

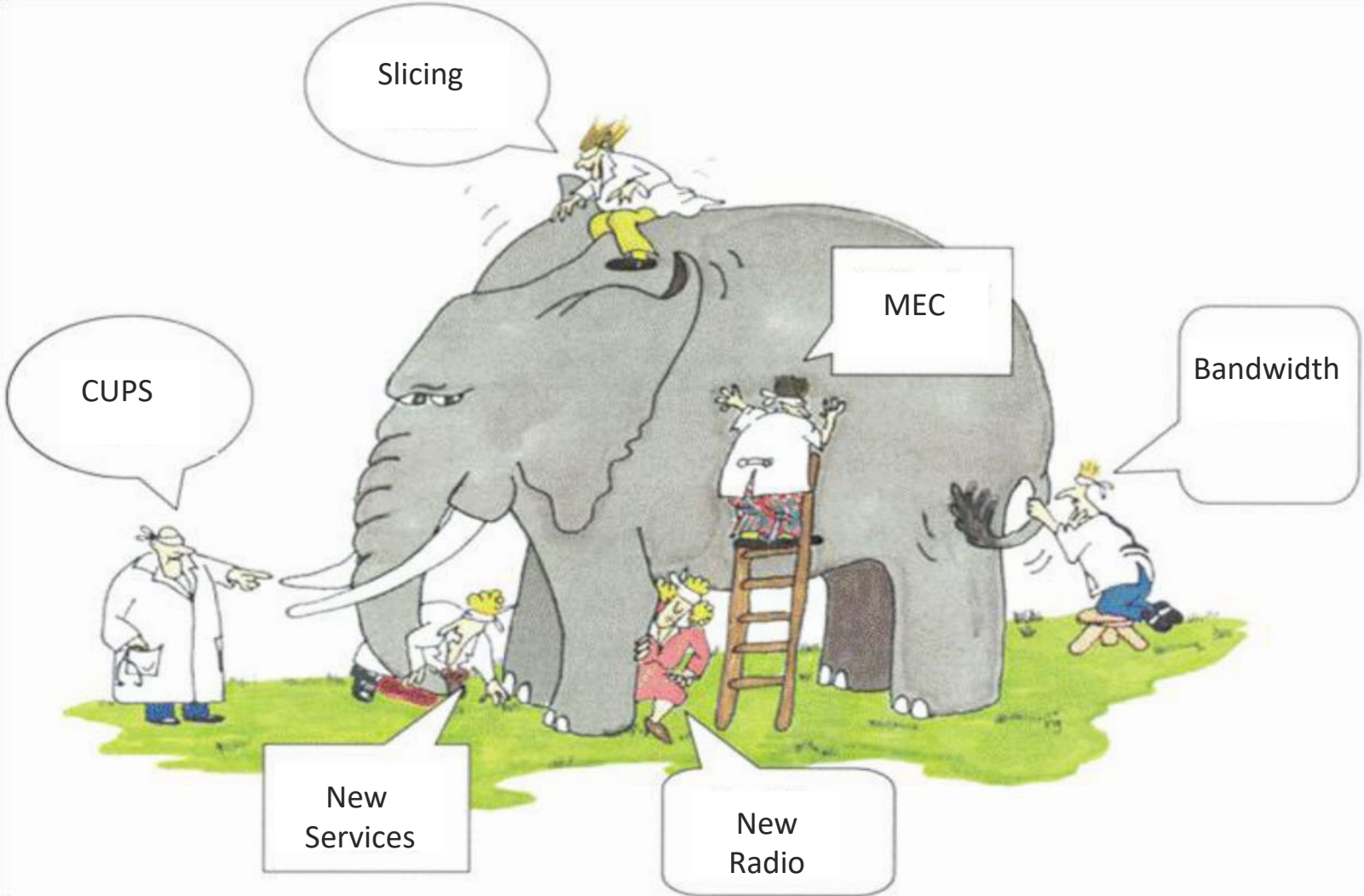
# 1, 2, 3, 4, 5...n G

Andreas Enotiadis

CTO, Vodafone Group, Cisco EMEAR

24<sup>th</sup> May 2019

# So what's is 5G really?



# The Challenge and Opportunity for SP's

continued intense  
margin pressure

for basic consumer  
connectivity



enterprises are key  
to monetizing

higher margin  
opportunities

**69%**  
of SP CEOs agree\*



**growing revenue**

enhanced mobile broadband | massive machine type | ultra-reliable, low-latency

# Enterprise Expectation - 5 minutes to service.

- └ 2m30s credit card clearing

- └ The rest is;

Intent understood & programmed

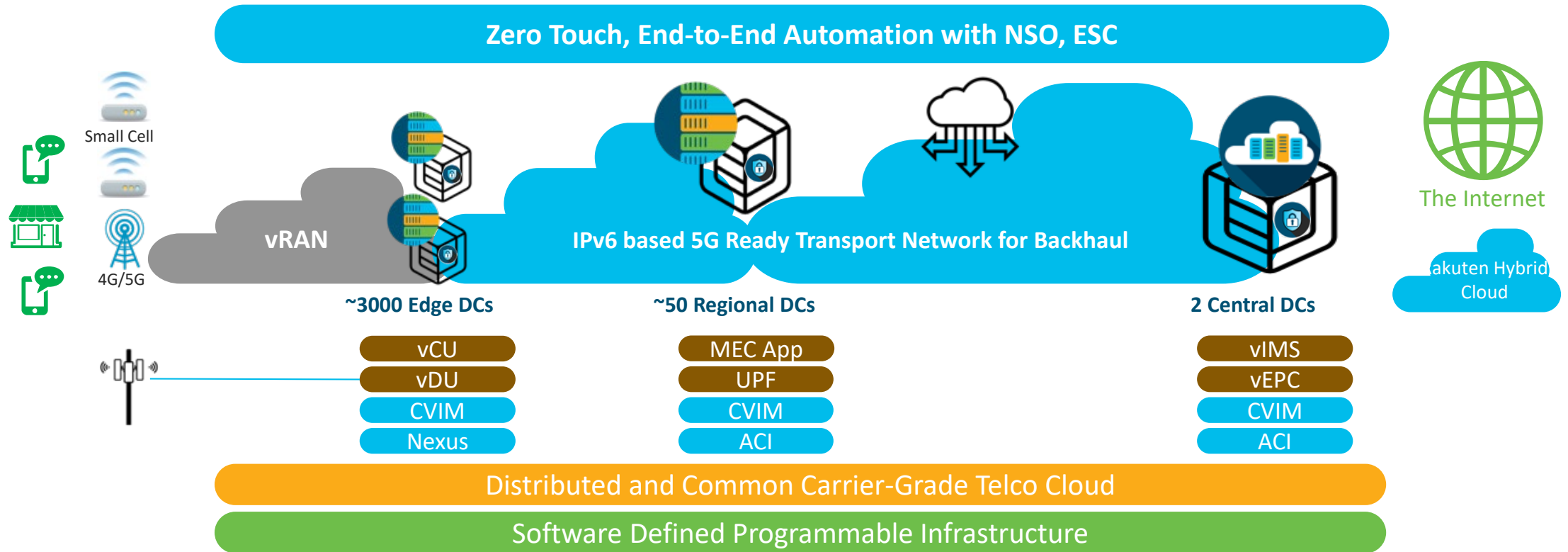
Provisioned, tested & delivered

*... and if it works we'll buy some more,  
since I am now moving faster*



# Software Defined 5G

Rakuten Architecture – Saving & Making Money



Open, Decomposed, and Virtualized RAN

Edge Computing for Enhanced Experience

New Business Models Including B2B Monetization

End-to-end Closed-Loop Automation



# Disruptive

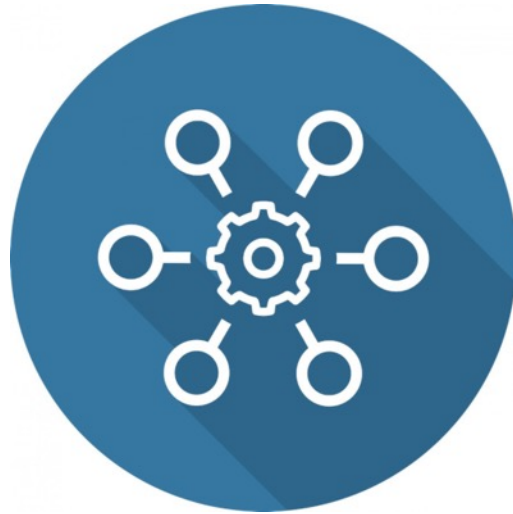


## Rakuten CTO: We're Stronger, Faster & Cheaper Than You

Amin is eager to dispel a few myths about his business and the broader market. The first is the notion that any infrastructure built on Internet principles will be less resilient than a so-called "carrier-grade" network. "I guarantee you that some web-scalers have better resiliency," he said at a closed-door session, to which Light Reading was able to get access, at this week's Nice event. "Netflix does 1,000 software updates a day and I can't recall the last time my service was interrupted. Try to do that in telecom and it is not possible, because operators think they need carrier-grade."



**Software Centric**



**Automation**



**Fully Virtualized**

# Three Pillars of evolution



## Simplification

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Legacy Replacement  
Segment Routing Evolution  
Optical Convergence  
Removal of Silos



## Automation

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Dynamic Inventory  
Time to Market  
Fast Service Deployment  
Closed Loop Automation



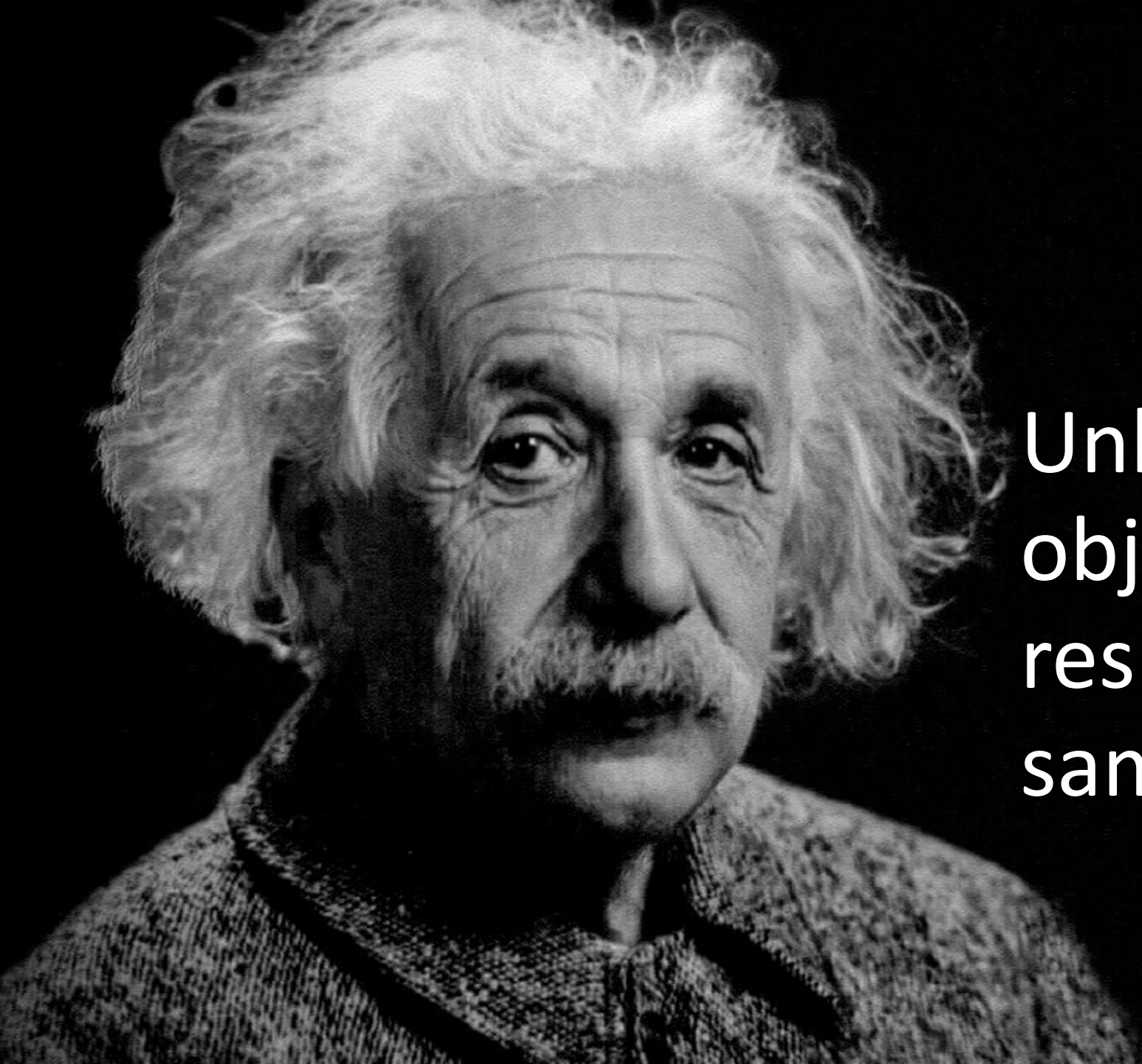
## Cloudification

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Decomposed SW Functions  
Scale up and Scale Out  
MultiCloud  
Agile Operations

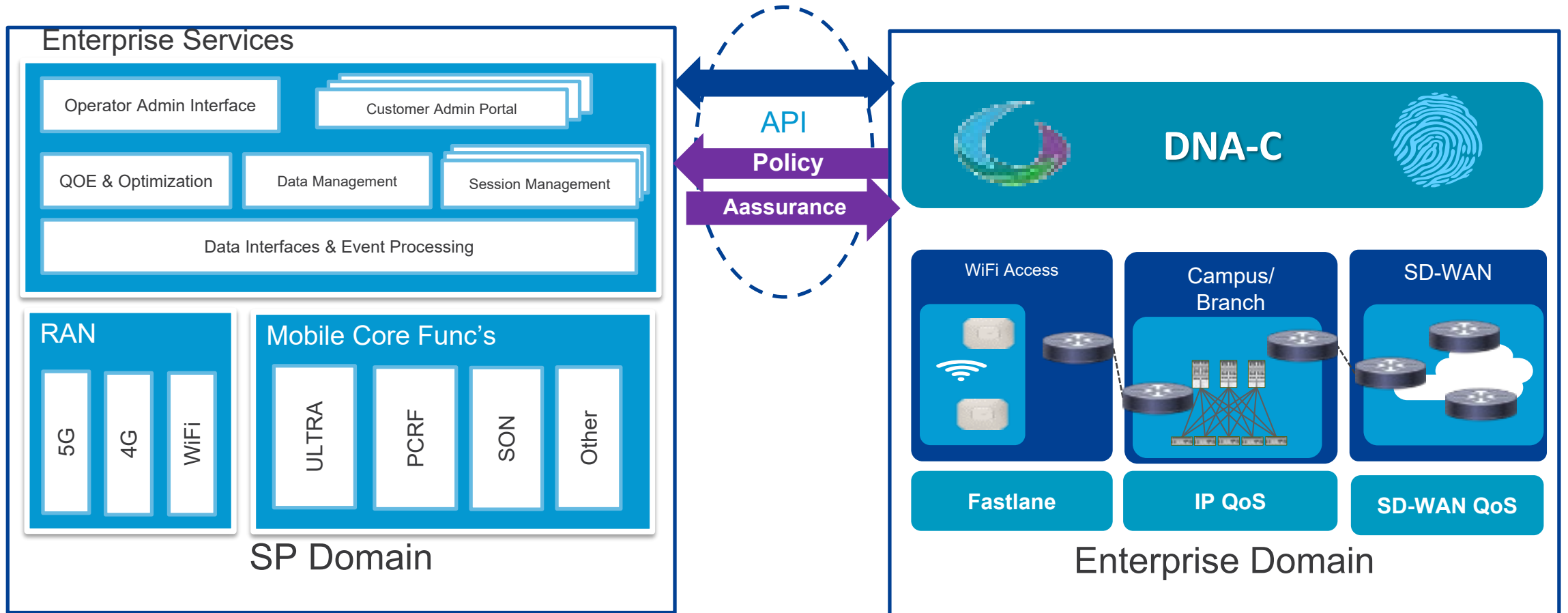
# 5G Transformation Toolkit





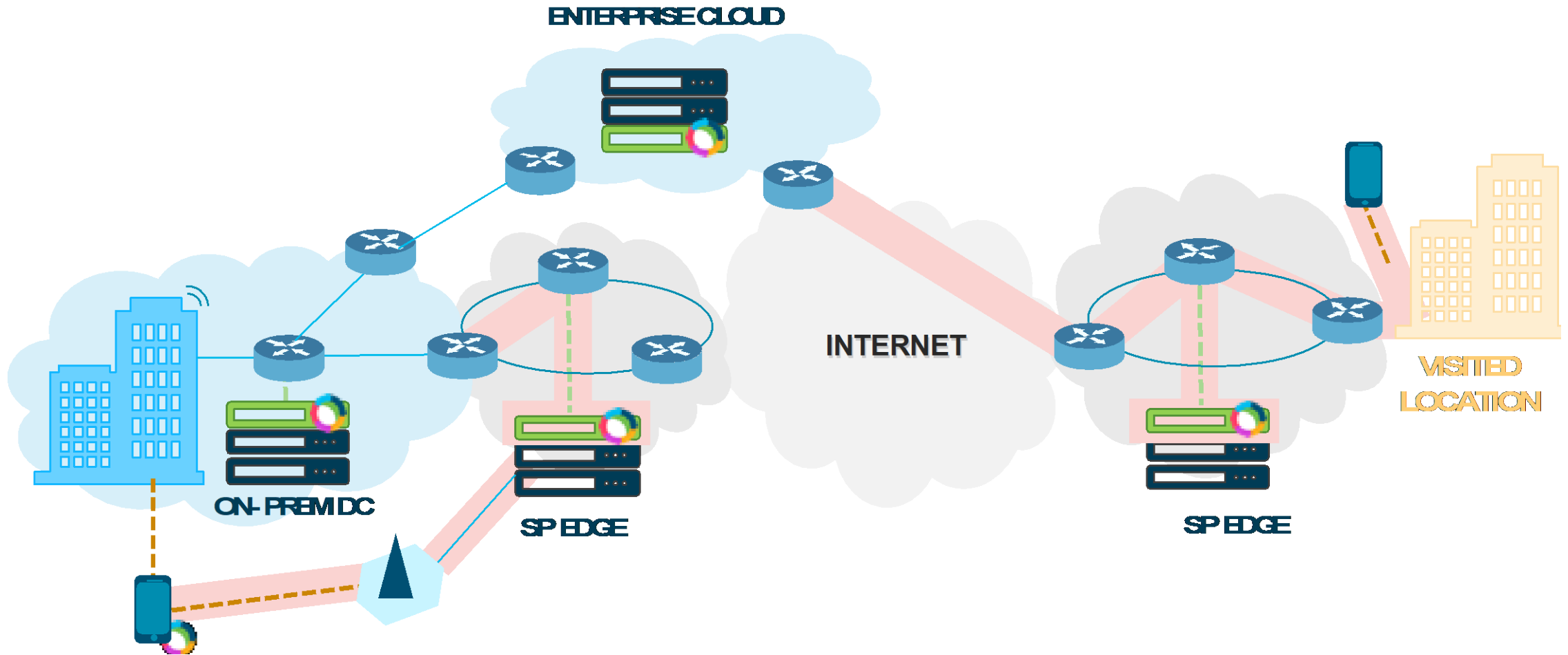
Unless we change the objective, the end result will remain the same.

# SP API and Service Exposure



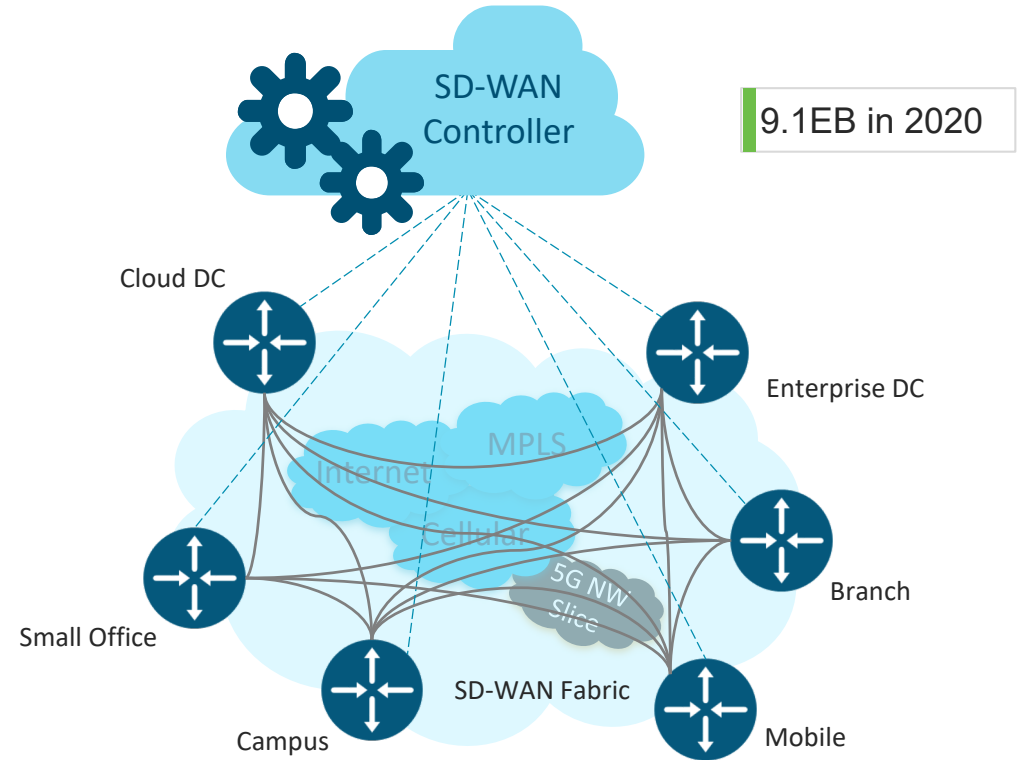
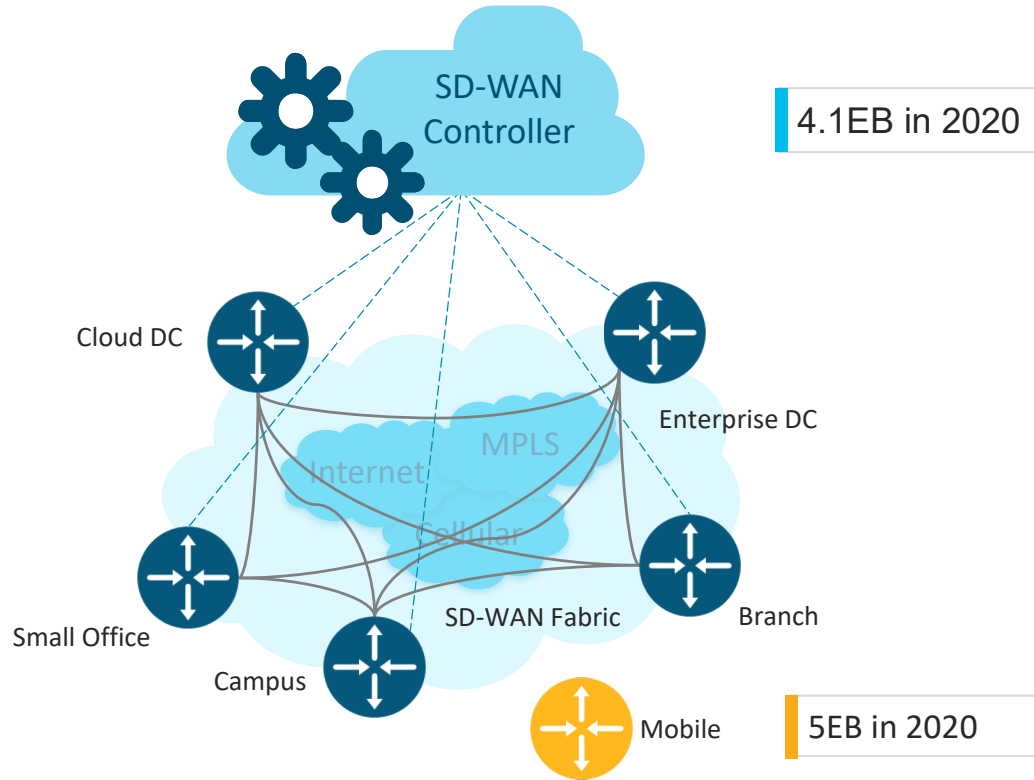
Scale the exposure of the SP networks to the Enterprise  
SP collaboration to solve Enterprise business needs

# Slice-Friendly Protocols – Segment Routing



Enterprises extending their segmentation into the SP  
needs segmentation and slice-friendly protocols

# SDWAN Extended for Mobility

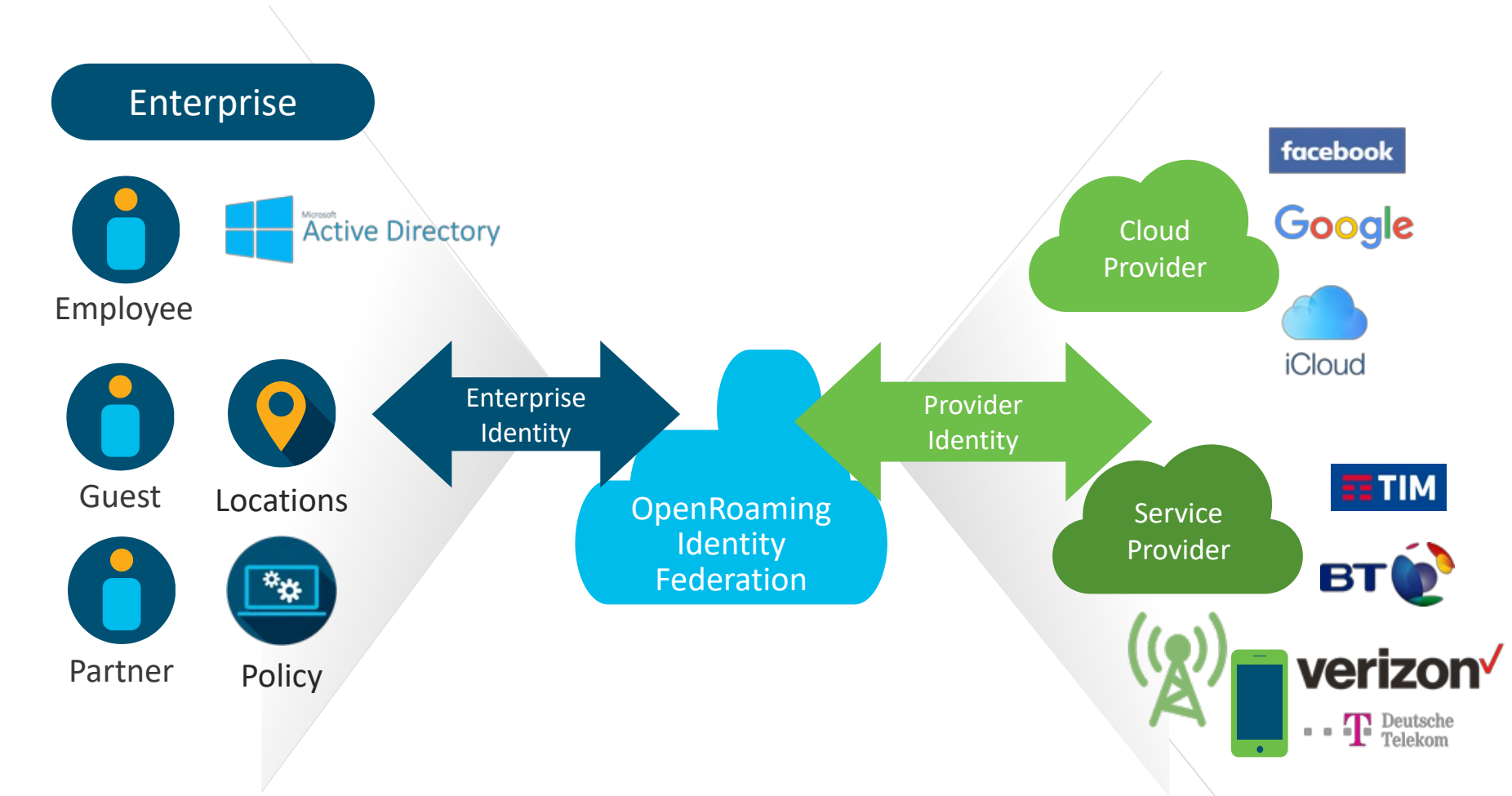


Mobile Devices are off-fabric

Fabric Extension for Mobility

# OpenRoaming

Seamless Roaming between WI-FI and 5G/4G/LTE



Leverage securely multiple providers, with control (who/what/where/when)

# The End Goal



## Using Technologies Beyond Macro Radio



Mobile  
SD-WAN

SP API  
Exposure

Multi-Radio  
private 5G

Open  
Roaming

Secure Internet  
Gateway Edge  
Services

Enterprise  
Network-to-  
Network  
Interconnect

Slice Friendly  
Protocols

Minimum Set  
Immediate Need



