

An approach for auto-assignment of IP addresses for wired switches

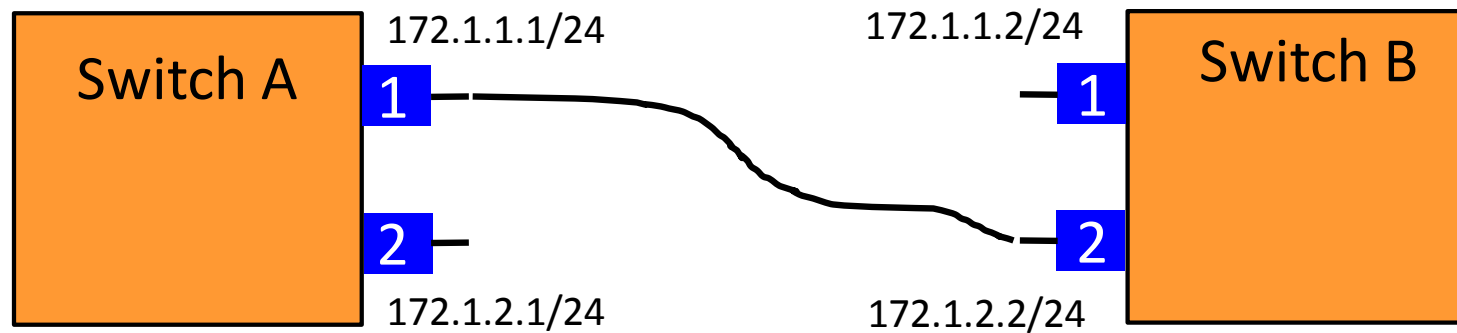
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Motivation

- Increasing scale of modern data center
- Increasing complexity of cable deployment



An error in the cable connection could lead to a reduction in the network throughput. It will cost a huge amount of time and effort to deal with this error connection.

Current solution



- Plan of network layout.
- Labels with the identifications of switches and interfaces are attached to two ends of each cable.
- After connection, IP addresses in a same subnet will be assigned to the two connected interfaces.

Proposed solution

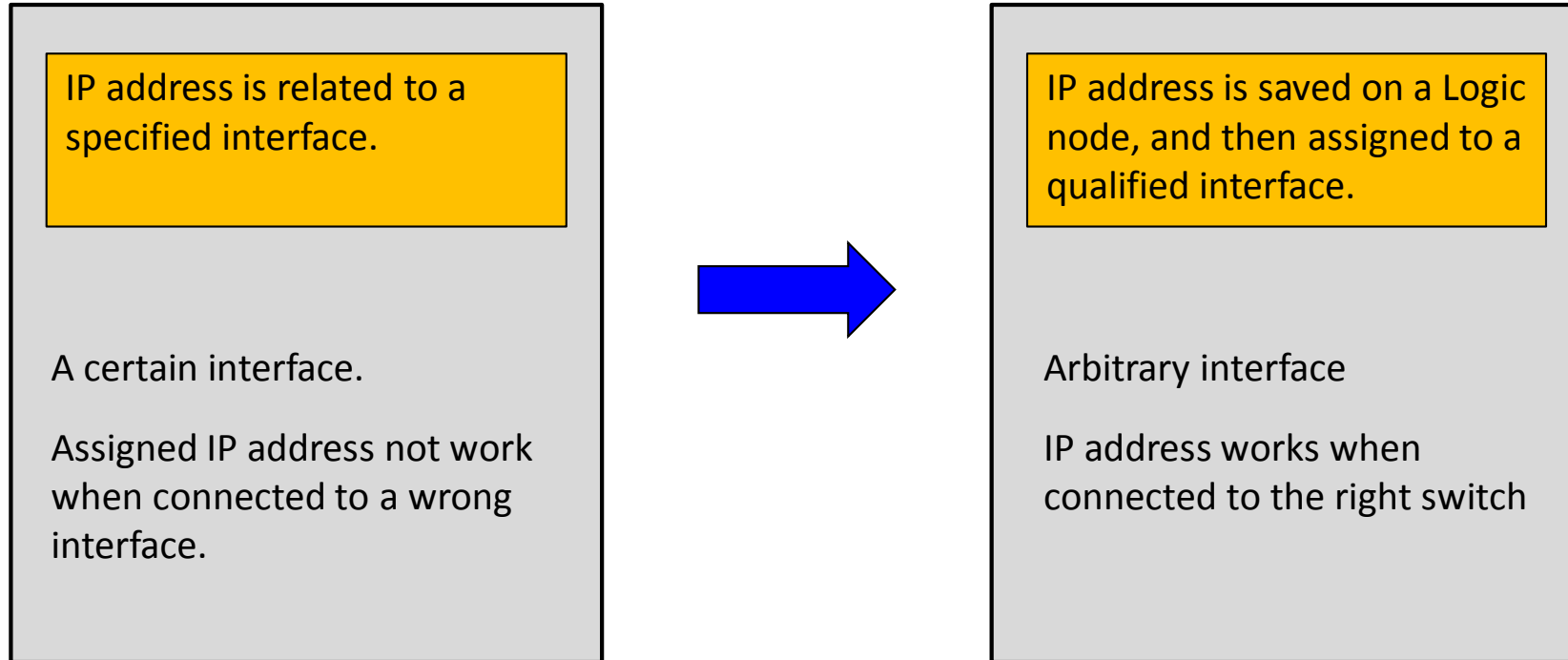
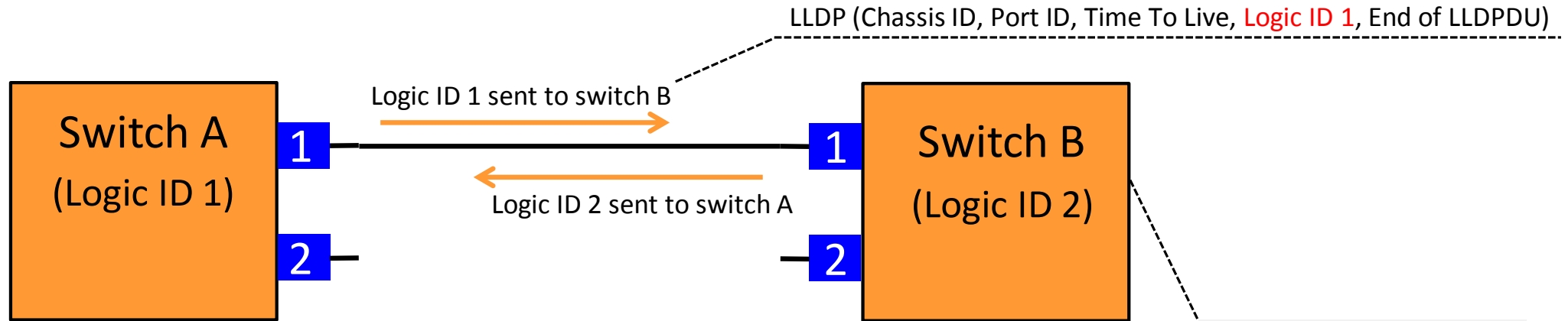


Figure: Main idea of our proposed solution

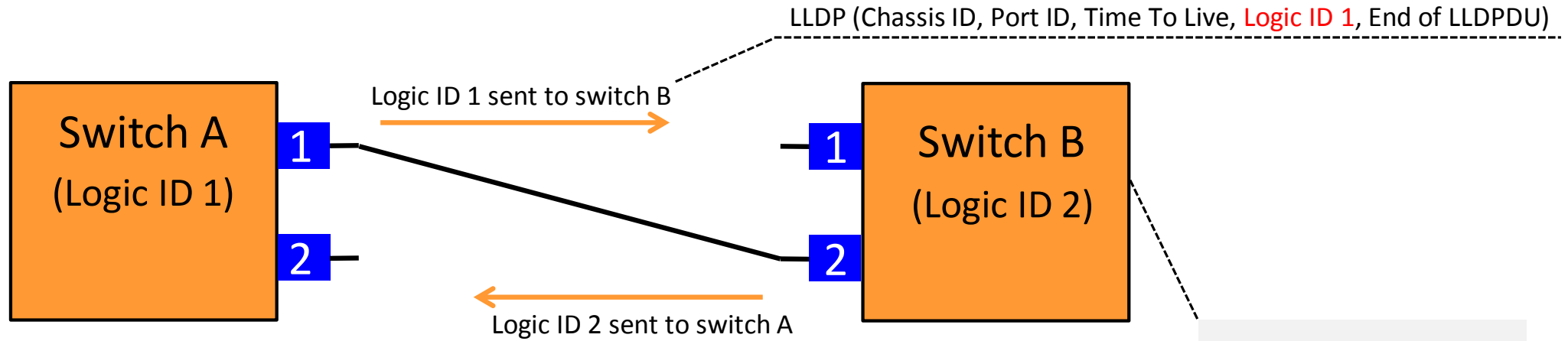
Operation: One switch with one logic ID.



```
logic configuration node
local ip 172.1.1.2/24
#other configurations
peer switch logic id 1
quit
```

- Each switch is named with a logic ID.
- Logic ID of local switch will be sent to peer switch by LLDP.
- Corresponding logic node assign the right IP address to local port.

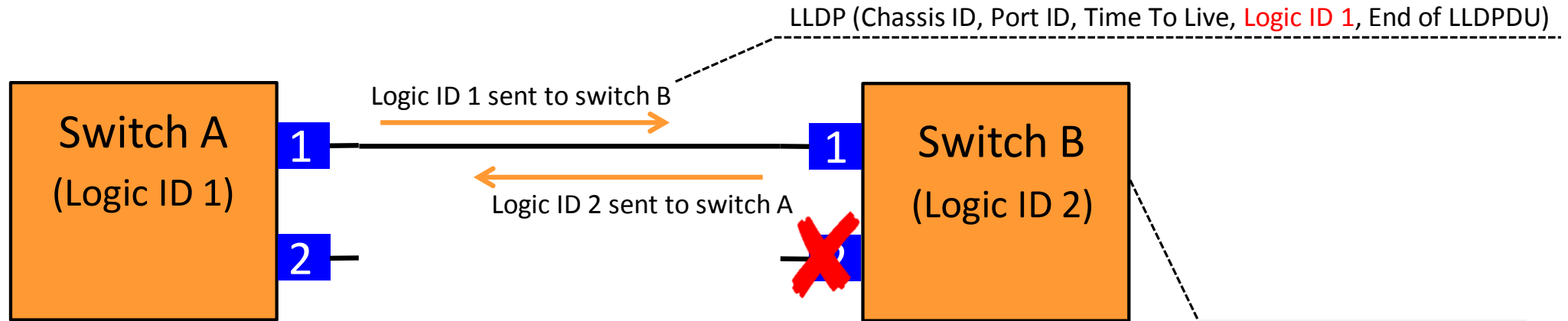
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Operation: One switch with several logic IDs.

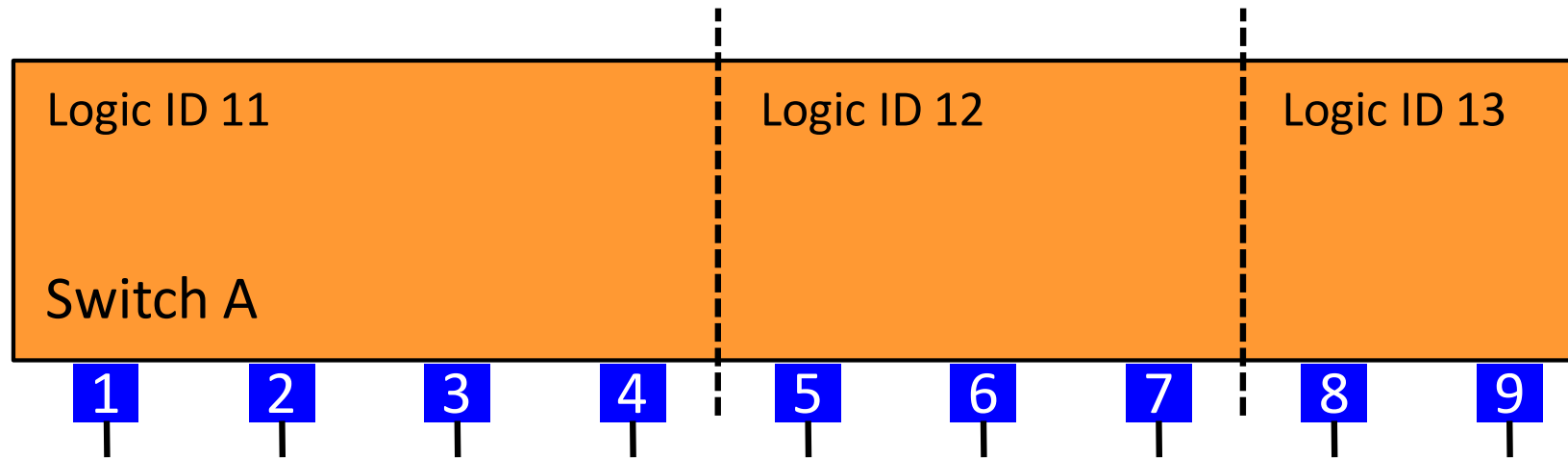


Table : List of Logic nodes in above Switch A.

Logic ID		Corresponding IP addresses
Local switch	Peer switch	
11	21	182.111.21.11 255.255.255.0
11	22	182.111.22.11 255.255.255.0
12	21	182.111.21.12 255.255.255.0
12	22	182.111.22.12 255.255.255.0
.....		

Summary

- Reduce the workload of cabling deployment.
- Reduce the probability of connecting to a wrong interface.
- Efficiency in network maintenance and update.