

# Topology Discovery

Correlating different network topology layers in heterogeneous environments

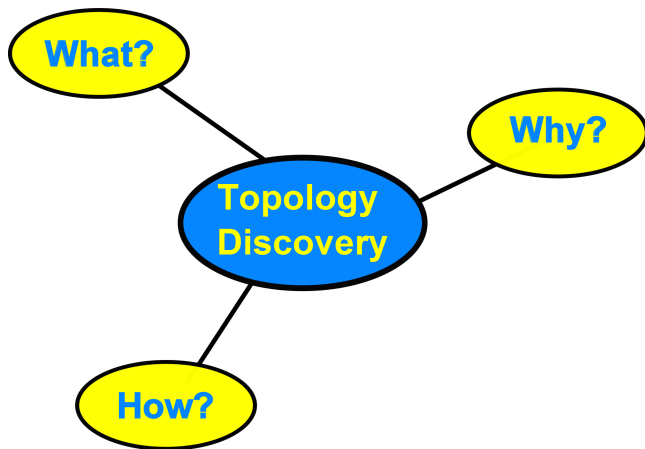
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February 8, 2013



*What are the challenges with the correlation of physical topology information based on LLDP and logical topology information?*

## **Working hypotheses**

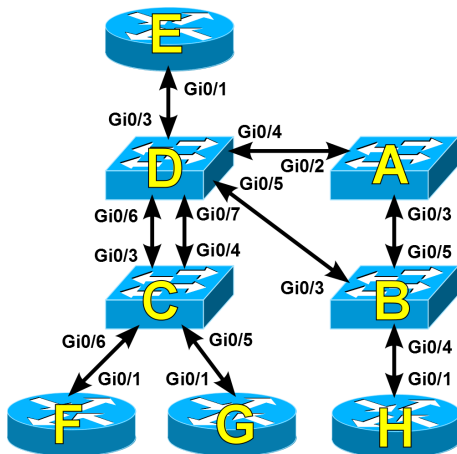
- LLDP is mature enough and widely implemented, which makes it a useful protocol for topology discovery in heterogeneous network environments
- All information needed to correlate the different network topology layers is available in the Management Information Base

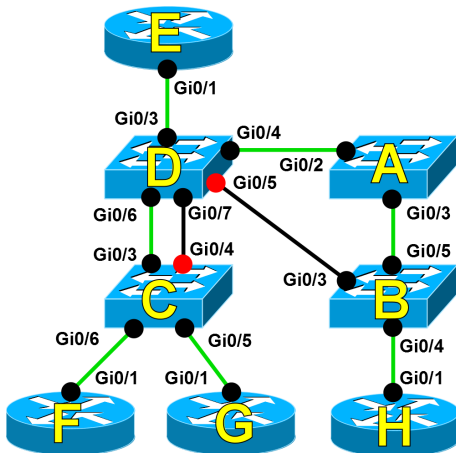
- LLDP Data Unit

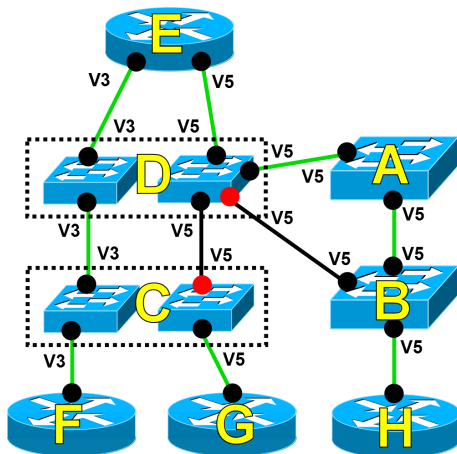
Chassis ID
Port ID
Time to Live
Optional fields
End of LLDPDU

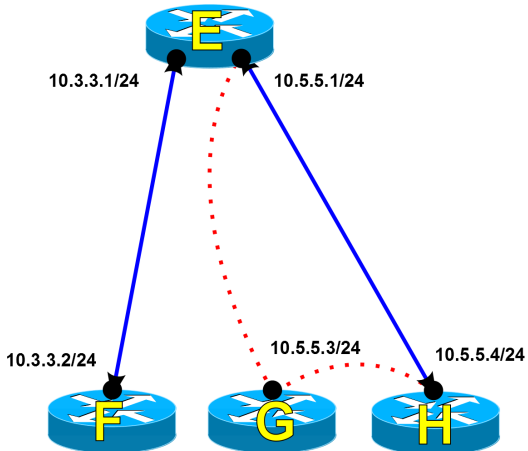
- Operation modes

- Send only
- Receive only
- Send and receive

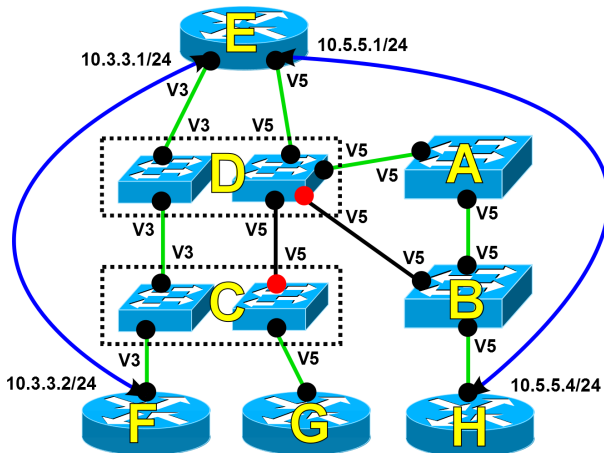


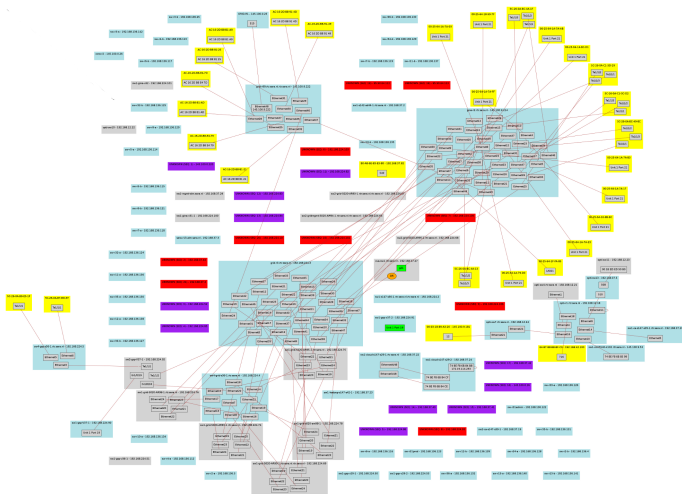












- Maturity of LLDP at SURFsara
  - 124 devices
  - **83%** supports LLDP
  - 9% does not support LLDP
  - 8% unknown
- NOT all relevant information for topology discovery can be retrieved from standardized management information base objects
  - Not all standardized MIB objects are supported by all vendors
  - Some information can only be retrieved from proprietary MIB objects
- Device IDs (ChassisID, IP address) must be unique
- Layer two path finding might be needed to create a correct IP layer topology

## Challenges of topology discovery



LLDP is mature enough and widely implemented, which makes it a useful protocol for topology discovery purposes in heterogeneous network environments



All information needed to correlate the different network topology layers is available in the management information base

# Questions?

