Break Your Sensors Out of Their Silos

How companies today are running a leaner, more efficient data center with unified infrastructure management

Demands on data centers continue to grow due to the multiplying of data and devices. Meanwhile, downtime is becoming costlier. What's a Data Center Manager to do? Leave no stone unturned in the search for more reliability and greater efficiency, or in the case of the data center, leave no device unconnected.

Leave No Device Unconnected

Managing data center infrastructure provides a wealth of opportunities to reduce costs while increasing uptime. However, despite the great promise of infrastructure management, connecting every device is challenging these days, and partial infrastructure connectivity will result in limited optimization opportunities.

The typical data center has dozens of sensors from various manufacturers, that use different protocols and data structures. You may be using security sensors to monitor doors and glass breakage, temperature and humidity sensors, flood detection, energy consumption monitoring and more. Adding to the complication, data center management software can be from an entirely different vendor. Even a typical DCIM (Data Center Infrastructure Management) can't connect all of the systems and software running in the data center, and implementing cross-vendor connectivity is a costly and lengthy effort.

All of these factors make it quite challenging to see a holistic view of server room infrastructure. But gaining a single command and control view of the data center can yield many optimization opportunities. Once you can cross-utilize data from the HVAC and sensors placed throughout the racks, you can reduce cooling expenses or increase space utilization. Security sensors connected to a dashboard with real-time alerts can reduce the need for security personnel. And that's just the tip of the iceberg. A holistic infrastructure management solution offers numerous ways to conserve energy, improve utilization, perform predictive maintenance and increase uptime.

While cross-sensor/cross-vendor connectivity used to be a lengthy and costly effort that was difficult to financially justify, a new class of vendor-agnostic orchestration platforms can break the sensors/ systems out of their silos and offer unified data center infrastructure management with a high ROI.

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The Differences Between an Orchestration Platform and a DCIM

There are many differences between an orchestration platform and data center infostructure management, especially when it comes to connecting devices and sensors. As you can see from the chart below, the benefits of using an orchestration platform greatly outweigh those of a DCIM.

	Orchestration Platform	DCIM
Connect any sensor	Yes	Easy to connect certain types of sensors, but some will be more difficult
Connect any software	Yes	Extremely difficult to connect to other software vendors
Speed of Implementation	Hours to days	Months to implement full data center connectivity
Customization & Extensibility	Add any custom business logic, automation, analytics or visualization	Anything not included in the DCIM out of the box requires expensive and lengthy custom development
Need for engineers or professional services	Extremely limited or none	High use of resources when customizing DCIM
ROI Positive	Yes	Depends on the level of customization
Future-Proof	Yes – will easily scale to any additional sensors or monitoring requirements, changing dashboards etc.	Limited capabilities to expand to other kinds of sensors or systems

Top 5 Questions to Ask When Evaluating an IoT Platform for Data Center Infrastructure Monitoring & Protection

1. What can you connect?

Are you able to connect only some, or all of your data center infrastructure sensors and systems? Can you unify protocols and data structures so data from your systems can be analyzed in one dashboard? If so, can you manage all of your infrastructure from a single platform and perform more comprehensive analyses from the platform (e.g. predictive maintenance)?

2. Can you configure business logic?

After collecting these large amounts of data, the next step is making it actionable. Can you configure rules, alerts and actions in response to changing data center conditions, without having to redevelop these again and again in each scenario? Can you easily modify your business logic when new devices are added for specific new customers or other changing circumstances?

3. Can you customize your dashboards for various tenancies?

It's imperative that the most critical data reaches the right people at the right time. With the right platform, you can configure your own dashboards and reports, displaying aggregate data by location or any filter of your choice. Not everyone should have access to all the data, and you should be able to limit the views for some and add views for others when necessary.

4. Can you deploy quickly & easily?

With some platforms it could take weeks to connect sensors and months to connect systems, even those with APIs. Other platforms are more flexible and set-up can take days. If all the features – rules, dashboards, multi-tenant hierarchies - simply need configuring, engineering costs can be kept to a minimum, development will be quicker and you will see your ROI significantly increase.

5. Is it scalable?

Flexibility, configurability and speed all translate into a future-proof design. Make sure your platform will easily adapt if you decide to bring in new management software, or new sensor types, and can easily be integrated into your monitoring platform. You should be able to expand your infrastructure monitoring as you grow, and as your technology evolves, without needing forklift upgrades to your DCIM.

In order to maximize operational efficiency, your data center infrastructure management platform should:

• Monitor, analyze and control any kind of sensor & system, current & future

• Customize dashboards and alerts to specific users or user groups

• Require minimal custom development

• Connect your sensors in hours and get a full application ready in days

• Make your data actionable by allowing you to configure the optimal rules & actions for your business

• Provide a holistic view of data center infrastructure health

Monitoring and Protecting All IT Rooms from Just One Platform – Yes, It Is Possible!
Let's look at two international businesses that were able to do just that:

1. Case Study: Presidential House of Israel - Beit HaNassi, is the official residence of the President of Israel, located in Jerusalem, Israel.

The Israeli Presidential Residence's goal was to manage everything related to the health of their IT rooms from one central platform. They not only wanted to monitor the physical devices such as servers, switches, routers, etc., but also wanted to install sensors such as smoke detectors, light detectors, glass-break detectors and flood detectors.

It was important for them to enable their building management and IT teams to take necessary action based on the specific issues occurring in the IT rooms. They began working with the largest SI company in Israel (Bynet), who provided an IoT hardware from Backsoft, as well as installation and maintenance services.

The combination of an IoT platform and hardware enabled the Israeli Presidential Residence to manage all of their operational activities and receive insights from several server room resources, all from one central place.

The building management and IT teams receive notifications via SMS or E-mail whenever there is an alert in the IT rooms they need to act on. The platform was also integrated with the Microsoft SCOM network management software, enabling them to receive information about the network devices' health. The deployment and time-to-complete the project spanned only a couple days, which allowed them to benefit from comprehensive monitoring very quickly.

Since the Israeli Presidential Office is a governmental entity, and due to security concerns, they needed wired hardware, rather than wireless. It took some convincing to get them to try a platform that is cloud-based in Azure. Eventually, they understood the security aspects of using a cloud platform and brought the right partner ecosystem to the project.

All security tests and checks passed successfully, proving that Azure is a safe platform to install IoT solutions. Additionally, this project opened up doors for other governmental offices, since gaining approval to use this IoT platform.

2. Case Study: Leading System Integrator in Ecuador

One of Ecuador's leading service providers runs several large data centers in the country, as well as countless base stations. When the need arose to improve monitoring of their data center infrastructure, they turned to their system integration division.

The first project phase involved two distinctly separate requirements:

1. more accurate temperature monitoring in the data centers

2. battery health monitoring of the backup generators to ensure their availability during blackouts

The system integrator realized, from the start, that while monitoring each of those sensors separately would be simple, the resulting solution would be cumbersome for the data center managers. Moreover, the system integrator would be hard pressed to manage the solution and support it, especially once it was rolled out to more than one data center.

They were also concerned about future data center infrastructure management projects, or even base station infrastructure monitoring, and how those would be supported by their current technology selection.

After evaluating several IoT platforms, the integrator chose an IoT platform to develop their project

that offered the flexibility of integrating both sensor types in a single dashboard, along with multi-tenant hierarchies, so they could configure dashboards and alerts for each data center.
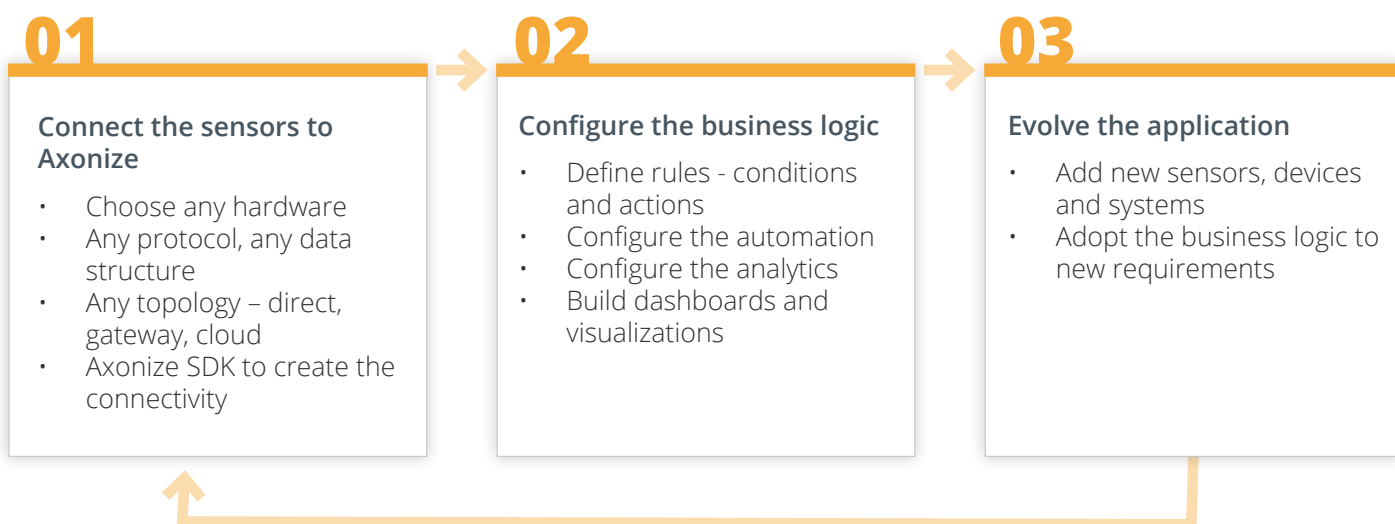
Since Axonize allowed them to connect any sensor or system to grow the data center infrastructure monitoring in the future, and add base station infrastructure, they decided on Axonize. Axonize also offered the advantage of configurability, which allowed them to develop the project at a lower cost and much faster than any other solutions.

Within days of installing the temperature monitoring throughout the first data center, they discovered the actual temperature near the server racks was colder than the AC unit's measurement. This allowed them to immediately reduce the AC's output and save on electricity cost, delivering an immediate ROI for the initial phase.

Plans to monitor additional data center infrastructure components are underway, and the system integrator is especially pleased with their ability to easily add project components while maintaining a single management view of all data centers.

Axonize – The All-in-One Platform

Axonize is an orchestration platform, designed to connect any system or sensor in a matter of mere days. It serves as a single monitoring platform for all your data center infrastructures, providing more comprehensive protection for your servers. It's simple and inexpensive to set-up, and is guaranteed to scale to any infrastructure you decide to add now and in the future.

01
Connect the sensors to Axonize

- Choose any hardware
- Any protocol, any data structure
- Any topology – direct, gateway, cloud
- Axonize SDK to create the connectivity

02
Configure the business logic

- Define rules - conditions and actions
- Configure the automation
- Configure the analytics
- Build dashboards and visualizations

03
Evolve the application

- Add new sensors, devices and systems
- Adopt the business logic to new requirements

Contact Axonize to learn more or to get started: **hello@axonize.com**