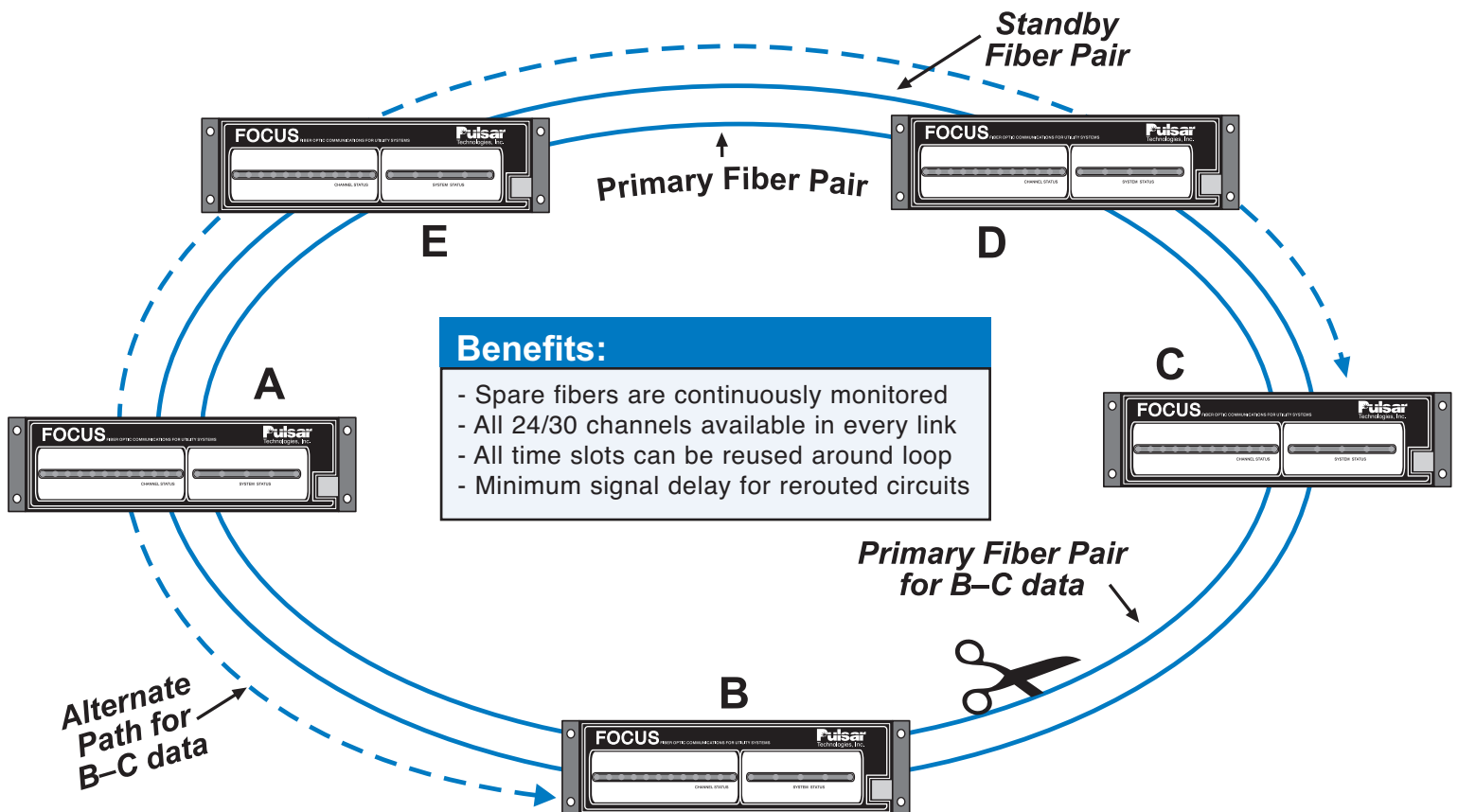


FOUR-FIBER-HOT-STANDBY RING

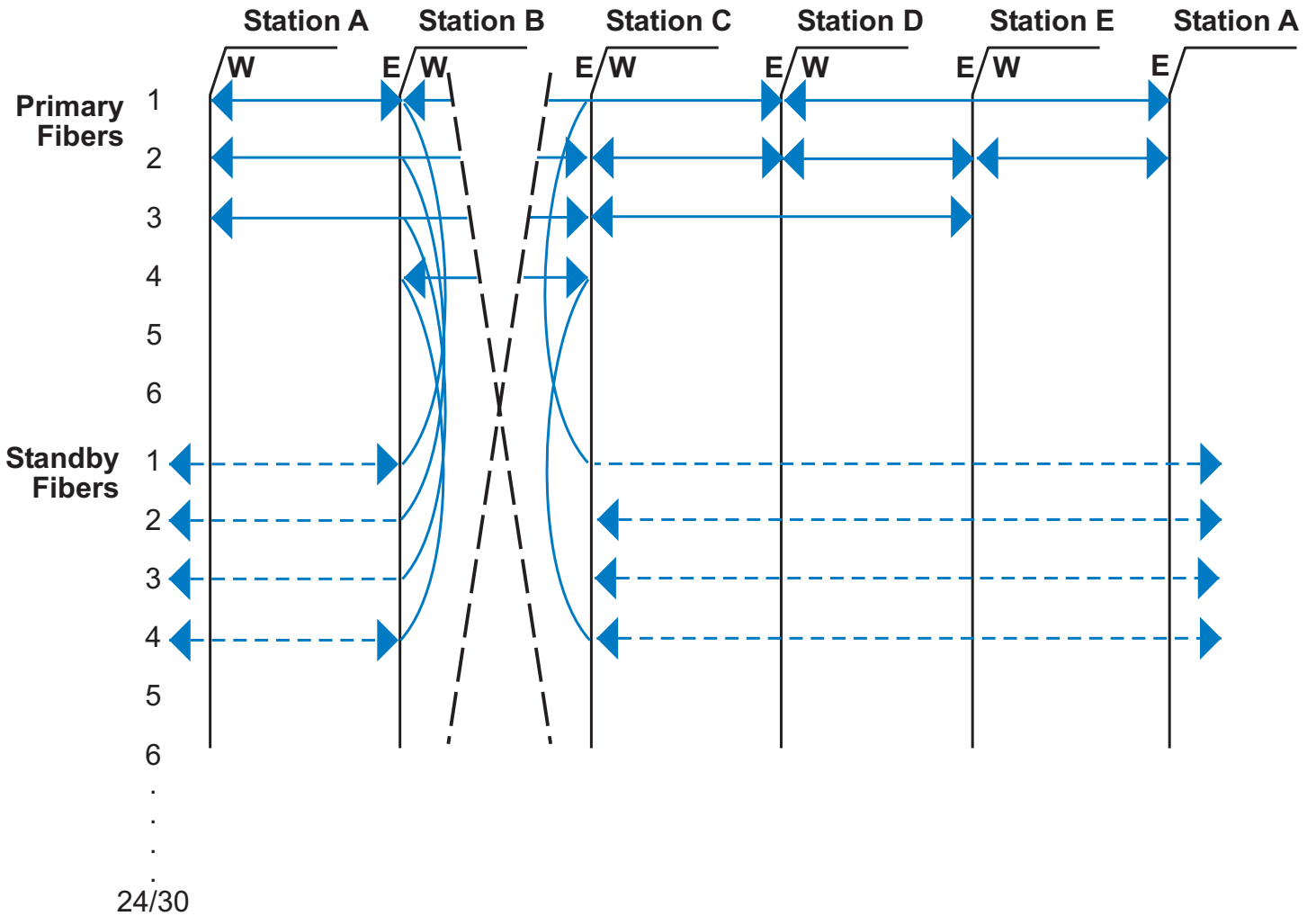
PULSAR offers several self healing options for the protection of critical communication channels in the event of a link or node failure. The four-fiber-hot-standby option utilizes two pairs of fibers between all adjacent nodes. All logic and hardware for this feature is self-contained within the base chassis. One of the fiber pairs is used as the main communication path, and the other pair is used as a hot standby or redundant path which is shared by all nodes in the loop. A single break in the primary path between two nodes initiates rerouting of all 24/30 channels (whether or not assigned) through the standby fibers. The rerouted signal travels in the opposite direction around the ring to arrive at the node on the opposite side of the break. This procedure reliably reconnects all channels affected by the break. The signals are automatically returned to the main fibers when the normal path has been restored. Unlike traditional path-switched schemes, the four-fiber-hot-standby ring allows the user to make use of the full T1/E1 bandwidth between each adjacent station. The system provides fast service restoration with complete reconfiguration in 8 to 50 ms. High reliability is maintained by continuous monitoring of the standby fibers to ensure availability in the event of a fiber link or node failure.



Example Operation:

One or both of the main fibers between Station B and Station C break. Terminal B and/or Terminal C receive low signal alarms on the main fibers. This directs both Terminals B and C to switch to the standby path in the opposite direction. The affected data is passed through Stations A, D and E to complete the standby path and reestablish all broken circuits. When the low signal alarm has been cleared, transceivers at Terminals B and C will switch from the standby fibers back to the main fibers. If only the standby fibers are broken, no rerouting occurs and a minor system alarm is reported.

FOUR-FIBER-HOT-STANDBY CHANNEL MAP



All 24/30 time slots between any two locations can be reused any number of times around the loop.