

Find Your Edge

Create value by harnessing data at the point of creation



Information vs. Technology

A new paradigm to better respond to business priorities

There's no doubt that the data-driven era has fundamentally changed the world. The speed of business has changed. Consumer expectations have changed. The demand for rich digital experiences and instant information access — driven by real-time applications — has shifted enterprise priorities. Business demands now drive IT and OT.

But IT can't seem to move fast enough to keep up with the business. Resources are either underutilized or not agile enough to meet business needs. This gap between business demands and IT capabilities is increasingly a point of friction.

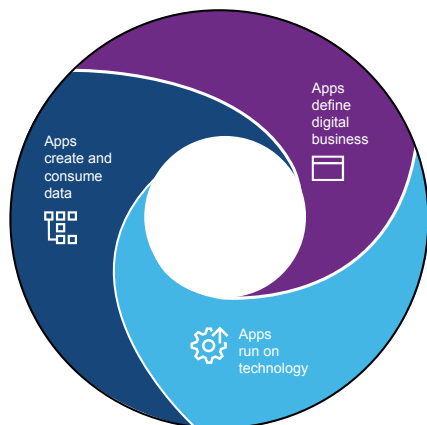
That's why IT modernization and transformation are becoming critical imperatives for both the business and IT. We're at a vital inflection point. One that's redefining IT as we know it. Because the business doesn't need technology. The business needs information.

But nothing happens in a vacuum. Business priorities drive IT priorities. And IT capabilities underpin business capabilities, which either limit or expand future priorities in an endless cycle. Whether that cycle is virtuous or vicious depends on how closely IT and business priorities are aligned.

With data increasingly coming from outside the core data center, harnessing all that information will require stretching your imagination to the edge.

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The flywheel of innovation

Applications define the modern business

Create a flywheel of innovation that drives the business forward

In a successful enterprise, IT operates the systems that manage information, using applications to deliver insights and create new applications in a virtuous cycle. When applications, technology and information work together in sync, they create a flywheel that propels the business forward.

- **Applications:** There is typically a set of applications that define the business. Ideas become code as new applications are built and deployed by developers.
- **Technology:** Apps run on technology managed by IT operations personnel, who need to balance demand with available resources today, with an eye to being ready for the constantly shifting future.
- **Information:** The applications consume data and create information and insights that drive new ideas and new apps.

However, there's a new twist; today, applications aren't just running on office PCs. And the data doesn't reside on the technology in the core data center waiting to be transformed into insights. Much of the data is outside the traditional, centralized data centers, and technology leaders need to pioneer new ways to harness it.

Understanding the edge

The modern data center — with its climate-controlled aisles, gleaming racks of equipment and armies of admins — excels at handling data. Data that's all in one place and comes in during predictable time periods can be leveraged, stored, protected and governed in a civilized manner.

But data is no longer created, consumed and stored in the traditional data center — or even in the cloud. Today's data isn't centered around any one point on the map. It is streaming in constantly from a variety of sources and locations — many of them wireless and unanchored. Some data has a useful shelf life of just a few seconds. Other data is most valuable when combined with historical data and analyzed for deeper insights.

The unbounded and ephemeral place where the digital and physical worlds intersect and data is securely collected, generated and processed to create new value is called “the edge.”

Customers are demanding immersive, real-time digital experiences and interactions. And businesses are responding by rethinking their applications and placement of infrastructure, moving them as close to the point of data creation and consumption as possible. This enables the real-time insights that inform competitive decision making.

“By 2023, over 500 million digital apps and services will be developed and deployed ... Most of these will be targeted at industry-specific digital transformation use cases. This explosion of new digital apps and services will define the new minimum competitive requirements in every industry.”

—IDC FutureScape¹

¹IDC, “IDC FutureScape Outlines the Impact ‘Digital Supremacy’ Will Have on Enterprise Transformation and the IT Industry,” October 2019.

Today's data is...

On the edge:

By 2024, the number of apps at the edge will increase

800%.⁴

Unbounded and ephemeral:

33%

of companies process data in real time for artificial intelligence (AI).⁵

Mobile and wireless:

52.2%

of all website traffic worldwide is generated through mobile phones.⁶

What's driving IT to the edge

Data challenges		
Physical distance	Proliferation of data	Practical concerns
Networking has a speed limit. The greater the distance, the greater the latency.	Everyone and everything is instrumented and measured, creating data 24x7.	Moving giant data sets in and out of the cloud or data center is costly, complex and impractical.
1ms latency requirements for retail and manufacturing edge applications.	90ZB of data will be created by Internet of Things (IoT) devices in 2025. ²	75% of enterprise data will be generated outside of the data center or cloud by 2025. ³
Impact on infrastructure		
Move infrastructure closer to the point of data creation and consumption.	Add more infrastructure at the core data center and the edge.	Bring capabilities for ingestion, analytics and storage closer to the data source.

Edge is a "how" not a "where"

When technology leaders strike out for the edge, they need to know where they are going. Or rather, how they're going. Because the edge is not a single thing, place or technology.

At Dell Technologies, we understand that businesses face multiple constraints. These constraints influence what the right edge IT solution should be.

Challenges at the edge

- **Locational:** Bandwidth and network connectivity is limited
- **Environmental:** Open to the elements or housed in dusty environments
- **Spatial:** Needs to fit in tight spaces
- **Power:** Subject to less-than-ideal power and cooling conditions
- **Operational:** Far away from skilled IT staff
- **Bandwidth:** Constrained, unpredictable or sporadic
- **Security:** IT needs to control and monitor security outside the confines of the data center

Edge computing is all about **how** businesses can overcome these constraints, with products that are engineered for the edge.

² IDC, "The Digitization of the World from Edge to Core," November 2018.

³ Smarter with Gartner, "What Edge Computing Means for Infrastructure and Operations Leaders," October 2018.

⁴ IDC, "IDC FutureScape Outlines the Impact "Digital Supremacy" Will Have on Enterprise Transformation and the IT Industry," October 2019.

⁵ TechRepublic, "Data streaming on the rise according to developers," May 2019.

⁶ Statista, "Percentage of all global web pages served to mobile phones from 2009 to 2018," July 2019.

The Dell Technologies point of view

Generating business value from edge data requires harnessing it, analyzing it and getting insights from the data no matter where it lives — quickly, cost-effectively and securely. The ability to aggregate, analyze and curate data at the edge helps the business move faster, make better decisions and — ultimately — surprise and delight more customers.

The business needs to lead the charge, collaborating with IT, to provide solutions that are:

- **System-wide:** Break down siloed implementations, cut down on shadow IT and avoid the need to support solutions after they've already been adopted by the lines of business.
- **Prescriptive:** Cookie cutter solutions won't cut it. IT needs to address challenges at the edge with a curated combination of solutions that are thoughtfully engineered for the edge.
- **Value-accelerated:** IT must transition from reactive to proactive, making decisions with an eye to how they create value quickly for the business.

The result is a consistent approach to deploying applications, operating infrastructure and managing data across the totality of your data estate.

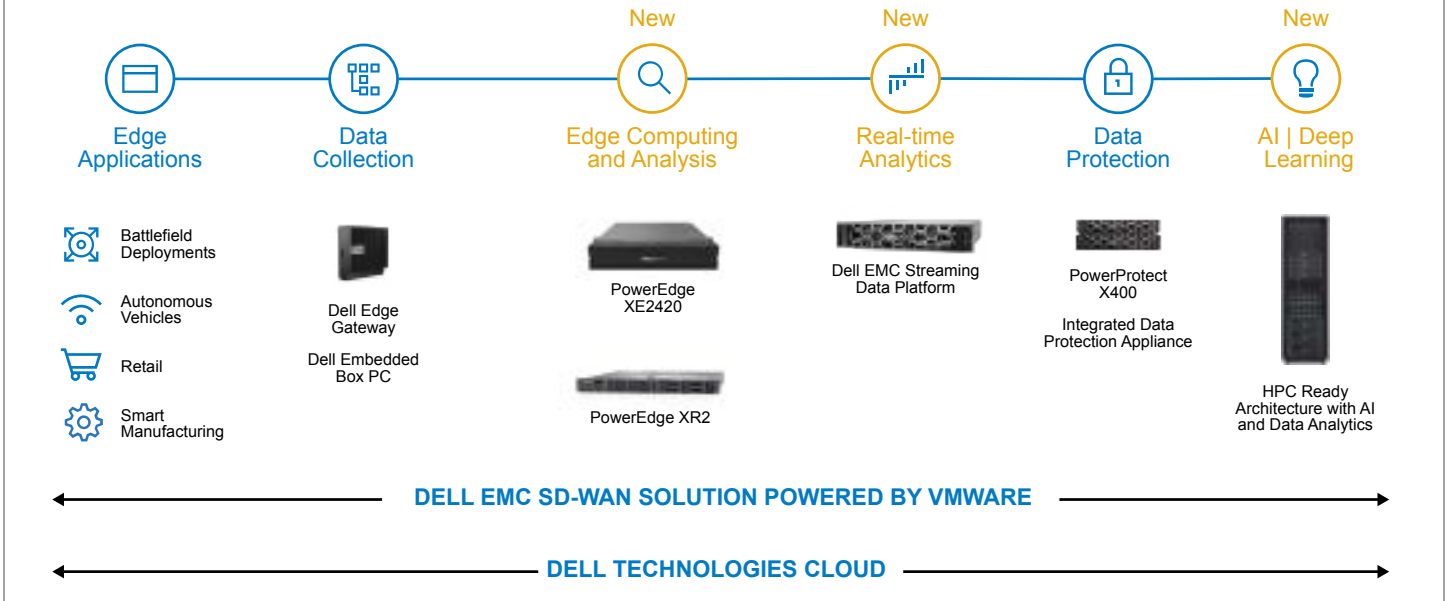
Find your edge with Dell Technologies

Dell Technologies is one of the few vendors with a complete portfolio of enterprise-grade technology that can help you extend a consistent operating model for your organization from the core to the cloud to the edge.

This includes:

- [Dell Technologies Cloud](#) combines the power of VMware® and Dell EMC infrastructure to make hybrid cloud environments simpler to deploy and manage. Improve your cloud experience with a consistent operating model and simplified management across private clouds, public clouds and edge locations.
- [Dell EMC SD-WAN Solutions](#) combine industry-leading SD-WAN software with Dell EMC appliances available in multiple configurations to deliver branch access to cloud services, private data centers and software-as-a-service-based enterprise applications.
- [Dell Edge Gateways](#) are ruggedized, intelligent devices that aggregate data and support analytics at the edge of the network. [Dell Embedded Box PCs](#) are configurable, rugged, fanless PCs built for manufacturing and other rugged environments.
- [Dell Data Protection](#) quickly and easily protects critical business data on desktops, laptops, USB thumb drives, external storage devices and optical media.
- [Dell converged infrastructure](#) offerings simplify IT and transform operations by bringing together compute, storage, networking and data protection in engineered systems and validated designs.

Find your Edge with Dell EMC



As part of this extensive portfolio, Dell Technologies is empowering businesses to tackle the challenges of edge computing with innovative solutions. These solutions complement and expand our existing portfolio of solutions engineered from the edge to the core to the cloud.

New Dell EMC PowerEdge XE2420 Server

Dense compute, simplified management and robust security for harsh edge environments



The new Dell EMC PowerEdge XE2420 is a high-performance, half-depth server that has been reimagined for edge computing.

- **Built for performance:** Powerful 2U, two-socket performance with the flexibility to add up to four accelerators and 92TB of storage per server.
- **Designed for harsh edge environments:** A low-latency, short-depth system that is tested to Network Equipment-Building System (NEBS) guidelines, with extended operating temperature tolerance and an optional filtered bezel to guard against dust.
- **Integrated security and consistent management at the edge:** Robust, integrated security with cyber-resilient architecture, and the new iDRAC9 with Datacenter management experience. It is front accessible and cold-aisle serviceable for easy maintenance.



Updated Dell EMC PowerEdge XR2 Server

Bringing compute to the source

Built from the ground up for rugged environments, the compact Dell EMC PowerEdge XR2 is designed to expand your compute outside the data center.

- **Temperature resilient:** Operates in temperatures of up to 45°C and can withstand up to 55°C for up to eight hours. Certified for telecom and military applications outside of controlled environments.
- **Shock resistant:** Exceeds certifications in shock, vibration, dust, humidity and electromagnetic interference (EMI) for military and maritime applications.
- **Minimal footprint:** Our first rugged 1U short-depth server that uses software-defined storage in space-constrained installations, bringing together rugged compute in a smaller footprint.



New iDRAC9 with Datacenter option

Security and control to the edge

The new iDRAC9 v4.0 embedded management with the Datacenter option license refreshes all currently shipping Dell EMC PowerEdge servers with new innovations useful in automating remote infrastructure management. These include telemetry streaming, remote OS deployment, enhanced thermal management and security. Now IT can leverage AI operations (AIOps) for all iDRAC9 systems wherever they're deployed — enabling a system management designed for the edge and a consistent experience from the core to the cloud. By streaming up to 3 million data points per day, iDRAC9 can enable sophisticated analytics algorithms to more rapidly predict and remediate distant server problems resulting in higher availability. The iDRAC9 delivers comprehensive control, remote deployment and management capabilities that enable edge systems to be delivered, installed and cabled more efficiently.

81%

of US organizations
have faced an
IoT cyberattack.⁷

Find your edge with Dell Technologies

A complete portfolio of trusted technology solutions helps you aggregate, analyze and curate data from the edge to the core to the cloud. With Dell Technologies, you can be more agile, make better decisions and improve the customer experience.

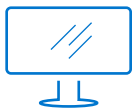
DellTechnologies.com/Servers

⁷ Health Security, "82% IoT Devices of Health Providers, Vendors Targeted by Cyberattacks," August 2019.

Dell Technologies Services and financing

Dell Technologies partners with you every step of the way, linking people, processes and technology to accelerate innovation and enable optimal business outcomes.

- [Big Data Vision Workshop](#) uses a unique methodology to identify and prioritize a single use case with a combination of implementation feasibility and business value. The three week engagement applies research, interviews and data science expertise and techniques to the organization — culminating in a one day workshop for your team to identify and agree on a use case and path forward. This approach sets Dell apart from the “bring in a bunch of technology and see what it can do” approach that’s pushed by many vendors.
- [Consulting Services](#) are delivered by certified experts to help enhance the business value of edge computing. The services include an assessment, workshop, testing, proofs of concept and production implementation. These experts help you determine where edge computing is a good fit. They also help build an internal team of experts through knowledge transfer at each step.
- [Dell Education Services](#) offers courses and certifications in data science and advanced analytics through self paced online labs and instructor led workshops.
- [Dell Deployment](#) experts have the experience, expertise and best practices to enhance success with data analytics, HPC and AI solutions at the core or edge. With a proven track record of success in thousands of engagements worldwide, you can rely on Dell as your partner.
- [Dell Support](#) experts can provide comprehensive hardware and collaborative software support 24x7 for optimal system performance and minimized downtime. ProSupport includes next-business-day on-site service with four- and eight-hour parts-and-labor response options, and escalation management with customer-defined severity levels. Optional ProSupport Plus includes a technology service manager, who serves as a single point of contact for support needs.
- [Dell Financial Services](#) offers a wealth of leasing and financing options to help you find opportunities when facing decisions regarding capital expenditures, operating expenditures and cash flow.
- Our global network of 21 dedicated [Dell Customer Solution Centers](#) are trusted environments where world-class IT experts collaborate with customers and prospects to share best practices; facilitate in-depth discussions of effective business strategies using briefings, workshops or proofs of concept; and help you become more successful and competitive. Dell Customer Solution Centers reduce the risks associated with new technology investments and can help improve speed of implementation.



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