IETF AND LFN PROJECT COORDINATION

Jari Arkko (Ericsson)
Charles Eckel (Cisco)
GOALS

• Why coordinate? Can’t we just ignore each other?
• Talk about ways of working together
• Bring up experiences – ours and yours
• How to work with the IETF
• Highlight areas or projects that are worth your attention

INTERACTIVE SESSION – TELL US WHAT YOU THINK OR WHERE COORDINATION IS NEEDED!
WORKING TOGETHER

- Recognize different development models
  - How many implementations, what is normative/de facto, etc.
- Often there is much parallelism – code, users, specs, learning

- Many projects include aspects of standards and open source
- We’ve found information flows and learning is important
  - “One team”, hackathons, etc.
- Even outside open source, there’s usually an impact from underlying platforms
HOW IETF WORKS
Modern web stack: HTTP/2, QUIC, …
  • Much evolution here!
  • Primarily first for browsers and servers
  • But also for network equipment built using web-based APIs
  • Room for many improvements to build on

Efficiency, no HOL blocking, multiplexing, …

Example use for network equipment:
  • 5G Service-Based Architecture (SBA) Core Network
  • Specified in 3GPP
  • Uses many IETF and open source technologies underneath
FRUITFUL AREAS FOR COLLABORATION

• Security
  • Also a very active area of development
  • Significantly increased take-up in the world at large
  • TLS 1.3 just out!

• Internet of Things
  • HTTP, COAP, LWM2M, data formats, etc.

World celebrates, spooks cry as TLS 1.3 security is approved
Forward-secrecy protocol comes with the 28th draft
FRUITFUL AREAS FOR COLLABORATION

- IPv6
- Network protocols
  - Routing
  - Path computation elements
  - Id-locator split architectures
- Traffic engineering, virtualization, network management
- Network management frameworks and modelling
  - YANG, NET/RESTCONF, …
- Data models
  - Device level and up
  - YANG and others
  - …
Why Standards?

• Standards have played key role most industries
• Industry demand standards compliance from vendors
• Vendors work together defining standards
Why Open Source?

- Industry demands open source story from vendors
- Open source based defense
- Open source based offense
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
Complexity of Open Source

• Some assembly required
• Poor documentation
• Projects fade away
• Fragments
Combine Standards with Open Source

• Bring speed and collaborative spirit to open source to standards
• Add support for key standards to open source projects
• Use open source projects in reference implementations
• Hackathons, interop events, …
# Standards + Open Source

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<thead>
<tr>
<th>OSS defines</th>
<th>SDOs</th>
<th>Open Source Projects</th>
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<tbody>
<tr>
<td>PaaS/Application Layer</td>
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<td>CLOUD FOUNDRY</td>
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<td>Orchestration</td>
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<th>OSS leads, SDOs complement</th>
<th>Network Data Analytics</th>
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<td>Service Models</td>
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<td>NFV Architecture</td>
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<td>Network</td>
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<td>• BGP Monitoring Protocol</td>
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- OSS leads, SDOs complement
- OSS defines
- SDOs lead, OSS for rapid GTM

- OSS defines
- SDOs complement
- OSS leads

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Dependency Map

YANG-based data model driven management
OpenDaylight APIs REST/RESTCONF/NETCONF/AMQP

Base Network Functions
- Host Tracker
- L2 Switch
- OpenFlow Forwarding Rules Mgr
- OpenFlow Stats Manager
- OpenFlow Switch Manager
- Topology Processing

Enhanced Network Services
- AAA
- Messaging 4Transport
- SNMP4SDN
- Centinvel – Streaming Data Hdr
- Controller Shield
- Neutron Northbound
- Time Series Data Repository
- Dev Discovery, ID & Drvr Mgmt
- OVSDB Neutron
- Unified Secure Channel Mgr
- Link Aggregation CBI Protocol
- SDN Integration Aggregator
- User Network Interface Mgr
- LISP Service
- Service Function Chaining
- Virtual Private Network
- Network Intent Composition

Controller Platform Services/Applications
- ALTO Protocol Manager
- Fabric as a Service
- Group Based Policy Service
- NEMO
- Network Intent Composition

Data Plane Elements
- OpenFlow
- OF-Config
- OVSDB
- NETCONF
- LISP
- BGP
- PCEP
- CAPWAP
- OPFLEX
- SXP
- SNMP
- USC
- SNBI
- IoT
- Http/CoAP
- LACP
- PCMM/COPS

Service Abstraction Layer/Core

Southbound Interfaces & Protocol Plugins
- Additional Virtual & Physical Devices
- OpenFlow Enabled Devices
- Open vSwitches

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

AAA AuthN Filter

Northbound APIs to Orchestrators and Applications
Graphical User Interface Application and Toolkit (DLUX / NeXT UI)

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- Time Series Data Repository
- Dev. Discovery, ID & Drvr Mgmt
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- Unified Secure Channel Mgr
- DOCSIS Abstraction
- OVSDB Neutron
- User Network Interface Mgr
- Link Aggregation C8I Protocol
- SDN Integration Aggregator
- Virtual Private Network
- LISP Service
- Service Function Chaining
- Virtual Tenant Network Mgr.

Controller Platform Services/Applications
- ALTO Protocol Manager
- Fabric as a Service
- Group Based Policy Service
- LACP
- NEMO
- Network Intent Composition

Other Protocols
- AAA AuthN Filter
- PCMM/COPS
- AMC
- AMQP
- SNMP4SDN
- Link Aggregation Ctrl
- Protocol Plugins
- NetIDE
- Messaging 4Transport
- Northbound APIs to Orchestrators and Applications
- Southbound Interfaces & Protocol Plugins
- Data Plane Elements (Virtual Switches, Physical Device Interfaces)
- OpenFlow Enabled Devices
- Open vSwitches
- Additional Virtual & Physical Devices
- Enhanced Network Services
- Northbound APIs to Orchestrators and Applications
- Data Plane Elements
- Service Abstraction Layer/Core
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IETF Hackathons

• Advance pace and relevance of IETF standards
  • Flush out ideas, feed into working group
  • Produce reference implementations, libraries

• Attract developers, young people
  • Team newcomers with IETF veterans
  • University engagement
Champions

• Anyone can “champion” a project

• Before the Hackathon
  • Update [wiki](#) with project details
  • Share ideas and materials via [mailer](#)
  • Recruit participants from working groups, open source projects, etc.

• At the Hackathon
  • Answer questions, help others
  • Hack on things themselves
Call to Action

• Attend an IETF meeting
• Join an IETF hackathon
• Champion a project

IETF 102 Hackathon
14 – 15 July 2018
Thank You!