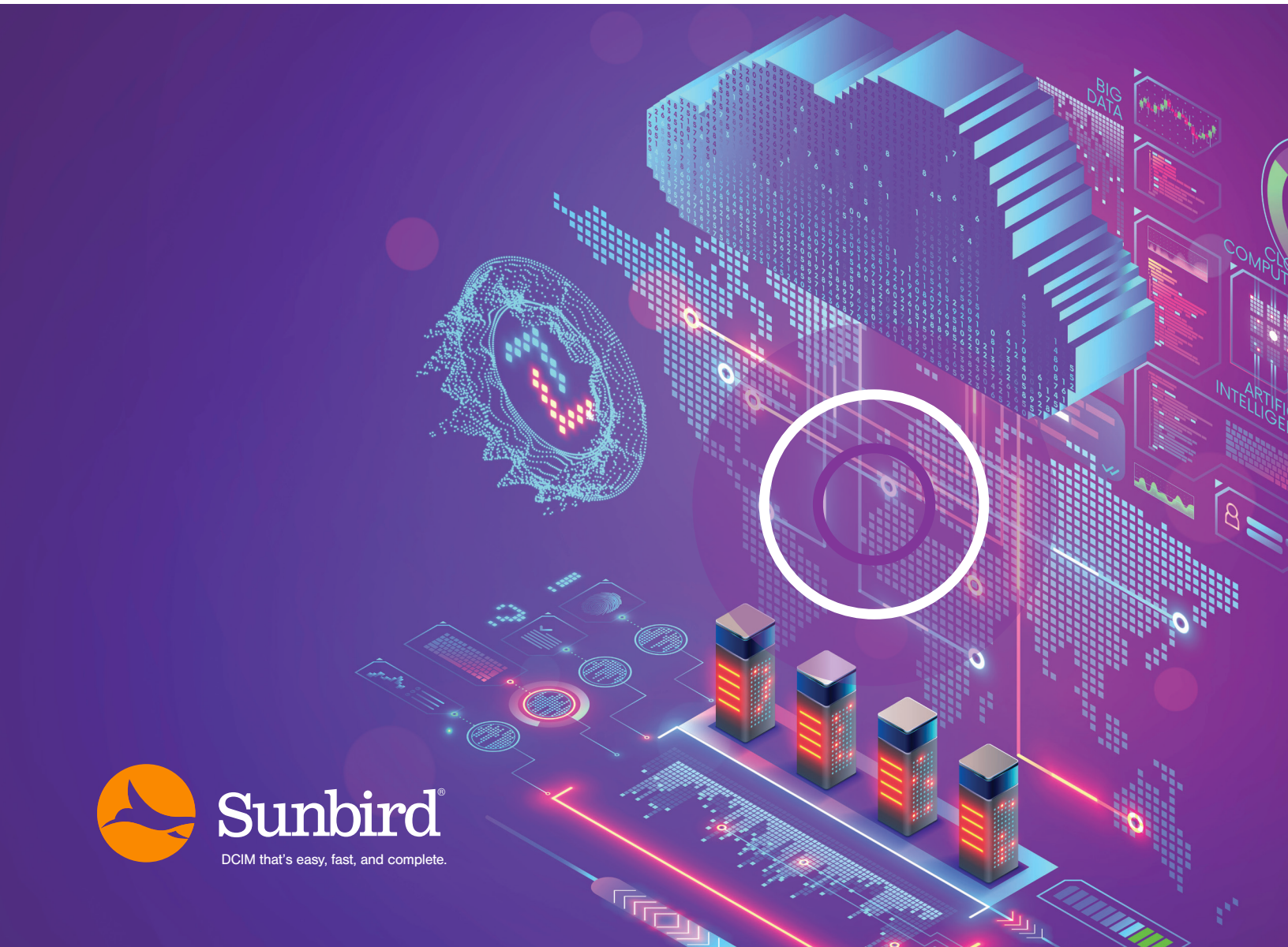
EBOOK

10 Best Practices

for MDF/IDF Closet Management



Sunbird®

DCIM that's easy, fast, and complete.

Introduction

Main Distribution Frames (MDF) and Intermediate Distribution Frames (IDF) are integral components of modern data communication networks.

Buildings or campus facilities have one or more MDFs which are the demarcation points where public or private telecommunication networks interconnect with the internal network. The MDF then connects to any number of IDFs in the building, and the devices in those IDFs connect to end devices such as workstations.

As data centers become more decentralized, MDF/IDF closets are now elevated to mission-critical status. However, they are often overlooked and mismanaged when compared to more traditional data center sites.

Common challenges of managing remote sites include having no visibility into equipment inventory and configuration, a lack of understanding of rack capacity, inaccurate work orders for technicians performing moves, adds, and changes, the inability to monitor site health and security, and having siloed tools and teams that don't communicate.

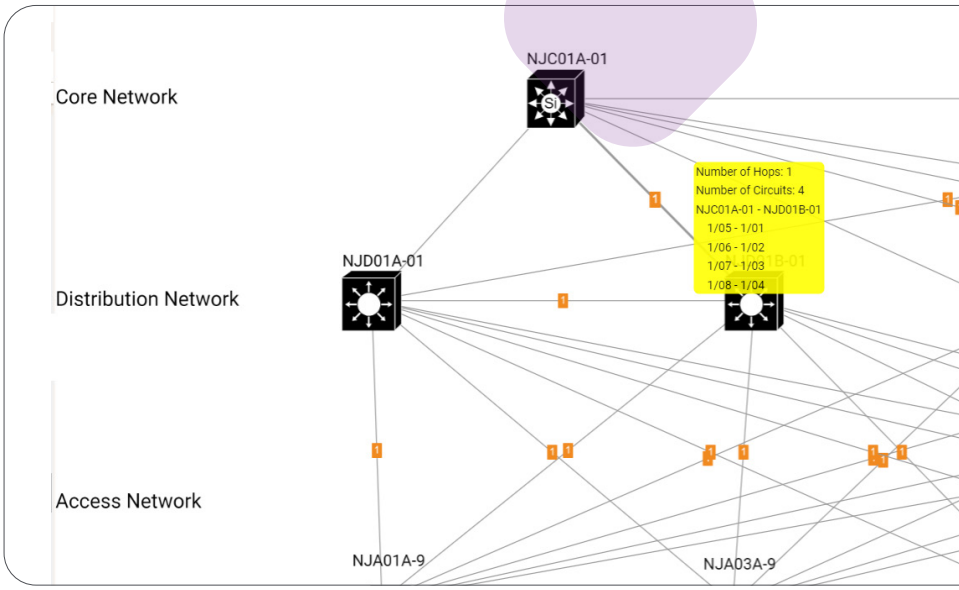
Fortunately, there is a path forward to simplify and centralize the management of your MDF/IDF estate. The key is to have the right tools and processes in place that allow you to monitor and manage all your global sites in a single pane of glass.

In this eBook, we've compiled the top ten best practices for MDF/IDF closet management that we've learned from our customers. Follow these guidelines set by some of the most successful data center professionals in the world, and you will improve uptime, efficiency, and productivity across your entire IT environment.

Accurately document the network

#1

MDF/IDF closets contain a lot of ports, cabling, and connections that are often not discoverable. When the physical network infrastructure is mismanaged, you can end up with cable spaghetti and spiderwebs that impede troubleshooting, make it difficult to move or install equipment, cause unsafe operating environments, and disrupt airflow.



Poor documentation also leads to inefficient capacity utilization, difficulty in planning and providing instructions to technicians, and increased costs for unnecessary cabling and hardware.

For accurate network documentation, both processes and tools need to be in place. Outdated tools like Excel and Visio currently used by network teams are manual and error-prone. Instead, visualize all your connections of both active and passive (i.e., structured cabling and panels) components across all your sites with network diagrams that are automatically generated based on your existing connection and circuit information with connectivity and patch management features found in modern DCIM tools.

DCIM software enables you to see your entire network in a single pane of glass with a high level of detail and customization such as color-coding, filtering, and tiered views based on your network attributes. You can even track the connections and structured cabling that connect the MDF/IDFs to the rest of the network. With automatic and accurate network diagrams, you can boost productivity by reducing time spent troubleshooting, planning, and maintaining manual diagrams.

Remotely visualize racks, devices, and cabling

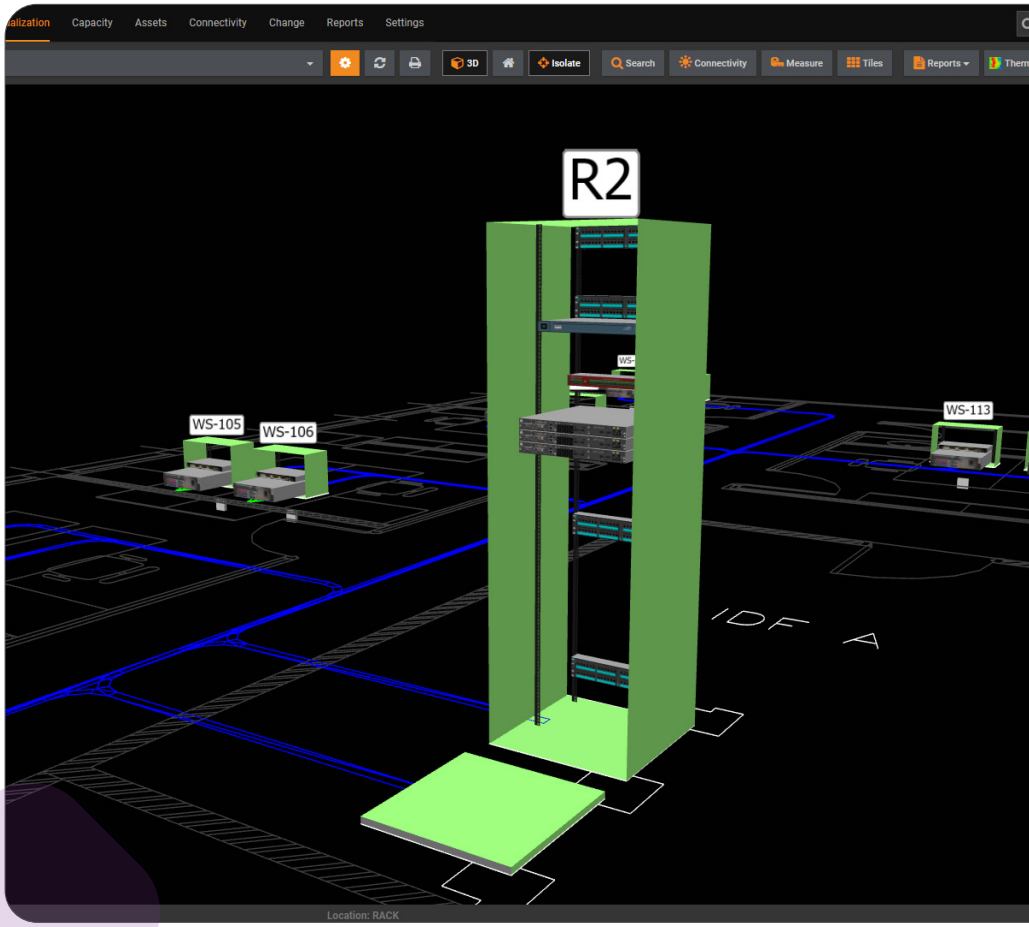
#2

With MDF/IDF closets, it is important to know what equipment you have, where it is located, how it is connected, and where you have capacity. This can be a challenge when you're managing hundreds or even thousands of individual remote sites.

A 3D "digital twin" of all your sites dramatically simplifies infrastructure management by enabling you to remotely explore and understand a real-time model of any site including the assets, power, environment, and connectivity. This allows for faster troubleshooting and smarter management that's even better than physically being there.

With 3D visualizations, you can see your rack contents and panel placements (i.e., above the rack) better than if you were standing in front of them. High-fidelity images of each asset with automatically rendered rack elevation diagrams provide a 3D replica down to the port level and to scale. You can also visualize the port-to-port physical connectivity of your devices to simplify troubleshooting and capacity planning.

Plus, you can overlay the live measured readings from your power and environmental sensors on your visualizations to instantly understand the health status of any site without leaving your desk.



Track the right KPIs and share reports

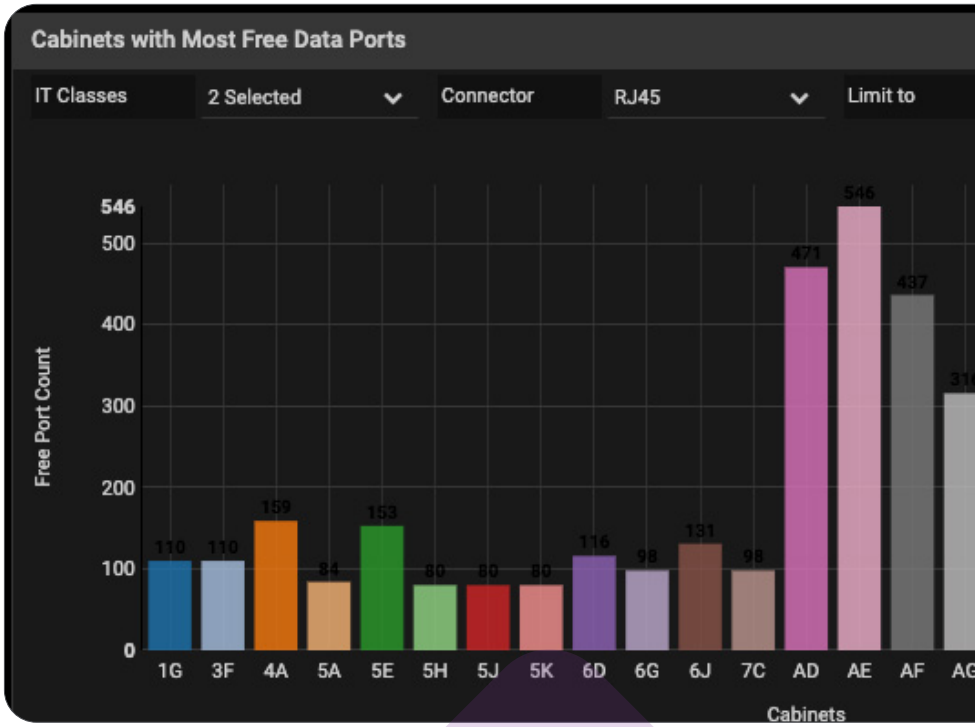
#3

Performance and health visibility and transparency is critical to managing MDF/IDF closets. It is common for the details about them to be maintained in siloed tools that are used by the network team and not shared with other functional teams.

KPIs and metrics should be democratized via modern DCIM software with business intelligence dashboards, reports, and visual analytics that enable a centralized view of all the physical infrastructure resources and capacities across your entire enterprise. Then, all teams can understand, at a glance, the reports that are most important to them such as the real-time status of any site's health, capacity, inventory, and productivity.

KPIs you should track include available capacity of key resources (i.e., space, power, cooling, and data/power port connections), energy cost, temperature per rack, power redundancy per asset, and data ports usage per connector type, VLAN/grouping, protocol, data rate, and media.

Consider creating and sharing personalized dashboards to drive data-driven collaboration across functional teams. Leverage a solution that can automatically generate and email reports on a recurring basis to keep all stakeholders aware of the latest information.



Maintain an accurate inventory of assets, parts, and spares

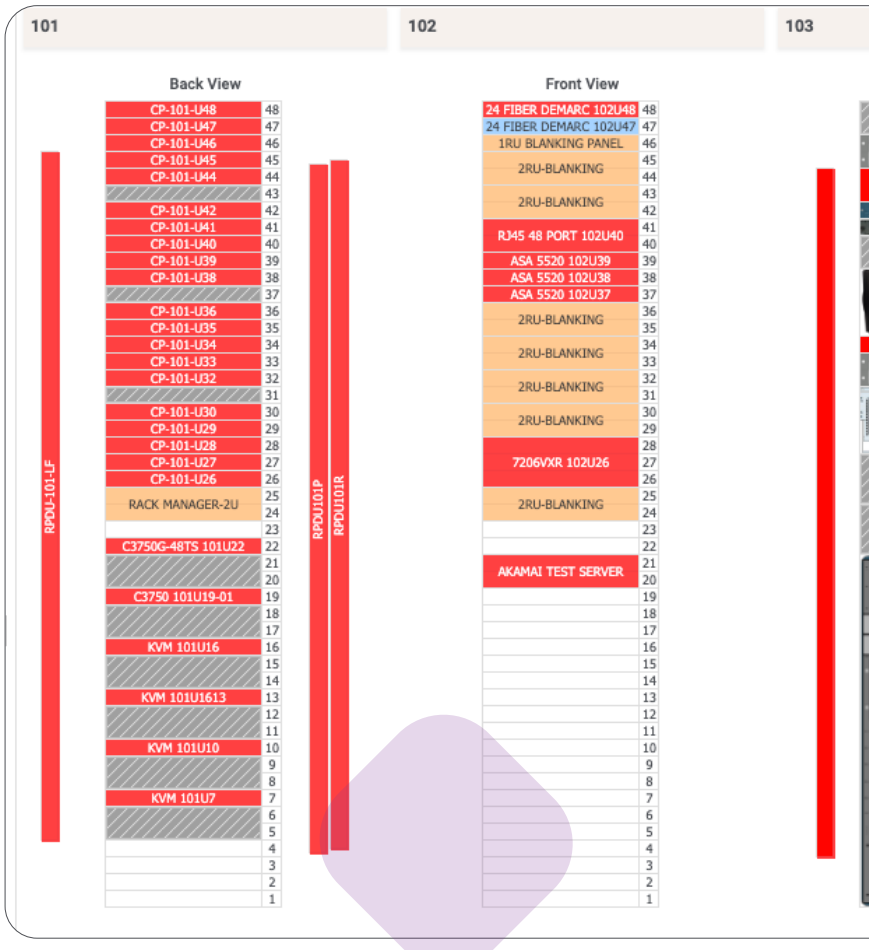
#4

The number of IT assets, supporting infrastructure assets, parts, and spares in today's data centers with many remote IDF closets can be staggeringly high. However, everything must be tracked and managed to ensure successful deployments, better manage the lifecycle of equipment, and know the relationships and dependencies of all data center infrastructure.

Legacy management tools like Excel and Visio are time-consuming, inaccurate, and should not be used to manage the complex asset inventories of your data center and remote sites.

DCIM software with complete asset management capabilities is a must-have for real-time views across your entire footprint including equipment in racks like UPSs, servers, storage, networking equipment, rack PDUs, patch panels, and even applications. Key information like make, model, dimensions, weight, serial number, asset tag, location, RU position, battery life, maintenance, and configuration can be easily tracked. Plus, custom fields allow you to track anything else that it is important to your organization.

You should also track parts and spares like hard drives, cards, memory modules, power supplies, and patch cables. With this information, you can keep track of inventory levels to know if you have enough parts in stock for new deployments or spares on hand to quickly repair or maintain equipment.



Perform regular asset audits

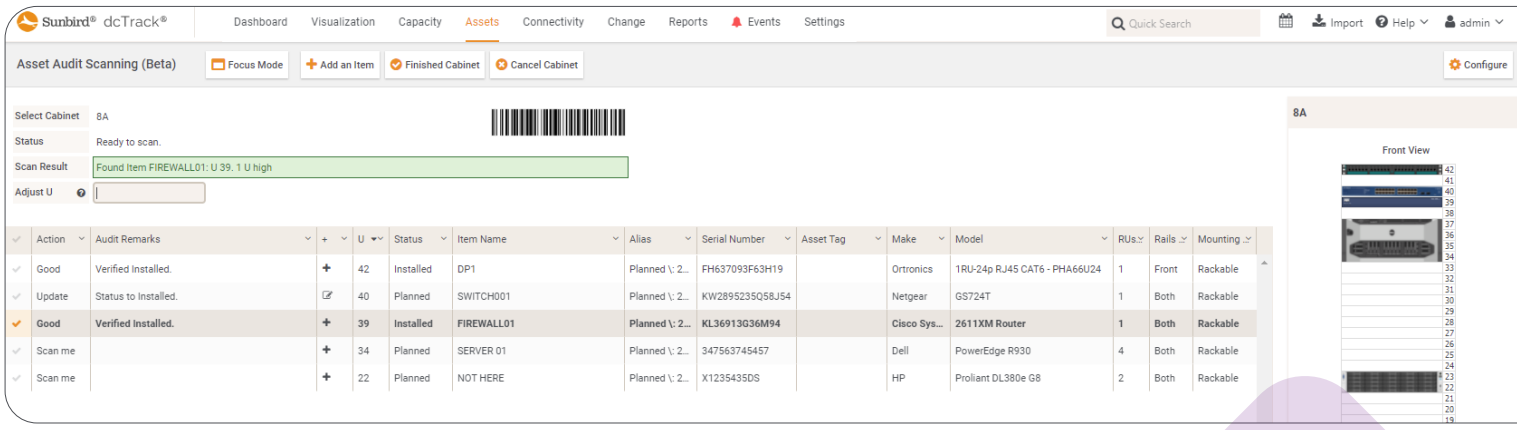
#5

Over time, undocumented moves, adds, and changes in your MDF/IDF closets may occur. As these add up, your actual environment may be substantially different than what your documentation shows. When this happens, there is greater likelihood of longer troubleshooting times, underinformed and difficult planning, and delays in rolling out services.

To maintain the accuracy of your asset inventory, you should perform an asset audit of each location at least once a year. This has traditionally been a struggle for many organizations due to the distributed and ever-changing nature of modern data center environments, proliferation of remote sites, and lack of an established process or people resources to conduct the audits.

However, new functionality in DCIM software dramatically simplifies data center asset audits so you can perform them faster, with fewer people, and more accurately.

One person with a barcode or QR code scanner can scan all the equipment in a rack during the audit. Built-in logic anticipates the next step in the process and a configurable voice response either confirms the item is correct in the database or lets you know if a change is recommended. Upon completing the audit, an exception report can be generated and exported for review. After verifying the changes suggested in the report, you can simply import the file back into the tool to make the updates, ensuring your system always reflects the actual state of your sites.

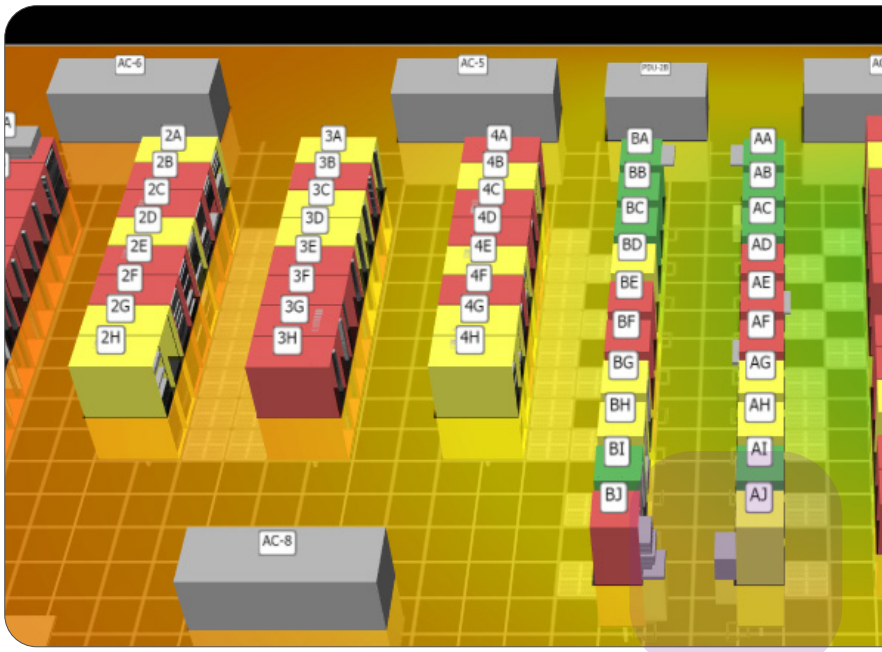


Monitor and alert on power and environmental conditions

#6

One of the biggest challenges of operating many remote sites is that they each have their own power and cooling systems that need to be managed. Without a tool that can centrally monitor the power and environmental conditions of every site, you risk experiencing costly unplanned downtime and inefficient capacity utilization.

First, your sites should be instrumented with metered power distribution infrastructure and environmental sensors for temperature and humidity. Then, deploy DCIM software that automatically collects, stores, reports, and alerts on the live measured readings from these meters and sensors so you always know what is happening in any of your MDF/IDF locations.



Modern DCIM software transforms your raw data into actionable insights that help you maintain uptime and increase efficiency. For example, DCIM software with an enterprise health dashboard displays the real-time power and environmental health and events for all your sites in a single pane of glass. Easy to understand red-yellow-green color-coding lets you know exactly which sites have warning or critical events based on the thresholds that you configure. You can then drill down into the details to see what the issue is and proactively resolve it before it becomes a serious problem. Automatic email notifications of the threshold violations ensure you are always the first to know of events anywhere in your global data centers.

Having an advanced warning of issues such as hot spot formation, UPS power capacity limitations, and loss of redundancy allows you to take action to keep services online and customers happy.

Safeguard your closets from physical threats

#7

Your MDF/IDF closets contain mission-critical infrastructure that is easily exposed to both malicious and unintentional physical security threats.

If remote sites are compromised, the damage can be severe. Potential consequences include sensitive information being stolen, increased expenses for equipment replacement and legal fees, a ruined reputation that loses customers, and disrupted business operations that stop revenue until services are back online.

To protect your sites and assets, keep your equipment in a separate and locked room, only allow access for authorized personnel, place cameras in and around each room, and leverage a centralized security management solution.

Your security management software should offer reporting, audit logs, and video surveillance feeds that allow you to monitor who has access to various sites and racks, how often they are accessed, and if attempts are successful or not. Local RFID authentication or remote control of all your electronic door locks can also mitigate security risks and help you comply with regulations.

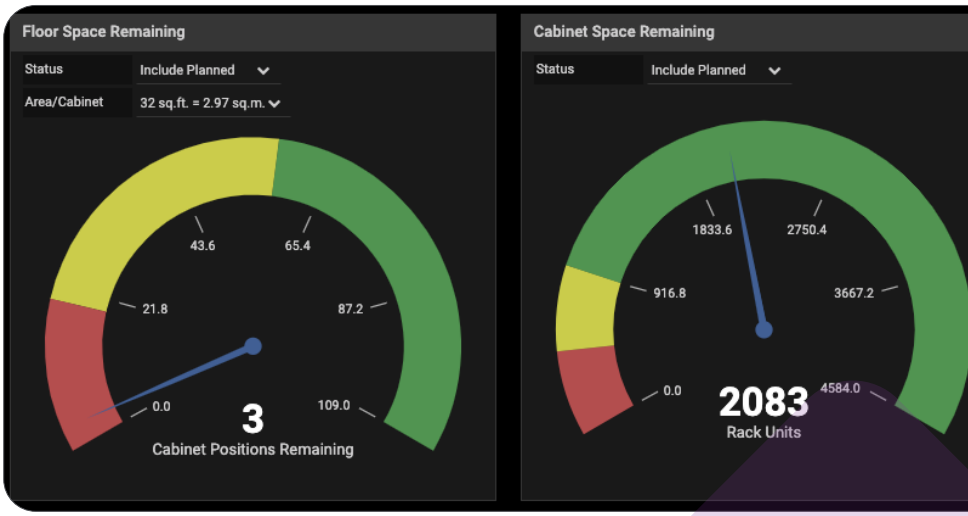
Intelligently plan capacity

#8

As with all data center locations, MDF/IDF closets and remote edge sites are constrained by capacity limitations. Depending on the site, they may be constrained by space, power, cooling, or data/power port connections.

Accurately planning and managing capacity is essential for maintaining uptime and ensuring efficient resource utilization. Failure to do so can be expensive and detrimental to your business. For example, if you don't have enough available capacity, you cannot deploy new equipment or services until you purchase more. If you have too much capacity, then you have an inefficient environment that is wasting money and resources.

DCIM software makes capacity planning easy by allowing you to visualize rack capacity in 3D, report on the most common capacity KPIs with zero-configuration dashboard charts and reports, intelligently find where you have capacity to deploy new equipment in seconds, and automate server power budgeting to safely deploy more compute devices in your existing rack space.



With a modern capacity management tool, you can always know the health and capacity of every site you manage. For example, MDF/IDF closets often run out of port capacity, but with DCIM software, you can know at-a-glance how many available ports each rack has so you can let management know and purchase more resources before you run out. Plus, real-time monitoring of actual rack power and UPS loads let you understand your overall power consumption and battery run time to maximize uptime and availability of IT services.

Ensure redundancy

#9

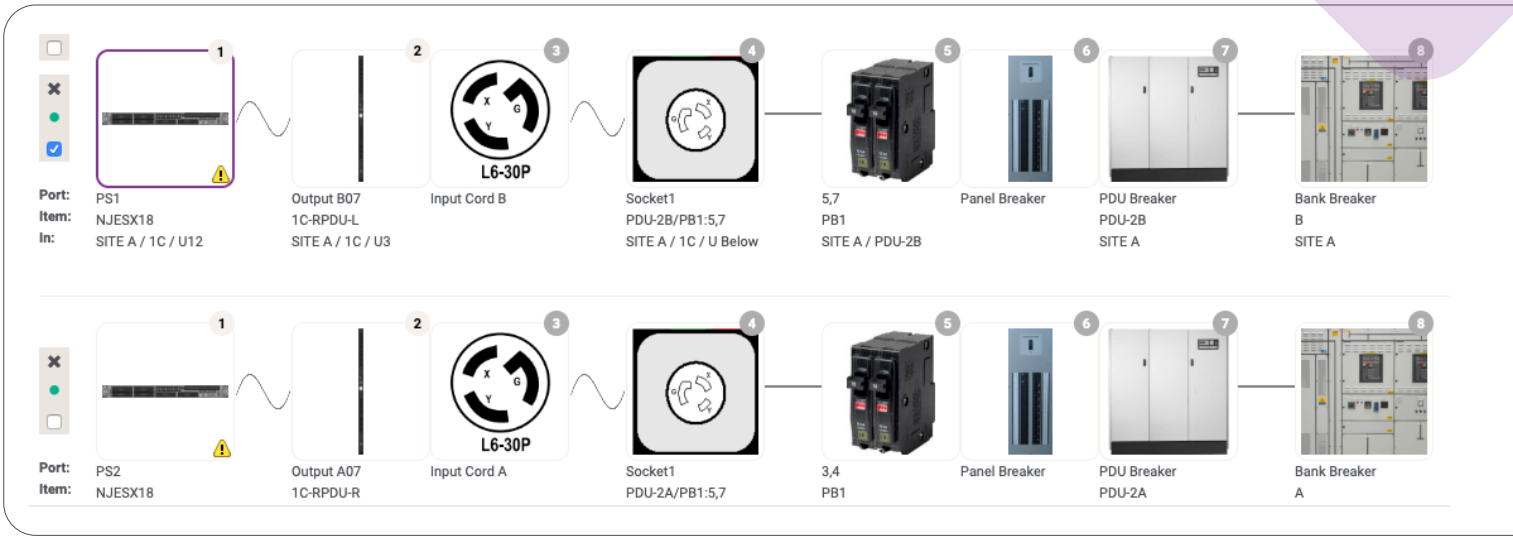
Since each piece of equipment in an MDF/IDF closet is often connected to hundreds or thousands of other devices that are necessary for end users, redundancy is critical to the role these sites have in an IT environment.

A single failure in a closet or remote edge site can cause significant downtime that costs your organization productivity and money.

To the reduce the chance of downtime, your sites should have backup power, cooling, and network systems that are available in the event one or more of those components fail. It's also important that you have a fast failover to redundant systems to ensure you maintain uptime.

The failure of an IDF device may disable hundreds of end stations, but an MDF failure may disable thousands. To mitigate the risk of a complete loss of connectivity, many organizations deploy MDFs in pairs. Some place all MDF devices in the same closet and rely on disparate cable routing for redundancy while others prefer to place MDF devices in two separate locations.

In addition to deploying hardware that provides redundancy and resiliency such as UPSs, you should leverage a software solution that helps you ensure redundancy. DCIM software enables you to run a failover simulation report to identify exactly which racks are at risk and what equipment will continue functioning in the event a smart rack PDU goes down, and health polling of intelligent rack PDUs decreases the likelihood and severity of outages by ensuring systems are online and alerting you of potential issues.



Integrate tools and teams #10

MDF/IDF closets and regional edge sites are typically managed by different teams than the data center and facilities teams, and it's a common issue that these teams use disparate tools and databases. When these tools are not integrated and there is no single version of the truth that spans the entire environment, productivity and data accuracy are reduced.

To reduce manual effort, you must drive a culture of data sharing and collaboration and streamline workflow across functional teams. The most sophisticated organizations in the world leverage "automation via integration."

Automation via integration is achieved by deploying and integrating modern DCIM solutions with out-of-the-box connectors that automatically populate data in the correct systems for a holistic view of all data center resources and their relationships.

DCIM software is commonly integrated with CMDBs such as ServiceNow, Jira, BMC, and Ivanti/Cherwell, ticketing systems such as ServiceNow and Jira, Dev Ops tools such as VMware, Ansible, Chef, Jenkins, and Puppet, and BMS systems such as Siemens, Johnson Controls, and Honeywell. It can also integrate with any other tool you have with the appropriate APIs.

Automation via integration empowers you to enable a single source of truth and automate anything from virtual machine management, provisioning and orchestration, parts management, server power budgeting, scheduled charts and reports for management, and email alerts for power and environmental threshold violations.

Conclusion

MDF/IDF closets and edge sites are a mission-critical component of today's distributed and complex data center environments, but they are often managed by disparate teams or overlooked.

However, when managed properly with tools that provide a centralized view of all resources and capacity across all sites, all teams can benefit.

Combine these best practices with DCIM software, and you'll be on your way to dramatically simplifying MDF/IDF closet and remote site management and fostering behaviors that improve uptime, increase efficiency, and boost productivity.

Take the Next Step with Sunbird

Schedule 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 Operations Online Demo

Remote 3D visualization of all your racks, assets, power, and network connections. View 200+ dashboard charts and reports. Know the capacity of all infrastructure items.

Try it Free

DCIM Monitoring Online Demo

Remotely monitor rack PDUs, UPSs, branch circuit meters, RPPs, floor PDUs, busways, cameras, door locks, and temperature, humidity, and other sensors. Remote central power control of all servers. Set thresholds, see trends, and get alerts.

Try it Free