

Open Source - Killing standards organizations or saving them

Open source and standards join forces for mutual benefit

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FOSDEM 2020

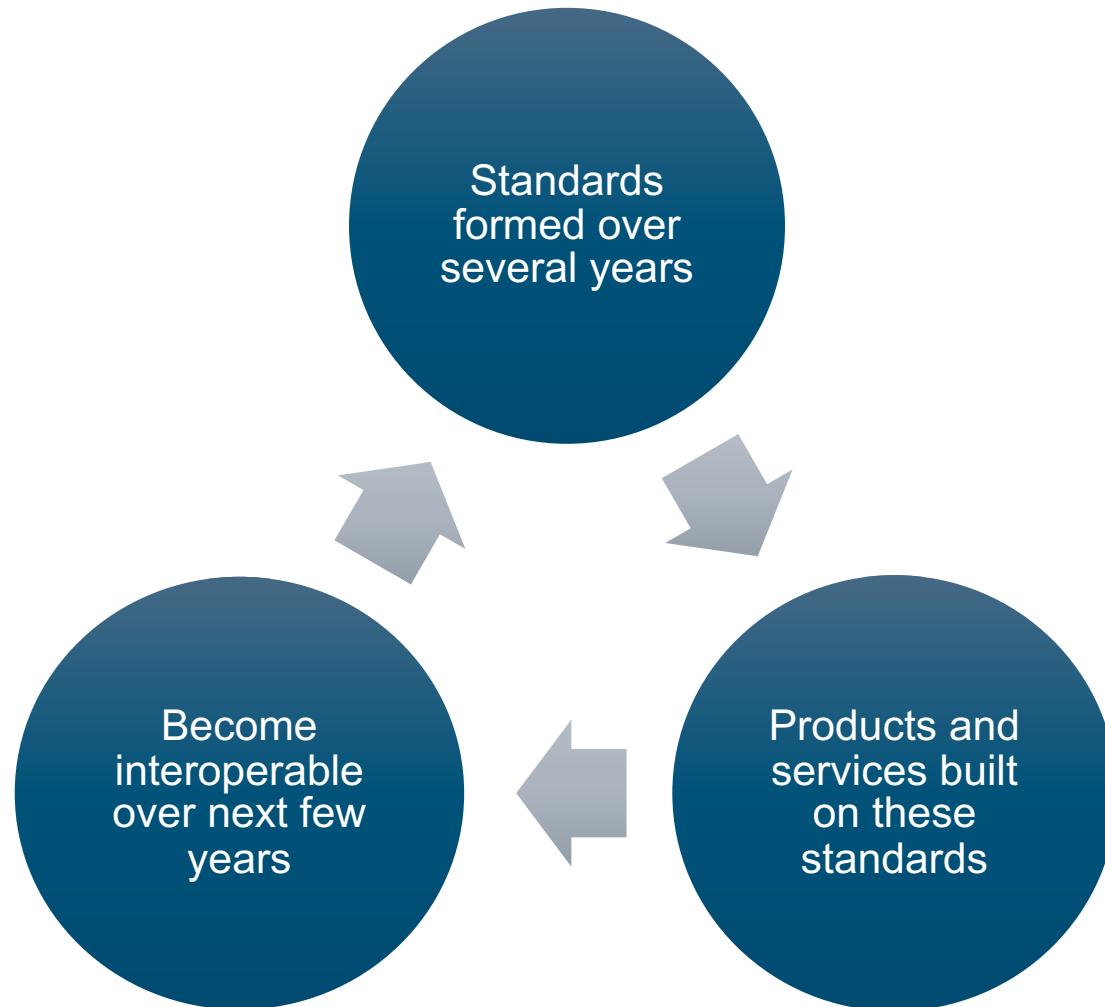


Why Standards?

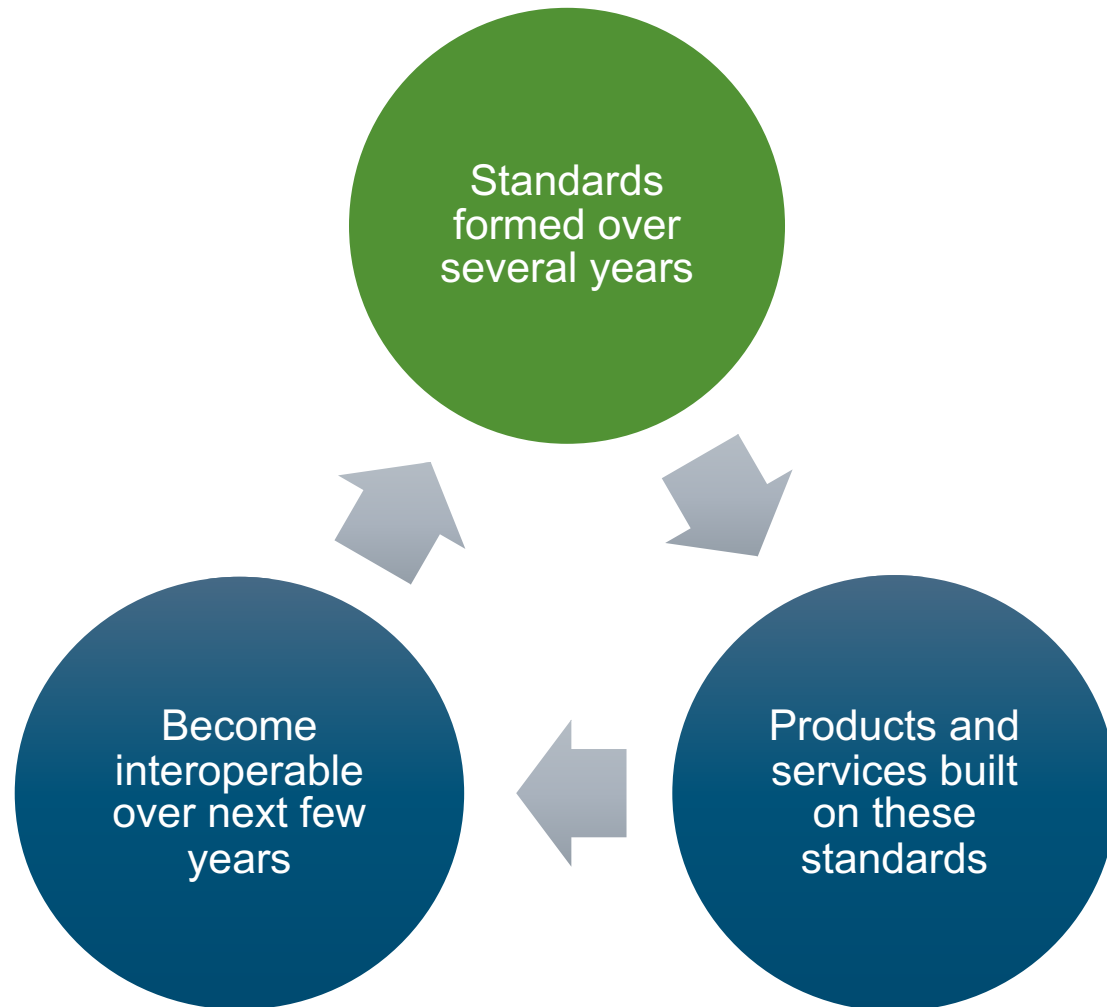
- Standards have played key role in many/most industries
- Industry demand standards compliance from vendors
 - Ensure interoperability, avoid lock-in
- Vendors work together to define standards
 - Establish credibility for products
 - Ensure interoperability with partners and competitors



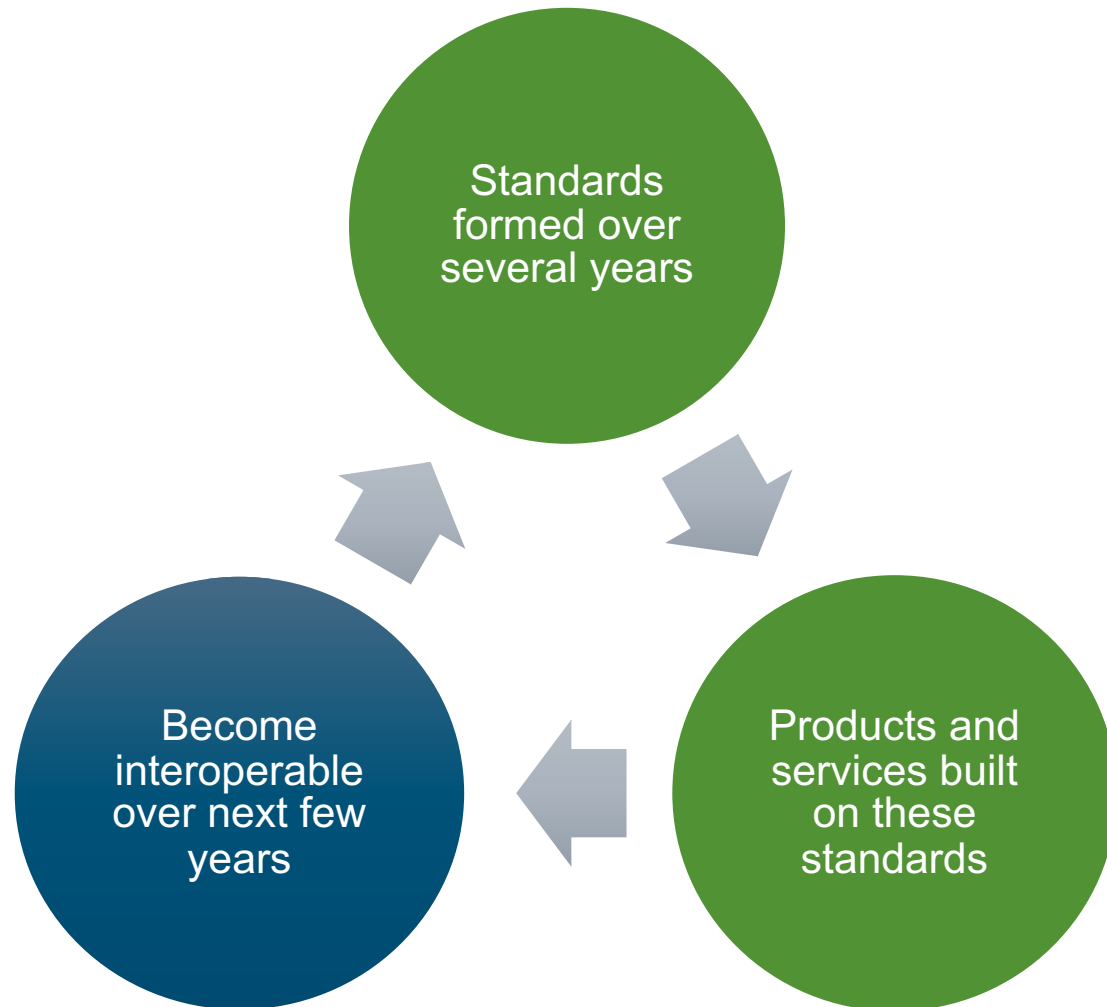
Traditional Standards Process



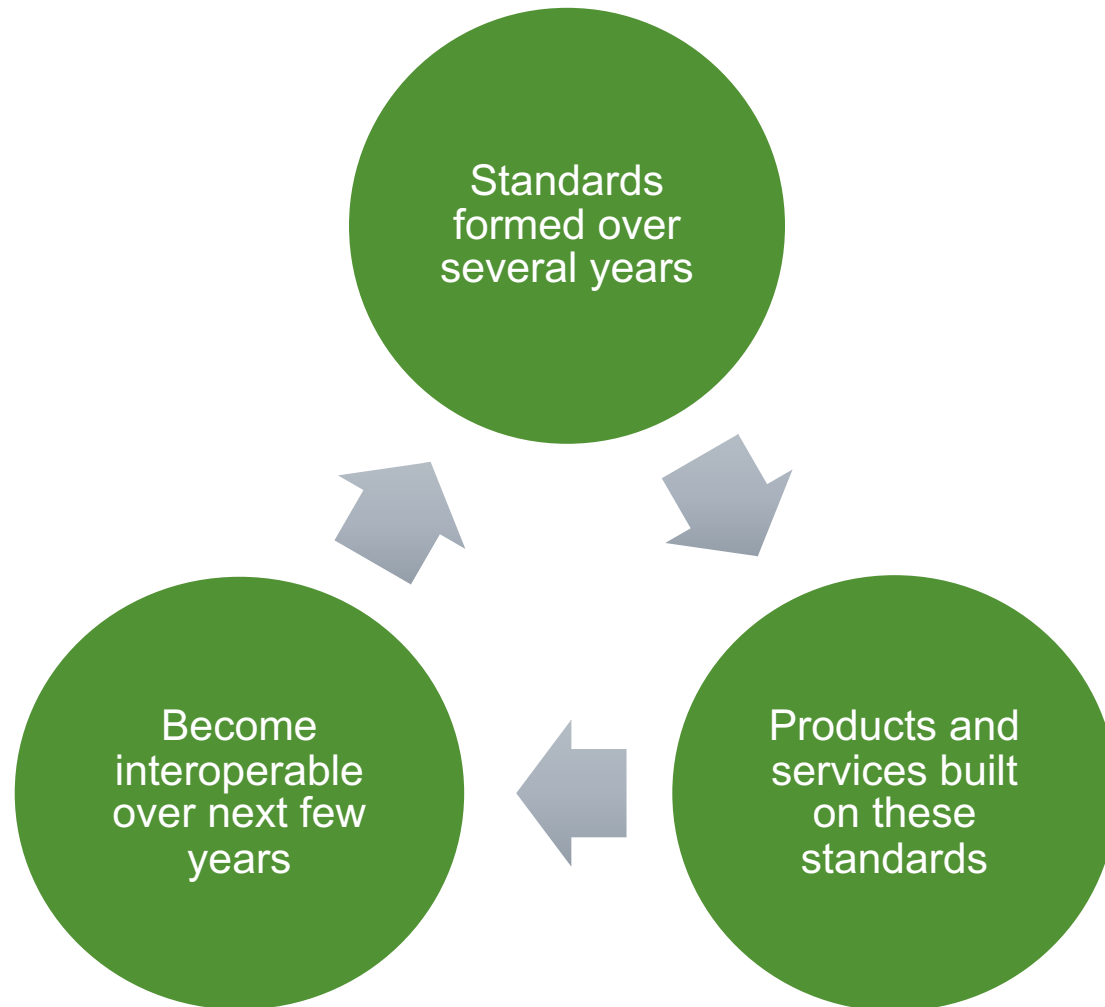
Traditional Standards Process



Traditional Standards Process



Traditional Standards Process



Traditional Standards Process

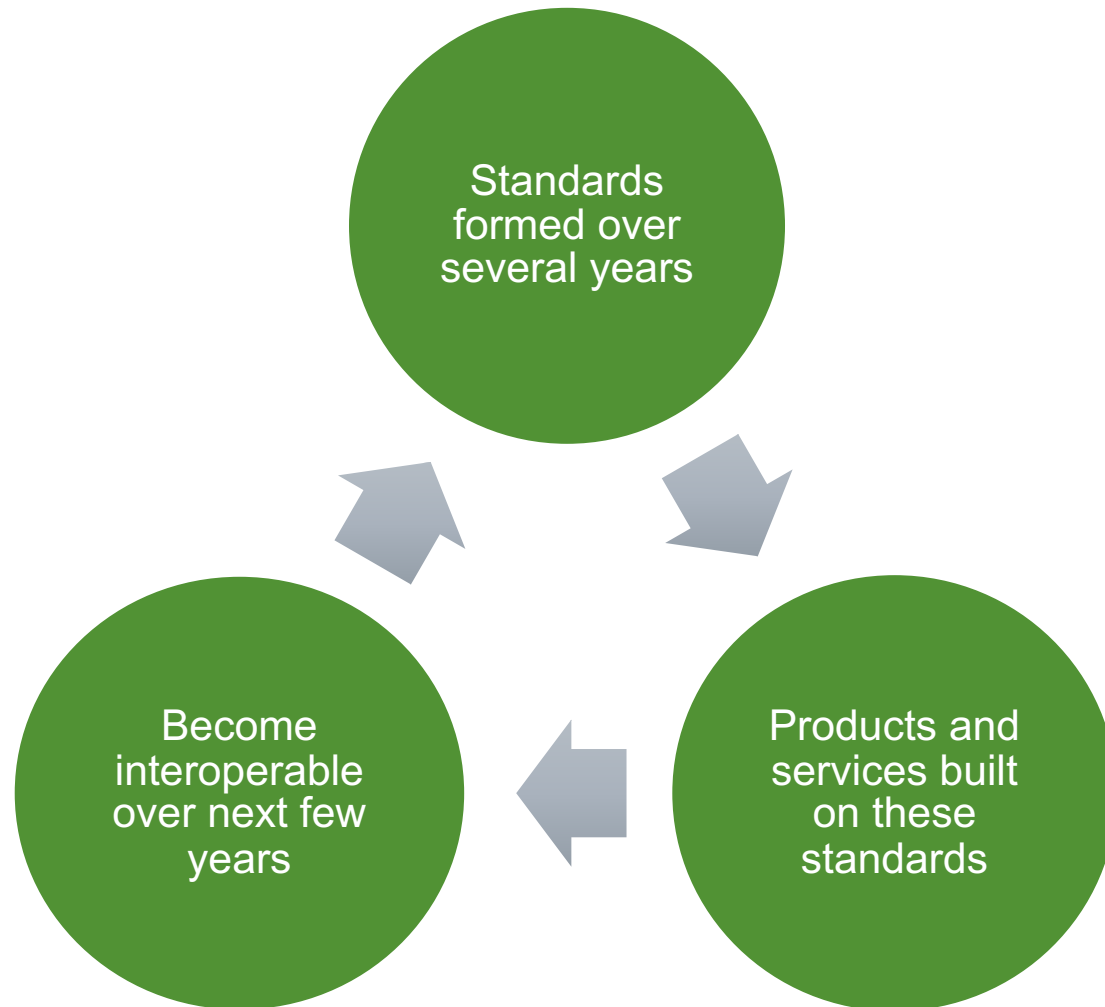


Photo credit:
<https://play.google.com/store/apps/details?id=com.mobilerise.hourglass>

Open Source Transforming Networking

- Fuel industry transformation
- Engage a vast community
- Innovate at rapid pace
- Result in de facto standard



Complexity of Open Source

- Some assembly required
- Poor documentation
- Moving target
- Projects fade away
- Fragments



Combine Open Source with Standards

- Bring speed and collaborative spirit of open source to standards
- Validate correctness and completeness of evolving specifications
- Add support for key standards to open source projects
- Speed adoption by providing usable code together with standards

$$1 + 1 = 3$$

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, VXLAN, GRE, YANG, NETCONF, RESTCONF, ...



*We reject kings,
presidents and voting.
We believe in rough
consensus and
running code.*

- David Clark, Tao of the IETF

Challenges

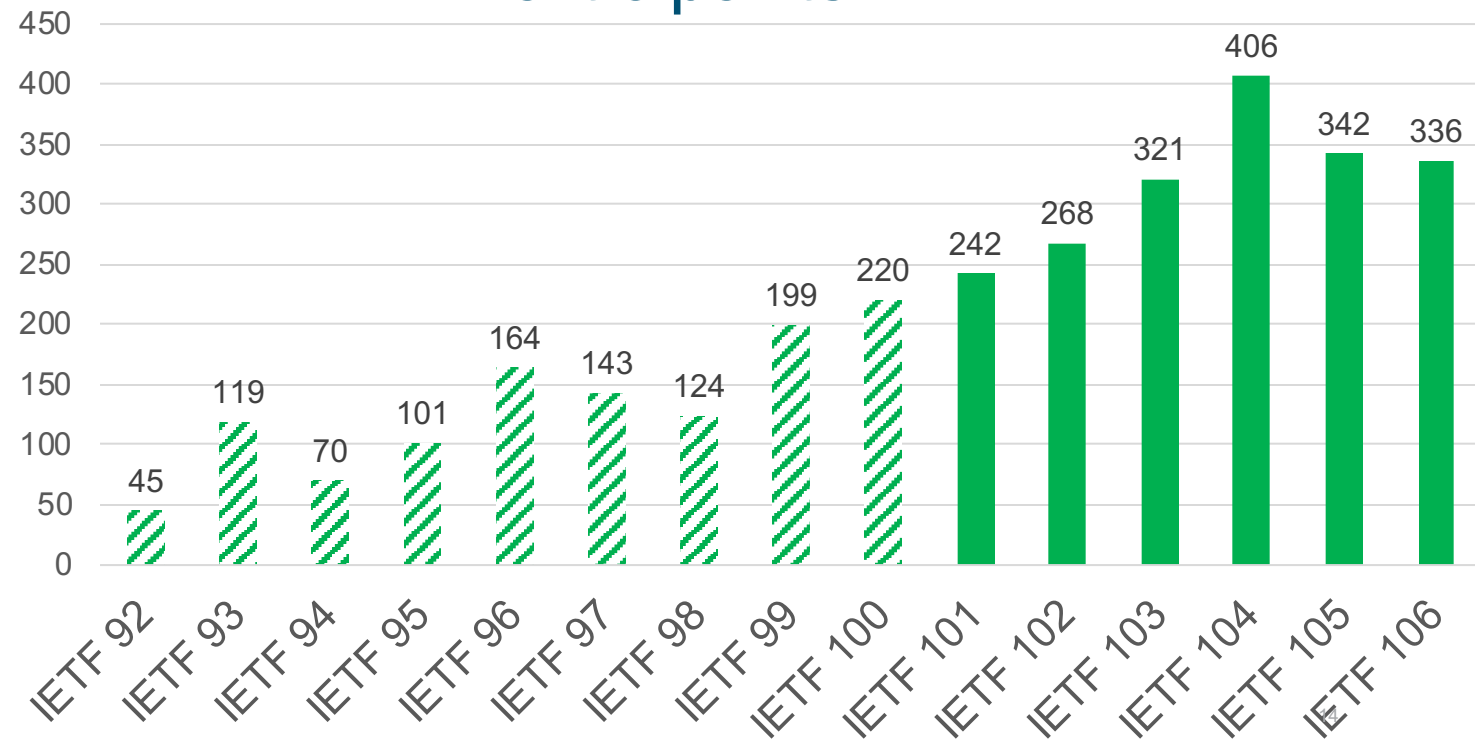
- Slow
- Aging community
- Too much time on rough consensus, not enough on running code
- Overrun by pace of innovation
- Code (potentially open source) as de-facto standard

IETF Hackathons

- Advance pace and relevance of IETF standards
 - Flush out ideas, feed back into working groups
- Attract developers, universities
 - Team newcomers with veterans
 - Reduce time to meaningful contribution
- Free, open to everyone
- Collaborative



Participants



Code in Hands of Developers

<https://github.com/ietf-hackathon>

The screenshot shows the GitHub interface for the 'IETF-Hackathon' repository. At the top, there's a navigation bar with links for Pull requests, Issues, Marketplace, and Explore. Below this, the repository name 'IETF-Hackathon' is displayed with a description: 'Repository for sharing code, presentations, and other artifacts at IETF hackathons'. The email 'hackathon@ietf.org' is also listed. A tab bar shows 'Repositories' (21), 'Packages', 'People' (114), 'Teams', 'Projects', and 'Settings'. A search bar 'Find a repository...' is present, along with filters for 'Type: All' and 'Language: All'. A 'New' button is in the top right. The main content area lists four repositories: 'ietf107-project-presentations', 'mDNSResponder', 'p4-ipv6-switch-ml', and 'ietf106-project-presentations'. Each repository entry includes its name, description, statistics (forks, stars, issues, pull requests), and an update timestamp. To the right, there are two sidebars: 'Top languages' showing C, Shell, JavaScript, HTML, and P4; and 'People' showing a grid of 114 contributors' avatars and an 'Invite someone' button.

Search or jump to... Pull requests Issues Marketplace Explore

IETF-Hackathon
Repository for sharing code, presentations, and other artifacts at IETF hackathons
hackathon@ietf.org

Repositories 21 Packages People 114 Teams Projects Settings

Find a repository... Type: All Language: All Customize pins New

ietf107-project-presentations
Presentations of project results at end of hackathon
0 forks 0 stars 0 issues 0 pull requests Updated 5 days ago

mDNSResponder
C 3 forks 27 stars 1 issue 1 pull request Updated 6 days ago

p4-ipv6-switch-ml
p4-16 IPv6 program for use by switch ml
P4 Apache-2.0 1 fork 4 stars 1 issue 0 pull requests Updated 25 days ago


ietf106-project-presentations
Presentations of project results at end of hackathon
5 forks 1 star 0 issues 0 pull requests Updated on Dec 2, 2019

Top languages
C Shell JavaScript HTML P4

People 114 >
Invite someone

Process in Hands of Developers

<https://datatracker.ietf.org/wg/git/about/>

 Groups Documents Meetings Other eckelcu@cisco.com

GitHub Integration and Tooling (git)

About Documents Meetings History Photos Email expansions List archive » Tools »

WG

Name GitHub Integration and Tooling

Acronym git

Area General Area (gen)

State Active

Charter charter-ietf-git-01 Approved

Dependencies [Document dependency graph \(SVG\)](#)

Additional URLs - [GitHub](#)

Personnel

Chairs ☒ [Christopher Wood](#)
☒ [Paul Hoffman](#)

Area Director ☒ [Alissa Cooper](#)

Mailing list

Address ietf-and-github@ietf.org

To subscribe <https://www.ietf.org/mailman/listinfo/ietf-and-github>

Archive <https://mailarchive.ietf.org/arch/browse/ietf-and-github/>

Jabber chat

Room address <xmpp:git@jabber.ietf.org?join>

Logs <https://jabber.ietf.org/logs/git/>

Charter for Working Group

Many IETF working groups use external code repository services, primarily GitHub, in managing their work. Individual working groups, while continuing to operate within IETF guidelines for working group activity, have developed their own policies and practices for how they use these services. These policies and practices cover aspects such as: managing discussion between working group mailing lists and GitHub issues and pull requests; how text contributions are expected to be made; labeling and naming conventions; maintaining readable draft snapshots; using tooling and automation; informing participants about IETF policies; and others.

Graphical User Interface Application and Toolkit (DLUX / NeXT UI)

AAA AuthN Filter

OpenDaylight APIs REST/RESTCONF/NETCONF/AMQP

Northbound APIs to
Orchestrators and
Applications

Base Network Functions

- Host Tracker
- L2 Switch
- OpenFlow Forwarding Rules Mg
- OpenFlow Stats Manager
- OpenFlow Switch Manager
- Topology Processing

Enhanced Network Services

- | | | |
|--------------------------------|----------------------------|-----------------------------|
| AAA | Messaging 4Transport | SNMP4SDN |
| Centinel – Streaming Data Hdlr | NetIDE | Time Series Data Repository |
| Controller Shield | Neutron Northbound | Unified Secure Channel Mgr |
| Dev Discovery, ID & Drvr Mgmt | OVSDB Neutron | User Network Interface Mgr |
| DOCSIS Abstraction | SDN Integration Aggregator | Virtual Private Network |
| Link Aggregation Ctl Protocol | Service Function Chaining | Virtual Tenant Network Mgr. |
| LISP Service | | |

Network Abstractions

- ALTO Protocol Manager
- Fabric as a Service
- Group Based Policy Service
- NEMO
- Network Intent Composition

Controller Platform
Services/Applications

Data Store (Config & Operational)

Service Abstraction Layer/Core

Messaging (Notifications / RPCs)

- | | | | | | | | | | | | | | | | |
|-------------------------|-----------|-------|---------|------|-----|------|--------|--------|-----|------|-----|------|------------------|------|---------------|
| OpenFlow
1.0 1.3 TTP | OF-Config | OVSDB | NETCONF | LISP | BGP | PCEP | CAPWAP | OPFLEX | SXP | SNMP | USC | SNBI | IoT
Http/CoAP | LACP | PCMM/
COPS |
|-------------------------|-----------|-------|---------|------|-----|------|--------|--------|-----|------|-----|------|------------------|------|---------------|

Southbound Interfaces
&
Protocol Plugins

OpenFlow Enabled
Devices



Open vSwitches



Additional Virtual &
Physical Devices



Data Plane Elements
(Virtual Switches, Physical
Device Interfaces)

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Call to action - Open source and standards join forces

<https://ietf.org/how/runningcode/hackathons/107-hackathon/>

- Champion combination of open source and standards
- Make standards consumable by developers
- Make open source consumable by industry



A screenshot of the IETF 107 Hackathon Vancouver page. The page features a dark header with the IETF logo and navigation links like 'News & blog', 'Contact', 'Search', and 'Tools'. Below the header, a breadcrumb trail shows the path from 'How we work' to 'Running code' to 'IETF Hackathons'. The main title is 'IETF 107 Hackathon Vancouver', followed by a description of the event's purpose. Key details include the dates 'March 21 and 22, 2020', the location 'Hyatt Regency', and the room 'TBD'. A paragraph explains that the event is free and collaborative. A list of links provides options to sign up, view the attendee list, subscribe to an email list, and check out the hackathon wiki. The 'Hackathon Co-Chairs' are listed as Charles Eckel, Cisco & Barry Leiba, Futurewei. At the bottom, it states 'Support provided by:' followed by the Cisco and DevNet logos and the URL 'developer.cisco.com'.

Thank you!