

Linux Bridging

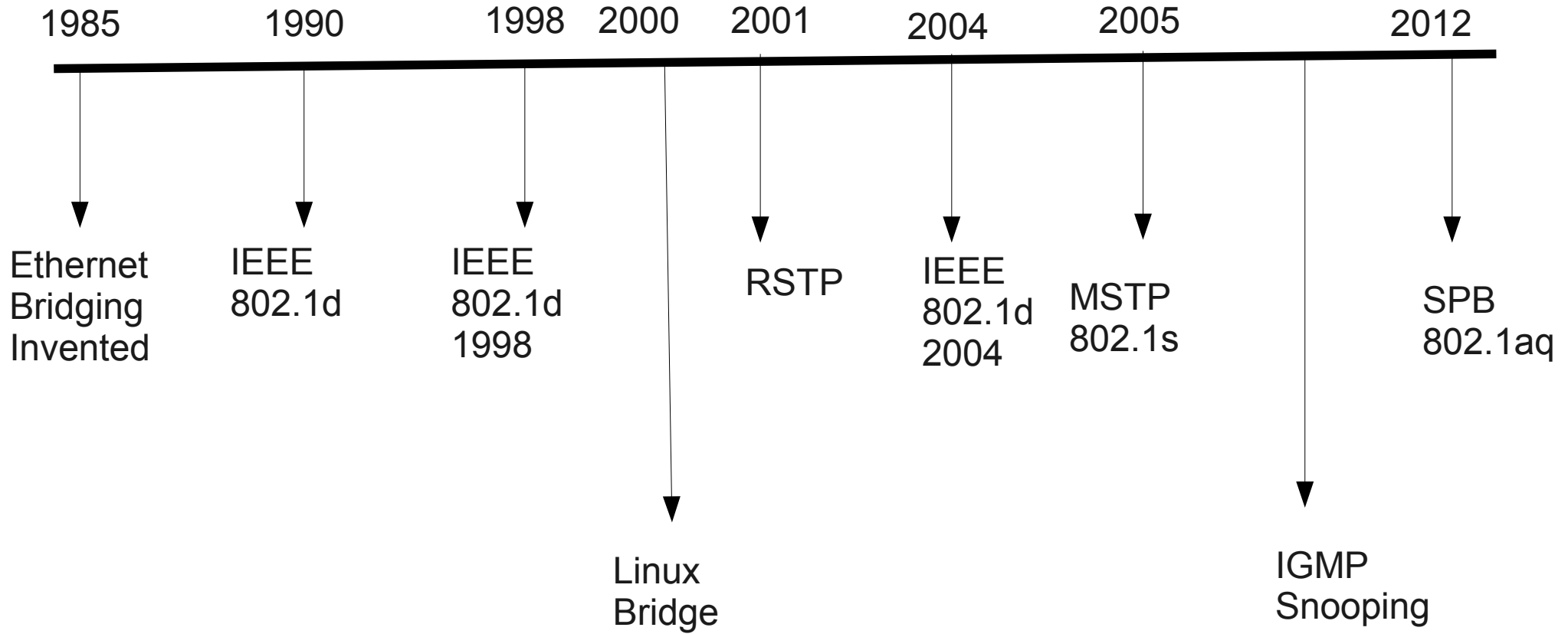
Teaching an Old Dog New Tricks

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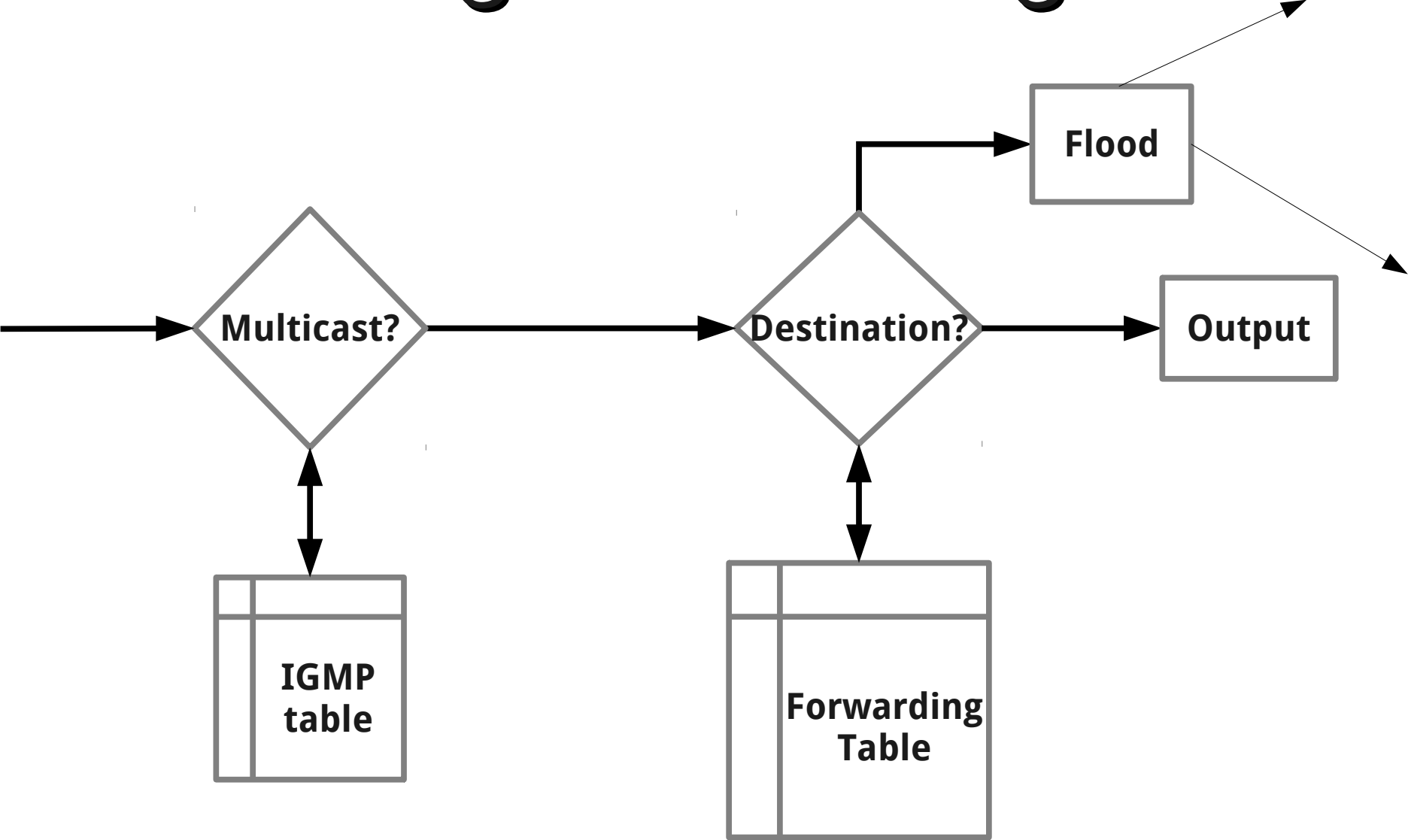
Topics

- Background
- Tunneling
- Security
- Status

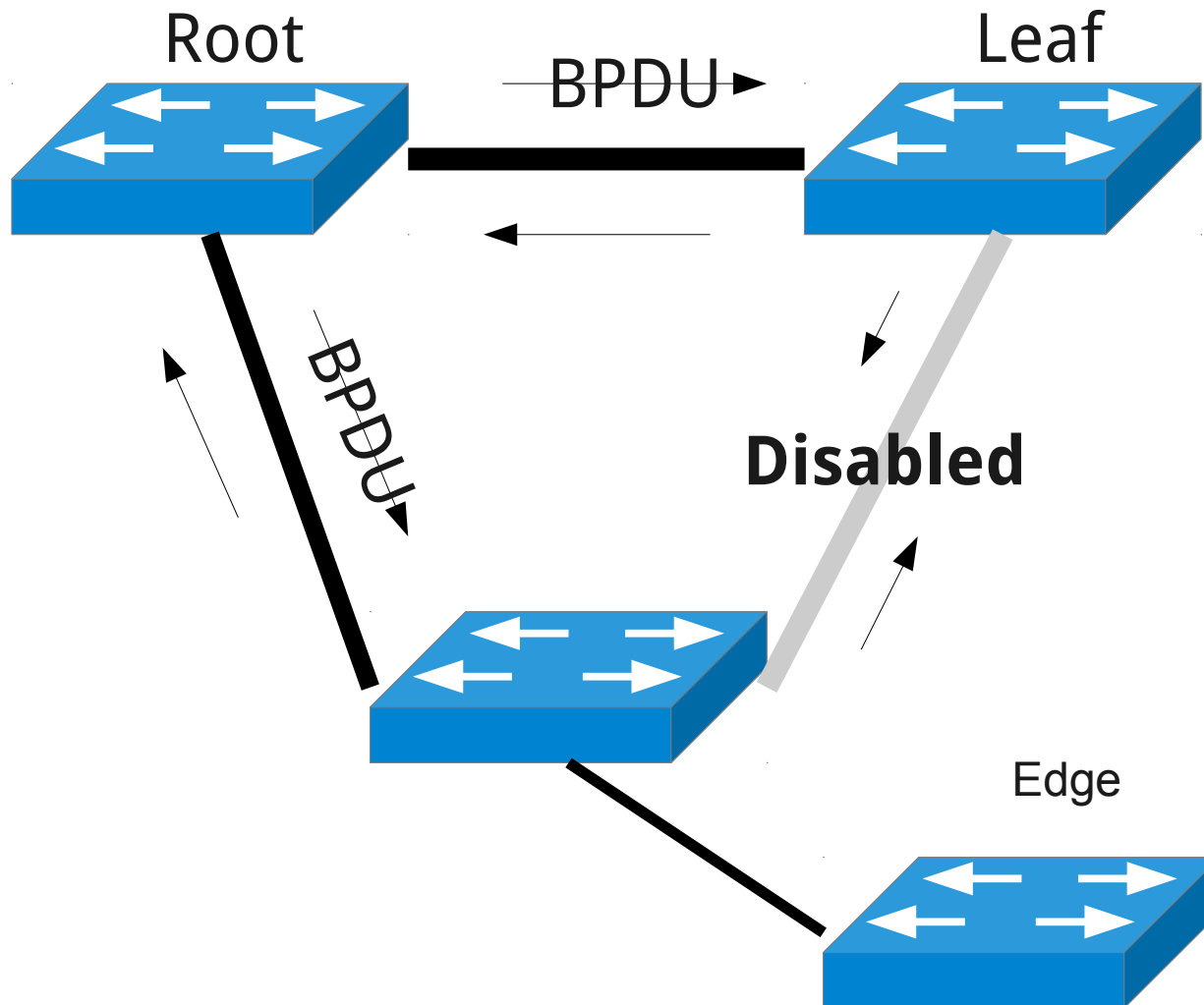
Bridge History

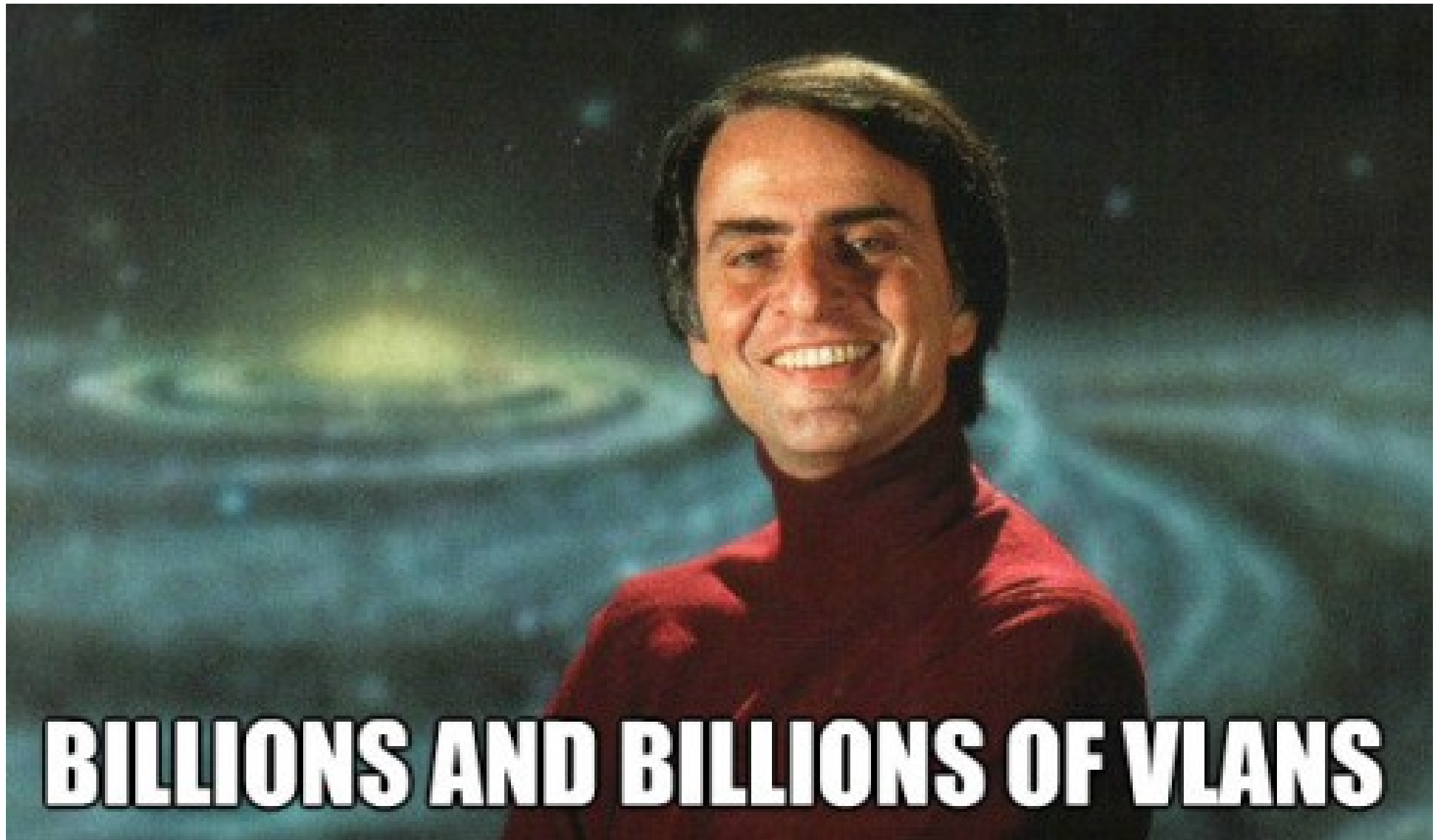


Bridge Forwarding



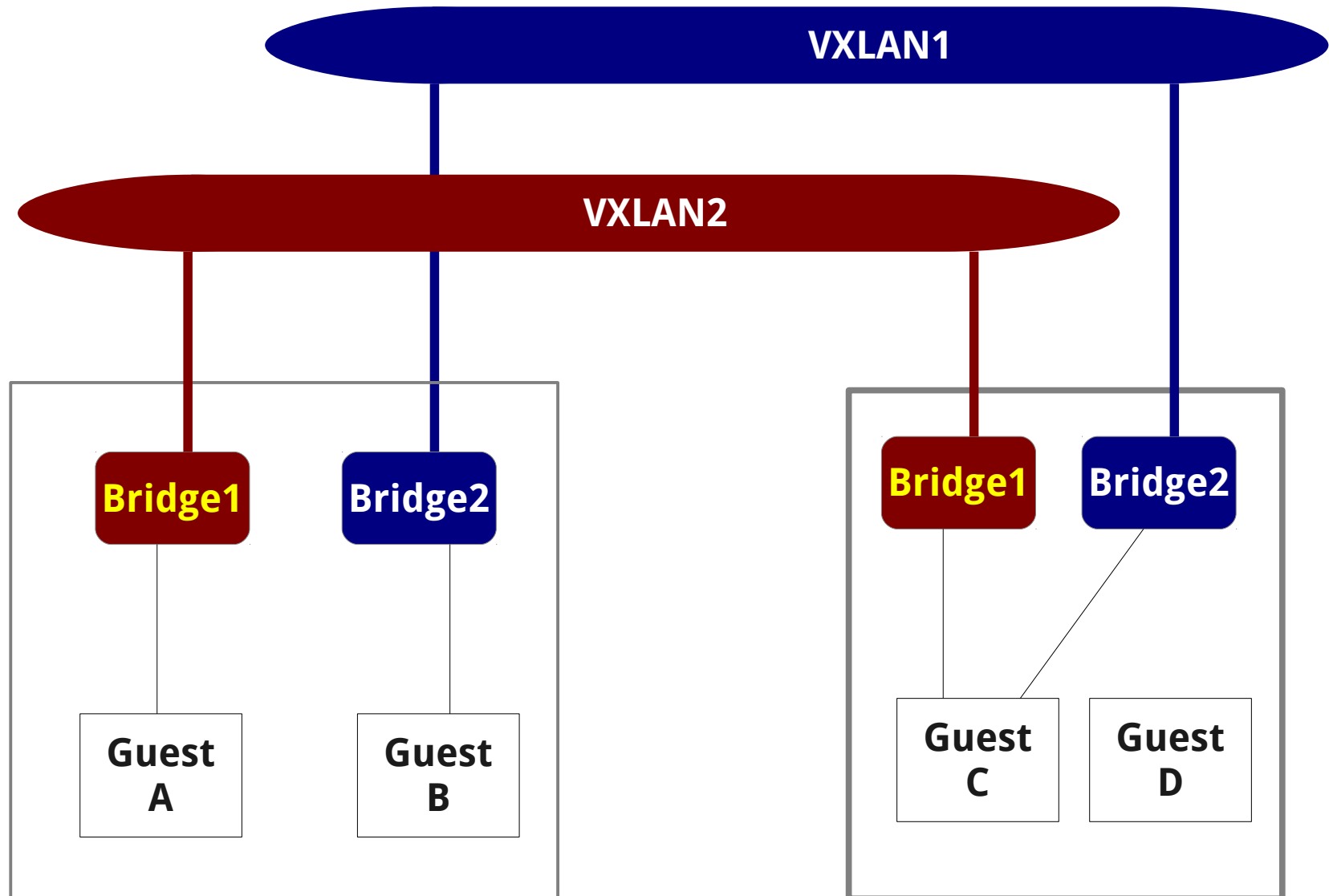
Spanning Tree Protocol





BILLIONS AND BILLIONS OF VLANS

Tunnels



Cloud Tunneling Protocols

- VxLan
 - Arista, Broadcom, Cisco, Vmware, Red Hat
- NVGRE
 - Microsoft, Intel, Dell, Broadcom, Emulex
- STT
 - Niciria

API flavor's

- loctl
 - Compatibility
 - non-extensible
- Sysfs
 - Text based
- Netlink
 - Notifications
 - TLV format

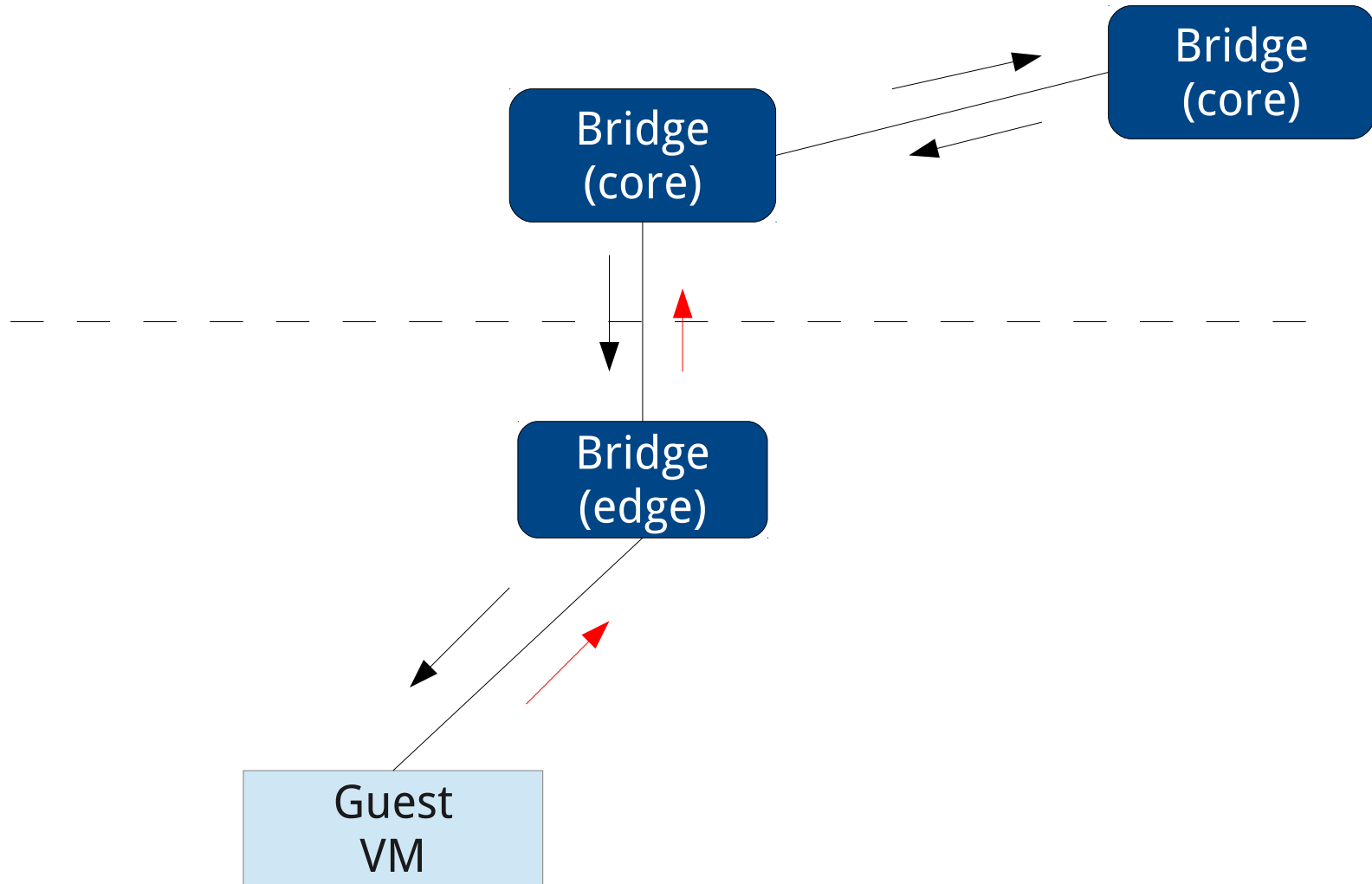
Hw offload

- Common netlink API
 - Forwarding table
 - monitoring

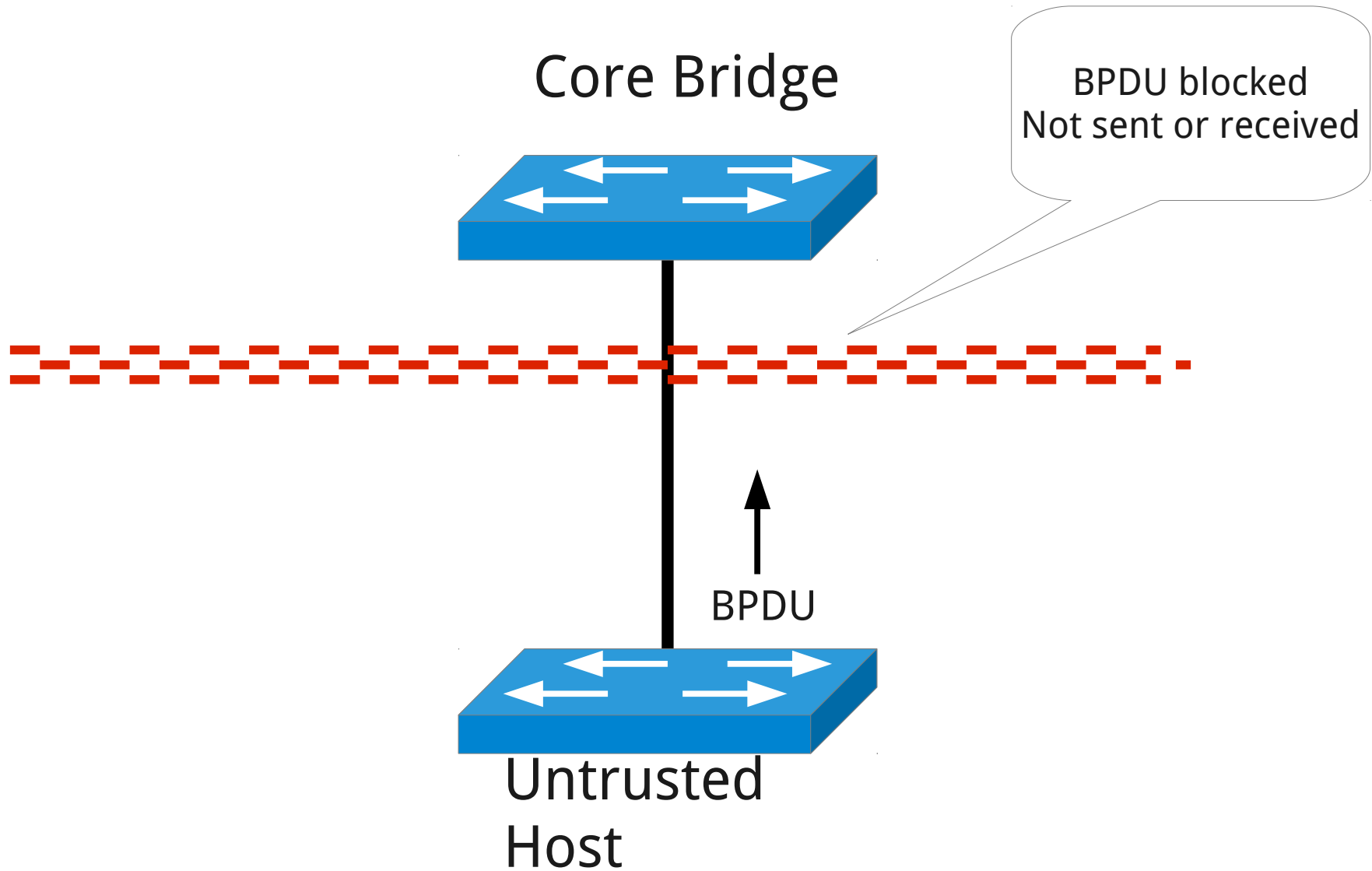
Security

- BPDU guard
- BPDU filter
- Root port protect
- Port locking

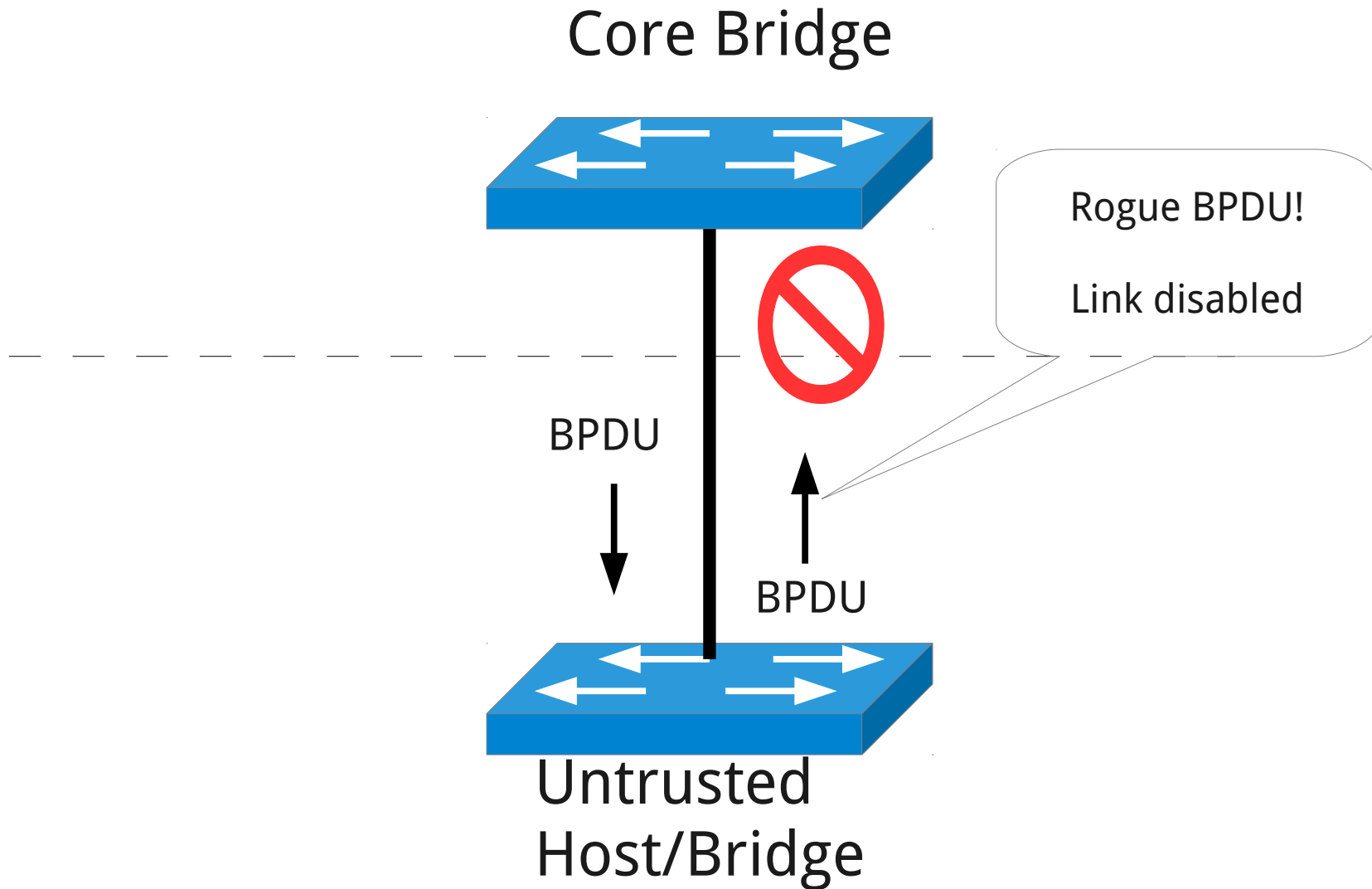
STP Security Issues



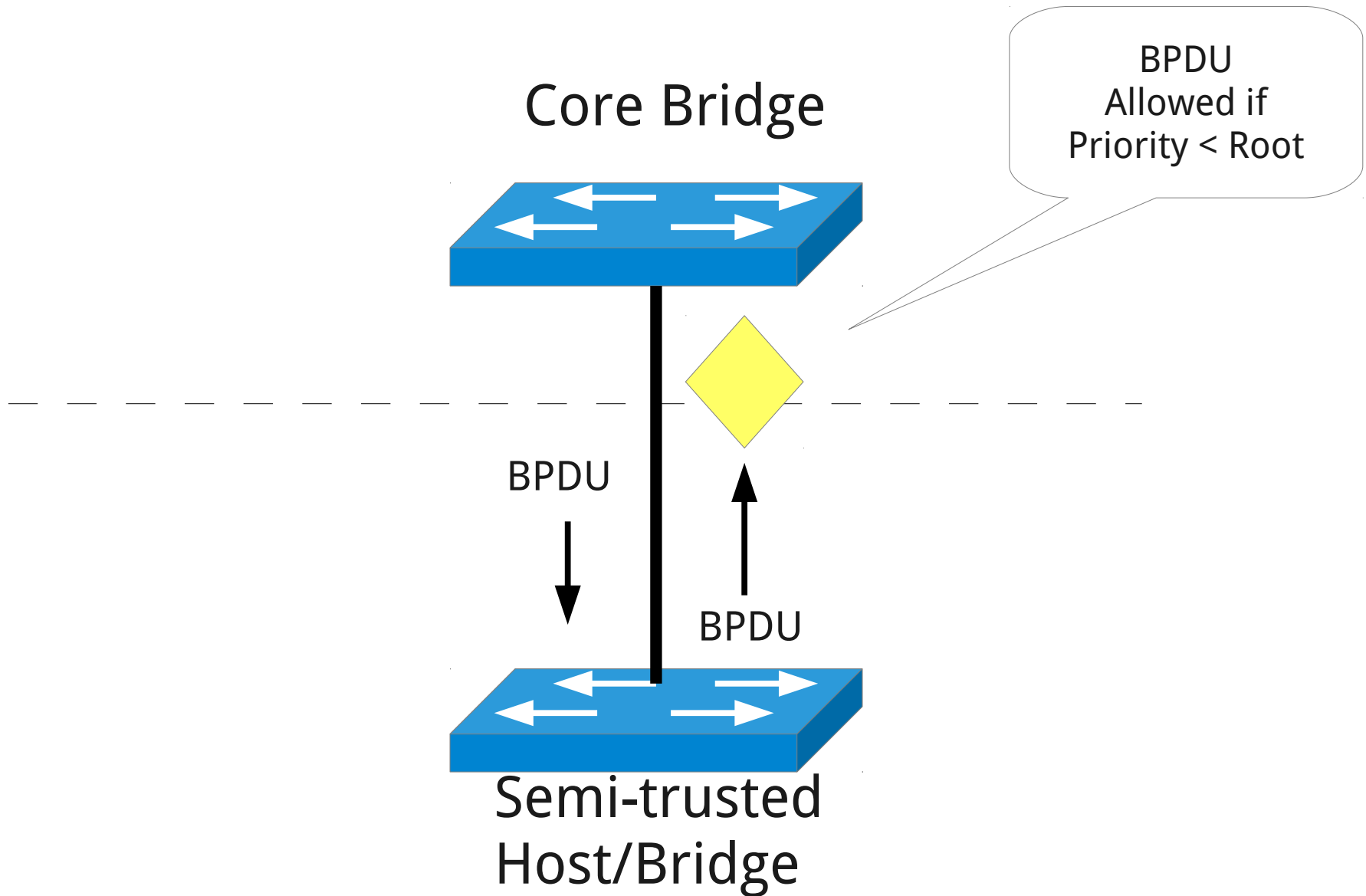
BPDU Filter



BPDU Guard



Root Port Protect

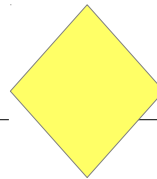


Port lock

Core Bridge



Source Address
Must match



Untrusted
Guest

Spanning Tree

- Current
 - Kernel – 802.1d 1998
 - Userspace – RSTP daemon
- Goal
 - Kernel – 802.1d/802.1s
 - Userspace – SPB or TRILL?

Status

- VXLAN – 3.7
- Security – 3.8?
- STP update – 3.9??

Bridge vs Openvswitch

Ethernet Bridge

- Plug and Play
- Firewall rules
- Integrated

Openvswitch

- Table driven
- Flexible
- Management agent



Thank you