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Smart Infocomm Technologies

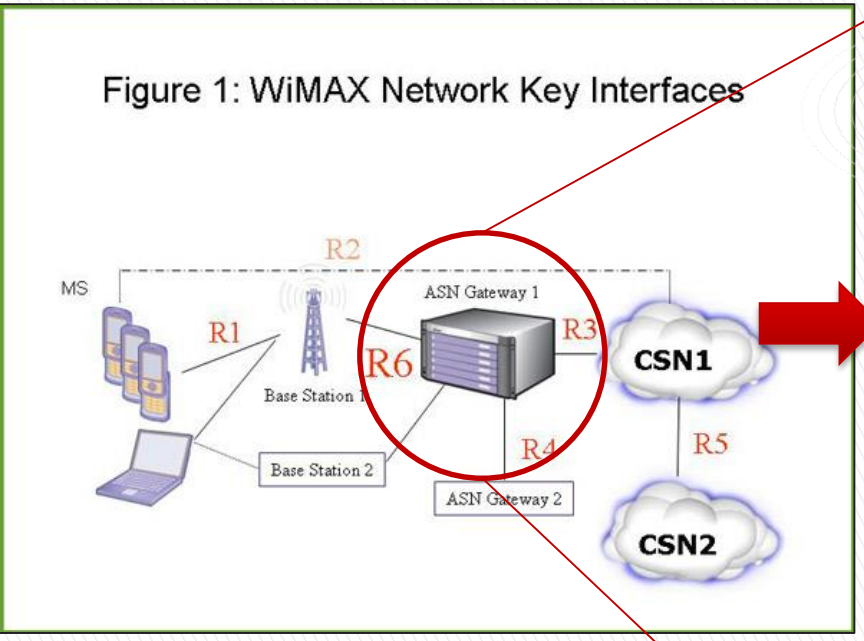
SD-Branch

Povezovanje oddaljenih lokacij s hibridnim OBLAK-om

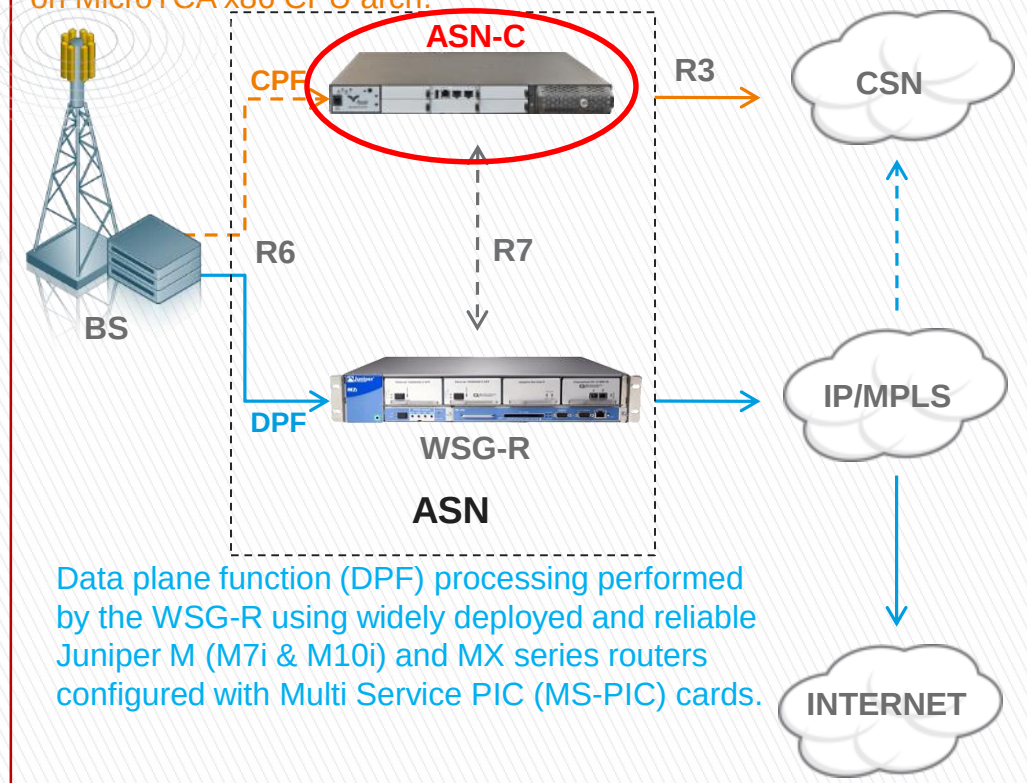
Gregor Boh

Legacy NRM Know-HOW

Splits control and data plane processing into different elements (like LTE)



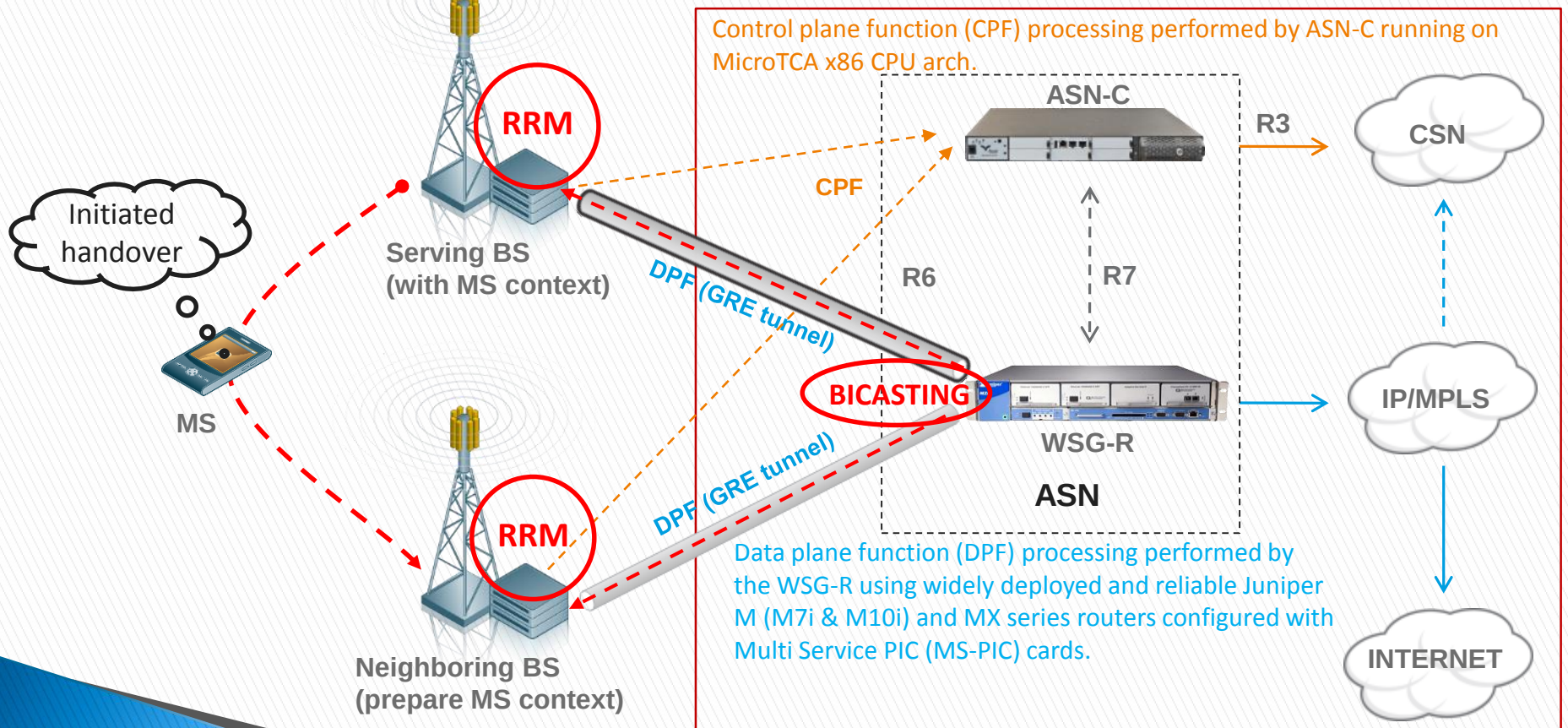
Control plane function (CPF) processing performed by ASN-C running on MicroTCA x86 CPU arch.



Data plane function (DPF) processing performed by the WSG-R using widely deployed and reliable Juniper M (M7i & M10i) and MX series routers configured with Multi Service PIC (MS-PIC) cards.

Legacy Protocols & Mechanisms Know-HOW

Splits control and data plane processing into different elements (like LTE)



Legacy Security & Automation Know-HOW

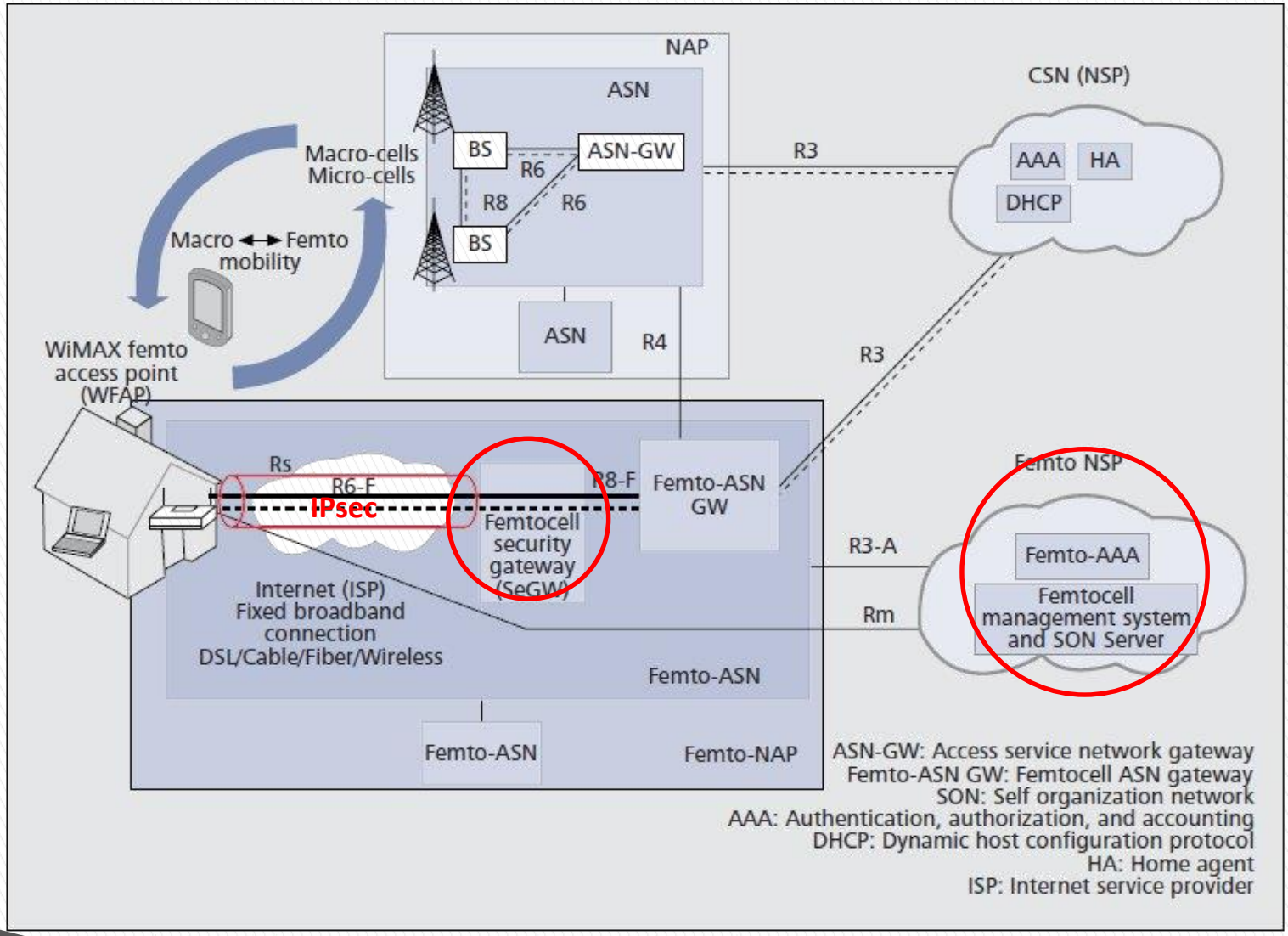
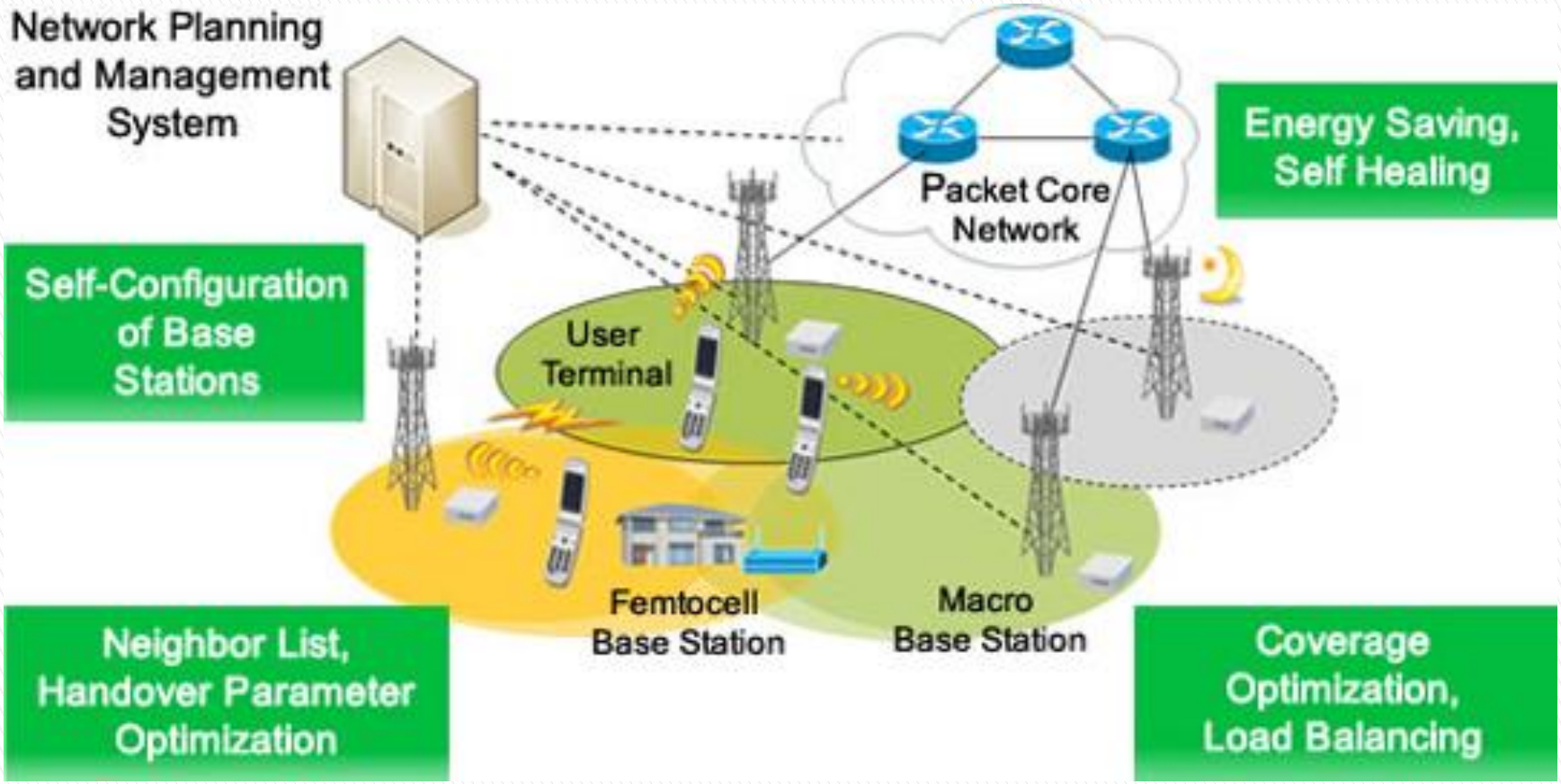


Figure 2. *WiMAX femtocell system (high-level architecture).*

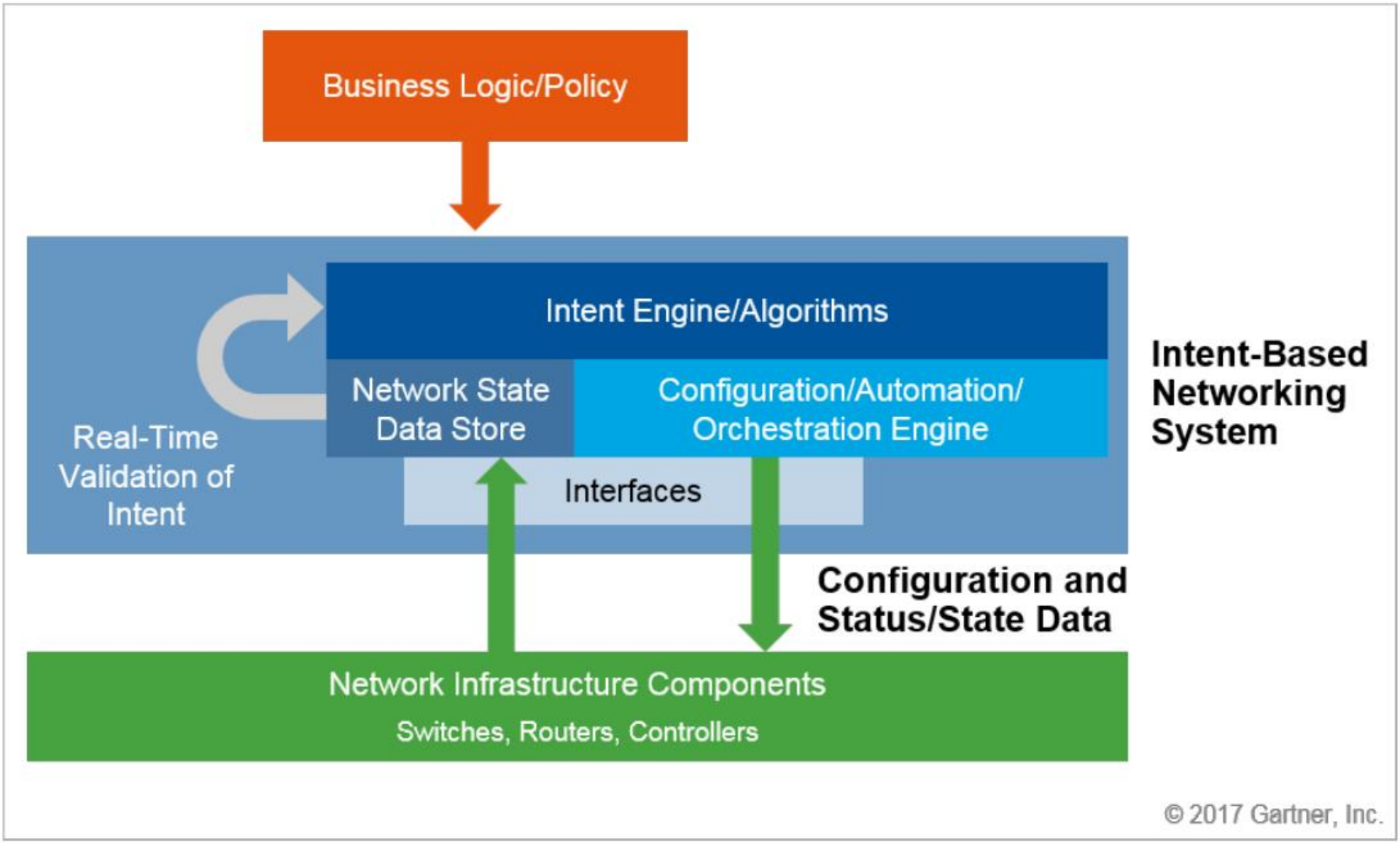
Self Organizing Networks – SON Know-HOW



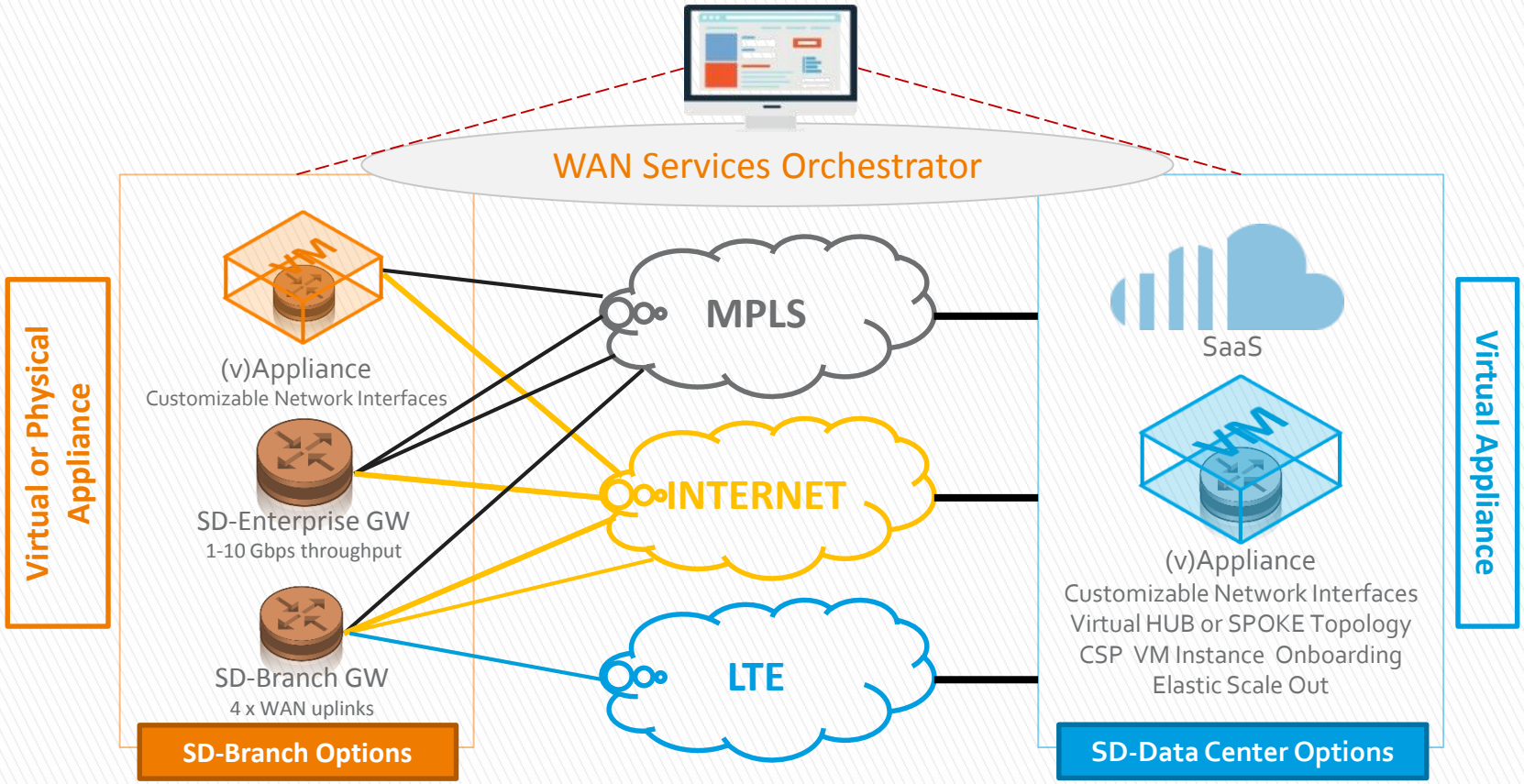
Intent-based Networking System

- Intent-based networking systems monitor, identify and react in real time to changing network conditions

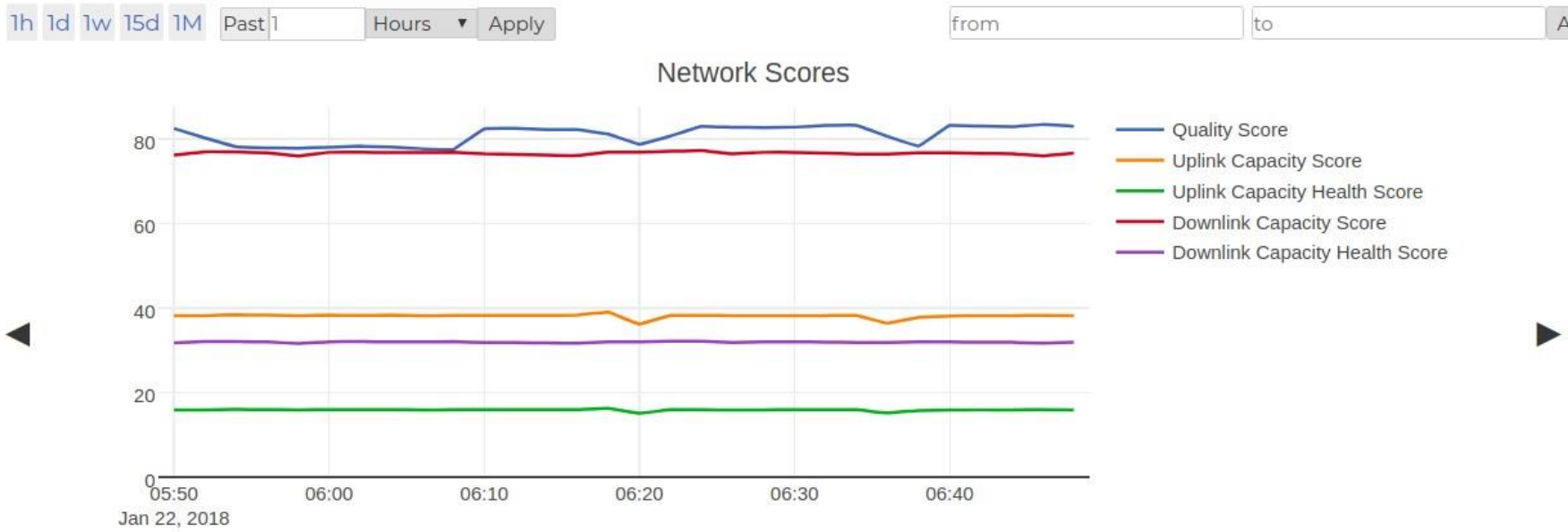
In a nutshell, IBNS is about giving network administrators the ability to define what they want the network to do, and having an automated network management platform create the desired state and enforce policies.



Flexible Platform Deployments



Continuous Monitoring, Path Optimization & App Stearing



WAN Monitoring	Traffic / App Stearing	Error Correction
Automatic capacity testing Continuous link & path quality monitoring	Aggregate / balance on multiple WAN links App Aware per Packet Steering Optimal link & path across Internet and private circuits	Error & jitter correction Automatic steering for link outage, increased latency, jitter or PER

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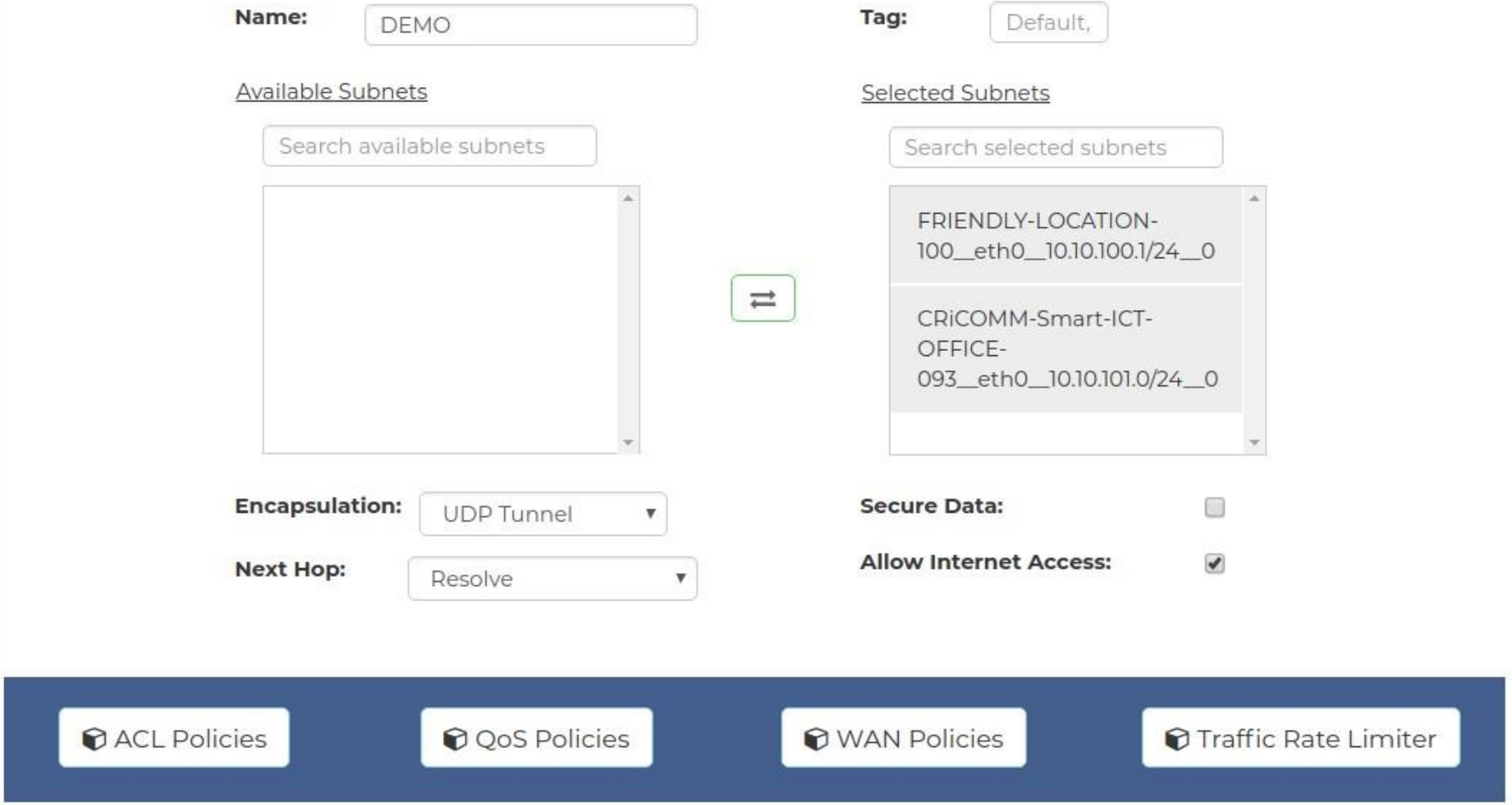
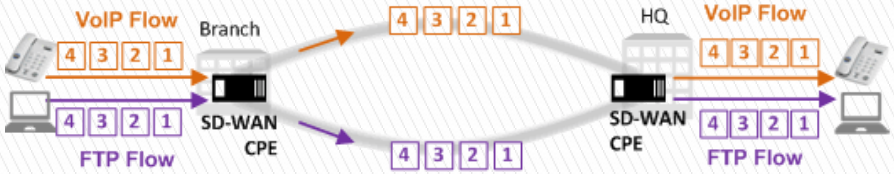
Create network group



Per-Flow/Packet LB, LAG, Tunnel Bonding

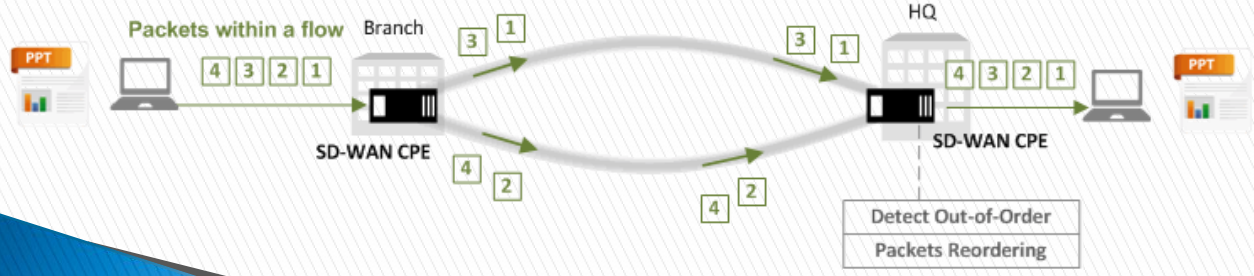
[Per-Flow Load Balancing]



Different application ⇨ Different path

Two flows belonging to an application (ex, FTP)

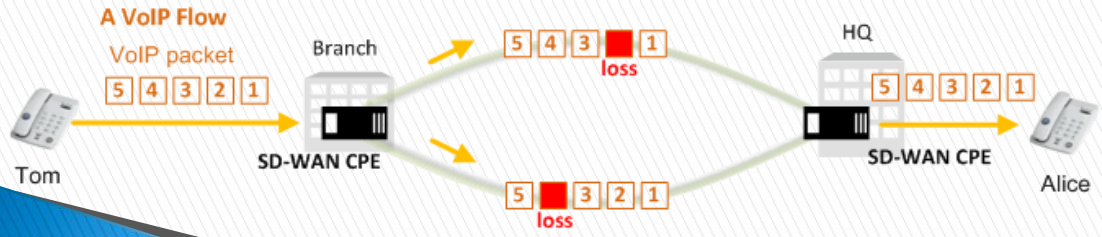
[Per-Packet Load Balancing, Link Aggregation, Tunnel Bonding]



Dynamic Path Switching / App Stearing, Packet Duplication

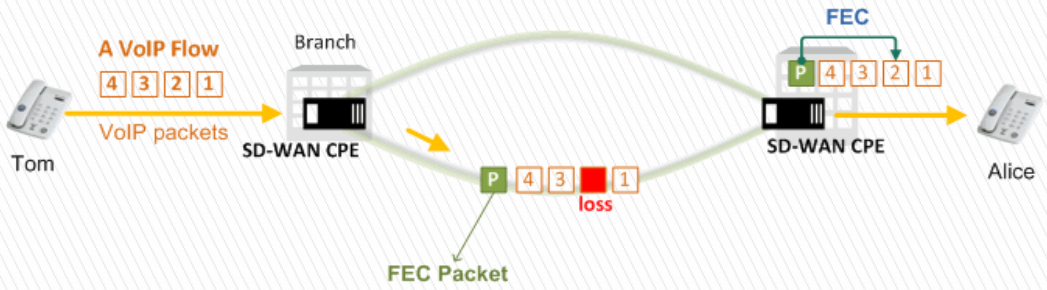
[Dynamic Path Switching]

[Packet Duplication]

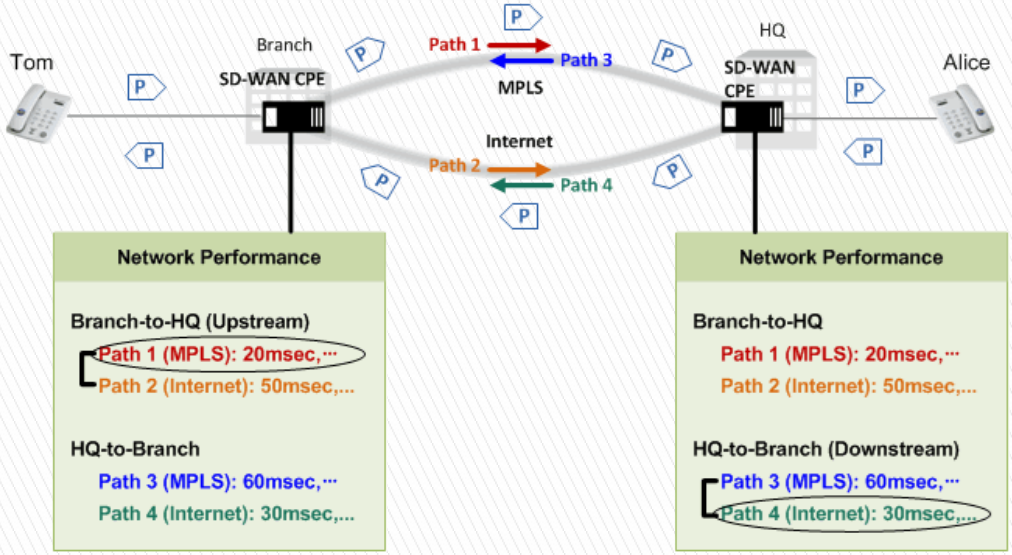


FEC, OWD Measurement & Stearing

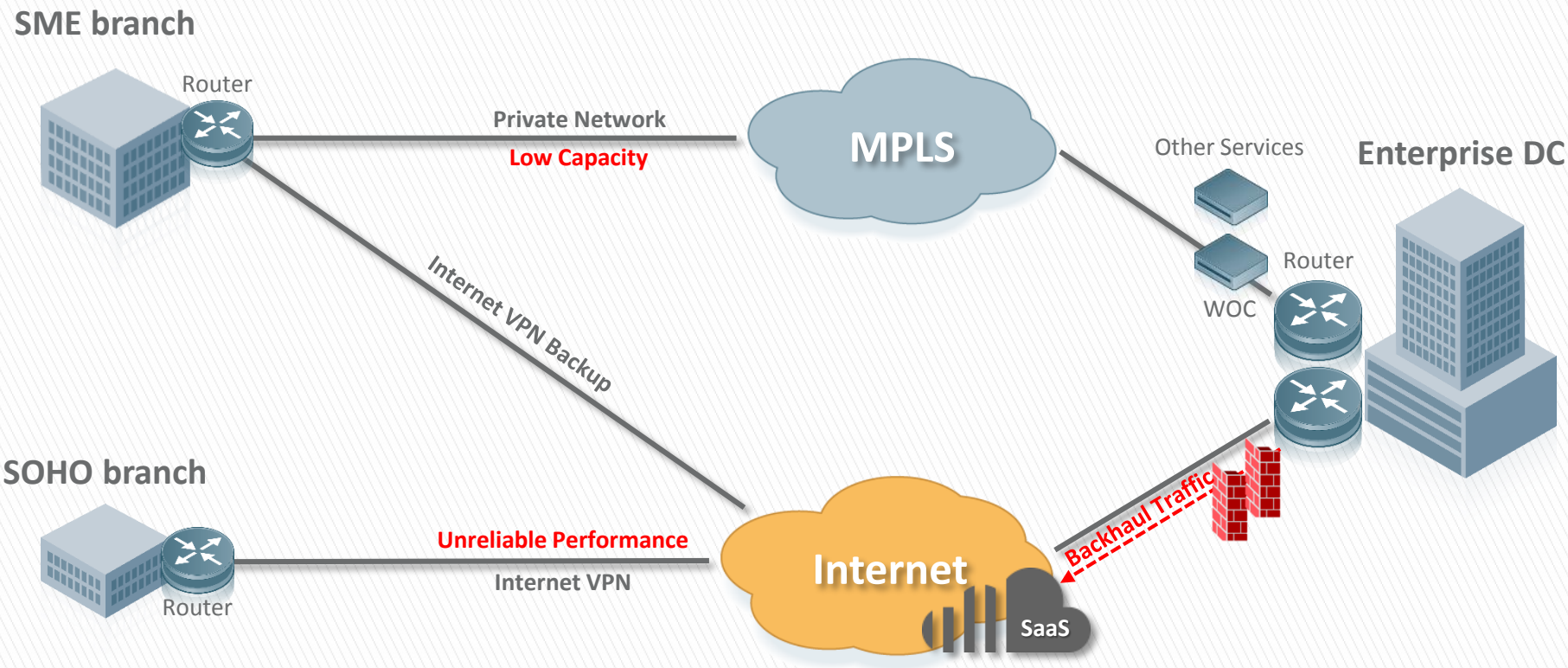
[FEC]

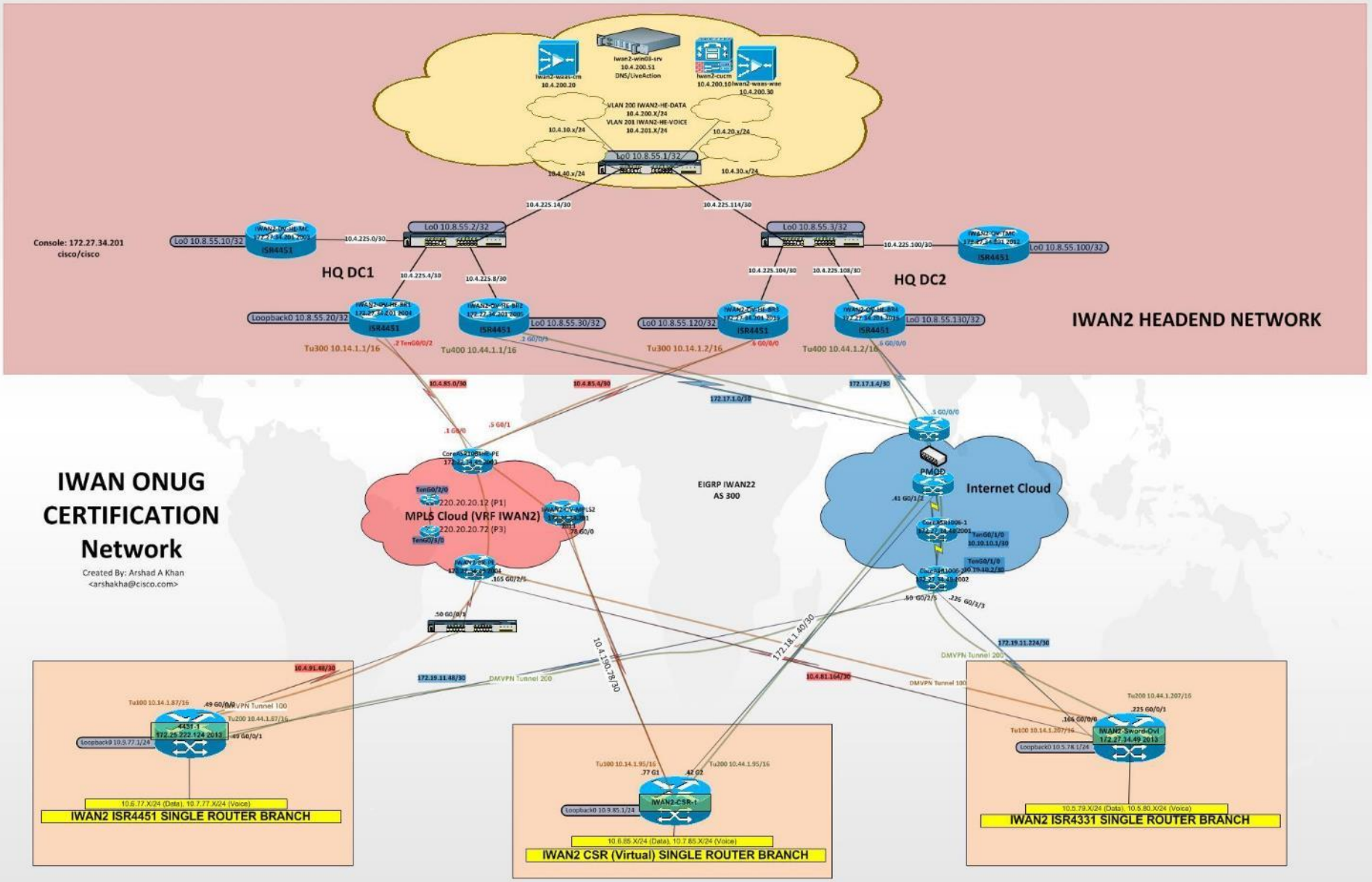


[Unidirectional Measurement and Steering]



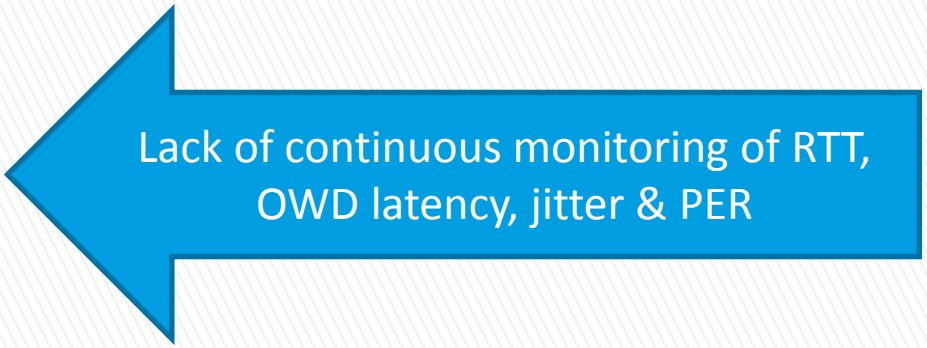
Traditional WAN Network





LAG, Load Sharing / Balancing, Failover Methods

- Firewall marking/mangling
- Bonding
- ECMP (Equal Cost Multi-Path)
- PCC (Per Connection Classifier)
- VRRP
- BGP, OSPF
- RSVP



Zakaj tega ne moremo storiti danes?

- **BGP, OSPF usmerjevalni protokol se:**
  - Ne zaveda aplikacij
  - Ne zaveda kvalitete povezave oz. poti
- **Kompleksnost povezav v načinu Active / Active**
  - PBR po drugi strani pa kompleksen HA
  - Zmožnost agregacije več WAN povezav hkrati
- **Širokopasovni dostop ne pomeni "business grade"!!!**
  - Zasičenje na deljenih povezavah
  - Redna vzdrževalna dela

MREŽA

- **Eth stikala in usmerjevalniki z omejenim naborom funkcionalnosti, ki se težko prilagodijo specifičnim aplikacijam**
- **Veriženje storitev trenutno orientirano bolj na DC-je**
- **Brez interaktivnega vstavljanja storitev na zahtevo**
- **Omejena centralizirana vidljivost**

STORITVE / APLIKACIJE

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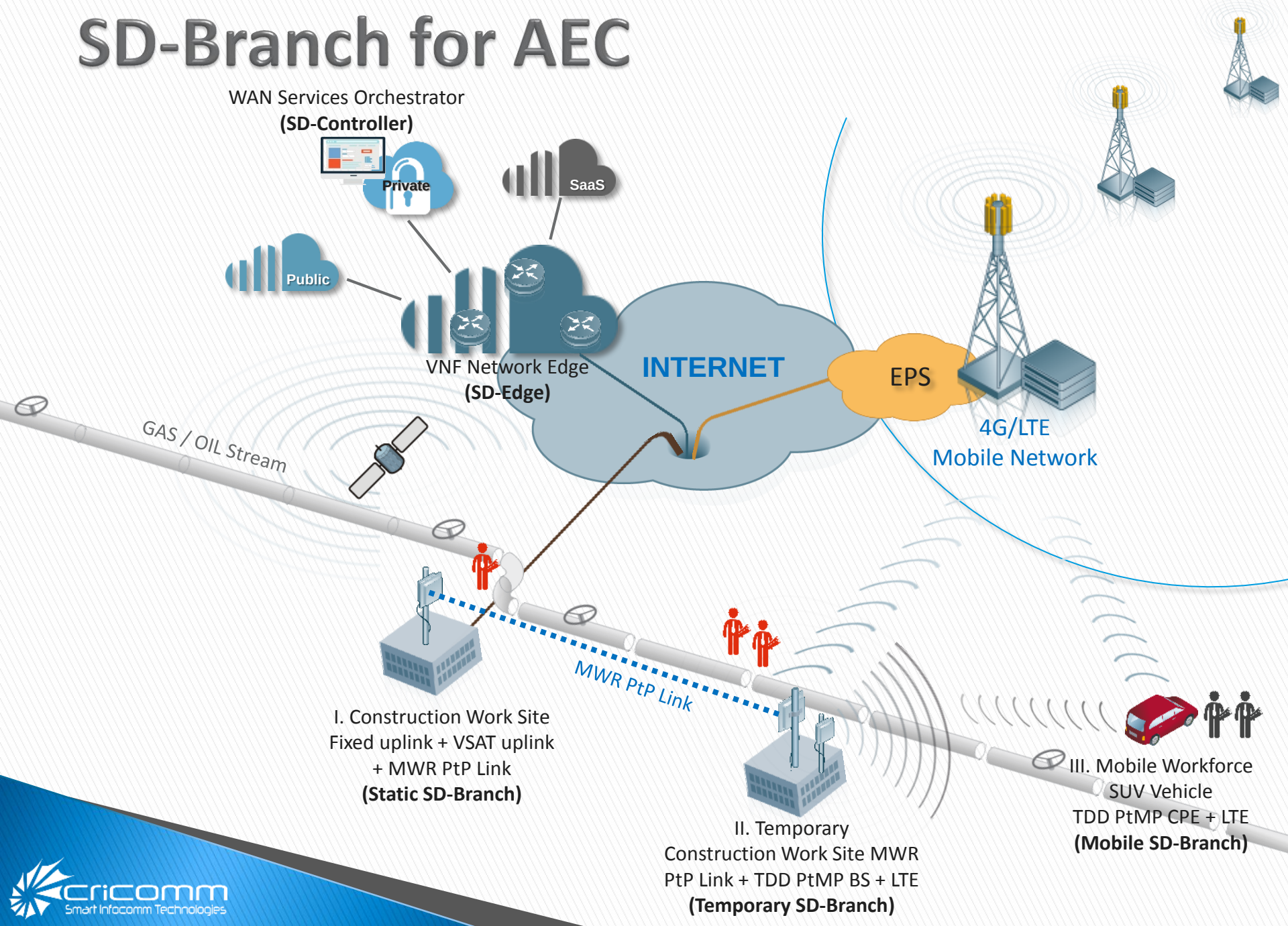

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Q&A