State of the ONF community testbed

2023 Open Broadband Meetup
Oct 18 – 19, Istanbul
“A slow sort of country!” said the Queen. “Now, here, you see, it takes all the running you can do, to keep in the same place.”
Testing environment
Working lines

Working line 1: VOLTHA community testbed in Berlin lab

Working line 2: AWS infrastructure

Working line 3: CI/CD pipelines
Working line 1: VOLTHA community testbed in Berlin lab

1. Re-establish and stabilize outside connectivity
2. Revise infrastructure management services in ONF gateway
3. Repair and revise backend network configuration
4. Repair and maintain software and firmware in OLTs and ONUss
5. Repair RG and BNG configuration
6. Maintain pods (Kubernetes clusters)
7. Document lab network
Working line 1: VOLTHA community testbed in Berlin lab

1. Re-establish and stabilize outside connectivity
2. Revise infrastructure management services in ONF gateway
3. Repair and revise backend network configuration
4. Repair and maintain software and firmware in OLTs and ONU
5. Repair RG and BNG configuration
6. Maintain pods (Kubernetes clusters)
7. Document lab network
Working line 1: VOLTHA community testbed in Berlin lab

1. Re-establish and stabilize outside connectivity
2. Revise infrastructure management services in ONF gateway
3. Repair and revise backend network configuration
4. Repair and maintain software and firmware in OLTs and ONUs
5. Repair RG and BNG configuration
6. Maintain pods (Kubernetes clusters)
7. Document lab network
Working line 1: VOLTHA community testbed in Berlin lab

1. Re-establish and stabilize outside connectivity
2. Revise infrastructure management services in ONF gateway
3. Repair and revise backend network configuration
4. Repair and maintain software and firmware in OLTs and ONUs
5. Repair RG and BNG configuration
6. Maintain pods (Kubernetes clusters)
7. Document lab network
1. Re-establish and stabilize outside connectivity
2. Revise infrastructure management services in ONF gateway
3. Repair and revise backend network configuration
4. Repair and maintain software and firmware in OLTs and ONUs
5. **Repair RG and BNG configuration**
6. Maintain pods (Kubernetes clusters)
7. Document lab network

---

**Working line 1: VOLTHA community testbed in Berlin lab**
1. Re-establish and stabilize outside connectivity
2. Revise infrastructure management services in ONF gateway
3. Repair and revise backend network configuration
4. Repair and maintain software and firmware in OLTs and ONU
5. Repair RG and BNG configuration
6. **Maintain pods (Kubernetes clusters)**
7. Document lab network
Working line 1: VOLTHA community testbed in Berlin lab

1. Re-establish and stabilize outside connectivity
2. Revise infrastructure management services in ONF gateway
3. Repair and revise backend network configuration
4. Repair and maintain software and firmware in OLTs and ONUs
5. Repair RG and BNG configuration
6. Maintain pods (Kubernetes clusters)
7. **Document lab network**
Working line 2: AWS infrastructure

- Endpoints for IPSEC tunnels leading to and from the Berlin ONF gateway
- AWS instances that are spun up for testing (where bbsim tests run)
- AWS instances run to create AWS images that the testing instances use
  - Repaired build process and rebuild base images for virtualised (e.g. bbsim) test pipelines
Working line 3: CI/CD pipelines

- Jenkins pipeline deployment and environment configuration:
  - Refactor job definitions to use dynamic gitSCM instead of static DSL
  - Modernize and repair VOLTHA test deployment
  - Re-establish and contribute to community reviewing
  - General code revision

- Test execution
  - Repair Robot tests
  - General code revision

- Berlin lab infrastructure repairs enabled CI/CD pipeline tests to start passing
Working line 3: CI/CD pipelines

- Jenkins pipeline deployment and environment configuration:
  - Refactor job definitions to use dynamic gitSCM instead of static DSL
  - Modernize and repair VOLTHA test deployment
  - Re-establish and contribute to community reviewing
  - General code revision

- Test execution:
  - Repair Robot tests
  - General code revision

- Berlin lab infrastructure repairs enabled CI/CD pipeline tests to start passing

Current test results for VOLTHA 2.12

<table>
<thead>
<tr>
<th>Workflow</th>
<th>Technology</th>
<th>OLT Vendor</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>DT</td>
<td>GPON</td>
<td>Edgecore</td>
<td>27/32 pass</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Zyxel</td>
<td>26/32 pass</td>
</tr>
<tr>
<td>TT</td>
<td></td>
<td>Adtran</td>
<td>7/32 pass</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Edgecore</td>
<td>2/21 pass</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Zyxel</td>
<td>2/21 pass</td>
</tr>
</tbody>
</table>
“If you want to get somewhere else, you must run at least twice as fast as that!”
Next steps

1. **VOLTHA community testbed in Berlin lab**
   - Distribute network functions
   - Centralize infrastructure management in new host
   - Revise and upgrade firmware and/or software in nodes and switches
   - Revise and upgrade firmware and/or software in OLTs and ONUs
     - Create a support matrix describing the compatibility between vendor specific OLT software releases and VOLTHA releases
   - Extend testbed with new equipment
   - Automate and document all setup, deployment and configuration processes
   - Keep documenting network
Next steps

1. **VOLTHA community testbed in Berlin lab**
   - Distribute network functions
   - Centralize infrastructure management in new host
   - Revise and upgrade firmware and/or software in nodes and switches
   - Revise and upgrade firmware and/or software in OLTs and ONUs
     - Create a support matrix describing the compatibility between vendor specific OLT software releases and VOLTHA releases
   - Extend testbed with new equipment
   - Automate and document all setup, deployment and configuration processes
   - Keep documenting network
Next steps

1. **VOLTHA community testbed in Berlin lab**
   - Distribute network functions
   - Centralize infrastructure management in new host
   - Revise and upgrade firmware and/or software in nodes and switches
   - Revise and upgrade firmware and/or software in OLTs and ONUs
     - Create a support matrix describing the compatibility between vendor specific OLT software releases and VOLTHA releases
   - Extend testbed with new equipment
   - Automate and document all setup, deployment and configuration processes
   - Keep documenting network
Next steps

1. **VOLTHA community testbed in Berlin lab**
   - Distribute network functions
   - Centralize infrastructure management in new host
   - Revise and upgrade firmware and/or software in nodes and switches
   - Revise and upgrade firmware and/or software in OLTs and ONUs
     - Create a support matrix describing the compatibility between vendor specific OLT software releases and VOLTHA releases
   - Extend testbed with new equipment
   - Automate and document all setup, deployment and configuration processes
   - Keep documenting network
Next steps

1. VOLTHA community testbed in Berlin lab
   - Distribute network functions
   - Centralize infrastructure management in new host
   - Revise and upgrade firmware and/or software in nodes and switches
   - Revise and upgrade firmware and/or software in OLTs and ONUs
     - Create a support matrix describing the compatibility between vendor specific OLT software releases and VOLTHA releases
   - Extend testbed with new equipment
   - Automate and document all setup, deployment and configuration processes
   - Keep documenting network
Next steps

2. **AWS infrastructure**
   - Document and automate deployment of IPSEC endpoints
   - Add monitoring to AWS IPSEC endpoints
   - Upgrade and rebuild virtualized testing infrastructure
Next steps

2. **AWS infrastructure**
   - Document and automate deployment of IPSEC endpoints
   - Add monitoring to AWS IPSEC endpoints
   - Upgrade and rebuild virtualized testing infrastructure
Next steps

3. CI/CD pipelines
   - Revise, modularize and refactor ci-management codebase
   - Revise and cleanup test log output for better debugging
   - Revise, cleanup and repair Robot tests (resolve existing Jira tickets)
   - Revise and update test workflow documentation
Conclusions

- VOLTHA CI/CD Pipeline operational
- Community testbed upgrade & extension plans
- Automate deployment of all testing environment components
- Generation of Community facing documentation

How to get involved?

https://jira.opencord.org/issues/?jql=project+%3D+VOL+AND+component+%3D+3D+Testing