The Edge Cloud: Enabling an Intelligent Digital World

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An Edge Cloud Enables Delivery and Control of Distributed Resources As-a-Service

The edge cloud enables the consumption and operation of infrastructure in edge locations via an "as-a-service model," just as private and public cloud have done with the core datacenter.

The Rise of the Edge Cloud

By 2023, half of on-premises infrastructure deployed will be in critical edge locations, up from less than 10%, today.

By 2023, 80% of edge workloads will be created with a container/microservices architecture to reduce per-app infrastructure capacity requirements while driving improvements in digital service resiliency.

By 2023, the number of applications running on edge infrastructure will increase by 800%.

For the consumer, this means:

- A rich connected experience—information at their fingertips
- Easier access to on-demand services

For the provider, this means:

- Gaining deeper insights into customer behavior, leading to superior products and services
- Providing unprecedented value by offering differentiated, edge-enabled services
- Elastically accommodating peaks and valleys in user demand by deploying edge as a service

Accelerate Your Intelligent Digital World by Investing in Edge Cloud

Build a comprehensive plan for success. Approach your journey by:

- Starting with a clear customer- or operations-focused use case
- Developing an integrated business case
- Aligning operations to the intelligent edge
- Overcoming business challenges
- Managing and governing edge-based data
- Partnering with an end-to-end provider

Did you know that by 2023, the edge will lead to:

- Deployment of 25 billion endpoints capable of AI inferencing
- Data creation that grows 1.6 times faster than other enterprise data sources
- Deployment of nearly 7 million locations worldwide collecting and analyzing 13.6 zettabytes of data created by endpoints, and uploading 4.8 zettabytes of data for further analysis to the core datacenter

The edge cloud enables businesses to increase their competitive intelligence from connected devices.

Start with a Clear Customer- or Operations-Focused Use Case

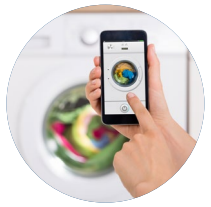
Examples in which distributed and embedded intelligence can enhance digital experiences:

Logistics

Improve delivery assurance while reducing costs with asset tracking and freight monitoring.

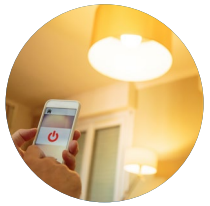
Field operations

Deliver superior service quality and cost savings with machine learning-optimized operations.



Home appliances

Create a superior service experience by enabling customers to gain greater control over their appliances, extend service life, and reduce energy costs.



Lighting

Establish a safer environment while reducing electricity costs by dynamically controlling lights in public places.

Vending machines

Boost customer satisfaction and revenue by using facial recognition to increase contextual awareness of products and services.

Asset management

Enhance service quality with end-to-end service management and preventive maintenance on factory floors.

Note: Use cases are illustrative not comprehensive

Develop an Integrated Business Case

Begin by tying together service constraints and use cases to identify business outcomes that benefit from the edge and edge cloud.

SERVICE CONSTRAINTS THAT AFFECT BUSINESS OUTCOMES*

- ✔ Latency
- ✔ Data intensity
- ✔ Connectivity
- ✔ Endpoint density
- ✔ Endpoint locations
- ✔ Security/privacy

USE CASES

- Fleet management
- Public infrastructure asset management
- Field services
- Environmental monitoring detection
- Intelligent grids
- Airport facility automation
- Intelligent transportation systems
- Connected vehicles
- Connected oil field exploration
- Freight monitoring
- Public safety and emergency response

MODERATE → **HIGH** → **VERY HIGH**

EDGE PROPENSITY*

*Service constraints at the edge drive your IT architecture and, to an extent, your operating model. Effectively handling these constraints results in greater visibility, control, and quality of data.
**Edge propensity refers to the tendency for higher data collection and/or device deployment rates at the edge.

Develop an Integrated Business Case

Leverage the benefits of edge cloud to gain competitive differentiation.

An enterprise-grade edge supports simplicity and resilience to increase agility.

The edge cloud has enabled infrastructure and intelligent operations leaders to deploy and operate an infrastructure that converges and automates the compute platform, network fabric, storage resources, virtualization, and analytics to increase resilience while managing simultaneous service constraints, even as workloads become more dynamic.

Organizations can accelerate business change by modernizing their applications to make use of better data sources and improved data quality and by reducing infrastructure complexity.

Agility Wins Over Lower Costs

"Lowering cost is one of the key objectives for us, yet the fact is we're not always saving costs; sometimes it's cost-neutral and sometimes we're actually spending more to become more agile."

— Director Information Technology / NA operations, Manufacturing Firm

Added benefits of an edge cloud:

IT benefits

- Reduced costs
- Data and application availability
- Infrastructure consolidation
- A single interoperable application delivery platform

Business benefits

- Brand enhancement through better understanding and quickly responding to customer sentiment, wants and needs
- Increased revenue and profits
- Sustainability/reduction in carbon footprint

Invest in Intelligent Operations

Location management provides a foundation to support IT operations.

Set up a scalable environment that enables IT to securely operate many locations with the appropriate compute, storage and connectivity needed to deliver an optimal digital experience for customers and employees

- Fixed locations such as stores, hospitals, and warehouses
- Temporary locations such as sporting events, arenas, and construction sites
- Locations requiring mobility such as ships, oil rigs, and airplanes

Why An Enterprise-Grade Edge Cloud Is Important

"In terms of the overall picture, once we can achieve the completion of the project plan, we will have a highly efficient, scalable environment. This environment has the potential to burst capacity to handle seasonal trends and enable us to provide compute power at a moment's notice. It will automatically provide enough processing power to handle whatever workloads we throw at it."

— IT Manager, Automotive Manufacturing, and Logistics Firm

Invest in Intelligent Operations

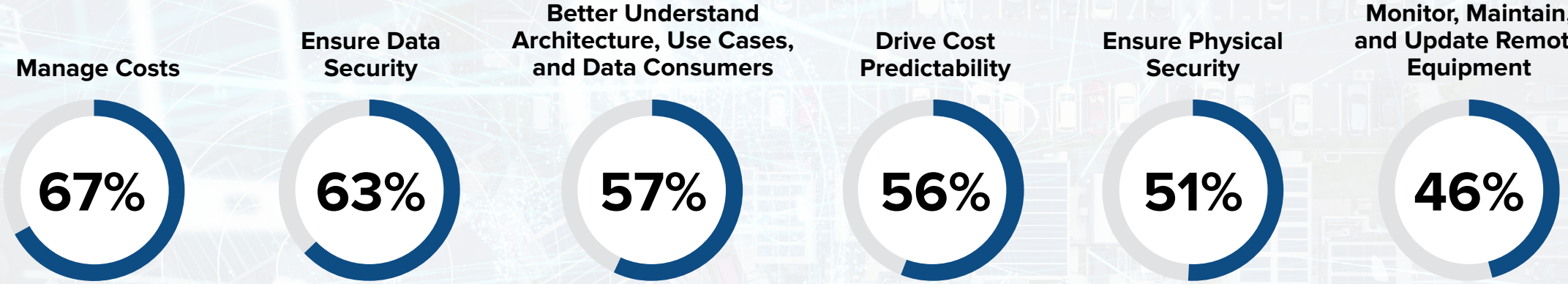
Optimizing your edge cloud's operational leverage requires a consistent deployment framework, including metrics.

- Standard, but flexible, local connectivity options
- Mechanisms for local data collection, aggregation, and distribution
- Centralized network, infrastructure, and data application control
- Frictionless infrastructure provisioning and app deployment
- Autonomous IT operations and IT governance practices

Incorporate intelligent operations metrics for edge cloud into C-level and board-level business dashboards.

Overcome Business Challenges

Anticipate and address business concerns about edge cloud deployments to make the most of investments.



Drivers for Change

"Our business model has changed quite drastically. We had to really adapt our business model to be more responsive to the way we're delivering endpoints now. For starters, the customer base has changed. It has been a paradigm shift driven by changing customer needs, and we've obviously had to adapt to that."

— VP of Technology, Internet and Communications Services Firm

IDC's Enterprise Datacenter Edge Survey, March 2018; N = 91
Results derived from a survey of 10 respondents with significant edge cloud investments.

Manage and Govern Edge-Based Data

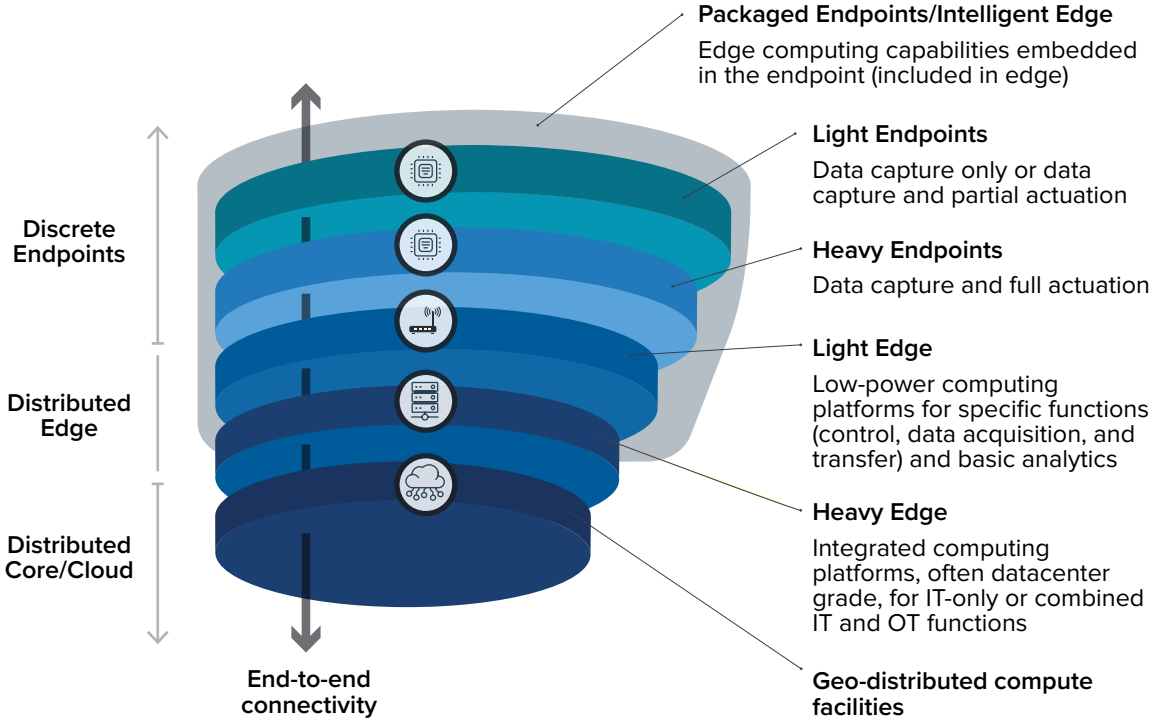
Establish edge cloud as the model for managing distributed data and assets.

Increase data management and governance to suit a multi-tiered environment. As the figure shows, the edge is a highly distributed entity, and incidences involving any data loss or compromises can occur at any point in the environment.

Infrastructure technology and asset selection criteria must follow the business use case vs. the other way around. Therefore, decisions around technology – such as technology capabilities, speeds, feeds, and requirements for training vs. inferencing must come after the use case has been fully formulated.

Manage costs in the process: Focus on the long-term value of investments. Capital expenses typically spike the first couple of years and then level out. Find a partner that can help you implement a flexible consumption model, and implement a long-term measurement system to track the impact on the firm's top line or bottom line.

A Distributed Edge Cloud Needs a Distributed Data and Asset Management Strategy



Manage and Govern Edge-Based Data

Prioritize data security over everything else.

Most organizations expect average data collected from the edge to be ~60% of their total in 18-24 months (an increase of ~80%). Today, it is 27% of the total. As a result, edge data management and governance are becoming critical challenges for enterprises.

Top objectives related to data management

- Security
- Governance standards
- Regional compliance standards (e.g., GDPR)

Top data management approaches

- Cloud and edge-based meta-data stores and distributed analytics
- Network micro-segmentation with policy control
- Strategic placement of compliance-oriented storage and converged IT/IoT systems
- Distributed data-layer abstraction with programmatic (API) interfaces

Partner with an End-To-End Provider

Partnering with the right provider is crucial to long-term success.

Explore partner options that provide:

- Proven solutions that scale from small lab deployments up to massive global deployments
- Vertical segment expertise, focused on segments that align to your business
- Integrated access to a diverse ecosystem
- A data-first viewpoint, to ensure you secure and maximize the long-term value of your edge
- Verified success simplifying the hardware, software and security aspects of large projects

By engaging with a trusted partner, an organization can:

- Better prepare themselves to grow using the edge cloud as a business driver
- Become agile and adaptive, and take advantage of internal synergies
- Get ahead of the disruptive forces in their industry by leveraging partner expertise

Changing Ahead of the Industry

We made great progress with our partner in our early edge cloud adoption - learning to work together while aligning on outcomes. We are now working in lockstep with them implementing use cases and solving problems.

—Sr. Network Engineer, Telecommunications Service Provider

Make the Edge Cloud the Catalyst for an Intelligent Digital World

Use these six elements as strategic guidelines to explore edge cloud opportunities with your internal and external partners.

Start with a clear customer or operations-focused use case. Understand what your customer wants or how you can help optimize your operations. Talk to internal and external stakeholders about their expectations and the role technology can play.

Make an integrated business case. Develop your business case using a broad vs. siloed, long-term view of your digital transformation strategy.

Invest in intelligent operations. Merge digital transformation with intelligent digital plans/funding, particularly for mobility and analytics used to deploy connected systems.

Overcome barriers to business. Identify and remove roadblocks perceived by customers and third parties.

Manage and govern edge-based data. Integrate security and privacy into digital technology plans from the start.

Partner with an end-to-end provider. Make procurement more agile by developing a process to work with providers, and conduct proof of concepts; concentrate timelines to ensure currency of solutions.