



OPEN EDGE COMPUTING INITIATIVE

# **SPRING ONLINE WORKSHOP**

5 May 2020

# Overview Workshop Participants

## Cloud Service Providers

- AWS
- Microsoft

## Edge Applications

- Atrius Industries
- EdgeGap
- Verizon XR Team

## Edge Infrastructure

- Cirrus360
- Edge Infra Group
- Stackpath
- Vapor IO

## Edge Platforms

- Edge Gravity
- MobilEdgeX

## Silicon Technology

- ARM
- Intel
- Seagate
- Western Digital

## Research, Development, Innovation

- CableLabs
- CMU
- InterDigital
- KTH

## Standardization and Open Source

- ETSI MEC
- GSMA
- NGMN
- OpenStack Foundation
- Small Cell Forum

## Telecom Operators

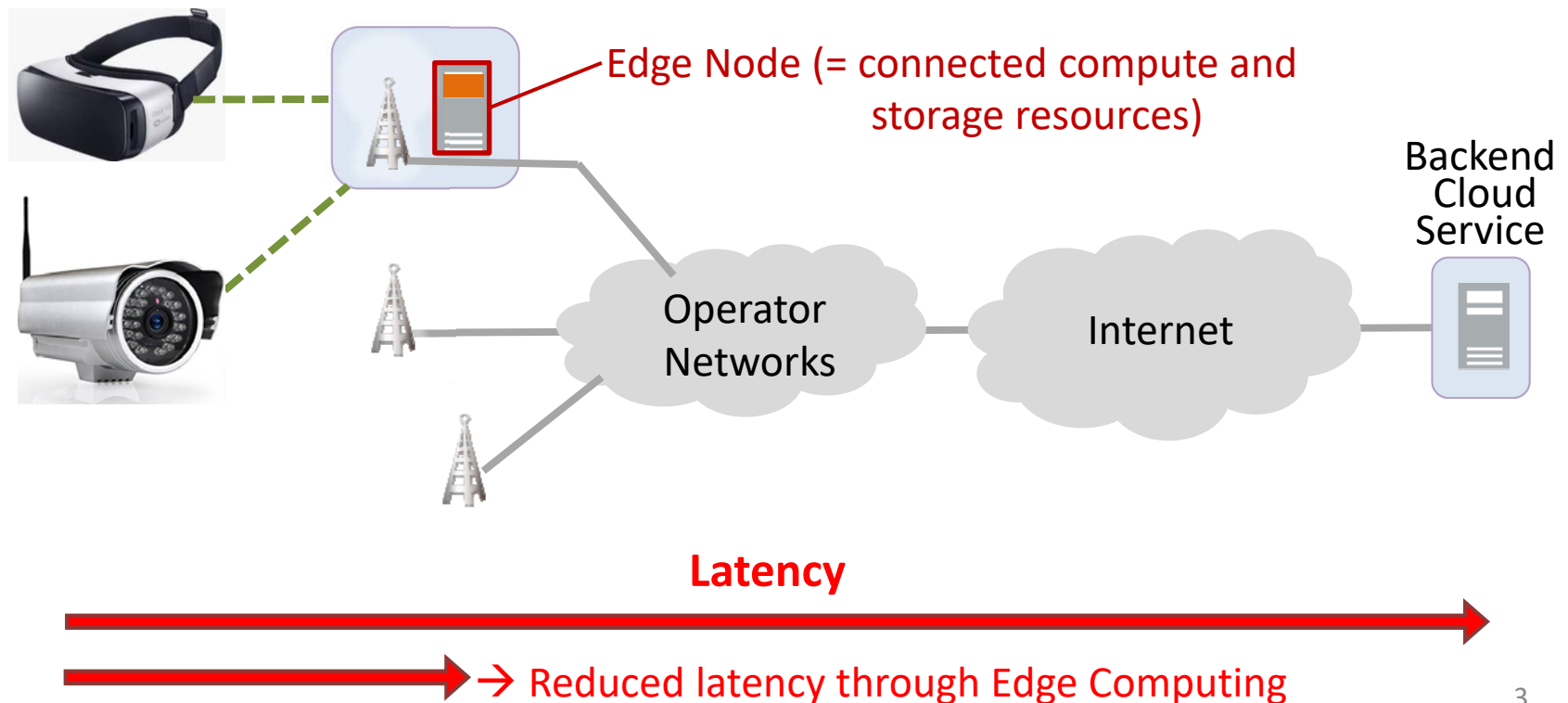
- AT&T
- British Telecom
- Comcast
- Crown Castle
- Deutsche Telekom / DETECON
- JIO
- NTT
- Proximus
- Verizon
- Vodafone

# What is Edge Computing?

➔ Edge Computing: small data centres at the network edge that offer connected compute and storage resources right next to the user

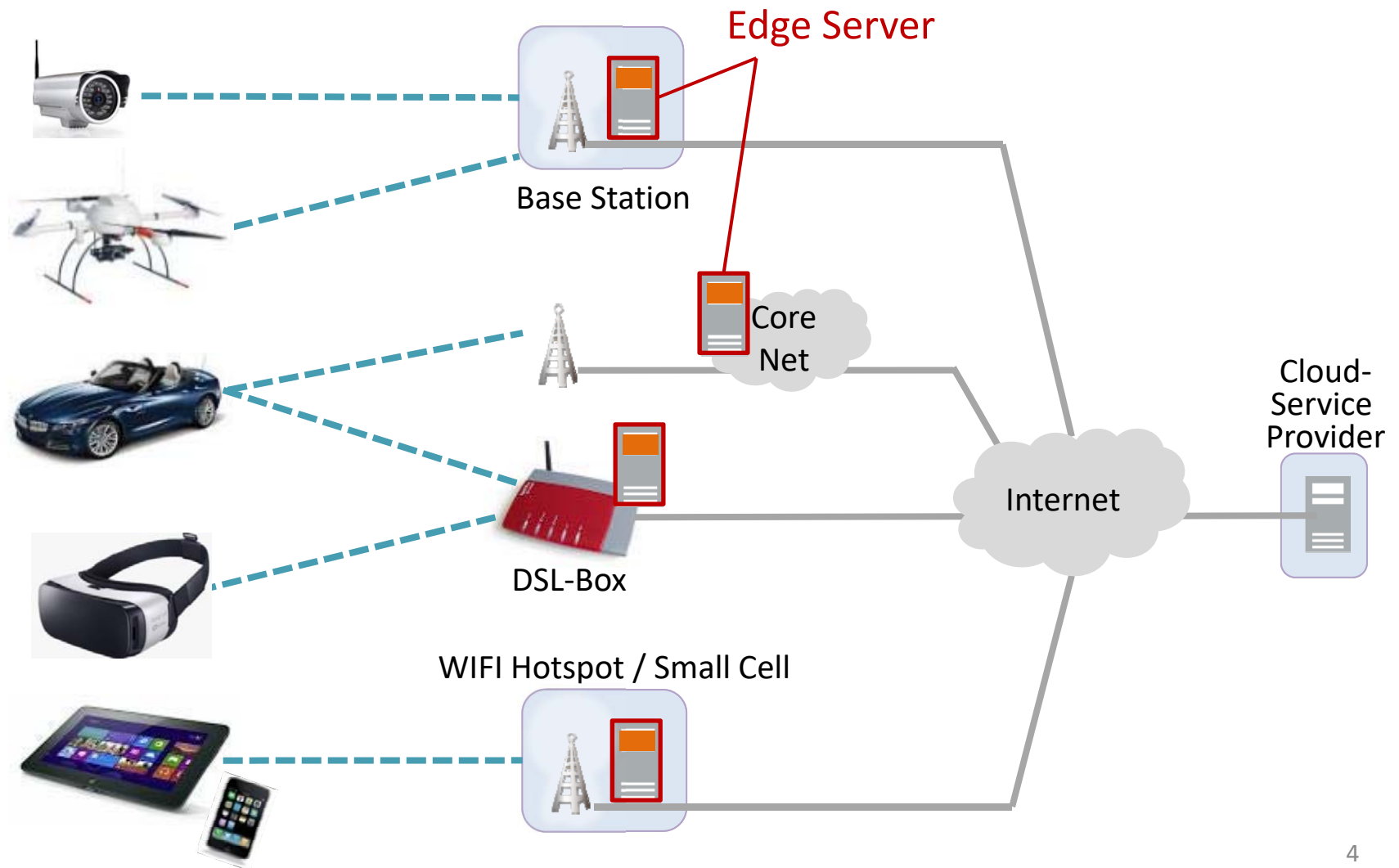
## Example Use Cases:

- Virtual reality application connected with head mounted display
- Analyzing large volumes of data right at the edge (Edge Analytics)



# Open Edge Computing Vision:

All network edge components offer edge resources through open and standardised mechanisms to any application, device or sensor to enable Edge Computing



## Open Edge Computing Initiative: Key Activity Areas

**OEC Mission:** ...is a collective effort for driving the business opportunities and technologies surrounding edge computing.



- **Drive Cross-Operator Edge Alignment**  
→ Agree and establish a edge technology that enables a globally uniform mechanism to use Edge services (Edge Platform API's, Edge Interconnect, Edge Federation etc.)
- **Drive Edge Adoption**  
→ Develop attractive edge applications and drive engagement with edge application developers
- **Tackle Key Technology Challenges**  
→ Deliver prototype solutions for key technical edge challenges (hand-off, GPU sharing etc.). Release solutions as open-source
- **Engagement and Alignment**  
→ Cooperation with other Edge related activities and initiatives (ETSI MEC, GSMA, Linux Foundation Edge, OpenStack etc.)
- **Living Edge Lab**  
→ provide and utilize an E2E testbed for Edge applications and technologies

# Open Edge Computing Initiative - Current Partners

(as of May 2020)

## Industry Partners

- Crown Castle
- Deutsche Telekom
- Intel
- InterDigital
- Microsoft
- MobilEdgeX
- NOKIA
- NTT
- Seagate
- Verizon
- VMware
- Vodafone



## Academic Partner

- Carnegie Mellon University



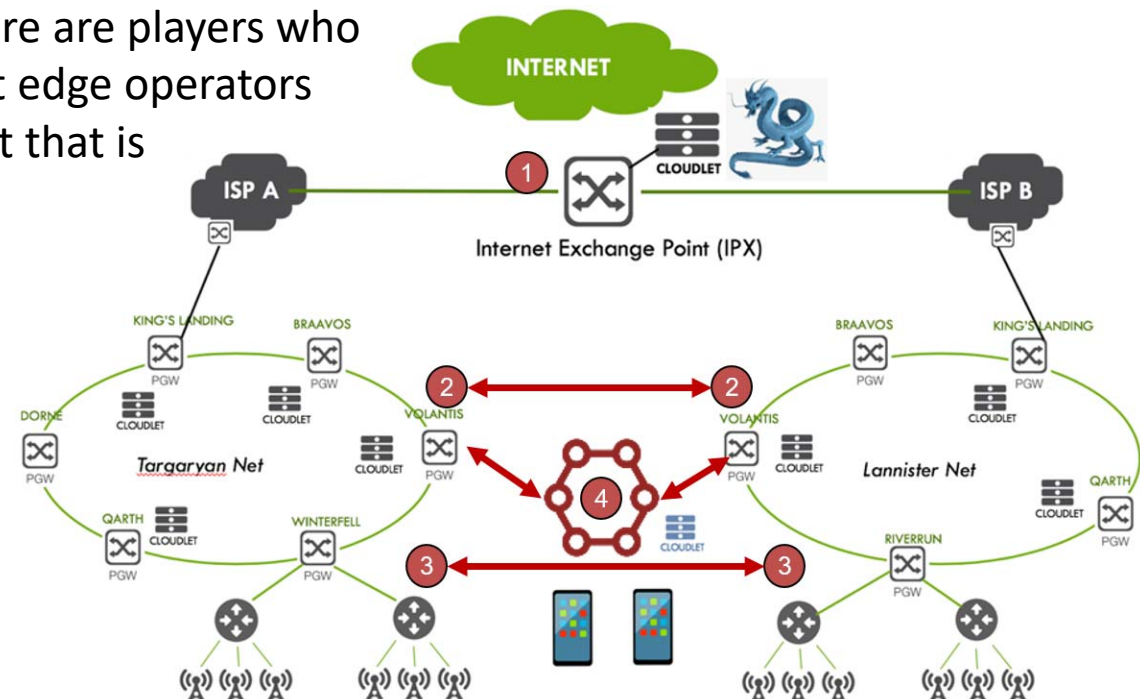
# Example OEC Worksteam: “Low Latency Edge Operator Interworking”

## The Challenge

- There is a growing number of Edge applications which require a seamless customer experience across edge operators
- In particular there is a class of multi-player applications that require immediate, “tactile” feedback between players who are located in the same place (e.g. Harry Potter Wizard, virtual Airhockey game)
- The challenge arises if there are players who are connected to different edge operators with an interconnect point that is “far away” (high latency)

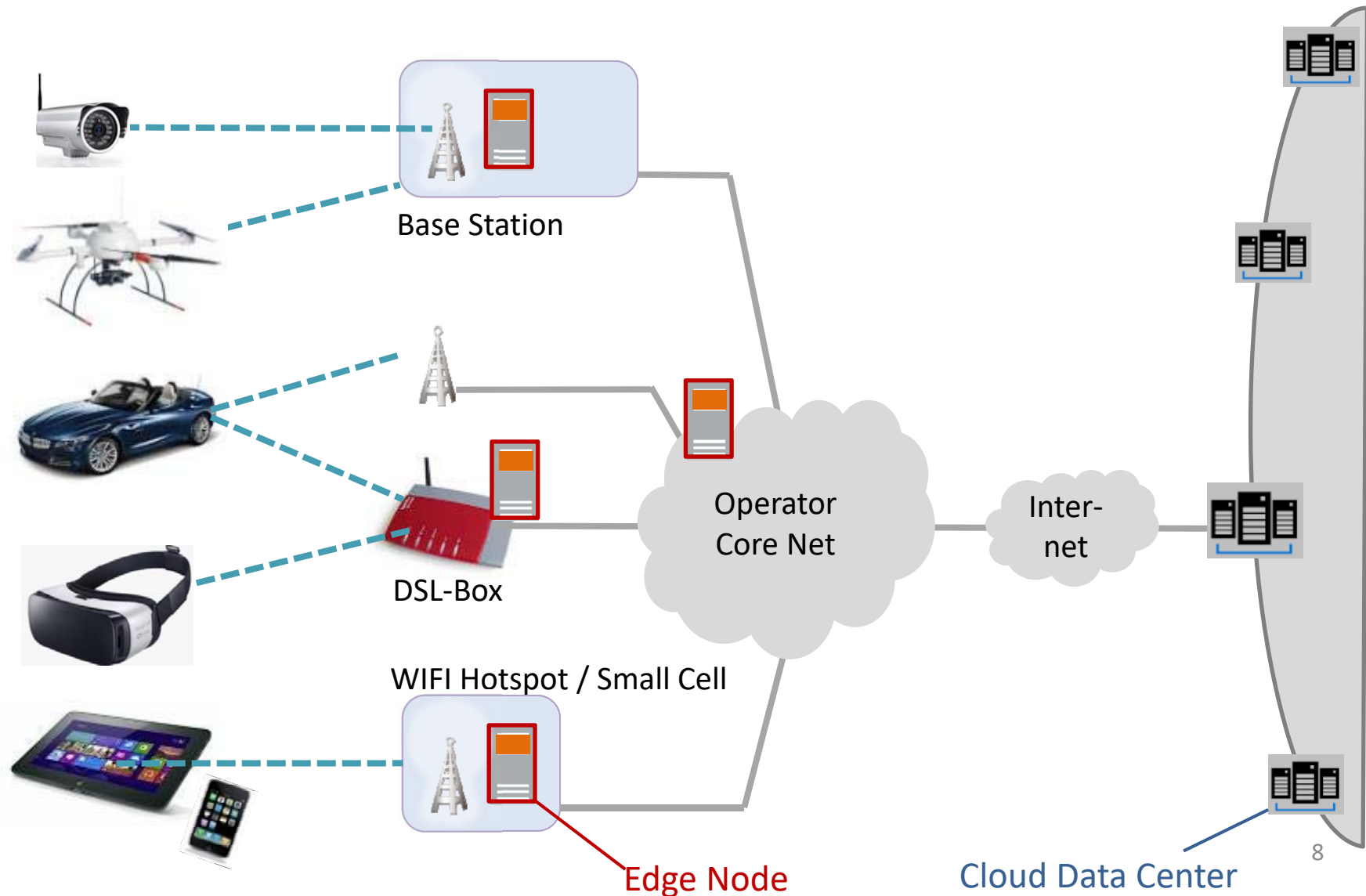
## The Key Question

→ How can we provide a seamless Edge service experience across different Edge operators?



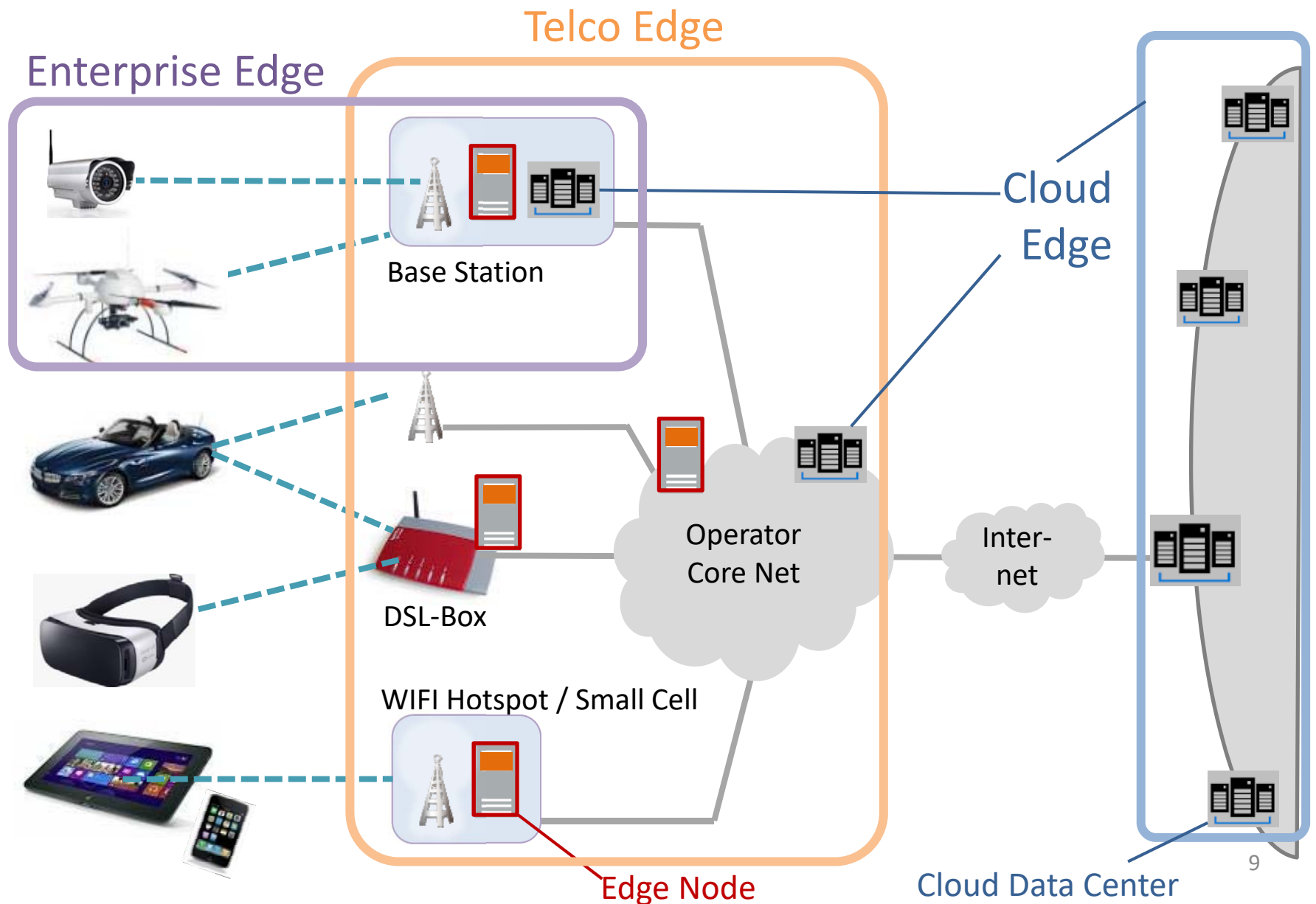


# Current Edge Market Situation & Development





# Current Edge Market Situation & Development



# OEC Spring Online Workshop 2020 – Overview Targets

## General Workshop Target

- Update on Edge Computing
- Voice of the customer – Look at attractive Edge Applications
- OEC partner edge activities – Share insight / success stories
- (Look at the latest edge research from CMU)
- (OEC workstreams – Review existing / initiate new workstreams)

## Special focus this workshop:

- Bring together the Telco Edge and the Cloud Edge
- Get a better understanding of both „universes“
  - Business opportunities and risks
  - Technology opportunities and challenges
- Start a process of dialog and cooperation to make Edge Computing a global success



# Agenda Spring Online Workshop (1/2)

CEST EDT PDT

16:45	10:45	7:45	Online System Set-up and Test with all Participants
17:00	11:00	8:00	<b>Introduction</b> Welcome (Mahadev Satyanarayanan & Rolf Schuster) Workshop & OEC Overview (Rolf Schuster)
17:25	11:25	8:25	<b>Edge Applications</b> Edge in Enterprises and 5G Caroline Chan, Intel Edge in the Automotive Industry Harsha Jakkanahalli Vishnukumar, Akka Edge and AR Raheel Khalid, Verizon Labs Discussion
18:30	12:30	9:30	<b>Cloud Edge and Telco Edge</b> Edge Service Platform and Edge Markets Geoff Hollingworth, MobilEdgeX Overview on Microsoft Edge Products and Roadmap Ganesh Srinivasan, Microsoft Overview on AWS Edge Products and Roadmap Sebastian Dreisch, AWS Overview and Update on Akraino Kandan Kathrivel, AT&T Edge Computing @ Telefonica Juan Carlos Garcia Lopez, Telefonica Discussion

Tuesday,  
5 May 2020

## Agenda Spring Online Workshop (2/2)

Tuesday,  
5 May 2020

CEST	EDT	PDT	
20:20	14:20	11:20	<b>Edge Infrastructure and Technology</b> Update on Vapor IO Edge Activities and Roadmap Alan Bock, Vapor IO Update on Seagate Edge Activities and Roadmap Jason Feist, Seagate
20:50	14:50	11:50	<b>Discussion, Workshop Summary and Wrap-Up</b> Mahadev Satyanarayanan & Rolf Schuster
21:00	15:00	12:00	<b>End of Workshop</b>

1-to-1 chat communication between participants until 16:00 EDT

CEST = Central European Summer Time    EDT = Eastern Daylight Time    PDT = Pacific Daylight Time



## **SESSION: EDGE APPLICATIONS**

EDGE IN ENTERPRISES AND 5G

CAROLINE CHAN, INTEL

EDGE IN THE AUTOMOTIVE INDUSTRY

HARSHA JAKKANAHALLI VISHNUKUMAR, AKKA

EDGE AND AR

RAHEEL KHALID, VERIZON LABS



## **SESSION: CLOUD EDGE AND TELCO EDGE**

EDGE SERVICE PLATFORM AND EDGE MARKETS

GEOFF HOLLINGWORTH, MOBILEDEX

OVERVIEW ON MICROSOFT EDGE PRODUCTS AND ROADMAP

GANESH SRINIVASAN, MICROSOFT

OVERVIEW ON AWS EDGE PRODUCTS AND ROADMAP

SEBASTIAN DREISCH, AWS

OVERVIEW AND UPDATE ON AKRAINO

KANDAN KATHRIVEL, AT&T

EDGE COMPUTING @ TELEFONICA

JUAN CARLOS GARCIA LOPEZ, TELEFONICA



## **SESSION: EDGE INFRASTRUCTURE AND TECHNOLOGY**

UPDATE ON VAPOR IO EDGE ACTIVITIES AND ROADMAP

ALAN BOCK, VAPOR IO

UPDATE ON SEAGATE EDGE ACTIVITIES AND ROADMAP

JASON FEIST, SEAGATE



# Workshop Summary

## **Session: “Edge Applications”**

- Good overview of
  - current existing business (enterprise edge),
  - upcoming edge applications (edge-supported cloud gaming) and
  - future edge applications (automotive)

## **Session: “Cloud Edge and Telco Edge”**

- Insight into MobileEdgeX activity Seamster
- Insight into current Cloud Edge products and opportunities
- Update on Akraino and Linux Foundation Edge
- Overview telecom operator position and activities (GSMA projects)

## **Session: “Edge Infrastructure and Technology”**

- Impressive progress on edge infrastructure
- Latest developments in memory edge technology



Please do get back to us with edge challenges to solve to make Edge Computing a global business success!

**MANY THANKS FOR YOUR ACTIVE  
PARTICIPATION !**



INTERDIGITAL



Microsoft

◀ MobileedgeX ▶

NOKIA



NTT



SEAGATE

vmware®

verizon✓



vodafone

Please contact: Dr. Rolf Schuster, Director Open Edge Computing Initiative  
[Rolf.Schuster@openedgecomputing.org](mailto:Rolf.Schuster@openedgecomputing.org), [www.openedgecomputing.org](http://www.openedgecomputing.org)