Current Events in OpenDaylight (and how you can get involved)

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@dmm613 @Mierdin
Agenda

- What is Hydrogen
  - Hint: First release of OpenDaylight

- Introduction to Helium

- Next Steps – Beyond Helium

- Get Involved!
## What is OpenDaylight

OpenDaylight is an **Open Source Software** project under the **Linux Foundation** with the goal of furthering the adoption and innovation of **Software Defined Networking (SDN)** through the creation of a common industry supported platform.

<table>
<thead>
<tr>
<th>Code</th>
<th>Acceptance</th>
<th>Community</th>
</tr>
</thead>
<tbody>
<tr>
<td>To create a robust, extensible, open source code base that covers the major common components required to build an SDN solution</td>
<td>To get broad industry acceptance amongst vendors and users</td>
<td>To have a thriving and growing technical community contributing to the code base, using the code in commercial products, and adding value above, below and around.</td>
</tr>
<tr>
<td></td>
<td>• Using OpenDaylight code directly or through vendor products</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Vendors using OpenDaylight code as part of commercial products</td>
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What is OpenDaylight building?

OpenDaylight is an open *community* that is building:

- An evolvable SDN *platform* capable of handling diverse use cases and implementation approaches
- Common abstractions of capabilities NorthBound for people to program
- Intermediation of those capabilities to multiple Southbound implementations
- Programmable Network services
- Network Applications
- Whatever else we need to make it work
  - Including engineering systems
Project Framework

- Network applications, orchestration, and services
  - user interfaces
  - network applications, orchestration, and services

- Controller platform
  - network service functions
  - platform services
  - extensions

- Southbound interfaces & protocols
  - OpenFlow
  - other standard protocols (ONF, IETF, ...)
  - vendor-specific interfaces

- Data plane elements (virtual switches, physical device interfaces)
Who is OpenDaylight Project?
OpenDaylight Simultaneous Release

- OpenDaylight is multi-project
  - 20+ projects in Bootstrap or Incubation State

- Bringing components together in a simultaneous release
  - CodeName: Hydrogen
  - Planned release date: Dec 12, 2013

- Several “editions” to group related functionality together
  - base, virtualization, service provider
  - *virtualization edition will provide OpenStack integration*
Simultaneous Release Plan

<table>
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<tr>
<th>Milestone</th>
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<th>Offset 1 Date</th>
<th>Offset 2 Date</th>
<th>Events</th>
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<tr>
<td>M0</td>
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<td>6/26/2013</td>
<td>6/28/2013</td>
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2. Participating Projects must have published a candidate Release Plan for public comment |
| M2        | 8/19/2013     | 8/21/2013     | 8/23/2013     | Participating Projects must have declared their final Release Plan |
| M3        | 9/16/2013     | 9/18/2013     | 9/20/2013     | Latest possible Continuous Integration Test Start |
| M4        | 10/14/2013    | 10/16/2013    | 10/18/2013    | 1. API Freeze  
2. Latest possible Continuous System Test Start |
3. String freeze (all internationalizable strings frozen to allow for translation) |
| RC0       | 11/18/2013    | 11/20/2013    | 11/22/2013    | Latest possible date for commencing User Facing Documentation |
| Formal Release | 12/9/2013 |           |             |        |
Impressive List of Projects in H₂

- Controller
- VTN
- OpenDove
- Affinity Management Service
- LISP Mapping Service
- Yang Tools
- Defense4All
- BGP-LS/PCEP

- OpenFlow Protocol
- OpenFlow SB Plugin
- OVSDB
- SNMP4SDN
- DLUX
- STI
Hydrogen Release (Jan 2014)

- **Management GUI/CLI**
- **VTN Coordinator**
- **DDoS Protection**
- **OpenStack Neutron**
- **Network Applications Orchestration & Services**

**OpenDaylight APIs (REST)**
- Topology Mgr
- Stats Mgr
- Switch Mgr
- Host Tracker
- Shortest Path Forwarding
- Network Config
- OpenStack Service
- VTN Manager
- DOVE Mgr

**Service Abstraction Layer (SAL)**
(plug-in mgr., capability abstractions, flow programming, inventory, …)

**OpenFlow**
- 1.0
- 1.3

**OSGi Bundles**

**Southbound Interfaces & Protocol Plugins**
- NETCONF
- OVSDB
- SNMP
- BGP-LS
- PCEP
- LISP

**Data Plane Elements**
(Virtual Switches, Physical Device Interfaces)

**OpenFlow Enabled Devices**

**Open vSwitches**

**Additional Virtual & Physical Devices**

**VTN: Virtual Tenant Network**
**DOVE: Distributed Overlay Virtual Ethernet**
**DDoS: Distributed Denial Of Service**
**LISP: Locator-Identifier Separation Protocol**
**OVSDB: Open vSwitch DataBase Protocol**
**BGP: Border Gateway Protocol**
**PCEP: Path Computation Element Communication Protocol**
**SNMP: Simple Network Management Protocol**
Base Edition

Base Network Service Functions
- Topology Mgr
- Stats Mgr
- Switch Mgr
- Host Tracker
- Shortest Path Forwarding
- Network Config

Service Abstraction Layer (SAL)
(plug-in mgr., capability abstractions, flow programming, inventory, …)

OpenFlow
1.0 1.3

NETCONF

OpenFlow Enabled Devices

Open vSwitches

Additional Virtual & Physical Devices

Network Applications Orchestration & Services

Controller Platform

Southbound Interfaces & Protocol Plugins

Data Plane Elements
(Virtual Switches, Physical Device Interfaces)

Management GUI/CLI

OpenDaylight APIs (REST)

VTN: Virtual Tenant Network
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Service Provider Edition

Management GUI/CLI

OpenDaylight APIs (REST)

Base Network Service Functions
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OpenFlow
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NETCONF

SNMP

BGP-LS

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Southbound Interfaces & Protocol Plugins

Controller Platform

Data Plane Elements
(Virtual Switches, Physical Device Interfaces)

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OpenDaylight APIs (REST)

Controller Platform

OpenFlow
1.0
1.3

NETCONF

OVSDB

Service Abstraction Layer (SAL)
(plug-in mgr., capability abstractions, flow programming, inventory, …)

Topology Mgr
Stats Mgr
Switch Mgr
Host Tracker
Shortest Path Forwarding
Network Config

Affinity Service
OpenStack Service
VTN Manager
DOVE Mgr

OpenFlow Enabled Devices

Open vSwitches

Additional Virtual & Physical Devices

Data Plane Elements
(Virtual Switches, Physical Device Interfaces)

Network Applications Orchestration & Services

OpenStack Neutron

DDoS Protection

OpenStack Service

VTN Coordinator

Management

Virtualization Edition

VTN: Virtual Tenant Network
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OpenStack Integration

- OpenDaylight exposes a single common OpenStack Service Northbound
  - API exposed matches Neutron API precisely
  - multiple implementations of Neutron networks in OpenDaylight
- OpenDaylight OpenStack Neutron Plugin simply passes through
  - simplifies OpenStack plugin
  - pushes complexity to OpenDaylight
Agenda

- What is Hydrogen
- Introduction to Helium
- Next Steps
- Get Involved!
# Introduction to Helium -- Naming

## Periodic Table of Elements

<table>
<thead>
<tr>
<th>Atomic #: 1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
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<tr>
<td>H</td>
<td>Li</td>
<td>Na</td>
<td>K</td>
<td>Ca</td>
<td>Mg</td>
<td>Al</td>
<td>Si</td>
<td>P</td>
<td>S</td>
<td>Cl</td>
<td>Ar</td>
<td>Mn</td>
<td>Fe</td>
<td>Co</td>
<td>Ni</td>
<td>Cu</td>
<td>Zn</td>
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</table>

- **Solid**
- **Liquid**
- **Gas**
- **Unknown**

### Metals
- Alkaline metals
- Alkaline earth metals
- Transition metals
- Lanthanoids
- Actinoids
- Po
t ime metals

### Nonmetals
- Astatine
- B
taneous metals
- Re
tine metals
- Noble gases
- Halogens
- Alkaline metals

For elements with no stable isotopes, the mass number of the isotope with the longest half-life is in parentheses.

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www.opendaylight.org 16
# Helium Simultaneous Release Plan

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<th>Date</th>
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| M1              | 5/12/2014  | 1. Projects must have declared intent to participate in Simultaneous Release  
2. Participating Projects must have published a candidate Release Plan for public comment (Release Plan Template)  
3. TSC commits to initiate public discussion of Lithium Simultaneous Release Plan |
| M2              | 6/09/2014  | 1. Participating Projects must have declared their final Release Plan  
2. TSC commits to finalize basic dates and Milestones for the Lithium Simultaneous Release Plan (some details of requirements and Milestone contents may be decided later)  
3. TSC commits to initiate public discussion of Release Vehicles |
| M3              | 7/07/2014  | 1. Latest possible Continuous Integration Test Start  
2. TSC commits to decide on Final Release Vehicles Defined  
3. Latest possible date for commencing Documentation |
| M4              | 8/04/2014  | 1. API Freeze  
2. Latest possible Continuous System Test Start  
3. TSC commits to begin public discussion of Stable Update Expectations |
| M5              | 9/1/2014   | 1. Code Freeze (bug fixes only from here)  
2. String Freeze (all internationalizable strings frozen to allow for translation)  
3. TSC commits to have finalized Stable Update Expectations |
| RC0             | 9/9/2014   | Participating Projects must hold their Release Reviews, including User Facing Documentation. |
| RC1             | 9/15/2014  |  |
| RC2             | 9/22/2014  |  |
2. Latest possible date for each project to add a stable/helium branch |
| SU1 (Stable Update 1 aka Helium.1) | 11/10/2014 | First Stable Update for Helium. See Stable Update section. NOTE: This date is provisional, but will not move earlier. Please note, event based Updates (security/critical bugs) are distinct and may occur at any point. |
| SU2 (Stable Update 2 aka Helium.2) | 01/12/2015 | Second Stable Update for Helium. See Stable Update section. NOTE: This date is provisional, but will not move earlier. Please note, event based Updates (security/critical bugs) are distinct and may occur at any point. |
What’s in the queue for Helium?
(projects that have advanced to Incubation state)

- Group Based Policy Plugin (Application Policy Plugin)
- Packet Cable PCMM Manager
- SDNi App
- Southbound Plugin to the OpenContrail Platform
- L2 Switch
- Secure Network Bootstrapping Infrastructure
- AAA Service
- ODL Toolkit
- Dynamic Resource Reservation
- TTPs
- Opflex
- Root Parent
- Documentation
- And more…
- [https://wiki.opendaylight.org/view/Project_Proposals:Main](https://wiki.opendaylight.org/view/Project_Proposals:Main)
Brief Note on Project Lifecycles

Creation Review
Proposal Proposal Posted for 2 weeks:
Name (trademark) OK
Repo Name Specified
Description Complete
Scope well defined
Resources Committed (developers committed to work)
Committees identified
Vendor Neutral
Meets Board Policy (including IPR)
Review by TSC and Approval

Graduation Review
Proposal Proposal Posted for 2 weeks:
Winning code base
Active Community
History of Releases (using Mature Release Process)
Destination Top Level Project Specified
Acceptance of conditions of proposed TLP
Committees vote on seeking graduation
Accepted by vote of destination
Review by TSC and Approval

Promotion Review
Proposal Proposal Posted for 2 weeks:
Committees vote on seeking promotion
Review by TSC and Approval

Elevation Review
Proposal Proposal Posted for 2 weeks:
Scope of acceptable subprojects
Statement of requirements placed on subprojects, both mature and incubator
Identified at least two proposed subproject
Committees vote on seeking elevation
Review by TSC and Approval

Termination Review
Proposal Proposal Posted for 2 weeks:
States reason termination is sought
Calls out impact on other projects, users, communities and how they will be mitigated
Indicates where the project will be archived
Can be initiated by vote of the committees
Can be initiated by TSC or PMC if containing project
Project has no remaining committees
Project has had no commits in SCM in 18 months
Review by TSC and Approval

Top level projects have a Project Management Committee (PMC) that votes on its decisions including accepting new PMC members and new subprojects

Mature Projects need next progress to Core

Anyone can propose a project
Agenda

- What is Hydrogen
- Introduction to Helium
- Next Steps – Beyond Helium
- Get Involved!
Lithium?

- Release after Helium
- Target Release Date: 04.20.2015
- Simultaneous Release Plan
- Regularized/Deterministic Release Cadence
- Too early for projects
# Lithium Simultaneous Release Plan

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- Get Involved!
Network Programmability

Program

Provision

Configure
Get involved!

- Sanity check for protocol matching
- Implementing standards in code
- Best place to chase the pyramid
- IRC (freenode): #.opendaylight
- Twitter also good
Thanks!