Combining Open Source and Standards
Charles Eckel, Open Source Developer Evangelist, Cisco DevNet
eckelcu@cisco.com, @eckelcu
Why Standards?

- Standards have played key role many/most industries
- Industry demand standards compliance from vendors
  - Avoid lock-in, ensure interoperability
- Vendors work together defining standards
- Vendors benefit from support of standards
  - Establish credibility for products
  - Ensure interoperability with partners and competitors
Why Open Source?

- Industry demands an open source story from its vendors
  - Open source contributions bring credibility and seat at table w/ customers
- Open source based defense
  - Use standards to drive demand for your products and solutions
  - Support for standards in open source projects protects leadership position
- Open source based offense
  - Use open source offering to commoditize position of competitor
  - Change playing field to align with your strengths
Traditional Standards Process

- Standards formed over period of years
- Become interoperable over next few years
- Products, and services built on these standards

Photo credit: https://play.google.com/store/apps/details?id=com.mobilerise.hourglass
Power of Open Source Software

• Fuel industry transformation
• Leverage a vast community
• Innovate at very fast pace
• Result in de facto standard
Complexity of Open Source

- Some assembly required
- Projects fade away
- Fragments
• Software Defined Networking (SDN) Controller
• Platform for Network Aware Apps
• Network Programmability via YANG, NETCONF, RESTCONF
• Carrier grade platform for network function virtualization (NFV)
• Realization of ETSI NFV architecture
• Systems Integration as an open source project
• Upstream contributions to open source projects
• Automated testing and deployment of platform
Combine Standards with Open Source

• Advance pace and relevance of standards activities
• Support key standards in relevant open source projects
• Activities: Hackathons, Interoperability events
  • Cultural events, collaborative, friendly competition
IETF

• Internet Engineering Task Force
• Founded in 1986
• Goal – Make the Internet Work Better
• Definition of Internet Drafts (I-Ds) and RFCs
• Networking protocols, e.g. TCP/IP, DNS, HTTP, TLS, YANG, NETCONF, RESTCONF
• No membership or dues, no voting, made up of volunteers
• Meetings are working sessions, not conferences
Challenges

- Too slow
- Aging community
- Overrun by pace of innovation
- Code (potentially open source) as de-facto standard
IETF Hackathons

• Cisco DevNet brought to IETF 92, March 2015
• Funded and ran for 2015 (3 per year)
• Advance pace and relevance of IETF standards
• Attract new/young people to IETF
• Hackathon adopted as part of IETF schedule
• Rotating sponsorship for funding

IETF Hackathon

Overview: IETF Hackathons encourage developers to collaborate and develop utilities, ideas, sample code and solutions that show practical implementations of IETF standards.

Technologies: The IETF Hackathons cover a range of topics including: DNS, HTTP 2.0, NETVC, OpenDaylight, ONOS, VPP/FD.io, RIOT, SFC, TLS 1.3, WebRTC, YANG/NETCONF/RESTCONF. New technologies are always encouraged!

Goals:
* Advance pace and relevance of IETF standards activities by bringing the speed and collaborative spirit of open source development into the IETF (e.g. targeted standards areas where ideas are flushed out, sample code is produced, and useful utilities are developed)
* Bring developers and young people into IETF and get them exposed to and interested in IETF

Subscribe for the hackathon mailing list: https://www.ietf.org/mailman/listinfo/hackathon
Hash Tag: #ietfhackathon
Goals

• Running Code ([RFC 6982](https://rfc-editor.org/rfc/rfc6982))
• Open Source
• Speed and Relevance of Standards
• Collaborate and Learn
• Have Fun
• Cookies!
• and BEER!!!
Champions

- Anyone can volunteer to “champion” a project
- Before the Hackathon
  - Update hackathon wiki with details about project
  - Share ideas and preparation materials via the hackathon list
  - Recruit participants from working groups, open source projects, etc.
- At the Hackathon
  - Create and display poster for their project
  - Make themselves available to answer questions and help others
  - Hack on things themselves
IPR and Code Contribution Guideline

• Hackathon participants free to work on any code
• Rules regarding that code are what each participant's organization and/or open source project says they are
• The code itself is NOT an IETF contribution
• Discussions, presentations, and demos done as part of the hackathon are the same type of IETF contributions as those made in working groups; therefore, the usual IETF copyright and/or IPR disclosure rules apply
https://github.com/ietf-hackathon
Judging Criteria

- Advance pace and relevance of IETF standards
  - Bring speed and collaborative spirit of open source software into the IETF
  - Flush out ideas, feed into WG session
  - Produce sample code/reference implementations
  - Create useful utilities
- Attract developers, young people to IETF
  - There’s cool shit at IETF
  - #IETFhackathon, #IETF97
### IETF Hackathon

**Overview:** IETF Hackathons encourage developers to collaborate and develop utilities, ideas, sample code and solutions that show practical implementations of IETF standards.

**Technologies:** The IETF Hackathons cover a range of topics including: BIER (Bit Index Explicit Replication), HTTP/2.0, NETCONF/YANG, OpenDaylight, RIOT, SFC, and SPUD (S Underneath Datagrams). New technologies are always encouraged!

---

### IETF HACKATHON BRINGS RUNNING CODE BACK TO IETF

By Charles Edel

The first ever IETF Hackathon was held 21-22 March, the weekend before IETF 93 in Dallas, Texas. It was a late addition to the meeting schedule, an answer to the call to action in Dave Warin’s talk at IETF 91, Open Standards, Open Source, Open Loop (see www.ietf.org/pubs/ietf-journal-march-2015/open-standards-open-source-open-loop). Cisco’s DevNet team collaborated with IETF leaders to put the event together in short order. Stated goals included bringing running code back into the IETF, bridging the gap between open source and open standards, and introducing more developers and young people to the IETF. It was a huge success by these and other measures, as evidenced by the announcement of a second Hackathon at IETF 95 in France.

There was no loss of enthusiasm the next morning—many people arrived before the advertised start time of 9:00. Even a few faces arrived, their previously established travel plans or airline strikes not allowing them to participate the previous day. They were welcomed, plugged into existing teams, and started contributing.

By Sunday midafternoon, teams switched gears to prepare and deliver short presentations of their accomplishments to their peers and a set of esteemed judges: Jari Arkko, Richard Barnes, and Mark Nottingham. Following the presentations, the judges conferred to determine the winners. All stakes were bragging rights, plus tech goodies that included Raspberry Pis, Infiniter green laser pointers, and K8-o-meter power meters.

Projects included the following:

- "This is a hackathon!" by [Alexis Gherardelli](#)
- "This is a hackathon!" by [Alexis Gherardelli](#)
- "This is a hackathon!" by [Alexis Gherardelli](#)

---

### Participants

|---------------------|-------------------|------------------|-------------------|------------------|------------------|

Combining Open Source and Standards
MEF

• Global Deployment of Carrier Ethernet Networks Services
• Found in 2001
• 210 + member companies
• Certification Programs
• Multi carrier interworking is key

The MEF is the driving force accelerating the industry transition to agile, assured, and orchestrated services … that offer user-directed control over service capabilities and cloud connectivity.
Challenges

- Victim of own success
- Carrier Ethernet Network Services deployed globally
- Now what?
- Move up the stack to L3-L7
- Lifecycle Service Orchestration (LSO) for Next-Gen Networks Services
- LSO architecture and APIs
LSO Hackathon

• Cisco DevNet introduced MEF to hackathon at GEN15, Nov 2015
• Funded by MEF, run by DevNet
• Transformed LSO architecture and APIs into running code
• MEF restructured with hackathon and open source as key components
The MEF LSO Hackathon: Building Community, Swatting Bugs, Writing Code

December 15th, 2015 by Industry Viewpoints - Leave a Comment

This Industry Viewpoint was authored by Alan Zeichick, Principal Analyst, Cureda Associates

A Hackathon – like the debut LSO Hackathon held in November 2015 at the MEF's GEN15 conference – is where magic happens, where theory turns into practice, and where the state of the art advances. Dozens of techies sitting in a room, hunched over laptops, scribbling on whiteboards, drinking excessive quantities of coffee and Diet Coke. A hubbub of conversation. Focus. Laughter. A sense of challenge.

GEN15 LSO Hackathon Focus & Participants

More than 50 network and software experts joined the first-ever LSO Hackathon, representing a very diverse group of 20 companies. They were asked to focus on one Reference Point of the MEF's Lifecycle Service Orchestration (LSO) Reference Architecture. As explained by Daniel Bar-Lev, Director of Certification and Strategic Programs at the MEF and one of the architects of the LSO Hackathon series, these included:

- LSO Arlo, which defines the element management reference point needed to manage network resources, including element view management functions
- LSO Presto, which defines the network management reference point needed to manage the network infrastructure, including network view management functions

Hackathon participants and their companies were gathered at GEN15, the second annual global networking conference hosted by the MEF. Held during 16-18 November in Dallas, GEN15 grew close to 1,000 professionals from 235 organizations and 43 countries. While the GEN15 LSO Hackathon was a small part of GEN15, it was an important one due to the technical work accomplished and the networking.

LSO Hackathons Bring Together Open Standards, Open Source

Open standards and open source projects are both essential ingredients for advancing the cause of interoperable next-generation carrier networks.

Diario TI 23/06/16 22:00:12 When a standards developing organization (SDO), like MEF, creates standards, those written documents themselves aren’t the end goal. Sure, the specifications look good on paper, but it takes a lot of work to turn those words and diagrams into hardware, software and services. And if there are any ambiguities in those specifications, or misinterpretations by vendors building out their products and services, interoperability could be problematic at best.

By contrast, when an open-source project is formed, the team’s job is obvious: to create software and solutions. All too often, the members of the project are focused on reaching a particularly objective. In those cases they are working in a vacuum, and might write code that works great but which can’t be abstracted to solve a more general problem. In those cases, interoperability may also be a huge issue.

The answer is clear: bring together SDOs and open-source teams to write open-source code that’s aligned with open specifications. That’s what’s happening at the LSO (Lifecycle Service Orchestration) Hackathons hosted by MEF: open source teams come together to work on evolving specifications, and the end result is not only solid code but also effective feedback to MEF about its specs and architecture. Another benefit: networking experts from across the communications industry work together with software developers from the IT world face-to-face, fostering mutual understanding of the constraints of their peers in ways that lead to more effective interaction in their day jobs.

MEF16 LSO Hackathon

The place for hands-on collaboration and development of OpenCS and OpenLOSI implementations!

The MEF is holding its third LSO Hackathon co-located with MEF16 to accelerate the development of LSO-SDN-NFV based solutions for Third Network services. The MEF16 LSO Hackathon will facilitate discussion, collaboration and the development of ideas, sample code and solutions that can be used both in the Open Source projects (e.g. OpenDaylight, ON.Lab, ENO) and in the further development of MEF specifications for the benefit of service providers and technology vendors alike.

It is free to participate although space is limited to 80 hackers. Register for your place now, and our LSO Hackathon leadership will confirm your participation after reviewing your details.

Combining Open Source and Standards
Call to Action

• Champion combination of open source and standards
• Transform standards organizations with open source
• Make standards consumable by developers
• Make open source consumable by industry
Questions?
Thank You!