ACTN BoF - Agenda For IETF 91
Single Session
TUESDAY, November 11, 2014
1520-1720 - Afternoon Session II
Room: Coral 3

1) Title: Introduction and Administrivia
Presenter: Chairs

- Chairs: This is a WG forming BoF
- No changes to the agenda.
- There are 10 documents in this area
- Reminder that use cases were discussed last time
- Focus for this session is to discuss solution space and protocol work to be performed.

2) Title: Problem Statement
Presenter: Diego Lopez
Draft: draft-leeking-actn-problem-statement-03

- Telefonica highlighted that multiple administrative domains (multi-vendor / multi-version) are a problem and we really want a better way to manage them.
- Discussion on slicing internal to ACTN or layered on top? It should be inside, there will be an external API that cannot enforce separation.
- Clarification for the room what you mean by transport? The underlying high-speed infrastructure, mostly physical, mostly optical, used for implementing the backbones as the operators.
- Chairs confirmed connection oriented networks, MPLS-TP, TE. OTN. And not TCP.
- Requirements setup of services across multi-domain environments in maybe 10s of minutes to establish connections. Highlighted that CCAMP has discussion on fast LSPs.
- Control and management simplification is most immediate. Based on slides priority is: Time to market is future motivation/requirements, Control and management simplification, Automation and adaptability, Time-To-Market, Increase network resource usage.
- ATT highlighted need to have abstractions to manage underlying infrastructure, objectives: testability – there's a difference between the abstraction and the underlying infrastructure. Second – auditability. Because of the aforementioned infrastructure, changes can happen at different times, need to track this.
- Security includes enforcing policies, a need to identify, authorized, account. If you want to do a proper abstraction you will do policy.

3) Title: ACTN architecture - Option 1
Presenter: Sergio Belotti
Draft: draft-ceccarelli-actn-framework-04

- The domains presented can also be viewed as packet and optical realms. Multi-layer is included.
- ACTN considers the following interfaces in scope: between CNC (customer network controller) and VNC (virtual network controller), and between the VNC and the PNC (Physical Network Controller). The interface from the PNC to the NE is out of scope.
- The behaviour of the PNC OF controller box, where the two PNC boxes are collaborating is in scope.
- A PNC interface cannot interface with multiple VNCs, but, it advertise one virtual network to one VNC and another to another VNC.
- The commonality between VNC and PNC as a GMPLS controller needs to be looked into.

4) Title: ACTN architecture - Option 2
Presenter: Igor Bryskin

- We do not see a difference between VNC and PNC.
- Overall, concept is wider than ACTN.
- Idealistic to think a single abstraction fits all vendors, but one abstraction can fit the main things.
- Proposal would support legacy networks? We translate from actual topology to abstract topology. Also supports multi-domain case.
- In general this (Igor) and ACTN, is not only SDN. There are lots of legacy domains in here as well. We want to use the ONF architecture as a reference model but fill the gaps to deal with hybrid networks, and add what is missing e.g. TE capabilities. Define extensions for IETF protocols that are needed.
- You can ask for anything but the request might not be successful. There may be a negotiation. You can only request so much bandwidth, diversity etc. Try again and you may eventually see a topology you are happy with.
- Suggestion to make case for adopting (2) it is better to have a unified hierarchical model than to cast into VNC PNC etc.
- Having 1 interface means a simpler network, but does that solve the problem? The comment about the ONF reference architecture – maybe the architecture is not they work here, maybe we should work on data models.
- Data model is more important, can carry it in anything. We need to agree on the architectural picture how many APIs etc.
- A similar framework is appearing in a number of different places. There was an OIF/ONF demo recently using REST/JSON interface between controllers. So it appears multiple places. Also this is not restricted to transport, the

controller could be an IP controller (interworking IP and packet optical networks).

- As long as it is TE based connection oriented network this is true.
- This arch is occurring in multiple areas, therefore work on modelling is taking place in multiple areas; ONF is working on modelling. Must exchange information about activities between different groups.
- Problem space is 4 dimensional; geographical dist, multi-vendor environment; virtual topologies; mix of physical and virtualised components. I don't see it as useful to discuss roles of VNC and PNC. Nodes can be mix physical / virtual.
- We don't have a standard interface with standard models. Everything else exists. Solution modeling work should be YANG based with netconf/restconf.

5) Title: ACTN architecture Open Discussion
Presenter:

- Chairs highlighted overlap between architectures. They agree that the term VNC is misleading and will be changed.
- Suggested that work is enhanced UNI, signaling and provisioning with this interface with multi-domain, multi-vendor.
- Two options are not contradictory, option 1 provide better multi-domain, multi-technology including legacy NMS, including migration and can be used for mixed network. Option 2 requires changes in legacy system.
- Options overlap, they are not same. Option 2 is easier to hierarchy similar to PCE. In option 2 it's awkward to do hierarchy. Option 2 can also work with legacy and achieve SP use case. You have to support the interface that is all.
- Northbound and southbound interface is same for option 2.
- Chairs underlined work is beyond just SDN, there is lot of legacy technology. We want to use SDN as a reference model, that is dealing with hybrid network, we want add TE capabilities, we want to define extension to model and IETF protocols.
- Chairs would like to ensure work is compliment to the ONF model.
- Client requesting TE topology, it can specify topology, but may not be successful. The negotiation has to take place. Think of abstract topology as a service.

6) Title: Protocols work
Presenter: Dhruv Dhody

- VNC does not pass on details of customers domains. It's physical/abstract TED level.
- It is not possible in multi-domain environments with multi vendors and different CPs to have a single interface that talks to both.
- VNC should always talk in terms of abstract topology.

- Suggested that each domain has proprietary things (in optical environments), not so for packet.
- Discussion on possible interface solutions included PCEP to talk to PCE, RESTconf and NETconf.
- A need to figure out what is new and what is not / already exists, this should then be documented.

7) Title: Charter Discussion
Presenter: Chairs

- Discussion moved into Conclusions and Actions

8) Title: Conclusion and Actions
Presenter:

AD Polls

- AD Poll Q1: How many of you are interested in this work? (Lots of hands.)
- AD Poll A1: that is considerable more than zero
- AD Poll Q2: Who wants to work on this? (Quite a lot of hands.)
- AD Poll A2: Who will go home and write code for this? (Maybe 10 hands.)

AD Conclusion

- Considerable concern between overlap between this and other group is quite complex.
- There is work there but not a massive new protocol; this could just be coordination, requirement or protocol in bits n pieces.
- Need to take what I heard to IAB/IESG, there is lots of energy in this room and we need to harness to develop work.
- Will take my questions to mailing list, and hopefully will be able to give next step next month.

[Session over.]