

# Teleconference Notes from March 14, 2013

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March 14, 2013  
wg-sdn call

## Attending:

Dale Carder - dwcarder@wisc.edu  
Michael Lambert - lambert@psc.edu  
kevin mayeshiro - kmayeshiro@ucdavis.edu  
Grover Browning - gcbrowni@iu.edu  
Dan Schmiedt - willys@clemson.edu  
Bill Owens - owens@nysernet.org  
Deniz Gurkan - dgurkan@uh.edu  
Chris Small - chsmall@indiana.edu  
Ryan Flaherty - Ryan.Flaherty1@marist.edu  
Jason Parraga - Jason.Parraga1@marist.edu  
David Crowe, crowed@nero.net  
Matt Zekauskas, matt@internet2.edu [through 2pm]

## The agenda:

- 1) Agenda bash
- 2) Anybody from ONLAB on FlowVisor development efforts?
- 3) Questions this workgroup is interested in answering:
  - Quick guide to starting an OpenFlow testbed
  - Vendors and updates on OpenFlow implementations
  - IETF and ONF and NFV standardization status
  - ?

## Quick guide to starting an OpenFlow testbed:

Linksys OpenWRT + raspberryPi (FloodLight) controller (inexpensive)  
Short white paper on how to build an OF testbed  
Brent ? build a lab - would like to help, flavors of SDN, w/ and w/o h/w, scripts  
Target audience: network engineers vs graduate students vs engineer at a company  
R&E scope  
Eric, Dan, Brent, Bill, Deniz, Steve (volunteering to start a draft)

## Ali from ONLAB: FlowVisor (new release 2 weeks ago)

New features and new API, bug fixes, overhaul  
Creation of a slice: any combination of OF parameters (in headers)  
Resource slicing: number of TCAM entries, some QoS parameters, indirect CPU usage, control plane traffic limitations - always abiding with OF parameters, other info from the switches?

Chris Small: integrate with switch a monitoring module for the flowvisor (a GENI project - which one?)

We did this as part of the IU OF campus trials but used it to show the I2, NLR and Campus networks-- Code at <https://github.com/InCNTRE/Measurement-Manager> - It will need some changes with the version of FV that was just released as the API changed from XML-RPC to JSON

## Bill: system requirements for FlowVisor - substantial - why?

Size of the flow space dictates the sysreq (earlier version: 100k flows, 50 slices)  
Now: memory req not linear with slices, but with flow space  
Size of the config consumes the memory  
0.8.7 --> 1 (GENI soon)

## Brent: OFTest and others, performance and feature testing, available as open source?

Ed from GNOC: specific to OESS, controller + vendor pairs

Test doc that can be shared, methodologies on the testing, look at performance and functional aspects, code being open source may be considered (?), scripts with controller + switch, failure mode variations are not easy to identify (cause - effect)

Bill: controller + switch setup? Packet-in messages?

Ed: specific LADP send back to controller, others drop, no default to send all packets to the controller

Brent - Brocade: no normal forwarding? Hybrid?

Nothing other than OF is allowed, tag/label swapping, all native OF, no hybrid

Customer facing may need to have legacy AND OF (not the complete hybrid)

Hybrid definition is also in the air since the industry is shaping up - pretty important for this group to differentiate between normal OF and hybrid

Brocade and HP are completely different in how they realize hybrid

Any consolidation of these approaches?

ONF: activity on hybrid modes was shut down by boards????!!!!

Brent: Consumers: no complete OF network is possible at this time, how do we show some architectures applicable in our medium/use cases?

Management infrastructures: vendor support is variable, more refined levels of OF/legacy designation control of switches is not present yet  
OF front end to L4-7 specialized boxes? Rest of the network still IP?

## Latency in operational considerations on the legacy/OF

Normal pipeline first and then OF pipeline (order of operations in a switch)

Brent: Non-OF on the path, turn off MAC-learning, OF end points (GENI demo? at GEC16?)

Bill: I get the reasoning for having MAC learning disabled

Packet-in, packet-out, inject and capture at other points

multiple OF networks stitched together through VLANs over GENI, monitor by re-directing to somewhere, hard to monitor the part where it is native VLAN (not OF) - only counters, have an IP test/monitoring point

Cisco ONE: traceroute equivalent in OF? DCN experience was similar. Carrier ethernet equipment and discrepancies with what is available on the campus.

IETF: SDN research meeting - right now.  
SDNRG Agenda IETF 86

THURSDAY, March 14, 2013 Thursday Afternoon Session I (Caribbean 3)

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CHAIR(s): David Meyer <dmm@1-4-5.net>  
Nick Feamster <feamster@cc.gatech.edu>

#### AGENDA

- o Administrivia 0 minutes
  - Mailing list: <https://www.ietf.org/mailman/listinfo/sdn>
  - Web: <http://trac.tools.ietf.org/group/ietf/trac/wiki/sdnrg>
  - Scribe (text/jabber)?
- o Agenda Bashing 5 minutes
  - David Meyer
- o What is SDN really all about? An Architectural Perspective 20 minutes
  - David Meyer <dmm@1-4-5.net>
- o SDX: A Software Defined Internet Exchange 10 minutes
  - Nick Feamster <feamster@cc.gatech.edu>
- o Introduction to ForCES 20 minutes
  - Jamal Hadi Salim <hadi@mojatatu.com>
- o Scalable Multi-Class Traffic Management in Data Center Backbone Networks 20 minutes
  - Edward Crabbe <edc@google.com>,  
Jennifer Rexford <jenrexford@google.com>,  
Amitabha Ghosh <amitabha.ghosh@gmail.com>
- o Network Functions Virtualisation (NFV) update 10 minutes
  - <http://portal.etsi.org/portal/server.pt/community/NFV/367>  
Bob Briscoe <bob.briscoe@bt.com>
- o A Critical Survey of Network Functions Virtualization 10 minutes
  - Daniel King <d.king@lancaster.ac.uk>
- o Towards an accelerated FPMOD based on ephemeral states 20 minutes
  - Omar Cherkaoui <cherkaoui.omar@uqam.ca>