



# The Impact of the Edge on the Future of Enterprises

May 2021

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IDC #EUR147003720

An IDC InfoBrief sponsored by



# The Shift to the Edge is Accelerating

IDC predicts



By 2023, over  
**50%** of new enterprise IT infrastructure  
deployed will be at the edge

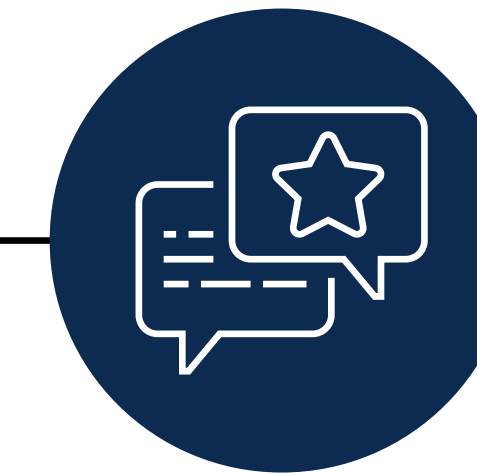
By 2024, there will be an  
**800%** increase in the number of  
applications at the edge



**The edge** will help protect distributed application architecture and enable **secure access** regardless of environment.



**The edge** will spur development of innovative, **low-latency** use cases.



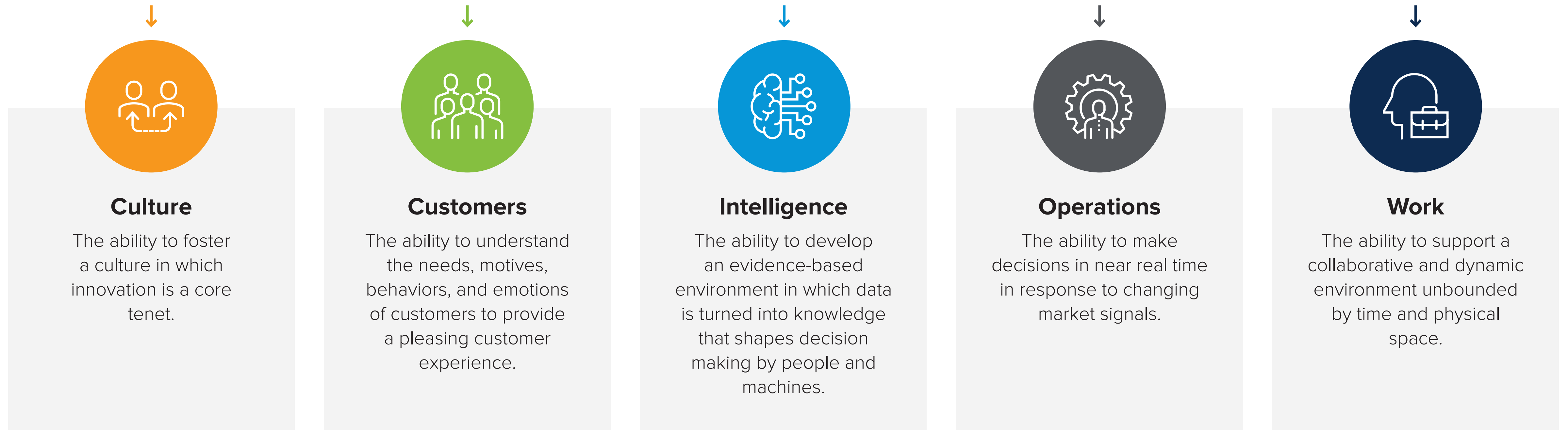
**The edge** will drive a rich **digital customer experience** with customized multimedia content.

# The Future Enterprise Embraces Edge Technology

## Edge, Applications, and Secure Access

### IDC's vision of how firms must organize and invest to participate in increasingly digitally centric markets:

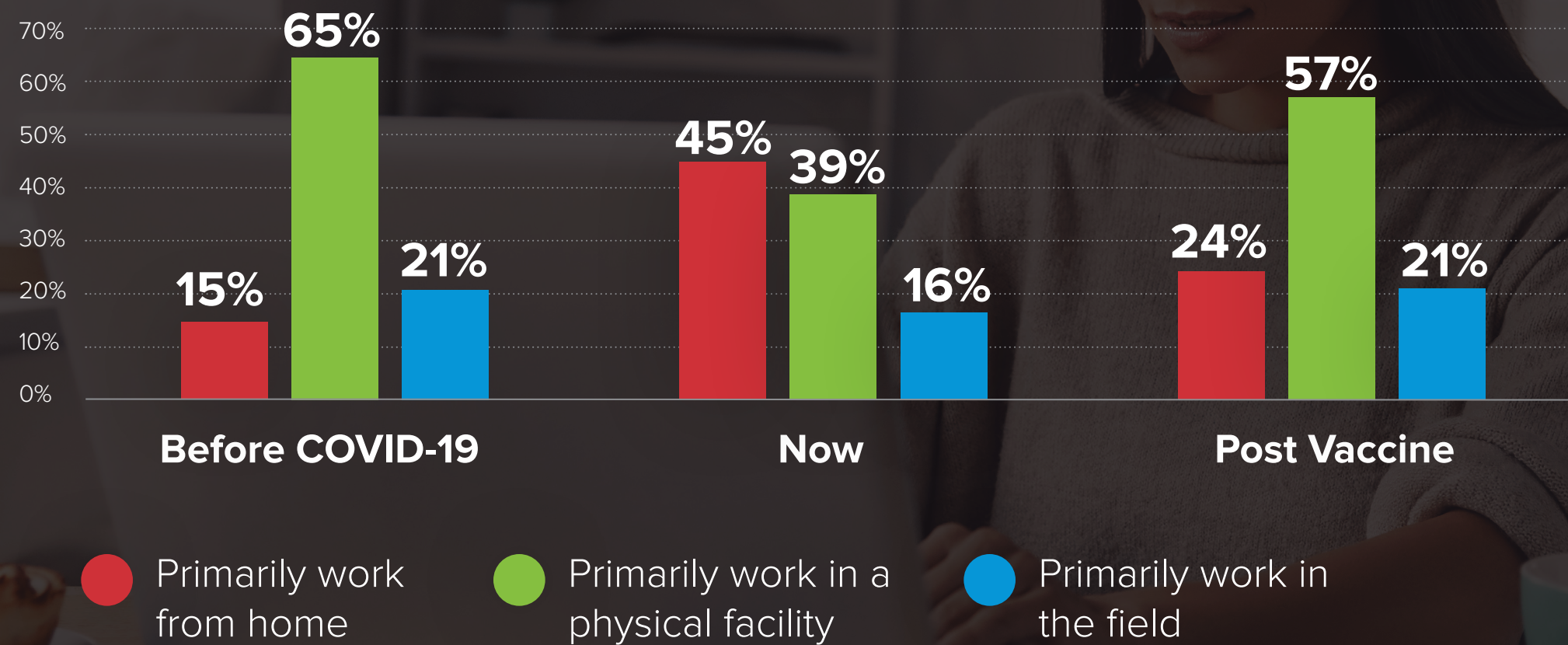
Edge (security, compute, and data) is increasingly embraced by enterprises across all these digital dimensions.



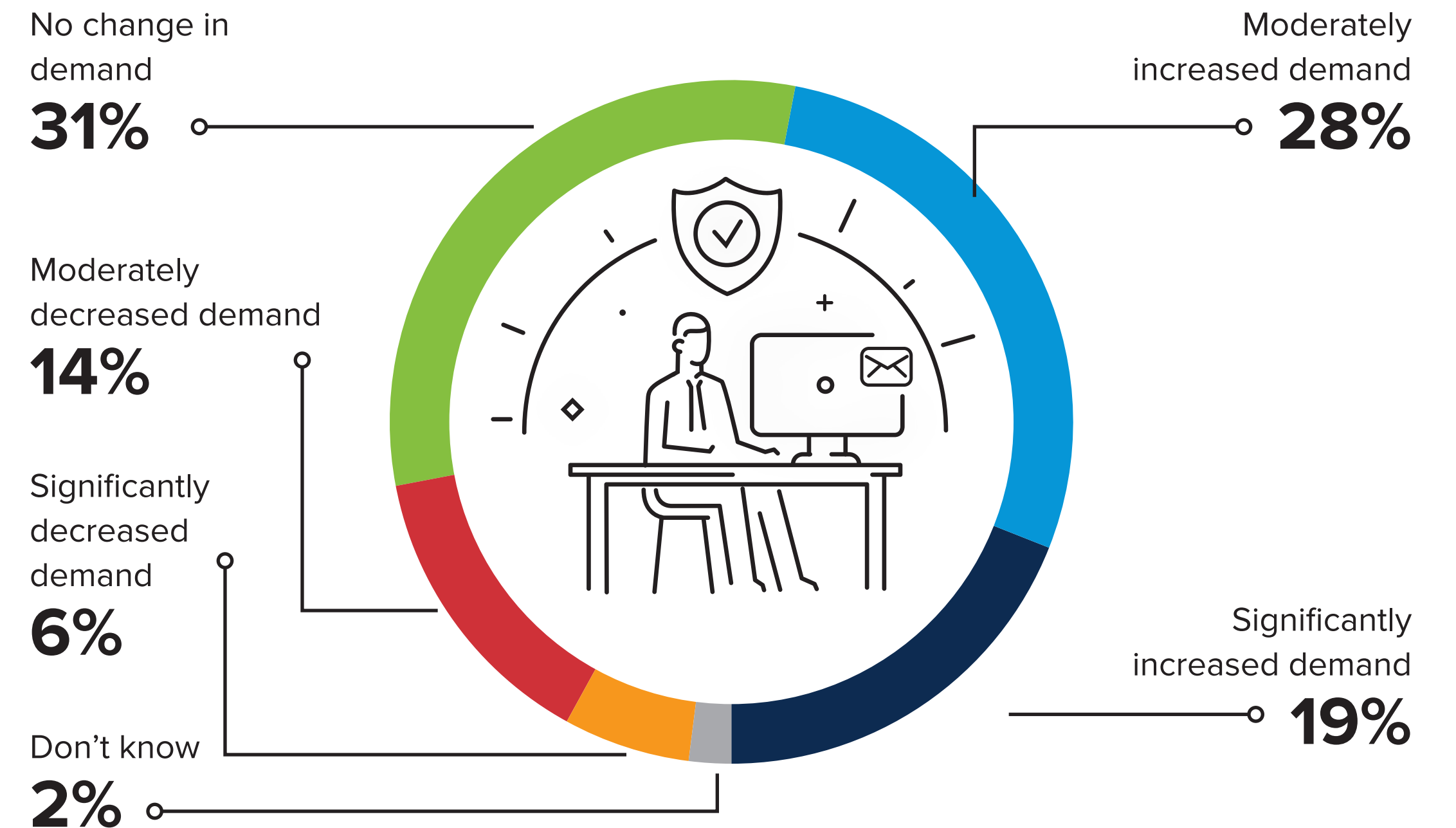
# Security Controls at the Edge Address New Challenges

## Edge, Applications, and Secure Access

What percentage of your country's workforce was, is, or is expected to be in each of the following categories? (worldwide)



## Work-from-Home Migration Drives Demand for Secure Remote Access Solutions



*IT managers will need to create pan-organization work teams to fundamentally rearchitect the way remote users engage with applications, to simultaneously address user experience and security challenges and optimize both.*

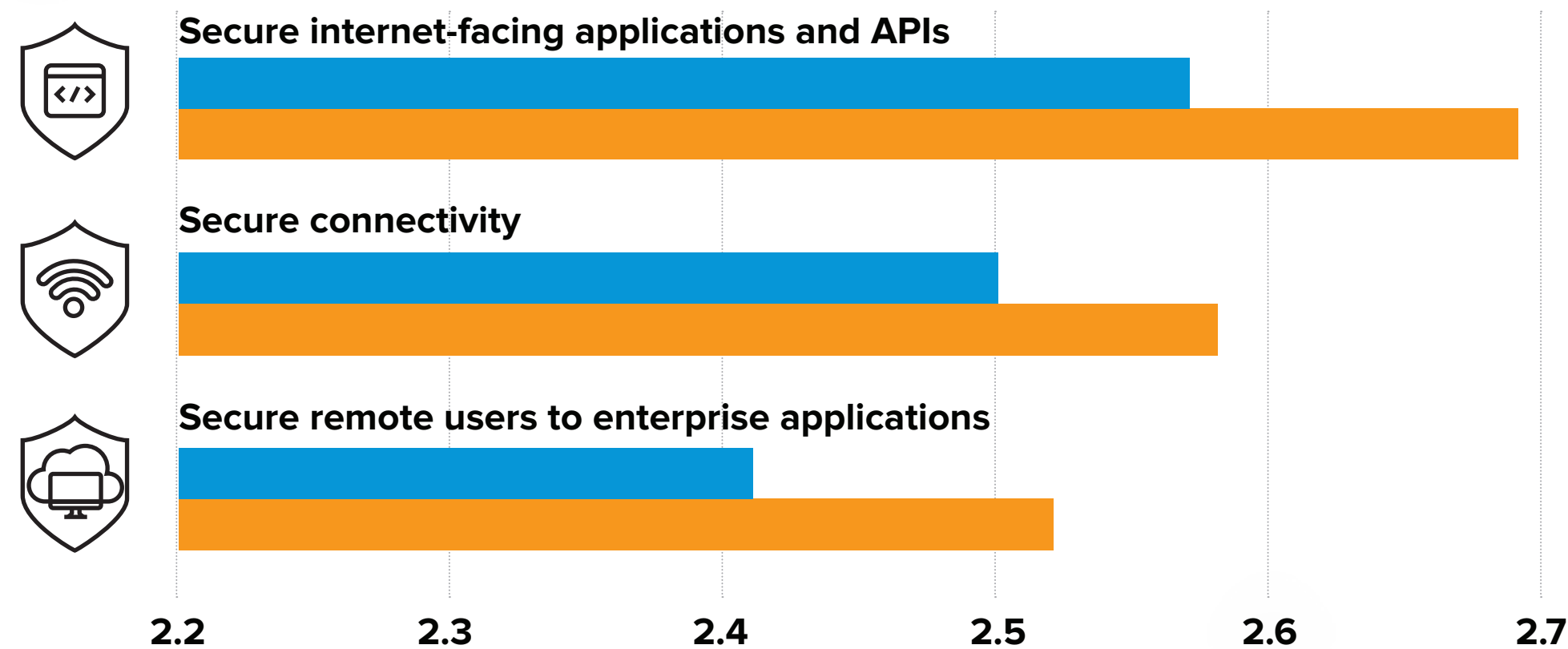
# Edge Is a Critical Enabler of Secure Access Everywhere

## Edge, Applications, and Secure Access

The dramatic shift to home working in the first half of 2020 increased security risks for enterprises and fueled the need for edge security solutions. According to results from IDC's Worldwide IT Spending Sentiment Survey, there is increased demand for security solutions.

### Accelerated Demand for a Secure Workplace

● March-April 2020 ● May-June 2020



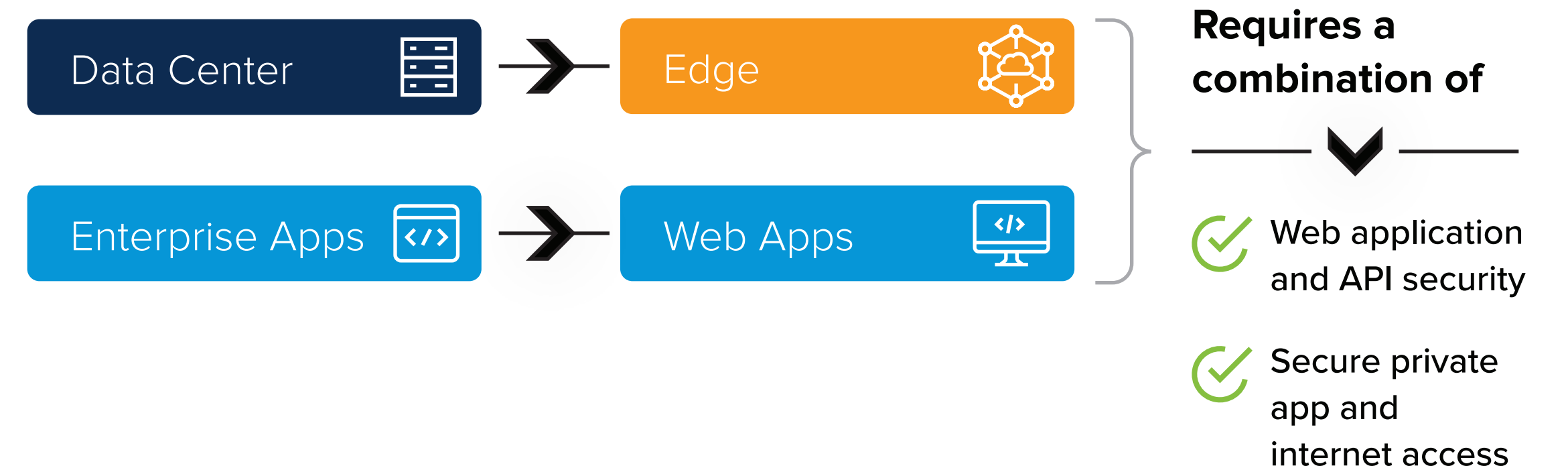
Scale: 1 = Significantly increased demand 5 = Significantly decreased demand (n = 1,195 respondents)

**IDC's Worldwide IT Spending Sentiment Survey — April 2020**

Organizations' **2nd-greatest challenge** for supporting work-at-home/remote working is **“worries about cybersecurity and privacy (25.9%)”**

Working from home (WFH) also accelerated the adoption of smart devices and IoT endpoints, which will further degrade the ability of enterprise IT organizations to enforce a network-based perimeter.

As applications move from the data center to the edge, the risks will increase and security services from the edge will require robust, intelligent, and identity authentication capabilities.



# The Shift of Apps to the Edge

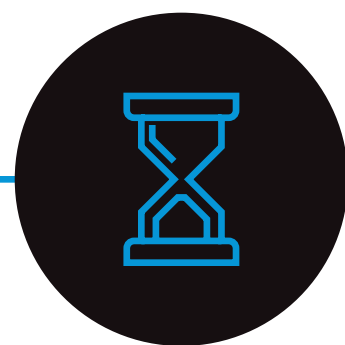
## Enabling Innovative Low-Latency Edge Applications

Mimicking the shift to home working, consumers are also increasingly engaging with organizations online. This shift will drive new innovation in the customer experience, with enterprises creating new services at the edge that help them better cater to their users.

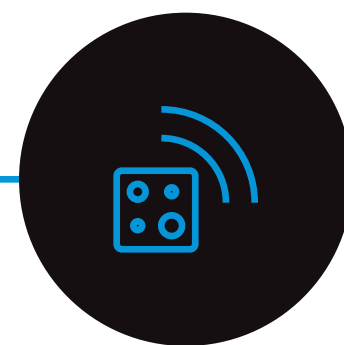
When compared to cloud infrastructures, the edge provides the ability to deploy compute workloads closer to end users. This allows the edge to support new use cases that require low latency, such as personalizing the customer experience based on a user's location.

The edge value proposition is to bring (store) content closer to users, but also process data as close as possible to the endpoint (device) and regulate traffic efficiently, to help content providers provide the best possible content for every user.

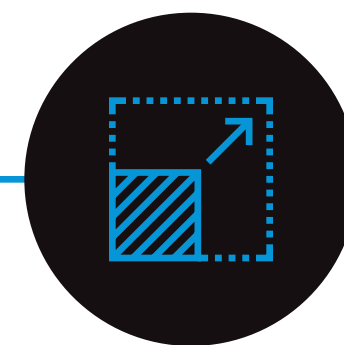
In short, the drivers for edge services for customer-facing enterprises are:



**Latency** for sensitive applications/ rich media, requiring faster response times than cloud or data center infrastructure can deliver.



**Ability** to process data for assets with limited connectivity.



**Scalability** concerns surrounding the abundance of data generated for analytics and AI use cases.



**Cost** of transmitting large amounts of data for centralized processing.



**Security and compliance** whether due to government regulation or corporate governance.

# The Programmable Edge Becomes a Strategic Differentiator

## Enabling Innovative Low-Latency Edge Applications

IDC predicts



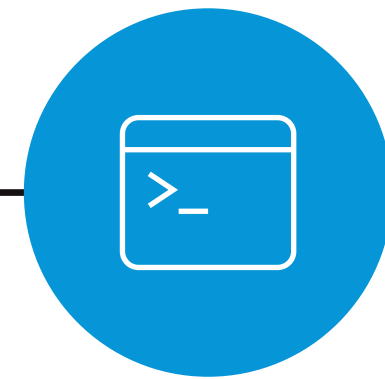
By 2023, **60%** of Global 2000 enterprises will have created their own software ecosystem

The shift from traditional enterprise applications to web and edge applications is fueling the overall shift of apps to the edge and an increased focus on custom development.

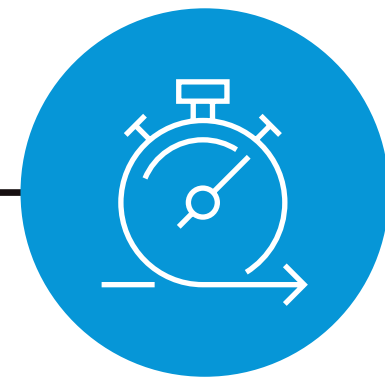
Development technologies that will accelerate service creation at the edge:



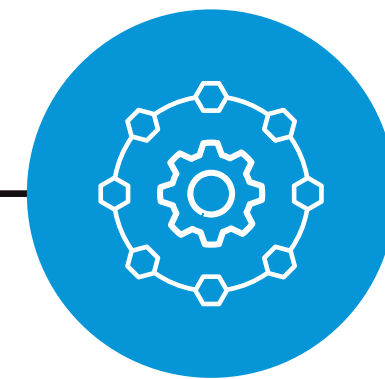
Serverless platforms  
(multi-tenant, high performance, secure)



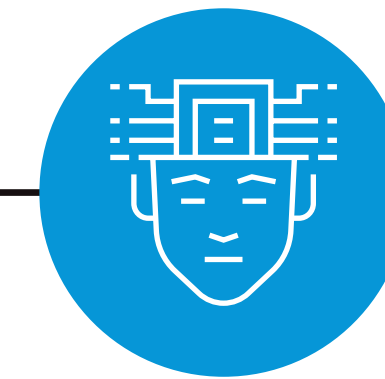
JavaScripting with contextual data



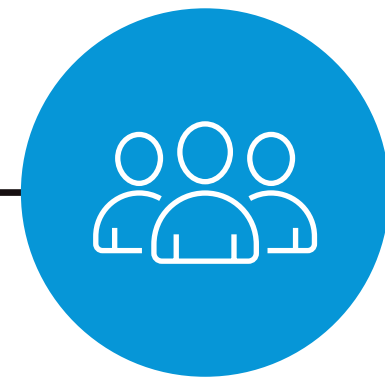
Agile/DevOps methodology



Microservices architecture



AI/ML apps and training models to simplify software development



Collaborative developer ecosystem

**Enterprises will increasingly create new services at the edge that can help them better engage with their end users.**

# The Surge in Edge Use Cases Drives the Need for Edge Analytics

## Enabling Innovative Low-Latency Edge Applications

IDC predicts



By 2024, over **520M** new apps/services will be developed and deployed

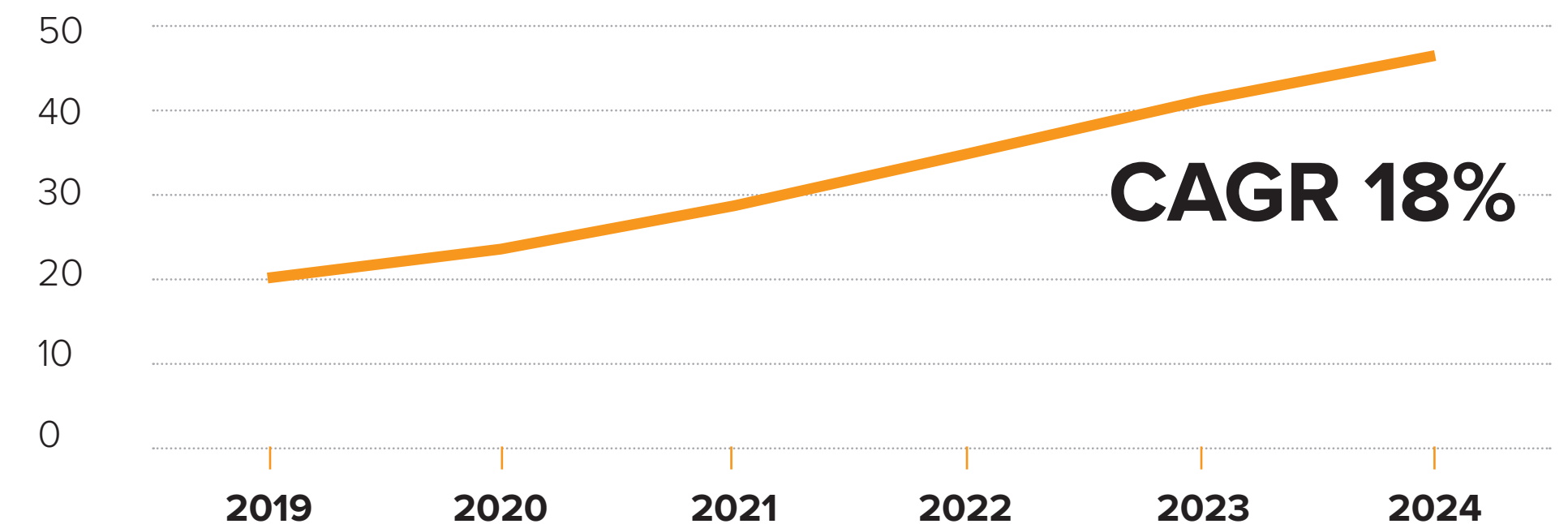
By 2024, there will be around **38B** IoT devices



By 2023, over **70%** of enterprises will:

- run varying levels of analytics and AI models at the edge and 30% of those applications will be accelerated by heterogeneous accelerators.
- have integrated their edge-generated data with cloud-based enterprise systems to allow for real-time actioning based on IoT analytics, including AI/ML.

### IoT Analytics Software



IoT analytics and AI comprises:

- End-user query, reporting, and analysis
- Advanced and predictive analytics
- AI software platforms
- Content analytics and search

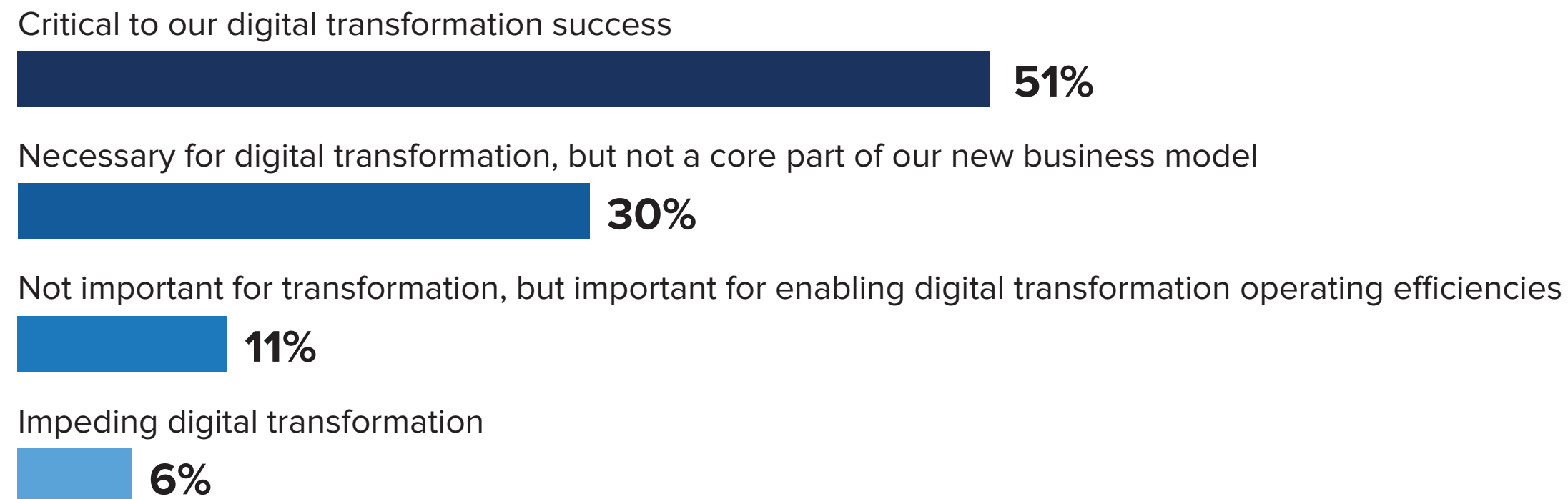


# Customer Experience Differentiation Is Paramount for Today's Digital-Led Economy

## Edge and Customer Experience

Another main pillar of digital transformation of the future enterprise is “customers and the customer experience (CX).” Organizations are increasingly aware of the critical role of customer experience in their **digital transformation journeys**.

### Q. What is the role of customer experience in organizations' digital transformation?



Source: Digital Transformation (DX) Executive Sentiment Survey, Aug 2020 (n = 2,165)

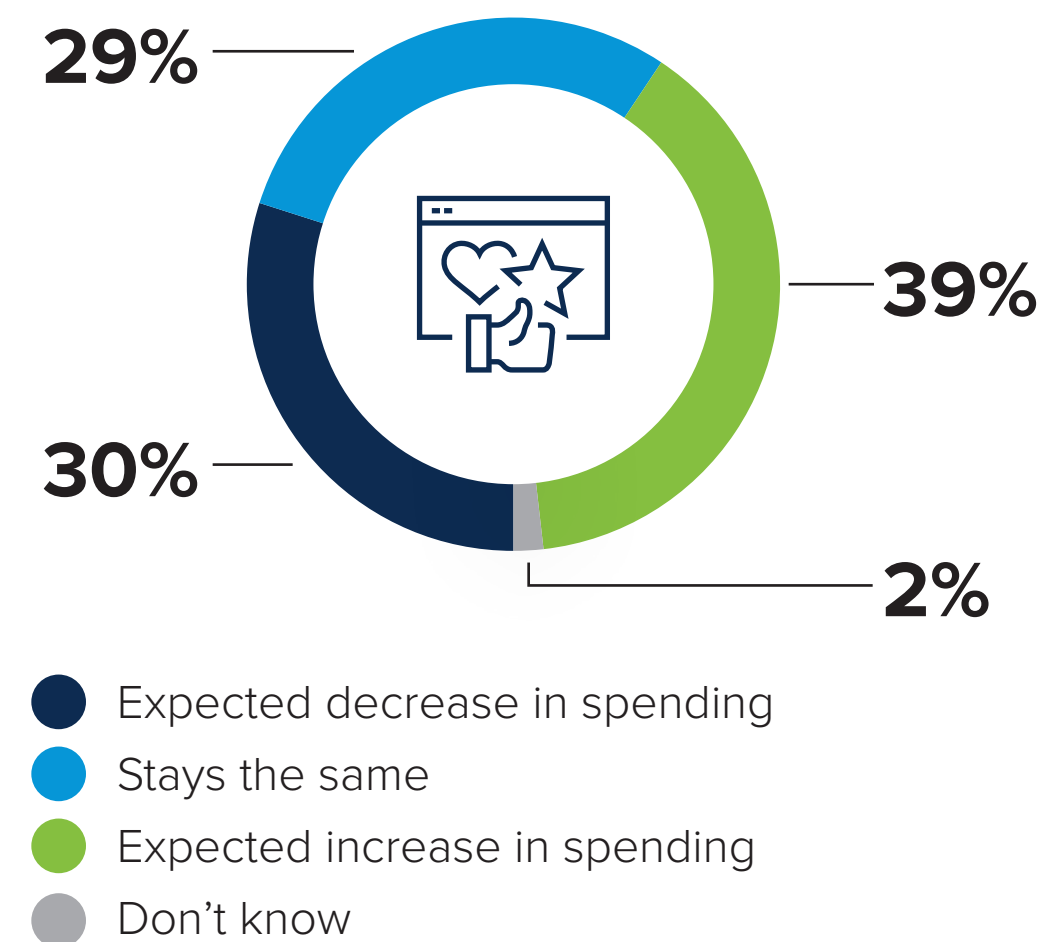
The ongoing shift from physical to digital channels and soaring demand (placing heavy loads on bandwidth) fuels enterprises' need to use content delivery data processing and capture **at the edge to create differentiated customer experiences** across omnichannel environments.

### Why edge is critical for CX:

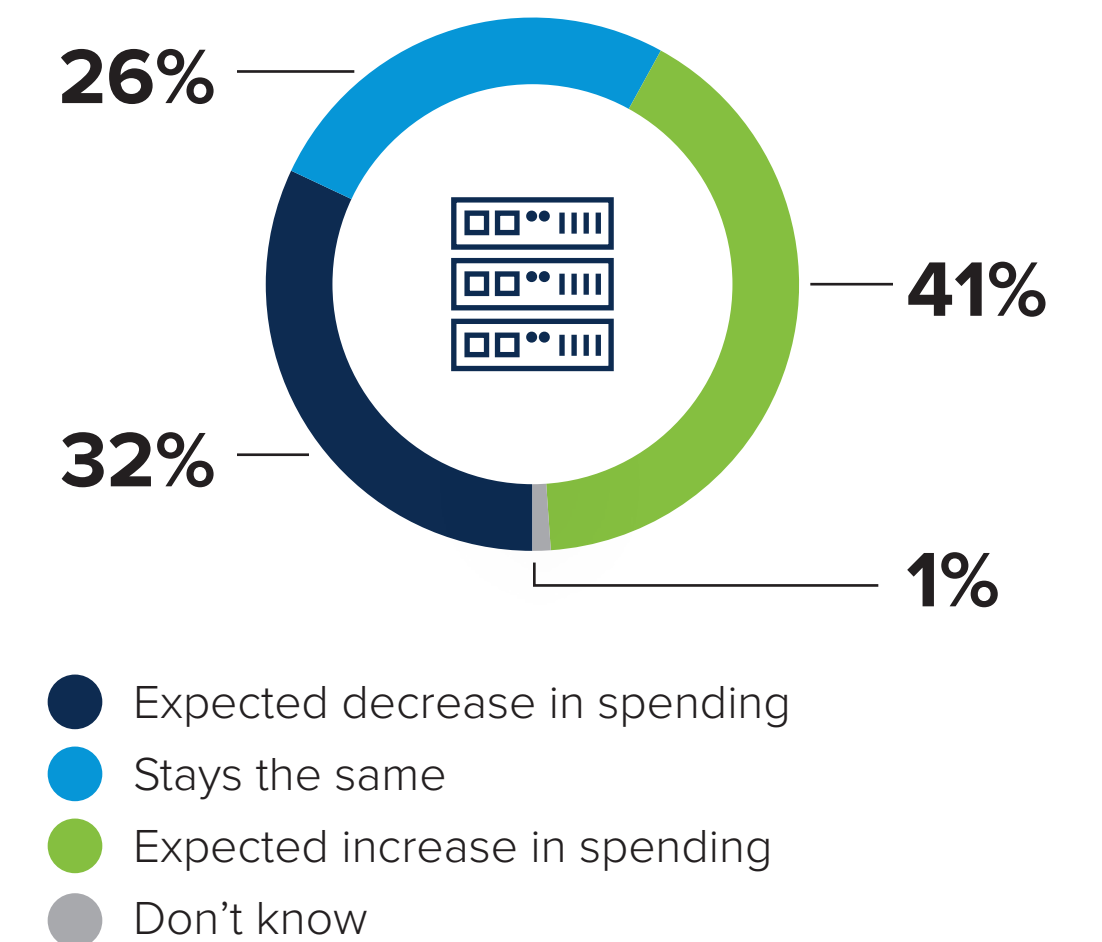
Security, compute, and data **at the edge** is needed to amplify customer experience in **delivering value in the real-time economy**. It enables enterprises to be **data-driven and analytics/AI enabled**, which are critical elements for premium customer experience.

### IDC surveys indicate that enterprises understand the necessity to invest in customer experience technologies and edge-located storage:

#### Investments in customer engagement applications in 2021



#### Investments in edge-located server storage in 2021



# The Edge Empowers Customer Experience Differentiation

## Edge and Customer Experience

Low-latency delivery is crucial to augment customer experience, and the edge is critical to execute on this. Surging internet traffic volumes make it more challenging than ever to meet the expectations of customers, who often demand instantaneous access. The edge maintains close proximity with end users to deliver the lowest latency and the best customer experiences across websites, apps, gaming, social, video, and other digital environments.

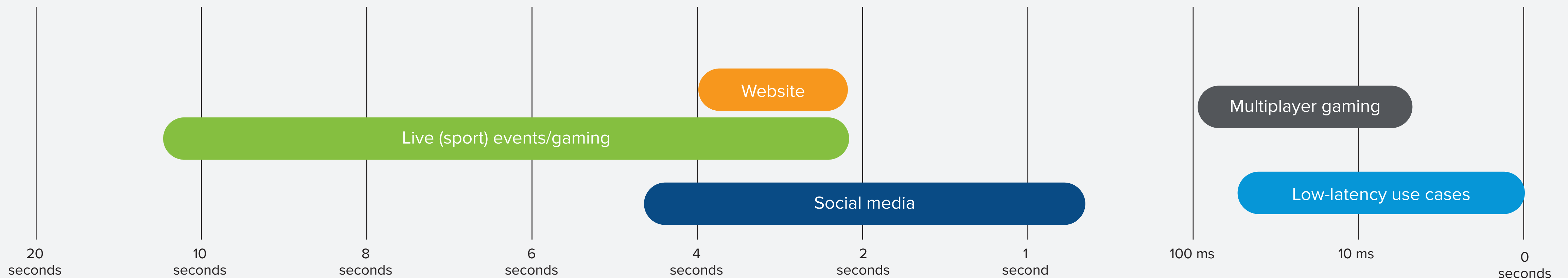


**Edge is necessary to deliver value in the real-time economy to:**

- Deliver digital experiences that meet user expectations
- Maintain proximity with users for the lowest latency
- Scale reliably for rapidly increasing user demand
- Enable business everywhere (by 2022, 50% of the initial analysis of IoT data will occur at the edge)

**In many sectors where real-time delivery has become the new norm, a delay of seconds can cost a customer missed revenues or even increased costs. Increasingly, this even applies to milliseconds when it involves low-latency use cases.**

### Latency Use Cases



# The Edge Is an Essential Enabler of Rapidly Growing Media Content

## Edge and Customer Experience



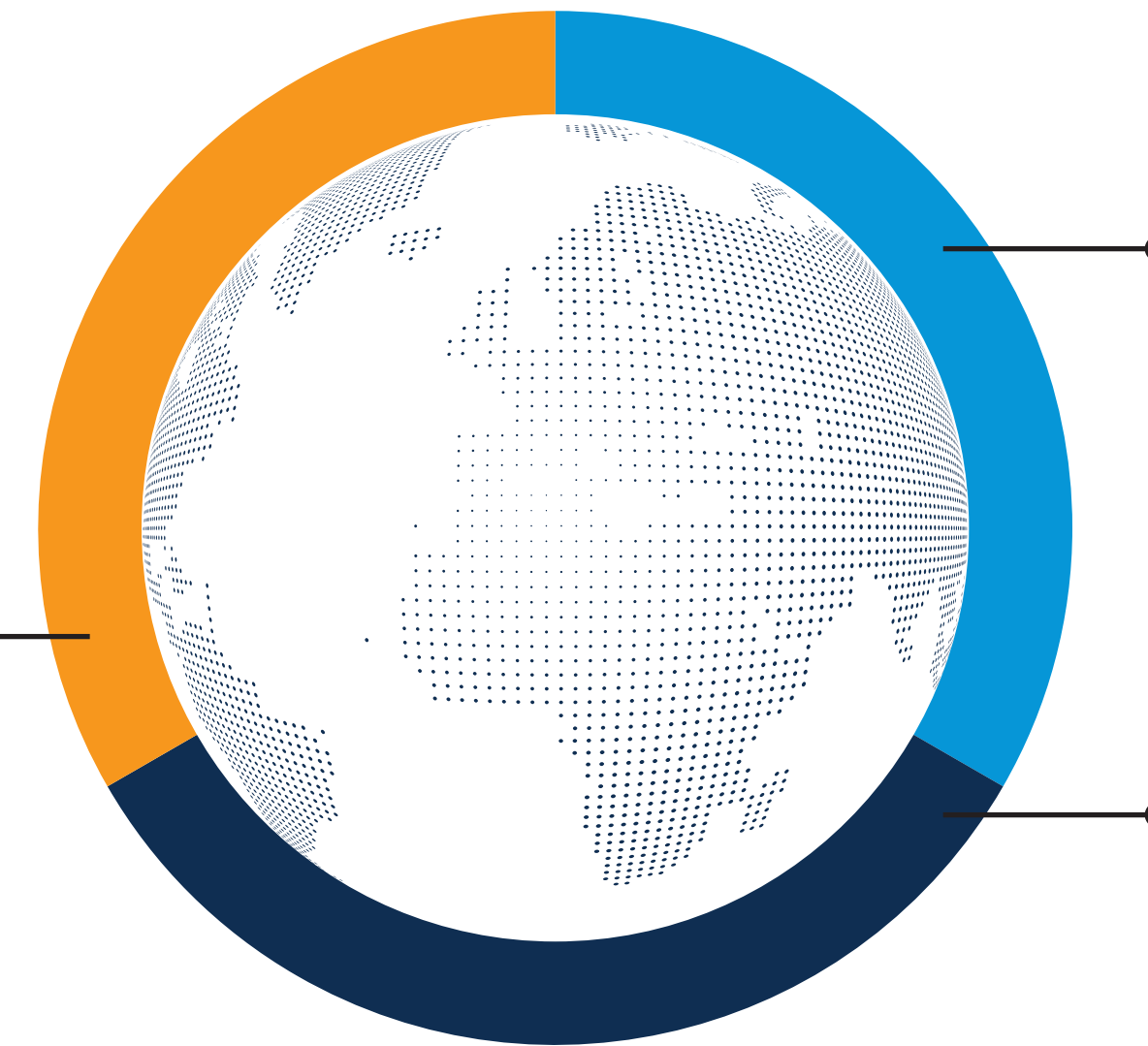
By 2023, **65%** of consumers will be using voice, images, and augmented reality (AR) to interact with brands via their mobile device, extending physical and digital experiences.



By 2025, **60%** of leading consumer brands and retailers will enhance customer engagements using emotion detection and management to influence purchasing.

## Exponential Growth of Internet Traffic Continues

The number of video users (videoconferencing, downloads, streaming, cloud storage) will exceed **3 billion** in 2024



The number of gaming users will exceed 2.3 billion in 2024 and grow at a **CAGR of 10.5%** in 2019–2024

IDC estimates that the number of “connected” IoT devices worldwide will increase to over **35.2 billion** by 2023 and will reach almost **42 billion** by 2025

As the majority of IP traffic will be CDN traffic, reaching around 80% by 2023, CDNs have an important role in advancing edge compute as the new paradigm for delivering real-time data and rich media services. End users are demanding programmability at the edge to develop and deploy innovative services in a timely and frictionless manner for all industries.

**80% of IP traffic = CDN traffic** ➔

Connected homes

Connected work

Connected cars

Connected health

Connected cities

Retail

Manufacturing

Energy

Other

# Key Takeaways and Guidance



## Edge, Applications, and Secure Access

- Improving organizational resilience is a top-of-mind C-level priority
- Empowering the workforce at the edge is crucial to the distributed enterprise
- Having secure access everywhere is a must, and edge is a critical enabler



## Enabling Innovative Low-Latency Edge Applications

- The shift of logic and processing to the edge is persistent
- The surge in edge use cases — connected “things” — drives the need for edge analytics
- The programmable edge becomes a strategic differentiator for enterprises



## Edge and Customer Experience

- Customer experience differentiation is critical in today’s digital-led economy
- Edge enables customer experience differentiation with real-time delivery
- Edge is a critical enabler of rapidly growing rich media content

# About

Akamai protects and delivers digital experiences for the world's largest companies. Akamai's intelligent edge platform surrounds everything, from the enterprise to the cloud, so customers and their businesses can be fast, smart, and secure. Top brands globally rely on Akamai to help them realize competitive advantage through agile solutions that extend the power of their multi-cloud architectures. Akamai keeps decisions, apps, and experiences closer to users than anyone — and attacks and threats far away. Akamai's portfolio of edge security, web and mobile performance, enterprise access, and video delivery solutions is supported by unmatched customer service, analytics, and 24/7/365 monitoring.

To learn why the world's top brands trust Akamai, visit [www.akamai.com](http://www.akamai.com), [blogs.akamai.com](http://blogs.akamai.com), or [@Akamai](https://twitter.com/Akamai) on Twitter.



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