SEBA reality check!
How to take the design to the next level?

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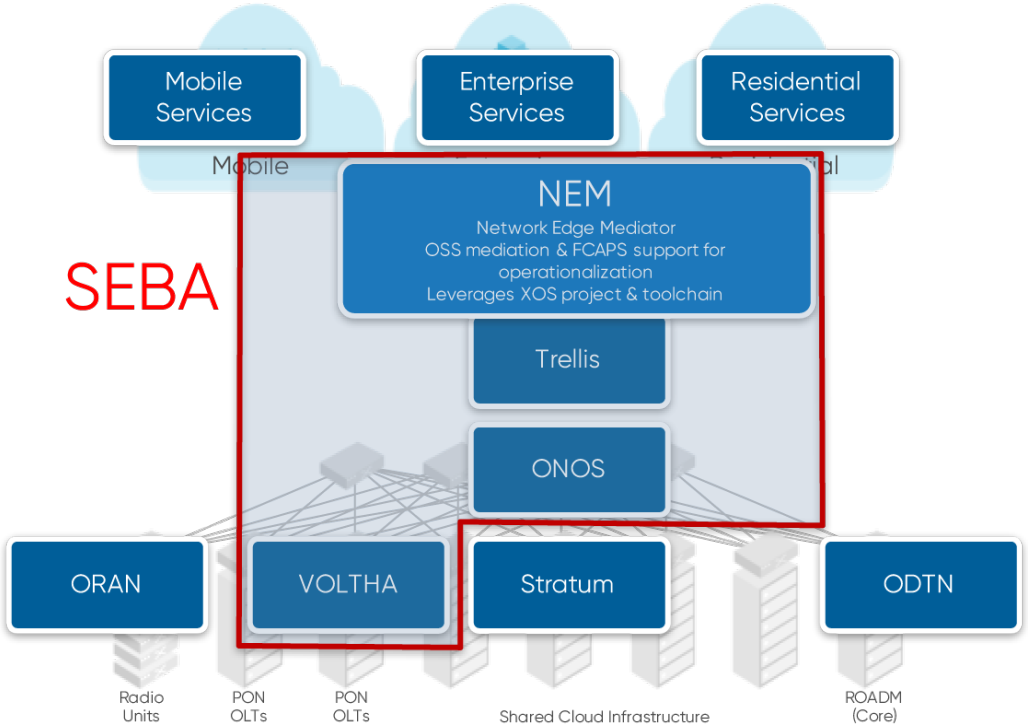
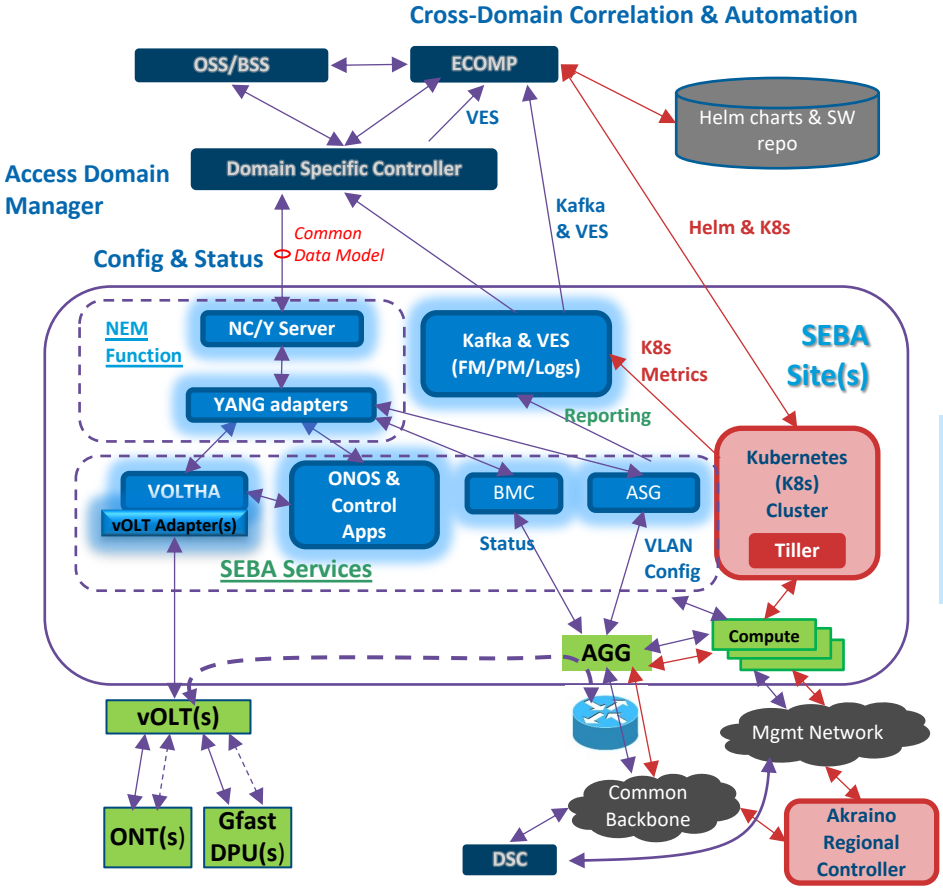
Goals for SEBA

- Provide a basis for community development and support of broadband access systems.
- Enable/encourage 3rd parties to build offers based on SEBA.
- Integrate easily with existing OSS and NG ONAP management.
  - But also minimize system concerns in upstream systems
- Provide like capabilities across disparate access systems
- Avoid lock-in

SEBA Architecture



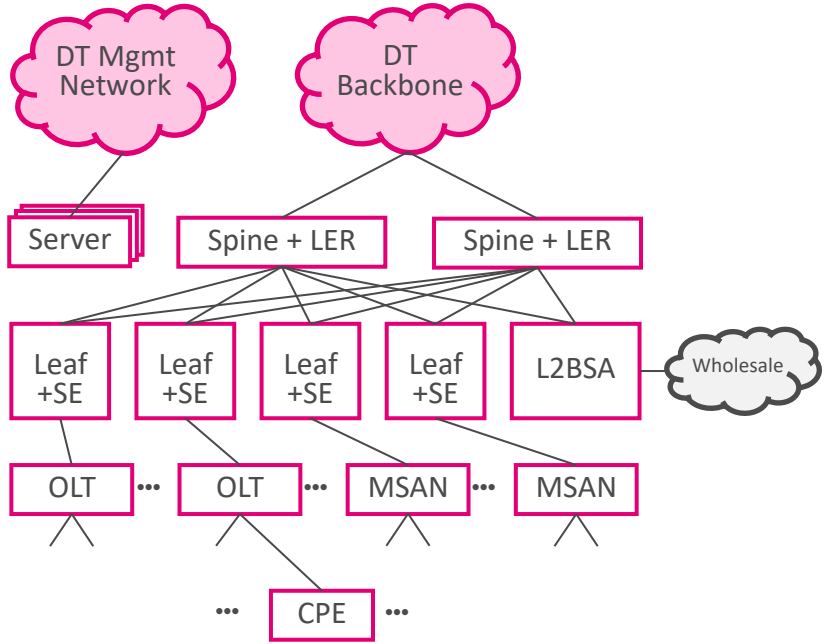
AT&T vAccess SEBA/VOLTHA Deployment Model



- **SEBA SW (in blue)** deployed by Helm API to K8s containers and SW images
  - **NEM Function - SEBA NC/Y Server** – Mediator to DSC
  - **NEM Function - YANG Adapters** – to SEBA services
  - **Kafka & VES** – Agents for Collection & Reporting
  - **VOLTHA, vOLT adapters, ONOS, Control Apps, BMC, ASG** – SEBA services

Access 4.0 in a NUTSHELL

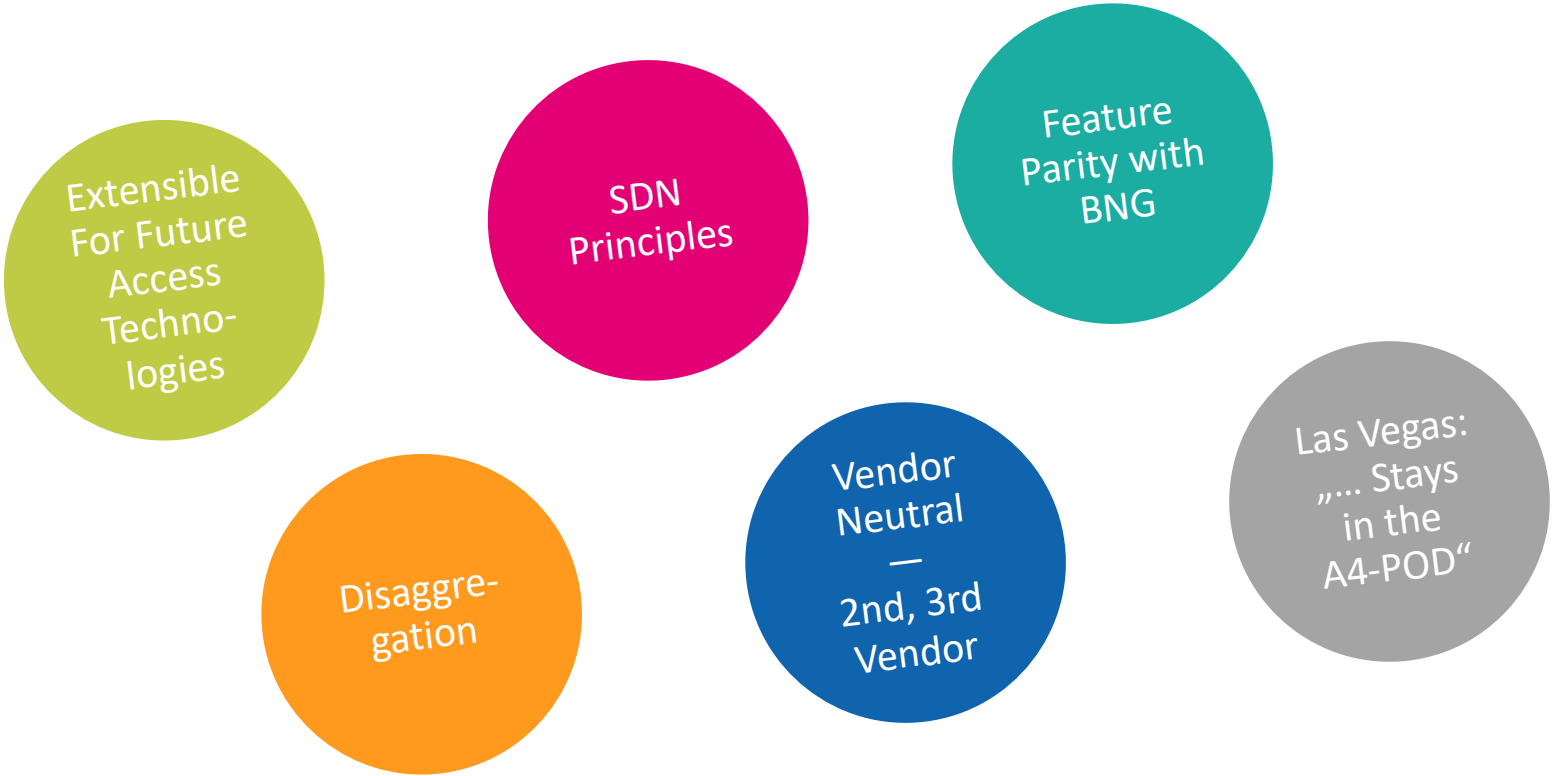
- Several other talks on what Access 4.0 does
  ⇨ see next slide
- We build many (~1000) A4-PODs, each with
  - Few servers for management & control plane containers only
  - White-box switches that provide both **SE, fabric, and LER** functions
  - White-box OLTs that enable Gigabit via FTTH and FTTB
  - Dedicated servers for IPsec, dedicated switch(es) for L2-BSA
- Few central management clusters, that
  - Implement interfaces to the OSS/BSS platform
  - Provide & distribute data to the A4-PODs
  - Collect and analyze logs, metrics, and events



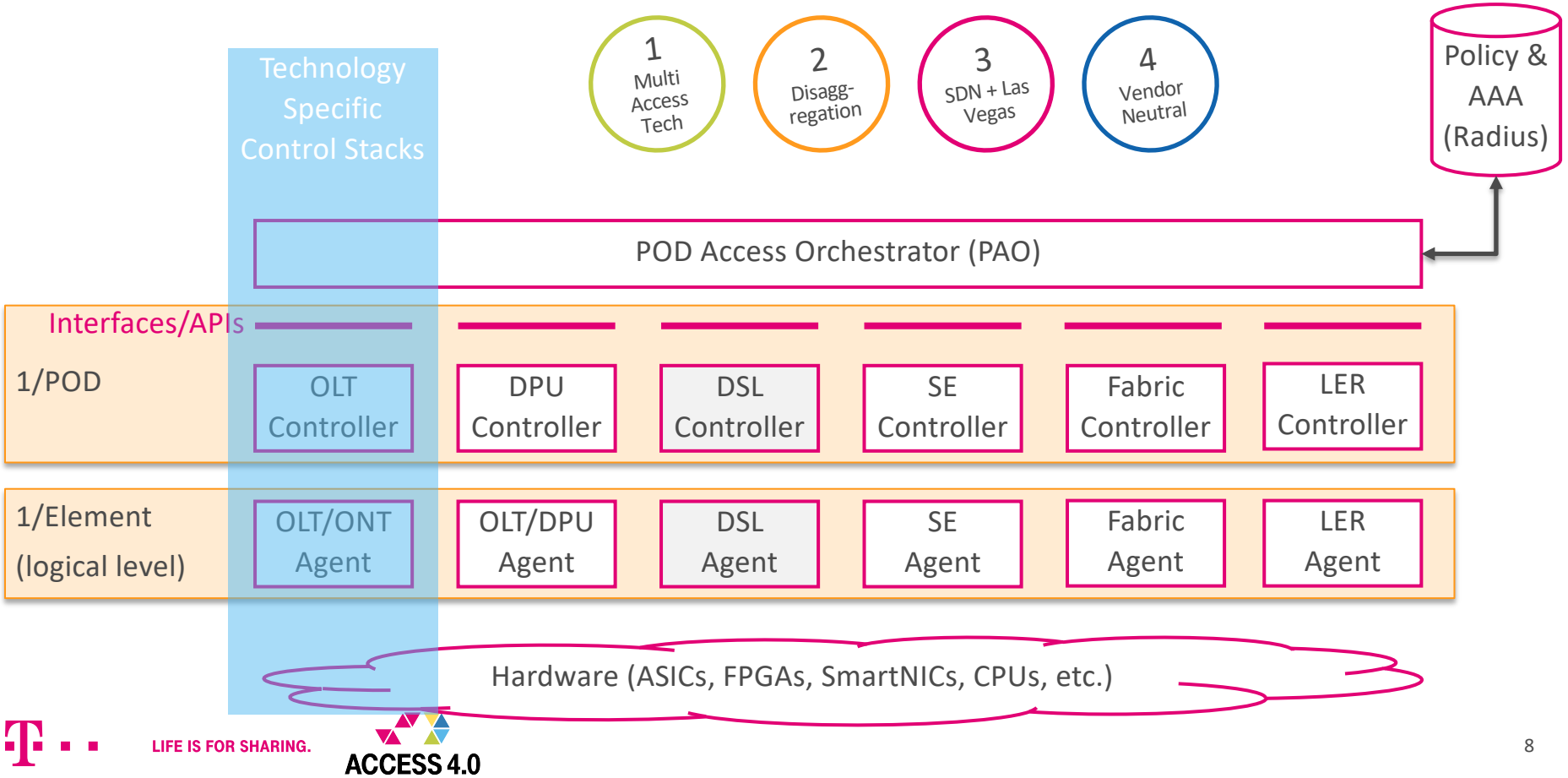
SEBA reality check: Insights from

ACCESS 4.0

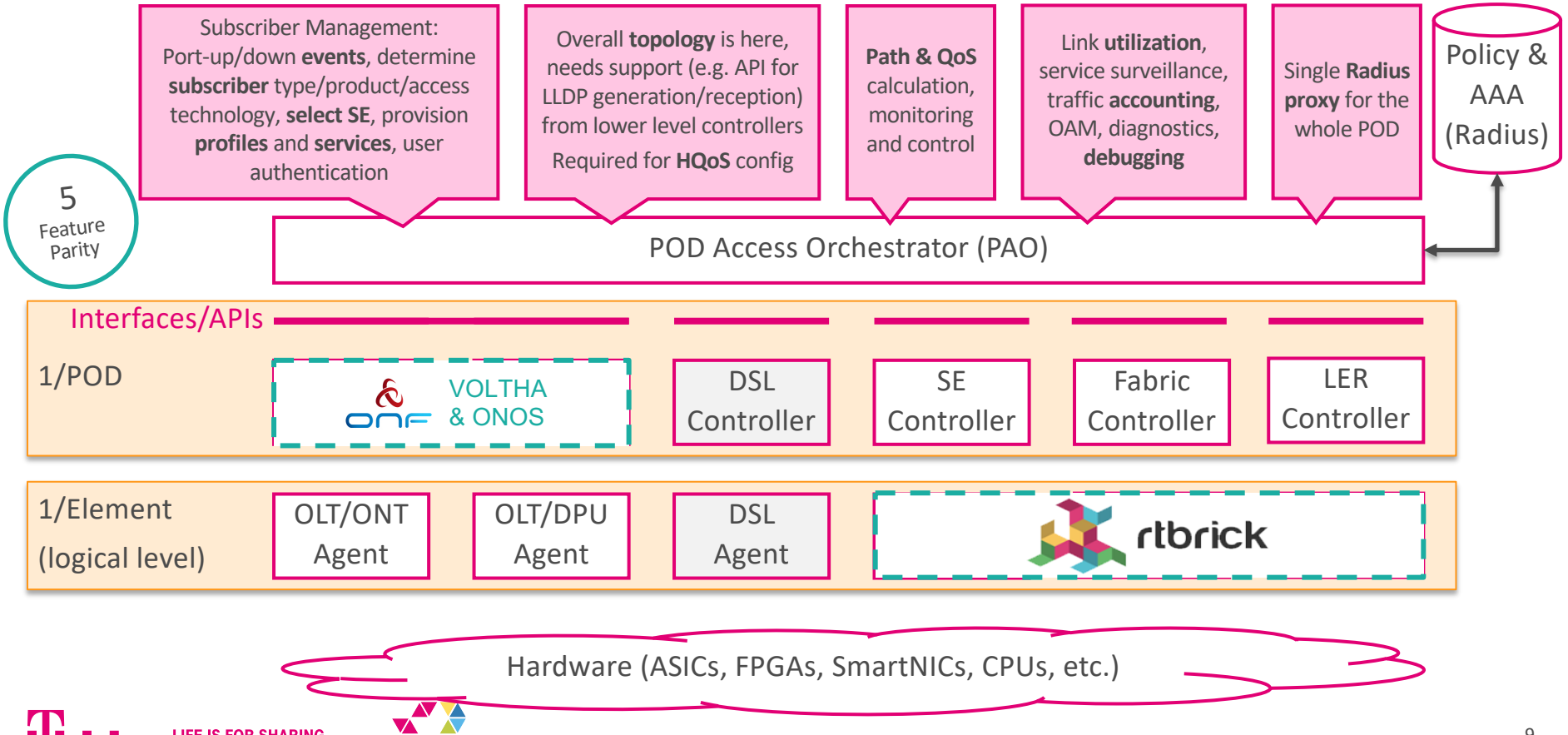
Key Drivers for the Control Plane Design



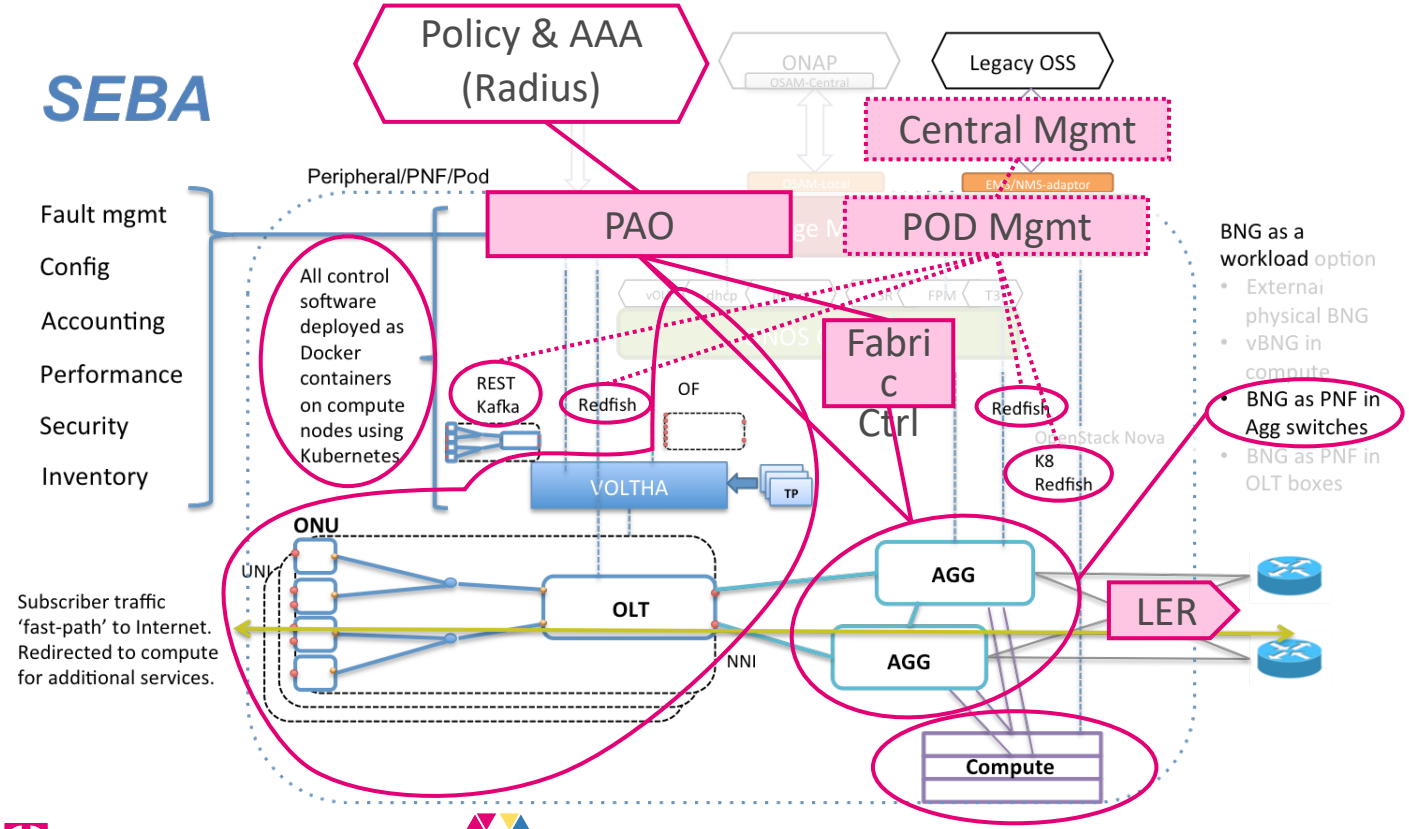
BIG PICTURE – addressIng the Key Drivers



BIG PICTURE – Imperfections & Orchestration Tasks



Access 4.0 & SEBA Exemplar Implementation



A4 central: majority of mgmt tasks

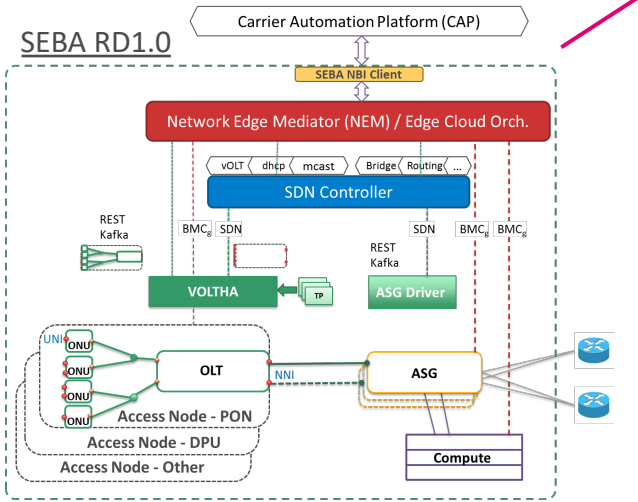
A4 POD: CP & MP separated

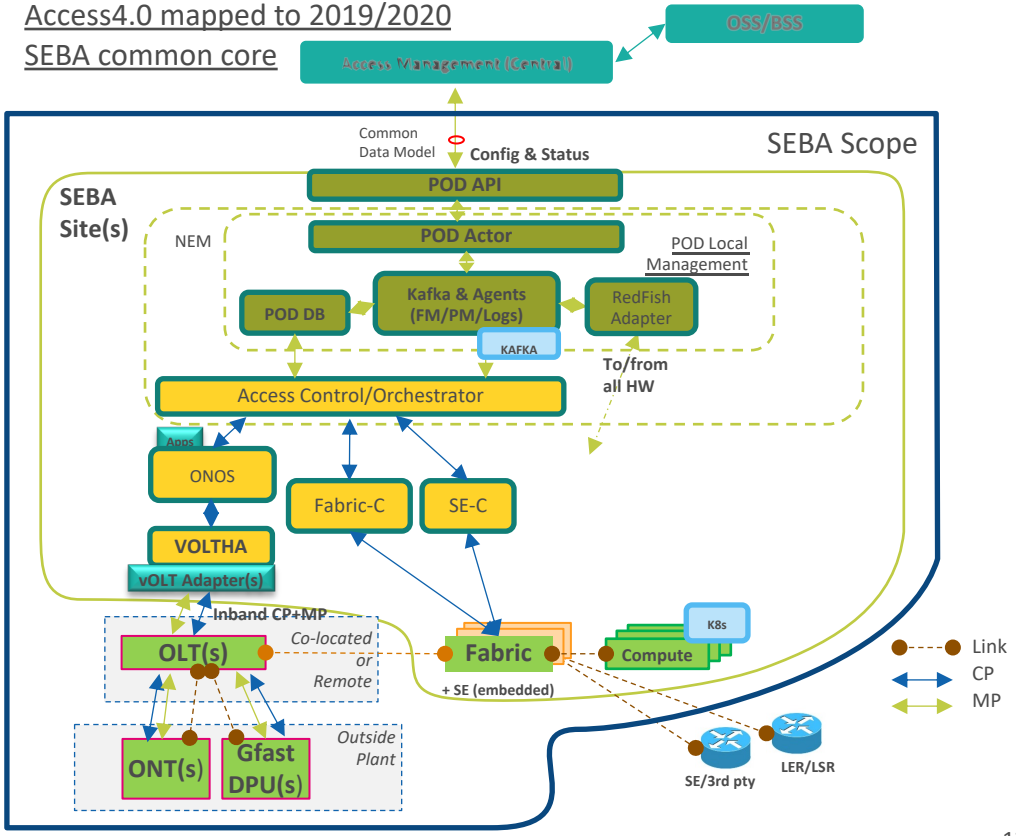
Perfect match for Dataplane

What does this mean with respect to SEBA?

- Building 1000 A4-PODs requires lean and easy to operate building blocks
  - Micro-service based components need to work in generic container management systems
  - Components should not require complex helper services (such as Kafka)
- Allow different sources (in-house dev, open-source, proprietary) for different parts of the control plane
  - SEBA must allow for more plug and play LEGO-like system building
  - Leverage common internal control plane interfaces to bring in 2nd & 3rd vendors
- Harmonize those different sources through interfaces (APIs) which abstract functionality
  - DT plans to bring these interfaces into the public, once we have a running example.
  - Happy to improve these interfaces with and move their evolution into the ONF community
- The POD access orchestration component will be very operator/deployment/scenario dependent
  - DT decided to co-develop the POD access orchestrator in-house
  - Current focus on production readiness of technology specific controllers such as VOLTHA

Actively Bringing our Experience to SEBA Acceleration





LIFE IS FOR SHARING.

ACCESS 4.0

SEBA reality check: Insights from

Pain Points with the Current State

- There's a strong desire to allow SEBA to run on open access hardware
  - So there's also a desire to reduce complexity, footprint.
- There's a need to adapt SEBA to existing large scale systems
- Economics need to be on-par with legacy solutions
- There are more opportunities for smaller scale than larger scale
- ONOS Apps are limited by OF protocol capabilities

SEBA possibilities

VOLTHA is by far the most valuable component in SEBA

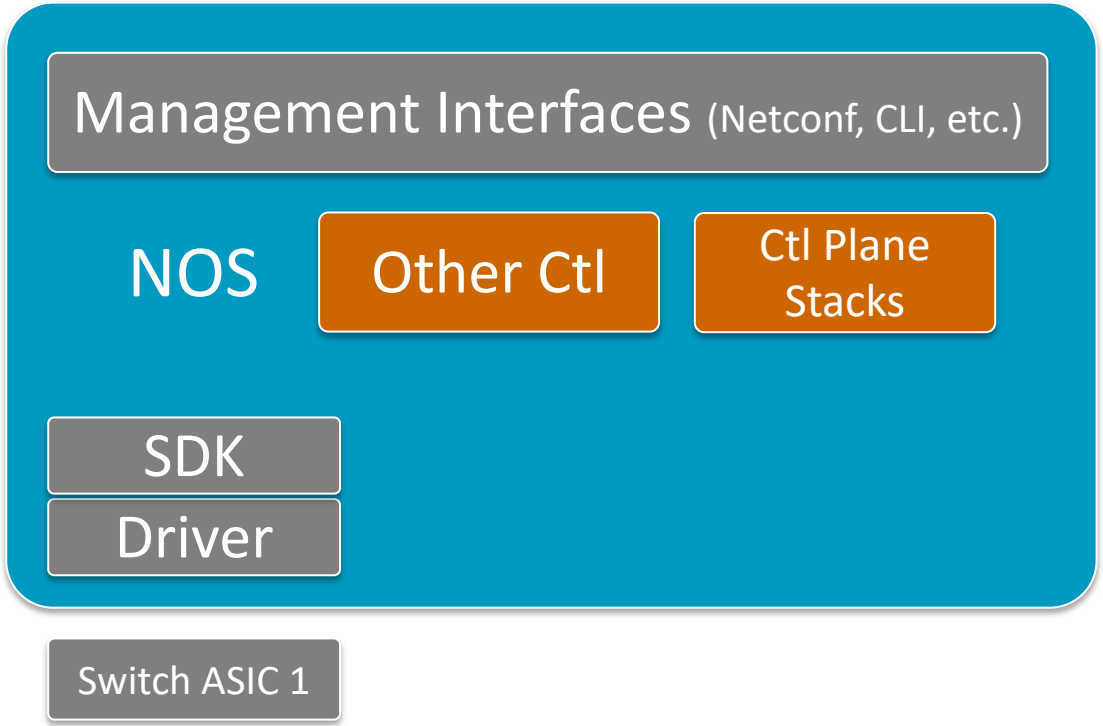
- It is also built on a robust and reliable platform

So Focus on VOLTHA – make it indispensable to a variety of uses.

- Add capabilities for more silicon and devices
- Enable small systems with local APIs
- Use performant software languages
- Redefine what makes a MVP!

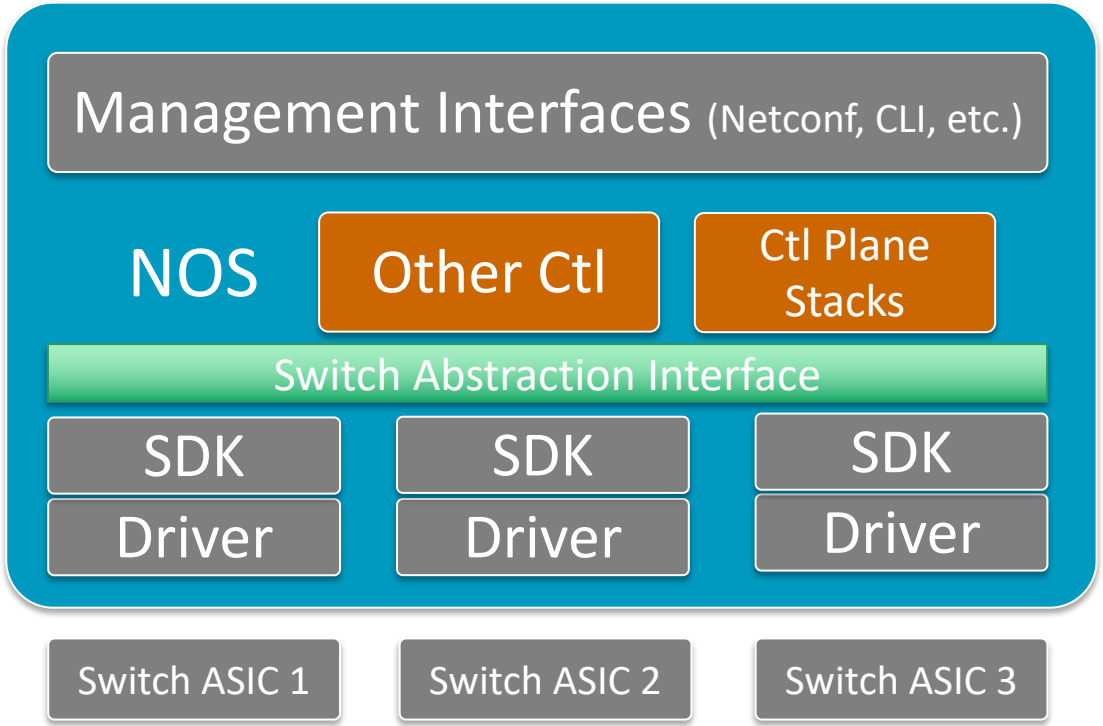
Let’s look at a similar example in an adjacent industry…

Adjacent Market Example (Original)



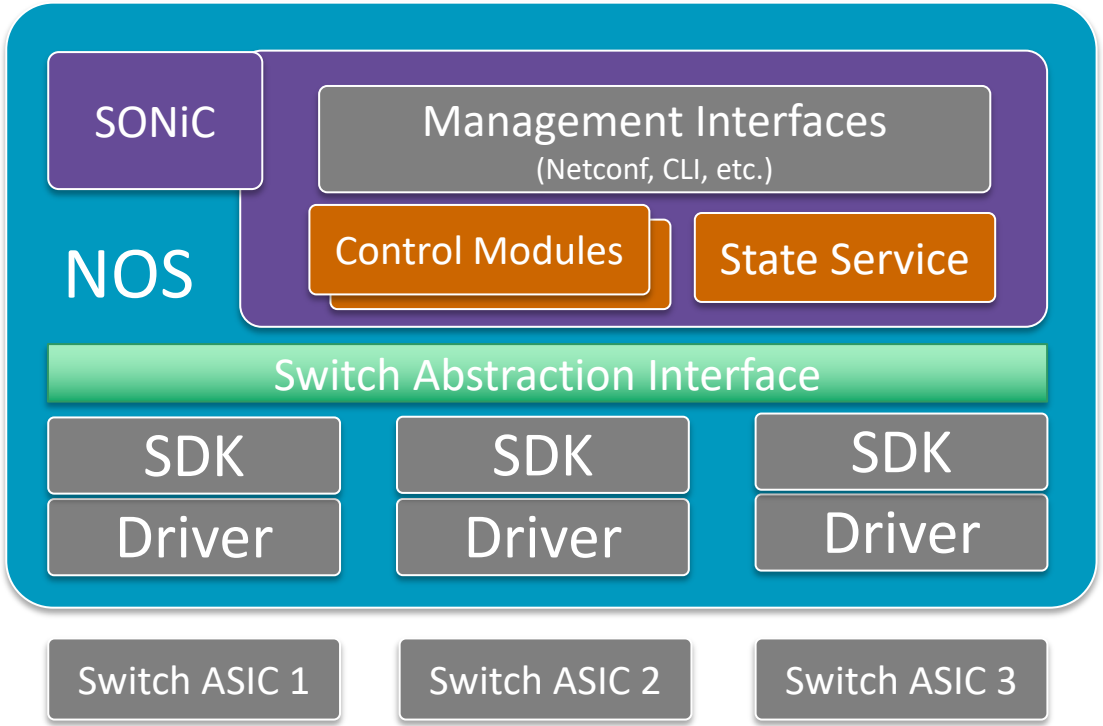
Old School Switch

Adjacent Market Example (SAI)



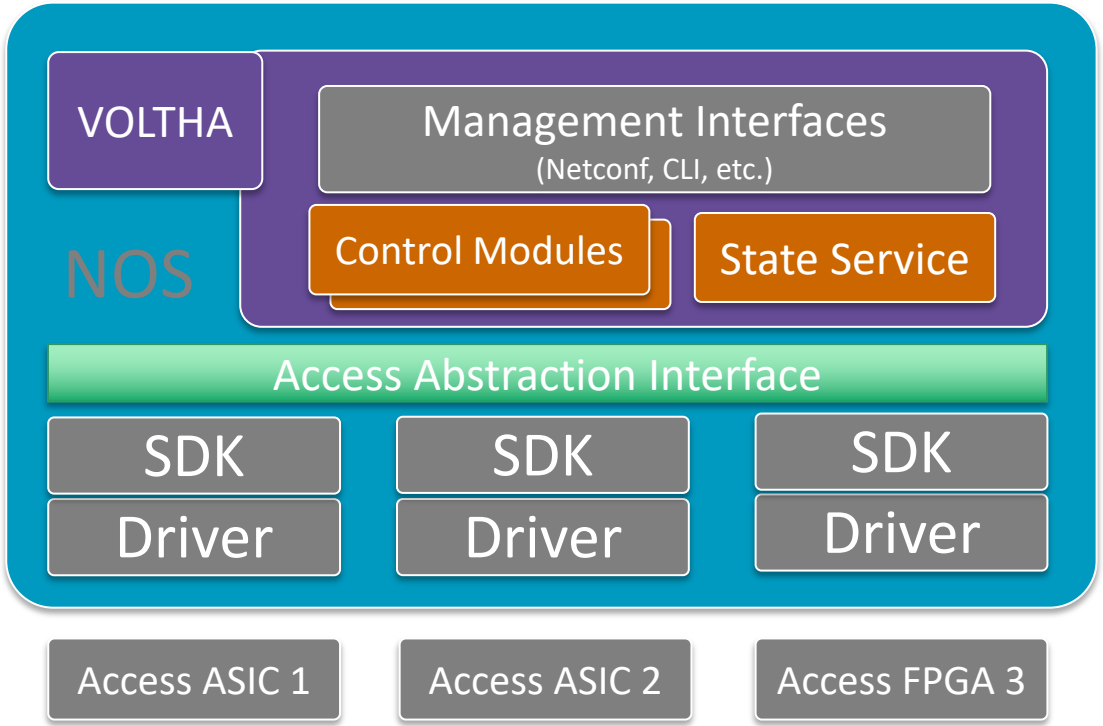
After SAI

Adjacent Market Example (SONiC)



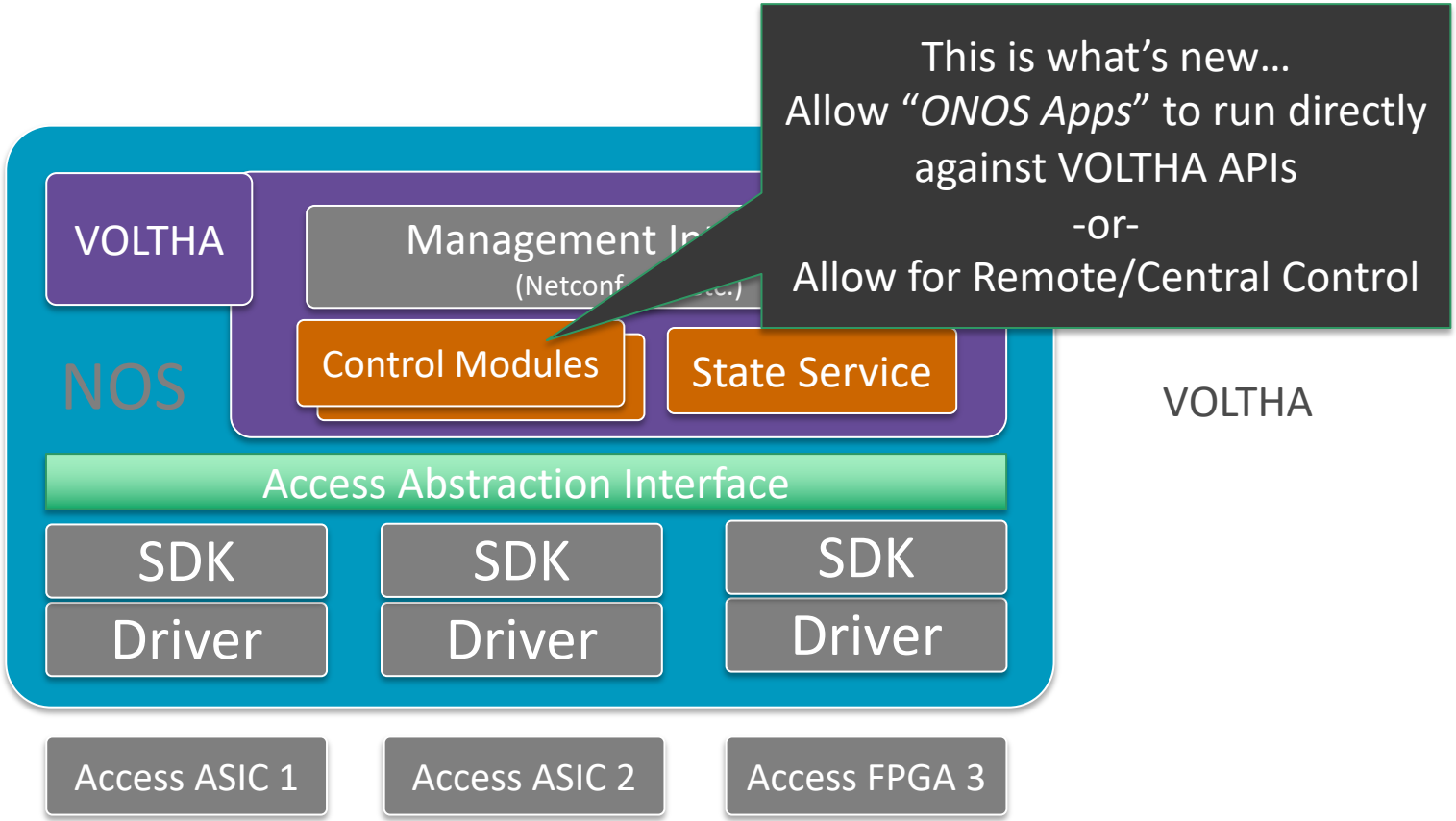
After SONiC

So Let's Envision



VOLTHA

So Let's Envision



In Summary

Focus on VOLTHA

- Adjust VOLTHA architecture to be more self-reliant
- Allow for extensibility, but don’t force it
- Enable both local and central functions

Thank You

Deutsche Telekom @ ONF Connect 2019
deep dives on Access4.0 and much more

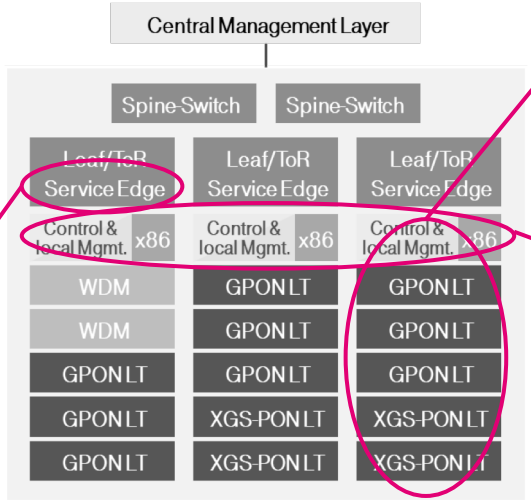
FRI — Jochen Appel, 10:00Am
Keynote: Access Network Transformation

WED — Dr. Hans-Joerg Kolbe, 11:00Am
Inside View Into Operator Business Cases
Whitepaper

WED — Manuel Paul, 4:30pm
COMAC and OMEC at DT

THU — Dr. Hans-Joerg Kolbe, 2:30pm
Implementing the Programmable Service Edge

THU — Robert Soukup, 4:30pm
Access4.0 Program update



WED — Bjoern Nagel, 2:15pm
VOLTHA Roadmap

THU — Dr. Fabian Schneider, 5:30pm
SEBA Reality Check! How to Take the Design to the Next Level?

FRI — Manuel Paul, 11:55Am
Panel: Technical Leadership Team (TLT)

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