

IP Network Engineering

The basic network provided by the MARS DCS system is an IP over Ethernet system. At the high level, the optical transport can be neglected and the system treated much as an ordinary copper network system.

The basic backbone of MARS is the sea-shore connection. This consists of a 4 link Etherchannel with 1Gbs links. The routers on each end are paired into a stackwise configuration, the pairs representing themselves to the network as a single routing/switching entity.

For debugging purposes the below diagram is very useful. This shows the mapping of the EtherChannels from sea to shore, giving the individual router ports and the Media Converters involved.

Note the crossing of the connections on the sea side. This provides further redundancy to the system, so that if one router on each end fails, we still have a connection available.

If one disconnects a fiber on the shore side or CAT5 on the sea side, the corresponding light on the router port at the opposite end will go out. (WARNING-at this time a known bug in Cisco IOS makes this pattern indeterminate)

OPTICAL CHANNEL MAP: Mapping of Optical Channels to Router Ports

