5 WAYS TO DRIVE INNOVATION AT THE EDGE

How an effective edge strategy can generate new value for your organization

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Despite their appetite to incorporate edge initiatives into their working practices, many organizations are finding it difficult due to factors such as cost, complexity, lack of experience and concerns around security. Learn how your organization can enhance your edge to drive innovation.

Get closer to the edge

Edge technology is transforming how organizations unlock innovation. The gateway to a data-powered future, the edge creates new solutions for previously unsolved problems; provides seamless customer experiences; and ultimately creates immediate, essential value for organizations.

BUT WHAT IS THE EDGE?

The edge refers to the place (or places) where data is generated. In a factory, it could be the production line. In retail, the point of purchase. In farming, the equipment deployed throughout the fields. In healthcare, the ambulance, lab or examination room.

By processing and analyzing this data securely near its source – removing the inefficiency of transporting large volumes of data to a cloud or data center – the edge reveals near real-time insights that can help organizations optimize processes and maximize potential.

Edge solutions are already helping us build the cities of tomorrow, improve patient care in our hospitals, personalize how we shop both online and in-store, and much more. These transformations are gaining momentum:

80%
of organizations expect to have edge deployments in the pilot stage within just two years, compared to 60% today.[1]

40%
of companies expect to be in production at the edge within two years, compared to 26% today.[1]

With the rapid adoption of edge initiatives, the concern for many organizations is ensuring they aren't left behind. A recent survey revealed that 97% of Operations and IT decision makers believe their organization would be negatively impacted if they didn't move their operational activities to the edge.[2] Yet challenges such as cost, complexity, security and lack of experience can hinder the implementation of edge initiatives.

Finding the right edge solution for your organization can not only negate these concerns, but also unlock benefits that accelerate growth. Here's how your organization can utilize your edge to drive innovation, starting today:

EMBRACE NEW
TECHNOLOGIES

By deploying edge technologies to address a range of use cases, organizations can enjoy data-driven benefits such as improved quality and safety, decreased downtime, and increased efficiency.

71%

of those actively embracing technology innovation expect that their data insights will make them more entrepreneurial and better at identifying opportunities[3]

HERE ARE JUST A FEW EXAMPLES OF HOW NEW TECHNOLOGIES ARE DRIVING PROGRESS AT THE EDGE:

Mobility

Dynamically reconfigure manufacturing machines on factory floors, enable untethered mobile robots and drones or autonomous cranes in ports, and gain access to high-volume or low-latency data feeds that were previously not practical to access.

Robotics

Leverage computer vision to manage different robotics used in locations such as greenhouses, factories, or mines. These automated robots handle everything from pollination to picking and evaluating produce, to welding and delivering parts, to digging in potentially unsafe locations. Automation has driven new levels of grower productivity and efficiency.

Smart buildings

Consolidate data from multiple IoT devices within a building into a single management and analytics system. Smart building technology enables building managers to make real-time decisions that minimize maintenance, improve security and reduce energy usage, combining inputs from multiple internal systems to generate intelligent optimizations that enhance the tenant experience.

Safety & Security

Monitor crowd safety in real-time and flag security concerns when required, or monitor traffic systems and direct guests to alternative parking lots.

Training

Provide virtual training sessions in industries such as healthcare, allowing recruits to remotely practice procedures in low-pressure scenarios.

To ensure your business can take advantage of these technologies, it's crucial to find a partner with Operational Technology (OT) expertise and a history of continued innovation. Not only can they navigate the complexities of implementing exciting technologies as they emerge, but they can also do so while retaining the intrinsic security of your edge infrastructure.

LEVERAGE DATA AT THE EDGE TO CREATE NEW VALUE

Harnessing data is essential for every business. On its own, data doesn't have value; it's what you do with that data and how fast you act upon it that matters. The value of data is highest right as it's being created, which is at the edge. The insights that are generated almost immediately as a result of this data are extremely valuable, but their value shrinks rapidly with time; often the greatest value can only be attained by acting in seconds or less.

61%

of respondents believe competitors will gain an advantage by harnessing data insights[3]

When you generate insights leveraging data captured at the edge, it doesn't just remove the expense and inefficiency of transporting huge volumes to a central data center or cloud; it enables you to capitalize on the maximum value of your data so you can:

Drive transformation

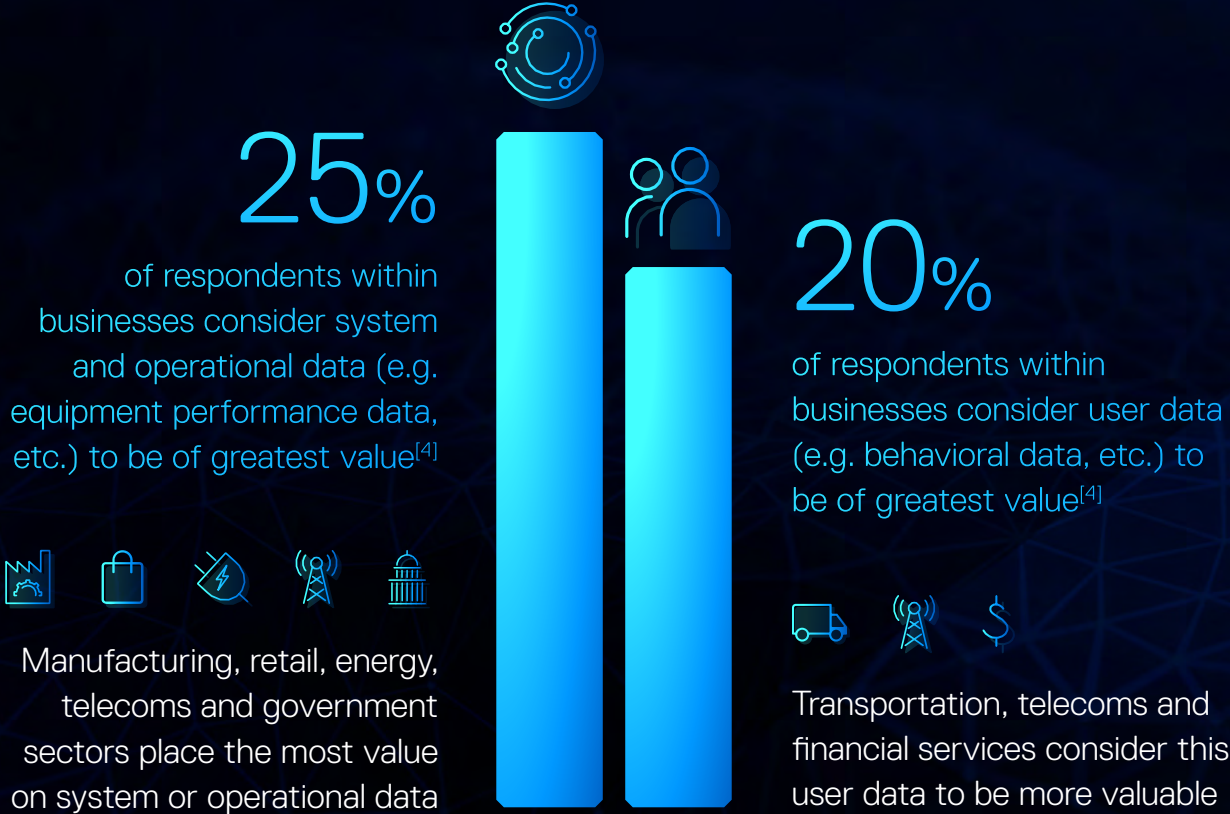Enable future innovation

Increase responsiveness

Reduce costs

Improve customer experience

The edge can enable organizations to act on their data in ways their competitors can't, giving them a significant strategic advantage.

INDUSTRY PREFERENCES FOR
THE DATA THEY LEVERAGE

The benefits of capturing data at the edge can
be nuanced and industry specific:

25%

of respondents within
businesses consider system
and operational data (e.g.
equipment performance data,
etc.) to be of greatest value[4]

Manufacturing, retail, energy,
telecoms and government
sectors place the most value
on system or operational data

20%

of respondents within
businesses consider user data
(e.g. behavioral data, etc.) to
be of greatest value[4]

Transportation, telecoms and
financial services consider this
user data to be more valuable

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innovation at the edge

" We stopped paying a third party vendor, and there was a lot of astronomical costs with the maintenance and support of their system. And it saved us, per store, about $2,000. Switching to the IoT sensors was huge for us to facilitate new store openings and enable our aggressive store growth plan."

DIRECTOR OF IT INNOVATION, RETAIL[5]

" Because we're able to get insights and process information with much less latency, which has increased our uptime on the manufacturing floor, decreased overages, and improved quality."

COO/CTO, MANUFACTURING[6]

By looking carefully at your business challenges and goals, you'll be able to determine how edge computing can optimize the value of your data.[11] With 150+ edge computing use cases already identified by IDC across all industries, there are many intuitive ways your organization can leverage data at the edge to drive transformation and enable future innovation.

OVERCOME COMMON CHALLENGES AT THE EDGE

As with the adoption of any new technology, businesses need to be prepared to overcome obstacles along the way. With the increase in intelligent devices and the data they produce, it's important for organizations to act decisively to ensure their infrastructure remains efficient, scalable and secure.

97% encounter some kind of challenge during the pilot or production phase of their journey

THE THREE MOST COMMON CONCERNS FOR ORGANIZATIONS MOVING OPERATIONAL ACTIVITIES TO THE EDGE[7]

33%

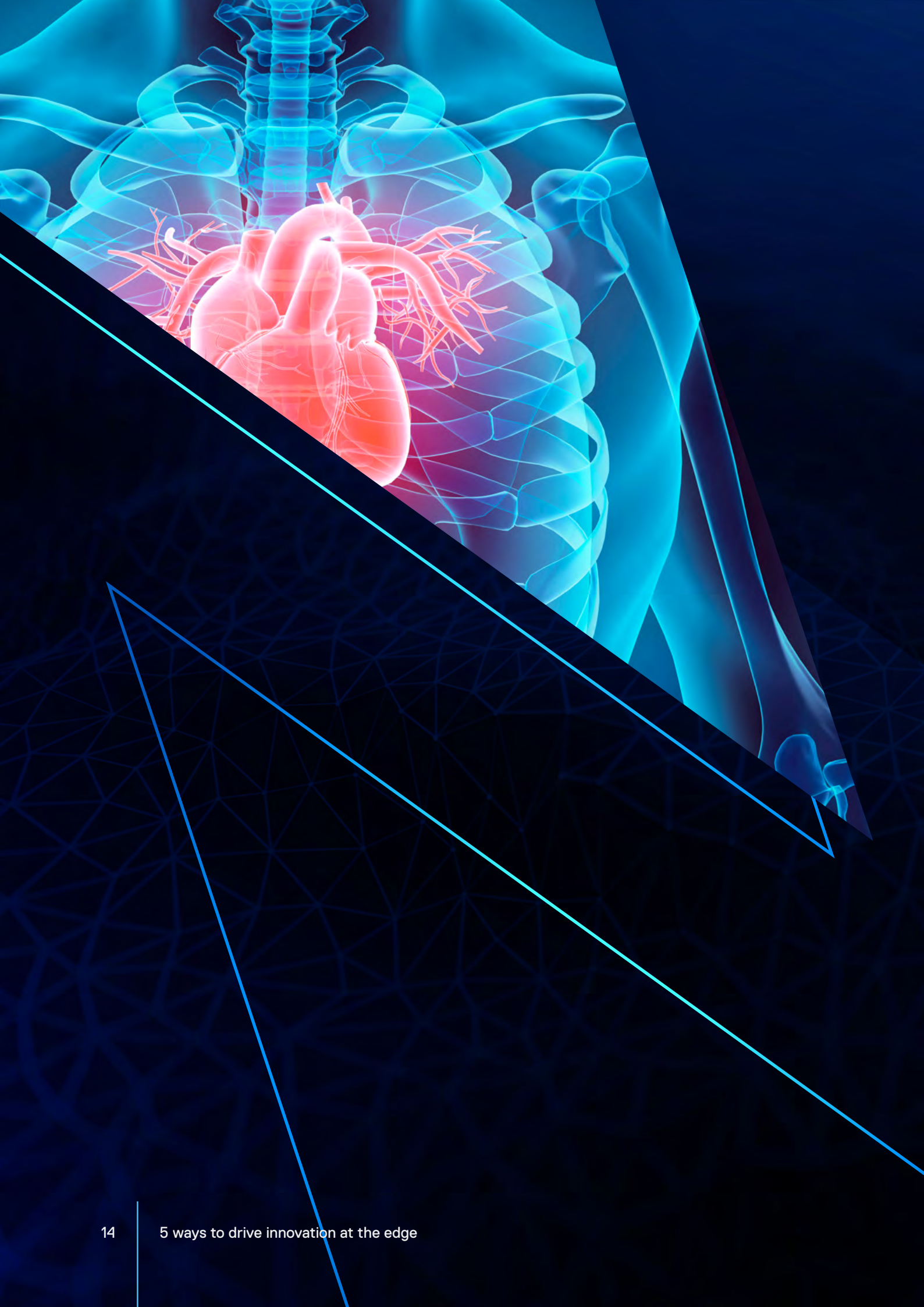Limited skills, knowledge and experience to implement successfully

36%

The cost of replacing/ updating IT legacy infrastructure

37%

Security risks to data, applications and devices

5 ways to drive innovation at the edge

EXPECT TO ENCOUNTER
INDUSTRY-SPECIFIC PRIORITIES

Not all organizations share the same priorities when it comes to the edge. In fact, breaking down industry-level data reveal interesting nuances:

Healthcare

Data lifecycle management challenges are most likely (38%), while concerns around security (27%) – the top challenge for half of the industries surveyed – falls further down the list.

Telecommunications

Having limited skills, knowledge and experience (39%), and limited time or budget (39%) required to implement edge successfully are most common.

Telcos

More likely to struggle with a lack of buy-in and support from senior teams (32%), compared to those in the transport (21%) and government (23%) sectors.[7]

By being aware of the challenges posed within specific industries, those responsible for the implementation of edge initiatives can actively focus on devising strategies to tackle them.

HOW ORGANIZATIONS CAN OVERCOME COMMON CHALLENGES AT THE EDGE

Weave the edge into modernization/digital transformation plans

For businesses already undergoing their own digital transformation or modernization, edge implementation is a natural progression. Contextualizing edge deployment opportunities within your organization's horizontal and vertical use cases can highlight related benefits that appeal to decision makers. It's also worth preparing to address any security issues or concerns up front.

Define business scenarios and problems

73% of businesses find it challenging to define business problems that data at the edge can solve. Likewise, 64% remain unsure how to measure ROI. As a result, decisionmakers are more likely to select mature technologies due to their longer-term evidence of benefits and ROI.

This is despite new data that those at least already piloting edge deployments expect their organization would be negatively impacted if they did not move to the edge. The most likely consequences would be less effective use of data (43%), higher operational costs (43%) and falling behind competitors (41%).[2]

Defining these metrics and scenarios early is crucial. Businesses that can clearly display their edge's benefits are more likely to progress to the next phase of their journey.

Embrace emerging technologies

New technologies offer new scope for innovation. From smart buildings that respond to user needs, to VR and AR applications that supply new retail experiences or provide remote training for employees, the edge provides a hotbed of innovation for creative, life-changing solutions. Organizations that embrace these emerging technologies early will potentially benefit most.

Choose a solution provider who can simplify your edge

Businesses may rely on multiple vendors to provide different portions of their edge infrastructure. But this expansive digital footprint can pose a security risk by providing a greater attack surface. To bring modern security to the edge, choosing the right edge solution provider with an ecosystem of technology, supply chain, services and support is key.

By overcoming common edge challenges, businesses can expect to see potential outcomes such as more effective usage of data, lower operational costs, and staying ahead of the competition. This in turn frees up time and resources to be focused on innovation.

START SMALL AND MASSIVELY SCALE
YOUR SUCCESSES

77%

More than three quarters reporting they expect their organization's use of multiple edge use case deployments at any one time to grow either somewhat or considerably in the next 3-5 years[8]

At present, businesses have an average of nine edge use cases in operation, but this number is expected to grow over the coming years. Why? The edge offers the perfect environment to trial small ideas, discover their value, and then scale them across the business.

Yet scaling without a sufficiently robust foundation can create issues related to security, availability, efficiency and reliability. Businesses must plan ahead for massive scale, an approach known as 'Architecting for 100x'. This entails prototyping with their current environment and building for 10x scale, but with foundations laid for 100x growth.

Prioritizing IT is a must for businesses to achieve this 'Architecture for 100x' aim, with an edge-core-cloud strategy that includes provisions for rapid scale. As-a-

TO SCALE WITH CONFIDENCE A BALANCED ECOSYSTEM OF EDGE TECHNOLOGY IS NEEDED:

High performance
edge servers

Storage that's
secure, flexible and
easy to manage

Modern networking
capabilities

Services to simplify
your edge

Service (aaS), Multi-access Edge Computing (MEC) offerings and colocation (colo) facilities provide access to compute, data storage and networking architectures that activate when required, making it easier to scale as needed.

If your organization needs to scale at speed, it's crucial to find an edge computing partner that can support your growth, while retaining productivity and security. This is where the importance of a simplified edge solution emerges.

By choosing an edge partner with an integrated ecosystem of technology, supply chain, services and support, your organization can scale its infrastructure with confidence, while reducing complexity and removing data silos. New solutions can be implemented efficiently and cost-effectively, ultimately helping those small ideas and pilot deployments scale to provide their maximum value.

REDUCE THE COMPLEXITY
OF YOUR EDGE

Implementing the edge in the wrong way can create its own new challenges. Between issues such as multiple vendors, integration, security and internal knowledge gaps, organizations without a focused edge strategy may find themselves restricting their own growth.

With edge deployments on the rise (74% of global decision-makers have already adopted Internet of Things (IoT) sensors), keeping on top of complexity isn't enough. Here's how you can overcome internal challenges to reduce your edge's complexity:

30%

identified the complexity of technology solutions as the greatest factor, when questioned about the biggest challenge their organization faced when moving their operational activities to the edge[7]

The issue

Lack of internal skills to build/operate the edge – 31% of decision-makers found this issue to be very challenging.[9]

The solution

Organizations must invest in the correct skillsets – including AI, cybersecurity and automation – to ensure their edge infrastructure is utilized correctly and to its fullest. If you have a trusted edge partner, they can help you create a comprehensive edge strategy and fill in any gaps you may have within your organization.

The issue

Multiple fragmented edge solutions and partners hamper modernization and transformation, causing silos that reduce progress and productivity.

The solution

A simplified edge solution solves critical pain points – speed, scale and security. Work with the right edge solution provider who understands your organization's challenges. Their ecosystem of products can be tailored to your needs, while addressing any pain points.

The issue

Priorities between IT/OT that create competing organizational goals and objectives, reducing efficiencies, increasing frustrations and stalling progress.

The solution

Partner and align IT and OT priorities. OT runs the technology that creates the data; IT wants rapid innovation, while OT wants reliable business operations.

54% of global decision-makers believed improved skillsets and team integration would help to overcome friction, while 45% said a comprehensive strategy and better communication would also help.[10]

By working towards the same goals, IT and OT can reduce operational silos that in turn fuel collaboration and innovation.

As edge technologies grow more influential, it's important to keep control of your edge infrastructure – whether that's ensuring all members of your business are aligned in their goals, ensuring you have the necessary skillsets available to act upon data to solve your toughest business challenges, or consolidating as you expand. By removing data silos and reducing complexity, your business can focus on pursuing its objectives efficiently and cost effectively.

EMBRACE THE POTENTIAL
OF YOUR EDGE TODAY

Many companies are already well into their digital transformation journey and stand to reap the benefits of early edge adoption. But it's not too late for businesses looking to develop their edge strategy and embrace innovation.

FOR THOSE LOOKING TO EMBRACE THE POTENTIAL OF THE EDGE, THE FOLLOWING RECOMMENDATIONS ARE IMPORTANT:

Find the value in small ideas, before planning for massive scale

Integrate and plan for technology advances like 5G and AI/ML

Rapidly leverage edge-generated insights to capitalize on your data's maximum value

Establish a balanced ecosystem of edge technology (servers, storage, networking and services)

Improve/create tight collaboration between IT and OT to reduce silos and drive innovation

Select partners that bring OT expertise, can address any outstanding security concerns, and who have the skillset to drive innovation

WHY PARTNER WITH DELL TECHNOLOGIES?

To make the most of your edge and stay at the forefront of innovation, choose a partner with a broad ecosystem of capabilities and partnerships – one who can help you leverage the right mix of emerging and established technologies across the length and breadth of your business to generate the most value from your edge.

Dell Technologies can help you build secure, efficient and effective edge infrastructure for your organization. Our portfolio of purpose-built hardware, software and services can help you overcome challenges, generate industry-specific outcomes and simplify your edge.

We simplify your edge so you can generate more value from your data.

HOW WE'VE ENABLED OUR CUSTOMERS' SUCCESS AT THE EDGE

nature fresh farms

Nature Fresh Farms - Cultivating the future of agriculture at the edge

Improved grower productivity, efficiency and overall yields via the implementation of a modernized edge strategy, incorporating AI and analytics.
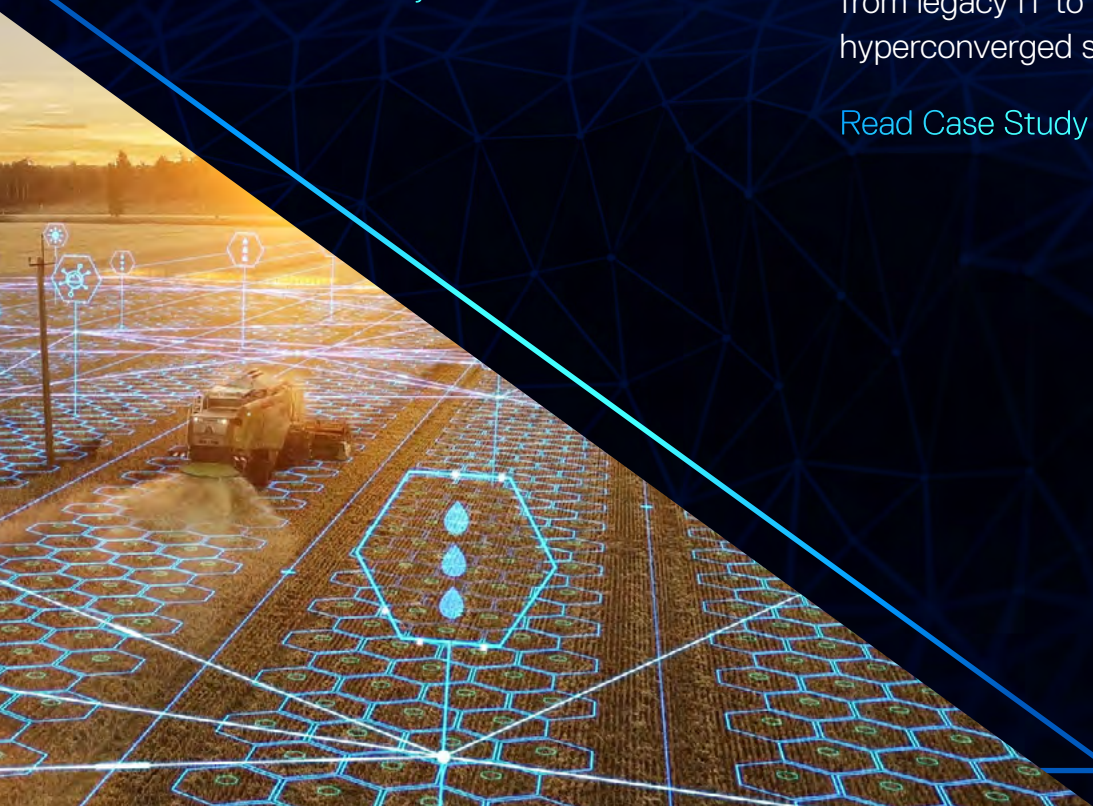
Read Case Study ▸   Watch Video ▸

LOWE'S®

Lowes - Delivering exceptional retail experiences at the edge

Improved employee efficiency and OpEx performance following the delivery of a modern omnichannel shopping experience. A reliable edge solution enabled the transition from legacy IT to a powerful hyperconverged solution.

Read Case Study ▸   Watch Video ▸

THE KRAFT GROUP

The Kraft Group - Enhances the fan experience with edge solutions

Increased overall guest satisfaction, enhanced security and reduced operational costs at the Gilette Stadium by utilizing edge solutions and AI to respond to customer needs faster.

Watch Video ▸

SIEMENS

Desigo CC - Using the edge to create smarter buildings

Reduced energy usage and lowered overhead costs thanks to smart building infrastructure. By integrating multiple proprietary systems into a single edge solution, facility managers could utilize AI and machine learning to improve operations and maintenance.

Watch Video ▸

ERICSSON

Ericsson - drives industrial digitalization with 5G edge connectivity

Improved safety and productivity for manufacturing and mining companies, while helping them to remain competitive. 5G at the edge provides low-latency, high-speed connectivity to challenging edge environments.

Read Case Study ▸

Watch 5G Edge Video ▸

Watch PowerEdge Video ▸

Mercy Ships

Mercy Ships – Healing across the oceans

Provided modern healthcare to resource-poor areas, delivered medical training and ever-improving patient outcomes – courtesy of hyperconverged technology across it onboard and onshore data centers.

Read Case Study ▸   Watch Video ▸

SPEAK TO A DELL TECHNOLOGIES EXPERT TODAY

Want to know more about Dell Technologies and how our edge solutions can inspire your business to innovate?

Contact An Edge Expert Today

[1] Vanson Bourne study page 4

[2] Vanson Bourne study page 6

[3] Edge claims tracker - Dell Technologies "The Breakthrough Study" April 2022

[4] Vanson Bourne study page 10

[5] Dell edge TLP Forrester report - slide 116

[6] Dell edge TLP Forrester report - slide 115

[7] Vanson Bourne study page 5

[8] Vanson Bourne study page 7

[9] Dell edge TLP Forrester report - slide 25

[10] Dell edge TLP Forrester report - slide 24

[11] Why Dell at the edge infographic – 'Edge computing's astronomical growth continues' section

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