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IBM 5G and edge computing

Act on insights closer to
where data is created





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Explore

IBM edge computing puts the opportunities of converging 5G and edge technologies within reach. Telcos and organizations across other industries can leverage our edge solutions to enhance digital experiences, improve performance and data security, and enable continuous operations across 5G-enabled networks.

How do you want to explore?

By industry



By case study



As a Business
Partner





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Telecommunications

Transforming networks to achieve the scale, flexibility and elasticity in cost that characterizes cloud providers.

Industry challenges

Reducing operational costs due to manual processes

Minimizing risk in network transformation to cloud while evolving to 5G

Finding new sources of profitable growth

Solutions

Apply the latest in intelligent automation technologies to make a significant reduction in manual processes and cut operational expenses.

Support multi-vendor networks and flexible deployment of CNFs/VNFs, as well as physical elements into network services.

Lower investment risks by starting small, rapidly scaling as needed and delivering niche services to target markets. Develop and deploy new network services and reduce training required.

Ready to save on capital and operative expenses?

[Discover](#) how you can combine the power of edge computing and 5G to modernize your network, reduce latency and drive an optimal user experience.



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Manufacturing

Using Industry 4.0 to overcome unfavorable physical conditions and to power, analyze and inform decisions and actions.

Industry challenges

Reducing operational costs and increasing productivity

Incorporating internal information including workflow, energy and expertise data, as well as external contextual logistics like geolocation, partner, supply chain and environmental input

Solutions

Implement edge autonomous management capabilities to reduce the management burden on human administrators, drive predictive maintenance and reduce operational costs.

Connect manufacturers to both structured and unstructured data generated on their factory floors. Acting on insights closer to where the data is created improves production quality, enhances operations, boosts KPI performance and drives proactive decision making.



Industry 4.0

Industry 4.0 uses data-driven autonomous systems to improve production line performance and product quality.

Ready to optimize production?

[Learn](#) about what edge computing can do for organizations in manufacturing.



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Banking and finance

Speeding up business while providing a clearer picture of ATM security.

Industry challenges

Responding quickly to ATM security threats

Making faster financial decisions

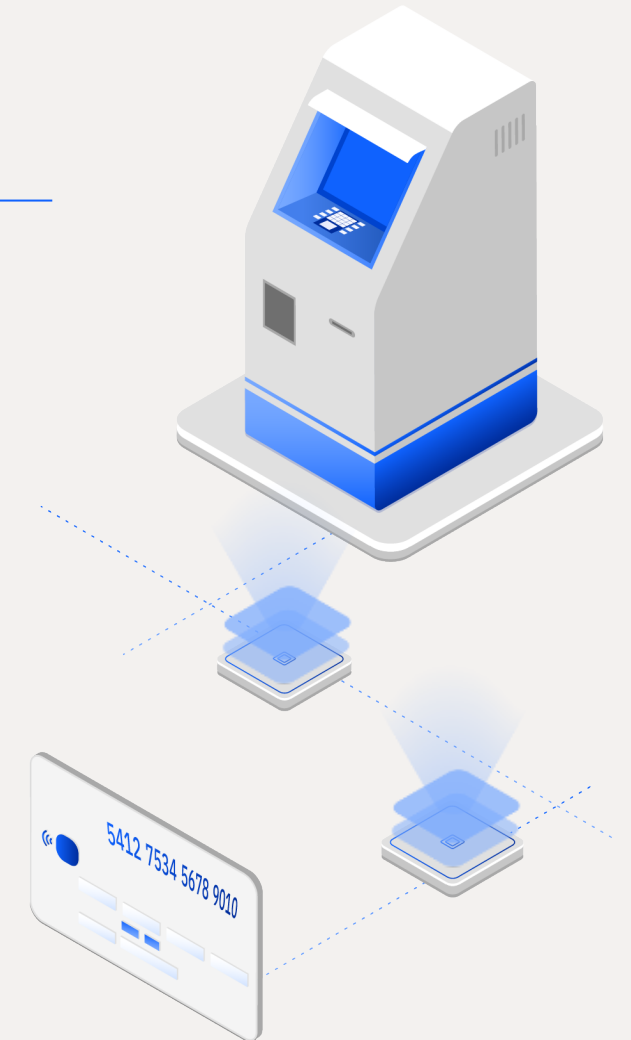
Improving customer experiences

Solutions

Use near real-time video feed analysis with integrated AI image recognition software.

Increase the speed of market alerts from minutes to milliseconds to make critical and time-sensitive decisions faster.

Monitor foot-traffic patterns to drive better customer attention.



Ready to make ATM banking safer and better protect sensitive data?

[Discover](#) what edge computing makes possible for the banking and financial services industry.



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Retail

Personalizing customer experiences in near real-time.

Industry challenges

Managing inventory and ensuring products are on shelves

Improving efficiency and reducing costs in managing kiosks

Solutions

Provide near real-time analysis of inventory and customer buying patterns.

Accelerate the delivery of new features via automated and secure software updates.



Supply chain and asset management

Focuses on dynamically planning inventory and executing delivery end-to-end.

Ready to revolutionize modern retail experiences?

[Learn](#) how edge computing can optimize inventory management and deliver fast, insight-driven customized shopping experiences.





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Automotive

Helping emerging technology including autonomous vehicles and connected cars.

Industry challenges

Optimizing driver experiences and safety

Enabling over the air (OTA) updates and software enhancements

Optimizing driver experiences and safety

Solutions

Provide near real-time analysis of inventory and customer buying patterns.

Accelerate the delivery of new features via automated and secure updates, at massive scale.

Provide real-time analysis of road and traffic conditions and personalized driving capabilities.

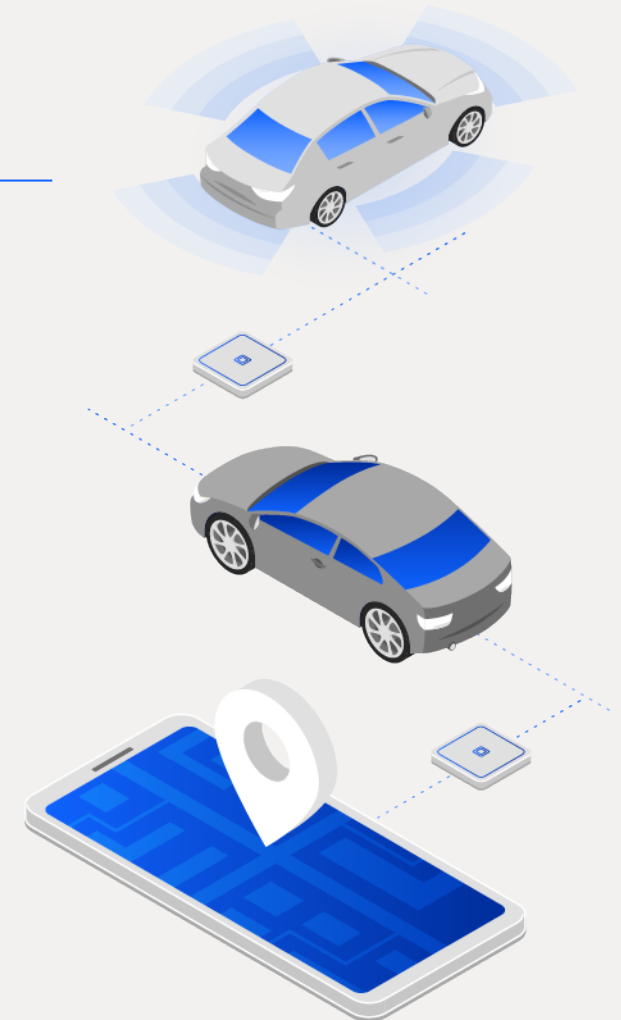


Connected experience

Focuses on improving individual experiences and device performance.

Ready to realize the full potential of connected cars?

[Learn](#) how edge computing can better protect sensitive data and create a safer, more enjoyable connected driving experience.





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Greater telemetry data from the edge

Italian auto insurance firm Groupama initially installed IoT smart sensors in their vehicles to keep track of vehicle location and reduce theft.

What they found, however, is that this increased telemetry data allowed them to monitor everything, from claims and accidents to thefts and even missing drivers.

This level of insight into car usage has the potential to change the industry.

[Read](#) the full case study





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The autonomous ship

The goal is to create a ship that can sense think and act autonomously at sea using IBM edge solutions, AI technologies and over a million images.

Uses IBM edge solutions, AI technologies and over one million images, the goal is to create a ship that can sense, think and act on its own at sea.

[Read](#) the full case study





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IBM Edge Ecosystem

The mission of the IBM
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A man with glasses and a headset is sitting at a desk, working on a laptop. He is wearing a red t-shirt. The background is a blurred office environment with large windows.



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IBM Edge Ecosystem

An ecosystem on the edge.

What is the IBM Edge Ecosystem?

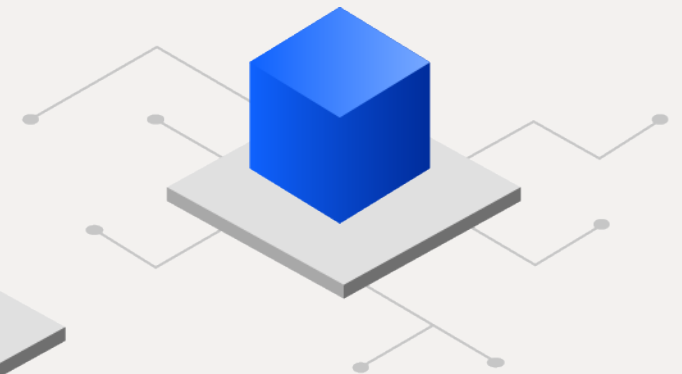
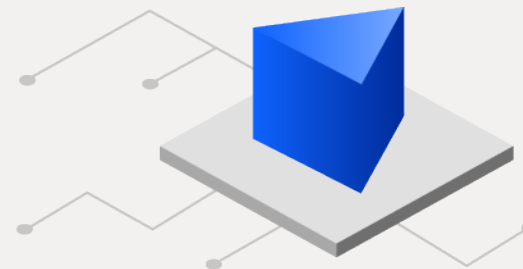
A robust ecosystem through which an increasingly broad set of Independent Software Vendors, Equipment Manufacturers and Systems Integrators collaborate to help enterprises capture the opportunities of edge computing.

Why has IBM created the IBM Edge Ecosystem?

Because IBM is committed to delivering open standards-based edge computing to a comprehensive ecosystem of value-add partners, so that together we can deliver edge solutions to our joint clients at a global scale.

Who is the IBM Edge Ecosystem for?

Our ecosystem is open to all types of partners that work at the edge. We are joined by a common interest in implementing open standards-based cloud native solutions that can be deployed and autonomously managed at the edge at massive scale.





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The mission of the IBM Edge Ecosystem

An ecosystem built with purpose.

The ultimate aspiration is to build and deploy a software-defined platform for edge computing, together with our partners, that will accelerate value capture, minimize risks and save costs for our joint clients.

To achieve this goal, IBM brings together its extensive industry expertise and an ecosystem of telco operators, networking and IT providers—including equipment manufacturers, independent software vendors and systems integrators.

Priorities of the IBM Edge Ecosystem:

- Enable consistent management of software-defined networking and computing infrastructure at the edge
- Mobilize Kubernetes workloads to run at the edge
- Standardize edge device and IoT integration



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Joining the IBM Edge Ecosystem

The perks of partnership.

Create new revenue streams and services

Take advantage of 5G, edge computing and AI innovations to enable your clients to run edge solutions at scale.

Use IBM Edge Application Manager and IBM Cloud Paks

Partner with IBM to build, deploy and manage containerized apps from cloud to the edge.

Expand your reach with PartnerWorld

Get access to IBM's Business Partner Ecosystem programs.

Ready to work together?

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Why are 5G and edge computing so critical?

Edge computing and 5G have the potential to reshape and accelerate how you do business.

From connected vehicles to intelligent manufacturing equipment, the explosive growth and increasing computing power of edge devices and servers has resulted in unprecedented volumes of data.

And data volumes will continue to grow as 5G networks increase the number of connected mobile devices.

Edge computing—and 5G networks—enable businesses to reduce latency while improving speed, reliability and bandwidth. This results in faster and more comprehensive data analysis, deeper insights, faster response times and improved individual experiences.



Edge computing

A distributed computing framework that brings enterprise applications closer to where data is created and actions are taken.



Autonomous management

A single administrator can manage deployments to thousands of endpoints, with management tasks carried out based on intent and with no intervention needed.



5G

Stands for the “fifth generation” of cellular wireless technology. Beyond speed and latency, 5G standards will have a much higher connection density, allowing networks to handle immense numbers of connected devices and network slicing to isolate and protect designated applications.



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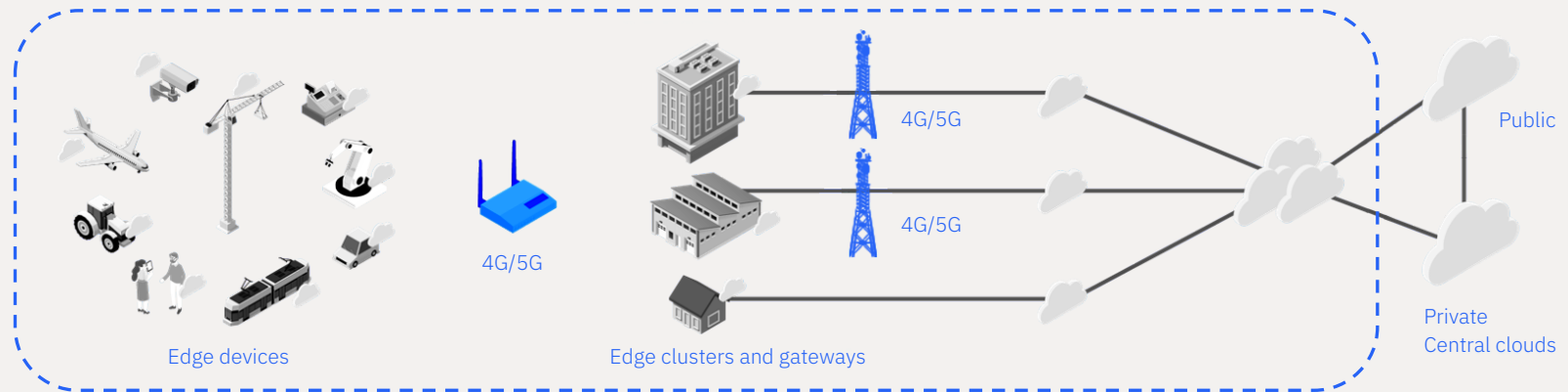
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Going to the edge

Today **10% of data** is processed at the edge, a number that's expected to **grow to 75%** by 2025.¹

The growing number of smart devices, the need for faster processing and the increased pressure on networks drive the edge computing market.



Edge computing enables:

- Better data control and lower costs by minimizing data transport to central hubs and reducing vulnerabilities
- Faster insights and actions by tapping into more sources of data and processing that data at the edge
- Continuous operations by enabling systems to run autonomously, even when disconnected, to reduce disruption and lower costs



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By 2023, **half** of the newly deployed on-premises infrastructure will be in critical edge locations rather than corporate data centers, up from less than 10% today.²

The convergence of 5G, edge computing and hybrid multicloud is redefining how businesses operate. As more businesses embrace 5G and edge, the ability to modernize networks to take advantage of the edge opportunity is critical.

For Telcos:

By moving to a hybrid multicloud model, telcos can process data at the core and network edge across multiple clouds, perform cognitive operations and make it easier to introduce and manage the differentiated digital services. As 5G matures it will become the network technology that underpins the delivery of these services.

For Enterprises:

Adopting a hybrid multicloud model that extends from corporate data centers (or public or private clouds) to the edge is critical to unlock new connected experiences. By extending cloud computing to the edge, they can run AI/analytics that make actions faster, run enterprise apps to reduce impacts from intermittent connectivity and minimize data transport to central hubs for cost efficiency.

Want to learn even more about edge computing?

You can [find the basics](#) of edge computing here, including a 101-level introduction video of edge computing and its benefits.

How can organizations take full advantage of edge computing?

Review this paper from TBR and [learn](#) how leading CSPs are using edge to transform their networks.

[Download and read](#) this IDC whitepaper to learn the importance of effective operations in unlocking edge value.



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Questions and challenges

Like with any emerging technology, business and IT leaders have questions about the best ways to utilize 5G and edge capabilities.

CIOs want to know how they will handle the diversity, dynamism and scale of the edge infrastructure without incurring additional administrative costs—something that IBM is addressing with autonomous management.

CTOs want to know if edge can increase customer and employee engagement and reduce the costs of business processing—along with minimizing risk in network infrastructure transformation to cloud while evolving to 5G.

What else is possible with edge computing?

[Read](#) the IBM point of view on 5G and edge computing.

Learn how edge computing impacts AI and IoT

451 Research takes an in-depth look at how edge computing, AI and IoT data will transform business operations in [this whitepaper](#).



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What's possible with IBM
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Why IBM

Implement edge-enabled solutions—built on IBM expertise.

IBM provides an autonomous management offering that addresses the scale, variability and rate of change in edge environments, edge enabled industry solutions and services, and solutions to help telcos modernize their networks and deliver new services at the edge.

IBM's edge and telco network cloud solutions run on Red Hat OpenShift, the leading open hybrid multicloud platform that runs anywhere—from any data center to multiple clouds to the edge.

IBM has also created a robust ecosystem through which an increasingly broad set of ISVs, GSIs and partners across the telecommunications industry that will help enterprises capture the opportunities of edge computing and that offer a breadth of network functionality that helps providers deploy their network cloud platforms.

**Want to learn more about
our solutions?**

[Discover](#) how to automate operations, improve experiences and enhance safety measures, wherever they happen.



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What's possible with IBM solutions and services

Bring computation closer to where data is created than ever before—and usher in a new wave of faster insights and new client experiences.

With IBM you can:

Employ autonomous management to orchestrate the scale, variability and rate of change in edge environments—running anywhere. IBM's edge management solution allows a single administrator to apply policies that will autonomously manage the scale and variability of application environments across tens of thousands of endpoints.

Implement edge-enabled industry solutions, built on IBM expertise IBM's edge-enabled solutions and services help clients deliver richer digital services and experiences and creates greater business efficiency

across all industries in Industry 4.0, supply chain, asset management and more.

Modernize networks so that telcos can deliver new services at the edge Historically, telco companies operated networks on hardware with specialized software—locking them in to the appliance provider. New 5G standards allow networks to handle immense and growing numbers of connected devices. With edge, telcos can process data both at the core and to the network edge across multiple clouds.

How important is autonomous management to edge computing?

It's critical, to say the least. [Learn](#) what makes autonomous management essential to finding success with edge computing.



Get started today with IBM 5G and edge computing

ibm.com/cloud/edge-computing

Sources

1 [“What Edge Computing Means for Infrastructure and Operations Leaders,”](#) Rob van der Meulen, Gartner Research, October 2018 (link resides outside IBM)

2 “The importance of Effective Operations in Unlocking Edge IT Value,” January 2020, IDC White Paper, sponsored by IBM