How Edge Computing can power the next mobile internet economy

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CHALLENGES FACED BY COMMUNICATION NETWORKS TODAY

Reliability

50% Higher Reliability Required

Speed

80% Higher Speed Required

QoE

4x Higher QoE Needed

RoI

40x Cost Reduction Needed

Source: Cisco VNI Global Traffic Forecast, 2016–2021.

Extra human workforce …

will not help. It is impossible for human to analyze petabytes of data within seconds to take real-time decisions.

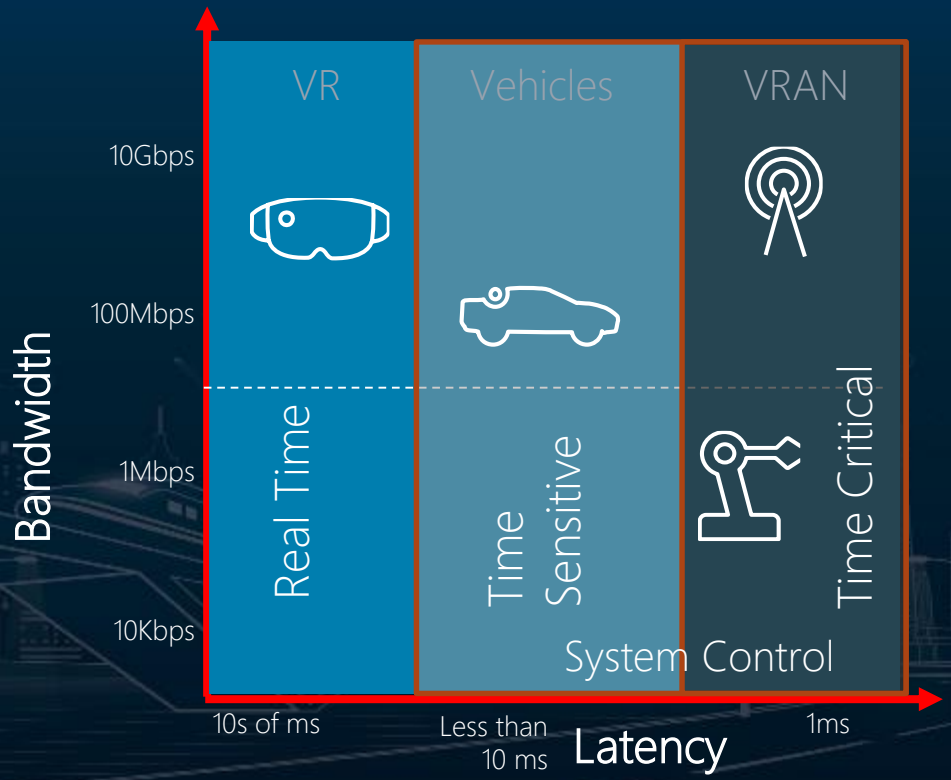
Traditional tools …

will not work. Traditional tools don‘t have the power to analyze heterogeneous data at ultra high speed.

Current solutions …

will not suffice. Existing solutions are inflexible and can’t change their course of action based on circumstances.

LOW LATENCY COMMUNICATION: CAN IMPROVE CUSTOMER EXPERIENCE



Existing Services

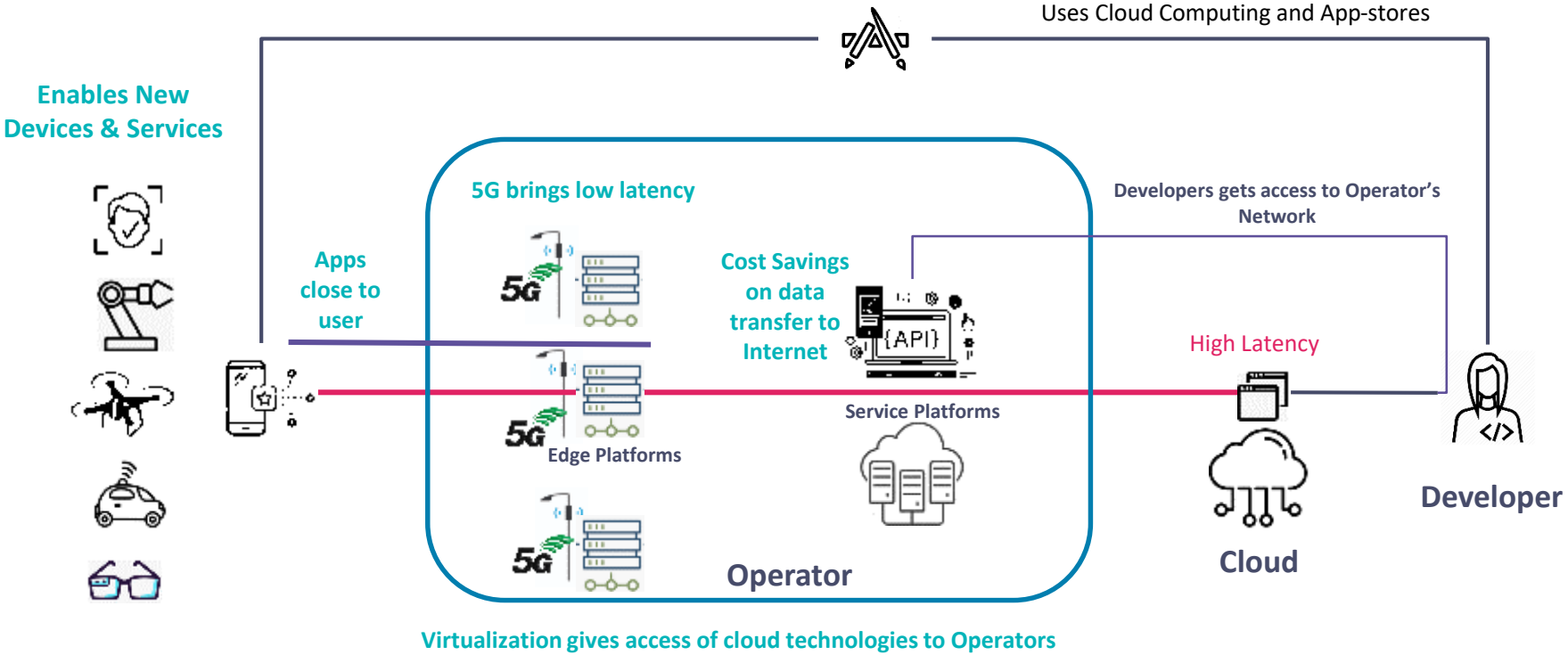
- Low latency
- zero jitter
- Reliable packet delivery
- Flexibility Dynamics

Co-existence with Non-Deterministic

LOW LATENCY APPLICATIONS ARE BECOMING PERVASIVE

Use cases		Latency [ms]	Jitter [ms]	Packet loss [%]	Data rate [Mbps]
Real-time gaming		< 10	< 5	< 0.1 %	< 1
Real-time video		< 3 ~ 10	< 2 ~ 5	Near-lossless	100 ~ 20,000
Robotics and industrial automation	Equipment control	< 1 ~ 10	< 0.2~2	Near-lossless	< 1
	Human safety	< 1~ 10	< 0.2 ~ 2	Near-lossless	< 1
	Haptic technology	<1~5	<0.2~2	Lossless	<1
	Drone control	<100	<10	Lossless	<1 >100 with video

WHAT IS EDGE COMPUTING?



Virtualization gives access of cloud technologies to Operators

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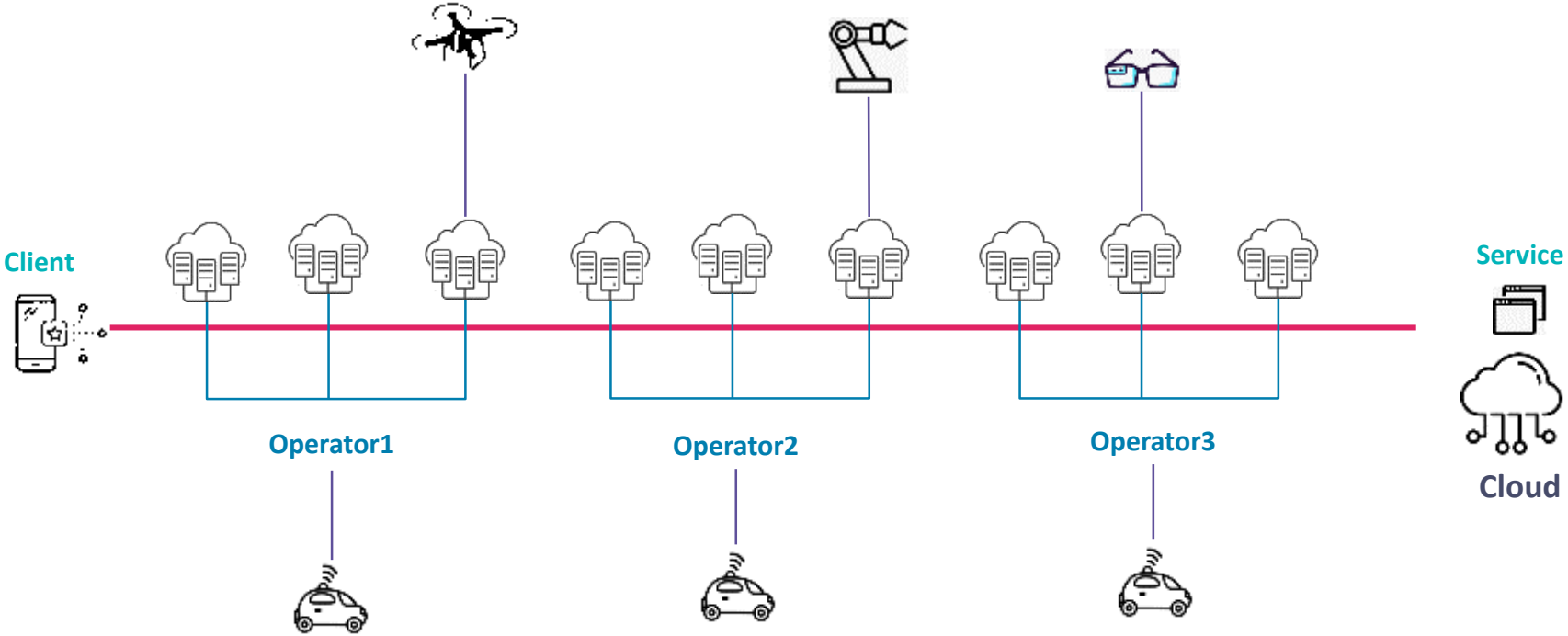
EDGE COMPUTE: DISTRIBUTING CLOUD?

Distributing Smaller Clouds throughout the distance



Telecom Operators can collaborate on Network (Roaming), they can also collaborate on “compute” (edge clouds)

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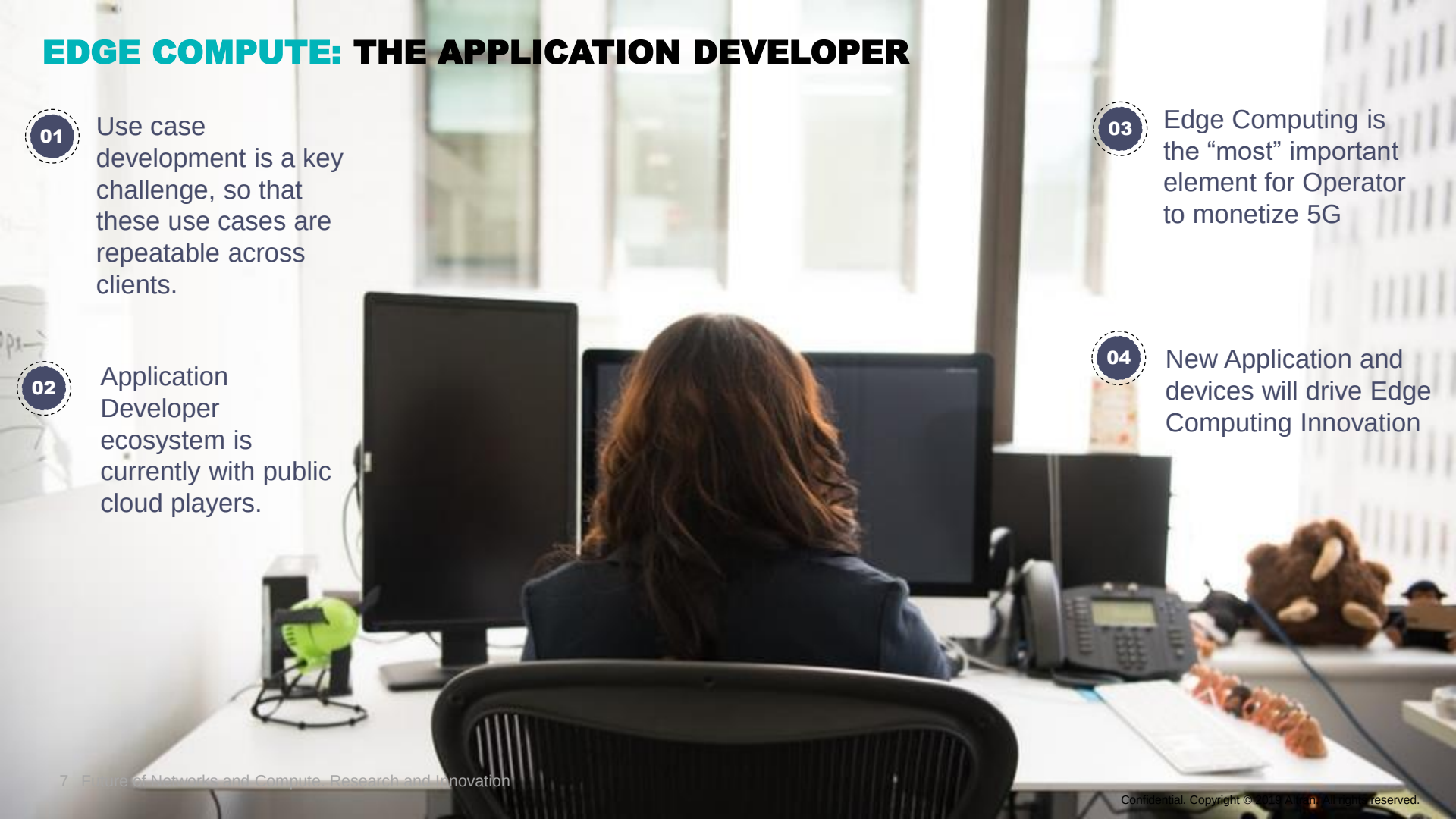
EDGE COMPUTE: THE APPLICATION DEVELOPER

01 Use case development is a key challenge, so that these use cases are repeatable across clients.

02 Application Developer ecosystem is currently with public cloud players.

03 Edge Computing is the “most” important element for Operator to monetize 5G

04 New Application and devices will drive Edge Computing Innovation



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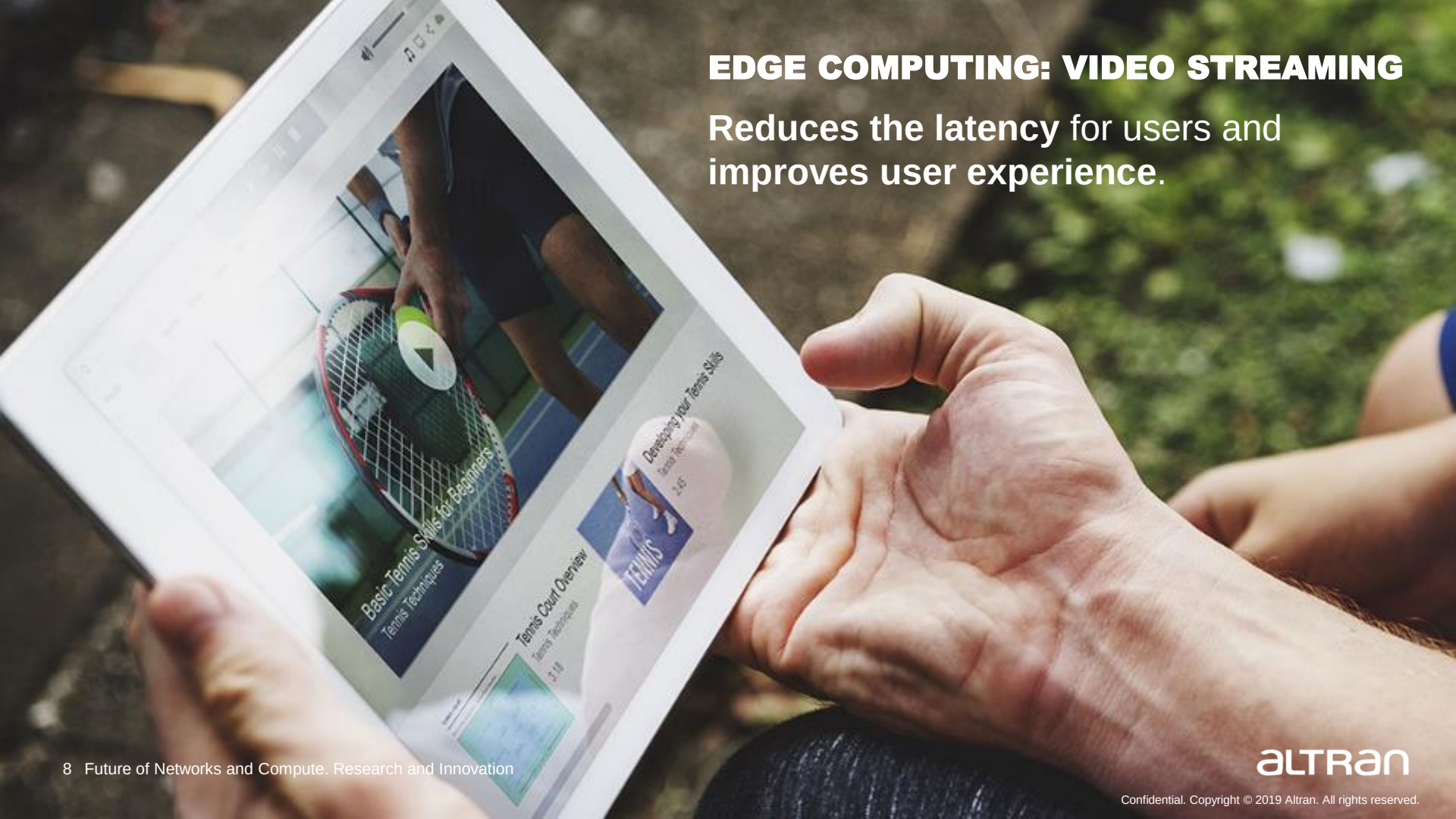
EDGE COMPUTING: VIDEO STREAMING

Reduces the latency for users and **improves user experience**.



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EDGE COMPUTING: A/R & V/R

Low Latency improves the Quality of Experience

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EDGE COMPUTING: SMART MANUFACTURING

Industrial IoT and derive productivity improvement through analytics at the edge and save backhaul data transport costs

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EDGE COMPUTING: STADIUMS

Connected Fan experience through real-time video experience applications

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EDGE COMPUTING: DRONES

Edge Computing can enhance and optimize 5G connectivity for efficient performance of autonomous drones

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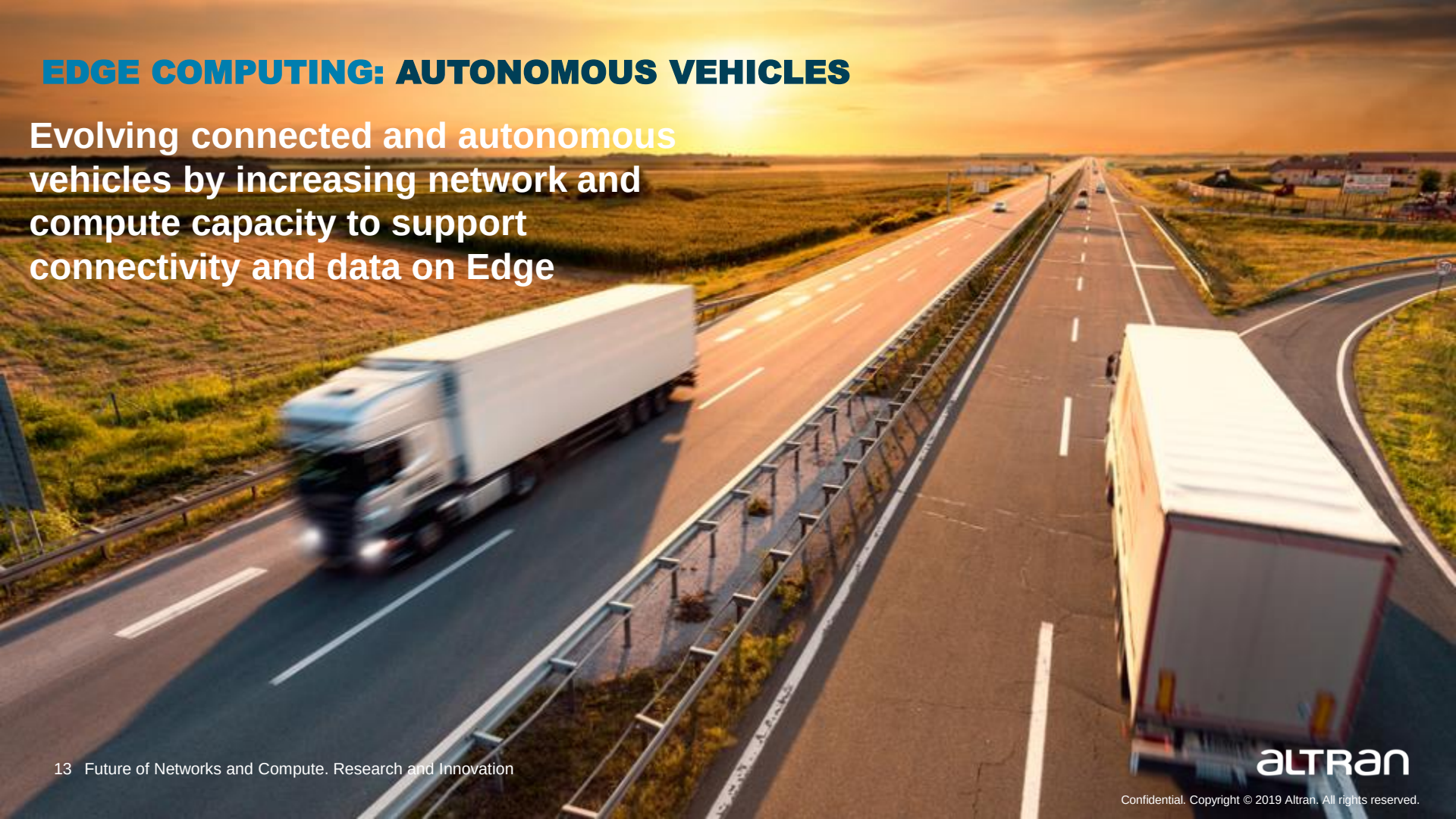
EDGE COMPUTING: AUTONOMOUS VEHICLES



Evolving connected and autonomous vehicles by increasing network and compute capacity to support connectivity and data on Edge

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EDGE COMPUTING: BUSINESS DRIVERS

New Revenue Streams

Commercial applications, consumer applications, Enterprise apps, IoT, Gaming

Cost Reduction

Transport and Backhaul cost savings Analysing data at the edge, Video or content caching

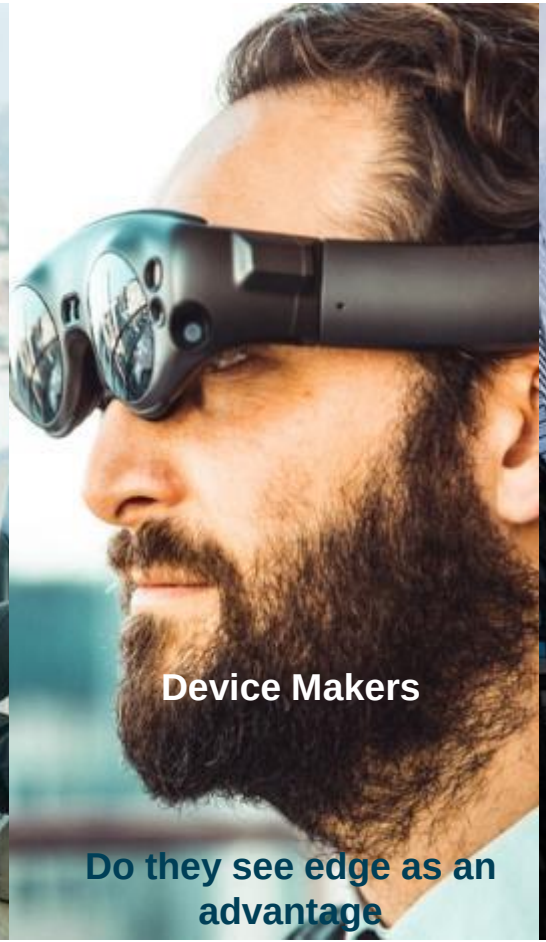
Productivity & Operational Efficiency

Run IT applications, billing and data records closer to the end user. Save on storage. Monitoring & surveillance software

EDGE COMPUTING STAKEHOLDERS

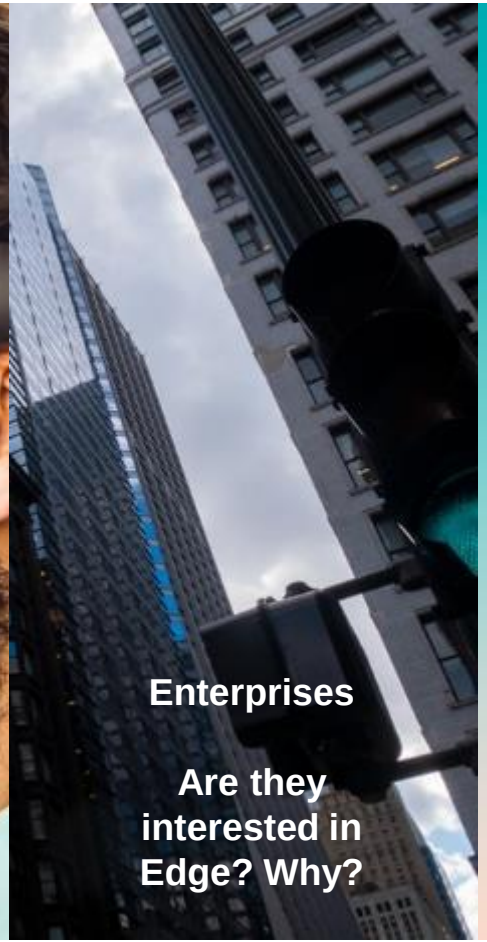
Application Developers

What does a developer require from a Edge Compute provider



Device Makers

Do they see edge as an advantage



Enterprises

Are they interested in Edge? Why?

Operators

How will they monetize edge? How will they manage edge?

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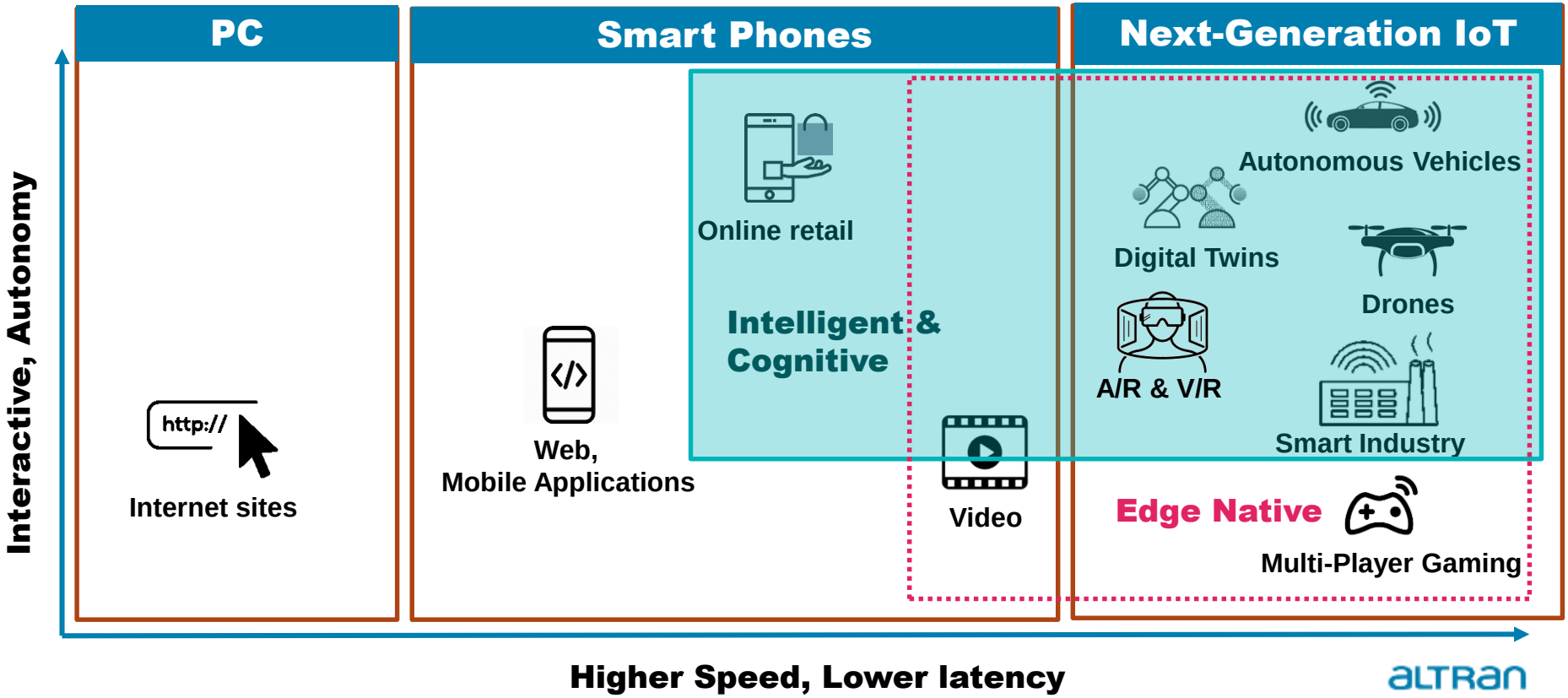
EDGE NATIVE APPLICATIONS IS THE CONVERGENCE OF LOW LATENCY, NEXT GENERATION DEVICES AND AI



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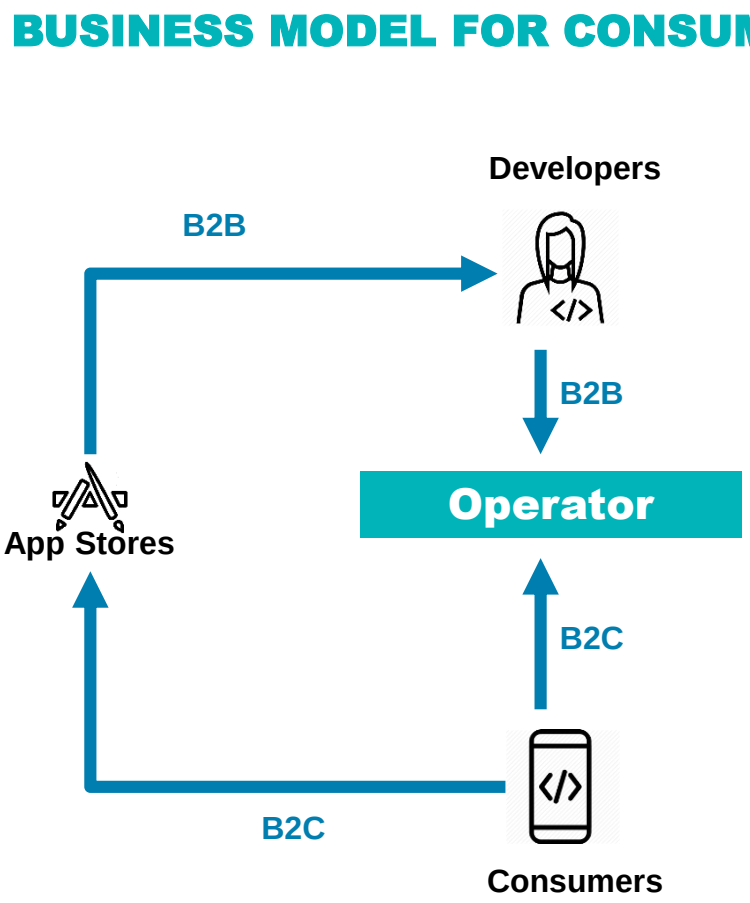
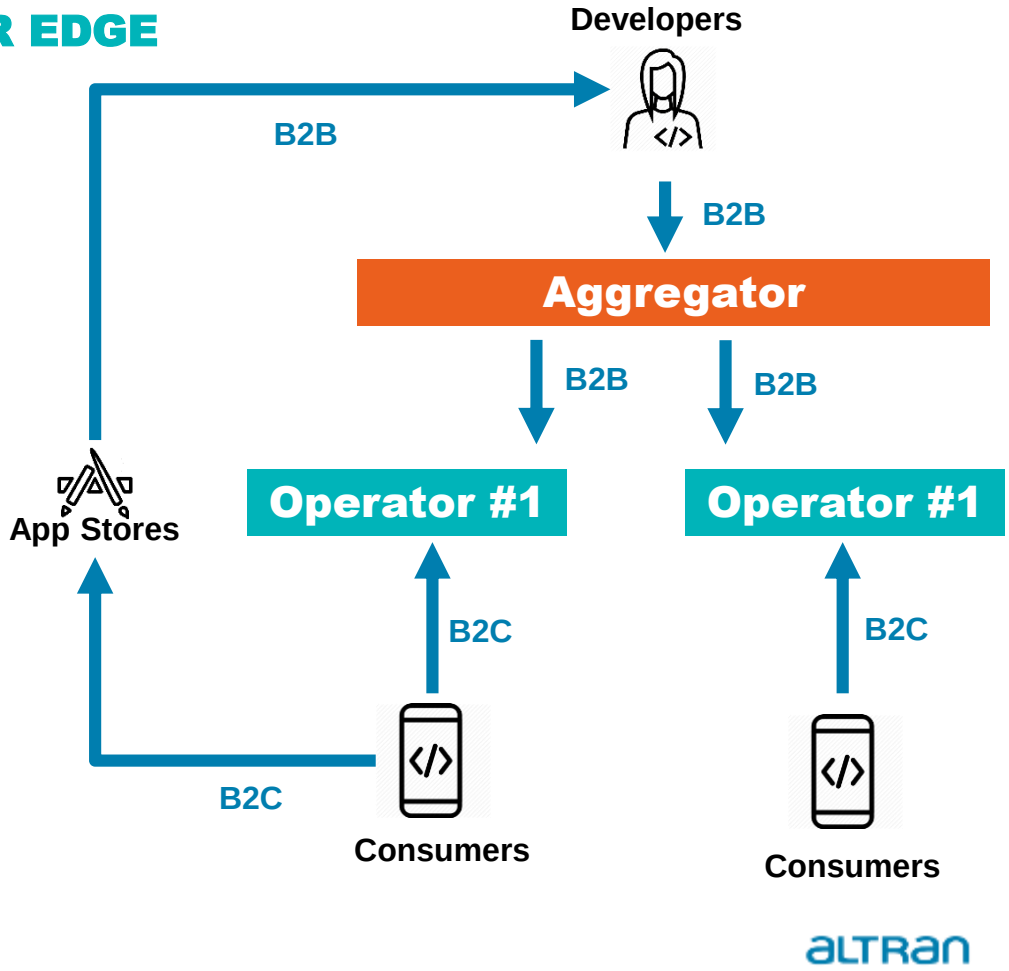
BUSINESS MODEL FOR CONSUMER EDGE





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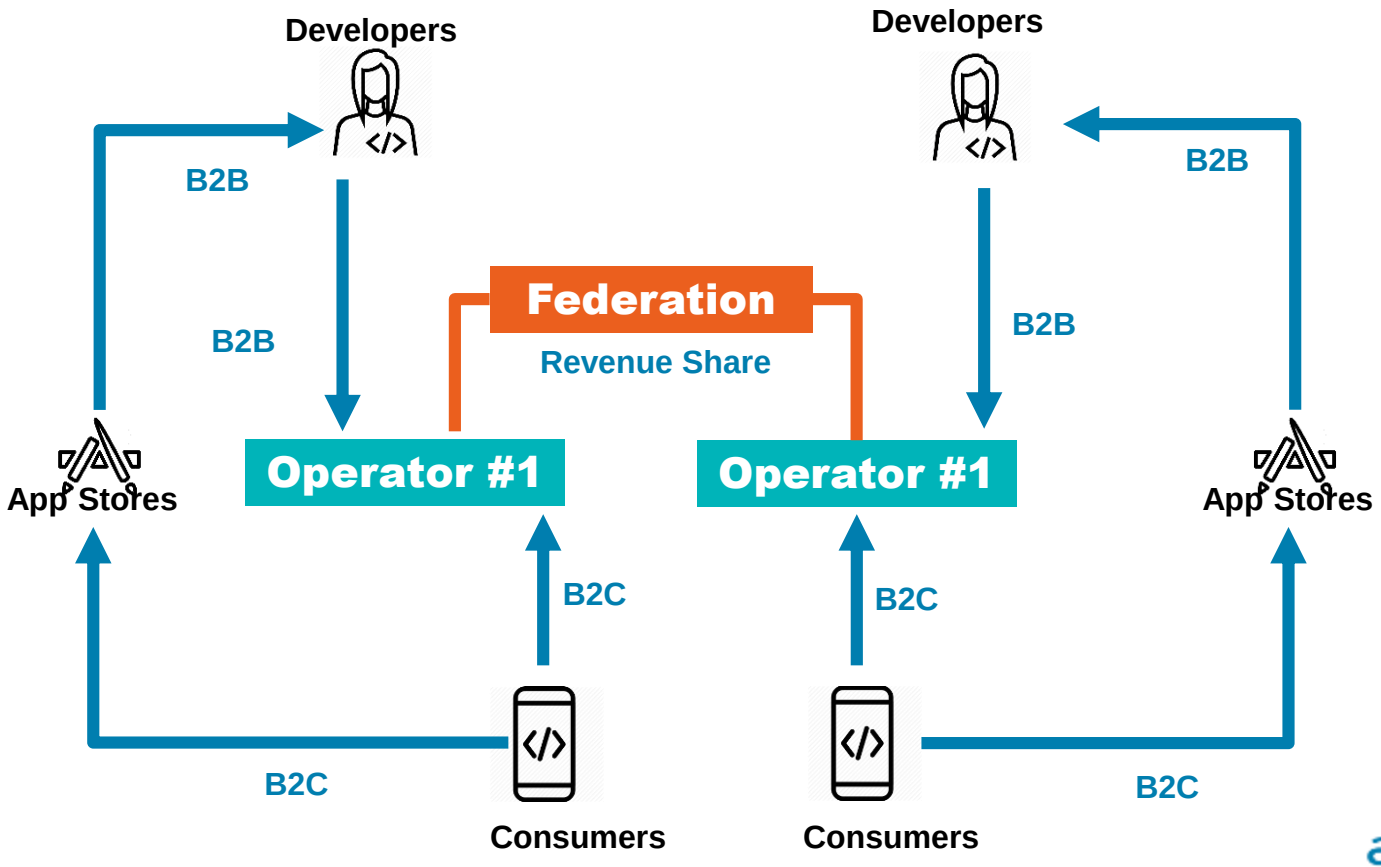
BUSINESS MODEL FOR CONSUMER EDGE: FEDERATING OPERATORS



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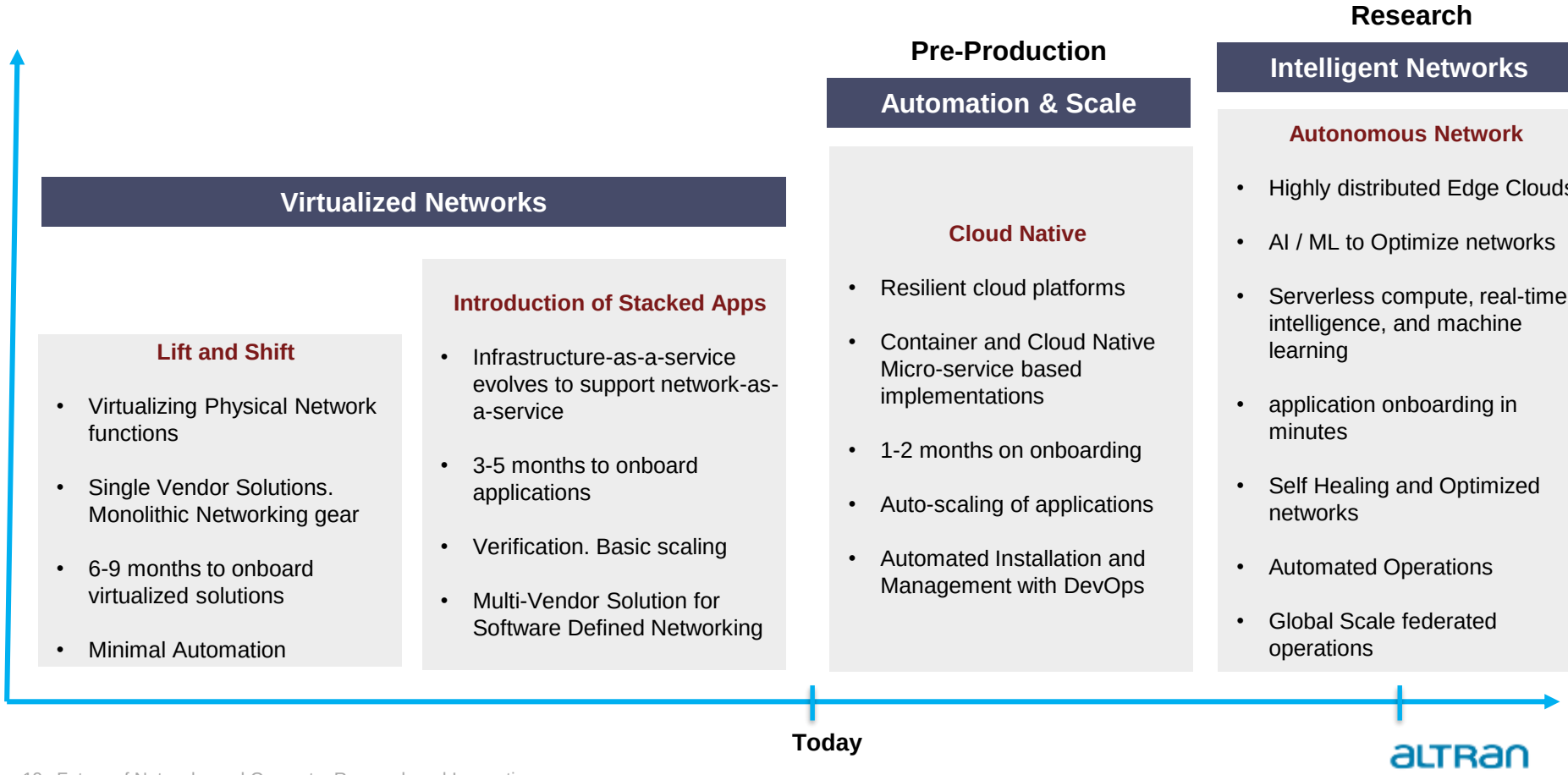
TELECOM NETWORK – INNOVATION AT THE EDGE



SUMMARY – KEY TAKEAWAYS

Edge Computing has the potential to create a complete new economy for digital applications

Telecom Operators with their location and network advantage are the most suited edge cloud providers

Application developers, enterprises and device makers can see edge compute as an advantage

“Edge Native” applications converges the three distinct technologies like next-gen devices, artificial intelligence and low-latency networking

Network Operators can benefit from both B2B and B2C revenue models by collaborating with each other

Source: Amalgamation of analyst data

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