

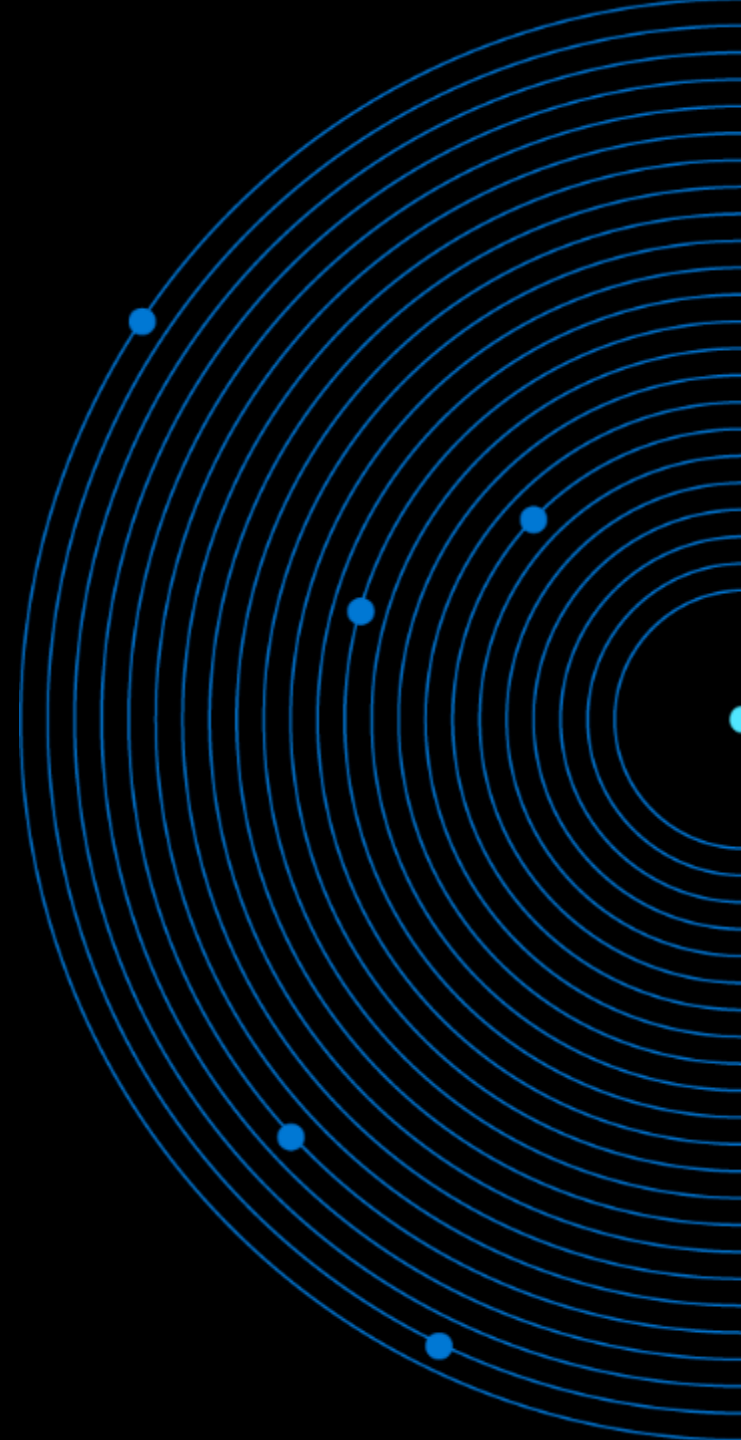


# 5G Connected Edge Cloud for Industry 4.0 Transformation

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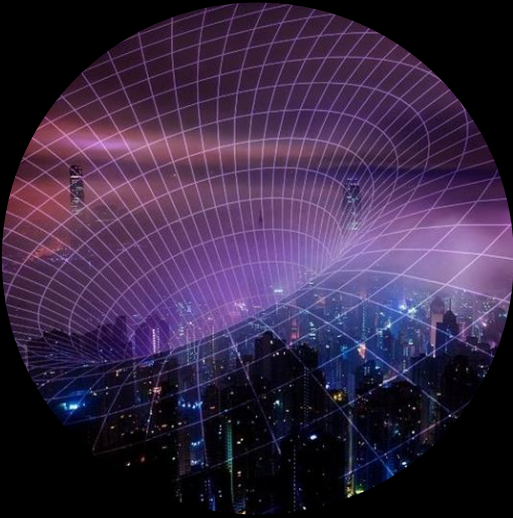
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Principal Analyst



# Microsoft 5G Edge vision

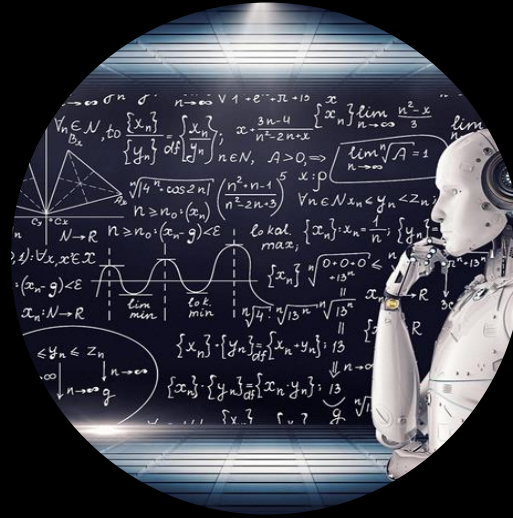
## Intersection of the virtual and physical world



Ubiquitous Compute

**5G** + Edge Zones

**5 billion**  
Cognitive Services  
transactions per month



Real time action on AI/ML insights

**5G** + Cognitive Services + IoT

**6.2 billion**  
IoT devices deployed  
with Azure RTOs



Limitless Connected Experiences

**5G** + Teams + Mixed Reality + XCloud

**150 billion**  
Messages month  
through IoT Hub

**1 million**  
Machine Learning  
experiments per month

# Edge Applications are being actively deployed across industries

## Cellular technology scenarios across industries

### Transportation



- Autonomous vehicles
- Driver assistance
- Remote assistance
- Car to car communication
- Traffic control

### Manufacturing



- Workplace Safety
- Condition Based Monitoring – Retrofit
- Connected Product Manufacturing
- Connected Field Service
- Product As a Service

### Retail



- Inventory Management
- Store Analytics
- Vending Machines

### Healthcare



- Inventory Management for Medical Supplies
- Remote patient monitoring
- Cold Chain supply tracking

### Smart City



- Smart Lighting
- Smart water
- Smart parking
- Smart Waste
- Air quality monitoring

### Agriculture

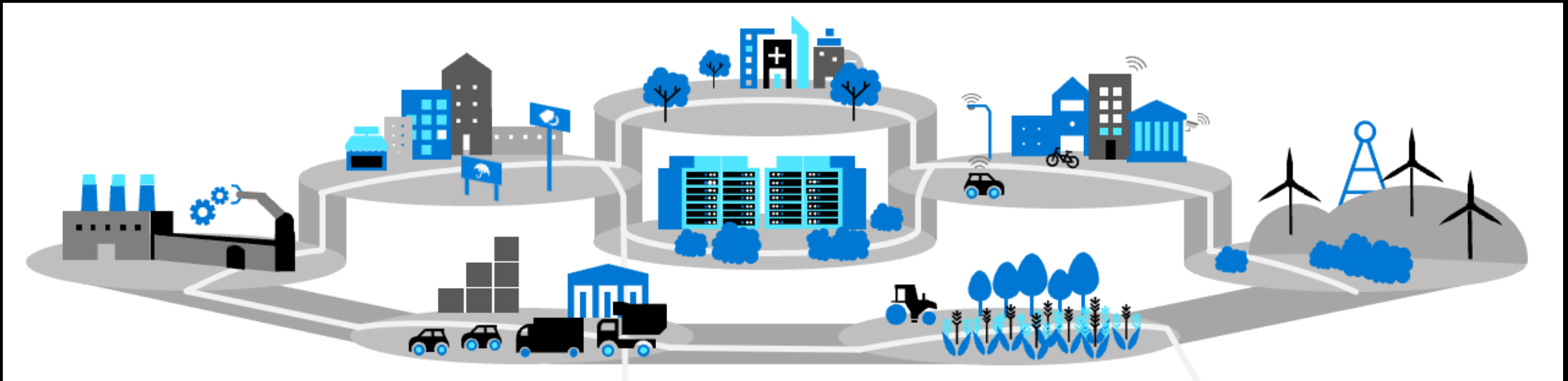


- Smart Equipment
- Precision Farming
- Connected Livestock

### Energy



- Utilities Monitoring (Gas, water, Power)
- Grid assets management
- EV Smart Charging





ATTABOTICS



## Warehouse automation with AGVs

Improved operational efficiency leveraging  
Automated Guided Vehicles (AGVs) and 5G for  
material handling across factory floor





TAQ TILE



## Mixed reality immersive training and assistance

Provide real-time instructions to workers through guided tasks, feedback to digital twin and improve learning, task consistency, worker safety and productivity



# Realtime workplace safety and productivity

Find things and people to take action and improved safety and productivity, leveraging real-time streaming video analytics and integration with business process

# Ultra-low latency compute

## Azure Edge Zones



### Azure datacenters

Azure Kubernetes Service  
Virtual Machines  
Machine Learning  
Cognitive Services  
IoT Hub

### Azure Edge Zones

Media  
Data processing  
IoT

### Azure Edge Zones with carrier

DevOps  
Connected cars  
Online gaming  
Events/cashless  
Tele-medicine  
IoT

### Azure Private Edge Zones

Smart factories  
Smart agriculture  
Security  
Robotics/warehousing  
Remote Connectivity  
IoT

# Azure for Operators
































Your customer, your service, powered by our technology

Carrier

Microsoft

Partner

## Communications Service Providers

Operator assets	 Ideation/innovation	 RAN and Spectrum	 Network	 Customers	Operator ecosystem		
Service Chains	 Dedicated Edge Compute	 Network Edge Compute	 Any G Mobile Core aaS	 E2E Network Slicing/Network as a Service	Managed Services partners		
Business intelligence	 Azure Cognitive Services	 Azure Machine Learning	 Azure DevOps	 Service orchestration	 Azure IoT	 GitHub	OSS/BSS partners
Composable Network Functions	 Network Functions	 IMS/VoLTE	 Packet Core	 RAN	Network equipment providers and ISVs		
Common cloud management and infrastructure	 Azure VMs	 Azure Kubernetes Service	 Azure Storage and DB	 Azure Arc	NFVi partners		
	 Azure Sphere	 Azure Private Edge Zones	 Azure Edge Zones with Carrier	 Azure Edge Zones	 Azure Public Cloud		
Global Transport	 Global Backbone	 Express Route	 Satellite	 TVWS	Transport partners		

Deployment partners

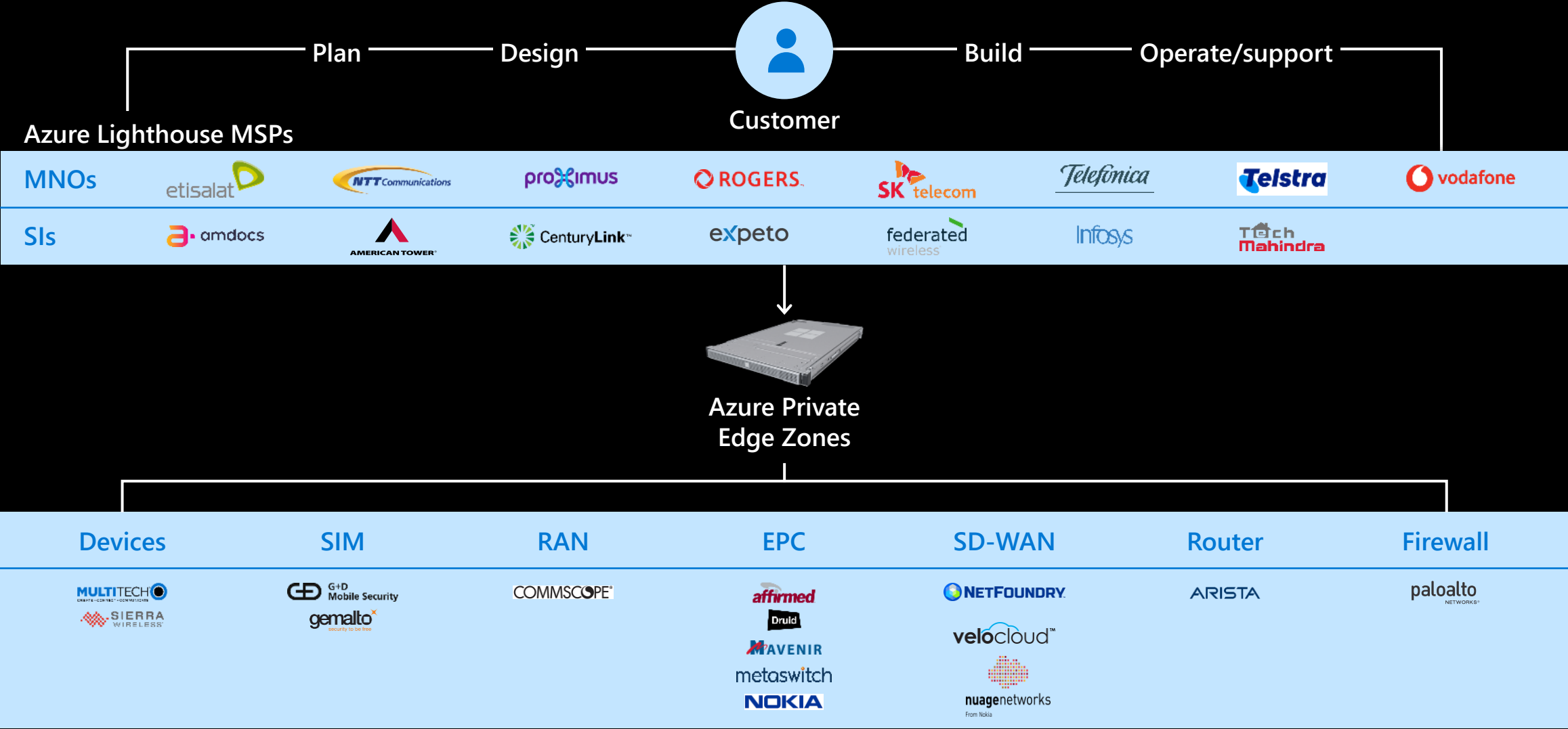
Deployment partners



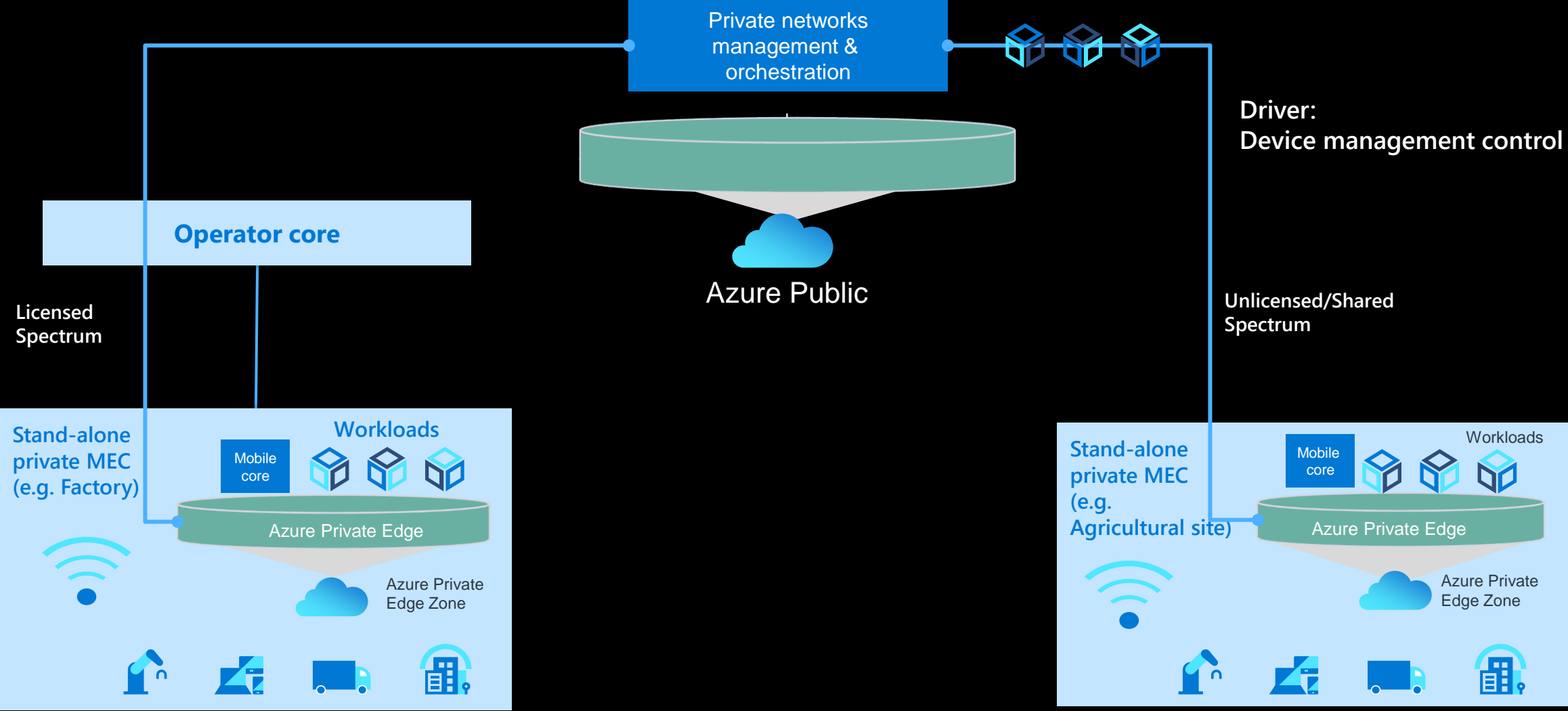
# Key principles of Microsoft's Operator strategy

- 1 We are bringing the power of cloud to future-proof the operators' network, driving down costs and opening new revenue streams
- 2 We will partner—operators own customer, brand, ideation, experience
- 3 We remain a platform business—our focus is on moving workloads to a carrier grade cloud
- 4 We will meet operators where they are—on-premises, at the edge or in the cloud
- 5 Support the ecosystem—we will work closely with providers of RAN, Core, CNFs and OSS/BSS to integrate and innovate
- 6 It is a journey—we will act as a trusted partner to help operators transform at a pace that makes sense for their business

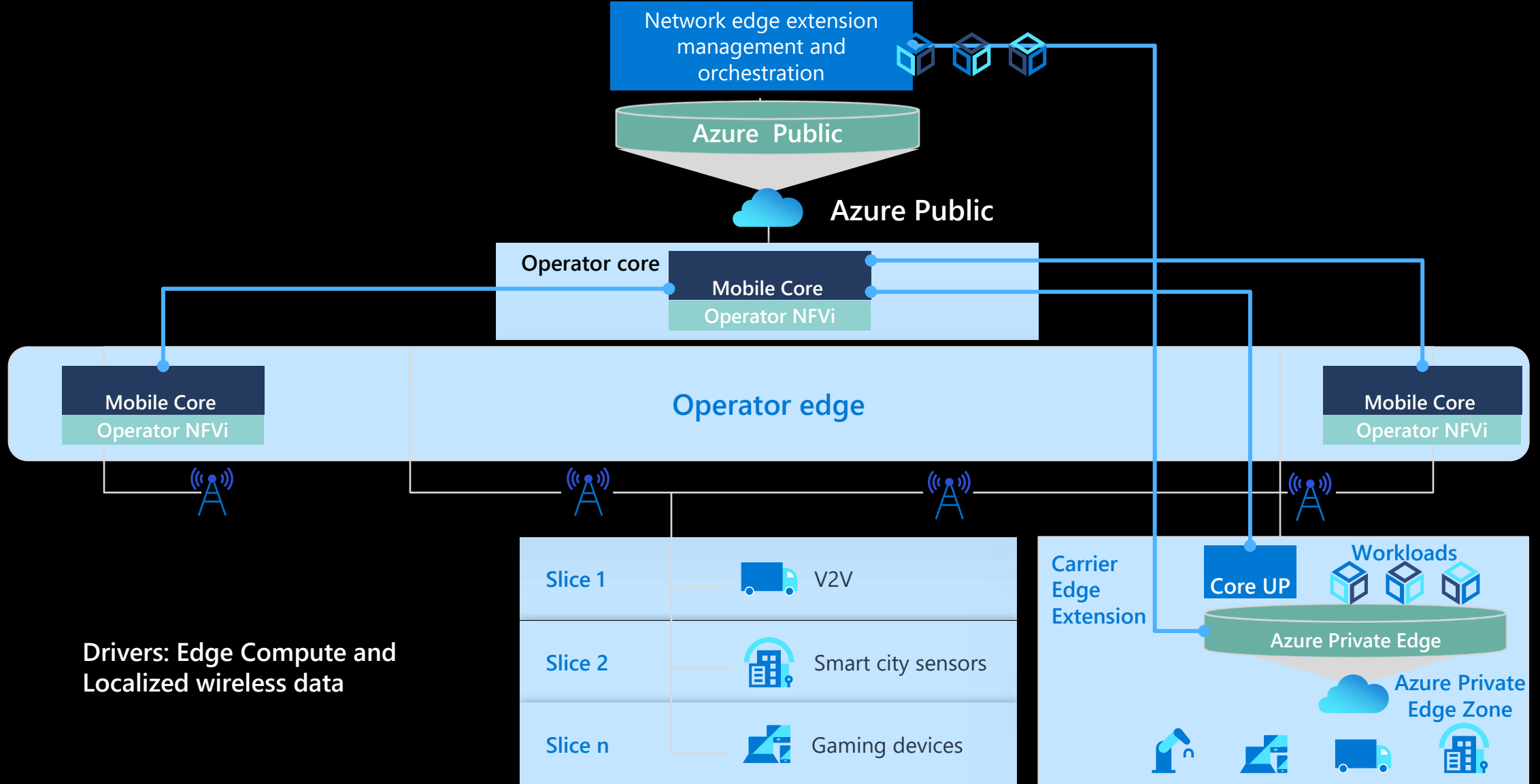
# MEC Partners



# Scenario: Private Networks – Stand Alone



# Scenario: Private Network - Carrier Edge Extension





# Beginning of the Journey

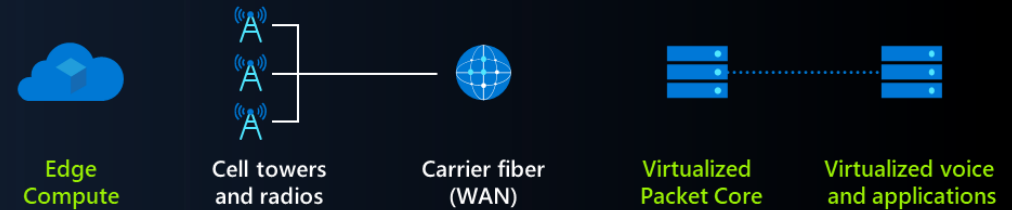
## Software-enabled services

- Cloud at the edge
- Virtualized packet and voice core

Enterprise

Edge

Core



## Cloud-based functions

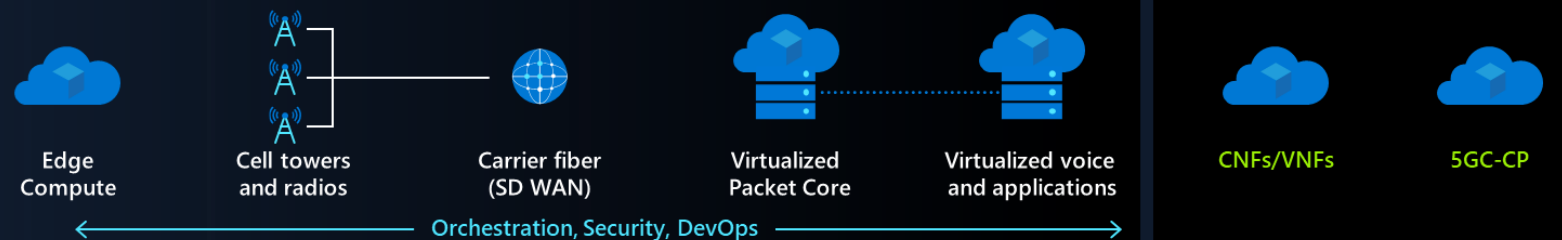
- 5G control plane in the cloud
- Voice and communication functions as a service

Enterprise

Edge

Core

Cloud



## Cloud-enabled services

- Hybrid control plane
- Network slicing
- Next generation edge services

Enterprise

Edge

Core

Cloud

