IETF 96 Hackathon
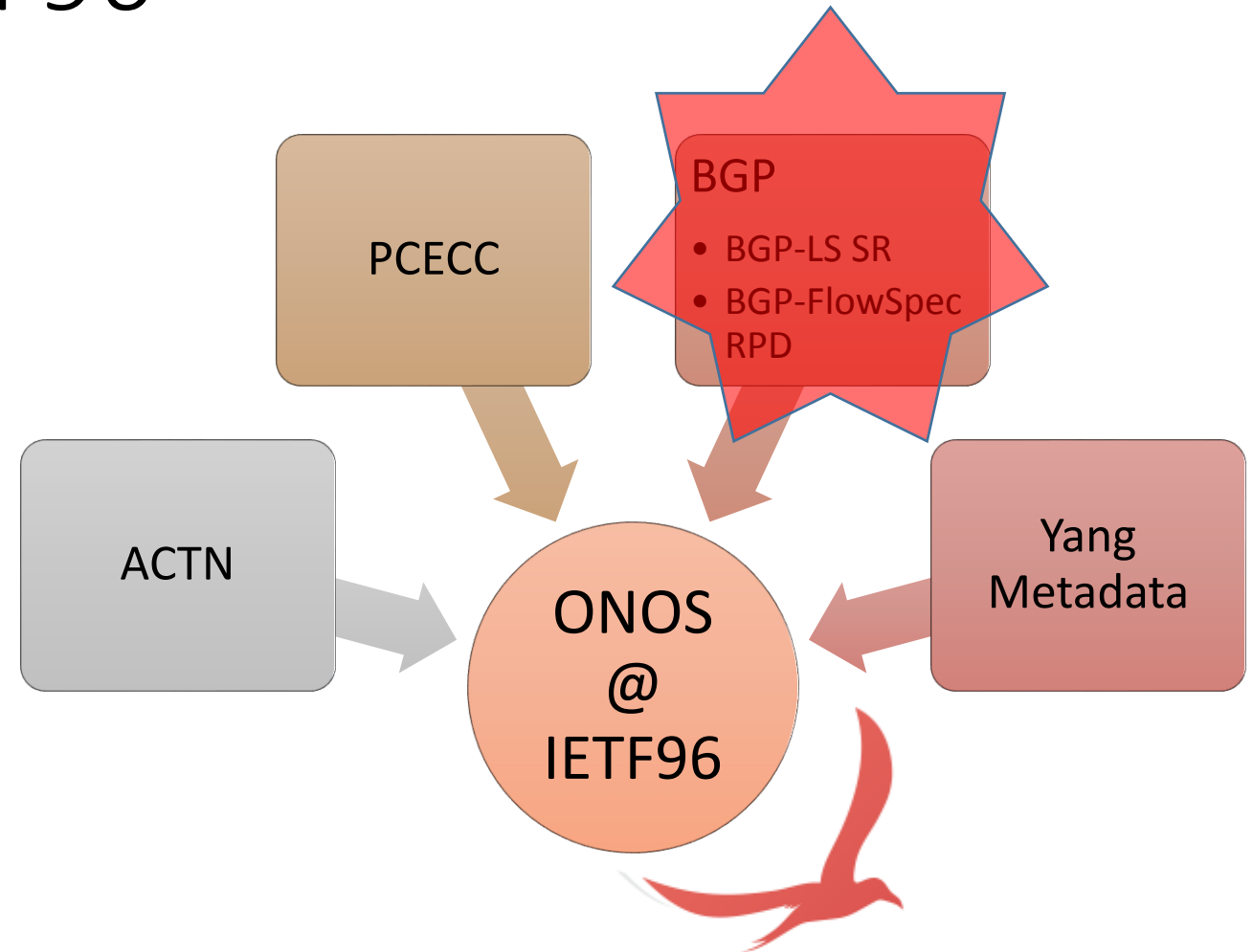
BGP Flow Spec (FS) and Link State (LS)

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/]

PCECC

BGP

- BGP-LS SR
- BGP-FlowSpec RPD

ACTN

ONOS @ IETF96

Yang Metadata

onos
Open Network Operating System

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=Q3ptlUWoAE8 ONOS with PCEP and BGP-LS - https://www.youtube.com/watch?v=MeW0DiWeAJM

BGP-FS (Part-1)

Policy Controller

AS-2
Transit M

AS-4

AS-1

Prefix-1

ISP Network

Transit N

AS-3
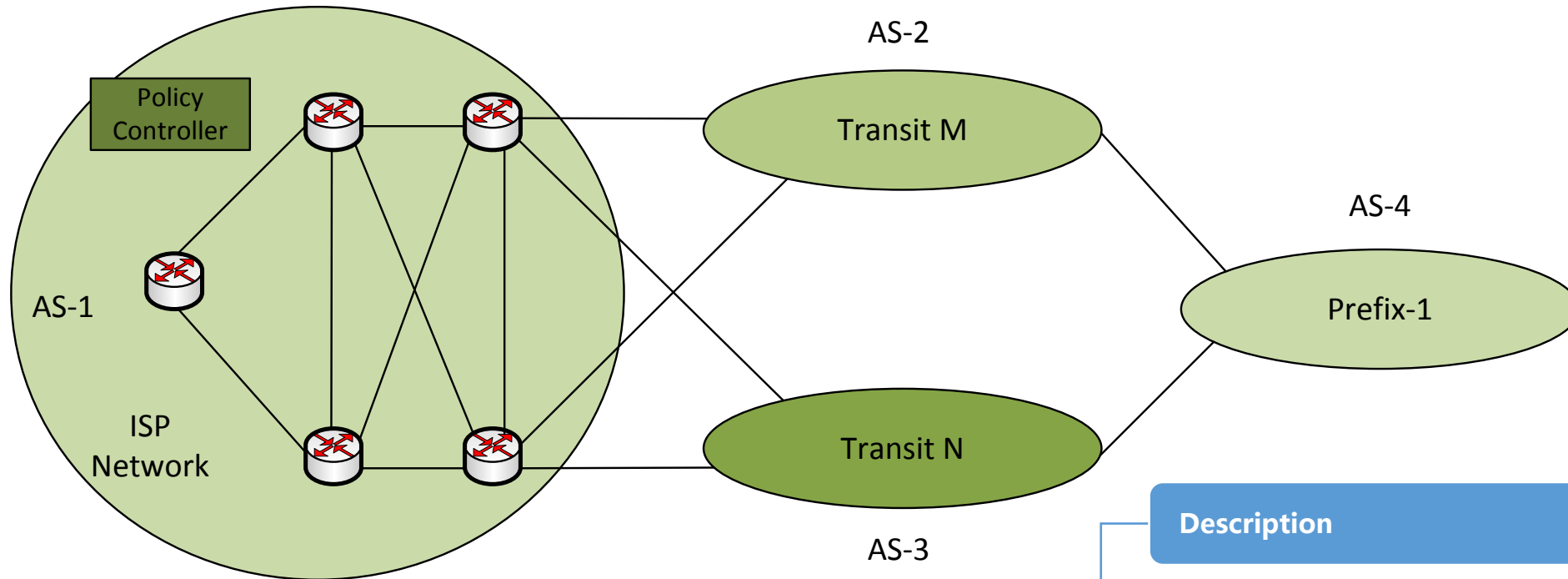
WG, Drafts

• draft-dong-idr-flowspec-scalable-prefix-steering

Description

• BGP FlowSpec Extensions for Large Scale Prefix based Steering

• The controller can advertise a destination prefix based steering policy as a BGP FlowSpec route.

• Instead of installing these routes as the BGP FlowSpec filtering entries, the network devices are instructed by the controller to download the prefix based steering policies to their FIB, so that the number of prefix based steering policy supported is not limited by the number of BGP FlowSpec filtering entries.

• A new wide community is proposed

• Estimated Effort LOC – 300 lines (but across multiple places)

BGP-LS Segment Routing (Part-2)

Background

- Segment Routing (SR) allows for a flexible definition of end-to-end paths within link-state graphs by encoding paths as sequences of topological sub-paths, called "segments ". BGP protocol has been extended to advertise the segments as it is better suited since its propagation perimeter is not limited like the IGPs
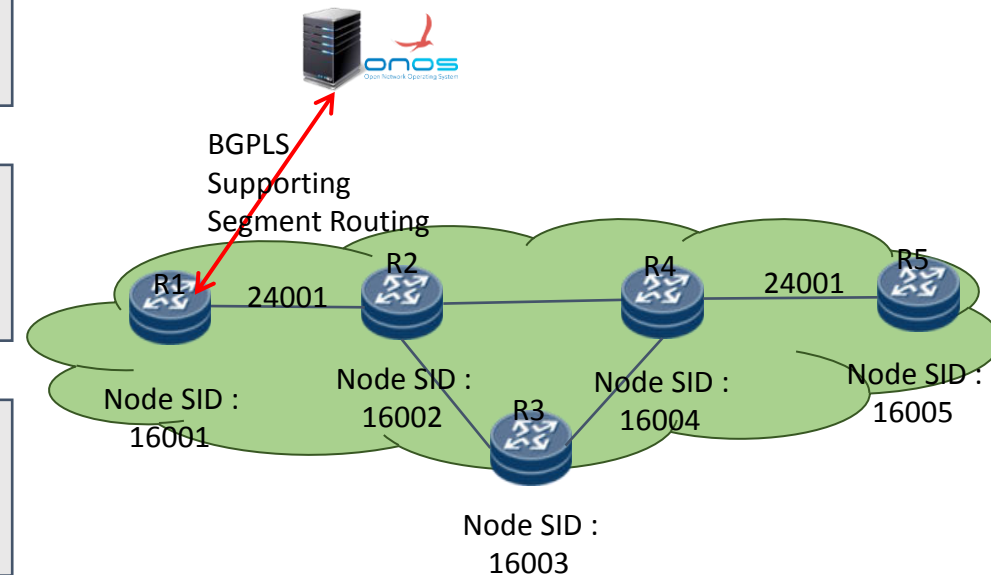
Project – BGP-LS SR

- Implement Segment Routing BGP in ONOS(Handling of Segment Routing TLVs)
- Estimated Effort LOC – 300 lines

Testability

- Display segment routing information from BGP database
- Reuse the same network environment as ACTN

IDR WG

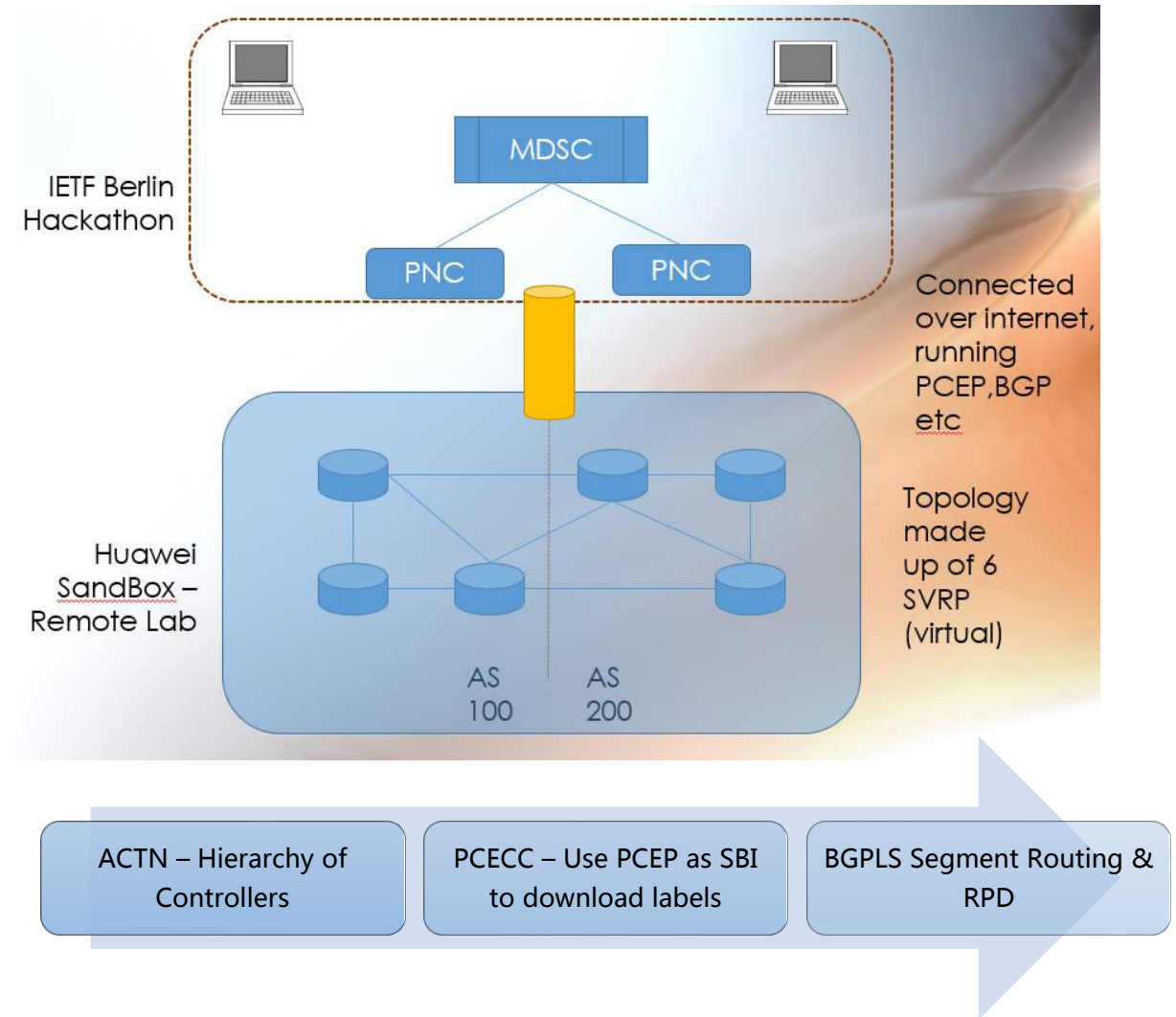- **draft-gredler-idr-bgp-ls-segment-routing-ext-02**
  - BGP-LS extension for SR

BGPLS Supporting Segment Routing

R1 24001 R2 R4 24001 R5

Node SID : 16001

Node SID : 16002

R3

Node SID : 16004

Node SID : 16005

Node SID : 16003

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!