

REPORT REPRINT

RunSmart Platform rearchitected to reach beyond the datacenter

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The company has reengineered its RunSmart infrastructure management software using a microservices-based architecture. It is aiming to address the broader infrastructure management market beyond datacenters.

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Baselayer Technology's infrastructure management software division, RunSmart, has rearchitected and enhanced its core datacenter infrastructure management (DCIM) platform to facilitate increased data aggregation and integration, more customizable dashboards and improved analysis and automation capabilities, including by third-party systems.

Work on the new architecture began before Baselayer decoupled its prefabricated modular datacenter (PFM) and software businesses in 2017. The ongoing development has resulted in a platform that is more open, leverages dynamic APIs to improve data integration, and is readily customizable by users.

The company's vision and long-term plan is for RunSmart to reach beyond the datacenter, and become an enterprise-class IoT platform that integrates and orchestrates an extensive set of data sources.

THE 451 TAKE

The end result of Baselayer's rearchitected RunSmart DCIM software is a modern microservices-based platform with extensive connectivity and increased automation capabilities. We view the company's platform approach - in particular, its strategy to open up its software code and provide easily customizable APIs - as an important change, because more users will want to exploit the infrastructure data it collects and to integrate with more third-party systems. RunSmart is scalable, allows for remote management (including potential edge datacenters) and provides for a holistic datacenter service optimization (DCSO) approach. However, there is a growing field of competitive DCIM software tools available today that aggregate, normalize and analyze large sets of data, with some systems using DCIM-based cloud services for data analytics that deliver new types of insights or predictive outcomes.

CONTEXT

Baselayer (headquartered in Phoenix, Arizona, and started in 2008) was spun off of MTDC provider IO Data Centers in late 2014. It consists of two divisions: its PFM and its RunSmart infrastructure management software. Its previous parent, IO, initially deployed PFM datacenters starting in 2010, and added DCIM to its technology portfolio in 2012. As a stand-alone entity, Baselayer currently employs about 90 employees, and 451 Research estimates total revenue from its PFM and software products between \$25m and \$35m.

The rationale behind the separation from IO was to unencumber Baselayer's management team to focus on datacenter products - freeing it to develop a strategy and new product roadmap that address the needs of the broader PFM and infrastructure management markets. To be sure, nearly three years since it separated from IO, Baselayer has developed a new range of PFM products, and rearchitected and enhanced the functionality of its management software.

While Baselayer still enjoys ongoing orders from IO, it has had to adjust its structural and operational style to a new reality as an independent but smaller company. At the organizational level, the company made significant changes, decoupling the previously tightly integrated hardware and software businesses and creating independent sales groups.

For the PFM division, sales cycles for datacenter physical infrastructure are notoriously long. The now unbundled DCIM software has been enhanced to compete as a viable stand-alone platform, but it continues to be offered as an optional integration for Baselayer's PFM products (RunSmart for Anywhere), which still accounts for a majority of its software sales. Baselayer RunSmart will continue to sell direct, and is adding DCIM reseller partners in Europe, Asia-Pacific and Latin America.

On the PFM side, the company has signed new technology partnerships, including with Siemens (in 2016), whereby Baselayer embeds the Siemens Busway System for datacenter power distribution into its PFM datacenters. Baselayer also partners with Vapor IO, a distributed edge datacenter startup, to develop a PFM product around Vapor's Chamber - a cylindrical micro datacenter design housing up to six IT racks (including Open Compute Project and Open19 racks) and targeted at high-density datacenter zones, as well as distributed loads.

TECHNOLOGY

In 2015, Baselayer internally rearchitected and rebranded its infrastructure management software RunSmart (formerly IO.OS), which is used mostly in datacenters (as DCIM software) but also in non-datacenter buildings. The company has continued to improve on its modern architecture incorporating more microservices, dynamic APIs to connect to third-party systems and more customizable dashboards.

Baselayer has taken a software platform approach using a microservices-based architecture that leverages a messaging queue. More simply, the RunSmart platform can be viewed as a framework with applications, such as DCIM, sitting on top. Its DCIM application is grounded in the company's background in running datacenters, with features such as collecting power, mechanical and environmental monitoring data, alarming, capacity management and asset management.

At its core, the platform provides integration, messaging and orchestration using microservices and dynamic APIs, and supports over 150 protocols (and can be easily updated for future protocols). While Baselayer's datacenter applications are its most mature, the microservices framework allows the RunSmart platform to be extensible, and connect with multiple facility types outside of traditional datacenters, including smart buildings, modular edge datacenters, enterprises and smart cities.

RunSmart's dynamic services layer connects to its elastic data stores (e.g., SQL, time series databases, or data warehouses), and enables customers to write their own services or change the behavior of the system. Another key function of the platform is exposing infrastructure data (including CPU-level power data from Intel's Data Center Manager) to third-party systems, such as ITSM, BMS, energy management, VM management or financial systems.

RunSmart supports bidirectional communication and automated control, whereby workflow tickets can be pushed to ServiceNow (an IT service management SaaS company), for example, or workloads can be automatically provisioned to a public cloud when necessary. The RunSmart DCIM application has an auto-discovery tool that scans for new equipment and can sync with an asset management database (such as ServiceNow). If, for instance, RunSmart discovers a device (new serial number), it can then auto-populate that device in the ServiceNow database.

The Impacts tool is a feature that shows equipment inter-dependencies, which can be very useful for root cause analysis, scheduling maintenance and other support services. The Actions function, a new capability in this release, can execute controls based on thresholds. For example, the software can identify underutilized servers, and throttle them down below 200 watts.

A HTML5-based front-end graphics engine enables customizable role-based dashboards, for use by staff ranging from application owners to facility operations managers and capacity planners. A centralized dashboard can monitor power, cooling and IT systems across a portfolio of traditional datacenters and PFM modules.

Other tools include InsightEngine, a HTML5-driven reporting tool that can drill down into power usage or server utilization, and an alarm engine that allows custom rules-based monitoring. The company's roadmap includes an energy application for battery and power management for peak shaving, for example.

User dashboards can be configured to prioritize alarms, and to jump to any device or sensor for a detailed view. The graphics engine also makes it easy to create a unified interface to heterogeneous systems – for example, varying BMS systems across multiple facilities could be monitored from a single RunSmart interface.

Baselayer also has an optional Smart Exchange appliance that enables devices or monitored data to be readily exploited. It is an on-premises data aggregator that pushes data to the RunSmart data store – or to another application or cloud service – in various formats.

It could be raw or normalized, or real-time or time-series data, and so on. It can be used for publish and subscribe approaches: different users can subscribe to different types of data. Smart Exchange is expected to be generally available in Q1 2018.

RunSmart is offered both as on-premises software and a SaaS offering. There is also a version for high-frequency data streaming for the industrial IoT (using Kafka and other open source code). The software is modular – for example, starting with MEP monitoring only, and then adding more complex modules as enterprise needs evolve.

COMPETITION

In the DCIM arena, Baselayer competes with about 70 suppliers that range considerably in size and scope, and with DCIM products that vary in function and application. Increasingly, a greater portion of DCIM sales is being won by a relatively small group of the larger suppliers that include leaders Schneider Electric, Nlyte Software and Vertiv.

There are several other DCIM suppliers that have strong technology and the resources to remain competitive, including ABB, Eaton, FNT, Siemens and Sunbird Software. Baselayer is in this group. Others are pursuing more niche strategies.

On the software side, a growing number of DCIM suppliers integrate their software with ITSM and other management tools. Like Baselayer, they have a mix of formal integrations with third-party suppliers, as well as API environments (including some based on open source code).

There are more than 50 suppliers of PFM datacenters all over the world, many of which can ship their products to basically any location, as well as offer similar advantages in deployment speed, predictability and repeatability.

Specifically, in EMEA markets – a focus of Baselayer’s expansion – operators can choose from a number of sophisticated PFM specialists located in the region, including BladeRoom Group, Cannon Technologies, Excool, Flexenclosure and ICTroom, to name a few. Major global datacenter vendors such as Schneider Electric and Vertiv are becoming more competitive.

SWOT ANALYSIS

STRENGTHS

Baselayer has a stronger commercial foundation than many competitors, derived from its IO legacy, which also helps with sales to some large enterprises that are already familiar with the technology and company. The RunSmart software has a proven record of being tightly integrated with PFM datacenters.

WEAKNESSES

The company is still refining its independent business strategies for its PFM and software divisions, but has the bulk of its restructuring behind it. RunSmart has a low profile as a stand-alone software platform, and faces a perception risk that it is for PFM datacenters only. Its international presence remains limited.

OPPORTUNITIES

The datacenter sector is slowly moving toward more software-driven (and ultimately automated) critical systems. There is also an opportunity for DCIM providers to extend their technology into industrial IoT, smart cities, smart buildings and other energy management areas. Baselayer could also benefit from the increasing momentum in the PFM sector.

THREATS

The DCIM market is intensely competitive, including from much larger rivals, some of which have extensive hardware and software portfolios and engineering resources to develop competitive offerings. Larger rivals have also rolled out cloud-based DMaaS (datacenter management as a service) offerings.