

The Data Center is Different

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Origin of L2/L3 Networks

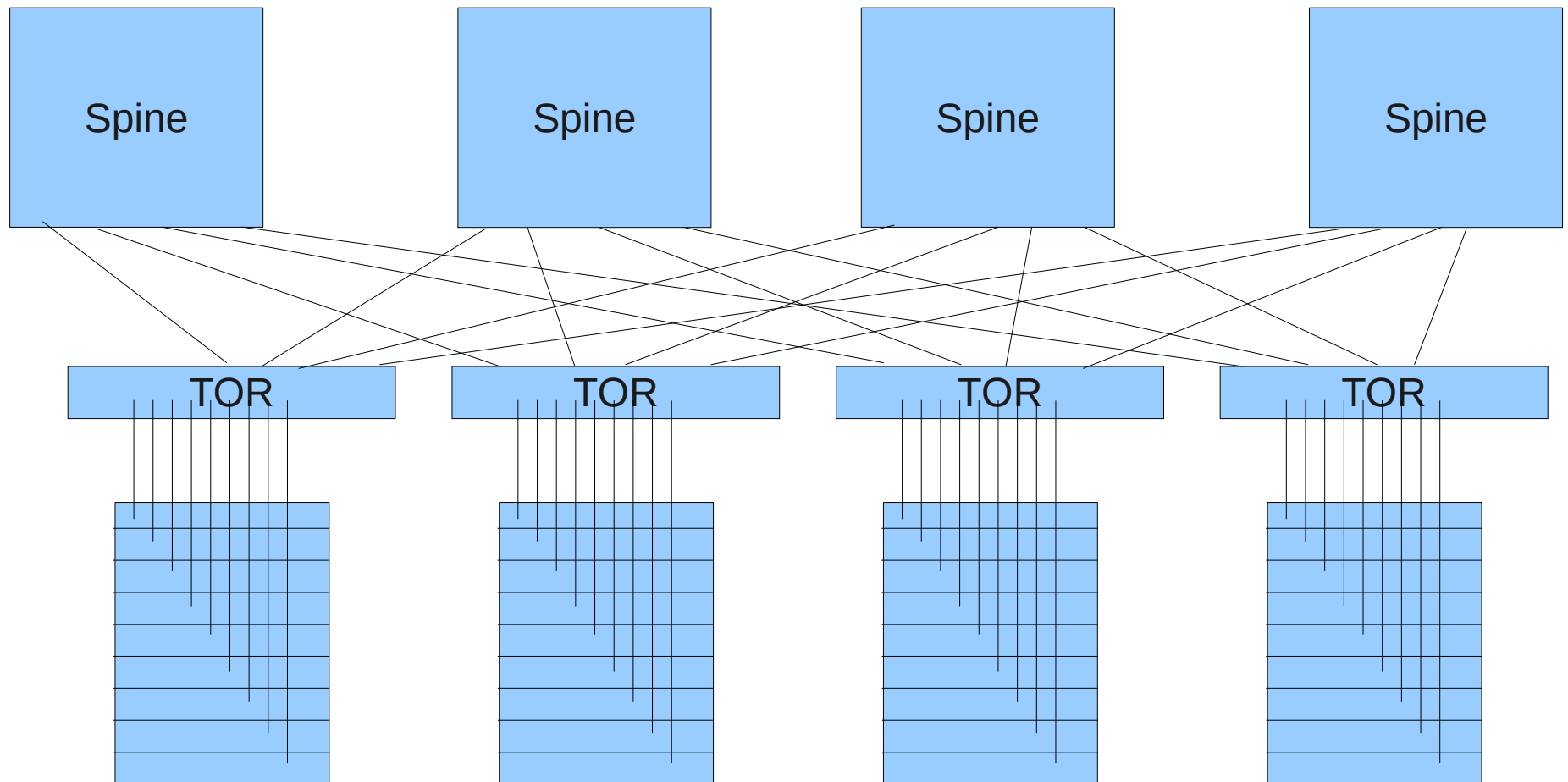
- Interconnect LAN segments or LANs
- Interconnect departments under separate administrative control
- Ad-hoc topologies, ad-hoc add/change clients
- Low performance and uptime requirements
- Staff perhaps not too network savvy
- RIP and STP are good enough

Today's Data Center

- Structured topologies
- Central control by specialized staff
- Careful change control
- Addressing typically stored in a database
- Demanding performance and uptime requirements
- “I know where my MAC addresses are. Why does my network need to flood and learn?”

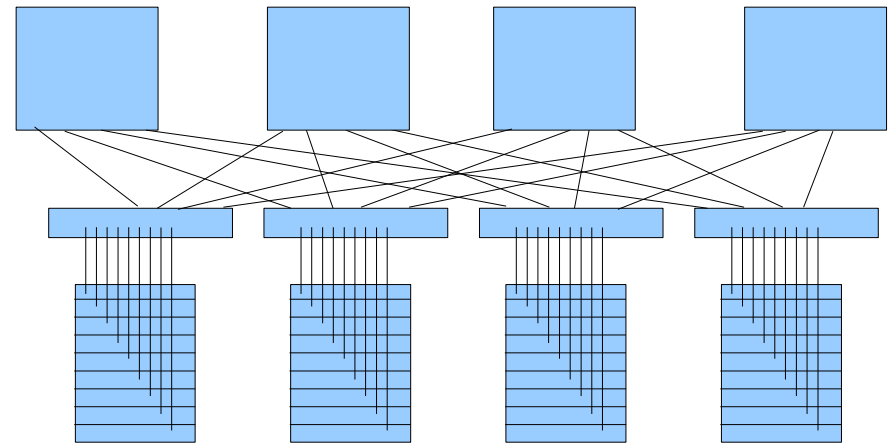
Structured Data Center Topology

The way real customers build it



Yeah? Configure This! (times 100)

- 400 switches
- 2000 IP subnets
- 1600 transit links
- Made to order for central control
- Still a layer-3 design --- what if you need big layer 2?



Layer 2?

- No standards-based layer-2 multipathing available today
- TRILL?
- Flood every MAC to every switch?
- Reconverge the topology at every switch on every link up/down event?
- ...or centralized controller --- which will scale better?

