Introduction

Flexible and agile service adaptation at the cost of commodity servers and whitebox switches VOLTHA introduces the next-generation optical access system architecture, based on SDN/NFV technologies. Disaggregating PON functions to functional modules with open interfaces supports the CORD vision for open source reference implementations to service “Access-as-a-Service” use cases. VOLTHA is a virtual OLT hardware abstraction component that supports the CORD Project objective of multi-vendor, multi-domain “any broadband access as a service” reference implementation for the Central Office. VOLTHA provides isolation between an abstract (vendor agnostic) PON management system, and a set of vendor-specific and white-box PON hardware devices. On its north-bound interface, VOLTHA provides a set of abstract APIs which north-bound systems can interact with the PON networks. On its south-bound side, VOLTHA communicates with PON hardware devices using vendor-specific protocols and protocol extensions through adapters.

Virtual OLT Hardware Abstraction (VOLTHA)

VOLTHA hides PON-level details (T-CONT, GEM ports, OMCI etc.) from the SDN controller, and abstracts each PON as a pseudo-Ethernet switch easily programmed by the SDN controller.

Key People and Communication Channels

Technical Steering Team

The technical steering team is responsible for all technical decisions in the project. They are responsible for the content and structure of the code base and for all technical priorities with respect to the code base.

Current TST Members

<table>
<thead>
<tr>
<th>Name</th>
<th>Company</th>
<th>Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chip Boling</td>
<td>TiBit</td>
<td>TST Member</td>
</tr>
<tr>
<td>Saurav Das</td>
<td>ONF</td>
<td>TST Member</td>
</tr>
<tr>
<td>Matt Jeanneret</td>
<td>AT&amp;T</td>
<td>TST Member</td>
</tr>
<tr>
<td>Shaun Missett</td>
<td>Radisys</td>
<td>TST Member</td>
</tr>
<tr>
<td>Khen Nursimulu</td>
<td>Ciena</td>
<td>TST Member</td>
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</tbody>
</table>
Mailing Lists

The mailing lists are the preferred way to get in touch with the project members with any questions, suggestions, or concerns.

- vOLTHA Discussions: https://groups.google.com/a/opencord.org/forum/#!forum/voltha-discuss
- CORD Discussions: https://groups.google.com/a/opencord.org/forum/#!forum/cord-discuss

Slack

The CORD Slack is the best way to get quick answers to your questions. Our team is distributed globally, so someone should be available at all times. vOLTHA topics are discussed in the #voltha channel.

Register for a CORD Slack account here: http://slackin.opencord.org

Meetings

- vOLTHA TST Meetings - Tuesdays at 8am PT.
- vOLTHA 2.x Stabilization Brigade - Tuesdays at 7am PT
- Pod Management and vOLTHA FCAPS Brigade - Mondays at 8am PT

NOTE: these meetings are PUBLIC and often RECORDED. The recordings can be found on YouTube:

- vOLTHA: https://www.youtube.com/playlist?list=PLCnPGaNt7C5evyQ-FFwAtbKaiIo4cDmlNa
- Brigade: Pod Management and vOLTHA FCAPS: https://www.youtube.com/playlist?list=PLCnPGaNt7C5eX0fQAeVwg_dy6o9aZdArs
- Brigade: vOLTHA Stabilization: https://www.youtube.com/playlist?list=PLCnPGaNt7C5eQ7XkeeMJ7nDzDUkOmpoRq

Brigades

vOLTHA work is done primarily using the brigade structure. Current brigades:

- BBSim and Scale
- Stabilization
- BAL 3.x
- Multicast and Multi-TCONT
- POD Management
- ONOS FCAPS
- Test Automation

Release and Project Management

Working as an open source community team

- The intended host of this project is the CORD project (opencord.org).
- All source code to be developed via the gerrit system of opencord.
- All parts of vOLTHA will be managed as one git repository (any proprietary plugin code by vendors will be kept in separate repos/places).
- All project documentation must be kept with the git repository (preferably as markdown (*.md) files, with drawings created with preferably Inkscape (has to be editable and PNGs can be redesigned).
- All major changes, decisions, etc., must be done with vOLTHA TST approvals, and pursuant of the CORD project governance rules.

vOLTHA Release Acceleration

- Agile + Continuous Integration - Mandatory Test Driven Development
- Single source code repo with automated build
- Transparency - Everyone should know what is going on
- Design Specs for all major new features - get the team engaged for cross functional support on features (dev, test, doc etc)
- WIKI is the main source of true for documentation, not google docs
- All contributions upstream tracked in JIRA and linked to Gerrit
- Keep JIRA up-to-date to avoid duplication of efforts or gaps in sprint deliverables

Release Model and Cadence

vOLTHA will follow the CORD release model, branching, versioning and tagging best practices found here: Release Management
<table>
<thead>
<tr>
<th>Component / Feature</th>
<th>Release Date</th>
<th>Release Notes</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>VOLTHA v1.0.0</td>
<td>Sep 12, 2017</td>
<td>VOLTHA v1.0.0 Release Notes</td>
<td>Major release focuses new features and feature enhancements for AT&amp;T POC III requirements building on previous POC I/II features functionality.</td>
</tr>
<tr>
<td>VOLTHA v1.1.0</td>
<td>Oct 6, 2017</td>
<td>N/A</td>
<td>Minor release focuses on inclusion of Edge-core ASFvOLT16 XGS-PON OLT Adapter. ASFvOLT16 design based on Broadcom Maple PON MAC silicon supporting 16x XFP ports of XGS-PON or NG-PON2 (10Gb/10Gb) and four QSFP28 Ethernet uplink ports.</td>
</tr>
<tr>
<td>VOLTHA v1.1.1</td>
<td>Nov 16, 2017</td>
<td>N/A</td>
<td>Maintenance release focuses on bug fixes in preparation for AT&amp;T POC IV / Field Trial</td>
</tr>
<tr>
<td>VOLTHA v1.2.0</td>
<td>Dec 21, 2017</td>
<td>VOLTHA v1.2.0 Release Notes</td>
<td>Minor release focuses on enhancements to ASFvOLT16 Adapter and support for T&amp;W ONU</td>
</tr>
<tr>
<td>VOLTHA v1.2.1</td>
<td>March 16, 2018</td>
<td>VOLTHA v1.2.1 Release Notes</td>
<td>Patch release for CORD 5.0 integration, REGID support for ONU Registration and bug fixes.</td>
</tr>
<tr>
<td>VOLTHA v1.3</td>
<td>April 30, 2018</td>
<td>VOLTHA v1.3 Release Notes</td>
<td>Minor release: migration to Kubernetes, OpenOMCI</td>
</tr>
<tr>
<td>VOLTHA v1.4</td>
<td>July 22, 2018</td>
<td>Incorporate Celestica OLT adapter; Integration to CORD 6.0; OpenOLT introduction software package</td>
<td></td>
</tr>
<tr>
<td>VOLTHA v1.5</td>
<td>October 02, 2018</td>
<td>Open_LT: ONU Reboot, Limited Performance Monitoring Stats and Event/Alarm support. bcm_openOMCI_onu adapter</td>
<td></td>
</tr>
<tr>
<td>VOLTHA v2.0</td>
<td>May 21, 2019</td>
<td>Major release focuses on Containerized Adapters, restructure of VOLTHA Core, OpenOMCI</td>
<td></td>
</tr>
<tr>
<td>VOLTHA v2.1</td>
<td></td>
<td>Technology Profiles (port functionality from 1.x), multiple T-CONTs, whitebox OLT in-band management</td>
<td></td>
</tr>
<tr>
<td>VOLTHA v2.2</td>
<td>Dec 22nd, 2019</td>
<td>VOLTHA v2.2 Release notes</td>
<td></td>
</tr>
<tr>
<td>VOLTHA v2.3</td>
<td>March 24th, 2020</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VOLTHA v2.4</td>
<td>June 30th, 2020</td>
<td>(planning in progress)</td>
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**Election Process**

The 2019 election process has two main steps for all positions. Nomination, and voting.

When there is only one nomination for a position, there does not need to be a vote.

**Voting Community**

The voting community is composed of the following people:

- Steering team members and leads
- Contributors (those who have submitted code which has been reviewed and accepted in the last year)

VOLTHA Voting Community List

**Voting Process**

Results can be found here.

We expect all ONF employees, member companies, and participants to abide by our Code of Conduct. If you have any questions or concerns, please notify a member of the ONF team or email conduct@opennetworking.org.