



IEEE 802.1aq Standard

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IEEE 802.1aq Standard-Definition

Shortest Path Bridging (SPB)

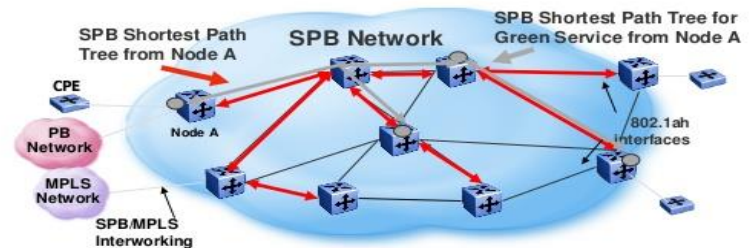
Provides much larger Layer 2 Topology

Improves efficiency

Designed to eliminate human error

AVAYA

Shortest Path Bridging (SPB) *IEEE 802.1aq & RFC 6329*



SPB is a Spanning-Tree Protocol replacement for Ethernet and introduces:

- | | |
|-------------------------------|---|
| Network Efficiency | - No blocked ports |
| Fast resiliency | - Network reconvergence in 100s of milliseconds |
| Simplicity | - Well-known networking paradigm (link state) |
| Customized Broadcast | - Broadcast only to need-to-know nodes |
| One-touch provisioning | - Dynamic auto-discovery of end-points |

Sponsoring Organizations & Key Stakeholders

Alcatel • Lucent



HUAWEI

AVAYA



Concerns

IEEE late delivery

2006-2013

Limited availability

Avaya, Allu, Huawei

HP

Scalability

Metro Ethernet

Sochi Winter games



Standards?

International Organization for Standardization

Safe, reliable and good quality

Strategic tools that reduce costs by minimizing waste and errors, and increasing productivity



Need for SPB?

STP- Spanning Tree Protocol

High traffic stress

Demand for more speed

Too complex and not enough functi



Guidelines for a Standard

Idea/Need



Technical committees



Multi Stakeholder Ballot



Consensus

Competing Standards

Internet Engineering Task Force (IETF)

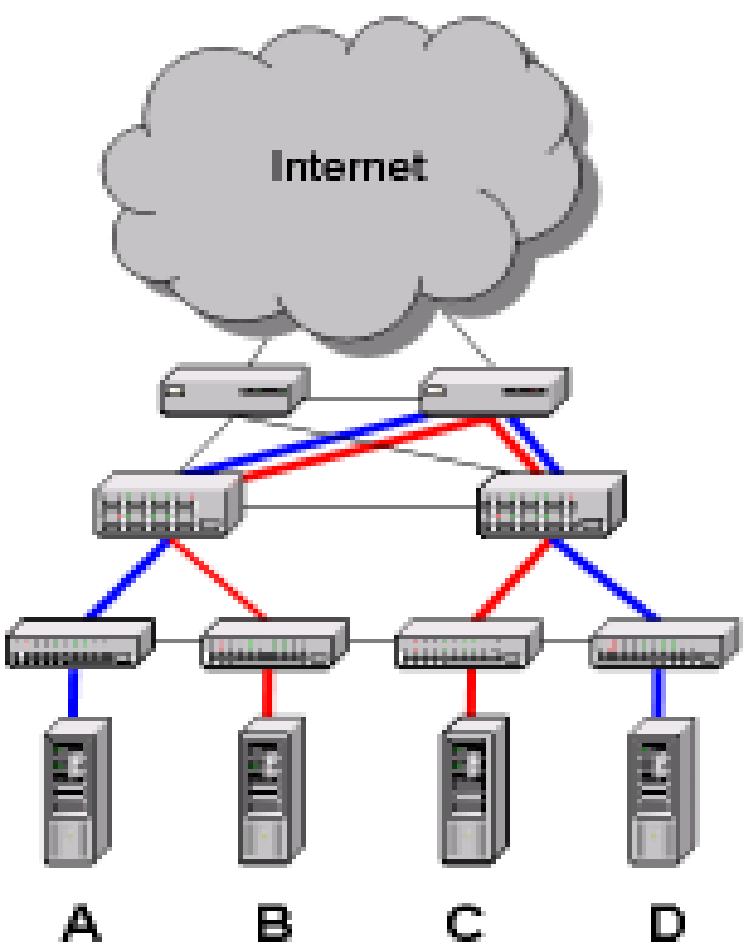
TRILL- Transparent Interconnection of Lots of Links (2011)

PROS

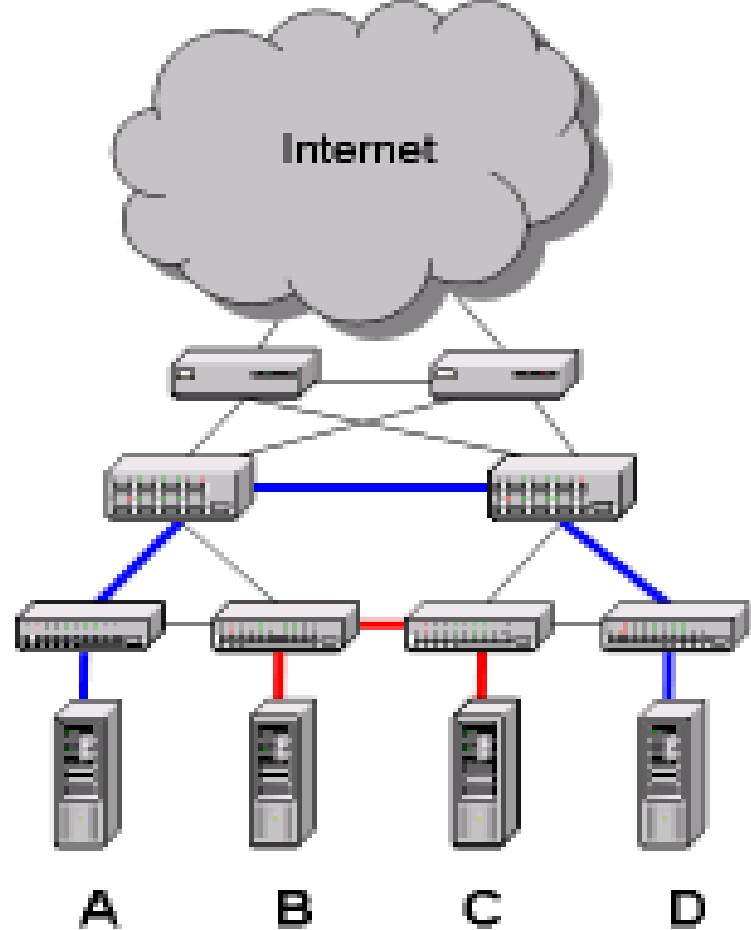
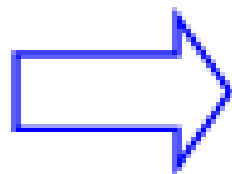
- it runs directly over Layer 2, so it can be run without configuration
- it is easy to extend by defining new TLV

CONS

- uses two different mechanisms to forward packets
- susceptible to out-of-order packets when the MAC state transitions



Spanning Tree



Shortest Path

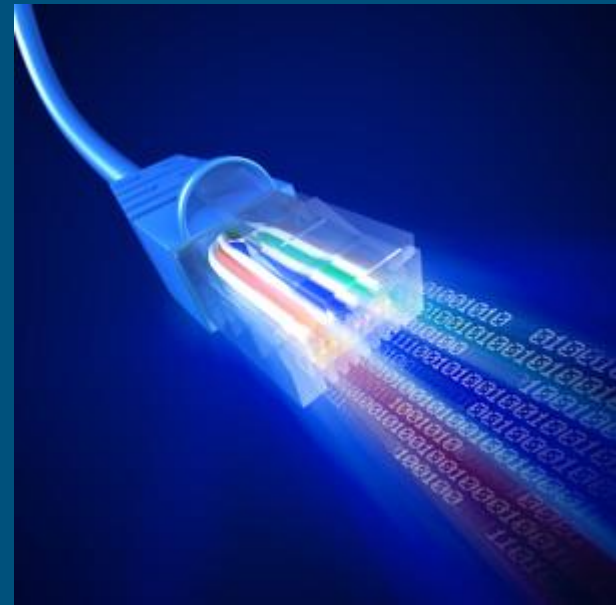
Future

Cloud- 25Gbps/50Gbps

Ethernet- 2.5Gbps

Cars

400Gbps?



THANK YOU

