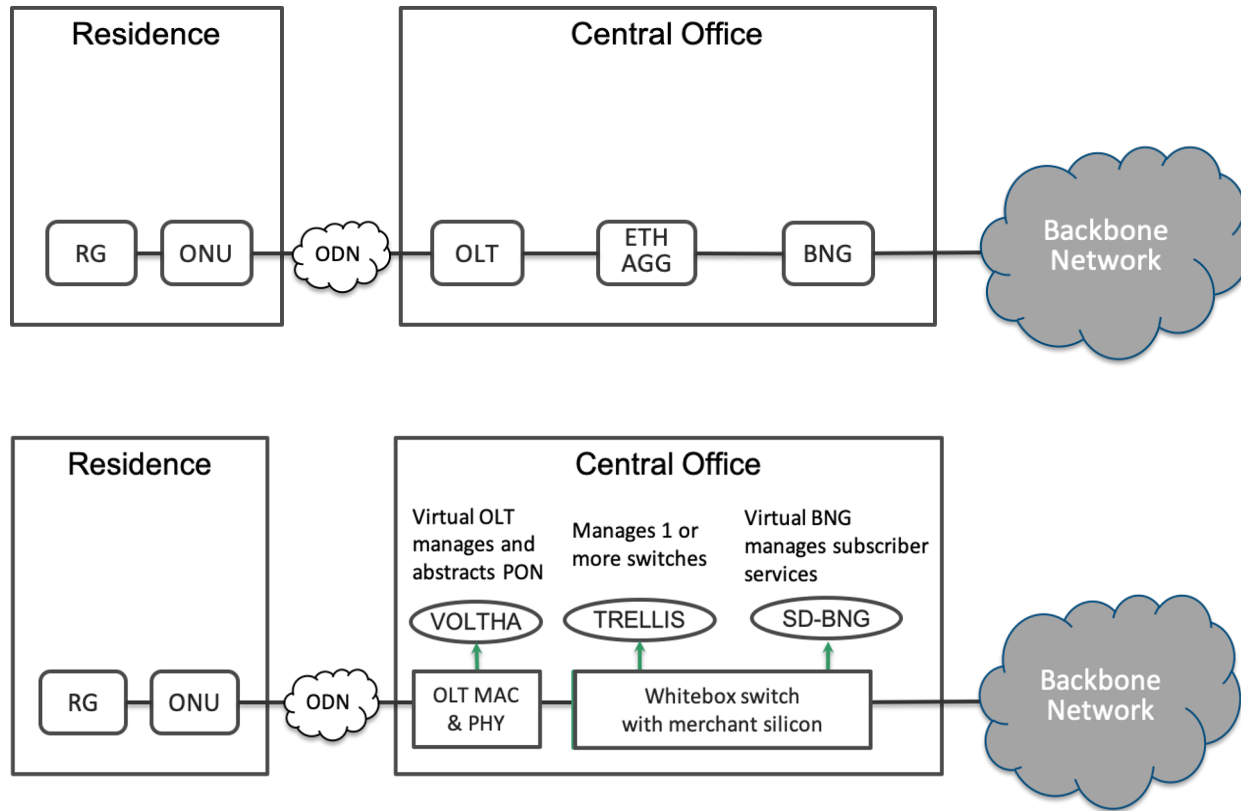




SEBA's Evolution in 2020 ... and Looking Forward

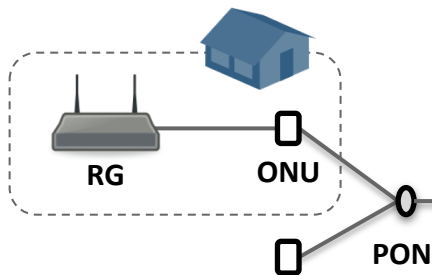
Saurav Das
VP of Engineering, ONF

Residential Broadband Access



SEBA

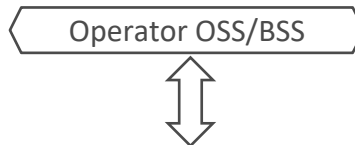
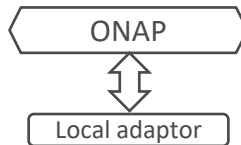
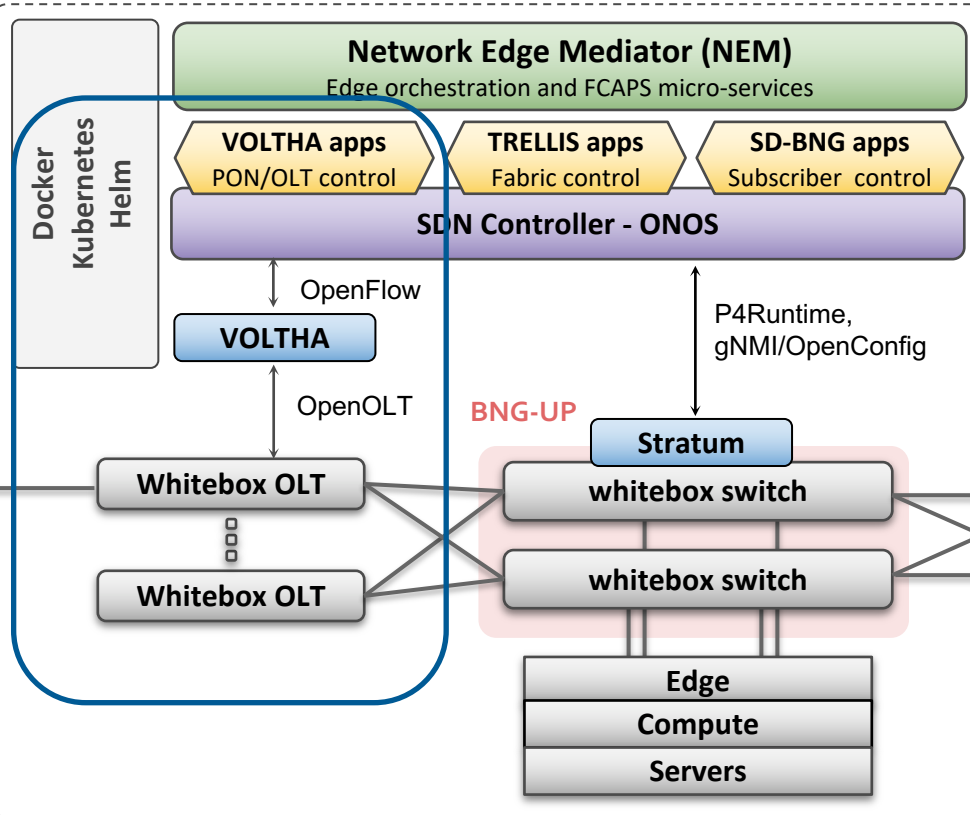
SDN
Enabled
Broadband
Access



SOFTWARE STACK

HARDWARE

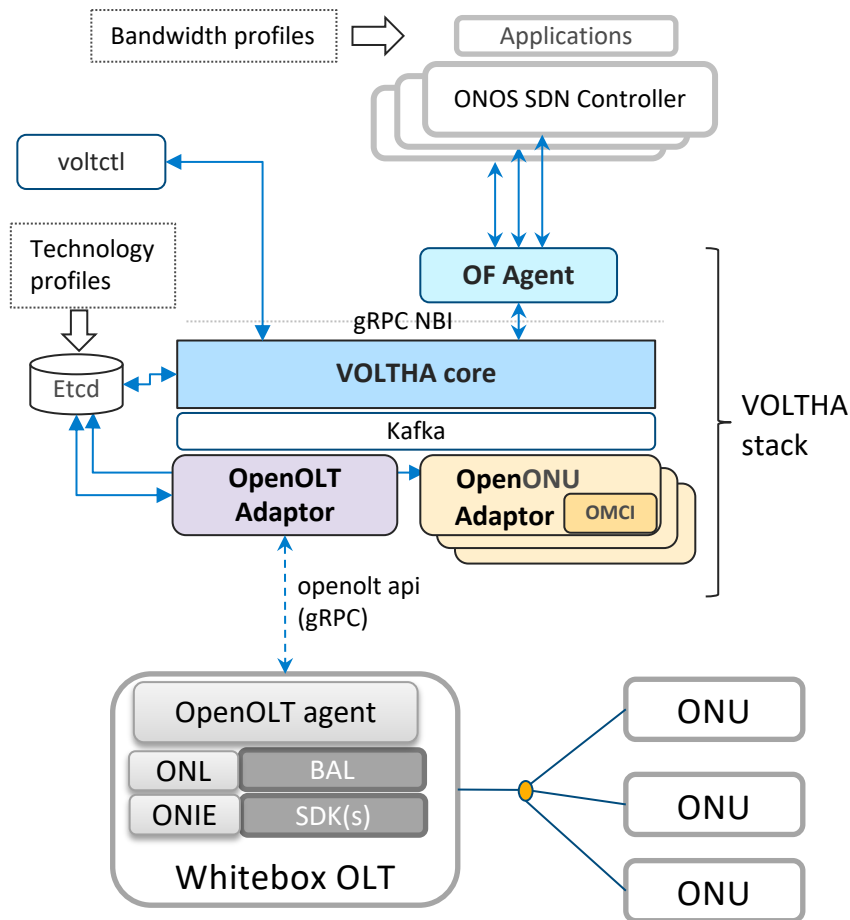
SEBA POD



SEBA is modular

VOLTHA

Virtual
OLT
Hardware
Abstraction



Common Control & Management framework shared by all OLTs and ONUs

Hides PON level details (T-CONTS, GEM, OMCI) from the SDN controller by abstracting each PON as a simple Ethernet switch



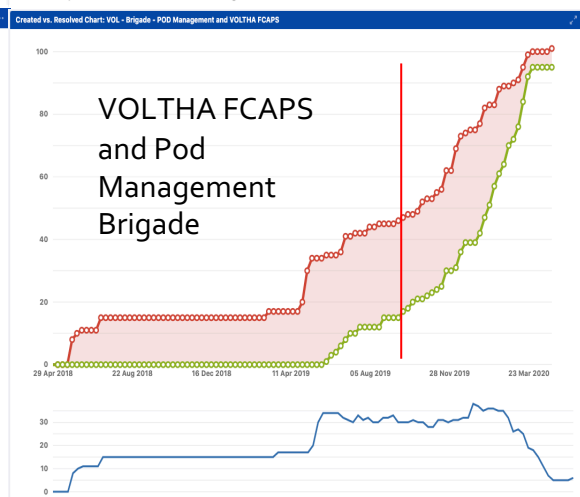
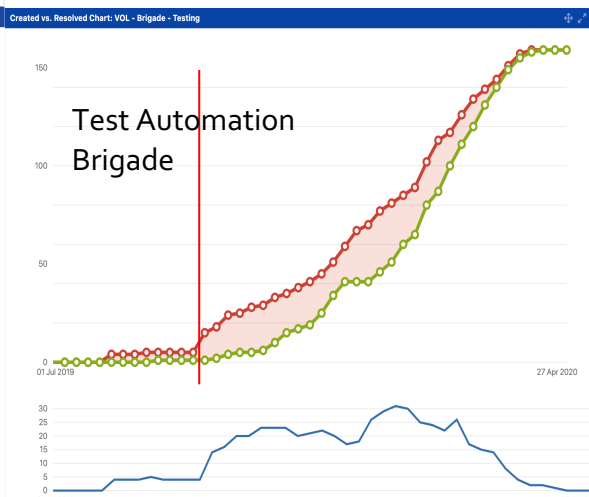
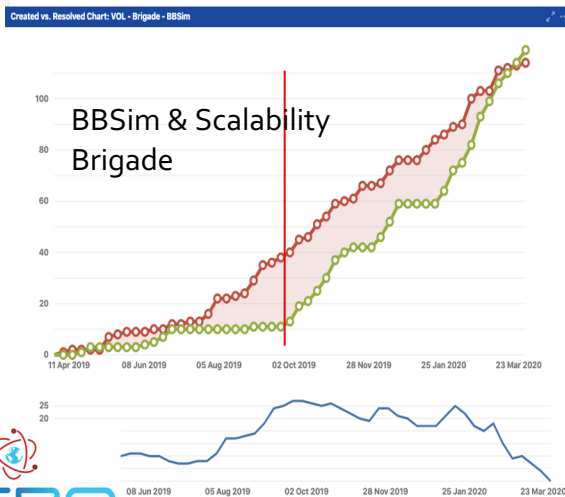
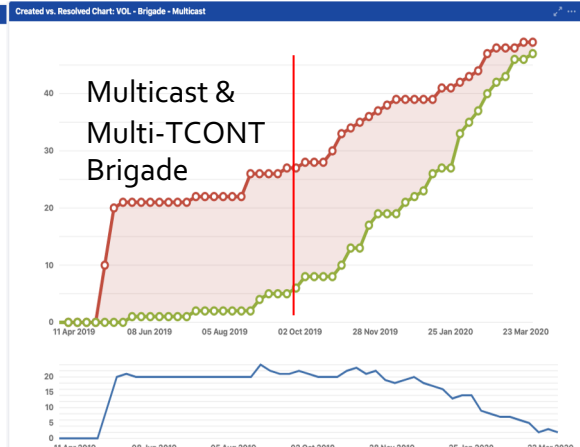
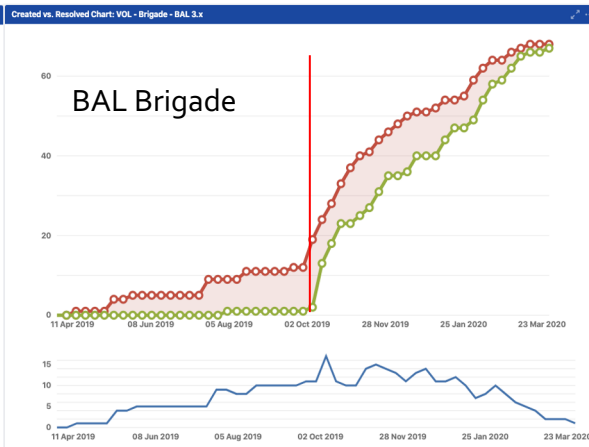
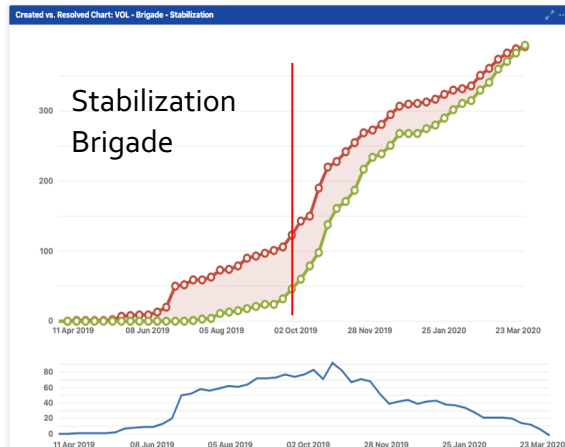
SEBA Surge Highlights

2020

SEBA Surge Brigade Composition

Brigade	Stabilization	BAL 3.0 upgrade	VOLTHA FCAPS	ONOS FCAPS	Multicast & Multi-TCONT	BBSim & Scalability	Test Automation
ONF Mentor	David	Girish	Scott	Saurav	Saurav & Girish	Matteo	Suchitra
Contributors							
							
							
							

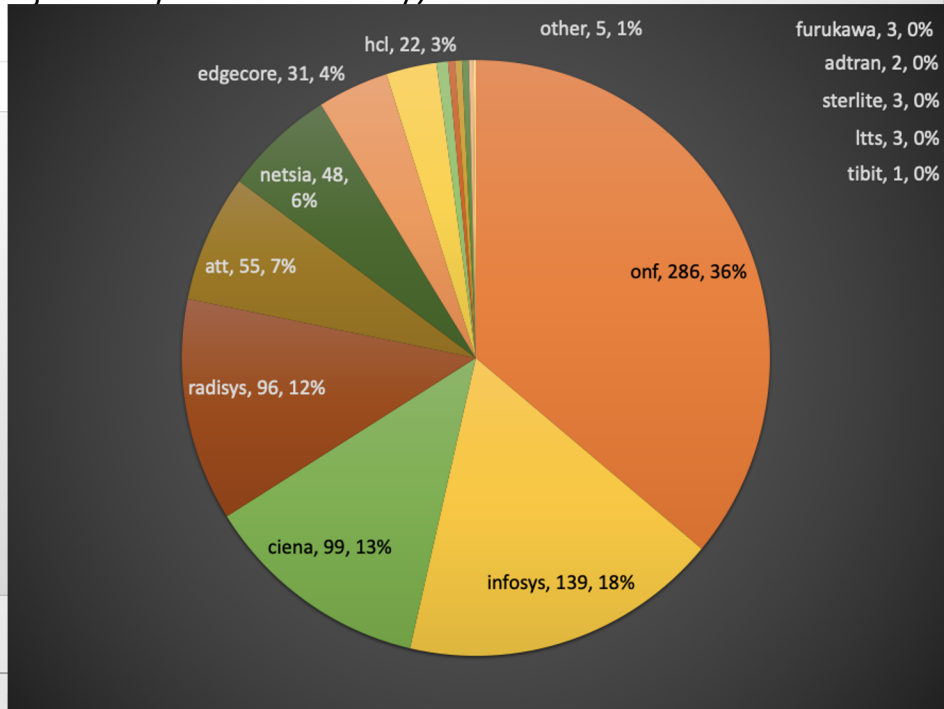
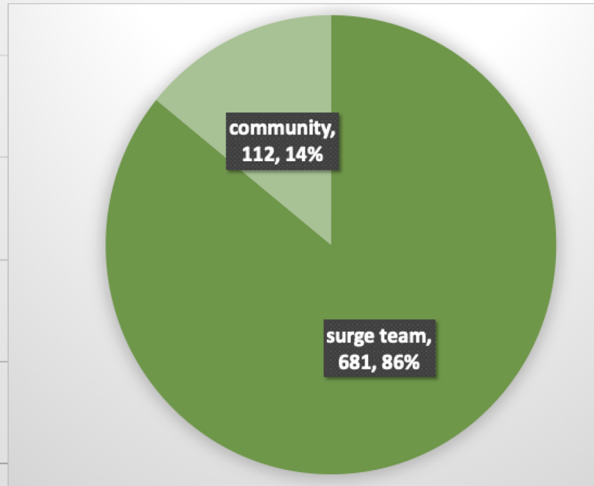
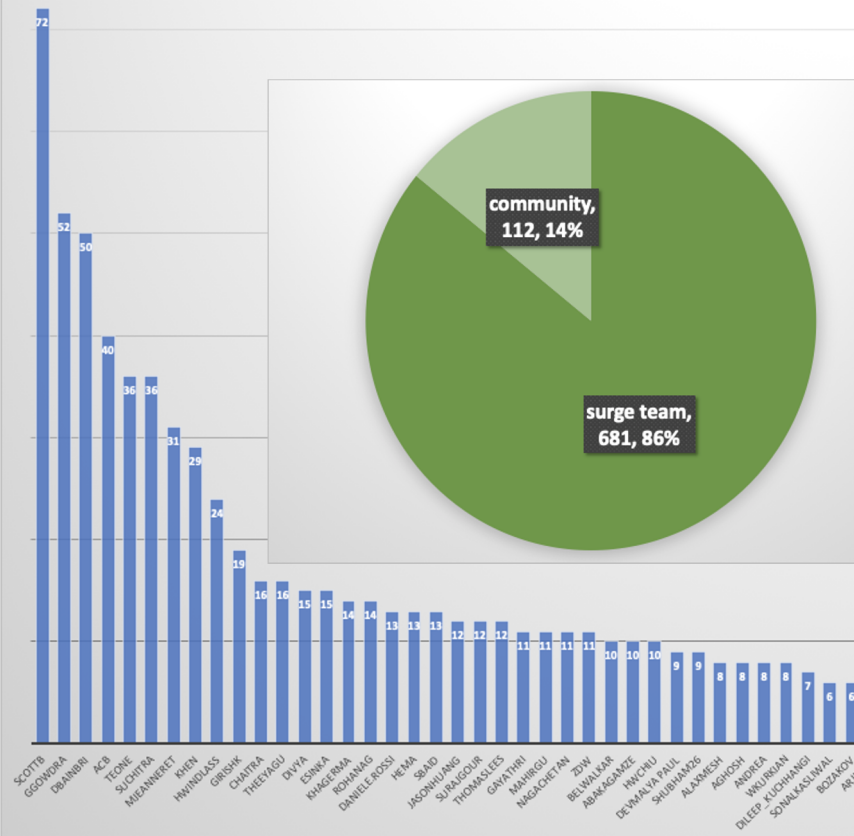
SEBA Surge Brigade Dashboards



SEBA Surge Contributions

SEBA Surge Resolved Issues per Contributor
(80 contributors, 793 issues)

80 contributors (half Surge Team, half community)



VOLTHA Releases

**VOLTHA**

 VOLTHA board

 Backlog

 Active sprints

 Releases

 Reports

 Issues

 Components

PROJECT SHORTCUTS

gerrit.opencord.org

Surge

Releases

[Manage Versions](#)[Merge versions](#)

QUICK FILTERS:

Released

Unreleased

Archived



Add

Version	Status	Progress	Start date	Release date	Description	Actions
 Future	UNRELEASED				Future features considered for roadmap	...
 VOLTHA v2.4	UNRELEASED		25/Mar/20	30/Jun/20	MVP 1.0 task completion	...
 VOLTHA v2.3	RELEASED		14/Dec/19	12/Apr/20	Stabilization release with new features supporting DT and TT workflows	...
 VOLTHA v2.2	RELEASED		01/Oct/19	17/Dec/19	Medium term items toward v2.3	...
 VOLTHA v2.1	RELEASED		12/Mar/19	03/Oct/19	near term work items towards v2.2	...

274

266

470

374

Issues Resolved (per version)

[All releases](#)

[VOLTHA 2.4 release](#)



Looking Forward ...

2020

Upcoming VOLTHA 2.4 → MVP 1.0 Remaining Tasks

	Target	Development	Automated Testing
1	Redfish based device management framework	✓	X (65%) Update: <u>Done</u> , but superseded by DMIntf decisions
2	Clustered ONOS apps & ofagent-go support for clustered ONOS	✓	X Update: <u>Done</u>
3	Bandwidth profile & Tech profile dataplane validation	✓	X (50%) Update: <u>Done</u>
4	DT FTTH workflow	✓	X (65%) Update: <u>Done</u>
5	GPON OLT	✓	X (80%) Update: <u>Done</u>
6	BAL upgrade to 3.4	X (10%) Update: <u>Done</u>	X Update: <u>Done</u>
7	TT workflow including multi-tcont and multicast	X (10%) Update: <u>Done</u>	X Update: <u>Sanity Done</u> , More testing required
8	Scale tests including flow programming and multiple-ONU adaptors; 2 OLTs x 500 ONUs each	X (35%) Update: <u>Done</u> for DT workflow; challenges for ATT; TT will require changes to BBSim	X(65%) Update: <u>Done</u>
9	Remaining stabilization & failure scenarios (re-enable OLT, multi-OLT, temp-disconnect OLT, soft-reboots)	X (20%) Update: <u>75%</u>	X(20%) Update: <u>20%</u>
10	In-band	X (30%) Update: <u>Done</u>	X Update: <u>Done</u>
11	Mac-learning in TT workflow	X Update: <u>50%</u>	X Update: <u>no change</u>

VOLTHA 2.4 & ONOS 2.2.3 Highlights

- First release with full support for all 3 operator workflows – ATT, DT (FTTH), TT
- In-band control of OLTs
- GPON OLT support with Sercomm ONUs
- ONOS app clustering support
- Many scale improvements (full stack)
- Upgraded k8s & Helm versions

“Multicast in SEBA”

- Esin Karaman, Ozge Ayaz, Argela
ONF Broadband Spotlight On-Demand Content



VOLTHA focus area → Test Automation



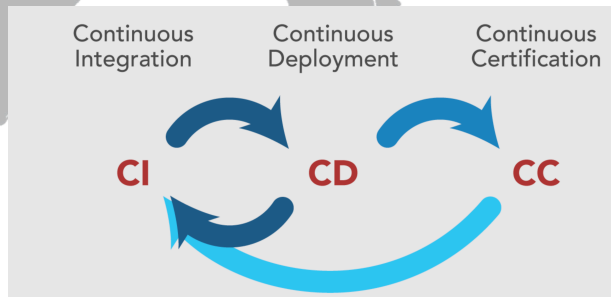
Bay Area nightly
regression
testing & QA
dev pods

Tucson patchset
verification pod

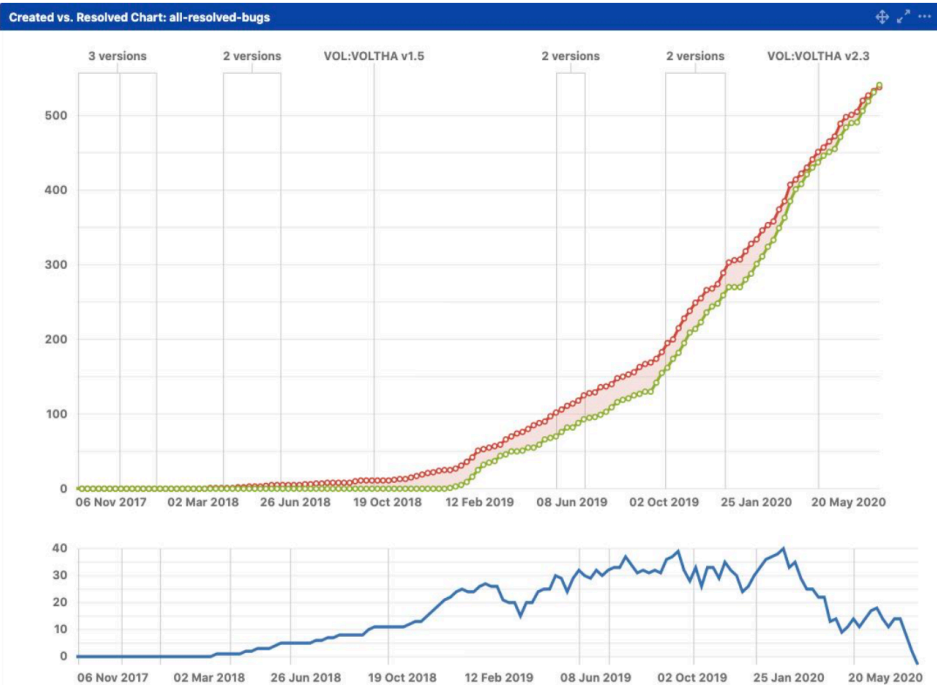
Berlin QA/ dev pod
DT workflow

Infosys
QA/ dev pod

Dec 2019 (v2.2): 10 tests
Mar 2020 (v2.3): 52 tests
July 2020 (v2.4): 100+ tests



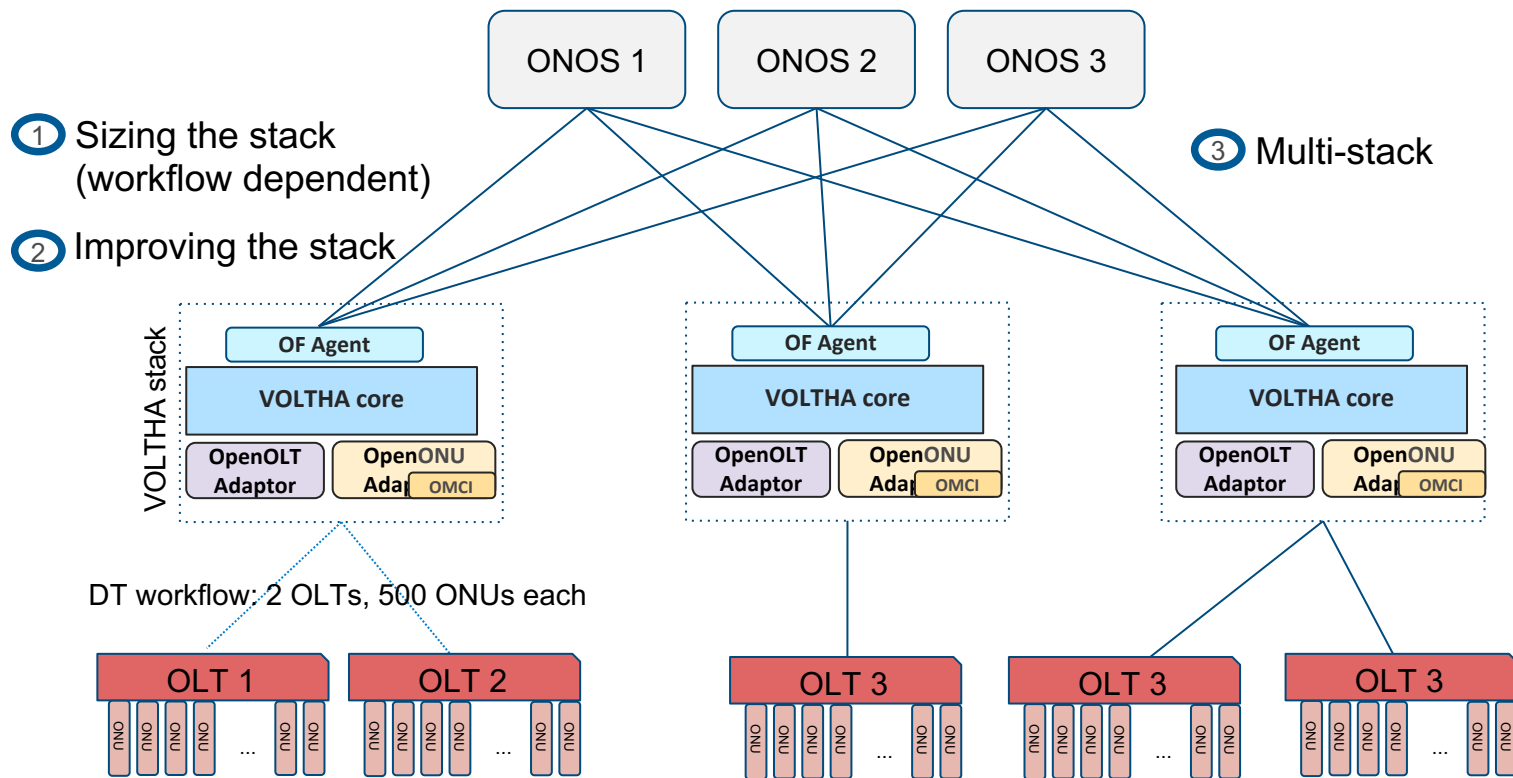
VOLTHA focus area → Test Automation



“Taking open source software to production readiness”

- Suchitra Vemuri, ONF Director of QA
- ONF Broadband Spotlight On-Demand Content

VOLTHA focus area → Scale & Performance



“Measuring VOLTHA Performance at Scale”

- Matteo Scandolo, ONF

ONF Broadband Spotlight On-Demand Content

VOLTHA focus area → New Features & Improvements

- ONU Adaptor & OMCI library in Golang

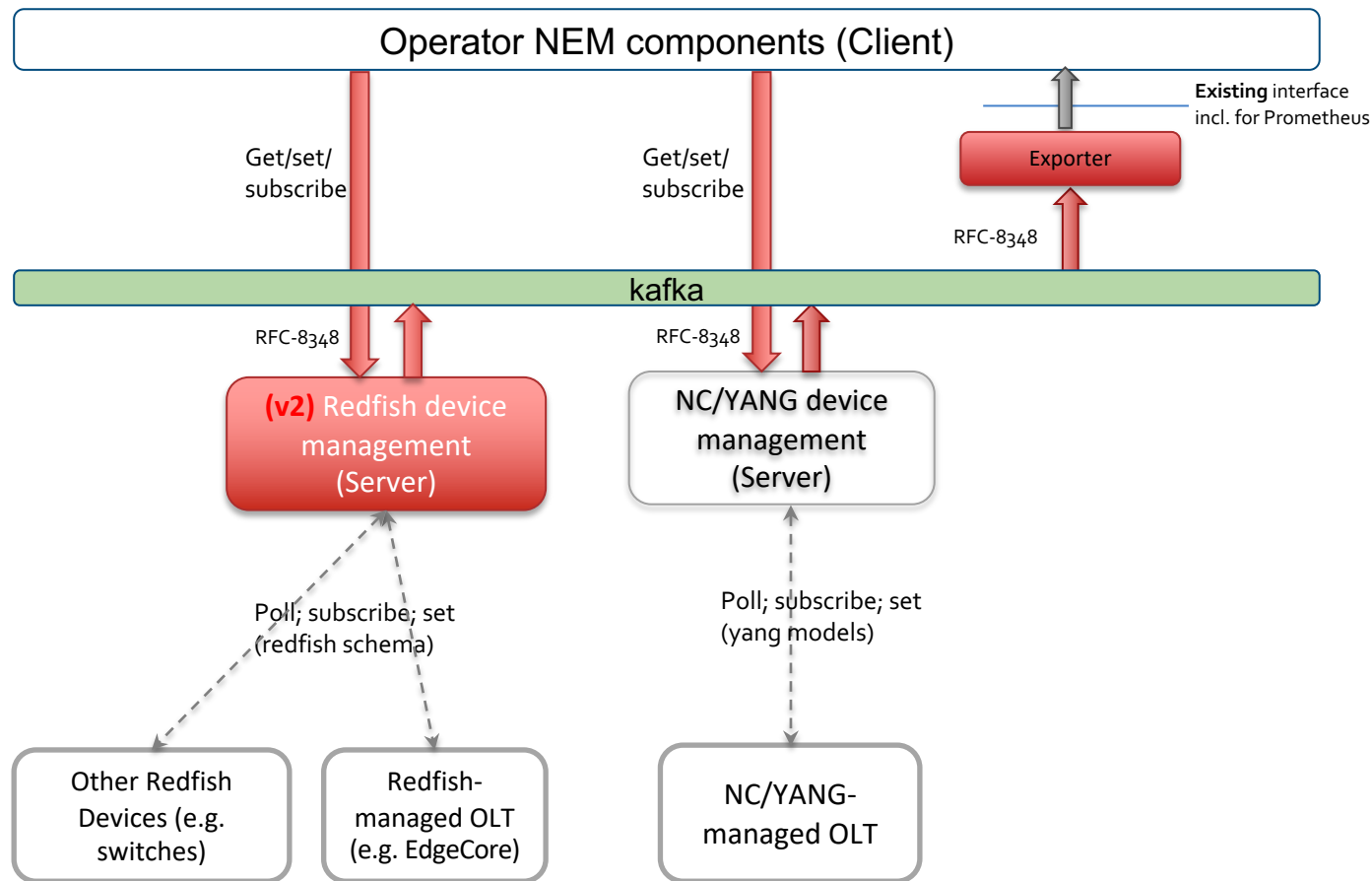
“Scalability Improvements by Replacing Python OpenONU Adapter by a Golang Implementation”

- Holger Hildebrandt, Adtran

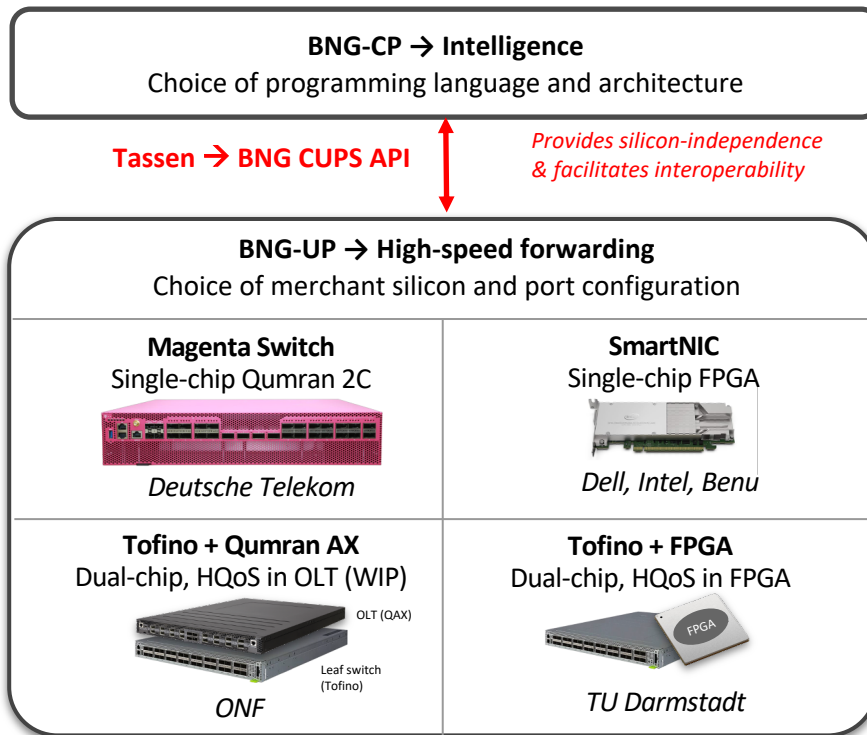
ONF Broadband Spotlight On-Demand Content

- Software Upgrades
- Troubleshooting tools
 - instrument code base to support troubleshooting tools
 - Tier 1 support - first responder checks, data collection tools, alarms dashboard, workarounds
 - Tier 2/3 support - probes, packet-tracing
- Telemetry, logging, visualization dashboards
- Aggregation across multi-stacks
- User Account Management (TACACS / security)
- Platform Maintenance

Beyond VOLTHA → NEM Device Management Interface



Beyond VOLTHA → BNG CUPS API



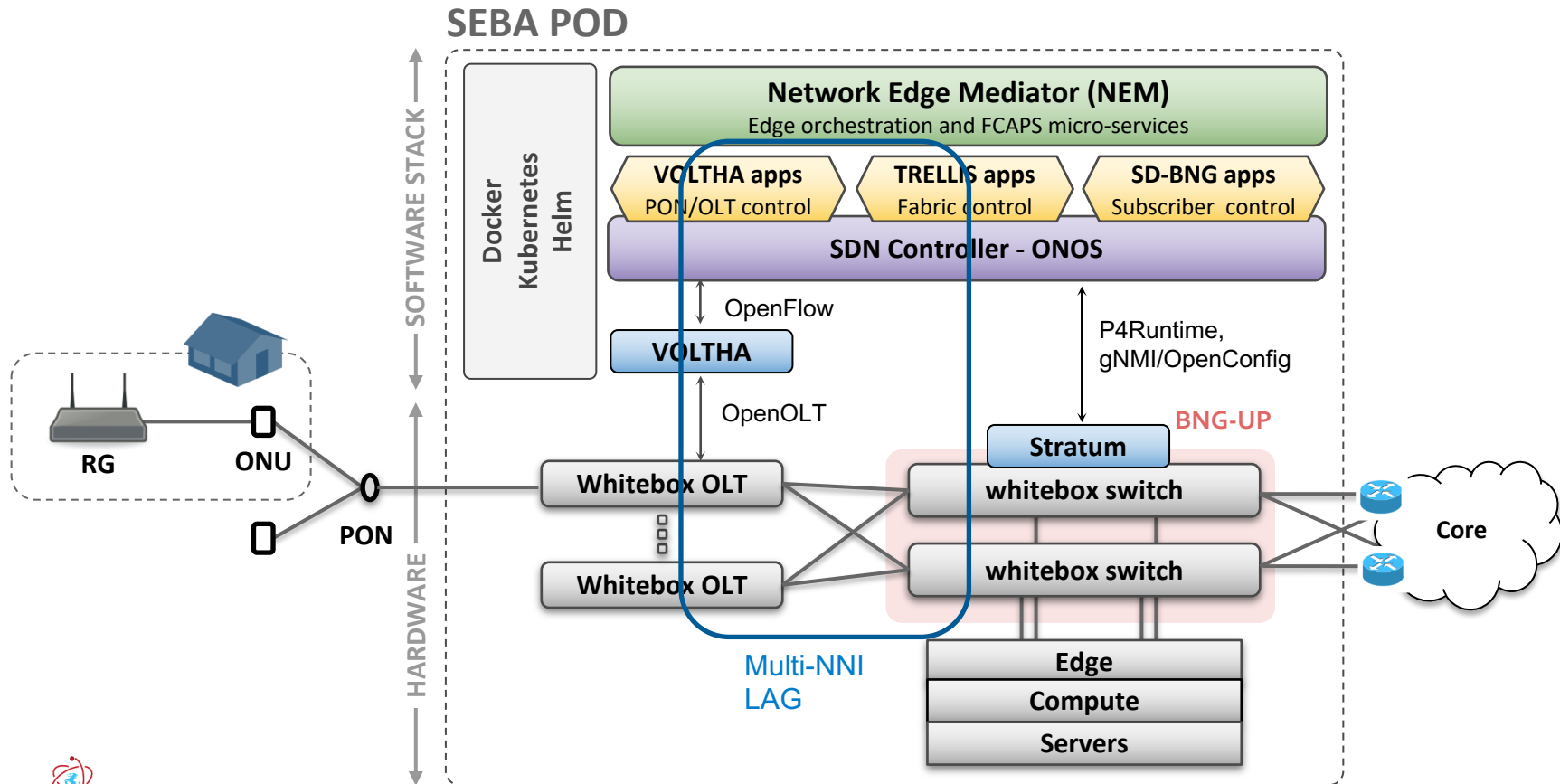
*Examples of HW-based implementations existing today.
Others are possible, including SW-based processing.*

“Tassen: Towards a Next-Generation BNG CUPS API”

- Carmelo Cascone (ONF), Mario Kind (DT), Craig Stevens (Dell)

ONF Broadband Spotlight On-Demand Content 17

Beyond VOLTHA → OLT-Switch Interface





Recognitions

Community nominated

2020

SEBA/VOLTHA Contributor Award

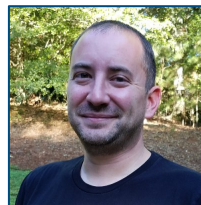
Multi-Year Contributor



★ Girish Gowdra, ONF



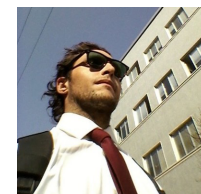
★ Matt Jeanneret, AT&T



★ Khenaidoo Nursimulu, Ciena



★ Matteo Scandolo, ONF



SEBA/VOLTHA Contributor Award

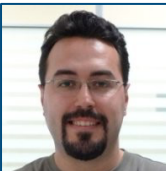
★ Scott Baker, ONF



★ Esin Karaman, Netsia



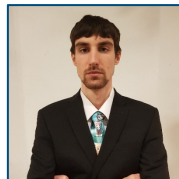
★ Burak Gurdag, Netsia



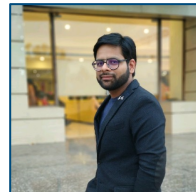
★ Suchitra Vemuri, ONF



★ Kent Hagerman, Ciena



★ Hardik Windlass, Infosys



★ Jason Huang, EdgeCore





Thank You

saurav.das@opennetworking.org

<https://docs.voltha.org/>

<https://guide.opencord.org/profiles/seba/>