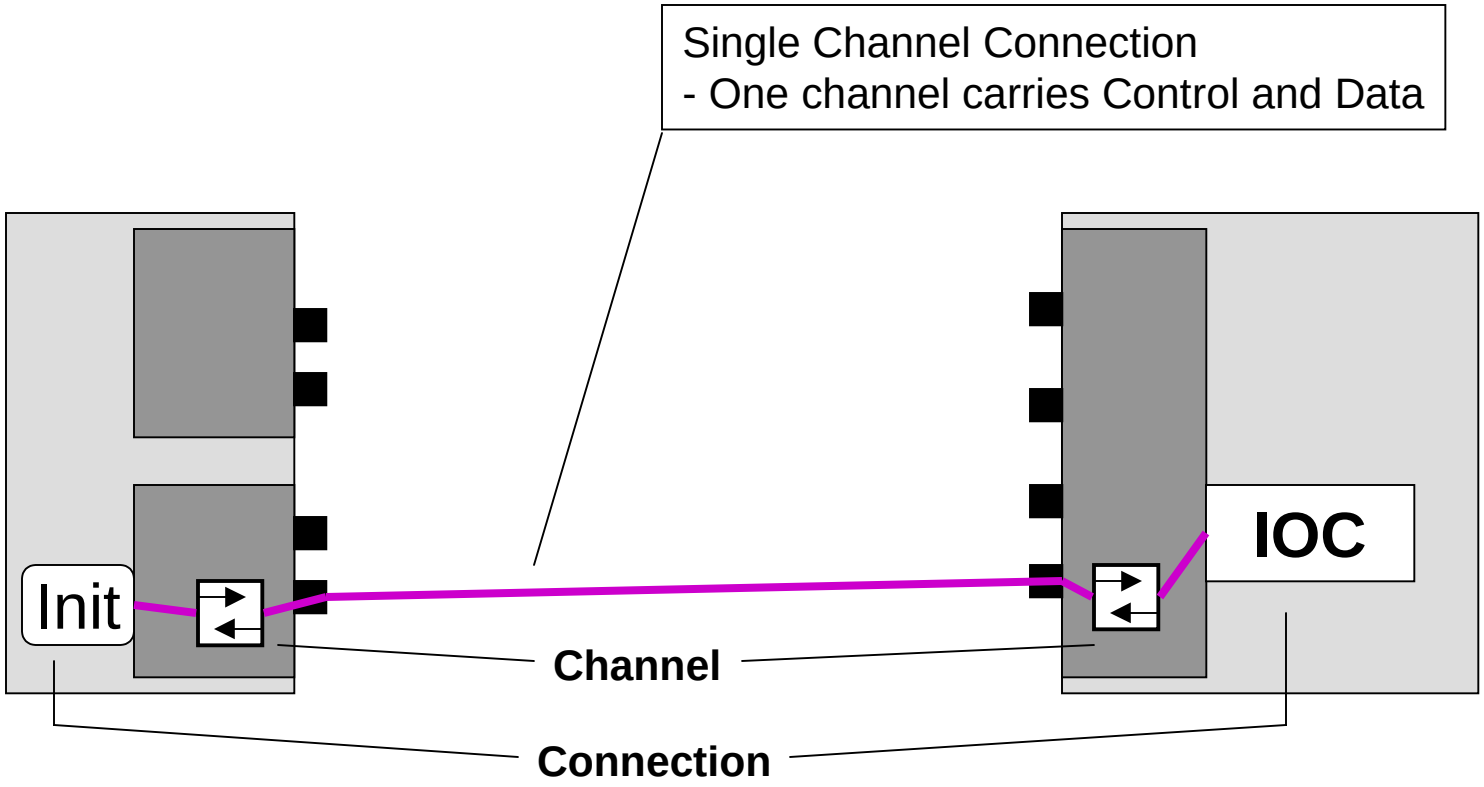
InfiniBand™ Multi-Channel Connections for SRP

Cris Simpson
Intel Corporation
cris.simpson@intel.com

Why multiple channels?

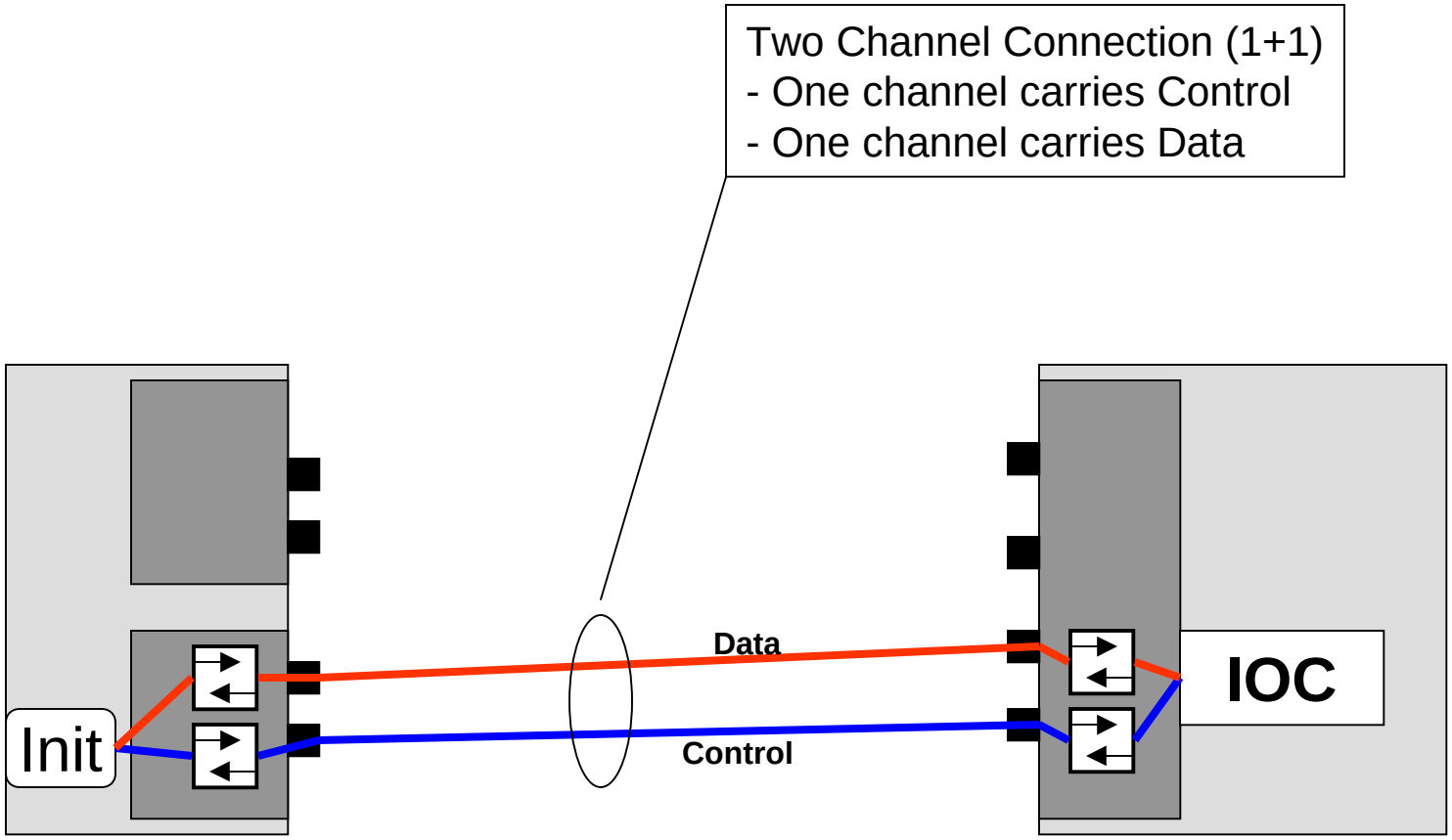
- Increased bandwidth
- Optimize for latency differences between control and data traffic
- Prevent data copies
- Increased availability

Two Party - Single Channel



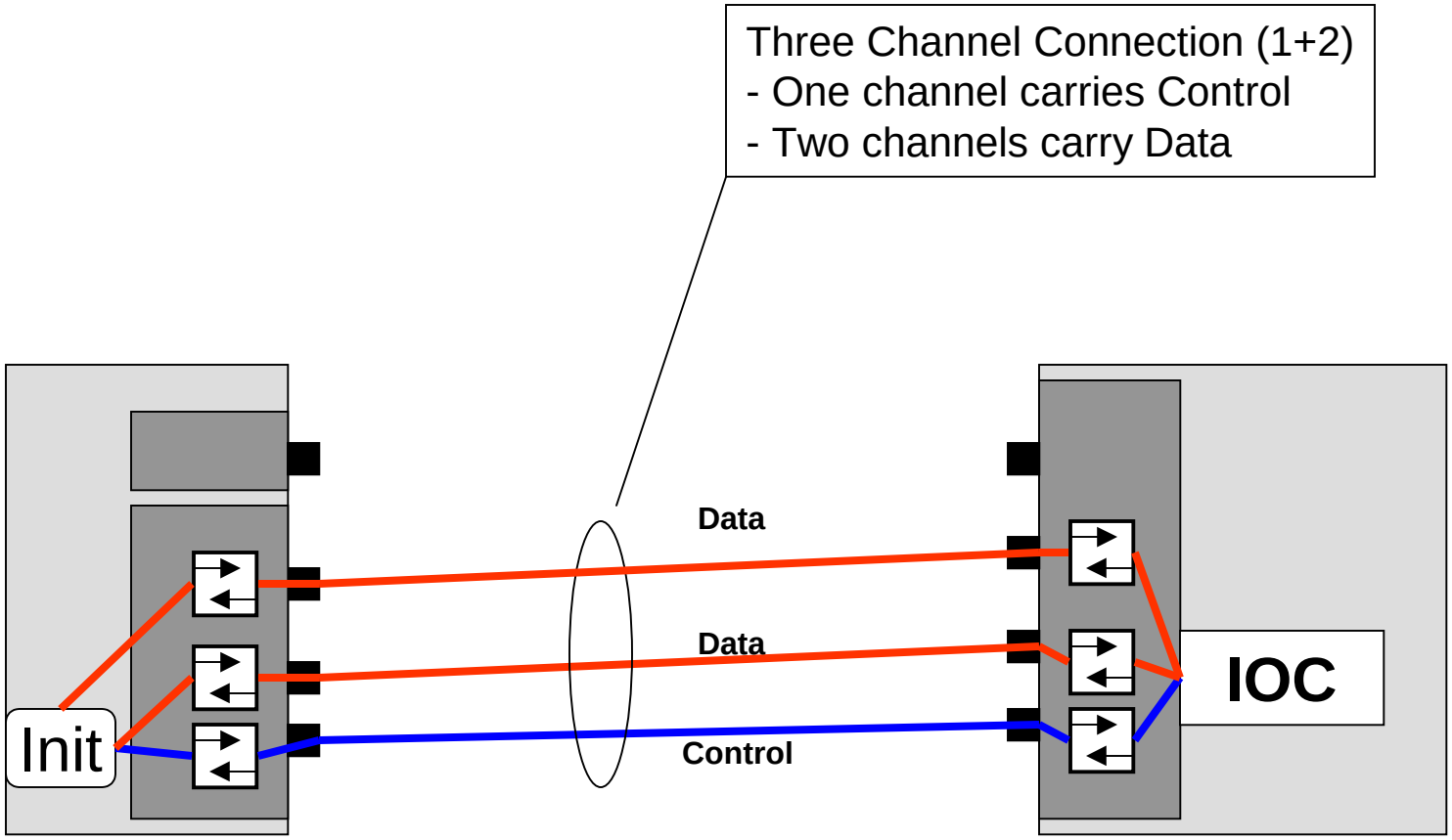
Channel: The association of two queue pairs for communication.
Connection: An association between a pair of entities (e.g., processes) over one or more Channels.
InifiniBand™ Architecture Specification Volume 1 Release 1.0

Two Party - (1+1) Channel



As there are no ordering guarantees among channels, the IOC is responsible for ensuring that the data transfer completes before issuing Status.

Two Party - (1+N) Channel

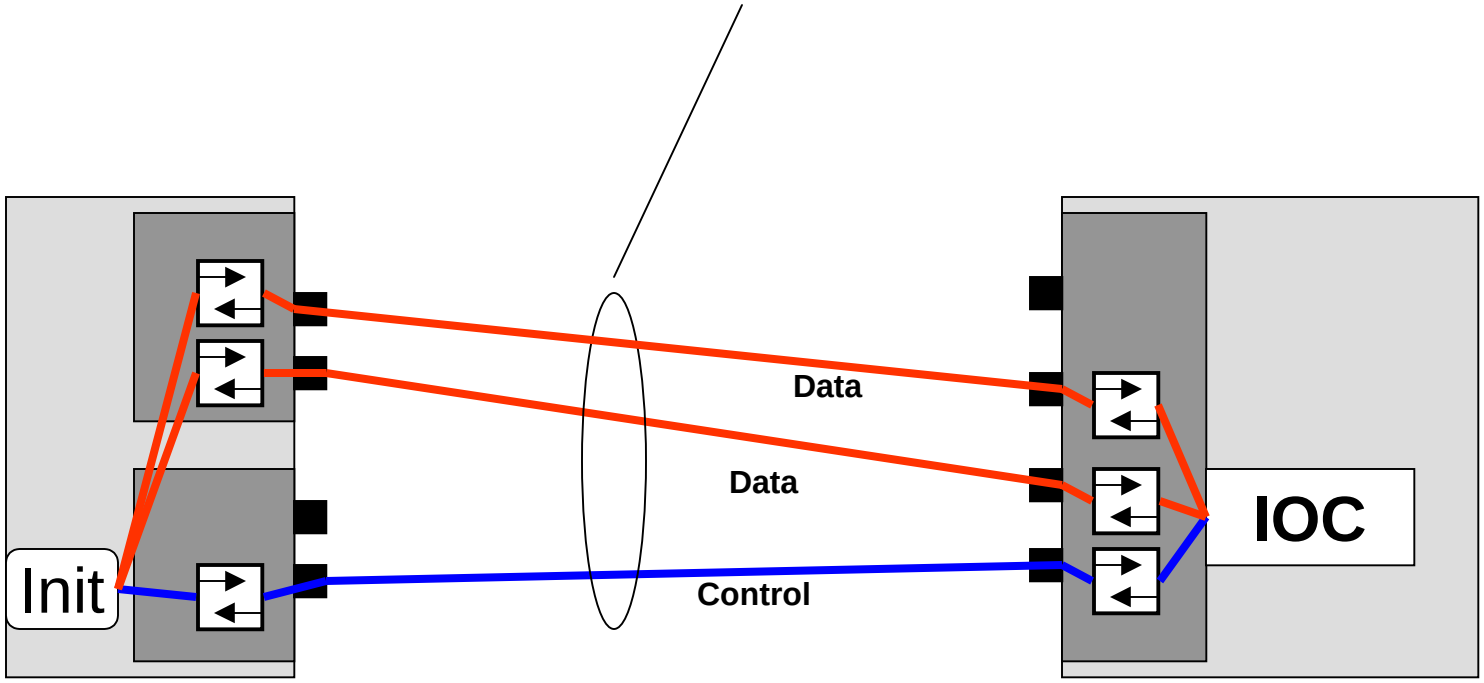


As R_Keys are only guaranteed to be valid on a single HCA, all Data Channels of a connection must terminate at one HCA.

The IOC is responsible for determining how the data is transferred among the available Data channels.

Split - (1+N) Channel

Control and Data channels terminate on different HCAs

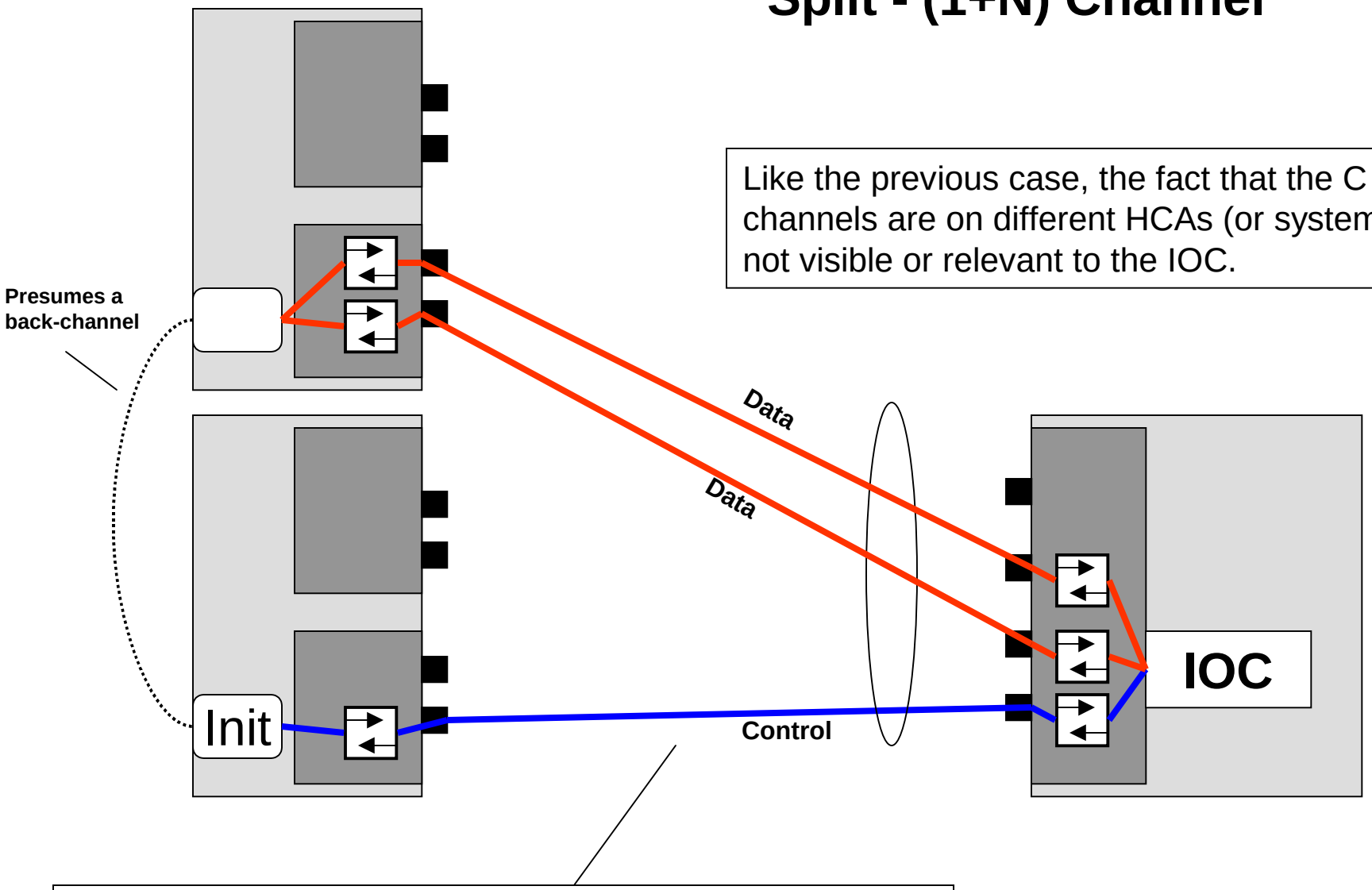


The MDs in the CMD IUs created by the initiator are valid for the HCA on which the Data channels terminate.

That the C&D channels are on different HCAs is neither visible nor relevant to the IOC.

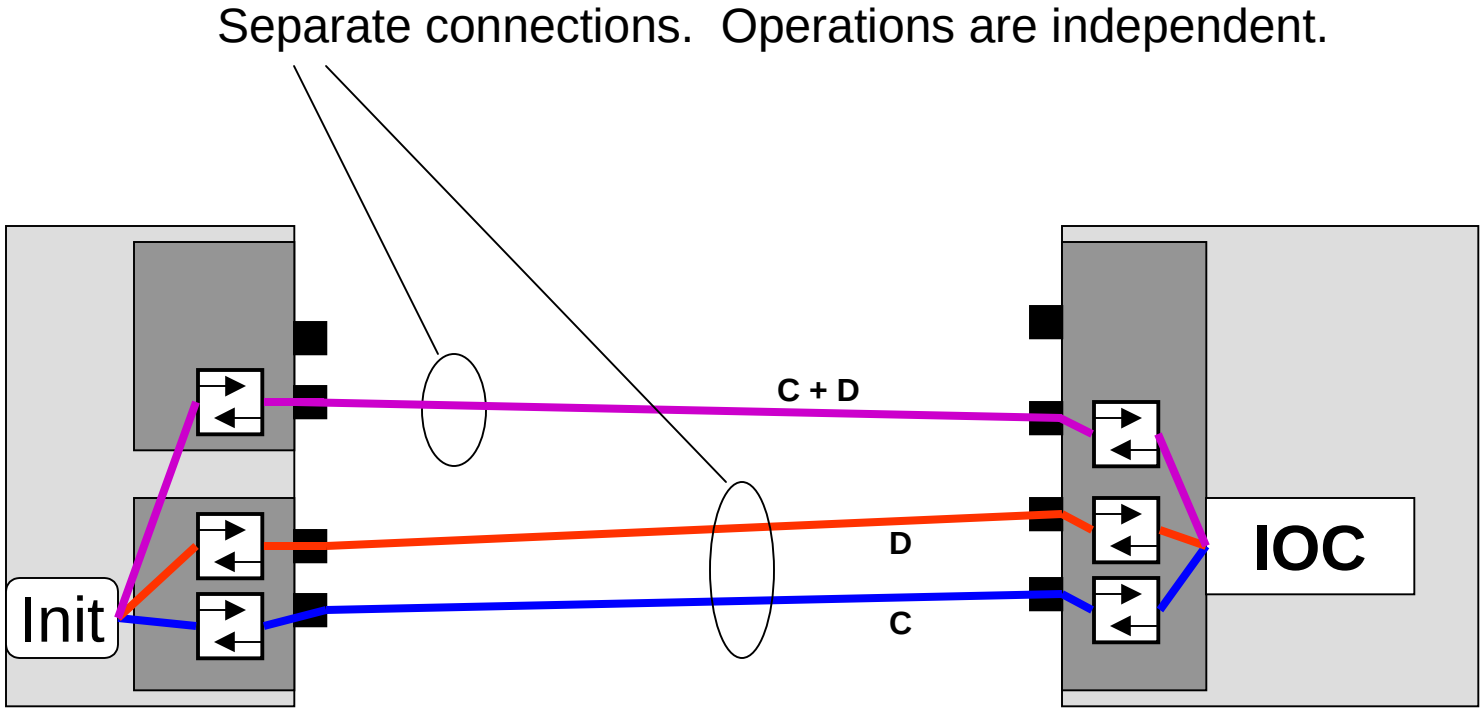
Split - (1+N) Channel

Like the previous case, the fact that the C and D channels are on different HCAs (or systems) is not visible or relevant to the IOC.



In all cases, the 'I' identification is based on the **C** channel

Multiple Connections



Q&A

- Can you add and remove Data Channels to/from an existing connection?
  - Considering - Seems complex
- Where's the proposal?
  - In preparation for Dallas meeting