I2RS Update

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I2RS Co-Chairs
I2RS Status

- I2RS problem + architecture ➔ RFC track
- Finalizing Requirements:
  - At IESG: Traceability, pub/sub, protocol-security
  - New: Data Flow Requirements
  - Ephemeral/Protocol Strawman
- Next Steps in April
  - Data Flow Requirements (WG adopt/WG LC)
  - Ephemeral/Protocol strawman (WG adopt/WG LC)

- Protocol Strawman + Requirements ➔ NETCONF
I2RS Session 1 on Data Flow

- DF-REQ-01/10: (need more on list)
  - Choices: minimum, no-referential, full (full required)

- DF-REQ-02/03/09:
  - format: XML/JSON, transport selectable (in yang, by user)

- DF-REQ-06/08 I2RS should have resource constraints (memory, data flow) + related OAM
  
  *Not in v1*

- DF-REQ-07 OAM to protocols OAM Later (v2++)

- DF-REQ-04/05: No IPFIX in v1, IPFIX possible in v2
Discussion of Protocol Strawman

- I2RS meeting today at 16:20-17:20
  - Discussion today
- Questions to I2RS/NETCONF mail list
- I2RS Virtual interims
  - 4/27 – Requirements + Protocol Strawman
  - 5/18 – Protocol Strawman + Models + I2RS

I2RS data models

- I2RS WG Data models stable
  - I2RS RIB
  - I2RS Filter-Based RIB
  - I2RS Topology

- Next Steps
  - Implement + Put in Open Source
  - WG LC
Hackathon
IETF 96
Goals

Network of routers simulated using mininet/mininetx

Router

Router

IP Table

Router with i2RS agent

confd

Zebra

Quagga

RPC

RIB + Filters data models

CLI/GUI

NETCONF with i2RS data model

yangcli-pro

i2RS Client

config Client

<route-add>

static route

IP table

ospf/bgp

ospf/bgp
Hackathon details

(for Q&A only)
YANG Subscriptions & Push (PubSub)
Using OpenDaylight and XRVR
IETF95 Hackathon Results
5 April 2016

Ambika Prasad Tripathy - ambtripa@cisco.com
Eric Voit - evoit@cisco.com
Walid Elbokl - walid.elbokl@nokia.com
Hackathon Set up

- YANG-PUSH Client in OpenDaylight
- XR Router Demo Code
- draft-ietf-netconf-yang-push for interactions
- Netconf as a transport
Hackathon Objectives & Results

• Intended
  • Extending OpenDaylight’s [YANG PubSub Client implementation] released in Beryllium with <delete-subscription>.

• Demonstrated
  • Create Subscription, Periodic (via OpenDaylight)
  • Delete Subscription, Periodic (via NETCONF session)
  • Create Subscription, On-Change (via NETCONF session)
  • Delete Subscription, Periodic (via NETCONF session)
  • ACL changed
  • Route Added
  • Interface up/down

• New Code will be included in OpenDaylight Boron release

• Come for a Hands-on Demo during Thursday night’s Bits-N-Bites
I2RS
Building the NG routing interface

Sue Hares, Eric Voit, and others

I2RS built for High performance

Not the Pizza box CLI
What we Did

1. Try to get a Good environment
   - Build and run VM Edwin Cordeiro’s I2RS VM
   - Worked on Alternate Build (Don Fedyk + Mamadou Tahirou)

2. Try to get <route-add> working via I2RS RIB
   - Sue Hares, Jason Sterne, Lucy Yong
Goal 1: Tools / Environment Notes

**virtual box:** our laptops ran out of horsepower when trying to tackle the original project/goal #2 (6G memory, had lots of stuff in it, 5G ova gave us troubles on USB sticks – mystery)

**confd:** building confd requires: `sudo apt-get install libssl-dev`
Goal 2

Challenge: Hack together an I2RS Client and Server and get an i2rs <route-add> RPC working

Tools, Environments & Code:

- Dev & execution environment: Linux (Ubuntu 14.3 native or in Virtual Box)
- mininet and mininext (simulated network of routers)
- yangcli-pro (YumaPro)
- Quagga 1.0.20160315 (including Zebra for route table access)
- Cisco/Tail-f confd 6.1
- ietf-i2rs-rib YANG model from draft-ietf-i2rs-rib-data-model-05.txt
Overview of target approach

Network of routers simulated using mininet/mininetx

Router with i2RS agent

- Quagga
- Zebra
- Confd

i2RS Client

- yangcli-pro

NETCONF with i2RS data model

CLI/GUI

Routing protocols:
- ospf/
- bgp

RPC

<route-add>
Glueing Confd to Quagga

Let zebra see Confd as just another routing daemon

Router with i2RS agent