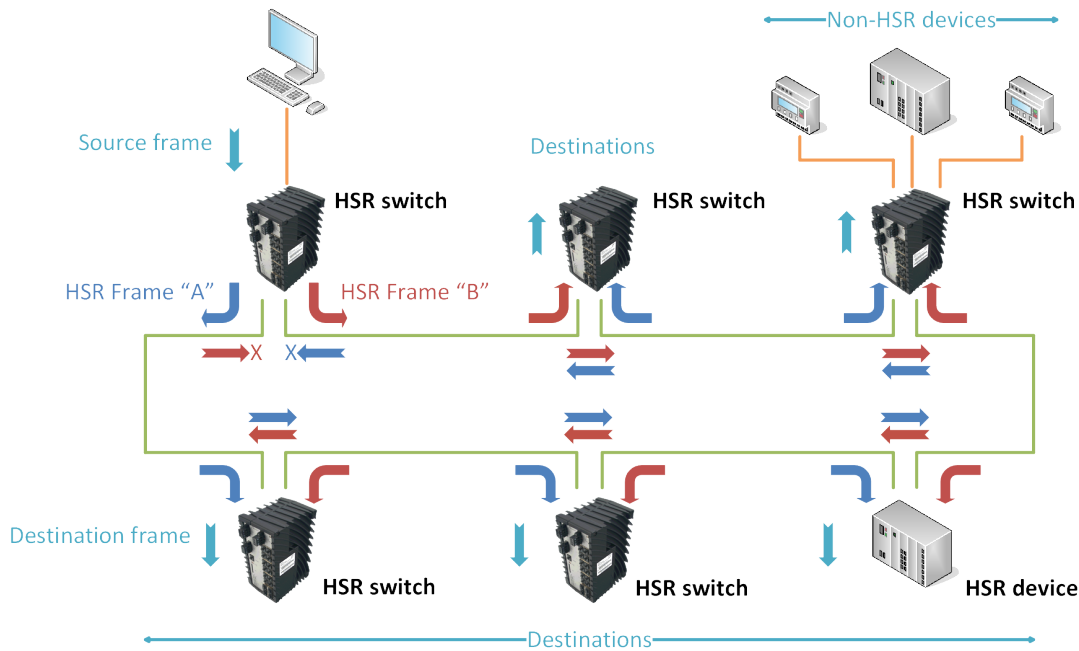


Network redundancy for highest availability



The reliability and availability of data networks has become increasingly important in recent years. Switching contacts at rail crossings, electrical switchgear and substations or control signals for lighting systems for traffic control are just some of the applications, where a reliable and highly available network is mandatory.

These applications require fail-safe connections and networks and therefore do not allow any signal losses.

From a technical point of view, there are some differences in redundancy mechanisms in Ethernet networks and not all of them are suitable for the most demanding applications.

Redundancy mechanisms in Ethernet networks are typically based on redundancy protocols such as Spanning Tree Protocol (STP) or Rapid Spanning Tree Protocol (RSTP) or special ring protocols such as Media Redundancy Protocol (MRP) or Ethernet Ring Protection Switching (ERPS). These mechanisms work with blocking ports and switch to a redundant path in the event of an error. Depending on the size of the network, this switching time may take a few milliseconds. Even though this is a very short period of time, it is sufficient, that packets that have already been sent can be lost.

One solution for these applications is the High-availability Seamless Redundancy (HSR) Ring network. An HSR ring is based on the concept of redundant transmission of all data packets via both paths to the destination. For this purpose, the source duplicates the packets to be sent and sends them in both directions via the HSR ring. At the destination, only the first received packet is used, the second packet is discarded.

The permanent transmission over two paths enables zero-loss redundancy and requires no recovery time in the event of an error.

Nexans LANactive Industry Switches optionally feature HSR technology and can be used for fail-safe ring networks.

Overview HSR Switches and iOption PoE+/I/O Modules

88306406	iGigaSwitch 1606 HSR SFP-6VI
88306432	iGigaSwitch 1202 HSR SFP-2VI AC HW5
88306476	iGigaSwitch 1606 HSR SFP-6VI AC HW5
88301604	iOption PoE+ 6/8P-30W
88301623	iOption I/O Digital 4xIn 2xOut 230V