Buyer's Guide to Edge Infrastructure Management Solutions

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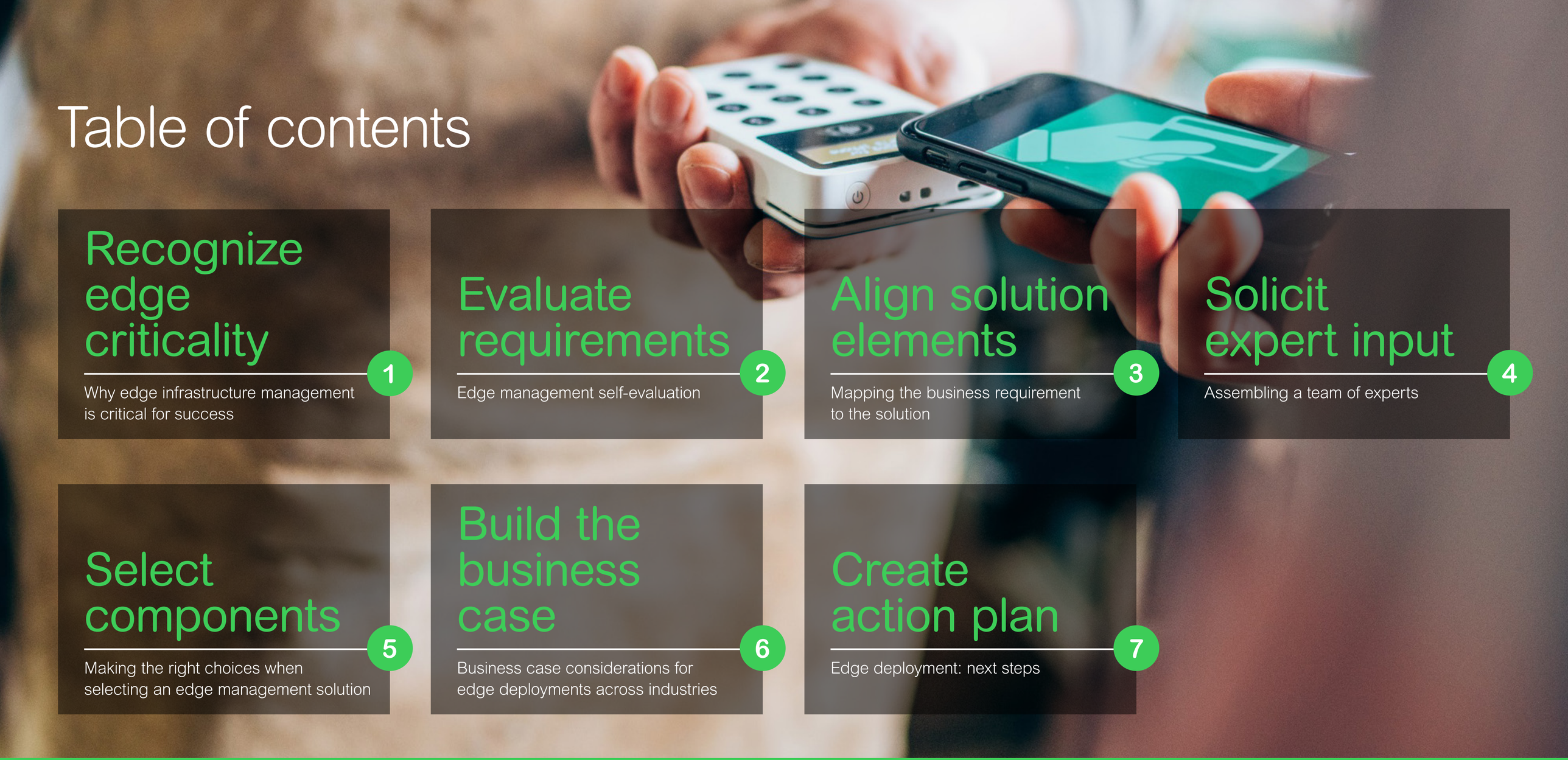

Managing edge environments as critical assets

Why edge infrastructure management is critical for success

As data emerges as the new competitive advantage currency, the importance of edge asset management grows.

By 2024 companies will spend more than $650 billion per year on digital transformation (an 18.5% compound annual growth rate when compared to 2018 spending). This trend is widespread because edge computing helps unleash the power of local data that is generated from digitized and connected devices of all kinds. Today, data is the currency of success. Companies large and small depend on data to make better decisions, establish competitive advantage and drive revenues.

As the significance of edge systems grows, resilience and the proper tools to monitor and manage edge infrastructures emerge as critical success factors. Unlike standard data center systems, where built-in resilience is provided through redundancy and physical security (even armed guards), edge systems lack the luxury of on-site support. Therefore, in edge environments, new tools that mimic the value-add of management tools, controlled environments, and on-site experts are required.

In the past, not much effort was placed into securing and supporting small, single rack distributed IT installations. But that mindset has changed. The availability of the edge sites is now deemed critical.

In response to marketplace edge requirements, vendors are developing robust edge infrastructure management solutions. These solutions make it possible for end-users to cost-effectively manage these new distributed IT environments. However, not all solution vendors are alike. Some may offer compelling options, but as start-up companies or small enterprises, they may not have the longevity or global presence required to fully support long-term roll outs.

End-users who are evaluating edge infrastructure management solutions pose a wide variety of important questions:

- How do I develop a means for monitoring remote edge locations without investing in local IT staff?
- In what ways does the edge solution software anticipate equipment failure before it happens?
- What are the best ways for instituting procedures that speed-up mean time to repair if a failure does occur?
- Which tools should I invest in that can track how much capacity is available per remote location?
- What are the best ways to enhance the security of rooms and closets hosting critical edge compute assets?
- Which solutions can offer me one consolidated view of equipment health across multiple edge sites?
- How can I determine whether any of my existing, central on-premise monitoring solutions can also monitor remote critical edge installations?
- Can I use smart phones and other mobile devices to monitor and enhance my visibility to my edge infrastructure?

If any of these questions resonate, keep reading. Based on our learnings from numerous deployments, we share, in this e-guide, the key steps companies should take before buying and deploying an edge infrastructure management solution.

* IDC, Best Practices for Planning an Edge Computing Infrastructure, Doc # US43615818, March 2018.

Requirements evaluation

Edge management self-evaluation

Answering the right questions will expedite solution deployment.

In order to optimize time spent evaluating edge infrastructure management solutions and planning edge system deployments, it is important to think ahead and establish requirements for proper management of the system once deployed. Complete the following short assessment to better understand edge infrastructure management needs. If the response is negative (“No”) to two or more of the statements listed to the right, an edge infrastructure management solution should be considered.

After assessing the system management situation, the first step in selecting an edge infrastructure management solution is to define the job to be done through the mapping of relevant business requirements.

Statement	Yes	No
1. We can remotely check the status of all our remote critical infrastructure devices or sites.		
2. We are immediately notified if there’s an event or problem with our distributed critical infrastructure devices or sites.		
3. We have skilled on-site IT support at all locations with critical IT infrastructure devices.		
4. Our systems notify us of potential cybersecurity vulnerabilities in our critical infrastructure devices as they arise.		
5. We can remotely upgrade our equipment through a single user interface (UI) to ensure we have the latest security fixes.		
6. We have a centralized team that monitors our critical infrastructure 24/7.		
7. Our team is not overly reliant on the knowledge and skills of any single employee in our IT organization to maintain our edge infrastructure.		
8. We can quickly view and understand the performance trends of various critical infrastructure devices.		
9. We are satisfied with the time it takes to resolve an incident when there is an IT equipment failure.		
10. We are satisfied with the effort required to provide relevant reports to our management team concerning our critical edge infrastructure.		
Add up number of “No” responses >		

Performing proper due diligence

Mapping the business requirement to the solution

Successful and profitable edge infrastructure management requires planning.

If, after performing an assessment, it is deemed that an edge infrastructure management solution makes sense, there are several steps to take to make sure the solution maps to the business requirements. Stakeholders will need to determine who will support these systems once they are installed. After all, in many locations such as retail stores, banks, small offices, and manufacturing sites, no IT staff is on hand to offer systems expertise and support.

Regardless of the business requirements, a standard series of steps should be followed in order to perform the proper due diligence that will result in a successful and profitable edge infrastructure management solution implementation. These steps should include:

- **Vendor research** — Create a short list of vendors for evaluation. Look for industry experience, the ability to collaborate within an ecosystem of partners, a long-term commitment to the edge market, current capabilities, and future financial viability.
- **Solutions demonstration** — Touch and feel the solutions that key vendors are proposing. Determine how closely they address core business requirements. Probe them for suggestions on how to better boost efficiency and lower costs.
- **Trial/Proof of concept** — Edge system pilots can be low-cost/high-reward exercises. For example, if testing out a Software-as-a-Service (SaaS) edge management solution, short-term, free trials are common. Build at least a 30-day trial into project plans.
- **Deployment plan** — Determine what approach is required in order to achieve quick wins for the business. Depending on business requirements, consider either a phased approach with low-risk/rapid deployment for selected high-value assets, or a big bang approach for all assets and devices.

Involving the right experts

Assembling a team of experts

Depending on the size of the company, the experts involved will differ.

As is the case with most IT implementation projects, the success of a new edge infrastructure management solution will depend on the team of people involved in executing the project. In smaller organizations, the process will involve the blending of fewer interested parties. Decisions will be made in a more simple and straightforward manner. Most small organizations manage fewer than 150 critical IT assets with one to two IT-savvy employees. Budget authority resides with the team benefiting from the edge infrastructure management tool. In these cases, the most logical path is to define the problem and to test a couple of solutions before moving ahead.

In larger organizations, however, implementers of edge infrastructure management solutions will need to think beyond their business silos. Edge infrastructure management solutions can impact stakeholders beyond the immediate team that purchases and installs the solution. Engaging such stakeholders early on in the buying process helps to avoid late-stage plan disruptions.

Three critical groups often overlooked during the edge solution buying process are cybersecurity, finance, and the line of business. These groups should be included in the evaluation process for multiple reasons:

- **Cybersecurity** — Many edge management solutions are cloud-based. In order to assure the highest level of cybersecurity, the proposed solution should be reviewed and validated. In this way, corporate data security and regulatory compliance requirements are addressed.
- **Finance** — Cloud-based solutions are increasingly sold as-a-service. Not all organizations are set up to buy Software-as-a-Service (SaaS) solutions. It is prudent to engage finance, procurement, and/or contract management stakeholders to ensure key steps are taken to accommodate new acquisition procedures.
- **Line of business** — The ultimate end-user of the edge system should act as a key influencer. It is vital to level set expectations and validate their needs to align with overall business goals.

To learn more about how to build solid consensus across enterprise silos when evaluating edge infrastructure management solutions ...

Download the white paper

> “Avoiding Common Pitfalls of Evaluating and Implementing DCIM Solutions”

When negotiating with external teams that hold an interest in how edge solutions are deployed, it is important to understand and address their questions and concerns ahead of time. As a result, these team members will more likely act as enablers rather than obstacles when deploying edge systems within a tight timeframe. Below is a list of typical extended team member concerns:

Role		Questions
Daily user	IT Manager	• Will this meet our business requirements? • Are we ready for this?
	Network Operating Center (NOC)	• How will this work with our existing set of tools? • Can this help us deliver our services more effectively?
Interested stakeholder	CIO	• What's the ROI on this tool? • Will it make my organization more productive? • What will this tool do to ensure more reliable service to customers and stakeholders?
	Cybersecurity	• Is this tool secure? • Does it comply with corporate security and privacy policy?
	Legal	• Who owns the data in the cloud? • What are the vendor's data security practices?
	Finance	• How much does this cost directly/indirectly? • Is this worth the investment?
	Line of business	• How will this tool impact our business operations? • What impact will it have on our team's day-to-day responsibilities and/or productivity?

Selecting solution attributes

Making the right choices when selecting an edge management solution

Ease of use and cost-effective growth path are key considerations.

What are the stakes involved when making an edge infrastructure management solution decision? In the case of both small organizations and large enterprises, a key goal is certainly a reduction of risk. In one sense, the beauty of deploying a Software-as-a-Service (SaaS) solution is that it lowers the cost of choosing poorly. Just turn it off if it is not working for you. No more rip-and-replace like on-premise software. But that sells short the value and impact of choosing well. Edge infrastructure management solutions will not only increase peace of mind, but they will also add value to adjacent systems and processes.

Not all edge management solutions are created equal. Some important characteristics should stand out to make the solution easier and less costly to implement:

Cloud-based
SaaS solutions run in the cloud and open the door to a range of benefits that cannot be achieved otherwise. They allow for easier deployment, consistent cybersecurity patch updates, hassle-free maintenance, robust analytics, benchmarking, and infrastructure health assessments, to name just a few. Every day brings new innovation, but it starts with the cloud.

Vendor-agnostic
Since critical edge infrastructure is composed of equipment from a range of manufacturers, an open solution that can easily support third-party vendors can eliminate unnecessary integration headaches while facilitating vendor relationship management.

Scalable
The ability to grow the edge infrastructure management solution without having to incur additional cost in time and money will help to increase ROI. A scalable solution reduces up-front investment while allowing for a flexible “pay as you grow” approach.

Maintainable

Although cloud-based management systems provide a robust level of edge system support, an on-site person will still be needed if equipment needs to be physically repaired or replaced. Ask potential solution providers about their global presence and ascertain if their support teams are present in the same locations where the physical edge assets reside.

With the emergence of SaaS, a new type of customer support called Customer Success Management (CSM) has emerged. The CSM team is committed to helping customers achieve their business goals with the use of their tool. Ask about what kind of CSM support is offered.

Secure

Close evaluation of vendor cybersecurity measures should also be made a high priority. Determine how high encryption standards are maintained. Also verify methods whereby elements such as two-factor authentication, certification, and data transportation and storage are managed.

For businesses that process credit card transactions, it is critical to also determine whether the edge solutions being deployed support industry standards aimed at securing payment transactions and protecting card holder privacy against the misuse of personal information. The question of how data will be transported and stored and how personal data will remain confidential should be asked of each vendor under consideration.

Investment justification strategies

Business case considerations for edge deployments across industries

When securing project funding, quantify technology benefits.

Across industries, a key challenge facing stakeholders who wish to deploy edge systems is how to achieve buy-in from executives for the funding of edge projects. The critical success factor is the ability to communicate the functions of new technologies into terms that reflect business value.

In building the business case, consider making an effort to convert edge system benefits of efficiency, data analysis, connectivity, and remote monitoring capabilities into a language that reflects cost reduction, faster turnover, higher return on investment, and lower total cost of ownership. Executives often express frustration that direct reports lose them in detailed discussions surrounding megabytes, watts per square foot, distributed systems, and systems management. Oftentimes, those discussions end with project teams failing to acquire the funding they need to move technology innovation forward.

Edge infrastructure management tool advocates also need to communicate the cost of inaction when outdated technologies limit the amount of enterprise data that is both gathered and analyzed. In addition, antiquated systems, when not replaced or upgraded, drive up the cost of downtime.

Given the wide range of edge use cases, a variety of business cases across industries can be built on a variety of desired outcomes.

Industry	Example of edge infrastructure management solution deployment	Outcomes impacted
Retail	Typically, no on-site IT staff is present in retail locations. Retailers deploy tools to monitor in-store IT infrastructure supporting point-of-sale operations in numerous locations.	• Increased sales • Reduced downtime • Improved retail employee productivity
Healthcare	Local IT infrastructure supports healthcare staff applications and hospital room IT. Regional hospital operators struggle to manage distributed IT composed of equipment of different ages from multiple vendors. Solutions are deployed to gain visibility, to benchmark performance, and to prioritize maintenance activity.	• Improved patient experience • Reduced unplanned maintenance spend • Better risk management
Higher education	Universities are transitioning to Voice over Internet Protocol (VoIP) telephony for on-campus offices and dormitories. Solutions are deployed to gain mobile visibility into supporting infrastructure.	• Improved university staff and student satisfaction • Reduced burden on small IT support team • Lower management costs
State/local government and education	School districts are upgrading IT infrastructure to support on-site digital education curriculums and distance learning. IT staff to support distributed school network needs is limited. Remote, on-the-go infrastructure visibility is required.	• Improved learning experience • Improved IT employee satisfaction and productivity • Improved IT support response time
Financial services	Small investment firms experience system performance issues in their aging network closets. Downtime can cause extended disruptions to regional trading offices due to a failed HVAC unit. A remote solution is needed to gain 24/7 visibility.	• Improved IT support response time • Increased peace of mind for staff and management • Decreased cost of downtime

Create an action plan

Edge deployment: next steps

For those ready to implement, a number of short-term actions are recommended.

Sweeping marketplace changes are altering the way data is being managed, delivered, and stored. Maintaining competitiveness requires innovation in the way new edge computing environments are managed. Edge infrastructure management tools serve as eyes and ears in places you cannot be and cannot afford to staff. They can be quickly and cost-effectively deployed, accelerating mean time to repair (MTTR) for unplanned outages while improving the quality and speed of decision-making.

Choosing the appropriate edge infrastructure management solution is critical and the solution should encompass functionality that can address the following edge deployment issues:

- **Lack of available IT staff to support remote locations** — As companies are digitizing, some are deploying more technology with the same resources, and the bandwidth for support of edge systems is severely limited. For this reason, viable edge solutions should be capable of being managed remotely.
- **Limiting maintenance costs of systems in the field** — Since most edge systems will be installed in remote locations, the cost of sending in maintenance personnel to assure systems availability could potentially be quite high. However, modern remote management tools can identify any devices that require fixing or adjustment before any downtime occurs.

This capability greatly reduces the number of required maintenance interventions and speeds up resolution time whenever there is a failure.

- **Flexible, agile system interfaces** — Appropriate edge management solutions should allow for edge system access via multiple devices, including laptops, tablets, and smart phones. This makes it much easier for either internal resources or third-party service providers to monitor and adjust edge systems at any time, from any location.

For those ready to undertake the journey of edge system deployment, a number of short-term actions are recommended. For smaller organizations in possession of 150 critical IT assets or less, set an achievable goal of organizing one or two free trials of edge infrastructure management solutions from reputable system vendors within the next business quarter.

For larger enterprise users who need to work within the confines of both fixed budgets and cross organization collaboration, the following action plan is recommended:

- **Within the next month** — Identify initial areas within the enterprise that can benefit from the potential of edge solutions. Begin to seek out vendors that have emerged as leaders in the edge infrastructure management solution marketplace.
- **Within the next 6 months** — Secure funding for those projects that represent low risk and high return. During this time, begin to assemble a team of interested stakeholders.
- **Within the next year** — Implement first edge computing solution. Track expenses and quantify benefits during the pilot and test period. Leverage vendors to fill in knowledge gaps where required.

To learn more about how Schneider Electric edge tools, architectures, and products can help optimize edge system performance visit our edge computing solutions page.

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Learn more about edge infrastructure management solutions.

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