

RPR over SONET/SDH

IEEE 802.17 Resilient Packet Ring Working Group

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Agenda

- **Goals for RPR on SONET/SDH**
- **Benefits for RPR on SONET/SDH**
- **Proposal**

Goals for RPR on SONET/SDH

- Support packet optimized data while also supporting TDM traffic
- Support all SONET/SDH rates: OC-3/STM-1, OC-12/STM-4, OC-48/STM-16, OC-192/STM-64, etc.
- Support full concatenated payloads (e.g., OC48c) for data traffic and channelization for mixed data and TDM traffic
- Protection switching at Layer 1
- Independent of the Layer 2 protocol
- Co-existence of RPR and UPSR/SNCP on the same ring
- Co-existence with unprotected paths
- Interwork with any other standard ring architecture (e.g., UPSR and BLSR)
- Allow sharing of SONET/SDH paths for data traffic among multiple nodes on a ring to gain efficiency

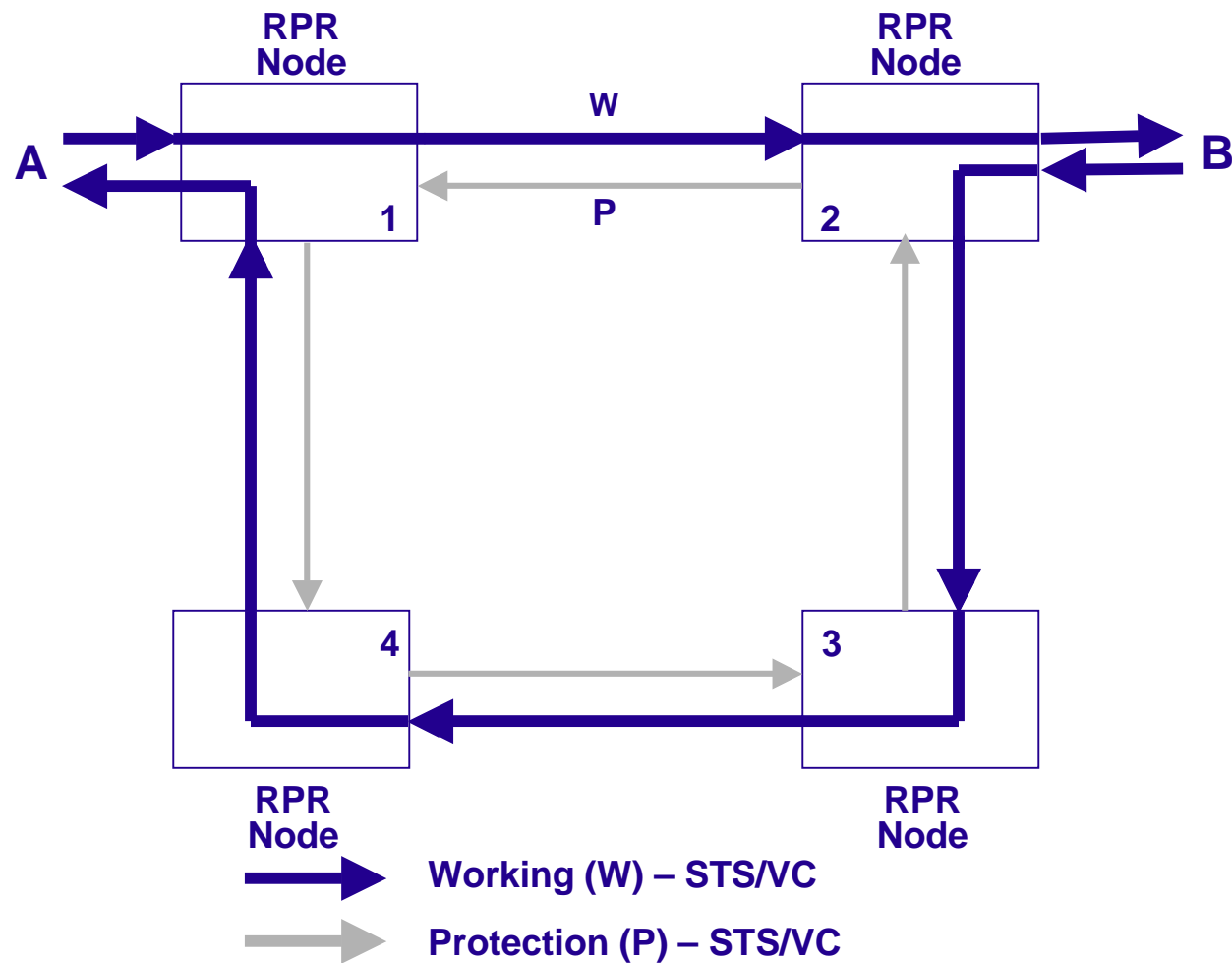
Benefits of RPR on SONET/SDH

- RPR on SONET/SDH will allow a service provider to provision nodes in a ring, similar to a SONET/SDH UPSR/SNCP
- UPSR/SNCP works well for data that has a single ingress path and single egress path
- UPSR/SNCP does not work well in a scenario where a single path (e.g., STS-1, VC-4) has multiple ingress and multiple egress points.
- RPR on SONET/SDH will specify a technique that allows several customers to share a path (Statistical Multiplexing benefits)

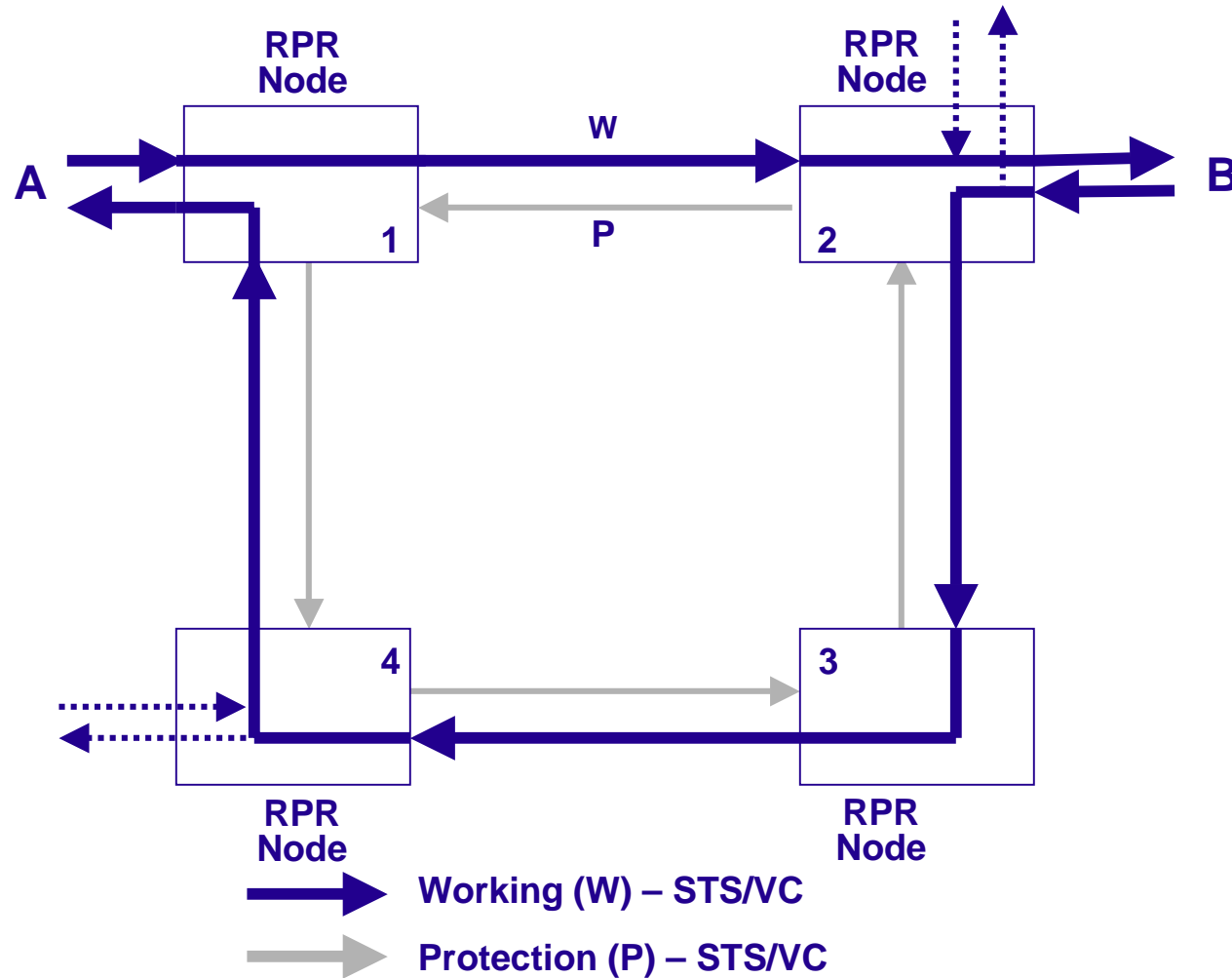
Appian RPR on SONET/SDH Proposal

- **Uses SONET/SDH path-layer mechanisms to provide ring protection**
 - Protection switching mechanism independent of type of data traffic, e.g. Ethernet, Frame Relay, IP, ATM
 - Only the individual paths that are impacted are switched
 - Uses similar protocol defined for APS
 - Switches in less than 50 msec
 - Supports both single and dual node interconnection to both UPSR/SNCP and BLSR/MSSPRing (2F and 4F)
- **Provides both traditional SONET/SDH UPSR/SNCP functionality on the same ring simultaneously**
- **Supports Extra Traffic Mechanisms, including Preemptible and Non-preemptible mechanisms**

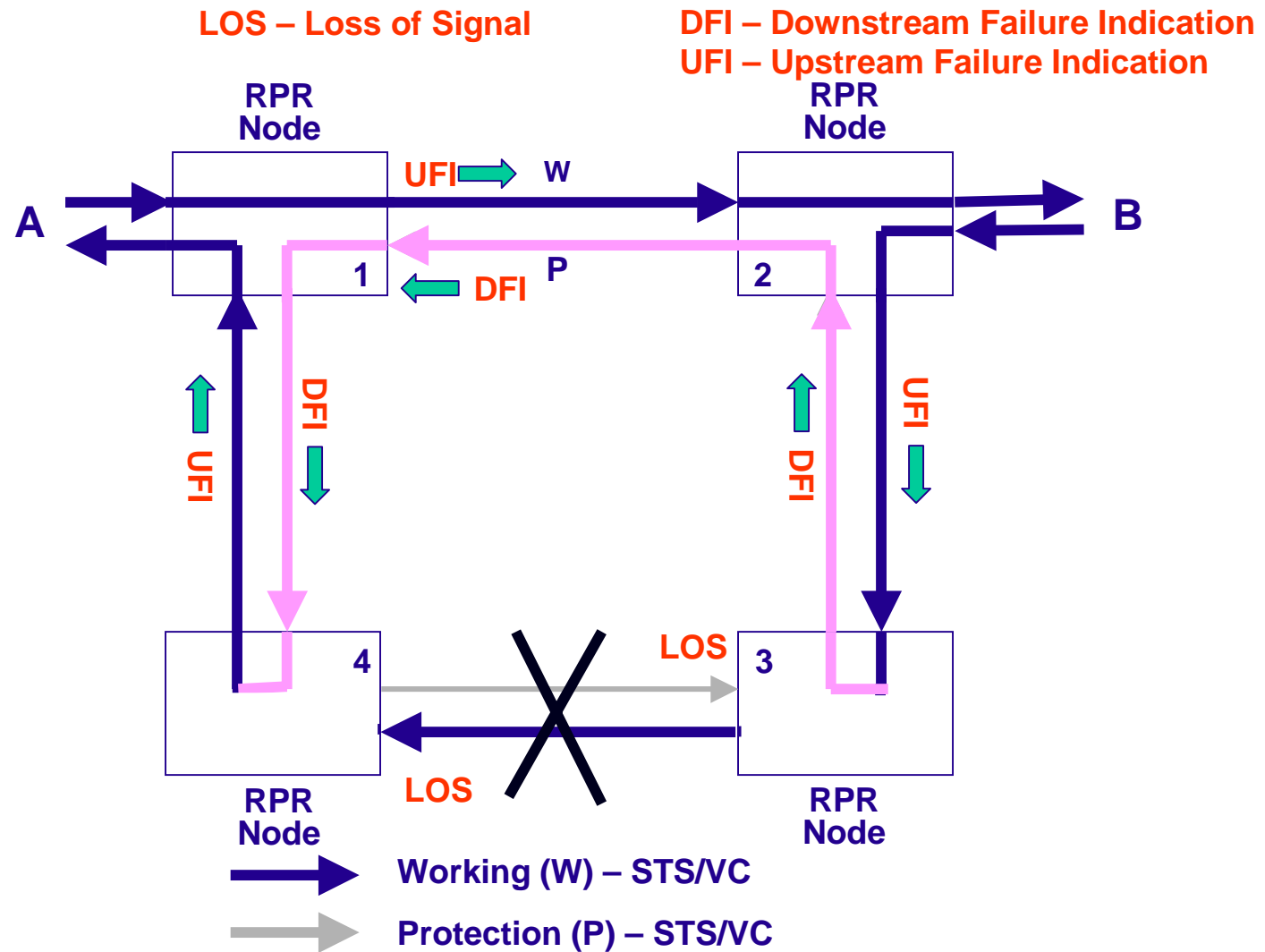
RPR over SONET/SDH Ring Operation



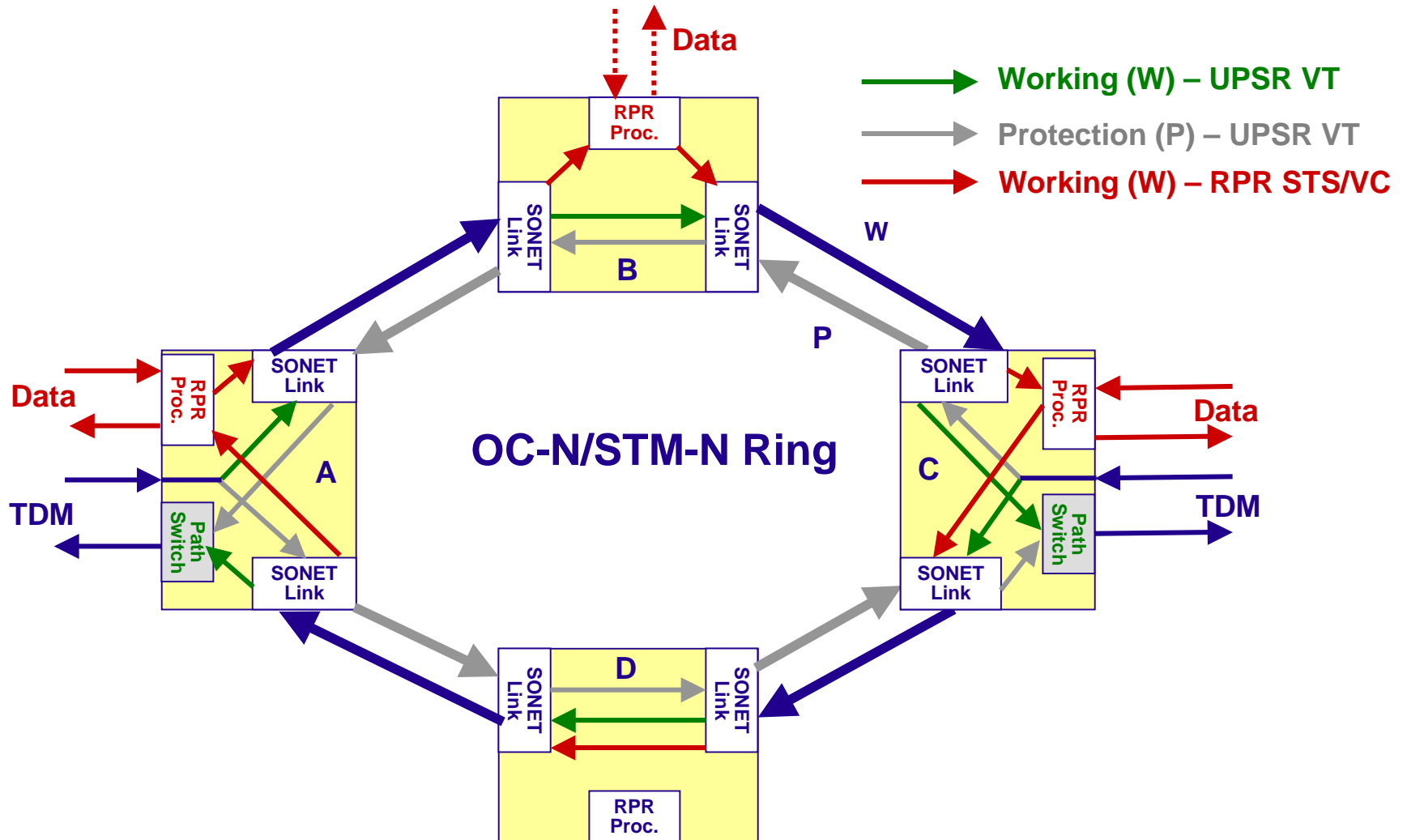
Each RPR Node Add/Drops Data on the Same STS/VC



RPR over SONET/SDH – 2 Fiber Cut



Simultaneous Support for RPR and UPSR/SNCP



Questions?