

# Edge Why? - Market, use cases, needs

CMU OEC Spring Workshop May 5, 2020  
Geoff Hollingworth, CMO

## Agenda

1. Big Strategy Picture
2. Industry Use cases, needs
3. Developer Perspective





# A global initiative exploring how edge computing is being used today.

Connecting the edge ecosystem to the world's leading enterprises

Unlocking revenue growth through edge-enabled experiences

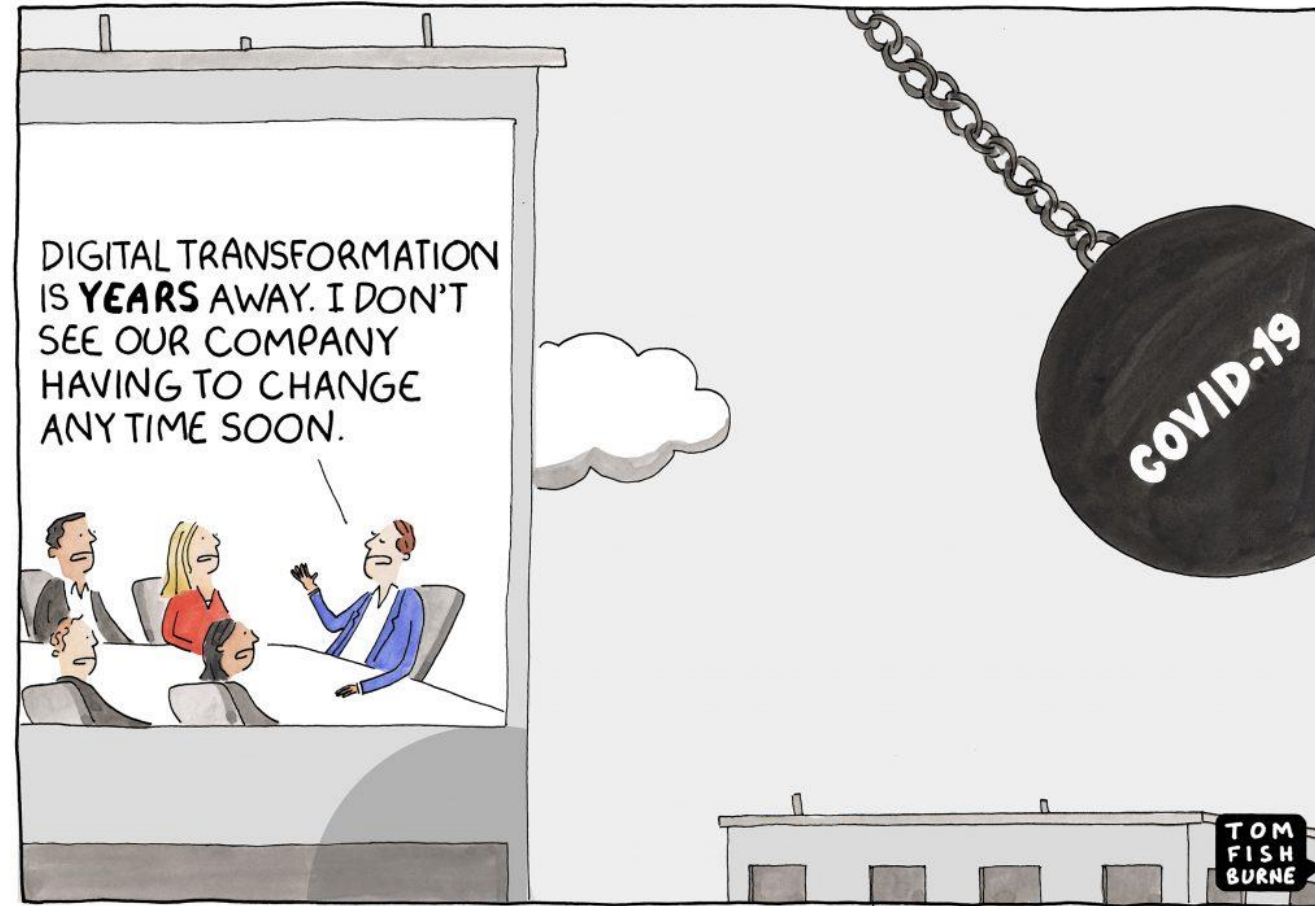
Creating the de facto conversation on edge use case discovery



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**Big  
Strategy  
Picture**

# Big Strategy Picture - "It's life, Jim, but not as we know it"



© marketoonist.com

“Things won’t change as much as they will accelerate. While other crises reshaped the future, COVID-19 is just making the future happen faster.”

- Professor Scott Galloway

# Software is running your business!



## Implications

- This **is** Digital Transformation
  - Systems of Record, **Systems of Differentiation**, **Systems of Innovation**
- From Batch Processing to Interactive → Real time
  - Real time businesses **continuously optimize** in the moment
- The beginning of the **real end** of industrial era concepts
  - Fixed anything (pricing, sizes, choices), Guessing, Inefficiency
- Contextual understanding at scale
  - **Business** networks, **business** events, **business** outcomes
- Online concepts become standard business practice everywhere





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**Industry  
Use cases,  
Needs**

# 100% Demand Side Driven



## Retail



### AnyVision Visitor Analytics

Facial recognition technology can be used to visually track visitors in a public space (e.g., a retail store or mall) and build a detailed and integrated view of what they did, that can then be mined, for example, for retail optimization (store layout, use of digital signage, etc).

[View Use Case](#)

Image Processing, Machine Learning, AI

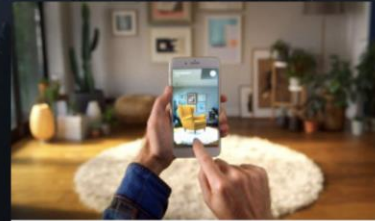


### Chick-fil-A

Fast food retailing can be improved by adding more sensors, analysis and automation into the retail store, but only if that can be done without creating complexity or availability issues for the store operator.

[View Use Case](#)

Remote Operation



### IKEA Place

Retail is rapidly changing driven by the challenge of e-Commerce (Amazon). Traditional retail brings the advantage of an in-store experience with the ability to see and touch a subset of the available products.

[View Use Case](#)

AR, Video Capture, Image Processing, High-bandwidth, Low-latency, IoT

## Smart Cities



### Nvidia NoTraffic

The same technology advances that enable safer and self-driving vehicles can be used to improve traffic control systems by dynamically analyzing local traffic flows with sophisticated image analysis, and then co-optimizing operation with adjacent control systems.

[View Use Case](#)

Image Processing, Machine Learning, AI



### Unmanned Life

Drones provide many new opportunities for on-demand video feeds (in this case for support of disaster response).

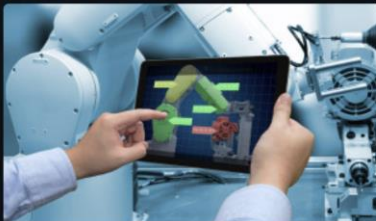
[View Use Case](#)

Video Processing, GPS, High-bandwidth, Low-latency

Our goal with Seamster is to establish a community by sharing knowledge and insight to advance the adoption and proliferation of edge technologies. Your contributions matter greatly.

[Share Your Use Case](#)

## Manufacturing

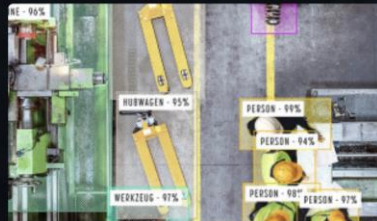


### Cloud SLAM

Augmented Reality solutions often depend on a 3D model of the surroundings so they (1) can associate what the user is looking at with specific physical equipment (e.g., for diagnostic purposes) and (2) can generate an augmented image that can be accurately overlaid over the physical image the user sees.

[View Use Case](#)

3D Modeling, Image Processing, AR



### Gestalt Robotics

Industrial automation is transforming rapidly, building on progress in IoT (connection into the Internet), image processing, machine learning and artificial intelligence, and high-performance networking technology.

[View Use Case](#)

Image Processing, Machine Learning, AI, Low-latency



### Rolls-Royce Engineering

Modern turbine engines are complex, but may require in-person maintenance in non-factory or service depot locations, creating a need for access to comprehensive engineering information and collaboration systems wherever the work is done.

[View Use Case](#)

Global Deployment

## Transportation



### Sfara Safety Response

Driven in part by interest in self-driving vehicles, safety technology is advancing rapidly, coming first in new vehicles, often in the high-end product lines.

[View Use Case](#)

Smartphone Sensors, Cloud, Machine Learning, AI, Low-latency

Community sourced use-cases  
More examples wanted

# Industry Use Cases, Needs – Research

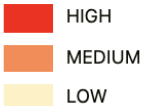


Explore Discuss Research Blog Ecosystem About

Contribute

## Edge Market Research

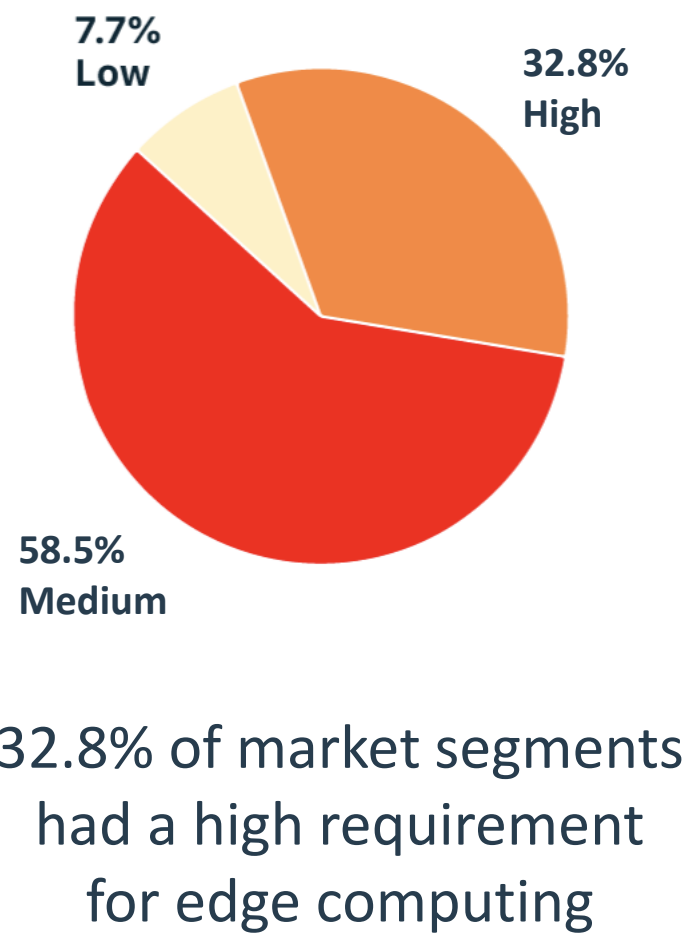
MobiledgeX and Topio Networks, the official Research Partner of Seamster, embarked upon a multi-month research initiative to understand what market segments will benefit the most from edge computing. The findings are enabling enterprises to prepare for the edge. We're opening up the full research findings to the Seamster community. [Learn about our methodology.](#)



**EDGE FACTORS**  
Latency Critical  
Heavy I/O  
Geospatial Knowledge  
Hyper Local Grouping  
Data Residency  
Security

**MARKET FACTORS**  
Large Company Activity  
Innovation  
Market Excitement

	Automotive		Education		Logistics		Retail		Smart Cities	
	EDGE	MARKET	EDGE	MARKET	EDGE	MARKET	EDGE	MARKET	EDGE	MARKET
AR/VR	HIGH	HIGH	MEDIUM	HIGH	MEDIUM	MEDIUM	MEDIUM	HIGH	MEDIUM	MEDIUM
Automation	HIGH	HIGH	MEDIUM	LOW	HIGH	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM
Caching/Distribution	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM	LOW	MEDIUM	MEDIUM	MEDIUM	MEDIUM
Computer Vision	HIGH	HIGH	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM	HIGH	MEDIUM	MEDIUM
Data Ingest/Analysis	HIGH	HIGH	HIGH	MEDIUM	HIGH	HIGH	MEDIUM	HIGH	MEDIUM	HIGH
Image/Video Processing	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM	LOW	MEDIUM	MEDIUM	MEDIUM	LOW
IoT	MEDIUM	HIGH	MEDIUM	MEDIUM	MEDIUM	HIGH	MEDIUM	HIGH	MEDIUM	HIGH
Location Mapping	HIGH	HIGH	MEDIUM	MEDIUM	MEDIUM	HIGH	MEDIUM	HIGH	MEDIUM	HIGH
ML	MEDIUM	HIGH	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM	HIGH	MEDIUM	HIGH
NLP	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM	LOW	MEDIUM	LOW	MEDIUM
Personalization/Targeting	HIGH	MEDIUM	HIGH	LOW	MEDIUM	LOW	MEDIUM	MEDIUM	HIGH	LOW
Robotics/Drones	LOW	HIGH	HIGH	HIGH	HIGH	HIGH	MEDIUM	HIGH	HIGH	HIGH
Speech	MEDIUM	LOW	MEDIUM	LOW	MEDIUM	LOW	MEDIUM	LOW	LOW	LOW





Topio Networks

Dashboard

Subscription Manager

Research

Events

Add/Request Profile

Blockchain Landscape

Edge Computing Landscape

Edge AI Landscape

Data Platforms/Management L...

Connected Vehicles Landscape

Work with Topio


WHEN

Thursday,  
May 07, 2020  
9AM PDT | 12PM EDT


WHERE

LIVE ONLINE

SPEAKERS




**Phil Marshall**  
Chief Research Officer at Topio Networks




**Geoff Hollingworth**  
Chief Marketing Officer at MobileEdgeX

HOST



**Gavin Whitechurch**  
CoFounder and EVP at Topio Networks

PARTNER




MASTERCLASS

## Edge Computing in Context: Edge Use Cases & Micro Markets

Seamster is a global initiative exploring how edge computing is being used today. In support of Seamster's mission, Topio contributed an extensive market analysis, examining the edge drivers and market size in 23 vertical markets across 13 different technologies – a total of 299 different micro-market segments. This data – the most extensive publicly available edge micro market analysis – will be released on the Seamster platform on May 7th, 2020.

This webinar will give a one hour deep dive into the findings, with comments from Topio's analysts and Seamster leadership. Key takeaways include:

- Understanding the market size and drivers for edge computing
- Key markets for edge computing by micro-market activity & edge computing requirement.

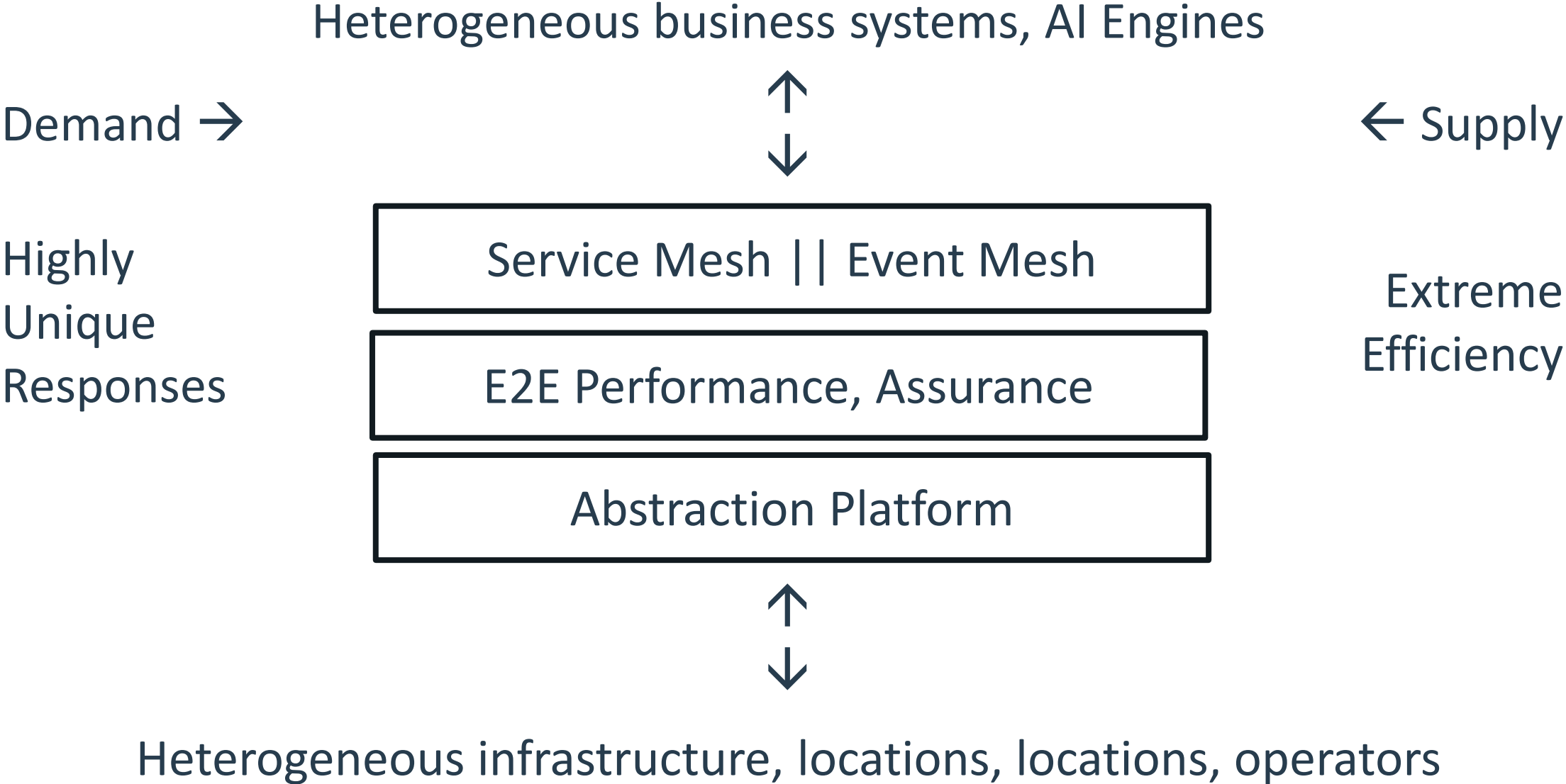




# Developer Perspective

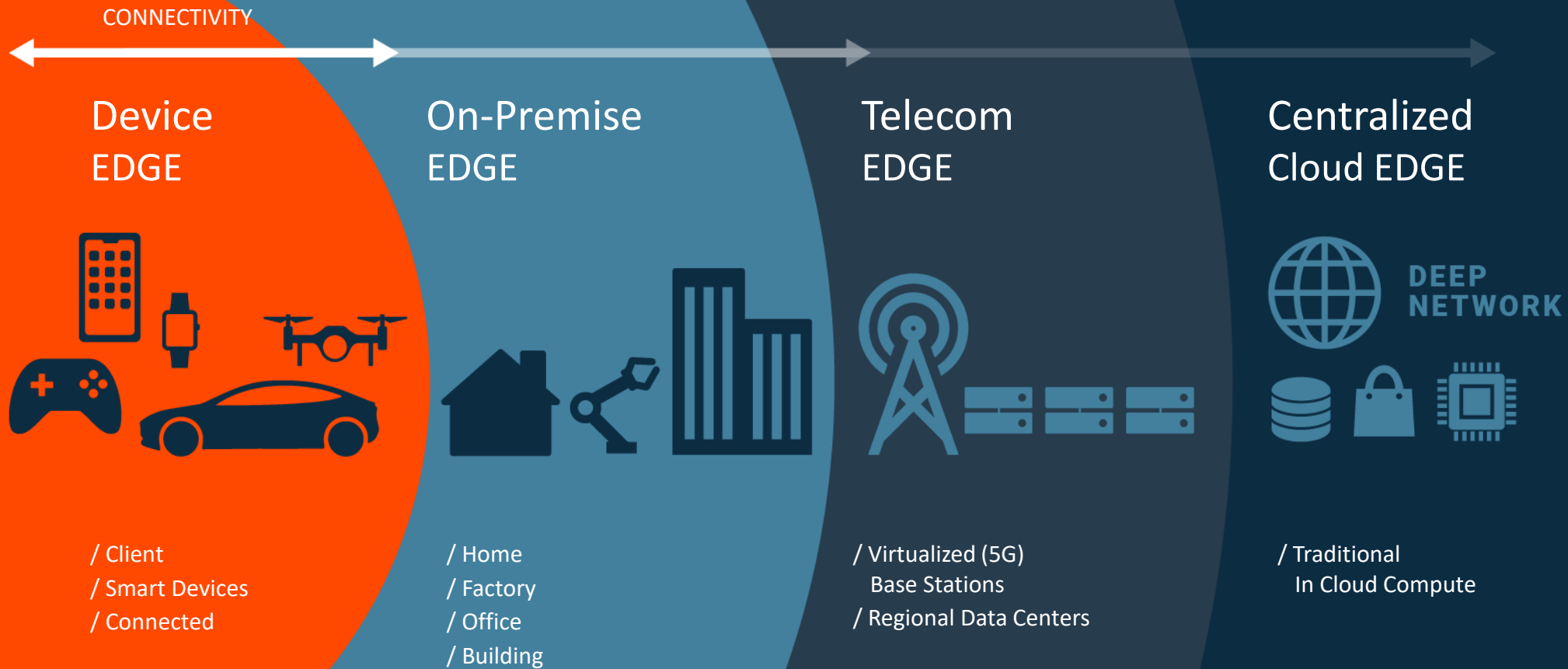
## (These) Developer Implications

- These developers work at companies that excel at **systems of differentiation** and **systems of innovation**
- Life is mainly **asynchronous** and **heterogenous**
- **Scale** and **immediacy** drive **distribution**
- AI drives **augmented interpretation**
- **Need** for **independence** from **suppliers**
- **Need** to meet them **where they are today** and **how they work**
- **Need** for **policy driven operation**, **performance** and **assurance**



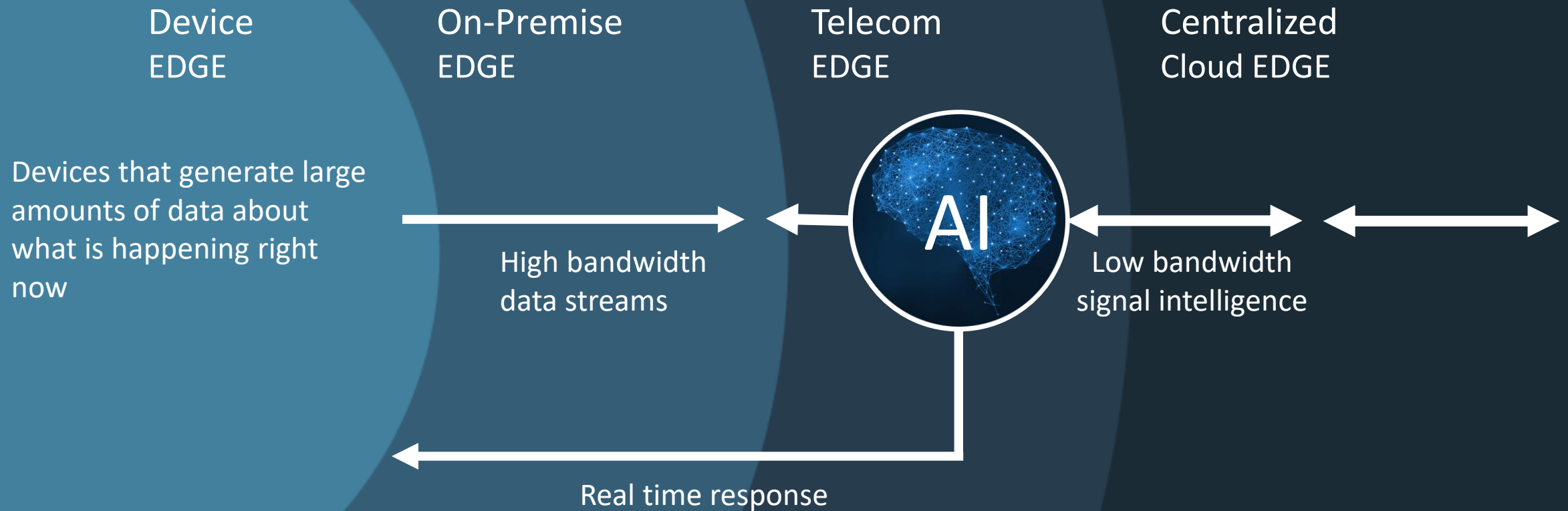


# Edge Locations DNA



# Edge Use Case DNA

Asynchronous, Time-sensitive, Volume, Heterogeneous





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**Q&A**

# Industry Use Cases, Needs – Retail Example



## A Lot More Companies Are Opening Stores Than Closing Them ... And It's Accelerating

## The Rising Costs of Online Acquisition Are Squeezing The Margins Out Of eCommerce



<https://www.perchinteractive.com/retail-marketing-blog/webinar-retail-product-engagement-marketing-covid-19>

VENTURE BACKED STARTUPS

CUSTOMER ACQUISITION

- Facebook/ Instagram CPAs are up 300% over last 5 years
- Organic reach on Instagram is around 1% and falling. Facebook is 1.2% as of 2018 and predicted to to near 0%

its organic results  
d making ads less

piece on platform  
n their advertising

## In-Store Customers Return Purchases 3-4x Less

## 82% of Millennials and 67% of Gen Z Prefer Shopping In-store to Online.

### Retail return rates

Shoppers return items bought online at a far higher rate



Source: WSJ

"Increasingly, the primary role of the store will not be to sell product but rather to **deliver the most powerful, and emotionally galvanizing experience possible, to create an essential level brand affinity, trust and allegiance** – none of which necessarily results in immediate, or location-specific revenue recognition."

– Doug Stephens, Retail Prophet

