



## CASE STUDY



### COMPANY

**NAME:** Cisco Systems

**HEADQUARTERS:** San Jose, CA, USA

**INDUSTRY:** Networking equipment

**PRODUCTS AND SERVICES:** Networking Device, Network Management, Teleconferencing

**REVENUE:** \$49.24 billion (2016)

**EMPLOYEES:** 70,000+

**WEBSITE:** www.cisco.com

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**Simon Albon**  
Senior Engineer, Cisco Systems

### DATA CENTER ENVIRONMENT

As the largest networking company in the world, Cisco's requirements and demands for data centers to support offices and operations in 90+ countries are formidable.

Among Cisco's 6,000+ racks across 26 data centers, six of the data centers are highly distributed. By definition, a highly distributed data center has devices and services deployed across the entire data center instead of being confined to certain areas. The result: any device can be found in any location.

Like Google, Facebook and Amazon, Cisco uses highly distributed data centers to operate their cloud environment but with a software-defined data center (SDDC) managing the infrastructure. Remarkably, these complex data centers were originally managed with spreadsheets and then by an in-house tool before Nlyte came along.

### ASSESSING THE CHALLENGES

For all their advantages, highly distributed data centers come with a host of challenges:

- **Sheer Size:** The larger it is, the harder it is to manage. Each time another row is added, the need arises to deal with the fixed infrastructure to connect the two. What's economical for infrastructural buildouts is not necessarily efficient for space management
- **Number of Devices:** The need to manage more devices simultaneously, versus one at a time, arises in tandem with data center growth. This translates into more support required for device management
- **Different Types of Devices:** Compute networking and storage both have different infrastructure requirements inside and outside the cabling plan, from the number of power racks to connection with fixed infrastructure
- **Balancing Weight Distribution:** Storage racks weigh a great deal more than compute or networking racks. Proper balancing is essential for stability
- **Balancing Cooling:** Closely related to power, cooling is also a critical component to ensure proper functioning and longevity of the data center

### NLYTE PLATINUM EDITION RISES TO THE CHALLENGE

Given the daunting list of challenges associated with managing a highly distributed data center, Simon Albon, Senior Engineer at Cisco, believes that having the right tools and right processes is the winning formula for achieving faster ROI.

Right Tools:

- **Physical Asset Management:** The foundation of managing any data center is managing the physical assets. Nlyte's end-to-end “dock to decom” asset lifecycle management, including Bulk Allocation, Discover, Nlyte Receiving and Audit, eliminates blind spots in asset management



- **Physical Infrastructure Management:** As Cisco's data centers grow in size and complexity, Nlyte helps keep tabs on the growing physical infrastructure needing attention
- **Nlyte Cabinet Planner and Auto-allocation:** These help Cisco better balance weight distribution
- **Power Management:** Once physical assets and infrastructure are under control, the Nlyte Connection Manager manages the power system over which the data centers run
- **Temperature Sensor Management:** CEM monitors temperature to avoid overheating or unnecessary cooling
- **Alerting:** When a row gets too hot or when busway is drawing more than 90% of the maximum power, for instance, CEM sends instantaneous alerts

#### Right Processes:

- **Be strategic and realistic on data gathering and loading:** Gathering data can take 1-3 hours per fully populated cabinet depending on the number of variables and complexity. That means, a 1000-cabinet data center can take 25 days on the low end, and up to 75 days on the high end as staff are unlikely to devote a full 40 hours/week to the project aside from their main duties. Being strategic is vital: Rationalize the fields to be gathered according to the likelihood that the information will be needed in the future to accomplish data center goals. Albon comments, "This is especially important when analyzing the fields you have in your current tools. Just because you use them today is not a reason to do it tomorrow"
- **Design reports to reach outcomes and goals:** Setting up the DCIM to manage a highly distributed data center is only a first step. "Having lots of data points to choose from is helpful", Albon continues, "We would all love to have every piece of information populated but as your data center gets larger this becomes virtually impossible." Understanding the difference between a performance indicator and a key performance indicator is key, because "The best way we have found to choose

what data we need to record is by designing the reports that illustrate the outcomes and goals you are aiming towards and then figure out what data you need to track to answer those questions"

- **Start building workflows early:** "Nlyte workflows are awesome.", Albon remarks, "In fact, it was one of the primary reasons we chose Nlyte over the competition as no one else has a workflow engine" Simply put, workflow provides a valuable process to determine who needs to do what, when and where under what rule(s) to complete tasks. Better workflow management leads to far errors and delays
- **Don't forget power strips:** Adding a power strip or two to the fields being gathered when staff record what's in the data center doesn't take much time. Doing so later does. Albon's advice? "When you load devices into Nlyte, our best practice is to load all of the same devices at once. I would recommend loading all the power strips first and connect them to Nlyte or whatever tool you are using. This means that before you even have you data center fully running on Nlyte you will be getting power readings for the racks. That is something you can show management as a quick win early on"

#### GETTING THE MOST OUT OF NLYTE TO ACHIEVE RAPID ROI

Winning small battles early and often is Albon's motto for securing buy-in across the company, but particularly from the upper management.

"My biggest advice to anyone with large highly distributed data centers is to start with the small ones first! Think of this project as an agile development project. Get your MVP (minimum viable product) done – one small DC with everything, the rest of your DC's power strips, then start building out the rest."

Indeed, with Cisco firing on all cylinders using Nlyte to automate its data center management, Cisco is well on its way to getting the transparency, visibility and accountability in its data center operations.

#### FOR MORE INFORMATION

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- Visit Us: [www.nlyte.com](http://www.nlyte.com)

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#### About Nlyte

Founded in 2004, Nlyte Software is recognized as the industry leading data center infrastructure management (DCIM) solution provider. Nlyte's DCIM provides unmatched functionality that supports all data center processes across the entire "dock to decom" lifecycle. With a 98% customer retention rate, Nlyte's DCIM solution is used by many of the world's largest and most sophisticated data centers, as well as many small and medium sized organizations. Customers can quickly deploy the Nlyte DCIM solution and begin to immediately enjoy reduced costs and increased efficiency across all data center processes. For more information, visit [www.nlyte.com](http://www.nlyte.com) or follow [@nlyte](https://twitter.com/nlyte) on Twitter.