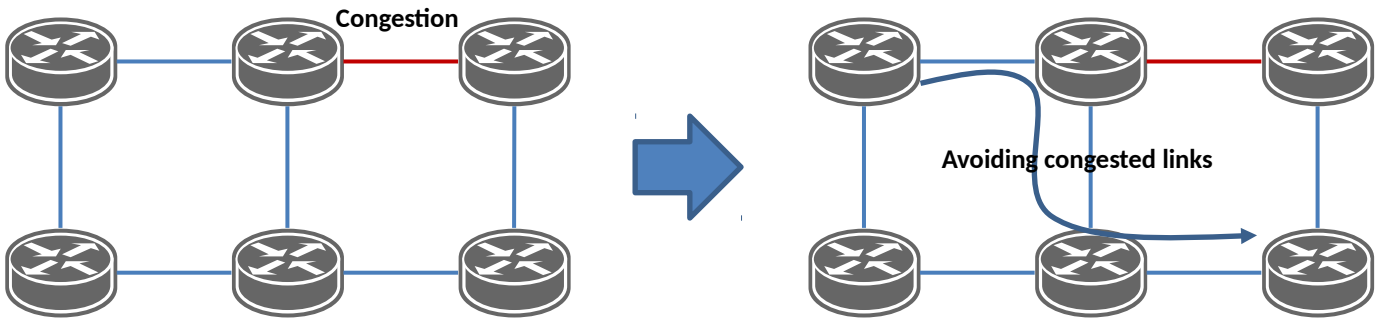
# Network-automatic-optimization

## Draft-hu-lsr-network-automatic-optimization-00

Zhibo Hu, Gang Yan, Junda Yao
*Huawei Technologies*

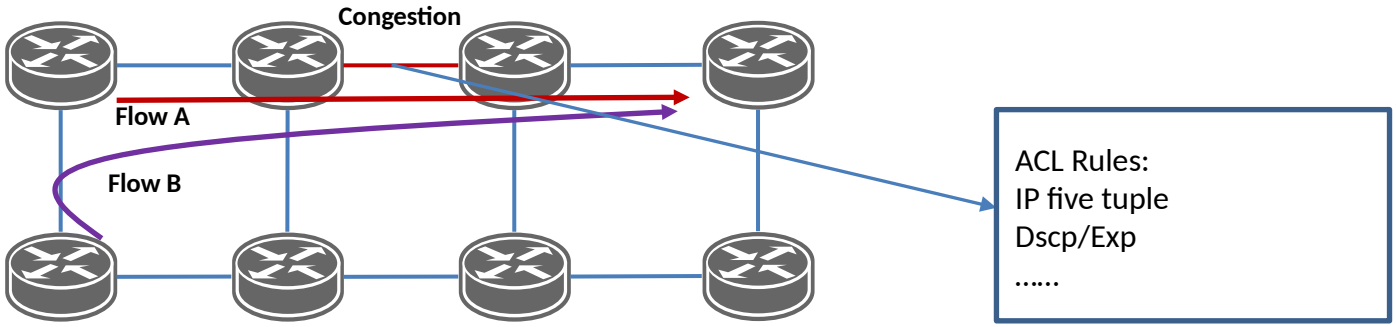
IETF 102, Montreal, QC, Canada

# Introduction



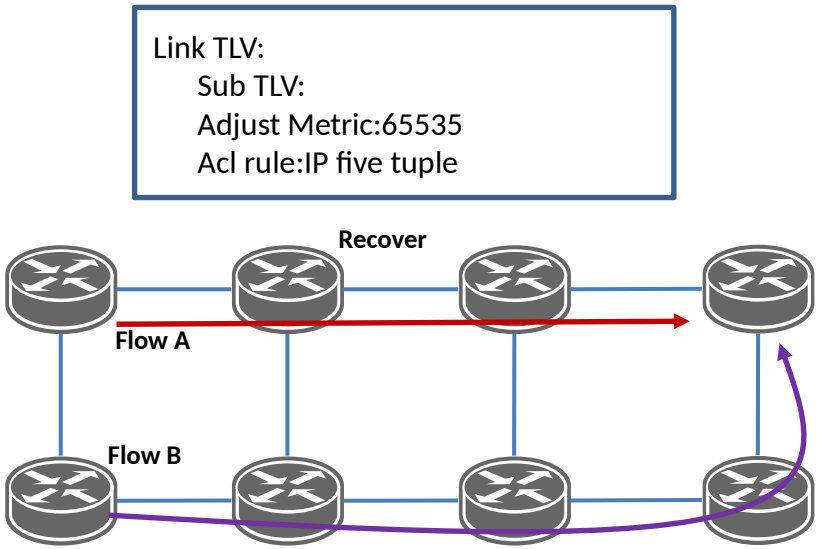

- PCE centralized calculation can solve network congestion because it have global view.
- Using Residual Bandwidth as IGP metric to calculation shortest path maybe a solution solving the link congestion problem, But it is difficult to converge to a steady state using this way.
- This document try to automatically optimize the path in the distributed computing scenario to solve the link congestion problem.

# Concepts and Approach




- When the device detect that the link is congestion, It selects one or several Flows to change the path of the flow using local policy.
- The device automatically generates ACL rules to distinguish the flow which is selected from other flow.

# Concepts and Approach



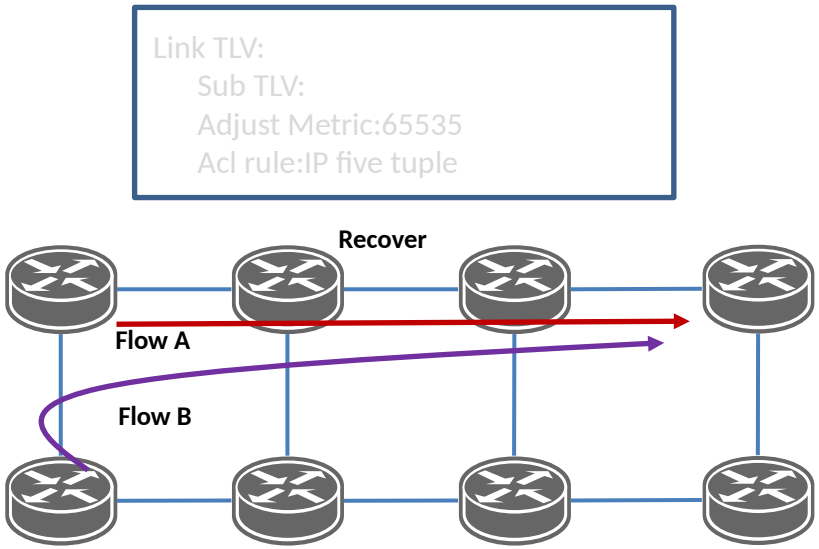

Link bandwidth:100M

Flow A bandwidth:80M

Flow B bandwidth:20M

- IGP advertise a new Sub TLV in NBR TLV to carry the adjust metric and acl rule.
- The other nodes in the network receive the Sub TLV, use the adjusted metric value of the link to calculate the IGP shortest path.
- The device download the acl policy to the forward table, the nexthop using the results calculated according to the adjust metric.

# Concepts and Approach




Link bandwidth:100M

Flow A bandwidth:80M->40M

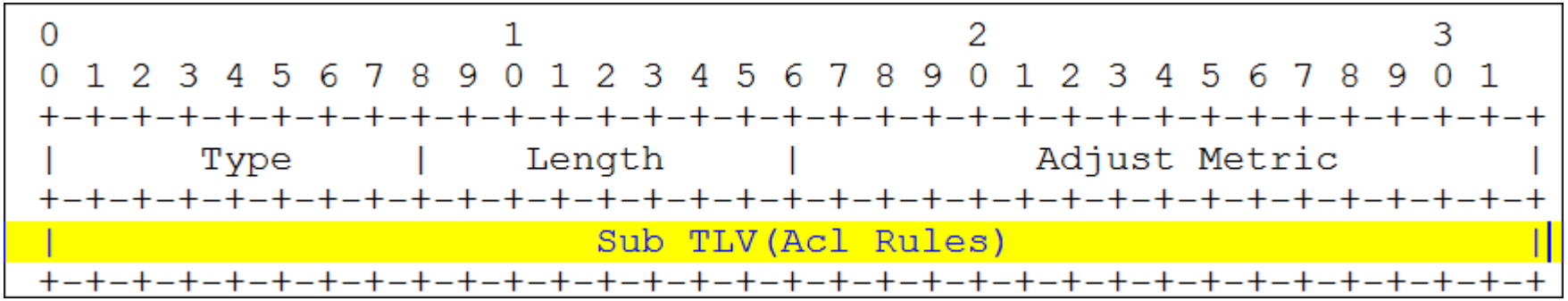
Flow B bandwidth:20M

- If the bandwidth of the link bandwidth is less than a certain threshold, the device deletes the sub-TLV and the traffic is restored to the original state.

# IS-IS extension

- New TLV will be added to Router Information LSP.

- Type: TBD, 1 byte.
- Length: # Variable length (1 byte).
- Value: the value is the MTU size of a link.



# Benefits

- This way can be used to slove network congestion problem without controller or traffic engineer.
- It is suitable for IP forwarding, SR and other distributed calculation path scenarios.

# Next Steps

- Welcome comments on mailing list.