## **Teleconference Notes June 4, 2015**

wg-SDN call notes, 6/4/2015 Attendina: kevin mayeshiro <kmayeshiro@ucdavis.edu> Michael Van Norman <mvn@ucla.edu> Dan Schmiedt <willys@clemson.edu> David Brockus <dbrockus@ou.edu> Joshua Alexander <jalexander@ou.edu> Dave.Pokorney@flrnet.org **Bill Chimiak** Michael Lambert <lambert@psc.edu>https://wg-sdn.etherpad.mozilla.org/1 Rich Cropp <rac111@psu.edu> Kathy Benninger <benninger@psc.edu> Chris Konger <ckonger@clemson.edu> Heidi Dempsey <hpd@bbn.com> 0) Agenda bash 1) I2/AL2S updates: ION transition, Flowspace firewall new release features and future plans, OESS release features and future plans, OF 1.3 support, QoS support, New device plans, IPv6. Support for GENI. 2) Other items? 3) Future call plans Bill: traffic engineering end to end using OpenFlow, without breaking IDS/IPS/firewall Dan: Big Switch involvement in the wg - thoughts from the group? AJ's update on AL2S: ION transition FS FW: released, no issues Rate limit tracker issues are solved - broadcast storm from ONOS revealed pkt\_in, pkt\_out too fast for the rate limit tracker http://globalnoc.iu.edu/sdn/fsfw.html/ Next release may have OF 1.3 support, bug fixes OF 1.3 support: More about OESS first... OESS released and to be deployed tonight. Core underlying change: circuit failovers were handled through flow add/delete in the old, now, all primary and secondary paths are setup from onset and flow\_mods are used to create the failover. Less number of flow\_mod exchange between controller and switches. Better performance on the devices. 10 sec for failover with add/delete to 1 sec per failover, simplify the communication with devices. Both primary and secondary were being used - packet... Metrics document is shared on Internet2... Eric Boyd Tracepath: feature in OESS - UI button injects traffic on the existing circuit. https://www.youtube.com/watch?v=4\_vIRZTNIkI Latency may be a future add? More info on OESS: http://globalnoc.iu.edu/sdn/oess.html OESS release continued: ability to move endpoints. Move an end point due to bandwidth upgrade, e.g., 10 Gbps to 100 Gbps: https://www.youtube.com /watch?v=LUY2J4dVHhM Move the flow rules using OF (admin UI on OESS): circuit setup in the config is moved from old ports to new ones. OF 1.3: specific OESS features to focus on. QoS, reservation for bandwidth. Meter table support from 1.3 - by the end of the year 2015. Fast failover port group feature is secondary focus. Replicate the MPLS failover in the AL2S. Meter table - FIRST, reserve bandwidth in data plane. FSFW participation - design in progress. Bandwidth reservation of the resources, etc. And, in control plane, rate limit packets going into the controller - DoS attack. The ONOS example: FSFW got in the way to prevent damage, management plane device crashed, fixed in the release. Port ? in QoS... Push/pop VLAN tags for a truly QinQ support. IPv6 - in progress. New devices: plans to be reported by Eric Boyd. Support for GENI: Internet2 1 - OESS - AM, GENI stitching in AL2S, 2 - GENI stitching computation service, 3 - monitoring GENI monitoring software - "GENImonitoring", 4 - supporting experimenters/infrastructure through GMOC Bill: v6 network setup experiences. 64-bit IPv4: http://www.enhancedip.org/ http://www.enhancedip.org/docs/COM-2012-07-0147.R3.pdf A northbound application that creates an overlay network on top of the regular IPv4 network with additional fields in IP header. Presentation on workings of the protocol: http://www.enhancedip.org/docs/enip.pdf slide 16-17 on workings - NAT Those are the slides! Bill and Sam Patton Dan: Clemson evaluated various cloud fabric solutions (Cisco ACI, Juniper QFX, Brocade VDX, BigSwitch, and several others). Will be implementing BigSwitch products on their campus network. Big Tap (BT) and BigCloud Fabric (BCF) solutions ... also have H/W support. Gigamon vs BigTap ... BT has similar functionality through use of whitebox switches at a fraction of the cost. However some features are not implemented yet (e.g., de-duplication and

slicing are expected 4Q15). Big Cloud Fabric switching fabric compared to "chassis" model: line cards leaf switches, chassis as spine, OF is the communication protocol between controller and switches but switch runs as a legacy switch due to scalability limitations. Support available for all of the package.

SciPass update: balancer for tap mode for monitoring - http://globalnoc.iu.edu/sdn/scipass.html