

Network Discovery Protocols

Activity:

Prime contractor: SCISYS ~ Presenters: Stuart Fowell (SCISYS)

ESA TO: David Jameux

Abstract:

The SpaceWire standard defines the aspects of a highly flexible and capable communication system; however, SpaceWire does not offer a standard mechanism for discovering the topology of a network or what SpW Devices (switches or nodes) are attached to it. Nor does it offer a standard mechanism for configuring the various aspects of a SpaceWire network, such as links and switches. SpaceWire also lacks standard features to assist detection or configuration in the service domain.

This lack of standardisation for simple tasks that are required on almost all SpaceWire networks limits the level of interoperability which may exist between devices and software, and the extent to which both hardware and software can be re-used between different applications.

The main objective of the Network Discovery Protocols activity was to develop and partially demonstrate a protocol to permit SpaceWire network discovery and management in a standard and interoperable manner, offering 'plug-and-play' features for SpaceWire – the SpaceWire Network Discovery and Configuration Protocol (SpW-NDCP).