University creates a self-service user portal, reduces rack PDU configuration time by 94%, and automates VM management with Sunbird DCIM

The Situation

A university with over 100 racks across five sites wanted to make it super easy for their administrators to understand the assets they own and easily drill down to see detailed attributes about any of these assets.

They also wanted to reduce the amount of time spent configuring intelligent rack PDUs, and wanted to reduce the manual effort of managing VMware and Hyper-V virtual machines.

The Solution

Self-Service User Portal

Using Sunbird's APIs, the customer built a self-service user portal.

"We needed a way for the admins to easily find what they own. I built a user portal in a way to easily get information like, 'What are my hosts? What am I responsible for?' because most of the time, that's what our admins want to know," said the customer. "We're trying to set up a single place to keep track of this information so that we don't have spreadsheets and all this stuff all over the place."

"If admins are curious about all of the physical or virtual hosts that they have admin responsibilities for, they can get a list that includes all of the machine names with hyperlinks to that item in dcTrack," said the customer. "They can go directly to it, see what it is, and make edits if they have the permissions."

The portal also links to a separate application that lets administrators update their contact details and special instructions for the operations team. Every night, an automated script reads the data from the application and updates custom fields in dcTrack with the latest information. The goal is to make sure all the relevant administrator information is easily accessible in one place and kept current for the 24/7 operations team.

"I had to learn Python and Django first to be able to do the web part," said the customer. "Once I got my head wrapped around that, as far as the APIs go in dcTrack, that wasn't all that difficult because Sunbird's documentation is really good. It pretty much set up everything that I needed to do, what I needed to send to get what I wanted back, and the structure of that."

> "*I found that the integration using Sunbird's API has actually been pretty easy.*"

Customer	A university with over 100 racks across five sites.
Situation	The university wanted to make it super easy for their administrators to understand the assets they own, configure rack PDUs faster, and reduce the manual effort of managing virtual machines.
Solution	Leveraging Sunbird DCIM's fully documented APIs, the university created a self-service portal including a rack PDU configurator. They also integrated Sunbird with VMware and Hyper-V.
Results	The university reduced their time spent configuring rack PDUs by 94%, increased operational efficiency for admins with an easy-to-use portal, and enabled further extensibility of their existing DCIM solution.

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PDU Configurator

The university built into the portal an intelligent rack PDU configurator for the data center operations team to quickly provision new rack PDUs.

When a new intelligent rack PDU is installed and connected to the network, it boots up using a default IP address that's the same for every rack PDU from that manufacturer. The port it's connected to must also be part of a specific VLAN designated for onboarding these PDUs.

Once everything is connected, the team runs a script through the portal. The script finds the PDU using the default IP, logs into it via SSH, and configures all of its settings including door contacts for card readers and temperature sensors. After that, the script adds the PDU into dcTrack and Power IQ using Sunbird's APIs, so the new hardware is visible in their DCIM system and ready for monitoring.

"They just run a script and it goes out and does all the configuration on the PDU, adds it to dcTrack and Power IQ, and they don't have to do all that stuff manually," said the customer.

An important feature of the portal is that administrators can only see the parts of the portal that they have permissions for.

"Configuring the PDUs won't even show up for the admins because they don't have those permissions. That's how I'm managing multiple functions running in this portal, but everybody's using the same thing. You only see the options that you can actually use," said the customer.

Automated VM Management

In addition to the user portal, the university has built integrations to reduce the manual effort of managing virtual machines.

"For VMware, we were using the VMware inventory sync that's built into dcTrack to at least get cluster names and physical host associations. But we have a lot of data attached to VMs that are not a part of the default set of information that is pulled into dcTrack via that sync. I created a whole a bunch of custom fields for that and a custom tab, and the script that I have that runs each night reads a CSV that the VMware team exports that has that data in it and updates those fields in dcTrack."

"For Hyper-Vs, it's kind of the same script but it also takes care of creating, deleting, and updating the actual VMs and their physical host associations. In dcTrack, I have a field for whether it's Hyper-V or VMware, but the data that you see when you click on either one looks pretty much exactly the same."

"Configuring intelligent rack PDUs used to take about 45 minutes. Now, once a rack PDU is installed and turned on, operators run the script and that takes about two-and-a-half minutes to run and it's all done."

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The Results

94% Less Time Spent Configuring Rack PDUs

"The PDU configurator provides the greatest efficiency improvement. Configuring intelligent rack PDUs used to take about 45 minutes. Now, once a rack PDU is installed and turned on, operators run the script and that takes about two-and-a-half minutes to run and it's all done," said the customer.

Ease of Use & Efficiency for Admins

"I expect it's going to save a lot of time and frustration on behalf of the admins. All they have to do is log in, and based upon the ID they've logged in under, they just click a button and get a list of their items. They don't have to figure out how to do that in the dcTrack interface," said the customer.

Easy Extensibility of Existing DCIM Solution

"You can do anything with the API that you can do in the web interface, and of course you can do it at compute speed," said the customer. "Sunbird's APIs are not locked into any particular lanaguage or scripting. You can use whatever you're comfortable with as long as it can do rest API calls."

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