Edge in the time of AI

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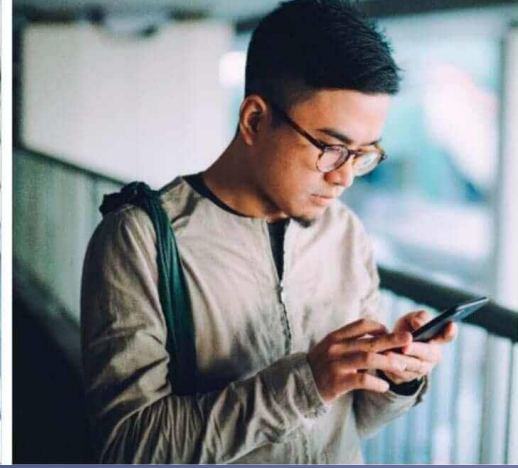
Agenda

Edge Introduction

The Affect of AI on Edge Computing

Use Cases
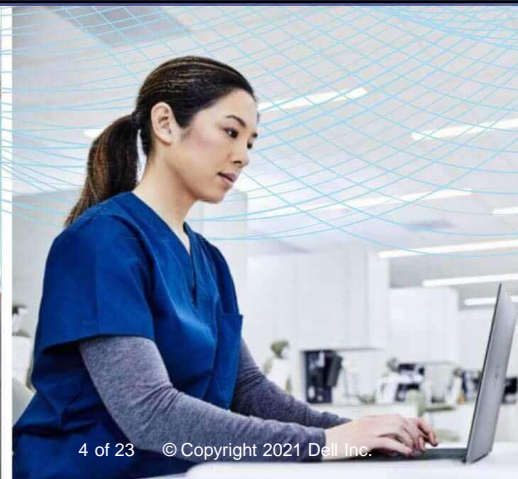
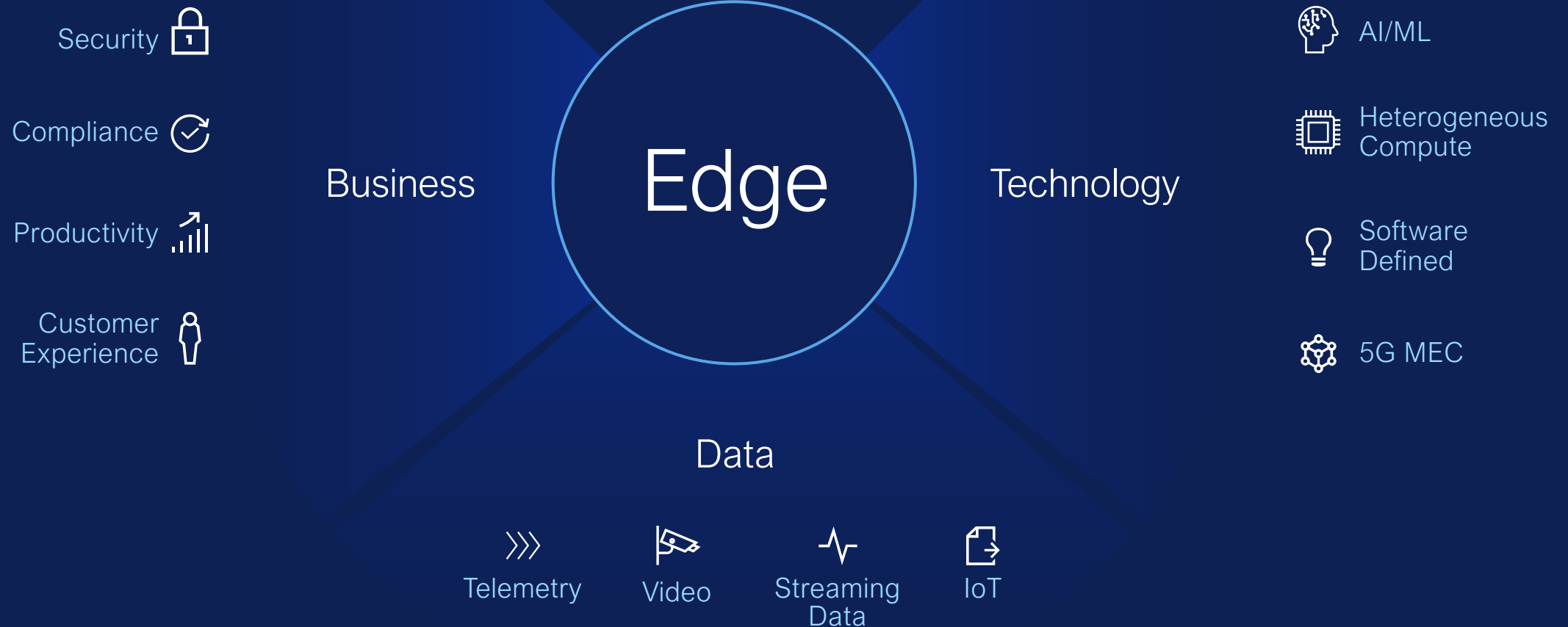Challenges in Edge Computing

The Way Forward

Dell NativeEdge & Others

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The edge

where data is acted on near its point of creation to generate immediate, essential value

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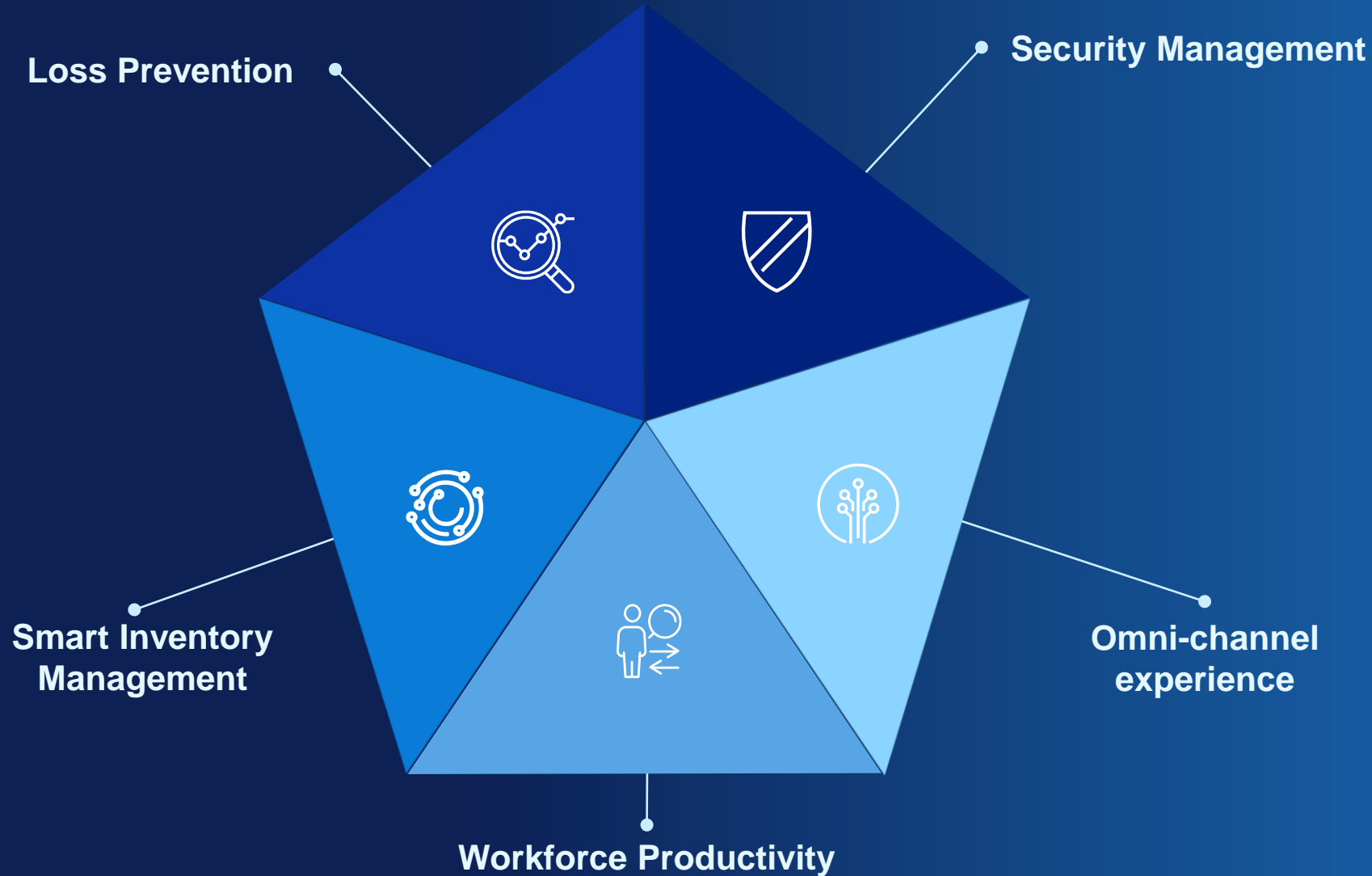
Customers face a perfect storm at the edge

Data is exponentially expanding the need for real-time insights

Edge

Business

- Security
- Compliance
- Productivity
- Customer Experience

Technology

- AI/ML
- Heterogeneous Compute
- Software Defined
- 5G MEC

Data

- Telemetry
- Video
- Streaming Data
- IoT

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Innovation at the edge…drives Smart Retail transformation

Loss Prevention

Security Management

Smart Inventory Management

Omni-channel experience

Workforce Productivity

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USE CASES

FOOTFALL & DEMOGRAPHICS

Average Occupancy: 400 | Peak Hour: 3PM

Peak Occupancy: 750

Metrics:

- Store Entries/Exits
- Occupancy
- Age/Gender
- Repeat vs Unique
- Peak Times

▶ **Benefit:**

Measure impact of marketing campaigns on store footfall

Predict Occupancy

ZONE ANALYTICS

Female
25-30 yrs
Repeat Visitor

■ Female Walk-ins   ■ Male Walk-ins

Males: 60%

Mon Tue Wed Thu Fri Sat Sun

Metrics:

- Zone Footfall and Occupancy
- Zone Dwell Time
- Zone Alerts

▶ **Benefit:**

Understand customer behavior; Know high traffic areas
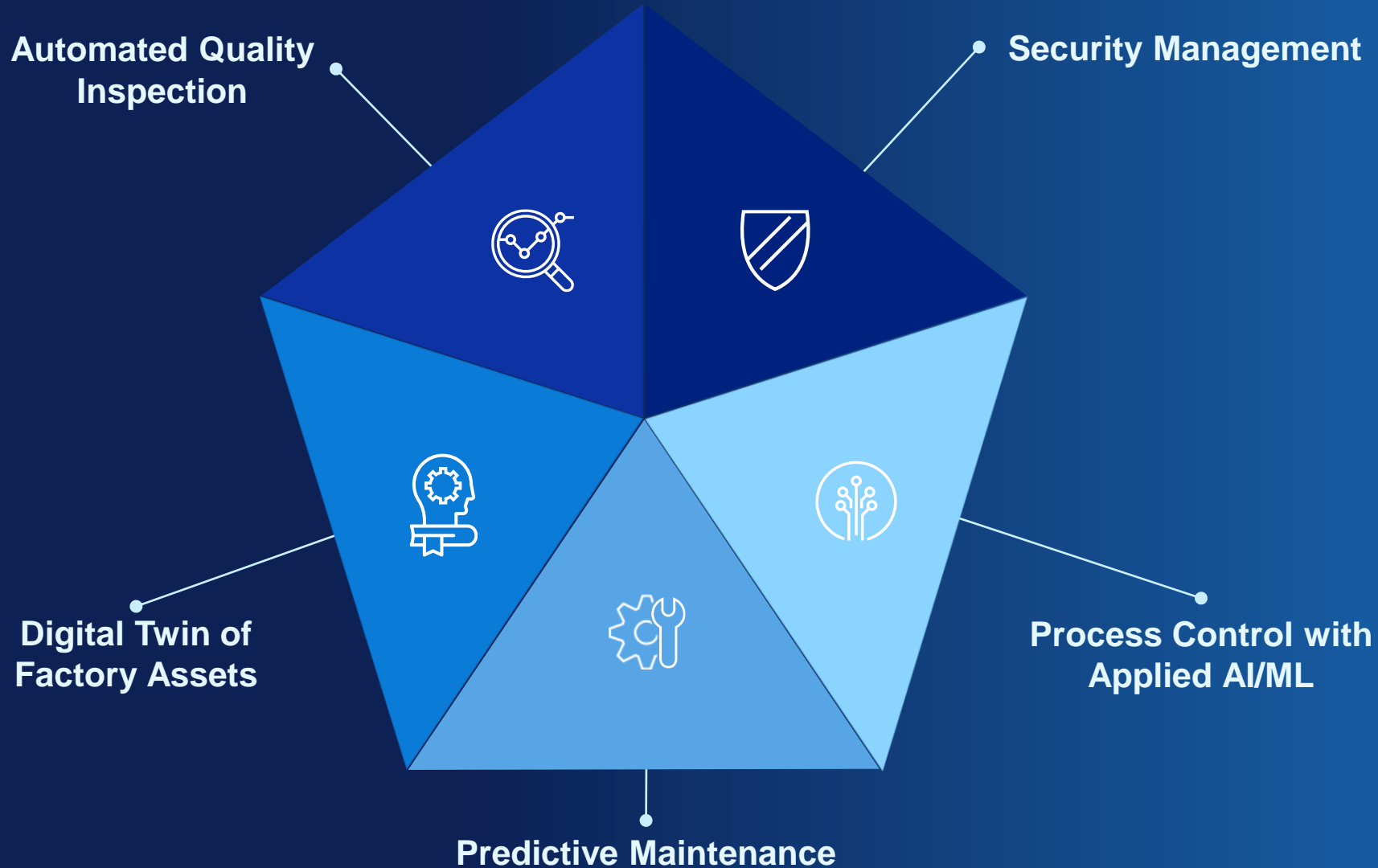
Increase revenue with dwell alerts

"For a retail customer, we're talking about 66,000 hours saved in maintenance and compliance for maintaining the edge environment, which translates into about 480metric tons of CO_2 saved every year — thanks to automation and end-to-end monitoring."

Arnaud Langer
Global Edge & IoT Senior Product
Director at Atos

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Innovation at the edge…drives Smart Manufacturing Transformation

Automated Quality Inspection

Security Management

Digital Twin of Factory Assets

Process Control with Applied AI/ML

Predictive Maintenance

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Global Lighthouse Network

This community of manufacturers shows leadership in using Fourth Industrial Revolution technologies to transform factories, value chains and business models, for compelling financial and operational returns.

Edge use cases are pivotal for business modernization

Security Management

Predictive Maintenance

Automated Quality Inspection

Asset Tracking and Management

Workforce Productivity

Generate more value | Improve safety | Enhance customer experience

Enforce tighter security | Enable faster decisions | Reduce cost

The edge has unique edge challenges

Distributed systems operation

No local IT support

Operations technology workload support

Secure operations support

Environmental & hardware diversity

Silos & proliferation

Feedback

" Managing the **data generated from various sensors** in the factory is becoming increasingly challenging. "

" **We struggle** to manage disparate hardware and solutions across the edge. "

" **Bandwidth constraints hinder us** from deploying predictive maintenance for our trucks and conveyor belts. "

" **Ensuring the security of our systems is a significant challenge**, particularly with the rise of cyberattacks. "

Based on Dell conducted customer interviews and GLG conducted customer surveys.

76%
of lifecycle management time at the edge is spent on routine, repetitive tasks

85%
of enterprises take between a 1 week to 1 month to deploy their edge infrastructure once on-site and spend 24-48 hours to apply patches

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Solving edge challenges

Analyst perspectives

Edge recommendations from Gartner®:[1]

"Organize around a centralized edge strategy or blueprint."

"Design the edge future state based on a 'platform approach,' not isolated independent stacks."

"Plan edge solutions as a synergistic amalgam of existing OT systems, edge-native technology and cloud-based systems."

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Reimagining the way to do edge operations

Without skilled local resources

With Zero Trust

Even with connectivity challenges

Lower barrier to entry

Handle massive scale

Multicloud by design

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Industry offerings

Azure Stack Edge

IoT Hub

Vmware Edge Compute Stack

Project Keswick

Dell NativeEdge

Securely scale your edge operations to power any use case

Zero-touch
onboarding

Zero-trust
security
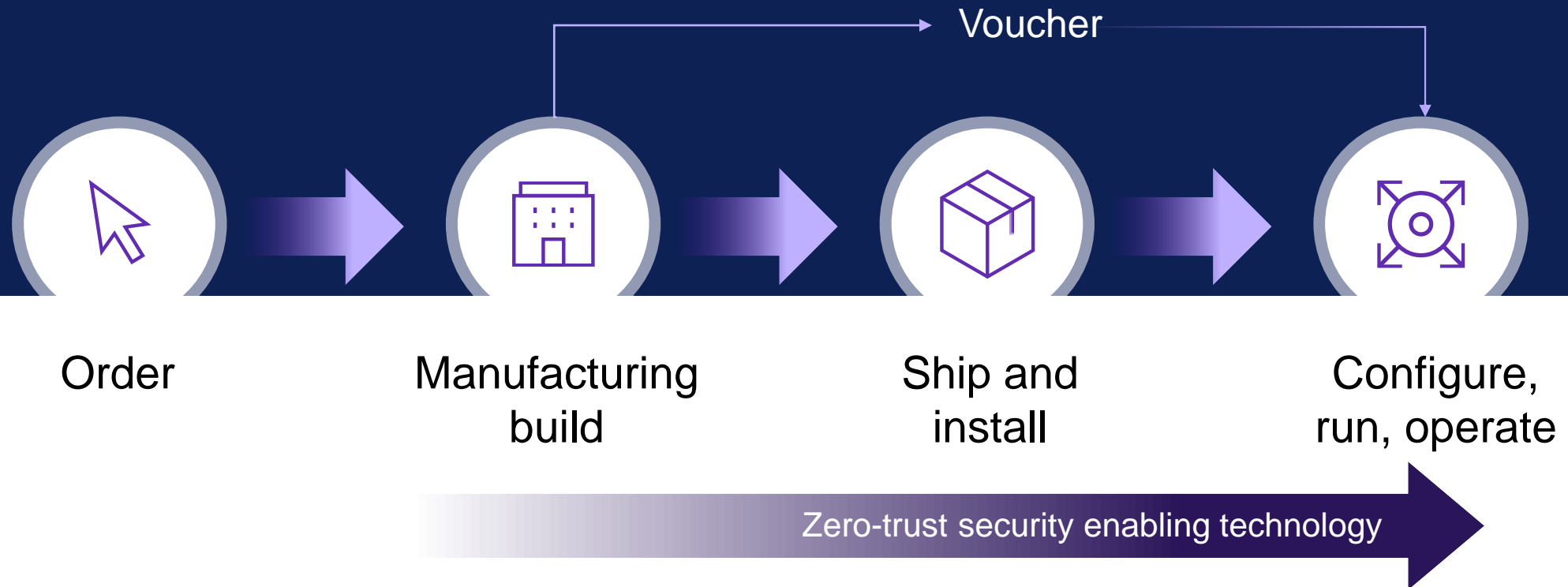
Multicloud
connectivity

Infrastructure
management

Application
orchestration

Edge operations software platform

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Delivering Zero Trust capabilities: Secure supply chain & beyond

Order – Build – Ship – Run

Voucher

Order

Manufacturing build

Ship and install

Configure, run, operate

Zero-trust security enabling technology

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Unified infrastructure and application management

Applications

Solution Blueprint (Outcome)

NativeEdge Orchestrator

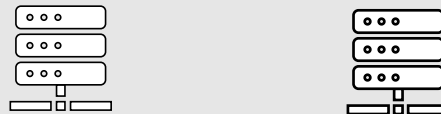| Blueprints	Secure device onboarding	Zero touch provisioning
Catalog	Lifecycle management	Fleet management

Application and Service Delivery

Security and Estate Lifecycle Management

NativeEdge-enabled Devices

External Infrastructure

External Infrastructure

Edge

Core datacenter

Cloud

Distributed Computing Estate

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Dell Edge Solutions – focused on the sweet spot

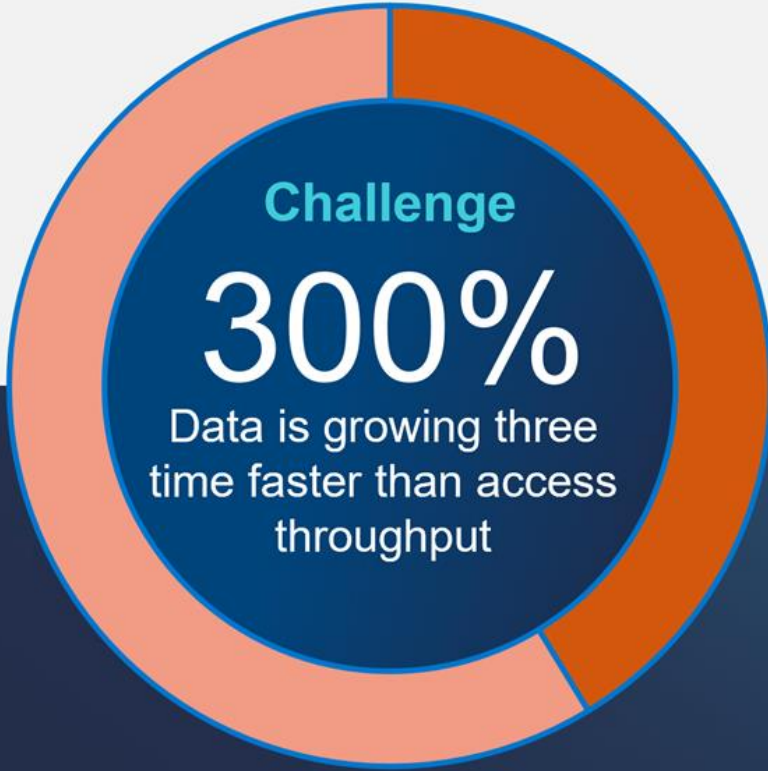| **Manufacturing Edge**	**Retail Edge**	**Telco Edge**	**Digital Cities**	**Energy Edge**
Also known as Industrial Internet of Things (IoT) or Smart Factory, these solutions gather and process data at the manufacturing edge.	Create secure, connected, and transformative retail solutions at the edge.	Dell Technologies is accelerating the transformation to Open RAN by bringing together an open ecosystem of partners and solutions	Cities can build a strong digital core leveraging edge to core to cloud technology platforms and end-to-end, ready-to-configure solutions.	With the global Focus on environmental awareness, the energy sector is entering a new digital era.
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AI data growth drives distributed edge processing

Opportunity
62%
of enterprises data will be processed at the edge by 2027

Respondents: Global

Challenge
300%
Data is growing three time faster than access throughput

Global
Data growth driven by apps, sensors, and real-time insights

Benefit
$$$
AI Edge Inference will cut cloud and network cost

Respondents: Global