

Edge into the Future: Edge Computing in 2023 and Beyond

Edge computing continues to grow in importance for enterprises. Demand is growing for frictionless, connected experiences through numerous digital touchpoints, causing the volume of data being collected at the network edge to explode. By bringing processing closer to the data sources, edge computing allows data to be collected, analyzed, and acted on without lag, and without having to traffic to a central data center. This is critical for organizations

looking to support real time applications, whether that's maintaining safety and efficiency in an industrial manufacturing facility, powering life-saving medical devices, or simply creating a better fan experience at a stadium. Edge computing paves the way for enterprises to invest in IoT and build the secure distributed networks needed to support the next generation of connected experiences.

How edge computing works

Centralized cloud/Data center

Farthest from the network edge, centralized clouds and data centers offer the richest computing and storage resources, but at the cost of speed and latency

Edge infrastructure/Edge servers/WAN/LAN

Distributed data centers serve as a midpoint between endpoint devices and centralized data centers, allowing for more powerful computing, low roundtrip latencies, and management of hybrid connectivity

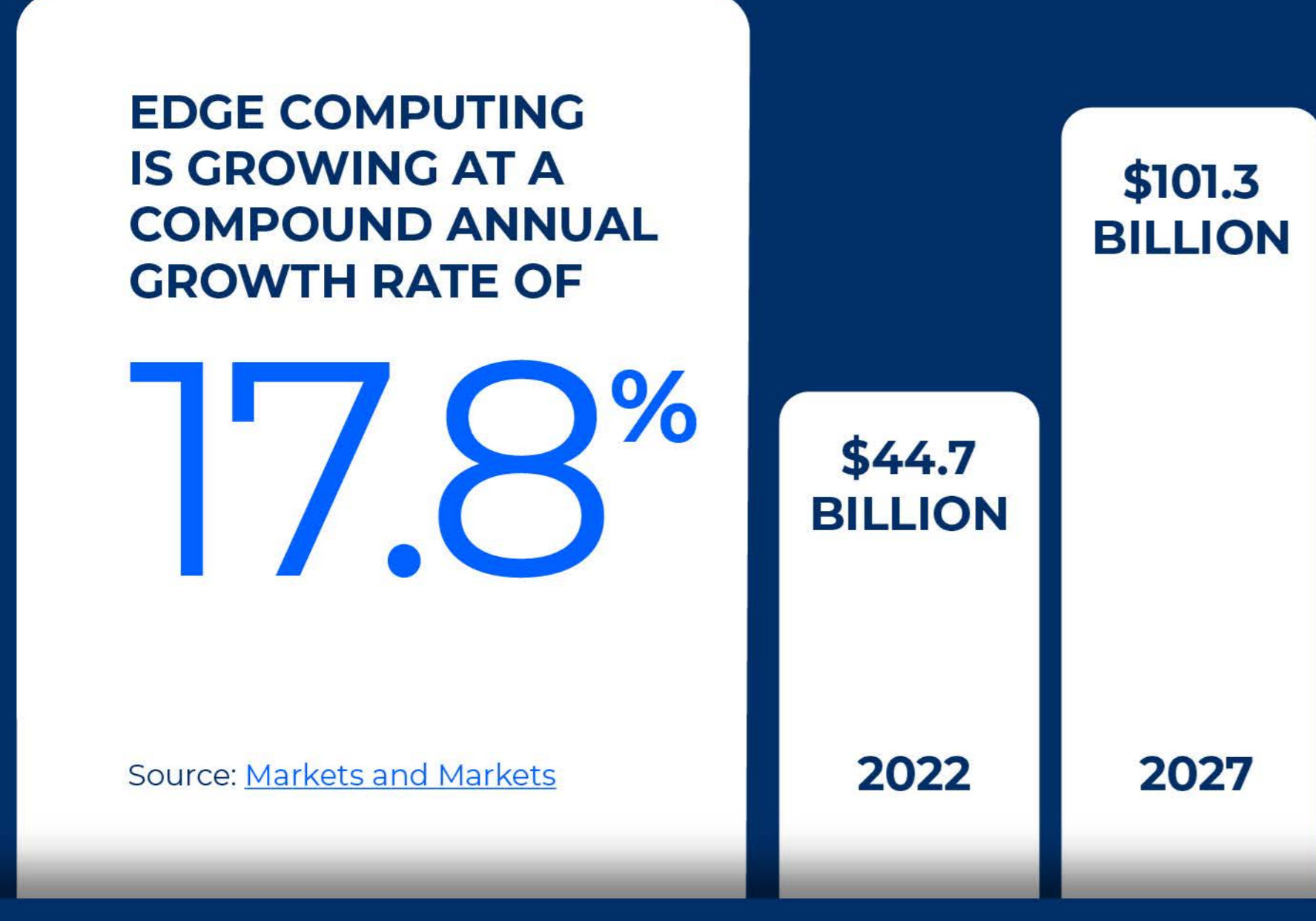
Edge devices

Devices like computers, smartphones, or connected residential, industrial, or commercial instruments can provide a low level of data processing based on application needs

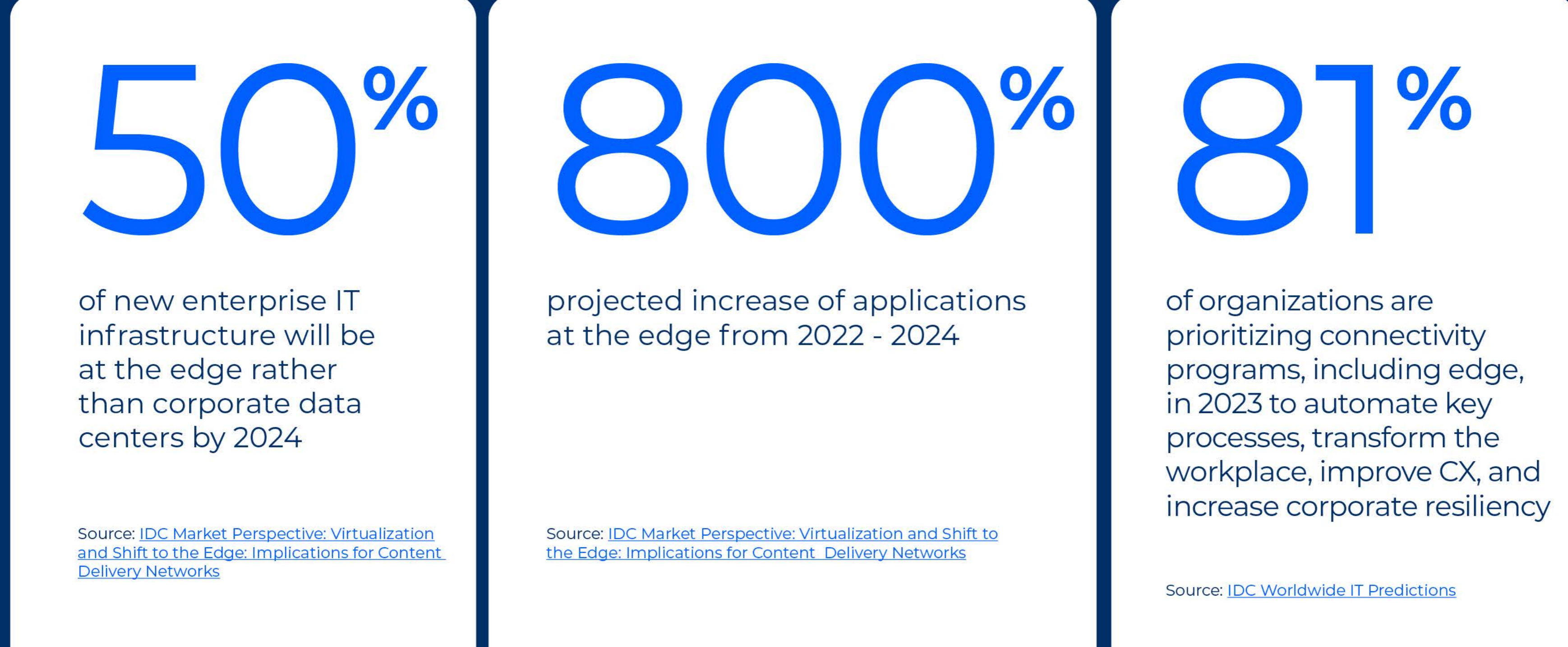
Sensors and chips

IoT sensors and chips can collect and originate data, but are incapable of any kind of advanced processing

Fast growth



By the numbers



Drivers for edge growth

Transformational tech is driving edge deployments—and redefining the network edge itself:



5G

5G enables low-latency wireless applications, supporting new use cases and expanding the world of mobile edge computing by connecting devices and end points with disparate requirements and characteristics.



IoT

As the edge grows, more and more devices aren't traditional computers or mobile devices. The Internet of Things is gaining traction in multiple markets, including retail, finance, hospitality, construction, healthcare, and utilities.



AI

Artificial intelligence systems are automating business processes, delivering new efficiencies and enhancing the customer experience.



AR and VR

Augmented and virtual reality applications are powering game-like experiences for applications such as physical therapy, employee training, and product manuals.



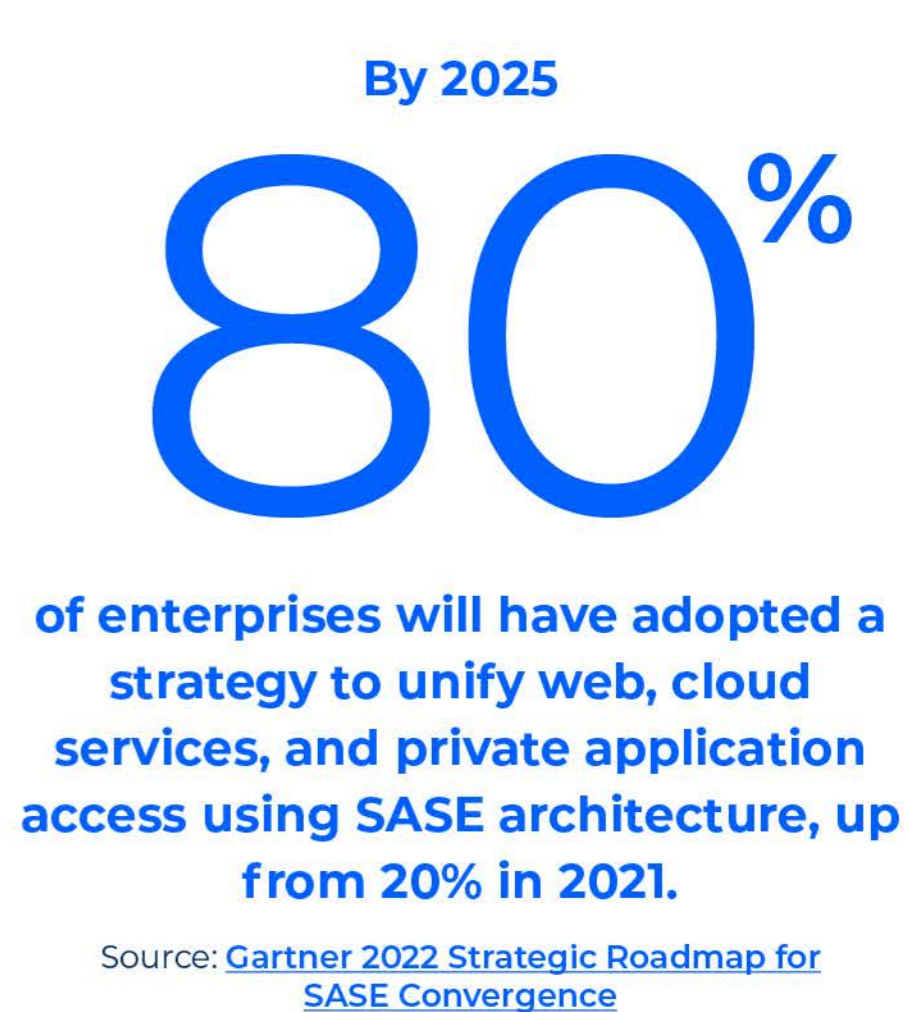
The new role of connectivity

The explosion of remote and hybrid work has distributed not only employees, but applications as well. Further, customers' desire for low-friction, innovative connected experiences on the edge has changed the game. Still, certain latency-critical applications, like robotics and high-definition interactive video, are being pulled back from the cloud to the edge. By processing data closer to the source and prioritizing traffic, edge computing reduces the amount of data flowing to and from the primary network, leading to lower latency and faster overall speed.

The distance between the cloud and edge will continue to grow—making the connectivity between them more critical than ever. To handle it all and to be sure your business is ready to tackle its next big moment, you need low-latency, high-capacity, high-speed and scalable connectivity solutions. In short, secure network solutions to create flexible, application-aware networks that route traffic intelligently will become necessary. Edge networking through software-defined networking (SDN) enables organizations to deliver high-bandwidth for faster delivery of content, with the flexibility to scale up or down depending on needs.

The new security mandate

As the network footprint grows, so does the sophistication of modern security threats. Simply put, traditional security approaches and postures aren't a good fit for the demands of a widely connected and distributed network. New frameworks—most notably secure access service edge (SASE)—have emerged to fill in the gap. SASE is a comprehensive set of tools and capabilities, including SD-WAN, data loss prevention, secure web gateway, endpoint detection and response, and identity and access management, next-generation firewalls, and cloud access broker.



Most important SASE capabilities



Source: CIO 2022 SASE Market Trends Study

Edge computing is transforming the way data is being handled, processed and delivered from billions of devices around the world. Faster networking technologies and advanced connectivity are allowing edge computing to support real time applications, such as video processing, self-driving cars, artificial intelligence, and robotics. Comcast Business brings together secure network solutions for an edge network that covers corporate headquarters, branch offices, and widely distributed environments.

Learn more today: business.comcast.com