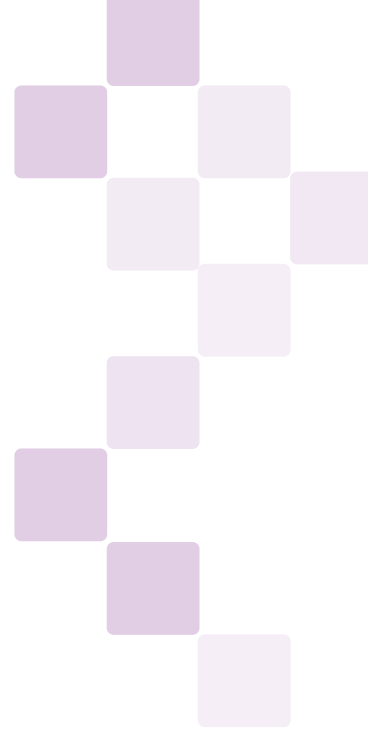


EBOOK

Top 10 Ways to Drive Data Center Automation



Sunbird[®]

DCIM that's easy, fast, and complete.

Introduction

Data center automation is expected to rapidly change the data center industry in the near future as organizations aim to increase efficiency, improve data accuracy, and boost productivity.

Many data center professionals wonder what data center management will look like once automation is implemented.

The fact is that we already know.

Modern data center managers are already driving integration and automation in their data centers, and they are getting incredible results.

“What we’re trying to do as an organization is to get out of the data world and into the information world,”



THE UNIVERSITY OF
CHICAGO

Raymond Parpart, Director Data Center Strategy & Operations

To achieve this, the university is making Data Center Infrastructure Management (DCIM) software “the center of the universe for the data center.”

This is the story we are hearing more of every day.

All data center managers need to increase operational efficiency and improve data accuracy. The best ones have already found the solution and it's catching on quickly.

In this eBook, we've compiled use cases from our most innovative and sophisticated customers on how they are driving automation in their data centers with second-generation DCIM software. Follow their example and you, too, will be able to dramatically simplify data center management.

What are the Benefits of Data Center Automation?

The benefits of data center automation are wide-ranging and numerous. The key benefits that we hear most from cutting-edge data center professionals who have integrated systems and are automating data center operations include:



A single source of truth. Integrating systems breaks down information silos and increases the accuracy of your data.



Improved collaboration across functional teams. Integration creates one holistic picture of all available data, enabling data-driven collaboration and decision-making across all data center, facilities, and IT teams.



Maintain uptime and meet service level agreements. Get automatic notifications of conditions in your data center that may lead to downtime so you can resolve them before they become real problems.



Simplified data center security management. You can easily maintain user permissions to ensure security policies are adhered to. If some users only need access to some data, they can still see the relevant data they need.



Eliminate human error. Automate manual data entry and say goodbye to a leading cause of data center outages: human error.



Increased utilization of existing resource capacity. Automatically provision resources in the most efficient manner possible to maximize the value of your existing footprint and defer capital expenditures.



Improved workflow and productivity. Information entered in one system is automatically pushed to another, saving you time by not having to update multiple systems or cross-check data.



Focus more on strategic projects. Automating routine, time-consuming tasks frees your team up to spend more time on higher priority projects.



FROM THE EXPERT:

“DCIM really is for us a source of truth for the tens of thousands of bare metal assets that we have in our global data centers.”



Tim Putney, Senior Software Engineer Manager



Top 10 Ways to Drive Data Center Automation

Enable a Single Source of Truth with CMDB, Ticketing, and DCIM Software

#1

A traditional IT CMDB is just a database of fields. By integrating it with DCIM software, you'll also get additional detailed asset information and visuals such as the exact site and rack location with U position, dimensions, weight, power and network port connections, and rack elevation visualizations to provide a 3D experience.

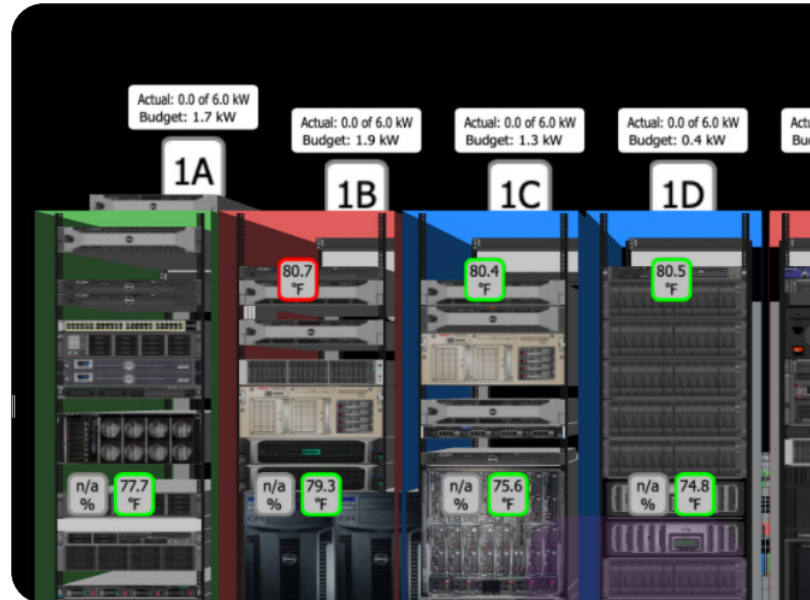
Plus, it's incredibly easy to do.

If you are one of the many organizations that use ServiceNow for your CMDB, a modern DCIM solution will have a certified ServiceNow app that enables bidirectional communications to automatically create, update, and delete items. You can integrate your systems in under an hour.

[Watch the two-minute video](#) to see how easy it is.

A second-generation DCIM solution will also have a universal CMDB and ticket connector that integrates with your BMC, Cherwell, Jira, or homegrown asset and ticketing information just as effortlessly.

Integrating your CMDB and ticketing systems with DCIM software enables a single source of truth that allows for better management of all data center resources and capacities. You can break down information silos, increase the accuracy of all data, eliminate multiple manual data entries, and facilitate data-driven collaboration and decision-making across all functional teams.



FROM THE EXPERT:

“We’re going to use the ServiceNow integration so that when our operations team adds the serial numbers and asset tags, it’ll automatically populate [in our DCIM]. That saves a pretty big step for both our teams.”

 Ken Torres, Global Data Center Engineer

Automate Virtual Machine Management

Server virtualization reduces hardware costs, enables faster provisioning of resources, and reduces energy costs. Still, managing your clusters, hosts, and virtual machines can be a chore.

However, you can enhance virtual machine management by integrating your VMware deployment with DCIM software.

By integrating DCIM software and VMware, you can register for “events” such as new cluster, host, or VM being deployed, and that information will be automatically populated into your DCIM so you can, for example, map which physical machines a VM is running on.


You can also integrate DCIM with VMware Cloud, including vSphere on AWS and across hybrid clouds, to gain insight to VMs in public and private clouds as well as in on-premises data centers. You can search by asset name, type, or status using either the DCIM or VMware hierarchy. And if you are going to take a system down to perform maintenance, you can know exactly which VMs are on that host.

Customers say it only takes “3 or 4 minutes” to set up the integration.

[Watch The University of Chicago demonstrate how easy it is](#) (skip to 39 minutes, 5 seconds).

Alternatively, IT organizations like Workday use their own API client to push VM data directly into their DCIM software. They track their VM data with a VMware application, package the data into a CSV file, and push it to Jenkins where they have an automation job that processes the file and creates or updates information in their DCIM software.



 FROM THE EXPERT:

“Not only do you have the logical representation of where [a VM] is, you also have the physical representation... There’s no human error involved. It’s maintained by itself automatically.”



THE UNIVERSITY OF CHICAGO

Abe Shaker, Monitoring and Reporting Engineer

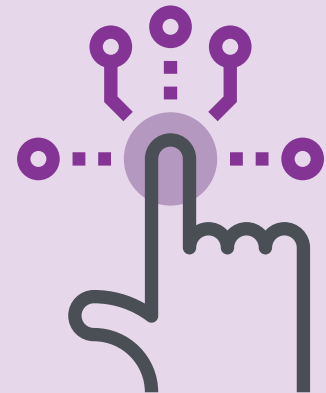
Automate Provisioning and Orchestration

#3

Workday is a leading example of what can be achieved with data center automation. They have leveraged the bidirectional RESTful web service API of their second-generation DCIM software to do incredible things such as device provisioning and orchestration.

Before they deployed DCIM software, they had a homegrown tool that they had begun integrating with other systems. Right away, they learned that unless they were able to do this in near real-time, they were going to have data integrity issues where their asset tool could report values that weren't accurate until a machine configuration was complete. This had the potential to create issues with operations, compliance, and credibility. To overcome this challenge, Workday created the concept of a "source of becoming," similar to the well-known "source of truth."


They realized they needed a way to track both. The solution was to leverage the custom fields capability of their DCIM software. Instead of using a standalone database to capture these desired values, they capture data for both the desired values and the reported values within their DCIM software. Then, they use those desired values as integration points for their provisioning and orchestration tooling.



[Watch Workday explain their provisioning and orchestration automation](#) (skip to 11 minutes, 23 seconds)

 FROM THE EXPERT:

“[Automation] will make our provisioning process zero-touch from the point at which a cabinet is installed, cabled, and powered. All this depends on knowing the state of your assets, where they’ve been, what they currently look like, and where they’re going. Leveraging custom fields let us build a framework to track all that.”

 Tony Lincoln, Principal Dev Ops Engineer

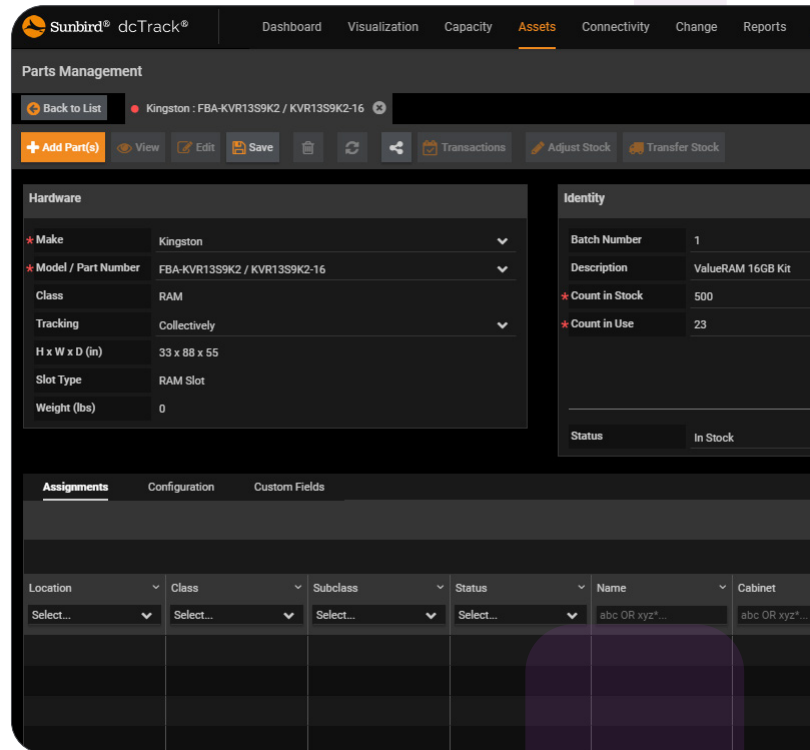
Automate Parts Management

Modern DCIM software provides a Parts Management feature that enables you to centrally manage all hard drives, cards, memory modules, cables, and any other component. Even boxes of screws.


While many data center managers are happy to finally be able to stop using spreadsheets to manage their many thousands of individual parts and spares, customers like Workday have completely automated parts management.

By deploying DCIM software with Parts Management and leveraging the tool's open API and ODBC access, Workday has integrated their DCIM software with Slack, Jira, and other tools to:


- Get daily reports of parts consumed per location
- Alert if the number of parts consumed exceeds a certain threshold
- Alert if a specific part is consumed excessively
- Create deprecation reports for obsolete parts



[Watch Workday explain how they automate parts management](#) (skip to 10 minutes, 55 seconds)

 FROM THE EXPERT:

“Jenkins is a very good tool for automation, and it has a lot of plugins that allow us to provide this functionality. We have a plugin for Jira, a plugin for Slack, a plugin for Git, and the API. The automation is based on multiple jobs that are processing data and generating the reports or alerts.”

 Moshe Haber, Senior Dev Ops Engineer

Leverage a Business Rules Engine

#5

Business rules are automation programs that a system admin can create to the benefit of all users. They streamline operations which improves productivity, reduces errors, and saves money.

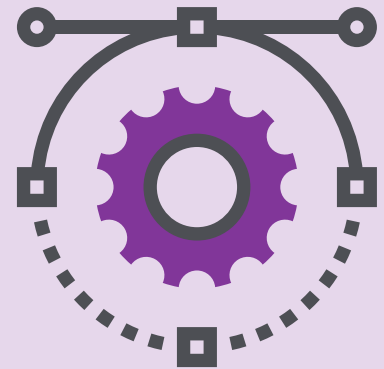
With a modern DCIM solution, you can apply business rules to your data center operations with an easy-to-use rules engine.

A rules engine creates automation rules based upon user-configurable conditions. For example, if a field is updated, another field is automatically updated with specific values based on the rule.

Rules can be applied to any assets that qualify based on the rules' built-in logic and parameters. A rule is evaluated and applied whenever an asset that meets the rule's criteria is created or updated.

Some example use cases include:

- Update the budgeted watts of power supply 1 and power supply 2 based on an asset's location
- Set an asset's serial number field to be equal to the asset's name
- Provide data port comments based on an asset's location and function type
- Automatically set a planning expiration date for an asset



Automate Device Power Budgeting

#6

Data center managers often struggle with the complexity of accurately planning and managing their power capacity. The traditional approach to device power budgeting is to derate the server nameplate value to around 60%. This process is manual, estimated, largely inaccurate, and often results in wasted space and money.

Leading data center professionals are getting enormous return-on-investment by leveraging DCIM software with an Auto Power Budget feature. 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. The budget numbers are automatically updated every week. You only have to set your policy once and the software does the rest.



Auto Power Budget provides you with many opportunities to safely deploy more devices in fewer racks, enabling highly efficient data center operations. [Try the free calculator](#) to see exactly how much money you can save with Auto Power Budget.

Using Auto Power Budget, Comcast can plan for the most effective and rapid deployments possible by determining, in advance, exactly where assets should be installed, how they should be connected, what downstream devices are impacted, and how much power those assets will consume. [Read the Comcast case study](#) to learn how they are getting 40% more utilization out of their existing resources.

The same feature is used by eBay. They were able to reduce the number of cabinets required for new projects by 33%, saving them \$120,000 on just one single project.



FROM THE EXPERT:

“From an ROI perspective, it’s massive for us. We’re getting 40% more usage out of our facilities and power resources.”



Michael Piers, Senior Manager DCIM/Tools

Automatically Schedule Charts and Reports via Email

In today's ever-changing data center environment, insights from data are critical to making the best data center management decisions. However, with the massive volume and variety of data being generated by your devices, it can be difficult to know what data to collect, how to analyze it, and how to derive value from it. With legacy management tools like Excel and Visio, it's arduous.

With second-generation DCIM software, business intelligence and analytics are made automatic with dashboard charts, reports, and visual analytics. You don't need to worry about "garbage in, garbage out" because your device, meter, and sensor data is automatically collected, stored, and trended with extreme accuracy.

With a modern DCIM solution, you have access to over 200 charts and reports out of the box without requiring any tedious configuration effort. You can also easily automate data sharing to drive a culture of collaboration.

Simply select the pre-configured or custom charts and reports you want to create and distribute, select the frequency of email delivery, and select who should receive them. Just like that, your team and stakeholders are automatically aware of the latest data center KPIs.



Not sure what KPIs you should be tracking? [Read the Top 40 Data Center KPIs eBook.](#)

FROM THE EXPERT:

"[DCIM software] significantly reduces our effort in creating capacity management reports by automatically creating them and emailing them to my capacity management when required."

Peter Giles, Senior Data Centre Manager

Automatically Be Alerted of Potential Power and Environmental Issues

Most data center professionals know that power monitoring and environment monitoring provide critical data and insights that help improve uptime, capacity planning, and efficiency.

However, it's still a common practice in some organizations to periodically go on-site to read and record meter and sensor measurements manually. This wastes time and leaves you vulnerable to potential issues when you don't always know what's going on in your data center.



With DCIM software, it's easy to set warning and critical thresholds on the live measured readings from power meters and environmental sensors. Then, with automatic alerting upon threshold violations, you will be the first to know of conditions in your data center that may cause downtime or decrease efficiency. You can then proactively remediate the issue before there is a serious problem.


A modern DCIM solution will allow you to set power thresholds on rack loads, inlet loads, and circuit breaker loads, as well as on three-phase balance. This, for example, helps ensure you don't exceed capacity restraints and trip a circuit breaker.

You can also set environmental thresholds on temperature and humidity. This will notify you if a hot spot is forming, you are overcooling equipment, or conditions are outside of your guidelines.

By integrating DCIM software with your collaboration tools such as Slack or Teams, you can even have these alerts sent to your entire team, so everyone has visibility into what's happening in the data center.

FROM THE EXPERT:

"A recent issue where this proved invaluable was demonstrated in one of our main offices where an issue overnight resulted in the loss of network connectivity. It was highlighted on the health status page to our 24x7 ops team. They also were alerted via email, able to act upon it, and the issue was resolved overnight before the start of the working day so there was no downtime to any users turning up on-site the next day."

 Neil Cotmore, Data Centre Team Lead

Leverage Webhooks

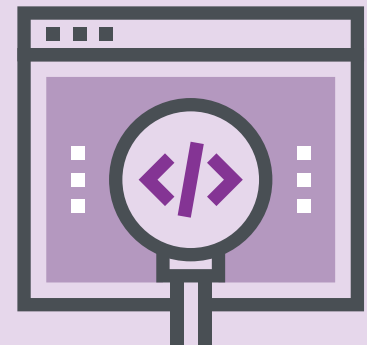
#9

A webhook is a service that allows one application to push data to another as soon as a particular event takes place. Given all the different software tools that are necessary for complete remote management of modern data centers, the value of using webhooks to drive data sharing is enormous.

DCIM software with webhook functionality can automatically push information about adds, moves, and changes to an external system that needs to know when asset details have changed.

For example, an asset change audit log. Details such as what change was made, who made the change, and when the change was made can be immediately sent via webhook.

Alarms set off by power and environment threshold violations can also be sent by webhooks to Slack, Teams, or other external systems so that all team members and stakeholders are aware of the current conditions in the data center. Potential issues can be proactively investigated and resolved to maximize uptime and efficiency.

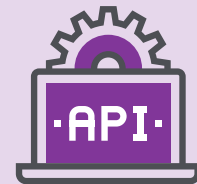


Automate Anything with APIs

#10

Leading data center experts have realized that with their DCIM software's bidirectional RESTful web service API, they can automate virtually anything that can be done via the GUI. The possibilities are endless.

DCIM software with a complete set of fully documented APIs allows you to create, read, update, and delete all items, ports, locations, lookup lists, requests and work orders, power and data connections, custom fields, and model library items. It provides you the freedom to create your automation.



MacStadium is one company that is saving time and improving productivity with DCIM software and APIs. They are always working to improve their online provisioning experience for customers and want to provide fast fulfillment while meeting or exceeding SLAs.


They have successfully integrated their DCIM software with their billing platform, customer portal, administration system, and accounting systems to automate back-office processing. This has eliminated manual data entry and the possibility of human error.

MacStadium automatically assigns slots and compute devices to be ready on-demand for customers placing an order on their website. Their automation moves devices from a pre-staged account directly to their customers' accounts and updates all their internal systems to reflect the change.

[Watch MacStadium describe how they automate back-office processing](#) (skip to 5 minutes, 12 seconds)

FROM THE EXPERT:

“Using the API, we’re able to poll our existing racks, see where we have space available, and assign that space automatically to a customer order via our website... Using the API, our team can utilize the same workflow we had in place before, but we’re getting all the benefits of DCIM and being able to view our data centers remotely.”

 MacStadium Robert Perkins, Lead Infrastructure Engineer/Architect

Conclusion

Data center automation is not some vague prediction about the future of data centers. It's already here.

The best data center managers in the world are pioneering exciting new ways to simplify and optimize data center management by automating manual and routine tasks.

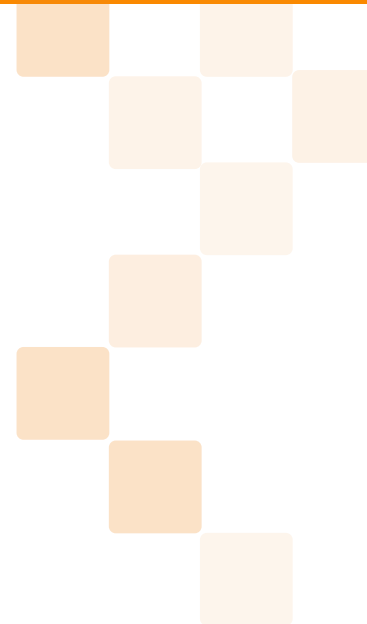
At the center of their data center automation strategy is DCIM software.

Don't risk falling behind. Learn from their example and implement their best practices to drive automation in your data center today.

Other Resources to Help You Drive Data Center Automation

- [Data Center Automation: 15 Best Practices](#)
- [3 Real-World Use Cases of Driving Data Center Automation via Integration](#)
- [5 Ways to Automate Data Center Operations](#)
- [Auto Power Budget: Automatic Device Power Budgeting](#)
- [Integrate and Automate with DCIM Software](#)
- [Workday's Automation Use Cases](#)
- [eBay, MacStadium, and The University of Chicago's Automation Use Cases](#)
- [DCIM Software and CMDB: Why You Should Consider Integration](#)

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](#)