



IETF 96 Hackathon

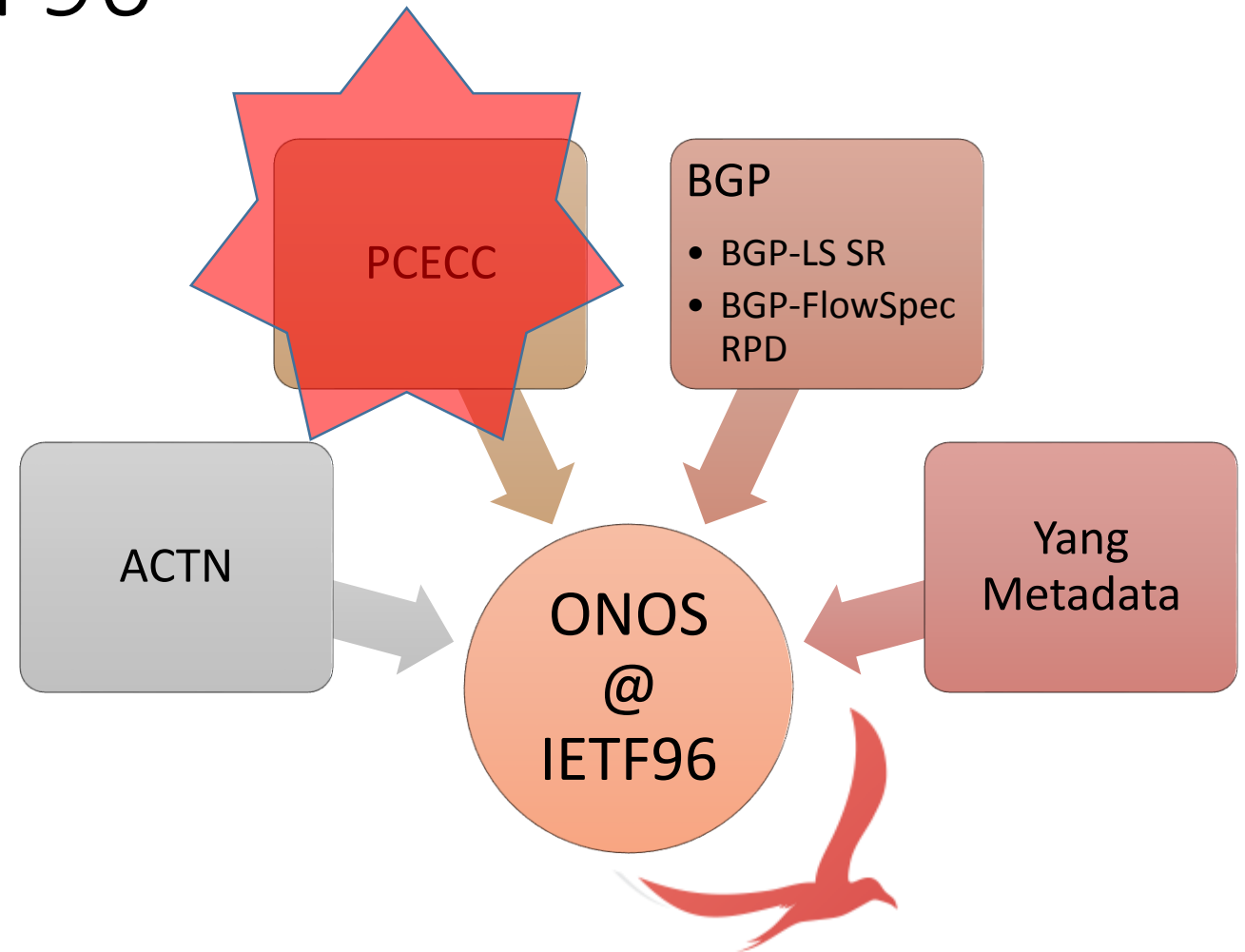
PCE based Central Control

ONOS @ Hackathon 96

The Open Network Operating System (ONOS) is a software defined networking (SDN) OS for service providers that has scalability, high availability, high performance and abstractions to make it easy to create apps and services.

The platform is based on a solid architecture and has quickly matured to be feature rich and production ready.

The community has grown to include over 50 partners and collaborators that contribute to all aspects of the project including interesting use cases [<http://onosproject.org/>]



ONOS

Overview

<https://www.youtube.com/watch?v=3lya-MY1cZw>

Installing and Running

<https://wiki.onosproject.org/display/ONOS/Installing+and+Running+ONOS>

Basic Tutorial

<https://wiki.onosproject.org/display/ONOS/Basic+ONOS+Tutorial>

Webinar

Webinar was conducted on 8th July

ONOS Architecture by Satish - [link](#)

ONOS Introduction by Andrea - [link](#)

ONOS with Mininet - <https://www.youtube.com/watch?v=Q3ptIUWoAE8>

ONOS with PCEP and BGP-LS - <https://www.youtube.com/watch?v=MeW0DiWeAJM>

PCE based central control

PCE & SDN

- PCE function is an integral part of any network controller
- The controller can communicate with a conventional router using PCEP and can also use the same protocol to program individual routers
- Each router along the path is told what label forwarding instruction to program and what resources to reserve
- PCE-based controller is responsible to manage some part of label space

Description

- Move PCE towards SDN controller with label allocation and download

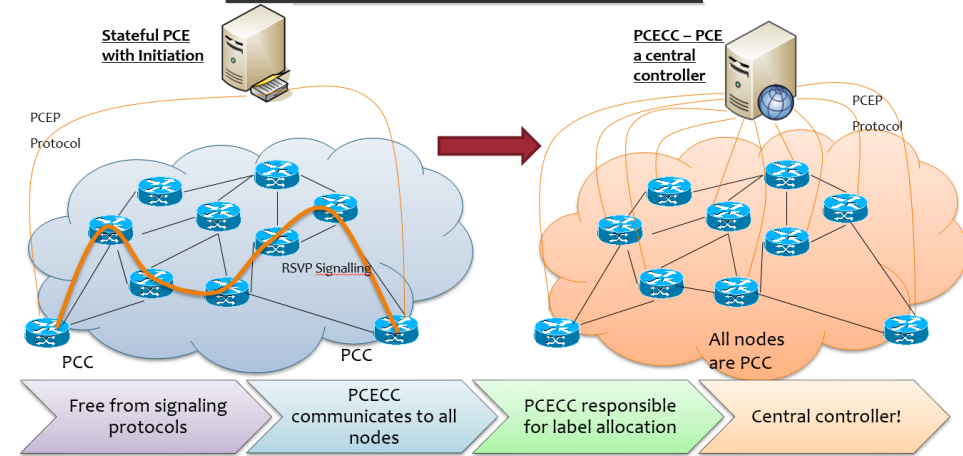
TEAS - Architecture

- draft-zhao-teas-pce-control-function

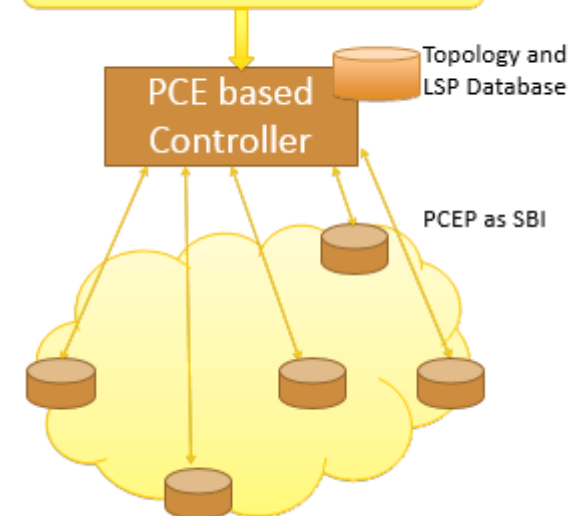
PCE – Protocol extension

- draft-zhao-pce-pcep-extension-for-pce-controller
- **draft-palle-pce-controller-labeldb-sync**

Stateful PCE to PCECC!



Orchestrator / Service Manager / OSS / NMS



Project – Label DB

Project

- Support Label-DB synchronization procedures with optimization
 - Avoidance and incremental sync
- Implement - **draft-palle-pce-controller-labeldb-sync**

Testability

- When session flaps and no or little change in labels, the label synchronization can be optimized
- Tested with network element

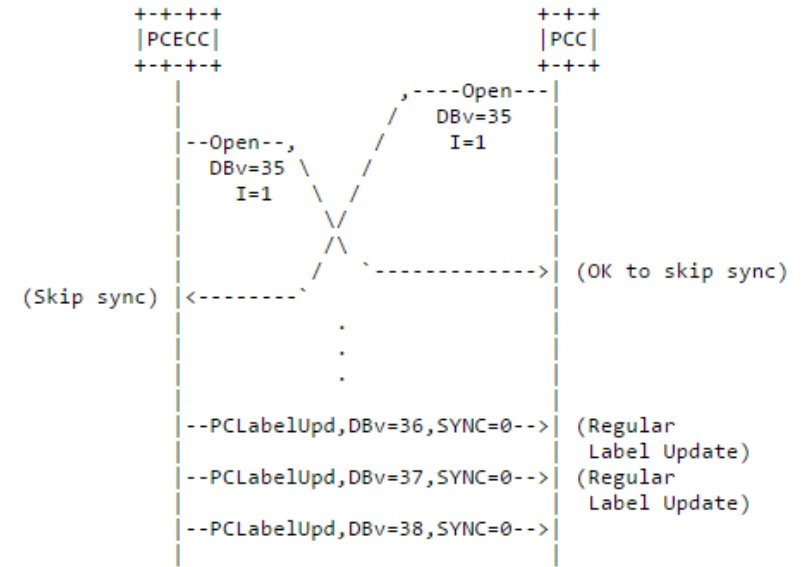


Figure 4: LABEL-DB synchronization Skipped

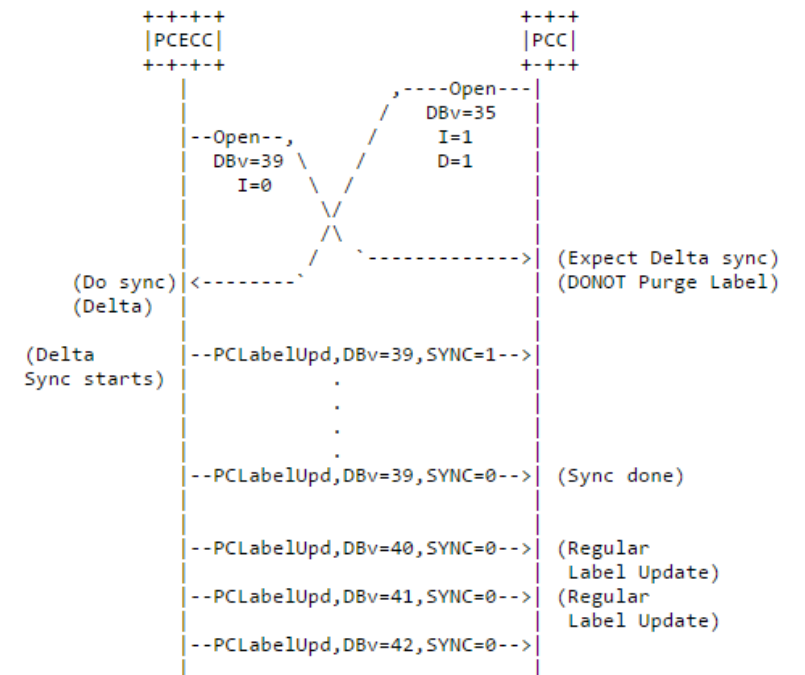


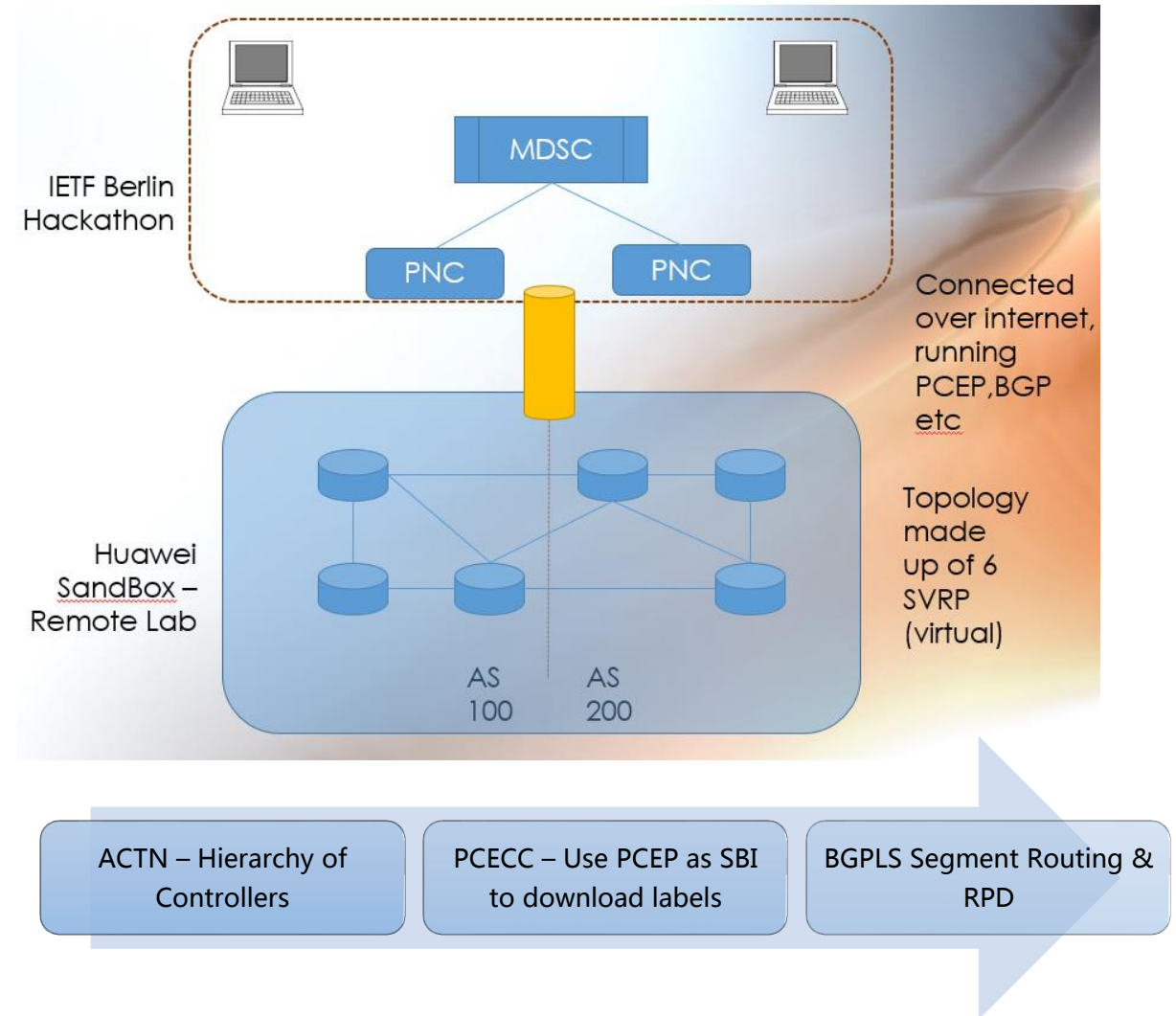
Figure 7: Incremental Synchronization Procedure

Topology with sandbox

ENVIRONMENT:

Controller : We use ONOS(<https://wiki.onosproject.org/>) as the SDN controller and it is in the laptop

Data plane : We deploy data plane in Huawei SandBOX lab(<http://developer.huawei.com/en/>) in China , the network element is using SVRP and the connection between Controller and device is using PCEP/BGP protocol



Thank You!