DATA CENTER
Frontier Special Report

The Data Center Human Element: Designing for Observability, Resiliency and Better Operations

Report compiled by: Bill Kleyman, Contributing Editor (Data Center Knowledge, Data Center Frontier, InformationWeek, ITPro Today) | EVP of Digital Solutions, Switch

Photo: Pixza Studio/Shutterstock.com

Brought to you by

Honeywell

Contents

The Data Center Human Element: Designing for Observability, Resiliency and Better Operations

Alarm fatigue, root cause analysis and human error: It's time to explore new tools to improve data center management with predictive and prescriptive solutions.

Introduction

New demands require modern organizations to rethink their data center environment, delivery model and how to more effectively leverage the cloud. In a world of constant connectivity — uptime, efficiency, performance and observability are critical as leaders make decisions around their digital infrastructure.

What is a sometimes overlooked component required to protect data center operations? The people. IDC estimates that human error costs organizations more than $62.4 million every year. A significant part of errors created by humans is because of tedious tasks and manual processes. Further, a recent Uptime

Institute study points out that more than 70% of all data center outages are caused by human error and not by a fault in the infrastructure design. What does this cost when it all goes down? Quite a bit. Data center outages are expensive. Outages occur with and (often) without warning, leaving severe business disruption in their wake. At the same time, increasing dependency on the data center means that outages and downtime are growing costlier over time. According to a 2016 Ponemon study, the average cost of a data center outage has steadily increased from $505,502 in 2010 to $740,357. This averages out to about $9,000 per minute, and for larger data center operations this loss can be far higher.

> Good visibility into the overall portfolio and structure of the digital ecosystem means more concise data, better information and improved visibility into the technical and business aspects of digital infrastructure.

To overcome outages and resiliency issues, data center leaders need portfolio-level visibility. Data center managers might manage thousands of edge locations or dozens of mid-sized colocation sites. It becomes even more critical as cloud, edge and data center systems become further distributed. Therefore, it's essential to have direct visibility into all data center operations. Additionally, it's necessary not to become overwhelmed. Good visibility into the overall portfolio and structure of the digital ecosystem means more concise data, better information and improved visibility into the technical and business aspects of digital infrastructure.

This paper will explore critical new considerations as leaders design the future of digital infrastructure. Specifically, we'll cover:

▶ **Working with the new cloud, edge and data center balance.** Understanding the unique balance between people, data center operations and new remote systems in a more distributed economy.

▶ **Embracing sustainability, efficiency and uptime.** Identifying the close link between uptime and resiliency and sustainability based on critical KPIs and how new solutions ease the burden on people and help create more sustainable and resilient infrastructure.

▶ **Enabling operational efficiency that includes both OT and IT.** Deploying solutions to make operational management easier including new tools that gather data and insights that help minimize downtime risk and operating costs.

▶ **Deploying root cause analytics and predictive and prescriptive solutions.** Exploring new tools that enable quicker troubleshooting and root cause analysis and solutions that help reduce stress levels for data center operators and technology leaders.

Finally, we'll also dive into real-world use cases, design considerations and how leaders in the data center space can move away from legacy data center management concepts.

Making the Shift to Support Observability, Resiliency and Improved Operations

It's not always that easy to shift to better and less expensive ecosystems. There are still fundamental issues facing distributed infrastructure as they support more users globally. Consider these emerging problems:

▶ **The digitization era has arrived; however, data center managers are managing disaggregated data** — with no actionable insights. Data is split across different subsystems that aren't correlated, making it challenging to measure and track KPIs.

▶ **Engineers are having issues identifying problems with unclear root causes.** Bringing together data and insights to determine the root causes of operating issues can take a while.

▶ **Compliance, regulations and data center professionals are working with non-standard operations.** As issues arise, standard workflow procedures either aren't available or are not followed.

▶ **Data center leaders are running non-scalable solutions and closed systems.** Rapidly growing demands require scalable and rapidly deployable solutions that can keep up with retrofit or new build expansions.
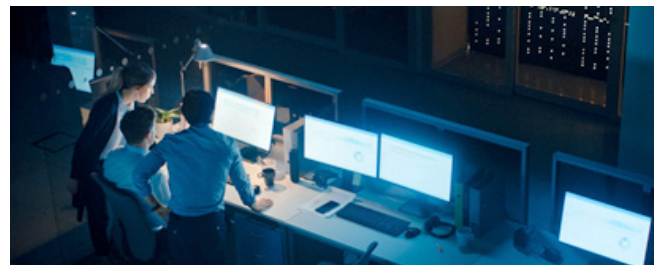
Managing a data center can be challenging, especially when operating multiple disparate systems with little connection between them. As noted in an IEEE paper, data centers feature complex cyber and physical systems, often making resource management difficult. Therefore, it's essential to jointly leverage potential solutions and partners to optimize computing and environmental resources in data centers. The paper points explicitly to leveraging systems that help with provisioning and utilization patterns in data centers and proposes a macro-resource management layer to coordinate cyber and physical resources.

Balancing business growth and resource constraints is critical for those who need to react quickly when finding operational solutions.

Section 1: From Legacy to Modern Infrastructure: Understanding the Data Center Management Journey into the Digital Landscape

Change is the current constant in the modern data center landscape. It's essential to take a reflective look at the business to understand how legacy solutions might be impacting the overall approach to new digital trends.

Can the business's systems appropriately support more significant efficiency, density and sustainability levels? How old are the systems running the most critical parts of the company? Has there been a refresh recently? Research from ABB indicates that just 29% of data center decision-makers say their current facilities are meeting their needs, and only 6% say their data centers are updated ahead of their needs. Security (45%) and bandwidth (43%) are the most needed upgrades.

Another critical concern with legacy systems is the observability of the entire digital infrastructure portfolio. Visibility into the technical and business aspects of the organizations is vital to reduce errors and improve operational efficiency.

The only way to truly embrace a digital infrastructure is to understand the significant trends in today's data centers. When it comes to data center design, consider these new and critical trends.

▶ **There are new solutions around distributed computing and edge.** According to Gartner, around 10% of enterprise-generated data is created and processed outside a traditional centralized data center or cloud. By 2025, Gartner predicts this figure will reach 50%, meaning that services around the edge will continue to evolve and grow. Furthermore, the edge will require a broader focus on connectivity and telecommunications for the best possible experience.

▶ **5G and new methods of connectivity will impact digital modernization efforts.** Gartner also noted that 5G was one of the main drivers for mobility in 2020, with the market for 5G infrastructure hitting more than $4 billion and two-thirds of companies deploying 5G in 2020. The connectivity around 5G and new telecommunication solutions are poised to revolutionize how we work, live and stay productive. According to Ericsson, towards the end of 2020, there were already more than 92 commercial 5G networks in 38 countries, with more than 320 million 5G subscribers forecasted in the United States by the end of 2025.

▶ **The OT and IT Convergence.** In the past, operational technologies and information technologies were two completely isolated pieces of an organization that interacted and often operated independently. Today, that line is blurred to a point where many leading organizations integrate OT and IT into one intelligent platform governed by security, process automation, greater intelligence, and improved data governance and security. For many, this represents the ultimate goal in working with OT, IT and third-party partners to support each process.

Differentiating OT and IT Solutions

OT – Operational Technology

Includes supervisory control and data acquisition (SCADA) systems and the building operations, including the building management system (BMS) and security systems and critical power and thermal systems.

IT – Information Technology

Includes traditional tech components such as computers, servers, storage, networking equipment, physical infrastructure and the data center. IT also includes the processes that create, store, process, secure and share data.

A significant change is the treatment of OT, which previously was not a part of the more extensive network or data center ecosystem within an organization or face the Internet. With more connected systems and IoT, this has all changed. It's a critical reason that leaders in the technology space are actively looking for solutions that give them true portfolio-level visibility into all connected systems.

▶ **IoT is now everywhere.** The proliferation of connected devices will not likely slow any time soon. There's a *connected revolution* going on from personal smart devices to the inside the walls and ceilings of modern buildings. For example, smart buildings, where devices converge onto a shared IT infrastructure, can deliver more operational functions and improve occupant experience.

How can data center providers keep an eye on all of this? With the mandate of "do more with less", what are leaders doing to avoid data fatigue where data center and business operators simply don't know what to examine first.

Let's look at some emerging design and partner considerations.

New Solutions Create New Design and Partner Considerations

Designing around a growing portfolio of digital infrastructure can often be a daunting task. So, if the goal is building, retrofitting, upgrading the environment, or improving visibility into overall operations, consider the following advice:

1. Engage innovation-focused, global partners that can provide collaborative, consultative guidance from design to operation to decommissioning phases.
2. Deploy an R&D focus well-suited for managing high-density environments
3. Have a clearly defined road map for the business's future
4. Look for improved solutions aimed at faster deployment and simplified maintenance
5. Collaborate with engineering and architectural teams to quickly design, modify and customize solutions
6. Create portfolio-level visibility to identify the issues faster, thereby reducing associated risks while bundling resilience
7. Synergize operations and processes across all locations for global consistency
8. Enlist partners that can design solutions that are affordable, efficient, flexible and provide portfolio-level visibility

When creating digital infrastructure, it's essential to consider partners that help deliver building management controls, security and life safety

> It's essential to get to a state of operation quickly when an issue occurs; however, in combination with a good data analytics platform, root-cause analytics can help understand what happened while remediating the problem quickly.

technologies paired with critical power and thermal solutions. These designs help operators achieve maximum data center uptime, sustainability and cost-efficiency goals.

Challenges in the Digital Age

New solutions are changing the way technology leaders design critical infrastructure. New designs are helping engineers and architects create denser and more efficient solutions within data center walls.

Data center operators and managers set their sites in innovative designs, from new cooling solutions to renewable energy sources to gain a competitive edge. Beyond traditional solutions, leaders are still asking the following questions around challenges in a persistently connected world:

▶ Can our digital infrastructure work smarter, better and more sustainably?
▶ How can we provide more innovative solutions?
▶ How are downtime and outages dealt with?
▶ Is it possible to leverage systems to help comply with various environmental requirements, compliance regulations and data privacy demands?
▶ Is it easy to find the cause and not just a resolution if a problem occurs?

New solutions can allow data center professionals to quickly root cause issues within the environment. This insight can help before and after a potential problem. An analytics-first approach can examine failures within the network, data center ecosystem, or even an integrated component related to configurations, patch levels and system updates. From there, leaders can better understand risk and respond accordingly. It's essential to get to a state of operation quickly when an issue occurs; however, in combination with a good data analytics platform, root-cause analytics can help understand what happened while remediating the problem quickly.

The Data Center 'Great Resignation'

Another critical concern facing the data center industry is skilled labor shortage.

A recent ZDNet post states that as demand for digital capabilities grows, a shortage of qualified data center professionals becomes more acute. Today's data center teams increasingly require both operations and development skills. Nearly half of owners and operators in a recent Uptime survey report difficulty finding skilled candidates, up from 38% in 2018. As such, 75% of respondents believe that most data center professionals have long-term job security. This means it's great to be in the data center industry, but we need to let more people know about it.

New solutions and tools need to be delivered to give engineers and data center operators the level of insight to make predictive and prescriptive decisions around their digital infrastructure.

In today's persistently connected world, a data center must accommodate an OT+IT converged infrastructure and its people in the most efficient way possible. Infrastructure needs the space to grow and evolve with new circumstances, technology and user requirements.

Let's examine how observability has changed to support digital infrastructure.

Section 2: Observability Considerations to Support Digital Infrastructure

Organizations that treat data centers as a direct part of their business will leverage technology as a competitive advantage. How well is it all being managed as the data center footprint expands? What is the organization doing to create granular visibility into the entire portfolio of connected systems?

Data centers are purpose-built facilities with lots of complex technology. Managing those technologies has been problematic. At best, devices have management software, but individual software systems do not work together. At worst, blinking lights needed to be monitored in person.

The result is a highly tuned system that, when it breaks, can take down an entire business. Emerging solutions around data center management are changing this. It's key to see everything within the environment and incorporate intelligent monitoring to support critical architecture.

When it comes to data center management in a digital era, consider the following four points:

▶ **Everything is connected.** Critical infrastructure must work as a system. Devices such as power and cooling delivery need to be connected to a common network to allow seamless monitoring.

▶ **Working with sense and respond software is important.** Management software needs to do more than just describe what happened. It needs to provide trend analysis and intelligence to identify problems before they happen and solve them.

▶ **Innovation through integration.** Look for in-house software development resources to integrate disparate software management tools into a robust system.

▶ **Secure portals and reporting help simplify operations.** Gain an online view of the critical infrastructure and the ability to produce reports and trending.

When data center leaders grasp the monitoring and data center management side of things, it is easier to incorporate policies, compliance, and controls over the metrics. After all, what good is an alert if it's unknown what to do next?

To get to a better operational state, it's essential to begin by asking the right questions.

Asking the Right Questions, Overcoming Digital Dilemmas

There is a fundamental shift in working with and looking at digital infrastructure portfolios, and this is why the way partners are sourced and engaged must also change. In many cases, it's key to ensure that the partner can support people, processes and technology. Furthermore, it's critical to challenge partners on their supply chain strategies and that their overall business strategy aligns with the business. Some things to consider:

1. Does the supply chain have strategic importance to the partner? Can they demonstrate how they align business and strategy with supply chain management?

2. Where are the risks? Can the partners showcase their capabilities and support their supply chain for optimal performance?

3. Can the partner's solutions help the business scale? Will a supply chain snag create additional headaches for the business?

4. Is there change management processes that are built-in and that continually review key supply chain elements? Do they also look for opportunities to improve quality and operational efficiency?

5. Does the supply chain minimize the number of touches and the touch time in supply chain transactions to reduce the number of potential points of failure?

6. Can the partner effectively support people and their initiatives? Can it give leaders the right level of observability into the supply chain, business and overall operations?

7. Can the partner think globally and execute locally?

As many leaders want to improve operations, become better with sustainability and help their staff become less tired, some emerging considerations face digital infrastructure. These issues include:

▶ **Distributed infrastructure has created new questions around management.** The way we connect and leverage resources are far different than even just a few years ago. Today, more extensive infrastructure portfolios are helping organizations stay ahead of a diverse and digital market. This translates to strained visibility levels where edge ecosystems and smaller locations may not have the observability required to scale the business.

▶ **Unclear root causes can take a long time to resolve.** Taking too long to find out the root cause of an issue can waste time and resources. Fixing a critical issue is essential; it is even more important to make sure that it doesn't happen again.

▶ **Admin fatigue is a real issue in the connected age.** Data centers technicians and IT administrators are tasked with maintaining critical infrastructure. When too many dashboards, alerts, and sensors go off, creating the 'swivel chair' analysis issue is possible. This means administrators might miss key issues or not even know which screen to look at. Without good observability, the human element quickly becomes stressed and fatigued.

▶ **Lack of standardization will impact compliance, regulation and even safety.** Disparate systems, too many non-integrated components, and silo operations lead to a lack of standardization. This also creates problems with compliance and regulation. Another major issue with a lack of standardization is observability across the entire portfolio. As our environments grow, they become more complex, and working with standardization and visibility tools makes managing those ecosystems easier.

▶ **Challenges with scale will impact how the business can grow.** Without good visibility, it can be difficult to scale a business effectively. The ability to scale at the pace of a digital market and business-specific requirements means having visibility into the entire ecosystem.

▶ Loss of productivity and efficiency. The human element is critical to success, and they need proper tools to improve effectiveness and productivity.

▶ **Sustainability issues will lead to future ESG issues.** It is difficult to effectively deliver on ESG goals without observability across the entire data center and infrastructure portfolio.

We've discussed how data center operations have changed, where new sustainability metrics impact digital infrastructure and some of the emerging issues facing operations. To overcome these issues, leaders must look beyond traditional means of data center management. To get ahead in a digital space, observability must handle the digital infrastructure in a holistic fashion. Let's dive into what that means.

Observability That's Designed for Digital Infrastructure

The graphic below illustrates the elements of a digital infrastructure that require strong observability.

It's important to show how modern digital infrastructure portfolio visibility tools can impact an organization.

▶ **Look for building and infrastructure managing systems solutions that provide portfolio visibility.** New solutions can manage the data center's building, power and systems via and open platform to deliver uptime and operational efficiency. Digital infrastructure is a 'living' entity that's constantly evolving.

▶ **Use a solution that supports overall ESG goals.** Consideration needs to be made for energy optimization, water conservation and overall energy management.

▶ **Consider controls that can support various systems.** Deploy a solution that provides total observability into the entire portfolio of solutions, including IT, OT, DDC and even PLC controllers to deliver more reliable uptime.

▶ **Work with solutions that deliver smart, predictive and prescriptive critical infrastructure management.** These designs will deliver more sustainability, efficiency and uptime by intelligently managing critical resources, like power, grids and microgrid solutions.

▶ **Deliver higher-value services with better visibility.** Work with data-driven, machine-learning solutions that actively analyze data patterns to help with operational efficiency, thermal optimization, and more. Higher-value services and systems work with data and cross-domain integration and optimization to deliver the next generation of data center management.

▶ **Leverage designs that support intelligent command systems to address security concerns.** Security is always a concern so systems that offer improved access controls, n integration and asset protection through next-generation threat identification and response management.
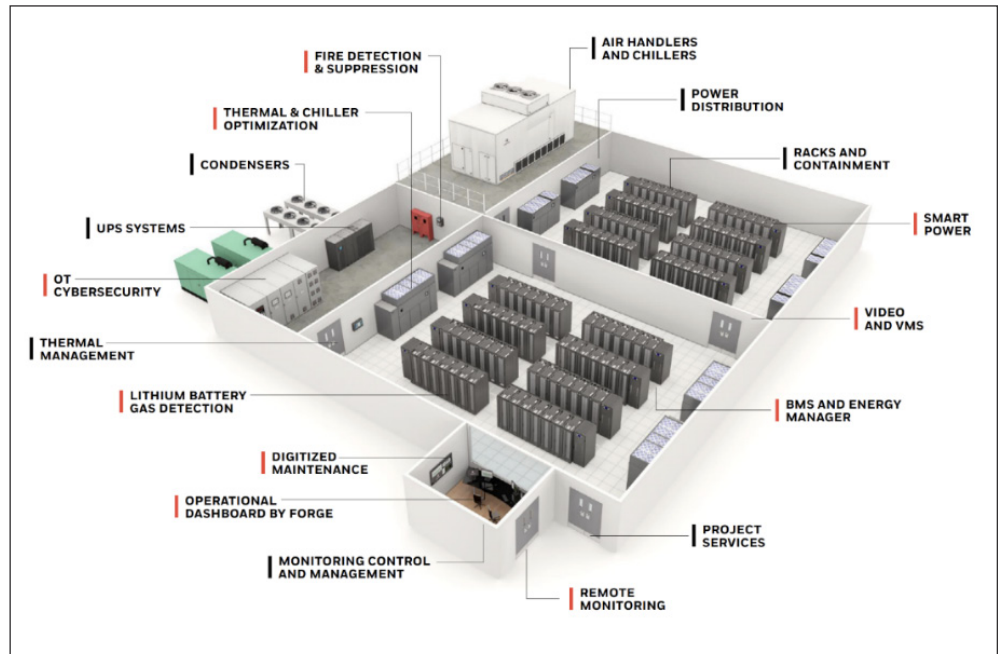
When organizations use an open, end-to-end platform can enhance operational processes. Some positive outcomes include:

▶ Data center leaders can experience a 10% energy reduction with better visibility and controls. Leveraging technology that works with data-driven and machine learning tools, leaders can use data to see previously inaccessible patterns.

▶ With portfolio-level visibility, data center professionals can see a 10-20% cost reduction in maintenance. Managing a portfolio view also means greater data management, increasing visibility while limiting the volume of information allowing data center managers to understand their ecosystem better. This translates to better insights, improved observability and reduced maintenance.

We need to discuss one more important point when creating observability in digital infrastructure: **The people.**

Section 3: The Data Center Human Variable – Tools that Improve Operations and Help Reduce Risk

When working with critical infrastructure, it's critical to keep people and assets safe. Reducing risk in key facilities includes prevention and identifying and reacting to critical incidents quickly. Condition-based maintenance helps determine the risk of asset failure before it happens. Multi-level security applications ensure that the site has the protection and control needed to minimize downtime and intrusion threats.

To improve operations and reduce risk, look for tools that include:

▶ Integrated asset and life safety protection — BMS, Fire, Security

▶ Situational awareness and threat management

▶ Physical security — multi-layered perimeter, access, and DVM

▶ OT cybersecurity assessment and solutions

▶ SPoG (single pane of glass) to manage alarms and critical incidents

The following examples are potential real scenarios and stressors impacting data center management and the tools which can be leveraged to overcome these challenges.

Cybersecurity Incident: Identification and Eradication of Potential Cyber Incidents

Observe
Enhance situational awareness to identify cyber threats proactively

▶ Conduct cybersecurity site assessment

▶ Monitor and use ag remote management system to identify anomalies and send notifications about possible malware

Investigate
Optimize response time with predefined collaborative protocols

▶ Confirm possible malware

▶ Follow a predefined incident response protocol which includes notification to critical stakeholders

Resolve
Recover and minimize system downtime with predefined processes and procedures

▶ Preserve forensic data

▶ Contain affected systems from further damage or data loss

▶ Eradicate the malware

▶ Restore service

▶ Provide a detailed incident report consisting of lessons learned

Active Threat Situation: Multi-level Security Helps Promote Zero Tolerance on Security Issues

Observe
Enhance situational awareness to identify issues quickly

▶ Alert security operator to an active threat

▶ Observe the area using integrated maps and video

▶ Initiate SOP on incident workflow, including lockdown of the facility and informing the security manager

Investigate
Optimize response time with collaborative workflows

▶ Coordinate with the security team to investigate and confirms threat level

▶ Initiate SOP with security officer and manager

▶ Call emergency services and evacuate the area as needed

Resolve
Enforce procedures to reduce the duration of the evacuation

▶ Drive collaboration among the emergency services and the security team to contain the threat

▶ Follow the SOP workflow to repopulate the area safely

▶ Monitor the environment to promote continued safety

Running a data center in today's world is an increasingly complex task. New technology, changing regulations and new demands have left many companies feeling like they're not keeping up.

A Fire Has Broken Out: Faster Response and Reporting

Observe
Identify risk and see the big picture faster

▶ Use advanced detection technology to help identify and prevent critical incidents early

▶ Initiate an incident workflow through a fire alarm

▶ Assess the situation with the video system and trigger an automated response – smoke extraction, pressurization

Investigate
Centralize collaborative command with record-keeping and traceability

▶ Coordinate incident activities through the response team

▶ Initiate specific workflows for shelter, evacuation and muster, as required

▶ Leverage centralized collaborative command with record-keeping and traceability

Resolve
Conduct remote monitoring and collaborative incident response

▶ Monitors the situation remotely

▶ Enable traceability and provide an auditable version of events for investigative purposes.

Reducing Stress, Improving Visibility and Management, Retaining Talent

Driving operational efficiency can reduce stress and make data center professionals more efficient. Running a data center in today's world is an increasingly complex task. New technology, changing regulations and new demands have left many companies feeling like they're not keeping up.

One great example of helping reduce employee stress and increasing technicians' feeling of empowerment is by making troubleshooting fundamentally easier. Consider the following two use cases.

Condition-Based Maintenance: Identify Mechanical Issues Faster, Minimize Downtime, Reduce Triage of Issues

Observe
Integrate systems for faster root cause identification

▶ Use solutions that can determine a mechanical equipment performance issue

▶ Send an alarm to the operator to evaluate the situation

▶ Initiate SOP on the identified concern

Investigate
Collaborate on workflows for compliant, traceable actions

▶ Inform local technicians to investigate the anomaly

▶ Provide equipment information and supporting information on a map to the technician via a work order

Resolve
Review and analyze reports for continuous improvement

▶ Review the data and evaluate the situation

▶ Determine the root cause and complete the repair

Pre-empt Asset Damage: Help Identify Critical Incidents Faster, with Less Stress, More Accuracy and Faster Resolutions

Observe
Use incident workflow and zoomable maps

▶ Receive alarm from water sensors that pressure has dropped

▶ Use integrated maps to explore the area

▶ Initiate incident workflow and dispatch a service technician is dispatched

Investigate
Deploy collaborative workflows for record-keeping and traceability

▶ Locate the equipment and investigate

▶ Evaluate trend data, identify the root cause and efficiently resolve the water leak

▶ Records comments against the SOP steps

▶ Sign off on the steps and close the SOP

Resolve
Improve building operations with easier analysis

▸ Creates an incident report

▸ Submit a report to the insurance company to support the asset damage claim

Let's recap a few areas to help improve efficiency, reduce stress and support a growing digital footprint.

▸ **Stay connected regardless of infrastructure location.** Create a platform that gives data center professionals unified visibility into the entire digital ecosystem to manage more distributed digital footprints better and increase connectivity demands.

▸ **Built-in macro control with a portfolio view.** Manage both IT and OT systems side by side with a full portfolio view of all critical systems.

▸ **Reduce stress levels and overcome talent shortages.** Use tools that make data center management easier for the on-site teams, working to staff reduce stress and make managing data centers easier actively.

▸ **Create a master control center.** Look for an open, end-to-end platform with vendor-agnostic, easy integration capabilities.

Section 4: The Partners That Evolve Digital Infrastructure Observability

It'll be essential to work with a good partner that enables the visibility and observability that data center leaders need in a digital economy to bring the complex elements of data center management together. Partners like Honeywell develop and deliver technologies that address some of the world's most critical challenges around energy, safety, security, productivity and global urbanization. Today, more than 40% of the worldwide data centers rely on Honeywell's end-to-end solutions that combine domain knowledge and site experience with modern hardware and software.

Honeywell develops leading BMS, fire and life safety, security and sustainability solutions that meet the specific needs of data center operators. These solutions come together through the Honeywell Forge enterprise performance management platform that seamlessly integrates with third-party systems, improving operations and mitigating downtime risk.

Another critical point is how Honeywell works with other companies to support advanced data center operations. Honeywell, a leader in connected buildings, and Vertiv, a global provider of critical data center infrastructure, are working together to deliver integrated data center solutions. Honeywell's building management controls, security and fire and life safety technology paired with Vertiv's critical power and thermal solutions can help leaders achieve uptime goals, meet sustainability goals, improve cost efficiency and secure data centers.
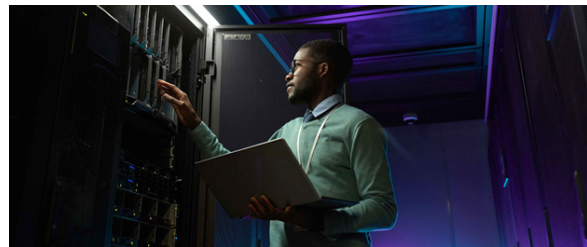
Honeywell leverages global and local reporting from around the world with solutions deployed in more than **10 million** buildings, as well as over 5,000 data centers.

It's important to work with partners with a track record of managing performance-based contracts and real delivered outcomes. This means focusing on these specific offerings:

▸ Uptime and resiliency

▸ Sustainability and efficiency

▸ Safety and security

▸ Modularity and agility

▸ Open platform and vendor-agnostic solutions

▸ Portfolio-level visibility

Offerings like these from Honeywell deliver connected data center offerings that help businesses to address their most critical outcomes and exceed expectations. Ultimately, this provides data center operators with the capabilities needed to adapt and expand, optimize uptime and efficiency, and protect assets, people and data.

Final Thoughts and a Look into the Future

The future will only become more connected. Organizations that deliver digitally optimized occupant experiences will likely establish a long-term advantage in capturing and retaining customer and employee loyalty.

Whether providing new IoT solutions, building a new hyperscale data center, or investing in the edge, be sure to work with designs that help businesses grow without adding additional stress.

To keep up with this shift, it's important to work with partners with a digital-first mindset and deliver solutions that offer a true portfolio-level view of all digital assets. Whether providing new IoT solutions, building a new hyperscale data center, or investing in the edge, be sure to work with designs that help businesses grow without adding additional stress.

The people part of the equation is also essential to hire and retain top talent. Digital infrastructure will require new tools to help people stay efficient, safe and empowered and productive.

The good news is that data center professionals don't have to embark on this journey alone. Leaders in the digital infrastructure are already building new, data-driven designs to help overcome some of the most frustrating challenges. To begin the journey, start by asking the right reflective questions about the business's digital infrastructure and how people and key digital assets are being managed today.