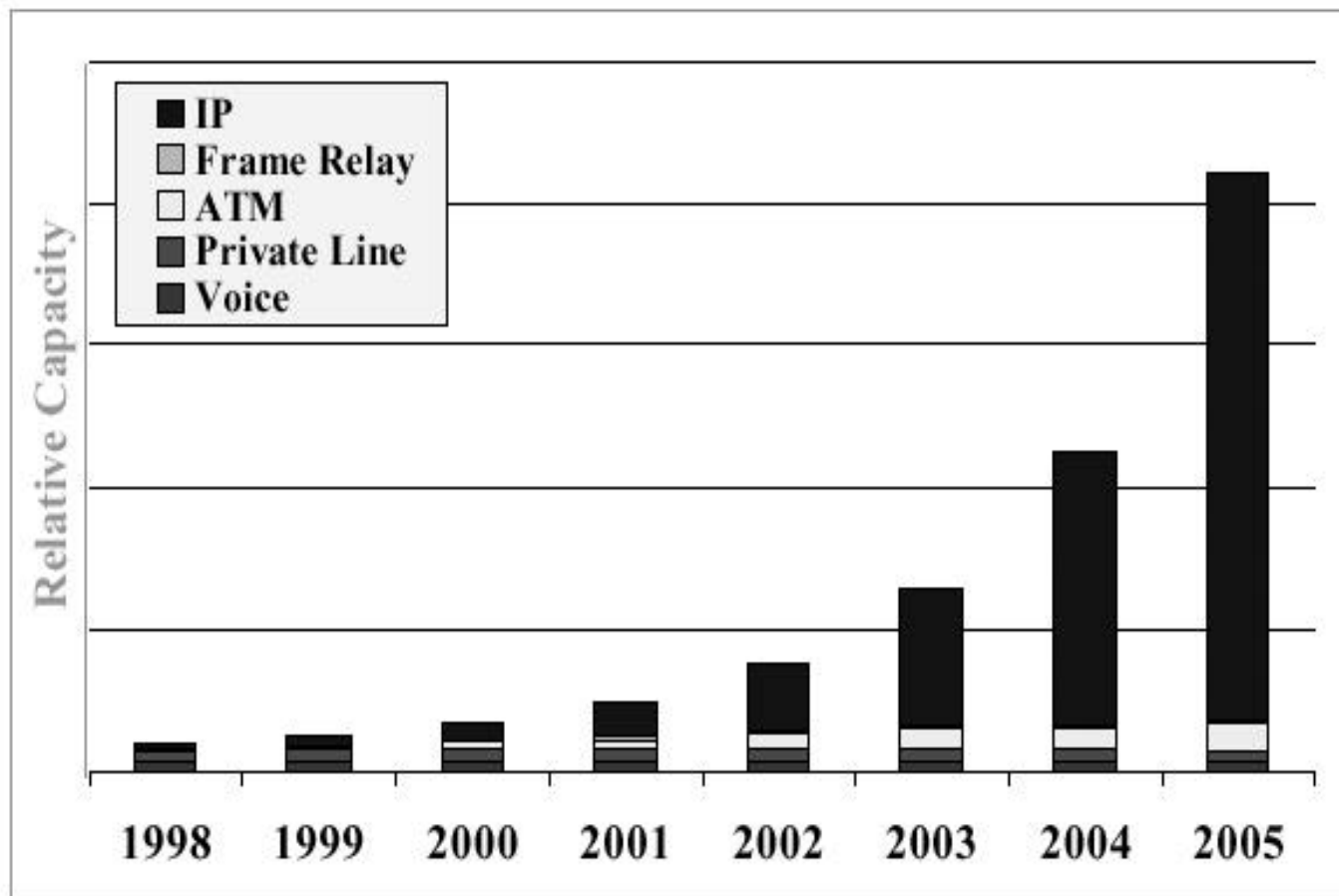


SRP USE WITHIN SPRINTLINK

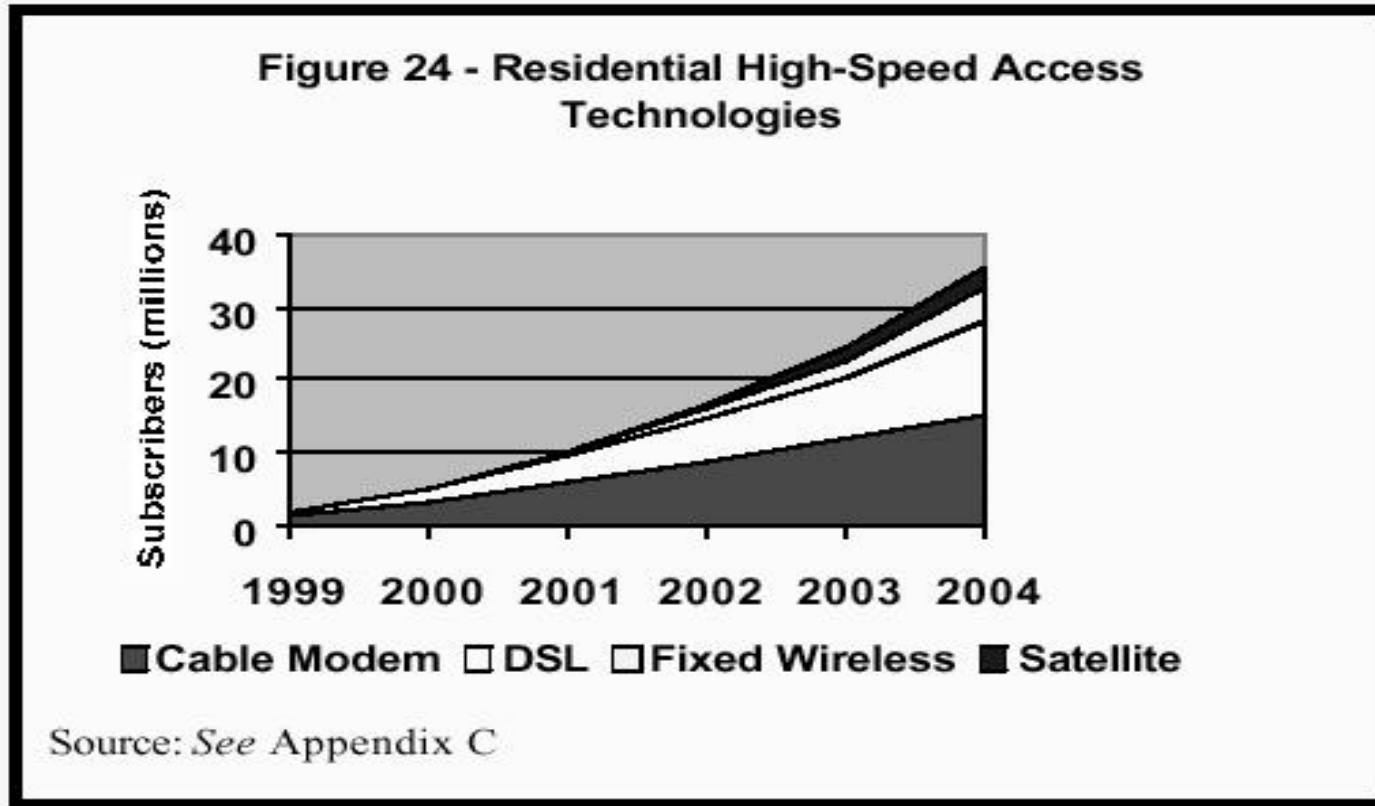
Ted Seely – tseely@sprint.net

- Background
- Deployment
 - Rollout
 - Operational Issues
 - Network Design Issues
 - Pop Designs

Background: IP Traffic Growth Pattern

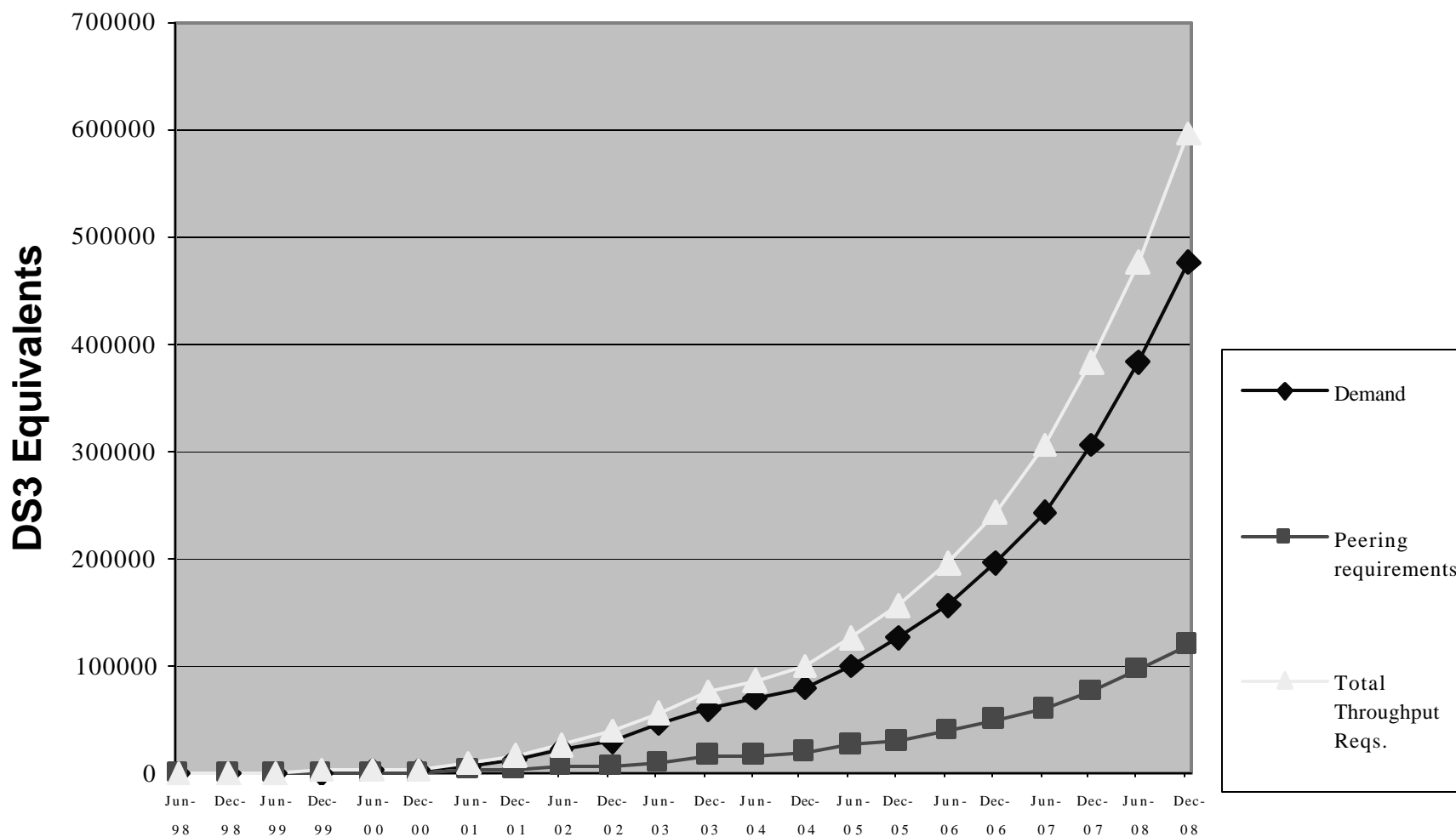


IP Traffic Volume is Growing Exponentially



Source – FCC 2nd Report on Availability of High-speed and Advanced Telecommunications Services

SprintLink Customer Demand in DS3 Equivalents



- POP Aggregation in SDN (Sprint Dial Net) Network in November 1999.
 - Reduce Hop Count For Egress From POP
 - Reduce Number of Packet Over SONET Cards Required for Homing Aggregation Routers to Backbone Routers.
 - Easy to add new routers to ring with no changes required on Backbone boxes.
 - This reduced downtime for maintenance evolutions when adding new elements.

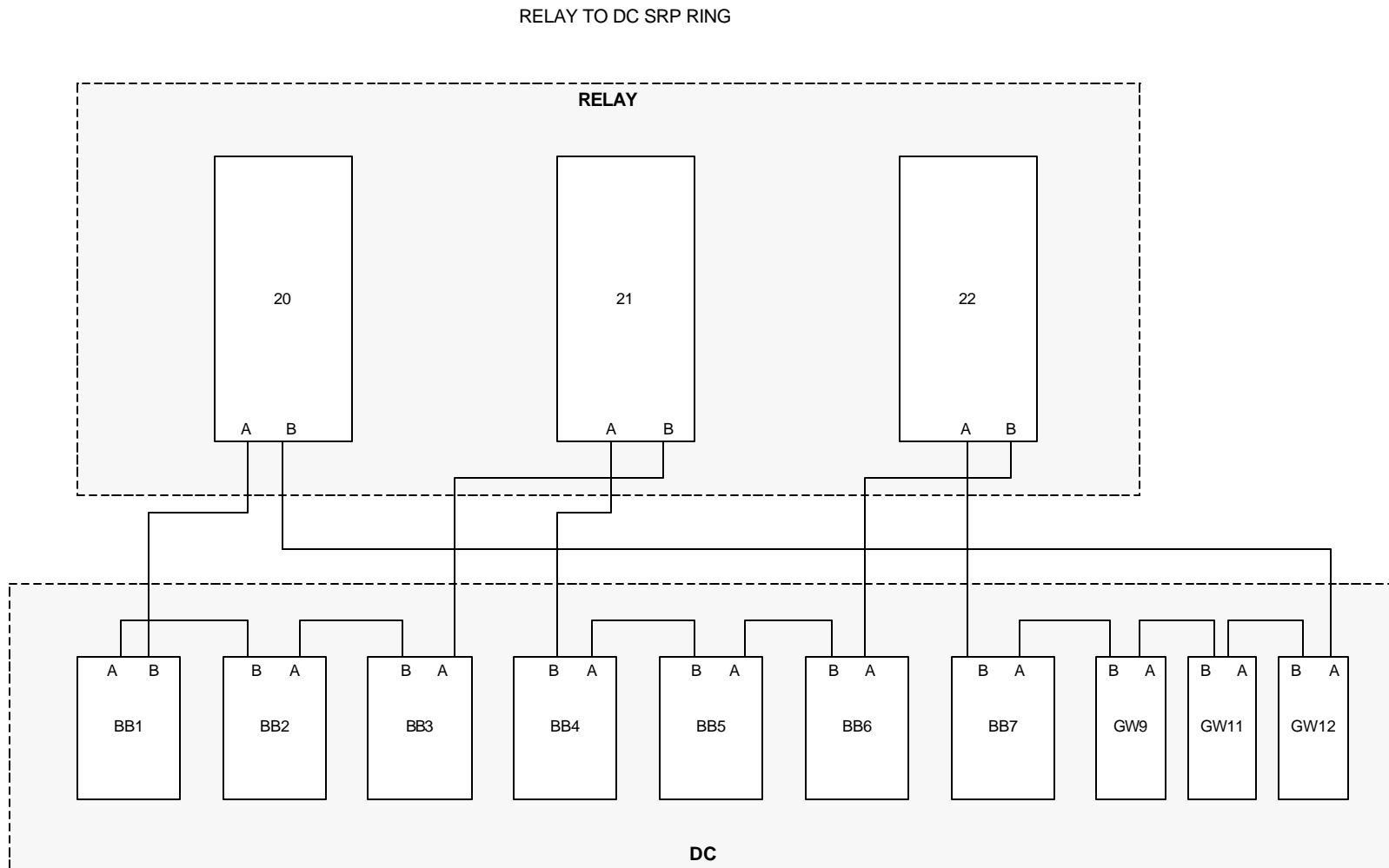
- Entire SDN (Sprint Dial Net) Network is OC12 SRP Wired POP.
 - Total Number of SRP Network Elements is 141
 - Total Number of Intelligent SRP Termination Devices is X
- 90% of SprintLink Low Speed Network Elements are SRP Homed to Backbone Routers.
 - Total Number of SRP Network Elements is 500
 - Total Number of Intelligent SRP Termination Devices is X

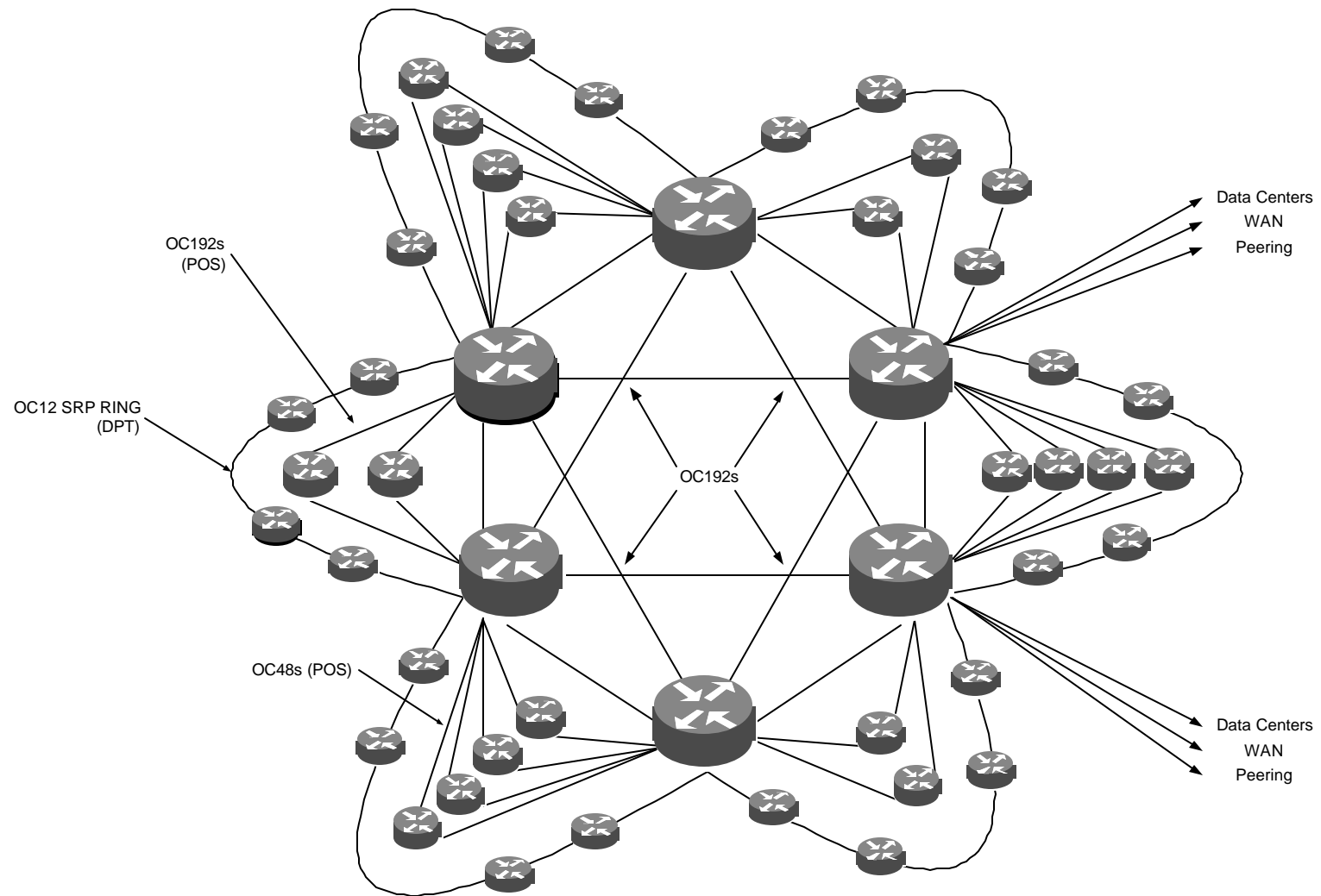
- Intelligent SRP Termination Devices
 - APS / IPS
- Operational Know How in Troubleshooting Failures Between Termination Element and Network Element
 - Understanding SONET B1, B2, B3 Hierarchy is Critical
 - Line, Section, Path is your friend.

- SONET Hierarchy
 - Line, Section, Path
 - Knowledge of SONET implementation greatly simplifies troubleshooting, even in cases where N+1 is not deployed.

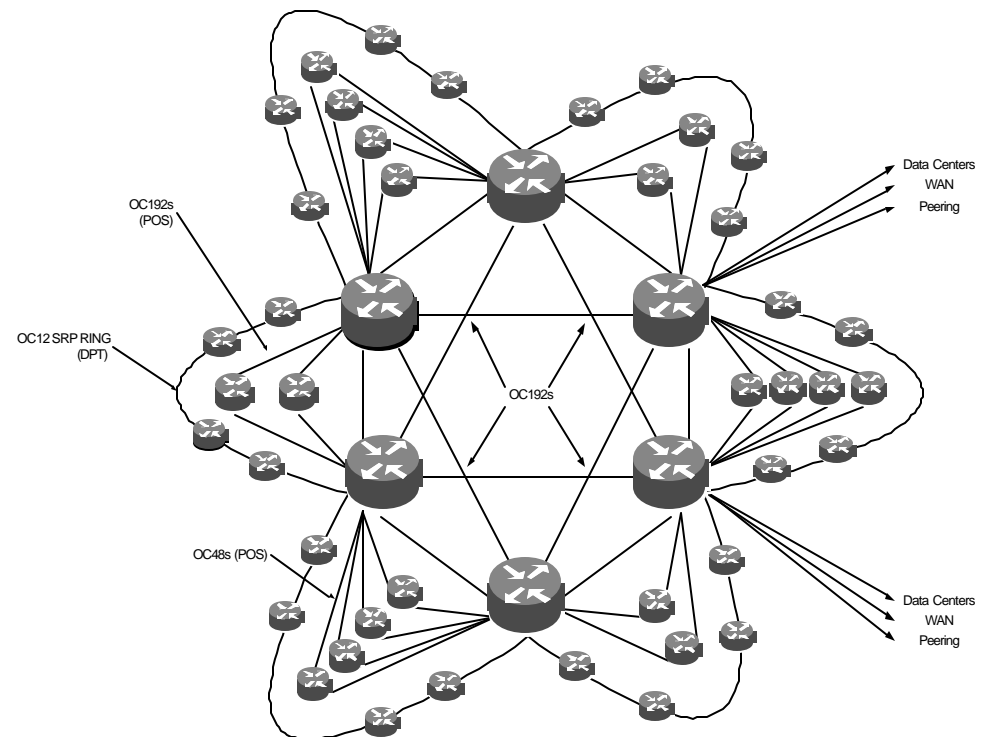
- Port Density for Passive Termination Elements
 - Lack of Standard Inhibited Us Here?
- Speed to Market of Newer Higher Speed Interfaces
 - Single Vendor Support Today?
 - Lack of Vendors Slowed Us Down Here?

- DC STUB Node is all OC12 SRP connected POP.





- 2001 roll-out of OC192 technology.
- Point-to-Point OC192 between BB triplets & high speed routers.
- OC12 and OC48 SRP for lower speed access routers.



- Demand will force us to implement new protocols inside SprintLink.
 - This drove us to SRP/DPT.
- Current Designs and Protocol Support will not scale forever.
 - NEED NEW INTELLIGENT PROTOCOLS