read the full Comcast Case Study here.](#)

By using outlet-metered intelligent rack PDUs and DCIM software, you can safely deploy more devices in fewer racks. It is the perfect solution for preparing for any data center consolidation project.

Identify zombie/ghost servers.

Up to 30% of servers may be “zombies” or “ghost servers,” servers that are physically running but are not performing any useful functions.

This can be caused by deploying new hardware at such a high rate that decommissioning older servers is a lower priority, building out additional capacity just in case it is needed for a new service, or simply not having data on which servers are not being used or not knowing how to handle the problem. These servers are wasting space, energy, and money as they sit idle in your cabinets and must be identified to proceed with your consolidation.

By deploying outlet metered intelligent rack PDUs and DCIM software, you can easily identify ghost servers and decommission them to free up valuable cabinet space that can be filled by other, more useful servers.

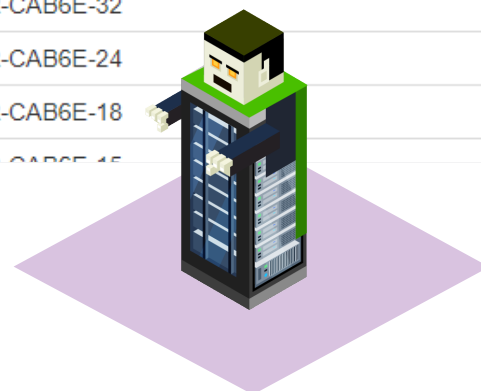
In an easy-to-understand dashboard chart, you can see the power load of all your servers. This provides an at-a-glance view of which servers have stopped drawing power and can be eliminated or redeployed elsewhere.

While preparing for a data center consolidation, having this information at your fingertips is highly beneficial for increasing the efficiency of your space capacity utilization.

Ghost Servers

Date Range: 2019/11/01 – 2020/10/31

Device	Max kW
Test Power Connection	0.00
SERVER-CAB6F-8	0.05
SERVER-CAB6F-36	0.05
SERVER-CAB6F-2	0.05
SERVER-CAB6E-32	0.05
SERVER-CAB6E-24	0.05
SERVER-CAB6E-18	0.05
SERVER-CAB6E-15	0.05



Create a virtual buildout.

At this stage, you have already made dramatic improvements to your data center infrastructure management.

Now it is time to start planning the actual migration of equipment. Align all parties involved on a single, unified vision of the layout and design of your consolidated data center infrastructure.

Before you move a single asset, you should use DCIM software to:



Build out a virtual model of where equipment will go and how it will be connected before doing the physical work. This allows you to uncover any potential issues that may arise so you can address them before they occur.



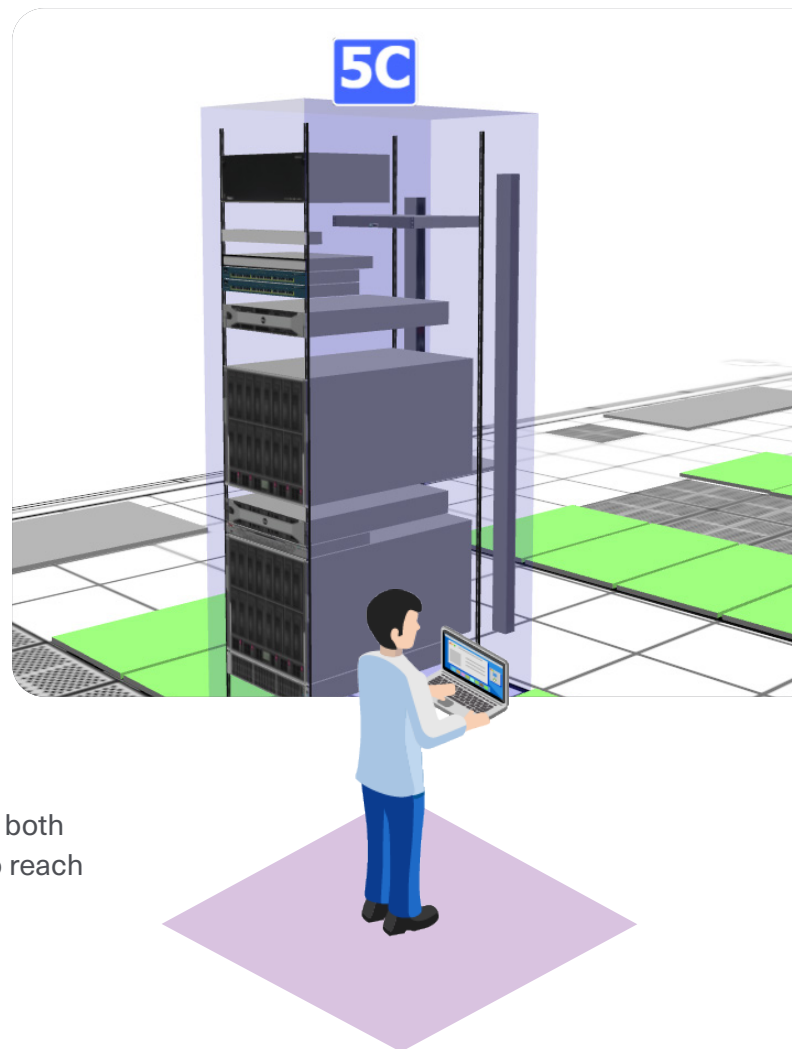
Articulate the infrastructure design, including the cabinets, power, and network layout, graphically to ensure that all teams can design and integrate their parts of the deployment seamlessly.



Measure the proper cable lengths for all required data and power connections to reduce costs on wasted cable and minimize the possibility of “spaghetti cabinets” after the consolidation.



Ensure that your IT deployment aligns with the power capacity designed for each rack and row both on the initial move and for future provisioning to reach failover designs.



Provide clear instructions on the day of the move.

By migration day, you should have developed a consolidation plan that includes determining if you will be migrating equipment in phases, deciding if you will schedule a migration service, gaining familiarity with any new sites, getting the necessary team members site access and security clearance, installing rail kits and other hardware beforehand, and even performing a dry run.

Most likely, the team involved in the data center inventory is not the same team doing the physical moving and installation during your consolidation. Since the work is most often done in the middle of the night and the team must work very quickly, the team needs straightforward, easy-to-understand work orders for fast and accurate execution.

Use DCIM software to simplify getting your equipment from one site to the exact right location in another with its built-in work order management system. You can create clear instructions for every single device and ensure that all cabling and other equipment that is needed for installation is provided.

With DCIM, you can provide the team with a work order for each IT asset via hard copy or any web browser. The work orders are simple to read and provide detailed information like which cabinet, U position, network cables, power cables, rack PDU outlets, and panel or port switches are to be used for each device.

On the day of the move, use your DCIM tool to track the progress of your work orders and ensure that the project will be completed on time. Your source of truth will be updated in real-time as each device gets installed, providing you the highest level of asset location knowledge.

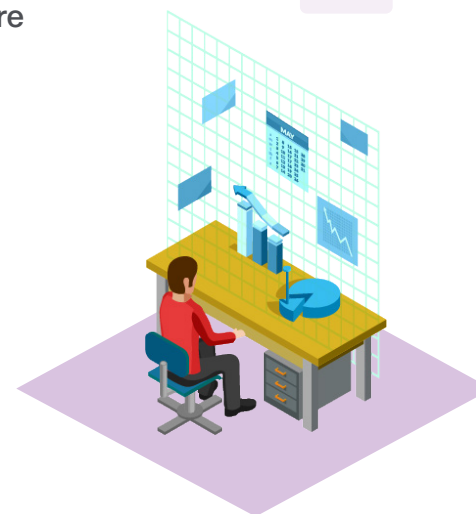


Maintain maximum efficiency of capacity utilization.

Once the equipment has been moved and installed, complete the consolidation by performing testing to ensure all devices and applications have been successfully migrated, ensure the NOC team sees polled power data and sees that systems are back online, conduct a spot audit to ensure equipment is physically installed and connected as documented, and decommission and dispose of old equipment and cabling.

However, in your new consolidated environment, you must still maintain a high level of efficiency to get the most out of your existing resources and defer the purchase of additional resources unless it is truly necessary.

Continue to leverage your complete data center management solution to:



- ✓ Identify the best cabinets to install new equipment
- ✓ Determine how many contiguous RUs of various sizes you have available
- ✓ Perform what-if analysis to understand the potential impact of additions and decommissions on your capacity
- ✓ Track compliance with the DCOI mandate via a DCOI Executive Dashboard
- ✓ Set and monitor thresholds on all power and environmental sensors with alerts that notify you if conditions exceed preset limits
- ✓ Identify and act on power, energy, cost, and environmental trends
- ✓ Create energy usage baselines and certify changes in energy and carbon footprint
- ✓ Generate cost reports for customers or departments to drive efficient behaviors
- ✓ Measure PUE in real-time to instantly evaluate changes that can improve your ratio

Conclusion

The benefits of consolidating your data center footprint are clear. It can provide significant cost savings, reduce complexity, and help you comply with government or industry mandates and guidelines. However, it cannot be ignored that a consolidation is a major endeavor that puts you at risk of downtime. You only have one shot at designing the new space, and you need enterprise software to get it right the first time. Put yourself in the best position to have a successful project by deploying a complete DCIM solution as early in the process in possible. As a result, you will maximize uptime, increase efficiency of capacity utilization, and improve productivity throughout your consolidation and beyond.

Take the Next Step with Sunbird



Request a Personalized Demo

Get a one-on-one live tour of our remote data center management software with a DCIM specialist

[Request Demo Now](#)



DCIM Software Online Demo

Remote 3D visualization of all your racks, assets, power, and network connections. View 100+ dashboard charts and reports. Know the capacity of all infrastructure items.

[Try it Free](#)



Download Migration Checklist

Leverage the checklist for better planning and execution, to minimize unwelcome surprises, and to guard against the most common oversights in data centers consolidations and moves.

[Download Now](#)