

BBS: Orchestrating Broadband Services with ONAP

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A Brief Timeline...

Swisscom Innovation Project

Swisscom joins **Linux Foundation Networking** (ONAP, OpenDaylight, FD.io...)



BBF Q3 meeting

New BBF App Note*
(Swisscom/Nokia/Huawei)

ONAP BBS (Broadband Service) approved!

ONAP Dublin (R4) Developer Forum

Swisscom's ONAP open lab!

Contribution to BBF CloudCO spec**

BBWF demo preparation



ONS Europe!

Q1 2018

Q3 2018

Q1 2019

Q3 2019

Q2 2018

Q4 2018

Q2 2019

ONAP Beijing (R2) Dev Forum

ONAP Beijing released!

ONAP Casablanca Dev Forum

OSAM use case

New ONAP use case!

(based on BBF app note)



BBS demo @ ONS North America!

M1, M2, M3, M4, RC0, RC1, RC2...

ONAP Dublin released!

(*) [CloudCO-APPN-446](#)

(**) BBF CONTRIB-21389/21390: "Add Application Note 446 (BBS Use Case) interactions and NBI requirements for Access and Edge SDN M&C"

- ONAP as global service orchestration and automation platform
 - Model-based, meta-data & policy-driven automation, service agnostic...

- New use case in ONAP Dublin release:

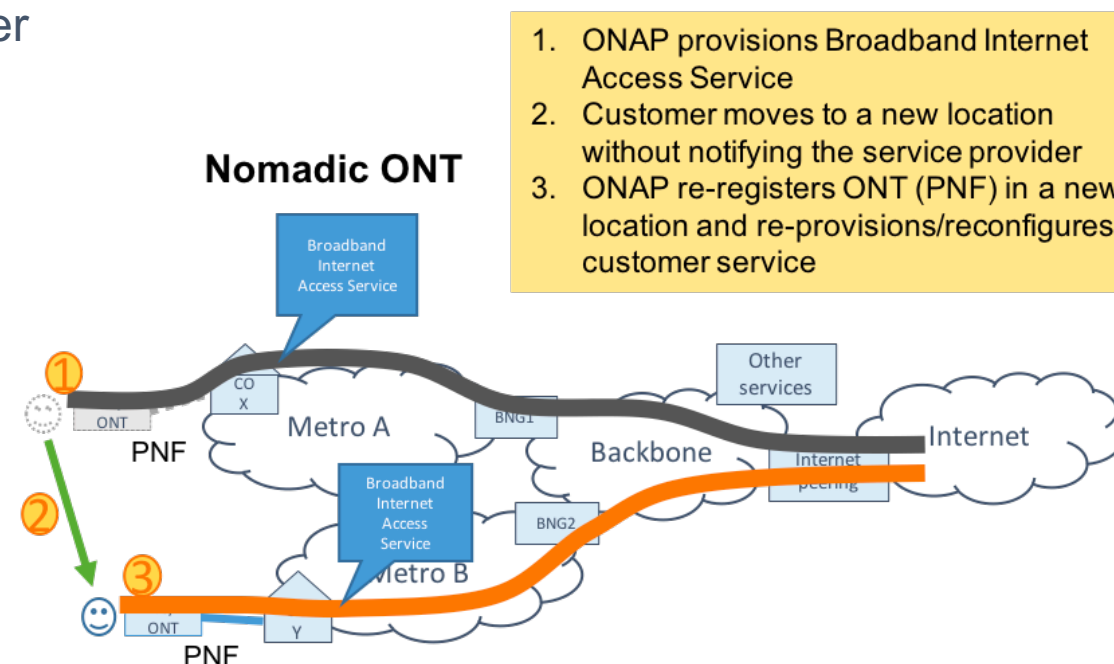
- BBS (Broadband Service)
- ONAP for the design, provisioning, life-cycle management and assurance of multi-gigabit internet access customer facing services

- Open standards: BBF CloudCO, TMF OpenAPIs

- Automation & orchestration challenge: **Nomadic ONT**

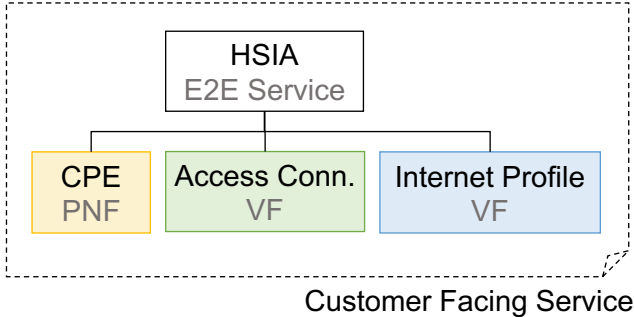
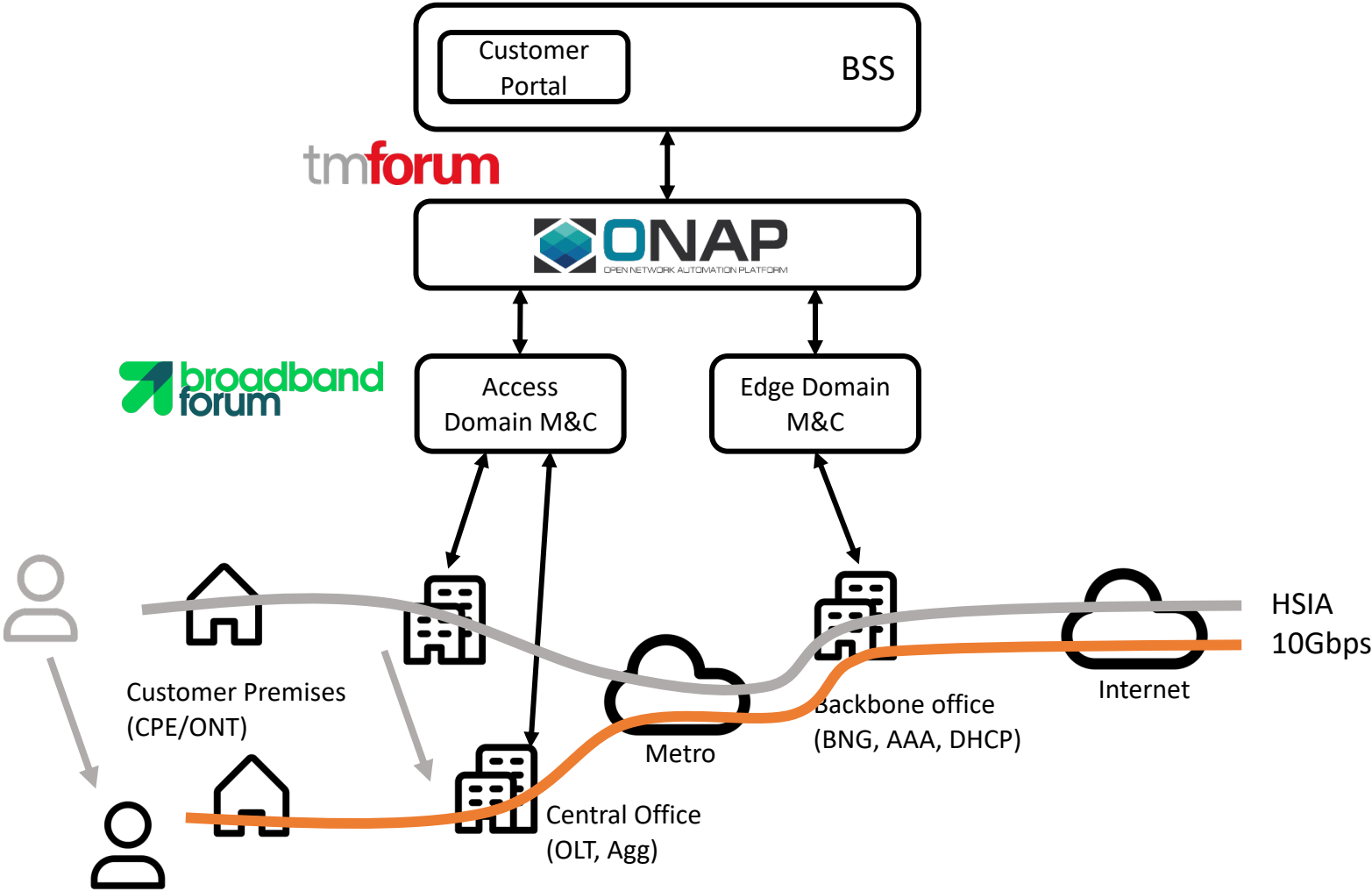
- ✓ Best customer experience

- ✓ Operational excellence

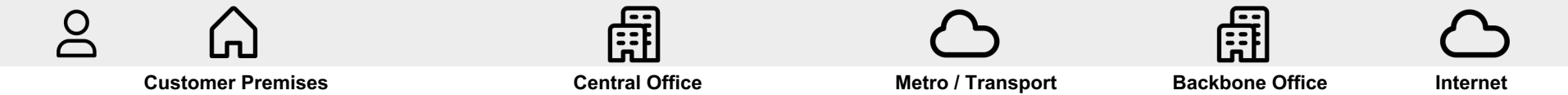
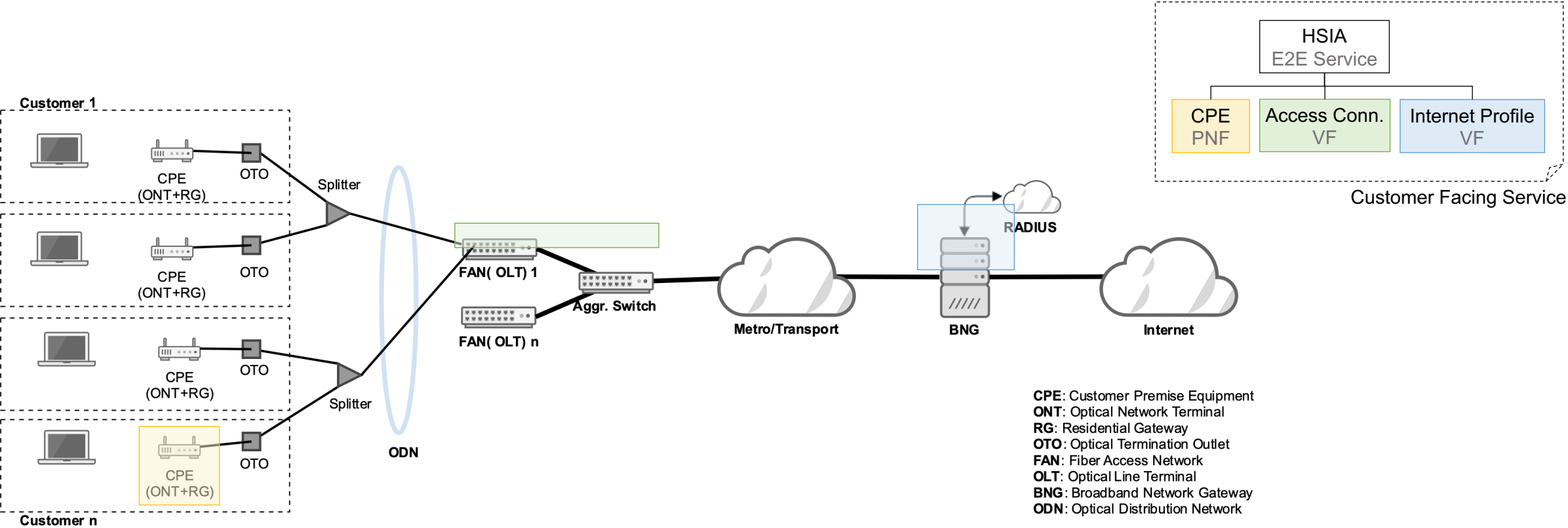


<https://wiki.onap.org/pages/viewpage.action?pageId=45297636>

BBS overview

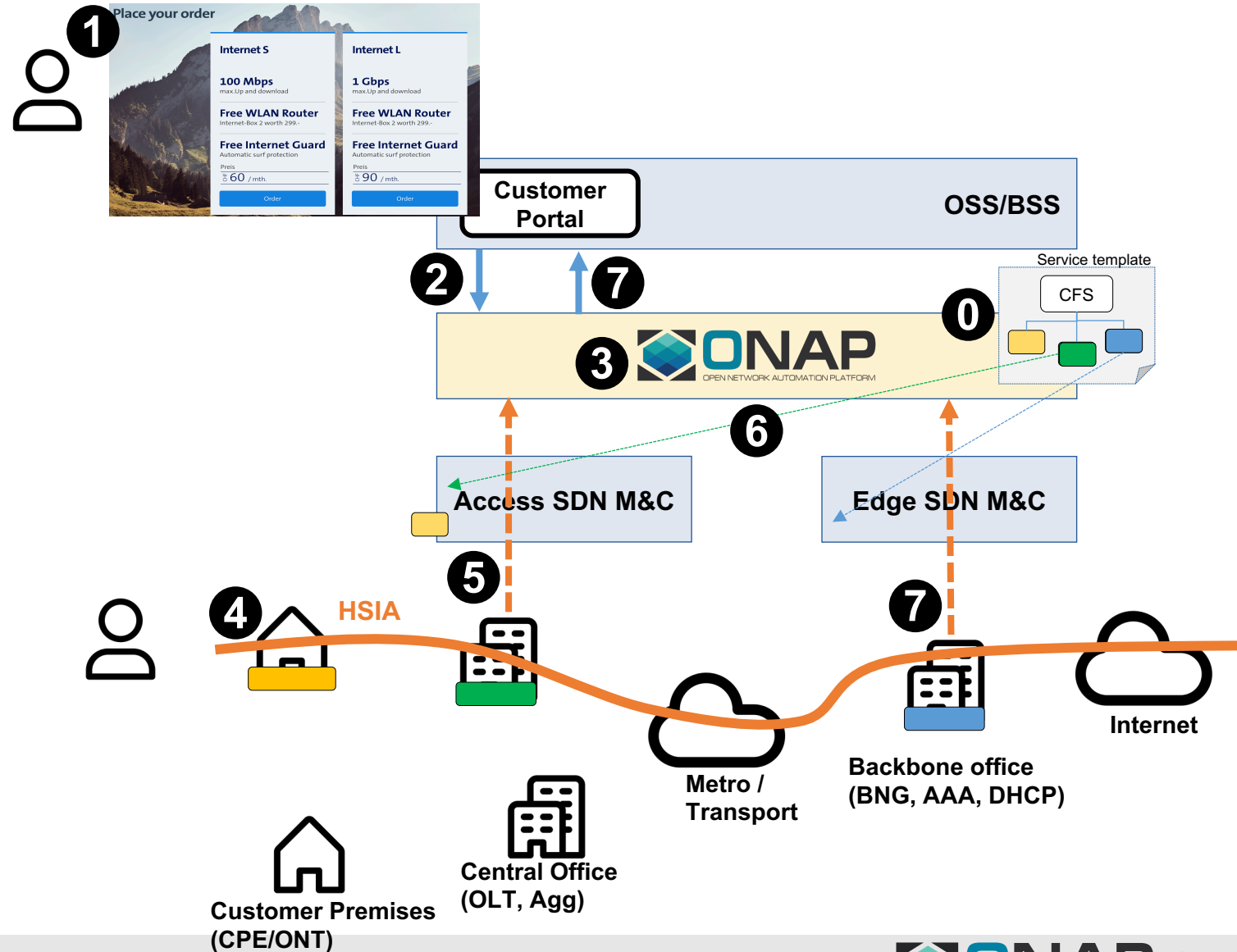


BBS: Customer Facing Service Model



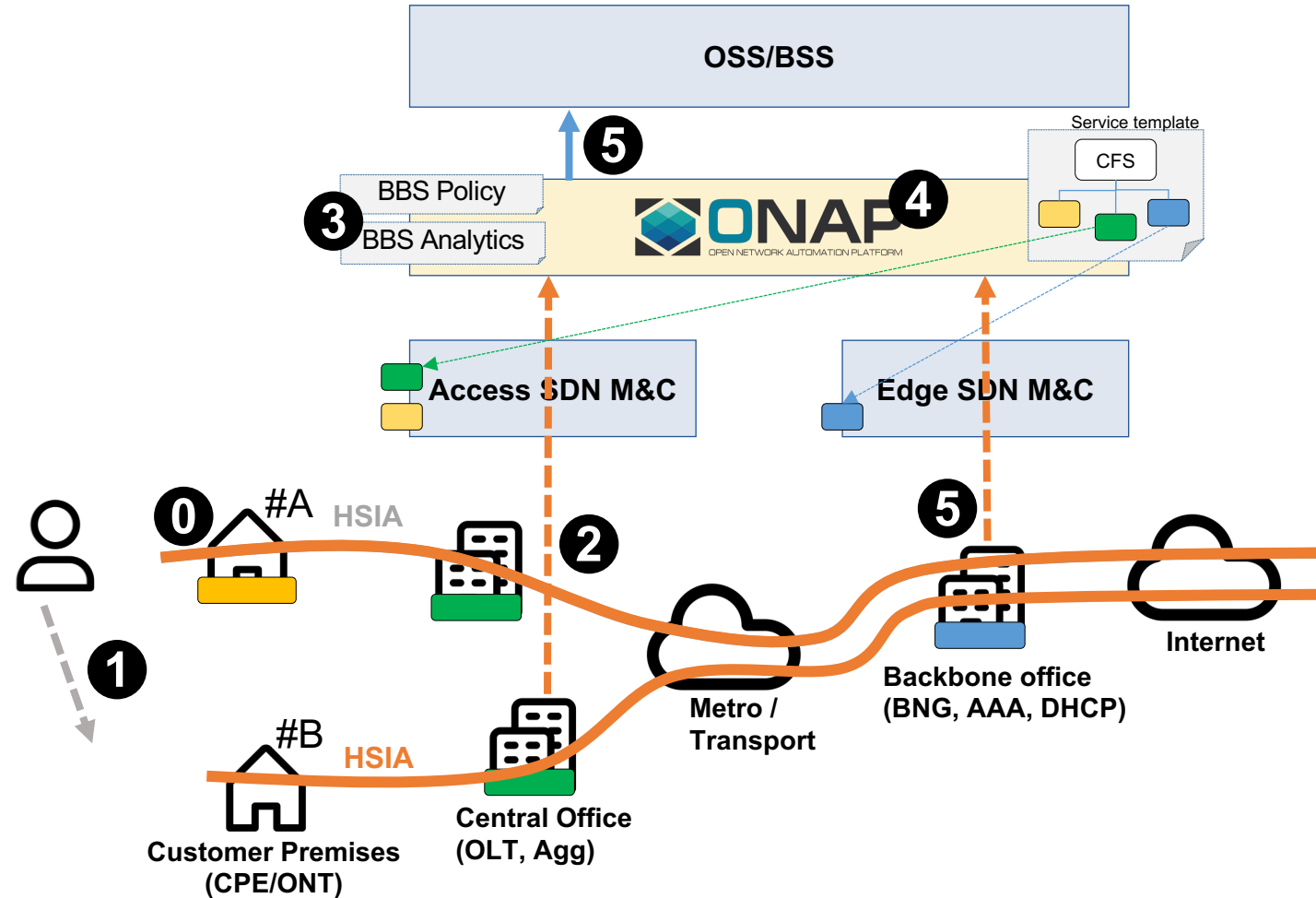
BBS: High Speed Internet Access Creation and Activation

- 0 HSI service model onboarding
- 1 Customer orders HSI service via portal
- 2 BSS orders instance of HSI CFS service
- 3 ONAP creates CFS and waits for CPE
- 4 Customer receives and plugs in CPE
- 5 New CPE is detected and reported
- 6 ONAP orchestrates remaining CFS resources
- 7 HSI service ready!

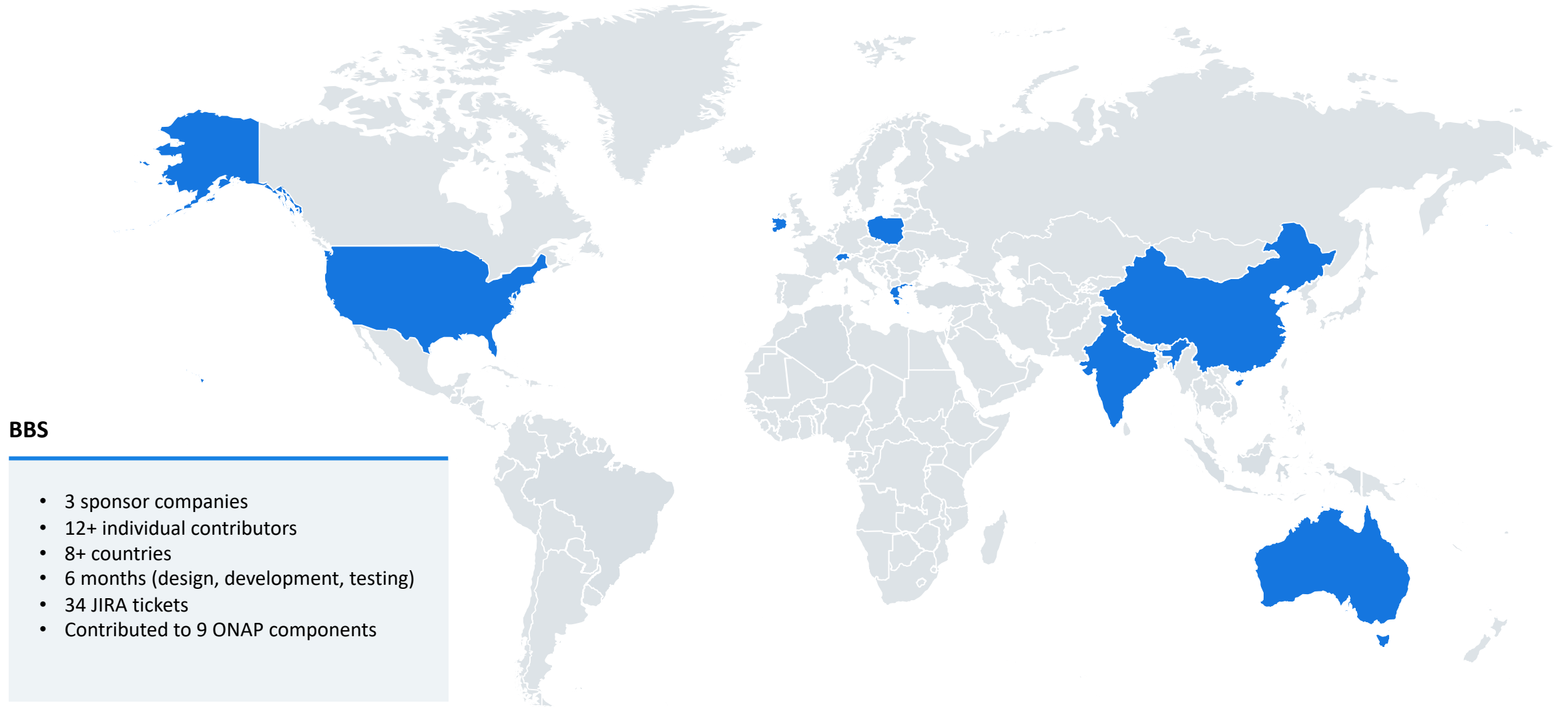


BBS: Nomadic ONT. HSIA Reconfiguration

- 0 HSIA service is active in home #A
- 1 Customer moves to new home #B with CPE
- 2 CPE in new location is detected
- 3 ONAP analyzes the event and triggers policy to identify resources to be reconfigured
- 4 ONAP reconfigures the HSIA service
- 5 HSIA service ready in home #B!



BBS Use Case in Numbers



BBS

- 3 sponsor companies
- 12+ individual contributors
- 8+ countries
- 6 months (design, development, testing)
- 34 JIRA tickets
- Contributed to 9 ONAP components

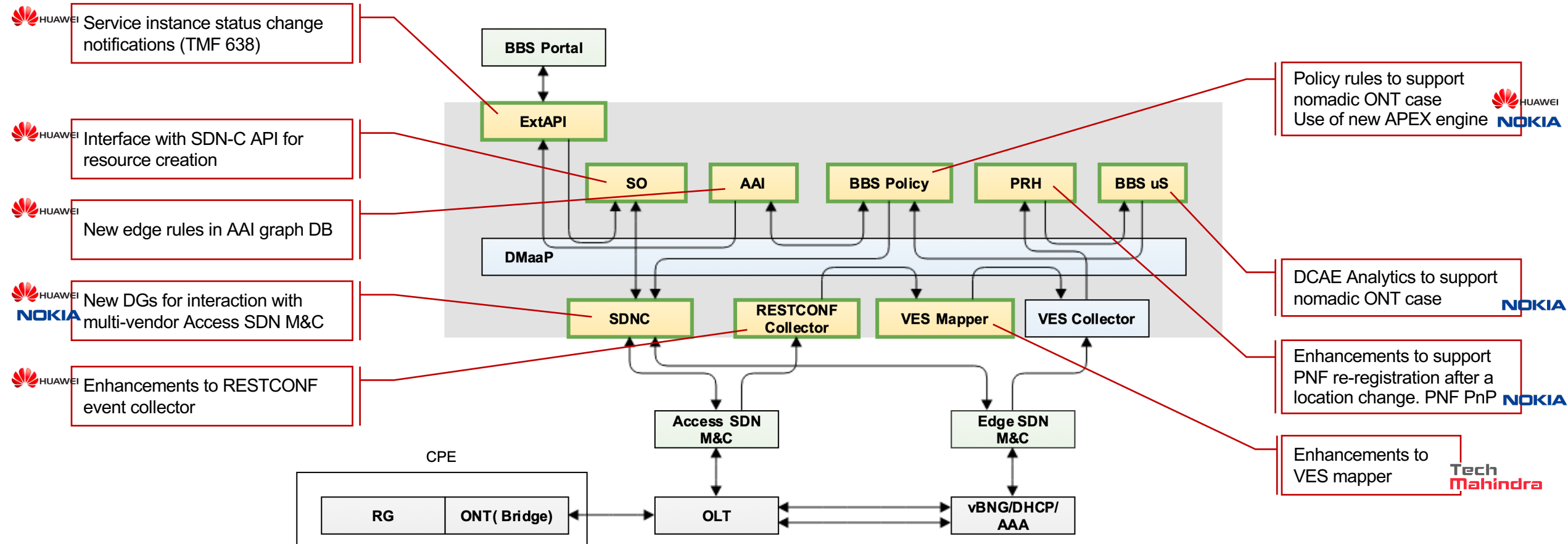


Contributions to ONAP platform

Gao Weitao (Huawei)

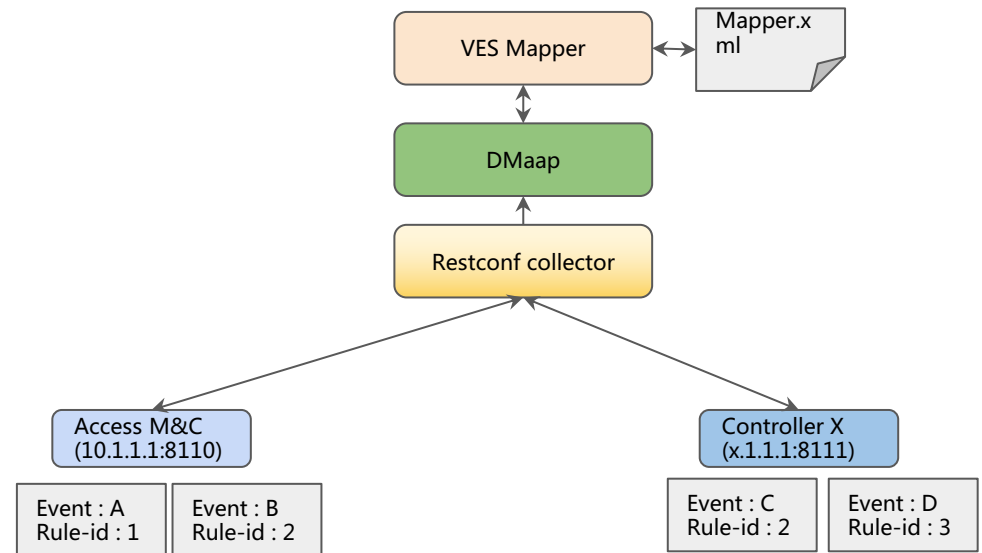
BBS: Contributions to ONAP Dublin (R4)

<https://wiki.onap.org/pages/viewpage.action?pageId=45297636>



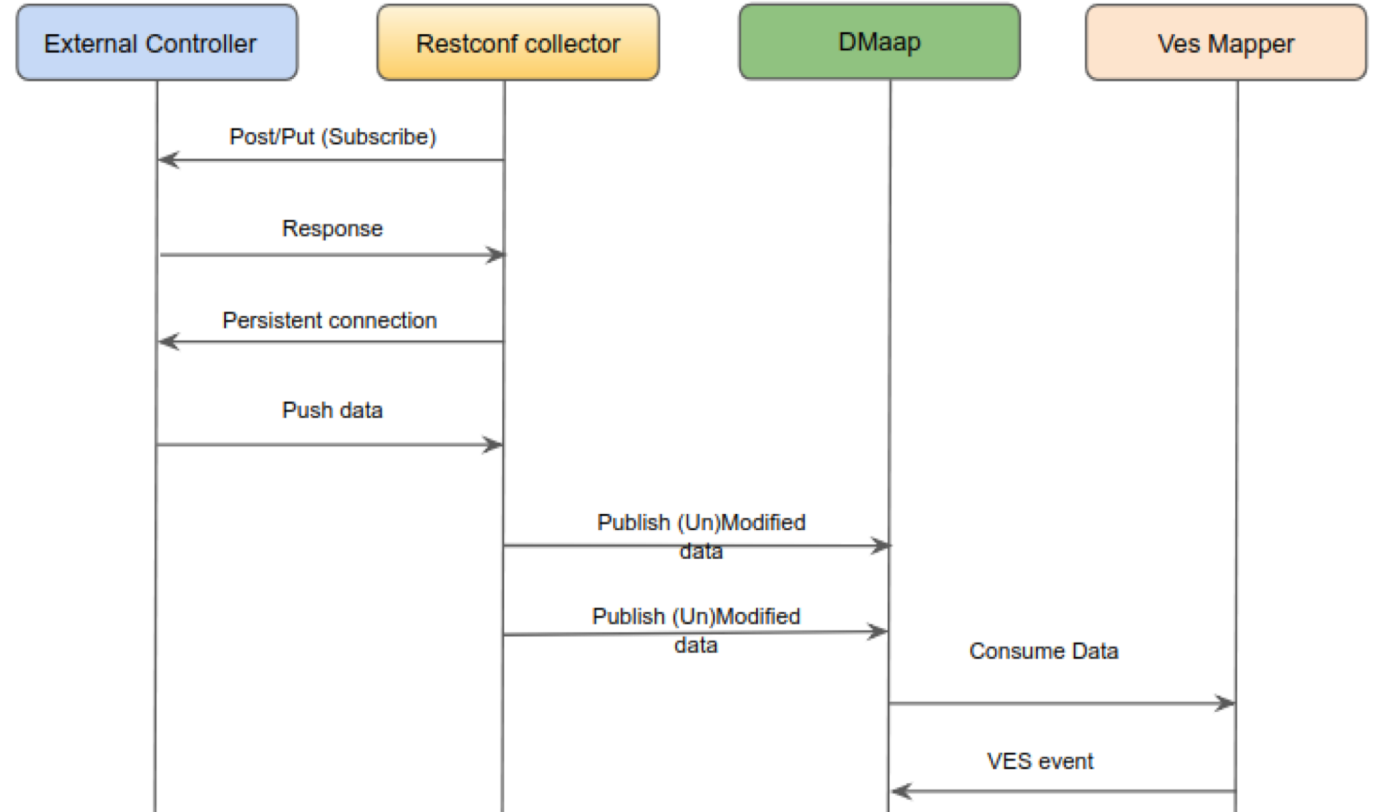
RestConf Collector

- A microservice in DCAE
- Usecase: CCVPN, BBS
- Usage: Collect 3rd party controller Event via Restful API

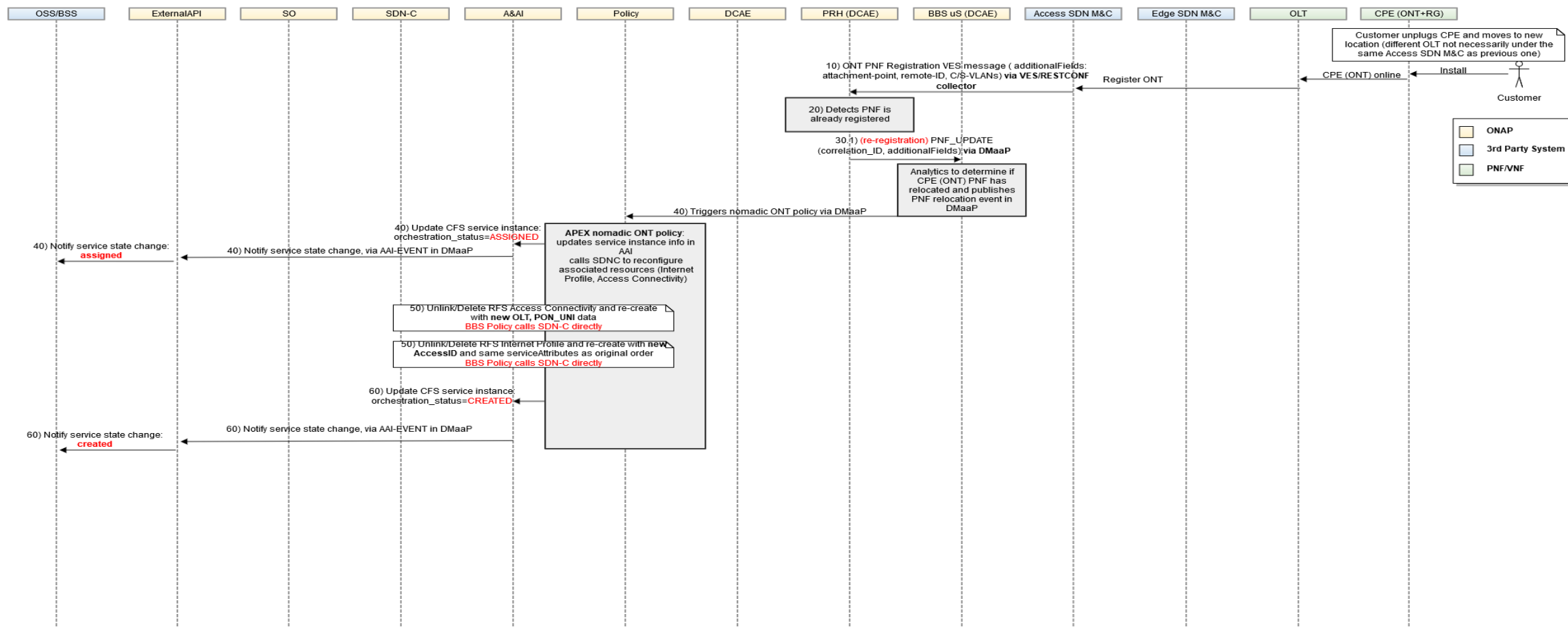


RestConf Collector II

- * RestConf collector(RCC) subscribe for ONT (Optical network terminal) registration event from 3rd party Access Controller.
- * RCC requests to set up a persistent connection with the controller.
- * As the connection is standing, Access controller pushes registration event to RCC.
- * RCC receives event, convert it JSON event, modify and append some user data and publishes on DMAap with topic of DCAE_RCC_OUTPUT.
- * Ves Mapper consumes this event, convert it to VES event using Mapper file.



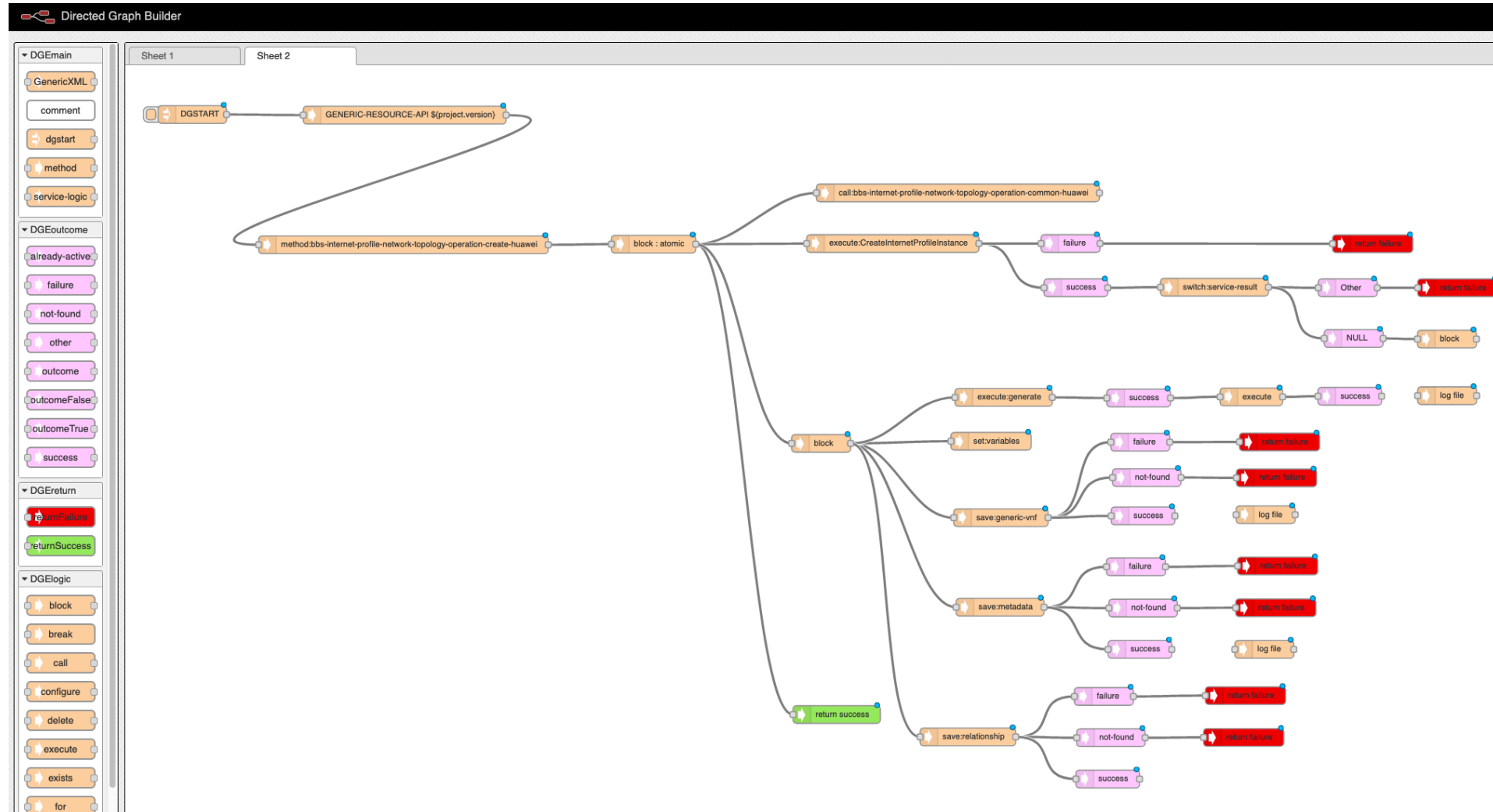
PNF Re-Registration



- ✓ Generic enough flow and applicable for all usecase if required
- ✓ easy to reuse
 - ✓ just change the Policy Apex Scripts to adapt the new API
 - ✓ update the Usecase-specific PNF re-registration event info

SDNC Directed Graphs

- 7 new DGs in SDNC to support BBS



<https://git.onap.org/sdnc/oam/tree/platform-logic/generic-resource-api/src/main/json?h=dublin>



Swisscom Lab & Collaboration with SDOs

Daniel Balsiger (Swisscom)



Access SDN M&C



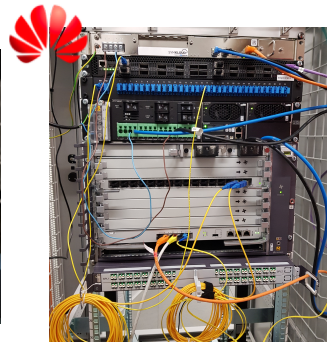
Edge SDN M&C



vBNG + AAA



ONT

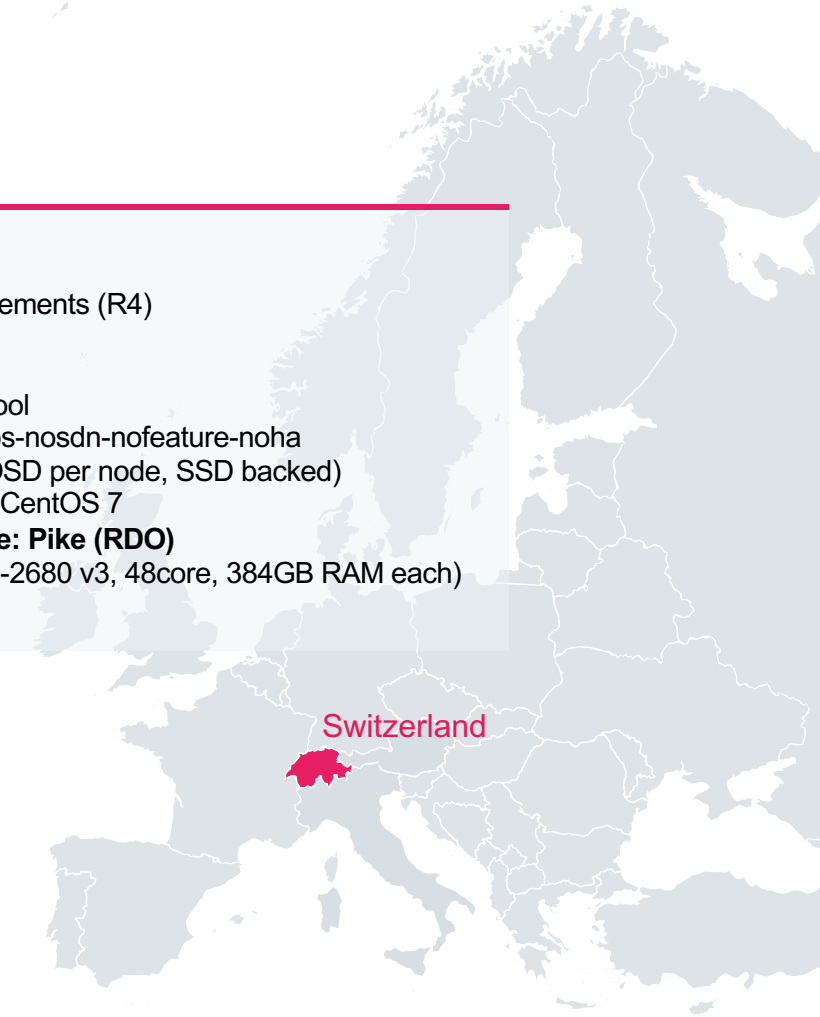


OLT

Swisscom Lab

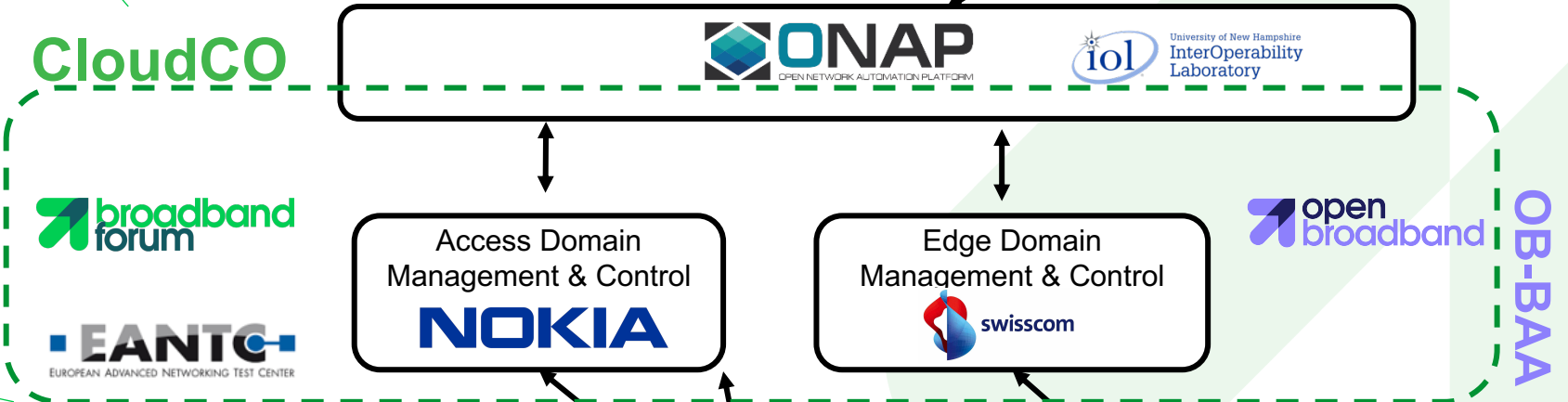
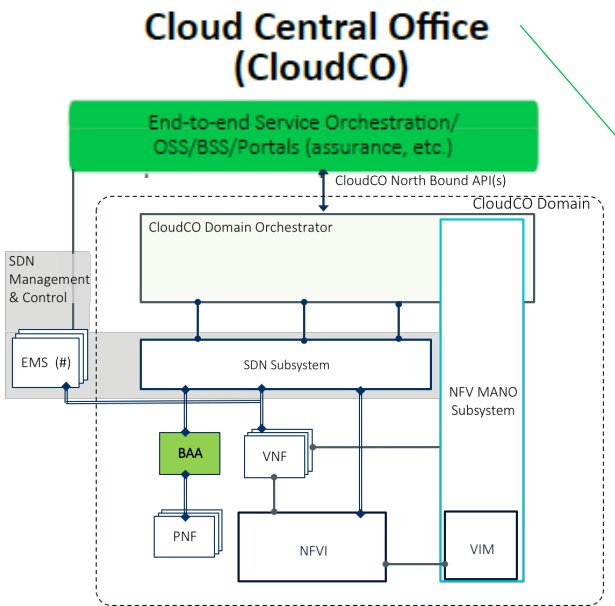
ONAP Casablanca (R3)
with Dublin enhancements (R4)

OPNFV Fraser 6.2
APEX Installation tool
OPNFV scenario: os-nosdn-nofeature-noha
Storage: Ceph (1 OSD per node, SSD backed)
Operating System: CentOS 7
OpenStack release: Pike (RDO)
12 nodes (Xeon E5-2680 v3, 48core, 384GB RAM each)

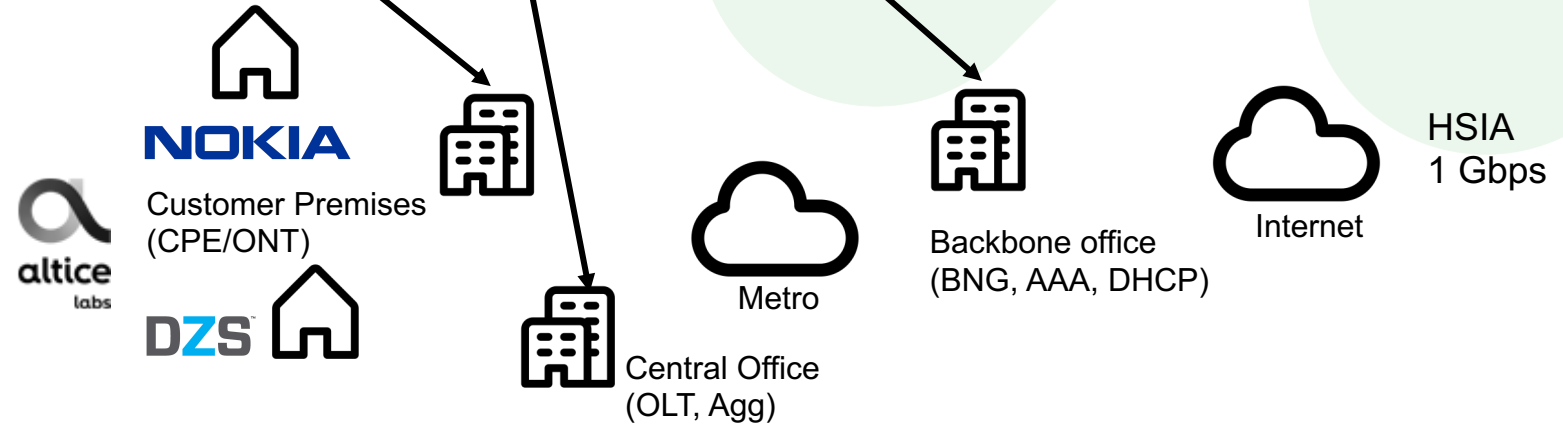


Switzerland

BBS Use Case at BBWF: Standardized multi-vendor solution



Oct 15-17, 2019
Amsterdam, Netherlands





Thank you!



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Enabling Collaborative
Development & Innovation



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HUAWEI

NOKIA