RPR over SONET/SDH

IEEE 802.17 Resilient Packet Ring Working Group

Harsh Kapoor, Chuck Lee, Ashwin Moranganti, Jon Morgan
Appian Communications, Inc.

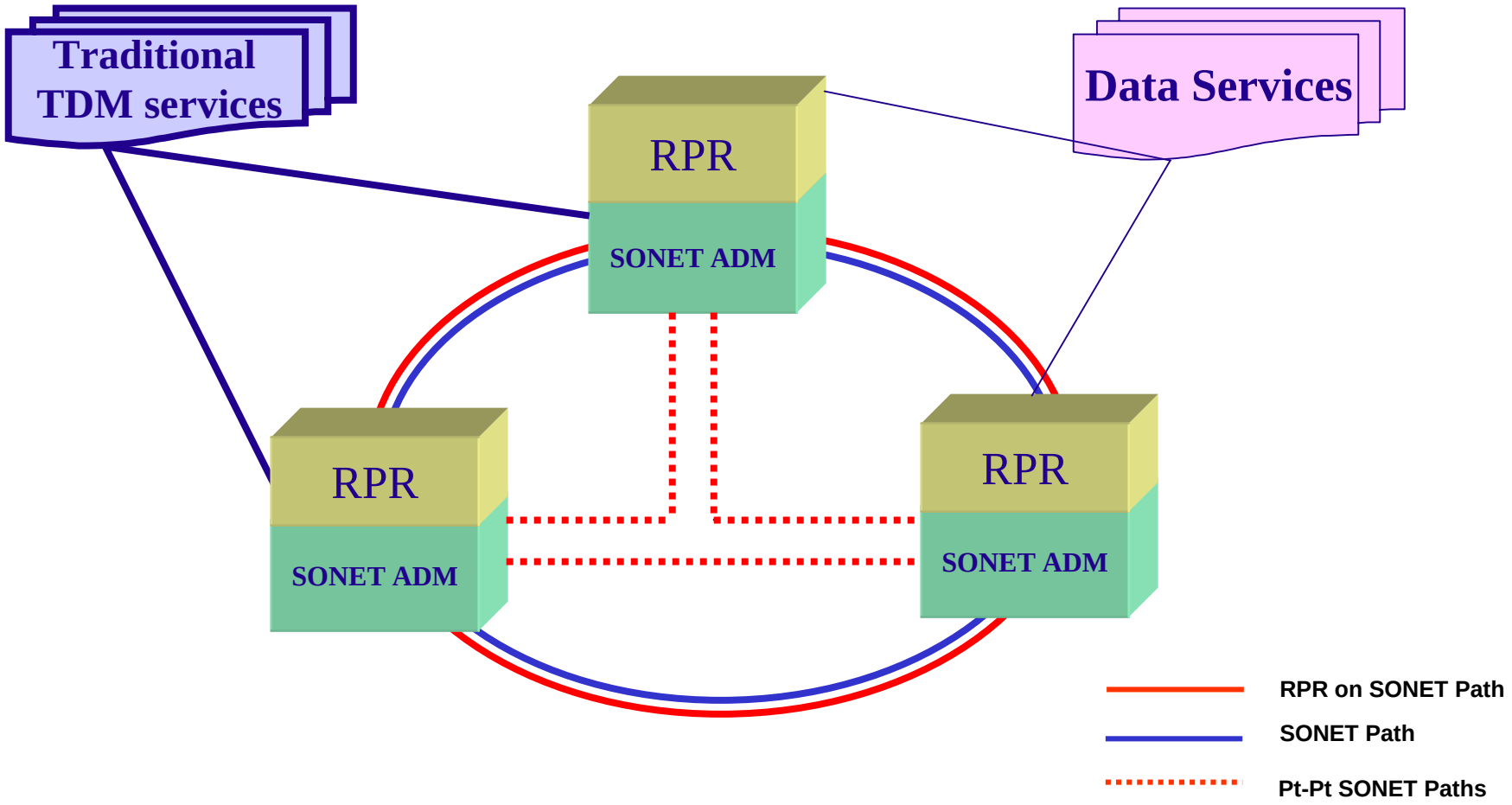
Agenda

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

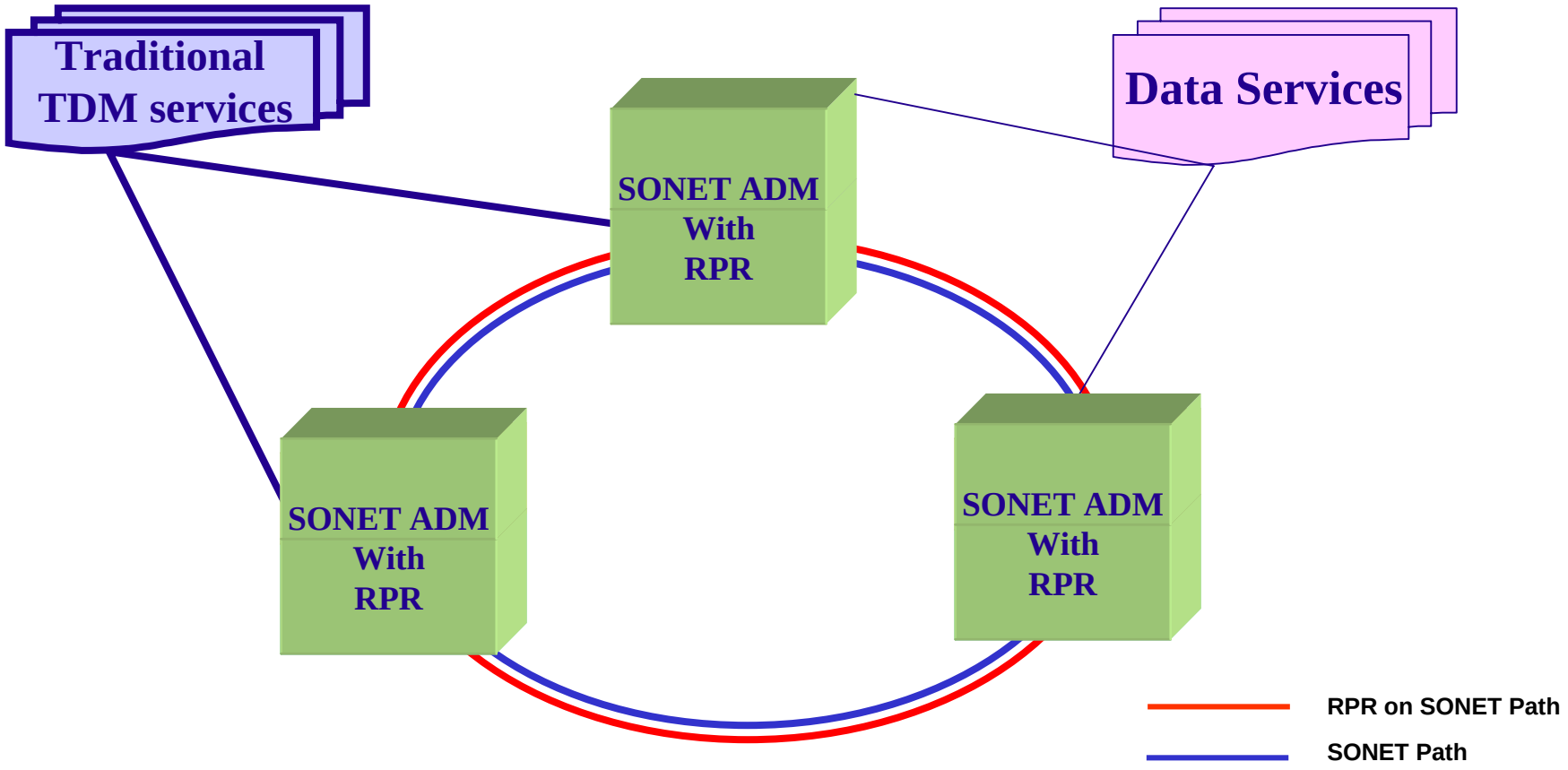
Goals for RPR on SONET/SDH

- **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 or MAC layer**
- **Co-existence of RPR and UPSR on the same ring**
- **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**

Appian RPR on SONET/SDH Proposal



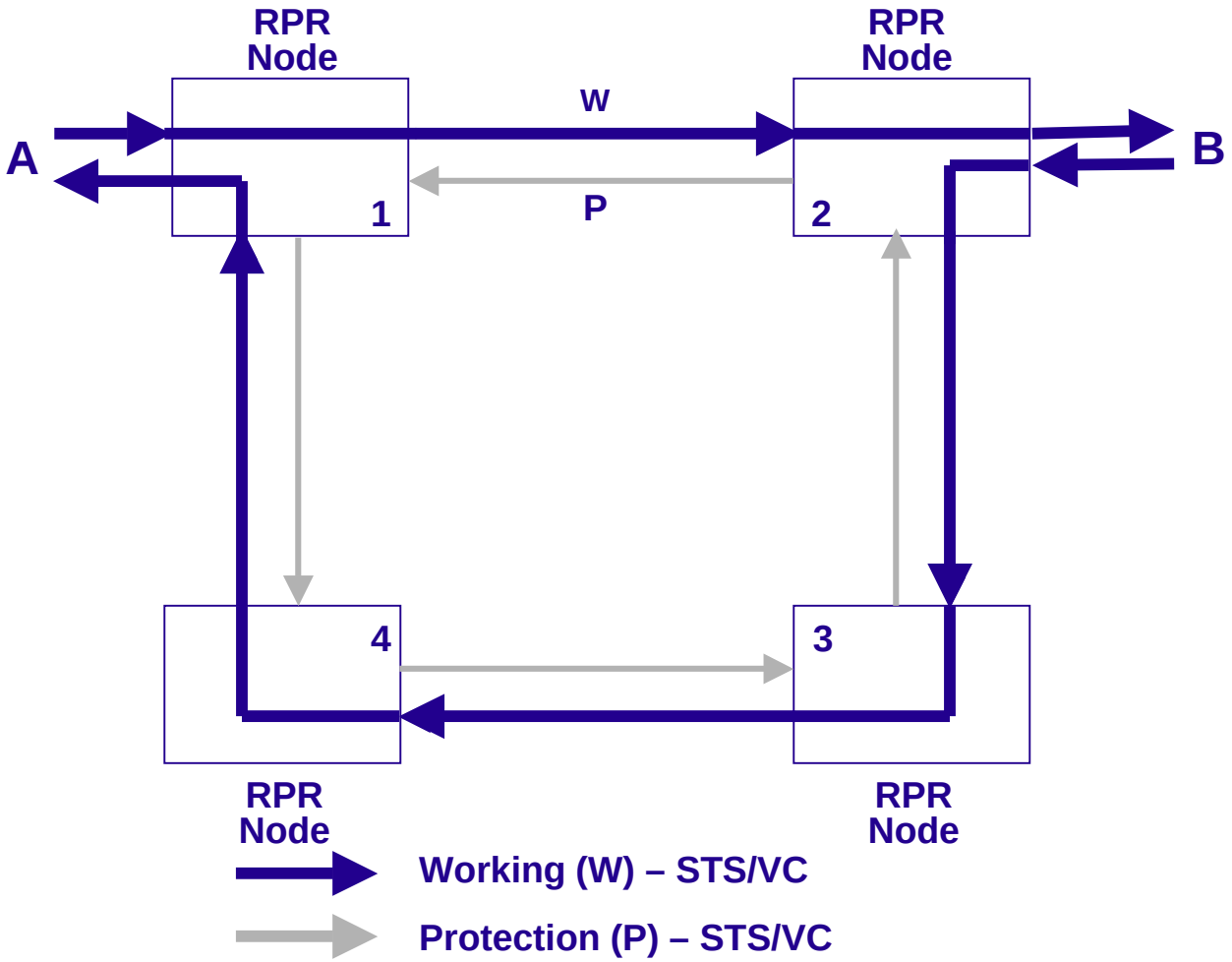
Appian RPR on SONET/SDH Proposal



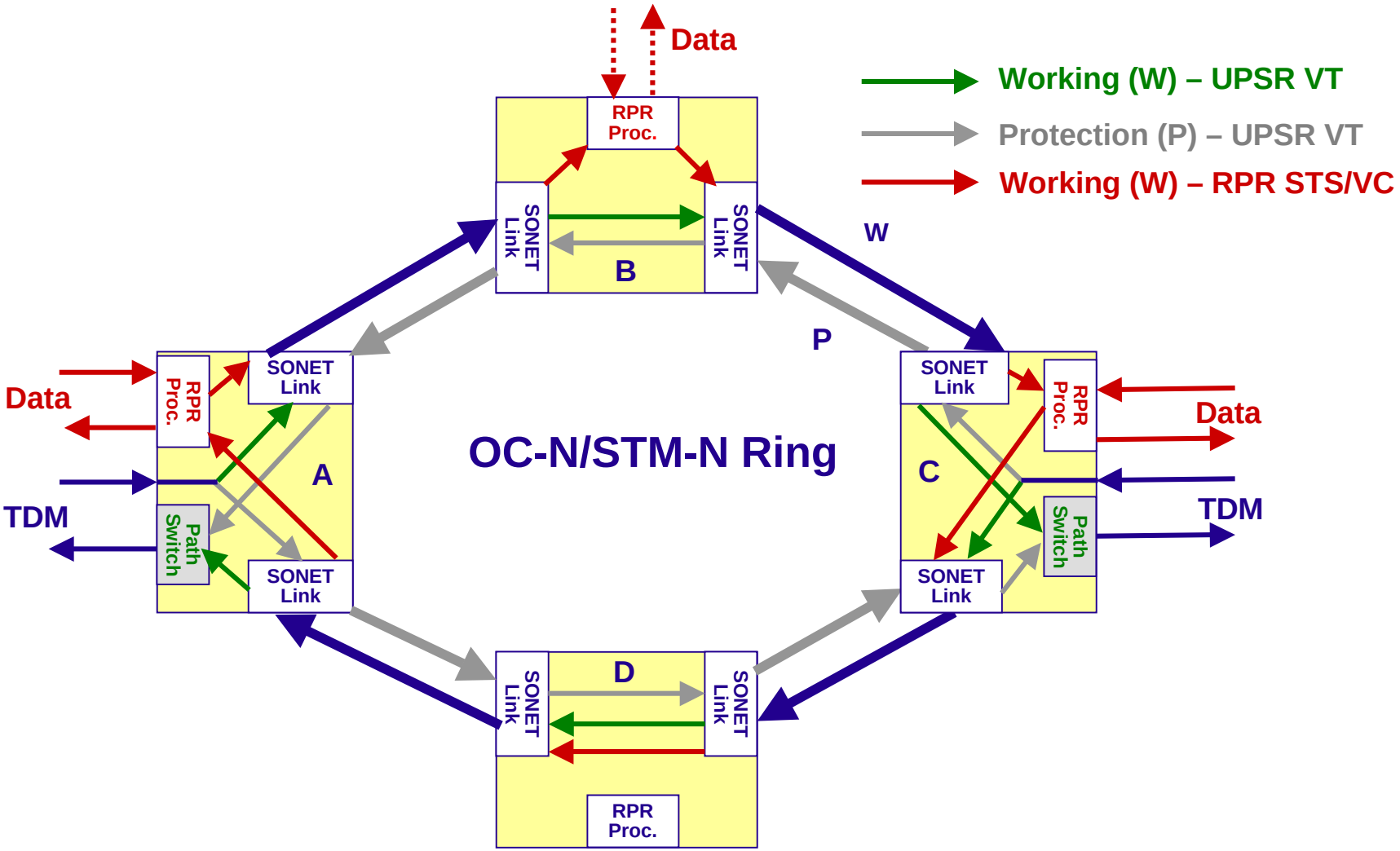
Appian RPR on SONET/SDH Proposal

- **Use SONET/SDH path-layer mechanisms to provide ring protection**
  - **Only the individual paths that are impacted are switched**
  - **Leverage existing SONET messaging schemes**
  - **Switch in less than 50 msec**
  - **Support both single and dual node interconnection to both UPSR and BLSR/MSSP Ring (2F and 4F)**
- **Provide traditional SONET/SDH UPSR functionality on the same ring simultaneously for TDM**
- **Support Extra Traffic Mechanisms, including Preemptible and Non-preemptible mechanisms**

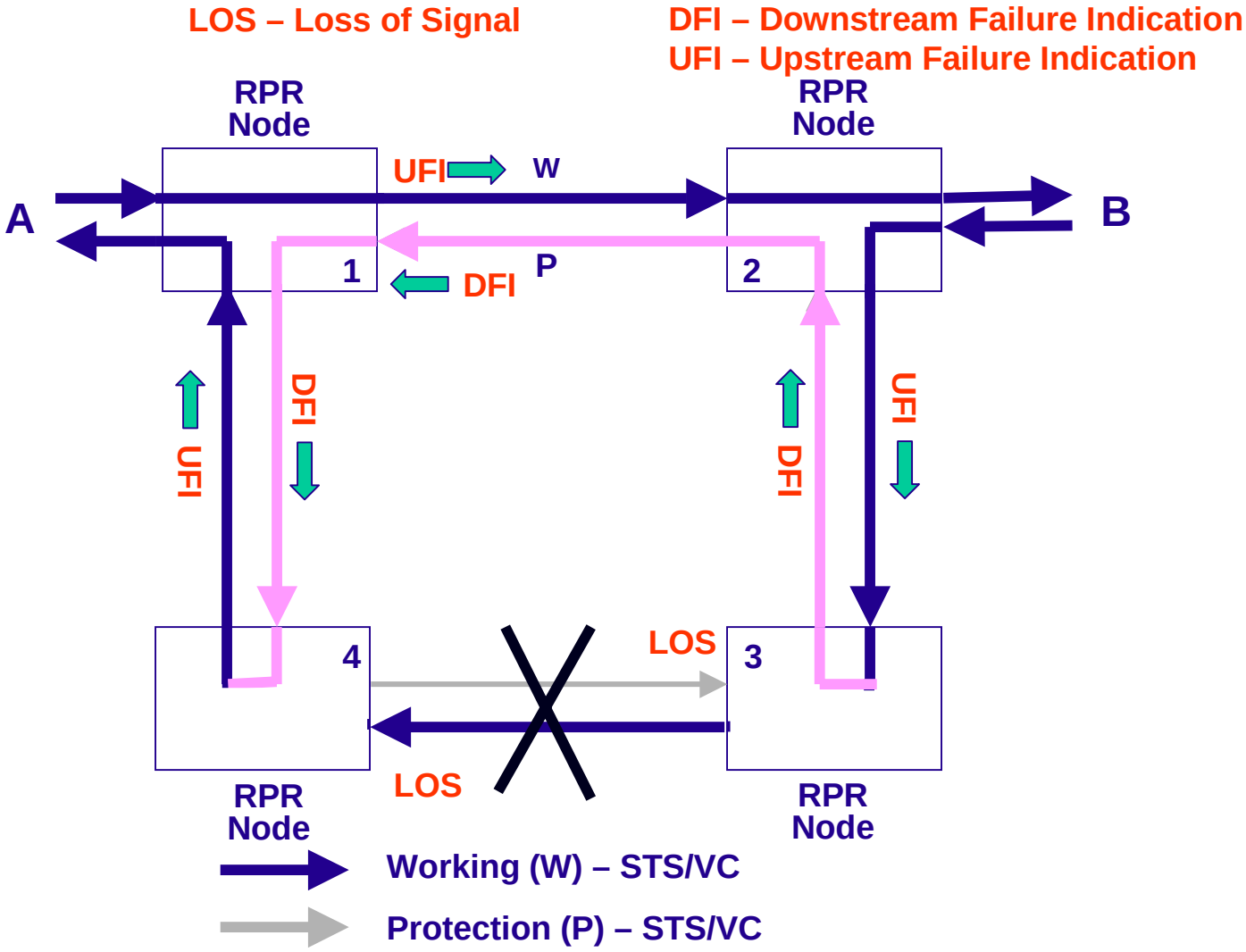
RPR over SONET/SDH Ring Operation



Simultaneous Support for RPR and UPSR/SNCP



RPR over SONET/SDH – 2 Fiber Cut



Questions?