

RPR Protection Switching

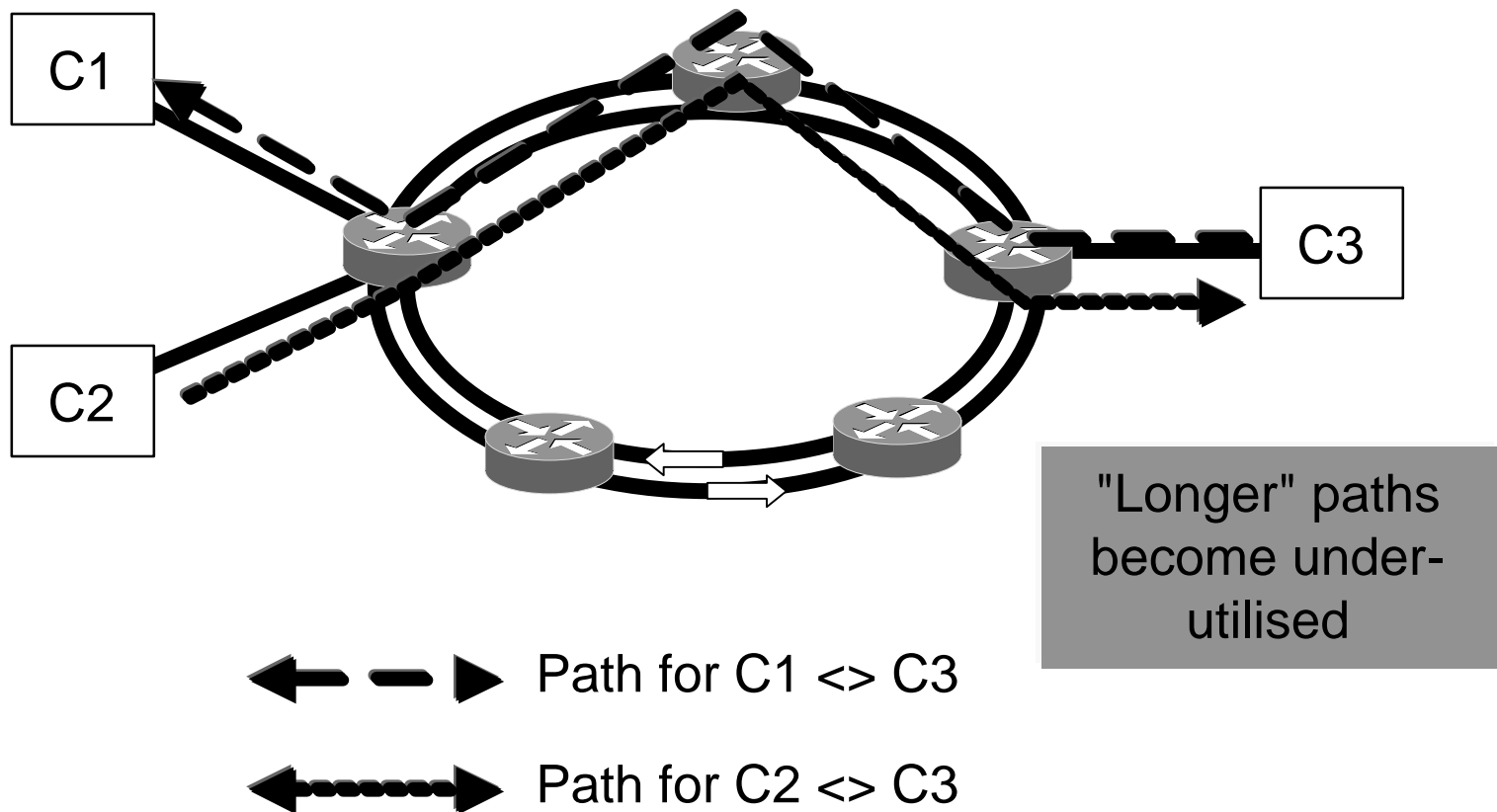
Distributed Cut-through Switching

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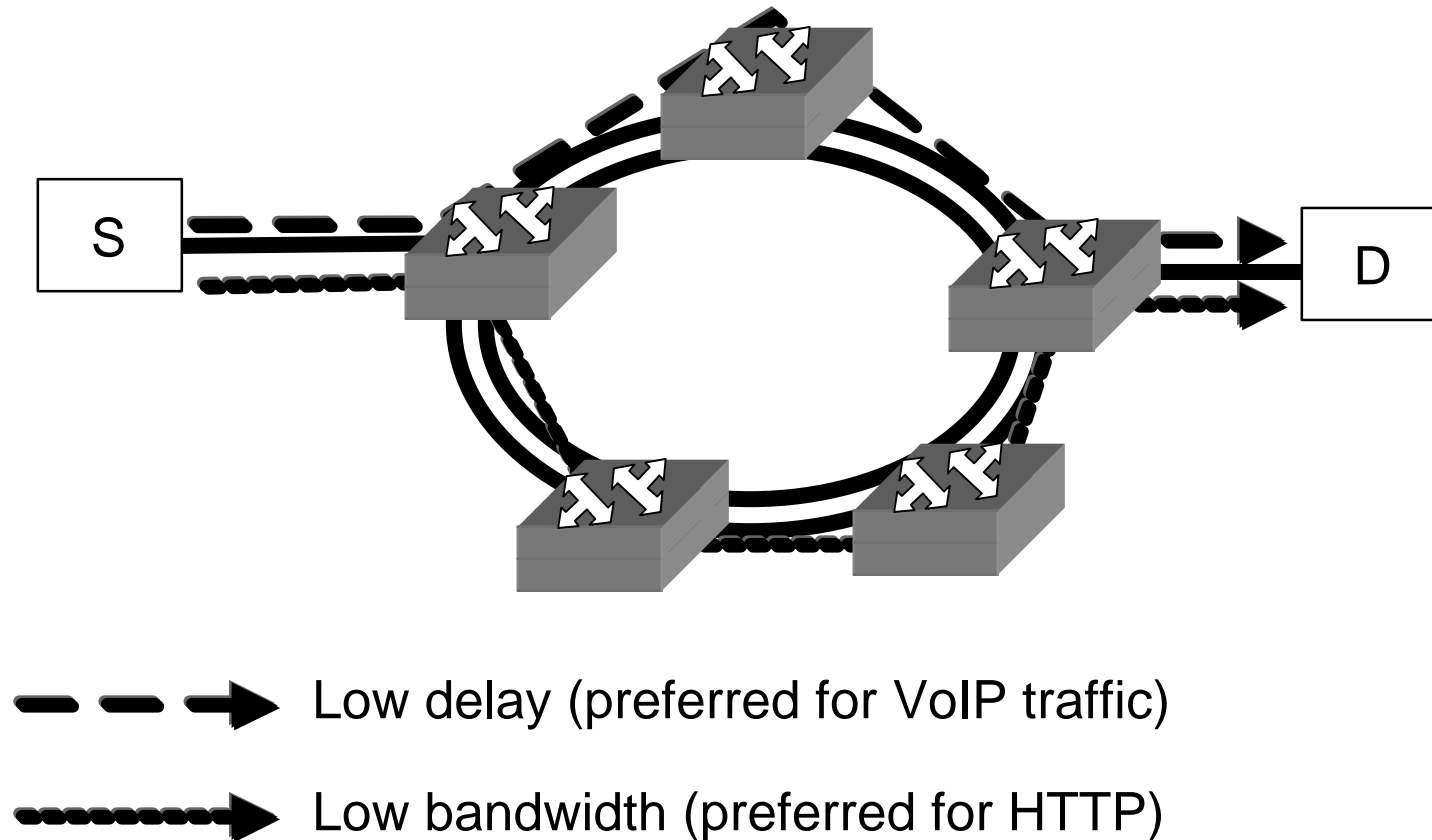
Today Bandwidth Bottlenecks

Today routing protocols create a single "shortest path"



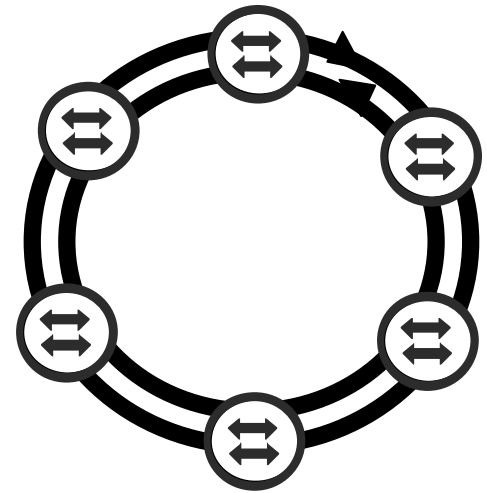
RPR Ring Awareness

Source device determines the type of path on the basis of the service



RPR Dynamic Control Plane

- Control Plane will consist of:
 - Plug and play auto-topology
 - Boot process to initialize token distribution
 - Auto-recovery through advertising
 - Resources management advertising
 - Dynamic provisioning of resources:
 - Token pool negotiation



Architecture and Security Requirements for Non-stop

- Network Topology issues:

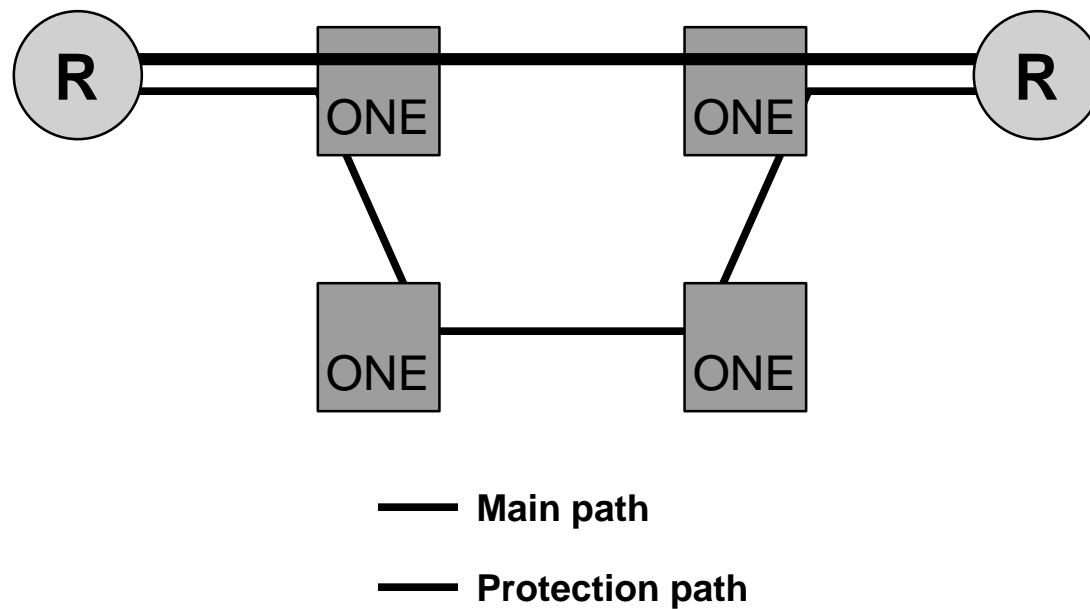
- Alternate physical pathways
- Automatic, rapid fail-over at physical layer
 - ‘Ordinary’ IP routing too slow to prevent application time-out
- Priority re-admission
- Sophisticated QoS mechanisms
 - Pre-emptive admission of critical guaranteed QoS traffic.
 - Protect control traffic
- Complete topology view, self-optimization

- Network Security issues:

- Data plane, control plane, management plane
- Configuration control
 - Audit logs
 - Access permissions
 - Backup restoration

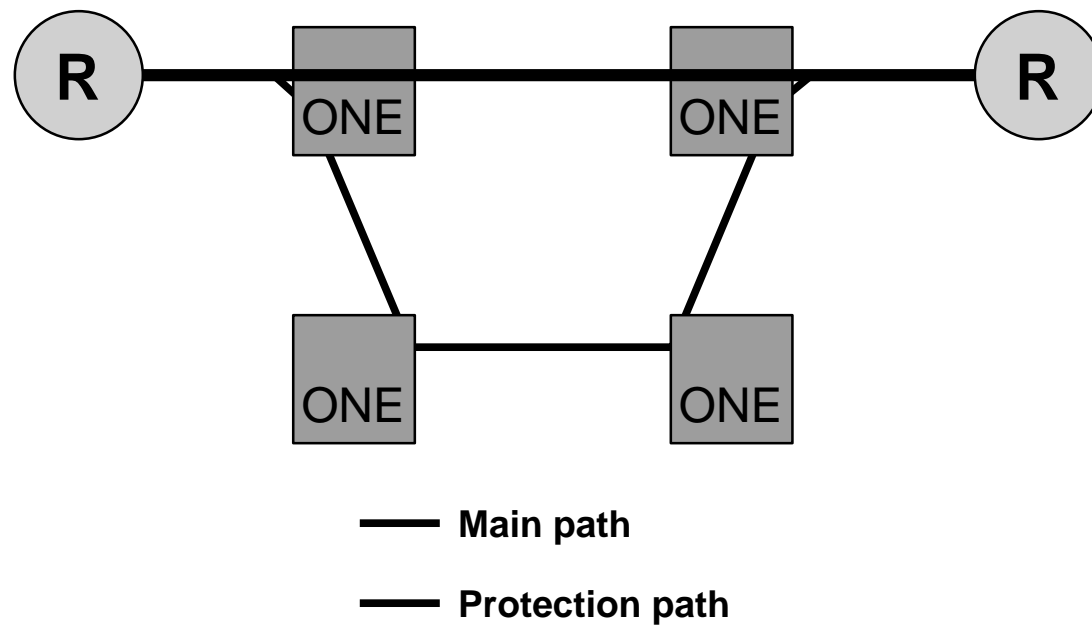
Protection Switching on Routers/ONE networks

- Fast and best service availability
- Doubles number of router ports and capacity required of optical network
- Complexity in the order of N^2 for Routers AND ONE



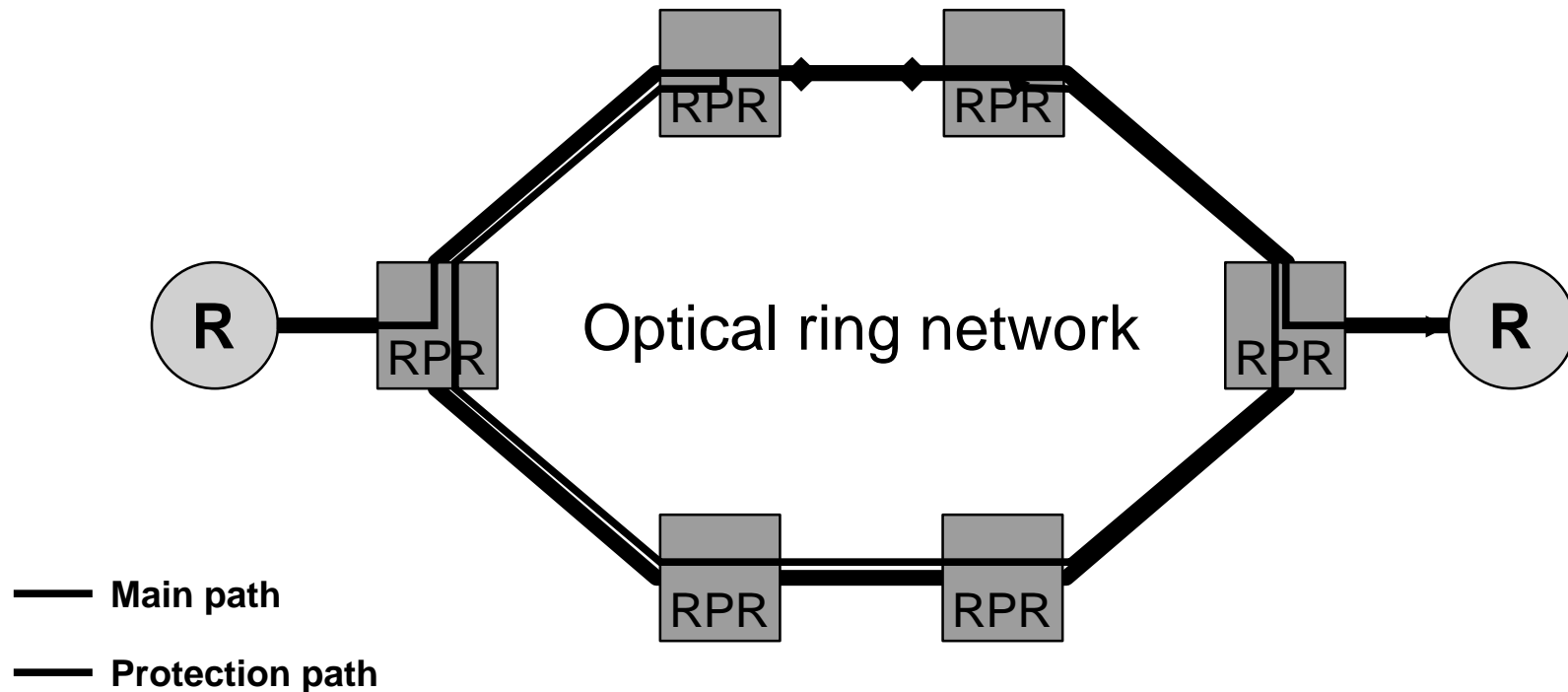
Sub-Network Connection Protection

- Fast, availability poorer due to single points of failure between routers and ONEs
- Saves cost of additional router ports
- Still doubles, or more, network capacity required



Wrapping Ring Protection

- Fast protection
- No control on traffic engineering
- Spans are used twice with limited SRP awareness



Steering Ring Protection

- Fast protection if pre-computed routes
- Full control on traffic engineering
- No need for dual control plane

