EDGE — WHERE 5G AND IOT MEET THE NEW HYBRID CLOUD WORLD

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Thursday, May 9
3:45 PM-4:30 PM
WALKING ON THE EDGE
WHAT IS EDGE COMPUTING?

Providing computing services closer to consumers or data sources

Content Delivery Networks  Distributed Compute
WHAT IS EDGE COMPUTING?

- **EDGE**: many small sites
  - Better economies-of-scale and resource sharing efficiency
- **CORE**: few, large sites
  - Better bandwidth, latency, resiliency, data sovereignty

*Centralize where you can, distribute where you must*
THERE ARE MANY EDGES
EDGE CHALLENGES

Cost  Life-cycle  Scale  Security
LET’S DIVE INTO THE TELCO EDGE
4G
The network of today.

5G
The services of tomorrow.
5G SERVICE CATEGORIES

- **eMBB (Enhanced Mobile Broadband)**
  - 10 Gbps

- **URLLC (Ultra-Reliable and Low-Latency Communication)**
  - 1 ms

- **mMTC (Massive Machine Type Communications)**
  - 1 million/Km2
MEETING LATENCY REQUIREMENT

- **ACCESS NETWORK**: 10 µs
- **CENTRAL OFFICE (CO)**: 50 µs
- **AGGREGATION NETWORK**: 300 µs
- **METRO NETWORKS**: 2 ms, 20 ms
MEETING MASSIVE IOT REQUIREMENT

Massive Machine Type Communications (mMTC)

1 million/Km2
TELCO NETWORK EDGE

END USER
Customer premise equipment (CPE) or user equipment (UE)

ACCESS NETWORKS

CENTRAL OFFICE (CO)

AGGREGATION METRO AND CORE NETWORKS
BOSTON AREA CENTRAL OFFICES
MOBILE NETWORK EVOLUTION

LTE
Long-Term Evolution

EPC
Evolved Packet Core

NR
5G New Radio

5GC
5G Core Network

NG-RAN
NG Radio Access Network
RADIO ACCESS NETWORK

DISTRIBUTED UNIT (DU)

FRONTHAUL

REMOTE RADIO UNIT (RRU)

DCN SITE

CU

CENTRAL UNIT (CU)

MIDHAUL

IP BACKBONE

CENTRAL OFFICE (CO)

Distributed Compute Nodes (DCN)
VIRTUAL CENTRAL OFFICE

NFV AND SDN TECHNOLOGIES

- Gain agility
- Boost innovation
- Reduce costs
- Enhance user experience
# A COMPLETE SOFTWARE FOUNDATION

## Service Assurance and Data Protection

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<tbody>
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<td>Red Hat CloudForms</td>
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<td>Red Hat OpenStack Platform</td>
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<td>Red Hat Ansible</td>
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<td>Virtual infrastructure manager (VIM)</td>
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<td>Virtual network function manager (VNF)</td>
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<td>Software-defined networking (SDN) controller</td>
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<td>Management and orchestration (MANO) tools</td>
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## Network Functions Virtualization Infrastructure (NFVI)

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<th>Red Hat Hyperconverged Infrastructure</th>
<th>Red Hat Openshift</th>
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## Operational Foundation

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<th>Red Hat Enterprise Linux</th>
<th>Red Hat Satellite</th>
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## Physical Infrastructure

Compute | Storage | Network
A CERTIFIED PARTNER ECOSYSTEM
TELCO HYBRID CLOUD

Network Edge Cloud

Telco Cloud

Public Cloud
HOW RED HAT ENABLES EDGE
INVESTING UPSTREAM FOR EDGE

Kubeflow

MULTUS

AWX
THE VISION WITH EDGE

Edge is a deployment target of Open Hybrid Cloud.
THANK YOU

linkedin.com/company/Red-Hat
youtube.com/user/RedHatVideos
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twitter.com/RedHat