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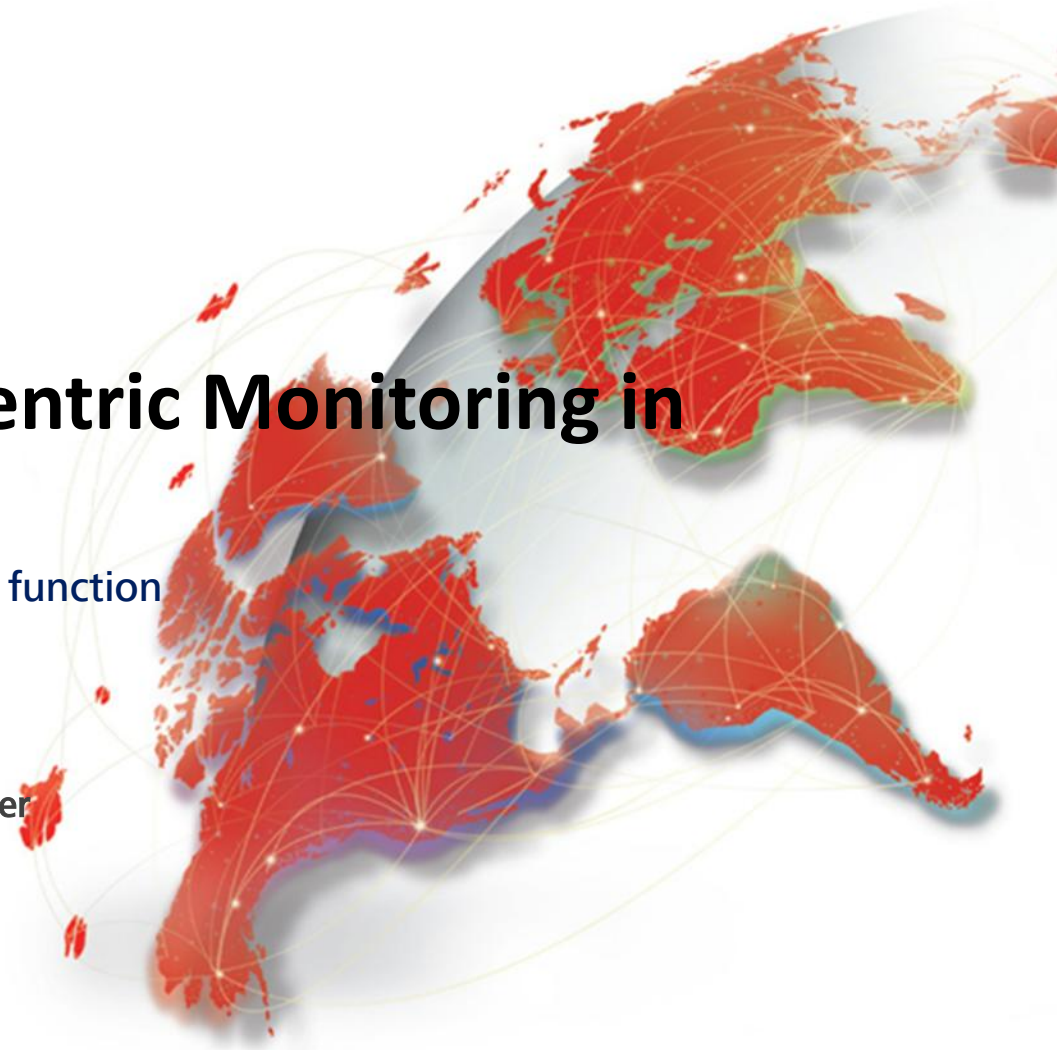
EUROPEAN  
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# QoE: Towards User-Centric Monitoring in Future Networks

Use centric service modeling, monitoring function  
virtualization, big data

Sergio Beker, Huawei European Research Center

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# QoE: Towards User-Centric Monitoring in Future Networks

## About Me

- Area Leader of Future Carrier Networks, Huawei European Research Center in Munich, Germany.
- Member of the group of experts within the QoE competence center, Huawei SmartCare solutions.
- Formerly Orange Labs, leading the solution development for QoE and Next-Generation SLA for business services, cloud computing and SaaS.

## Career Highlights

- Contributing author on Business Aspects of QoE to a Book about QoE under edition (to appear)
- Developed innovative service models for QoE assessment, part of the Huawei SmartCare suite.
- Contributed to the development of innovative troubleshooting techniques for QoE monitoring, part of the Huawei SmartCare suite.



[www.huawei.com](http://www.huawei.com)

**Sergio Beker, PhD.**

Area Leader Future Carrier Networks  
European Research Centre

**HUAWEI TECHNOLOGIES CO., LTD.**

Huawei Technologies Duesseldorf GmbH  
Riesstr. 25 C-2.0G,  
80992 Munich, Germany

Tel: +49 89 158834 4361

Mobile: +49 173 4635177

Fax: +49 89 158834 4447

E-Mail: [sergio.beker@huawei.com](mailto:sergio.beker@huawei.com)



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# Challenges in Future Networks



## Internet of Things:

Telcos need to manage the explosion of D2D communication (10<sup>N</sup> devices in 2020).

**NFV:** Telco Operators aims at lowering TCO by running network functions on general purpose HW

SGSN  
IMS  
BRAS  
MME  
RNC  
AS



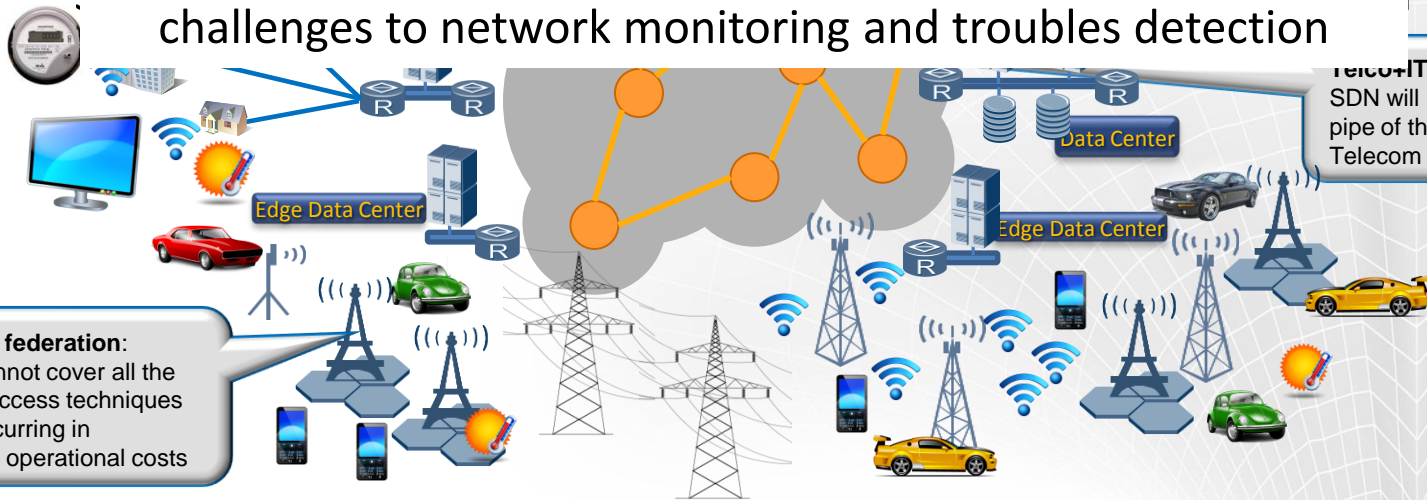
**OTT vs. Telco:** how to make sure that communication services (Telco) and the content services (OTT) have a viable and collaborative revenue model?

## Big data, virtualization, user centricity will pose new challenges to network monitoring and troubles detection

**Telco+IT integration:** SDN will be the big pipe of the Core Telecom infrastructure

## Networks federation:

Telcos cannot cover all the possible access techniques without incurring in prohibitive operational costs

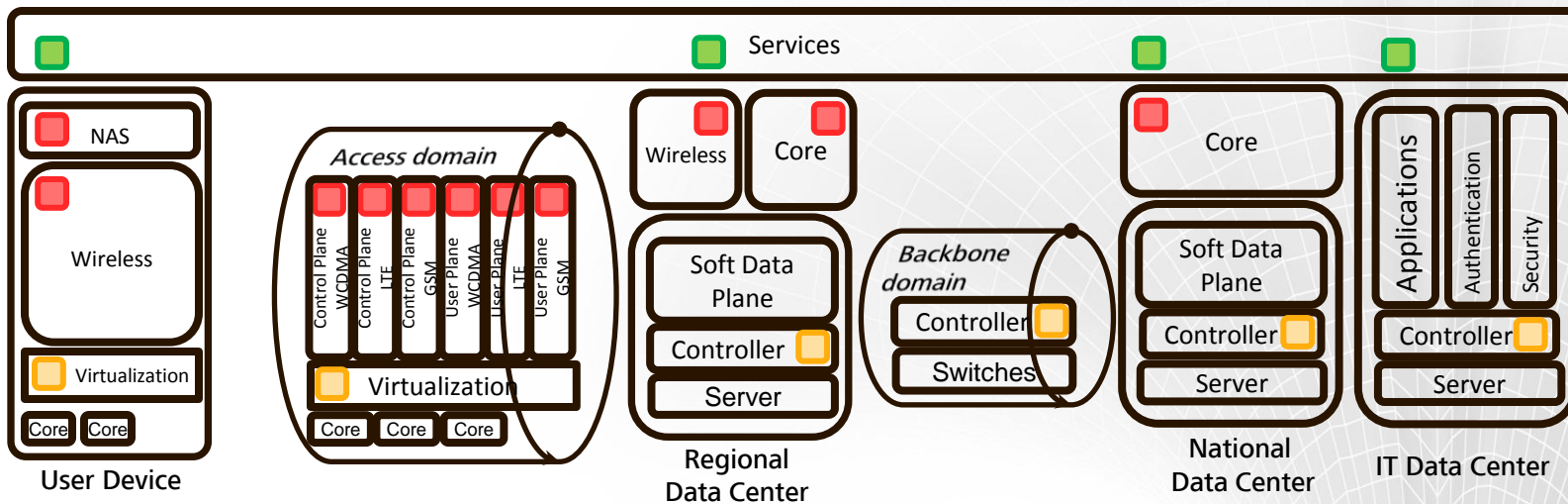


# Distributed monitoring and correlation



- Service monitoring and user experience evaluation (QoE)
- Telco Protocols performance over IaaS
- Physical/Virtual resource allocation and availability

How to make sense out of this information?  
How to make the processing efficient?





# Making sense of the Information: challenges



## ❑ **Big data:**

- ✓ Manage/store huge amount of Detailed Records
- ✓ Correlate the information, data mining, root cause identification

Evolve trouble detection paradigms  
Service Modeling

## ❑ **User Centricity:**

- ✓ Focus on Customer Satisfaction, which affects billing policies, churn rate etc
- ✓ Understanding of overall User Experience

User-centric methodologies  
Service Modeling

## ❑ **Virtualization:**

- ✓ Mapping network functions over virtual/physical resources
- ✓ Migration of network functions

Orchestrate monitoring



# Thank you

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