

REPORT REPRINT

Global service provider puts Trellis at the core of its software-defined datacenter future

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03 AUG 2017

In what promises to be a significant DCIM deployment, a global service provider is standardizing on a commercial platform across its global portfolio of more than 140 datacenters.

THIS REPRINT HAS BEEN AMENDED FROM THE ORIGINAL REPORT, PUBLISHED IN AUGUST 2017, TO ANONYMIZE THE SUBJECT

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A global provider of cloud, IT and datacenter services has begun a rollout of datacenter infrastructure management (DCIM) software from Vertiv to monitor, manage and automate its more than 140 datacenters worldwide. There are several scalable, feature-rich DCIM platforms on the market; the service provider says a differentiator for Vertiv was the suppliers' willingness to implement more than 80 features that it requested – features that have since been embedded into Vertiv's commercial product.

ADOPTER SNAPSHOT

Vertiv's flagship Trellis DCIM platform is currently deployed in the service provider's datacenters in Bangkok and Tokyo. Deployments in Europe and the US are underway, with India to follow. The service provider has an aggressive rollout schedule. It plans to deploy the software in at least 10 datacenters per calendar quarter, targeting its major facilities first.

It is adopting core monitoring and asset management features of DCIM for real-time data collection and visualization, as well as its trending and predictive analytics capabilities. Some automation features are being rolled out in select datacenters. The service provider says the platform has enabled a significant reduction in operational workloads in some of its datacenters by identifying stranded capacity.

THE 451 TAKE

We believe Trellis will play an enabling role as part of a software-defined operational and services strategy that its service provider customer envisions. By deploying DCIM, the service provider will be able to tightly couple demand for the virtualized resources at the top layer of its digital stack (IT and networking) with the supply of underlying physical datacenter resources (power, cooling and space). Doing so will enable cost efficiencies and reduce the risk of service interruptions due to underprovisioning.

By integrating data from Trellis with a range of other management systems, the service provider will be able to make more informed decisions around best-execution venues, both internally and for its services customers, taking into account the cost and availability of IT, connectivity and datacenter resources. Ultimately, it hopes that its investment in Trellis will help it to more effectively plan for its datacenter capacity investments. Using DCIM to drive up utilization of its existing facilities could also lead to the service provider building fewer and/or smaller facilities.

CONTEXT

The service provider's main business is network connectivity. It is a major IP-backbone provider and also has a considerable number of multi-tenant datacenter (MTDC) facilities and a sizeable hosting business. In recent years, it has invested heavily in becoming a cloud-computing provider.

As of mid-2017, the service provider had a total of 143 datacenters comprising more than 394,000 square meters globally, including planned openings in the short term. The service provider operates IT infrastructure services out of 15 of these facilities, including those in Japan, China, Hong Kong, Singapore, the US, the UK, Germany, Paris and Madrid.

STRATEGIC VISION

The service provider hopes to standardize on Vertiv's Trellis platform in all of its datacenters, which are a mix of wholesale and retail colocation, cloud and managed services, and interconnection facilities.

As of mid-2017, its portfolio of 143 datacenters comprised:

- Seventy-nine facilities in Japan
- Ten in the US
- Seven in the UK
- Seven in Germany

- Seven in India
- Three in Hong Kong
- Others in Australia, Austria, France, Indonesia, Malaysia, the Philippines, Taiwan, Thailand, Spain, Switzerland and Vietnam

At least another seven datacenters are planned in locations spanning China, Germany, India, the Philippines and the US.

Trellis is the foundation of the service provider's 'next-generation datacenter' vision, enabling three core objectives: end-to-end visibility, integration of its building management features into DCIM, and, ultimately, machine-learning datacenter automation.

DCIM DEPLOYMENT STRATEGY

Trellis collects, normalizes and reports data about the service provider's datacenter operating status, including power utilization, availability, redundancy and quality, and environmental conditions such as temperature, humidity and airflow pressure.

Data is pulled from a variety of sources within the service provider's datacenters, including sensors, power meters and clamps, branch circuits, batteries and uninterruptible power supplies (UPSs), as well as equipment ranging from generators and chillers to power distribution units and cooling systems. By normalizing the data streams into standardized formats, the data can be readily analyzed and made available to end-user customers where applicable.

Customizable reports plot data over time, such as power-consumption and operating environments at the room, row and rack level. Configurable alerts notify the service provider when preset thresholds are exceeded, and prioritize alerts that require an immediate response, such as a power-quality or supply issue or hot spots in the white space. These real-time alarming capabilities will help the company to proactively manage and mitigate risks by avoiding issues before they happen.

Enabling new efficiencies is also a key part of DCIM's value proposition. By identifying stranded capacity, such as power, cooling or space, the service provider has been able to make changes to its datacenters' layouts in order to drive up utilization of key resources. Trellis will also provide the service provider with insights to better manage and plan for its overall datacenter capacity.

In datacenters where the company serves (retail) colocation end users, including its wholesale facilities that it leases to retail colocation customers, it says it plans to offer end users a white-labeled version of Trellis. The service provider has not yet determined actual pricing of Trellis to end users of its datacenter colocation customers. Some features are likely to be free of cost, such as power and environmental monitoring, while for others it will charge a premium.

NEXT STEP: AUTOMATION

Trellis can act as a middle layer that not only handles protocol conversion from disparate equipment and data collection, but also supports distributed real-time (or near real-time) control capabilities.

The second phase of the service provider's DCIM deployment is to use Trellis to control devices and systems, including some power systems and cooling units. The plan is to replace the traditional functionality of building management systems (BMSs) inside its datacenters with DCIM. BMSs are commonly baked into datacenters for environmental control at the design stage, and are typically the largest proprietary control system within a datacenter.

There are overlaps between BMS and DCIM, especially with monitoring. However, BMSs were not intended to measure or make sense of moving workloads or heat loads, or to link to operating information about the IT. By standardizing on Trellis and integrating with BMSs, the service provider will streamline its monitoring (by eliminating duplicate functionality) while enabling far more granular monitoring, including tracking temperatures at a micro, local level and tracking IT power consumption.

Once this phase is complete, the service provider expects to be able to manage its key datacenter devices and systems in real time via Trellis on a standard web browser. Select information will also be available to staff on the datacenter floor via an HTML5 version of the Trellis platform for mobile devices.

MACHINE LEARNING

The third phase of deployment will be to exploit Trellis as the real-time control and automation framework for the service provider's datacenters. At the heart of this effort will be deep analysis on a wide range of data from Trellis and various sources (such as weather conditions, power costs and so on). Using historic data, Trellis will enable predictive forecasting and what-if scenario planning for IT moves, adds and changes.

Machine-learning algorithms are expected to enable cost-optimized operations. For example, the service provider plans to use Trellis for machine-learning-driven automation of its datacenter cooling equipment – when conditions are optimal (as determined by Trellis and a combination of other data), the set-point temperature and fan speeds on cooling units will automatically adjust. In time, Trellis could enable the service provider to operate its datacenters nearer to their design peaks – driving up utilization of its facilities and, ultimately, enabling substantial cost savings.

CHALLENGES AND OBSTACLES

The service provider has a wide variety of sites with a whole range of existing BMS and existing monitoring tools. The challenges of integrating data into the Trellis platform will be a different across these many facilities. While the service provider has standardized operational procedures in some of its facilities already, it will need to ensure these procedures are common across all of its datacenters in order to exploit Trellis as a digitized enabler of these processes.

RESULTS

- Unified monitoring and interactive 3-D visualization of operations and customer environments
- Opex savings from DCIM
- A return on the DCIM investment within the first year (ROI is expected to increase significantly from 2018 onward).

COMPANY

A global provider of cloud, IT and datacenter services

ACTIVITIES

Datacenter network, cloud, wholesale and colocation datacenter services, as well as managed hosting and ITC consulting

HEAD OFFICE

Tokyo, Japan

TOTAL DATACENTER SPACE UNDER MANAGEMENT

More than 350,000 square meters (more than 3.76 million square feet)

KEY SUPPLIER

Vertiv