

# The New Open "Edge"

IOT+Telecom+Cloud+Enterprise+Industrial

 LF EDGE

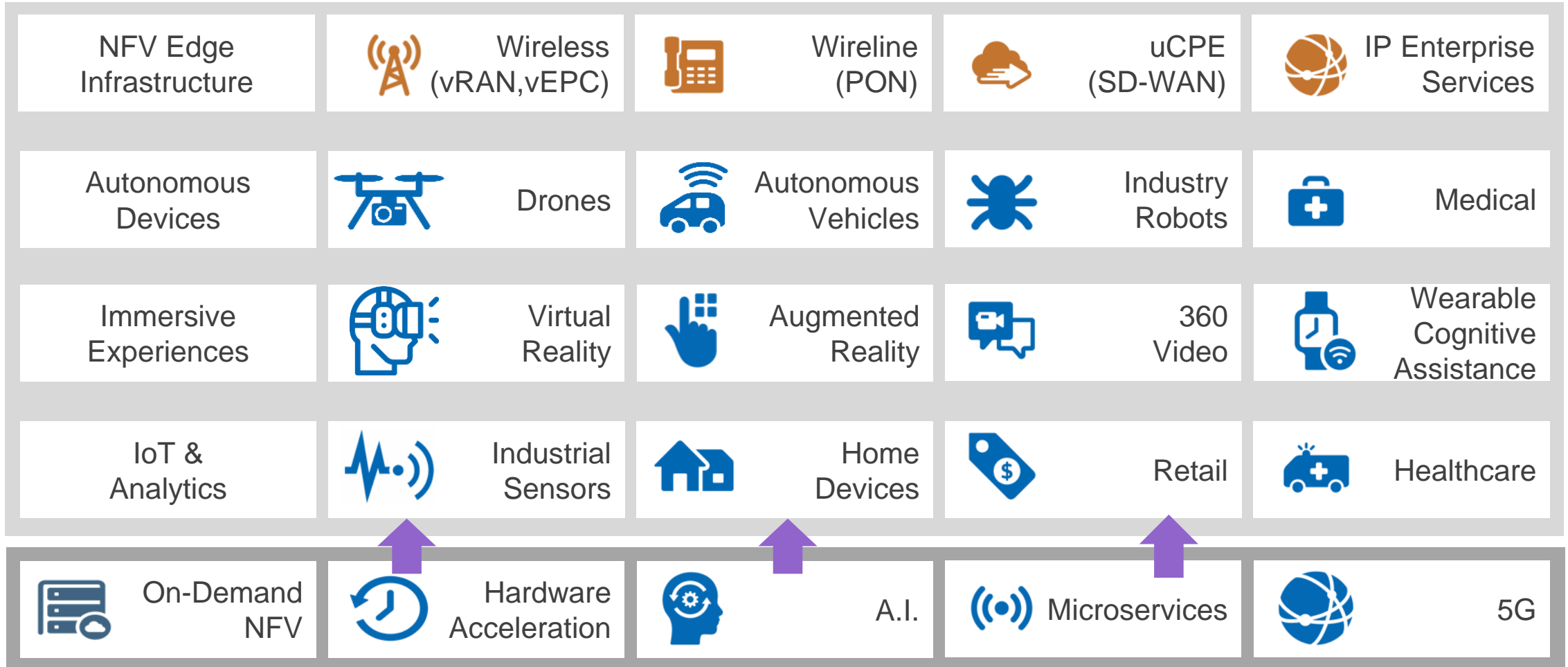
Tina Tsou  
LF Edge Board Chair  
June 2022

 THE **LINUX** FOUNDATION

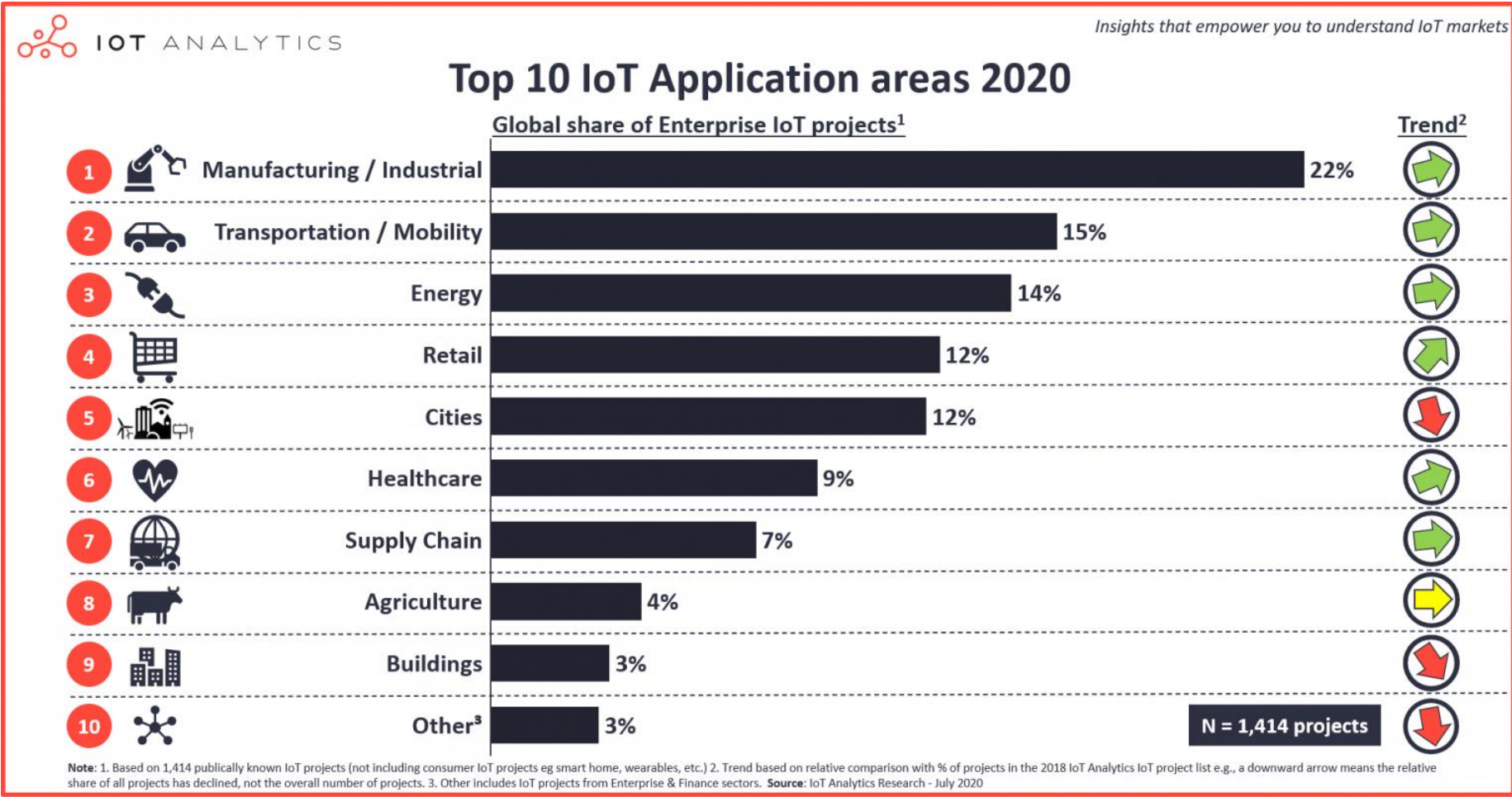
# Why Edge

# Emerging Edge Applications & Convergence of Technologies

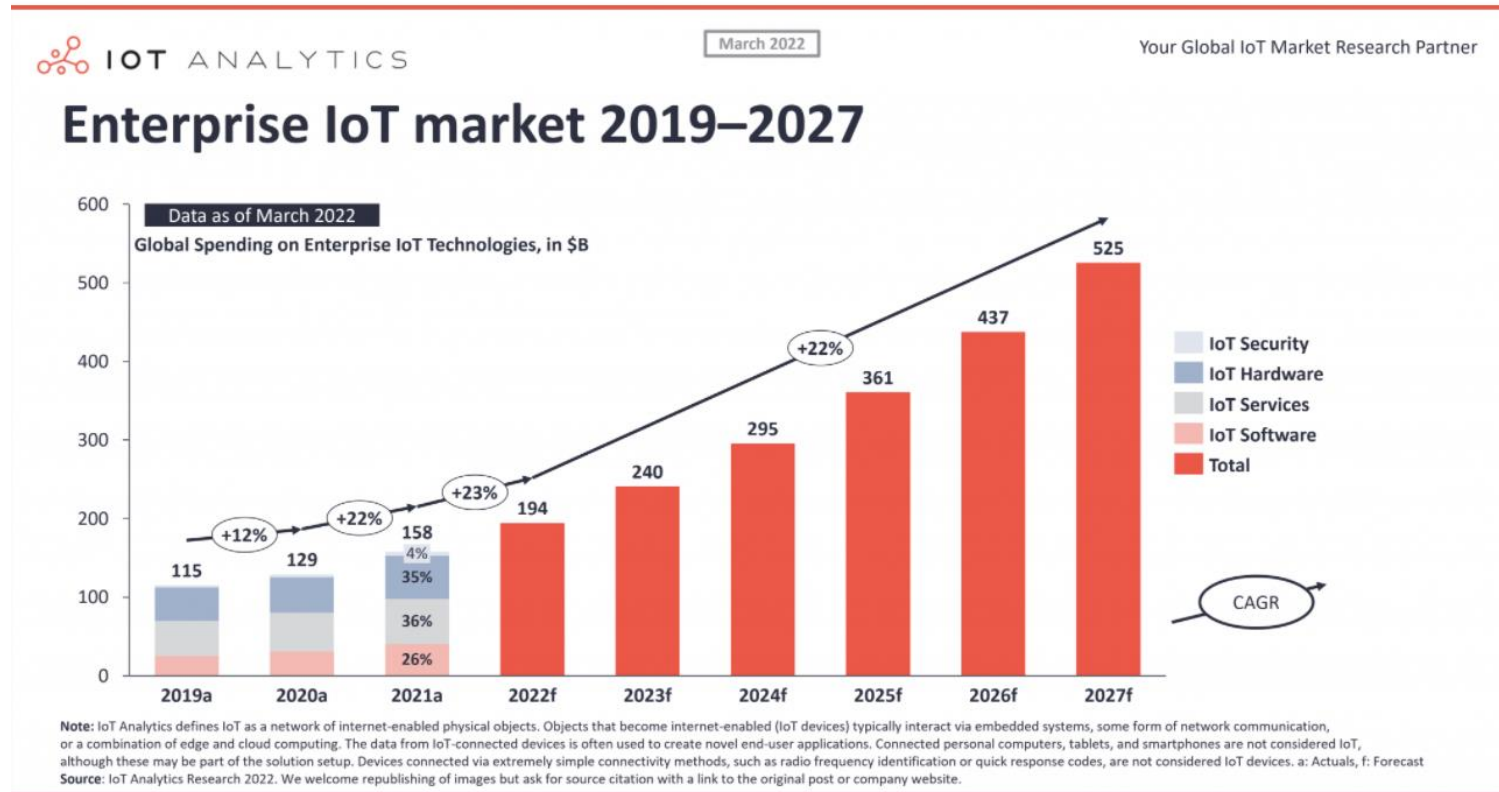
are demanding & fueling lower latency + accelerated processing



# IOT Killer apps 2020



<https://iot-analytics.com/iot-market-size/>

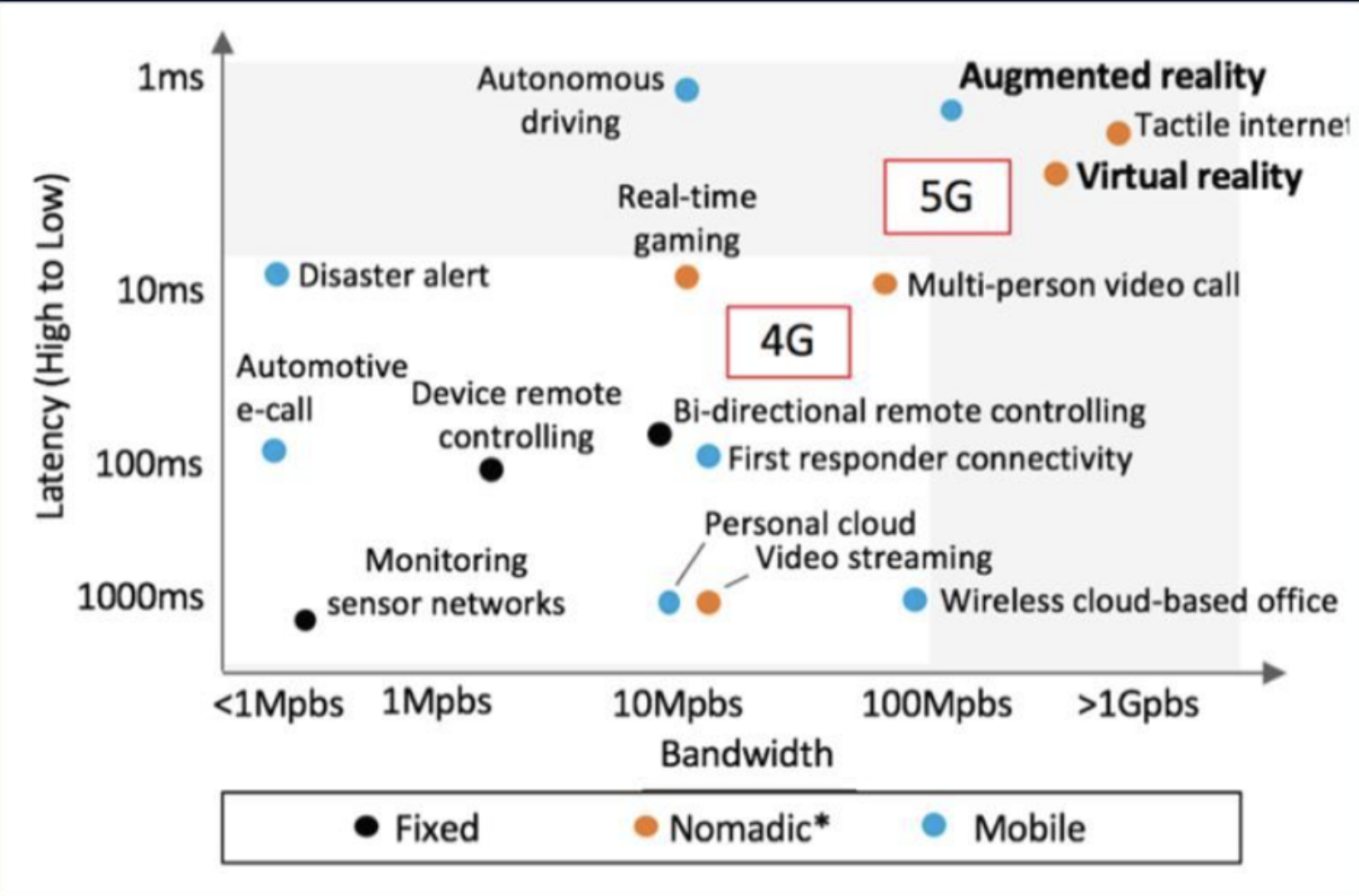


# Slide on McKinsey Report on IoT

<https://www.mckinsey.com/business-functions/mckinsey-digital/our-insights/iot-value-set-to-accelerate-through-2030-where-and-how-to-capture-it?cid=other-eml-nsl-mip-mck&hlkid=553ed7508f214bd5ba811684d33866a2&hctky=11384639&hdpid=69d8e649-dc7d-4735-ab44-f74c92f1a37d>



# AT&T : Projected network demands of emerging technologies !



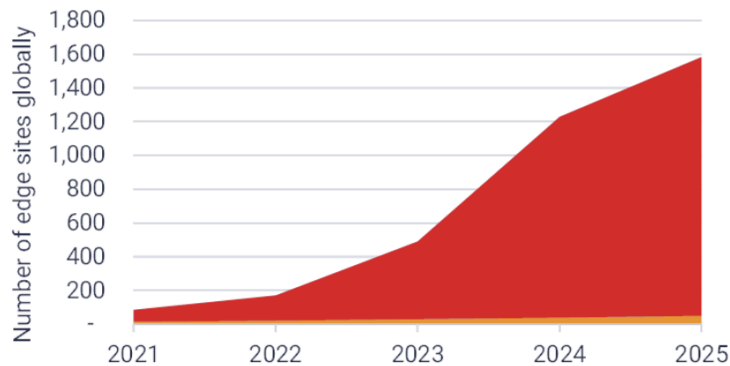
	Level of Mobility	Markets Captured
Accelerated Uptake	Truly Mobile (Cellular)	<ul style="list-style-type: none"> <li>Retail</li> <li>Engineering &amp; Field Operations</li> <li>AR Entertainment</li> <li>Military/Public Service &amp; Safety</li> <li>Real estate</li> </ul>
Base Case	Nomadic (Wi-Fi)	<ul style="list-style-type: none"> <li>Education</li> <li>Healthcare</li> <li>Video Entertainment</li> <li>Live event streaming</li> </ul>
Delayed Uptake	Fixed (Ethernet)	<ul style="list-style-type: none"> <li>Video gaming</li> </ul>

\*Nomadic: Connectivity is wireless but not ubiquitous - limited to disjointed hotspots

[https://stlpartners.com/research/forecasting\\_capacity\\_of-network-edge-computing/](https://stlpartners.com/research/forecasting_capacity_of-network-edge-computing/)  
<https://stlpartners.com/research/edge-computing-market-sizing-forecast/>



Number of edge sites globally by location type

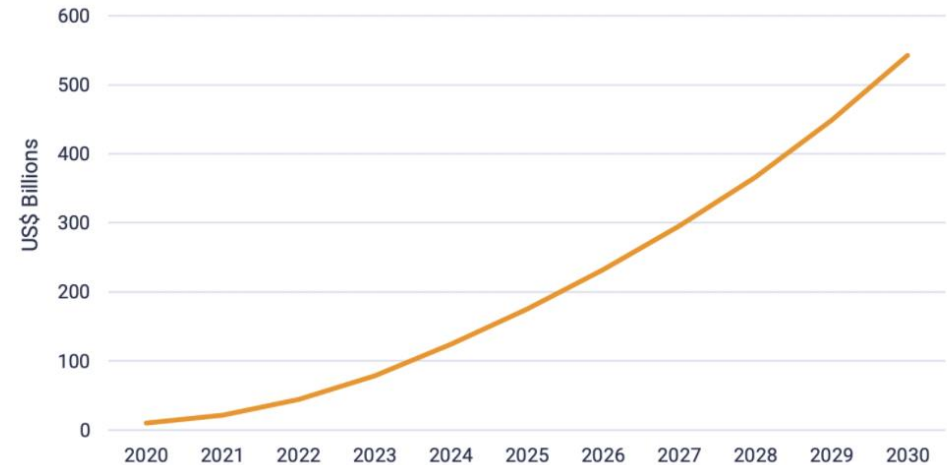


■ Access aggregation ■ Transport aggregation

Edge site within access network that provide functionality across multiple access points (e.g. base stations)

Edge site within transport network; regional/metro nodes on a national backbone

Total edge computing revenue 2020-2030





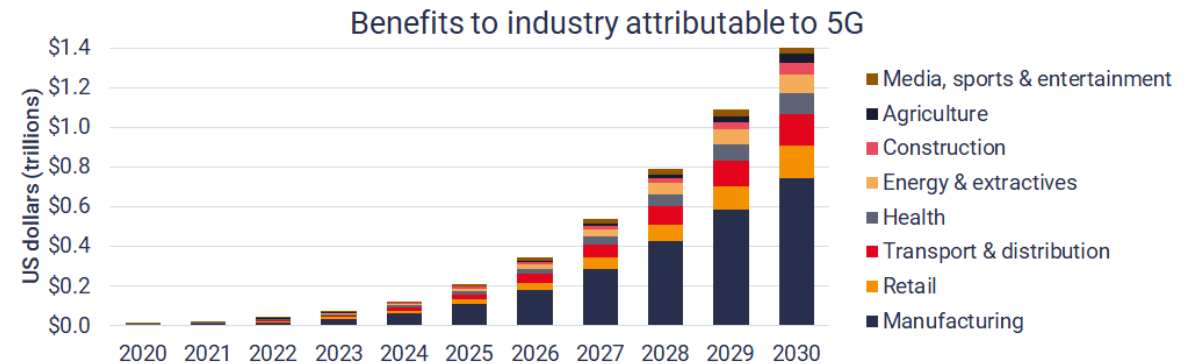
# 5G and Edge Critical in the Next Battle, a new normal!

## Edge is 4X the Size\* of Cloud Market !

“As businesses and governments establish their own new normal, **5G and Edge computing** will be necessary to deliver the automation, performance and cognitive insight required by many industries—including manufacturing, healthcare, energy and utilities, among others. Telecom operators will need to embrace open ecosystems to externalize innovation and accelerate new services.”

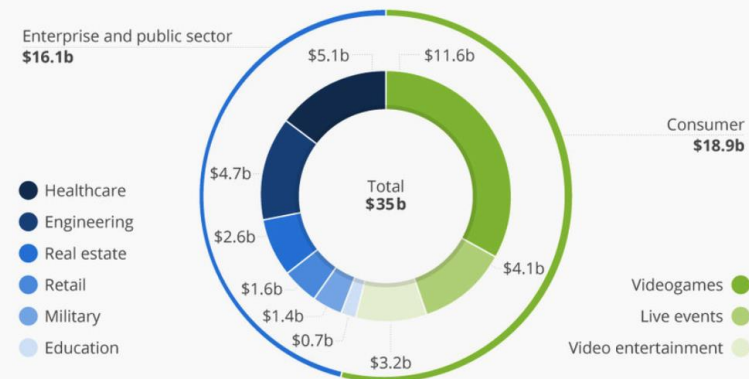


<http://www.chetansharma.com/publications/edge-internet-economy/>



### The Diverse Potential of VR & AR Applications

Predicted market size of VR/AR software for different use cases in 2025\*



\* Base case scenario  
Source: Goldman Sachs Global Investment Research

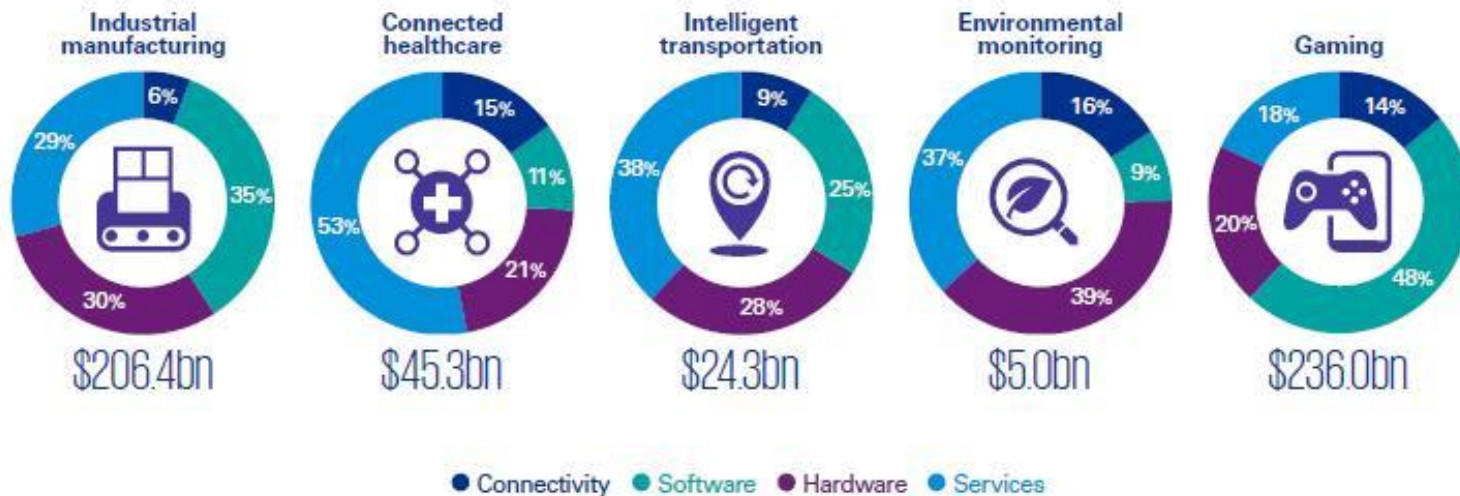
statista

How VR and AR will be used in 2025

Image: Statista

# Top 5 Edge Markets - KPMG

The US\$517bn 5G+Edge ecosystem across just five industries



1. Industrial Manufacturing
2. Energy (Oil & Gas, Utilities)
3. Commerce/Retail
4. Homes (including B2B2C use cases)
5. Automotive
6. Fleet/Transportation
7. Logistics
8. Building Automation
9. Cities and Government
10. Healthcare

## Table of Contents

### Introduction

- Recap of LF Edge: What and Why
- Recap taxonomy from last paper, reference link
- Stress the goal including enabling tech providers and end users to focus on value add
- OSS isn't about giving your IP away
- PoV on ideal edge tech stack
  1. Key tenets and architectural concepts
  2. Why open really matters, e.g. trusted data
- OT and IT convergence
  1. Why OSS and Linux in general is critical across the board
  2. Highlight differences between OT and IT
- Overall trends, e.g. software PLCs, physical to virtual separation of concerns

### •Scaling deployments in the real world

- Key principles
  1. What's different at the edge + related tradeoffs
- Difference between application and infrastructure management
  1. Importance of separating these two planes in architecture
- Four main paradigms for edge management
  1. Data center (metro/regional)
  2. Distributed edge cloud
  3. Client edge
  4. Constrained edge
- Related contributions from each project (make sure in each to highlight differences between application and infrastructure management)
  1. EVE - bottoms up approach, extending cloud-native to lightest hardware possible
  2. Open Horizon - overall approach and bleeding into mobile and constrained devices
  3. SDO
  4. etc...

### •Security

- OSS and security, how it works, overall trends (stats are ideal)
  1. What's different at the edge
  2. Key threat vectors, put into context with real-world breaches
  - 3.
  4. Considerations at data, network, compute, and code levels
  5. Vision for data trust vs. just security - e.g. Alvarium
  6. Related contributions from each project

### •Edge networking

- Overall trends and tradeoffs in edge networking, from constrained devices to regional edges
- Detailed considerations on WANs, especially private 5G (Akraino, Baetyl, Edge Gallery Focus)
- Considerations for local area networking / distributed devices (e.g. "fog"... All projects but focus on IoT frameworks)
- Related contributions from each project

### •IoT

- TBD (EdgeX and Fledge focus)

### •Edge analytics

- Inference vs training
- Federated learning
- TinyML (eKuiper input)

### General refresh on projects

1. 2021 project milestones - overall summary
2. 2022 focus areas - by project
3. Examples of market adoption
4. Examples of cross-project collaboration