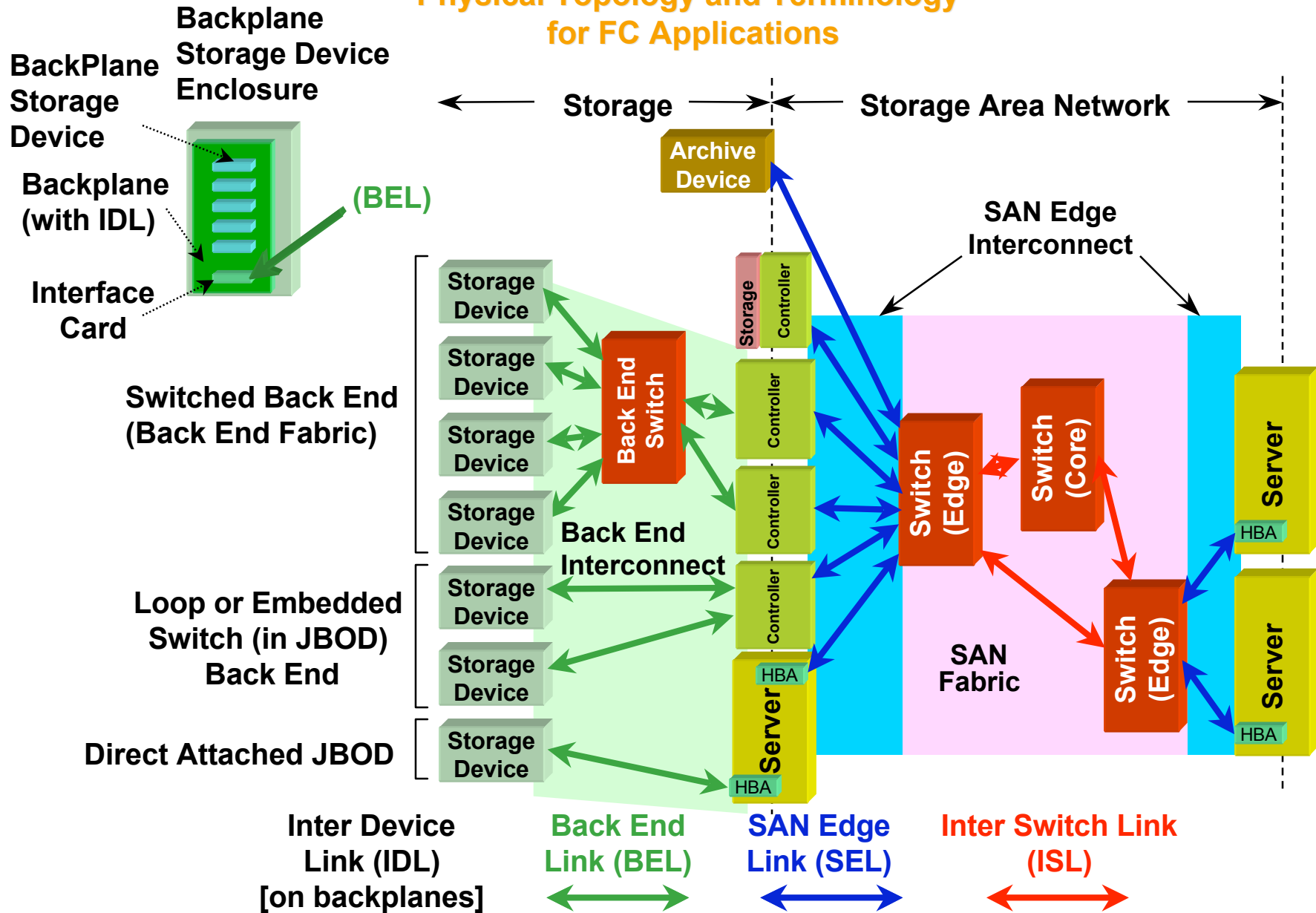


Physical Topology and Terminology for FC Applications



Definitions of devices and nodes

Archive Device – e.g. Tape Device, JBOD, ...

Backplane Storage Devices -

Controller: Usually located within an enclosure containing storage such as JBOD's or SBOD's. Controllers appear as a target for storage requests from the SAN side (e.g. to host servers). Controllers pass the request as an initiator to the BEL's. Controllers typically contain FC HBA targets and initiator ASIC logic connected through a mezzanine bus such as PCI.

Fabric: The collection of switches and associated ISL's in a SAN. Fabrics are commonly shown as a cloud in diagrams.

HBA - Host-Bus Adapter: An interface card typically residing in a server that connects the internal bus in the server (e.g., PCI) to the Fibre Channel SAN infrastructure via an SEL

HDD - Hard Disk Drive: A storage device typically used in JBOD's

JBOD - Just a Bunch of Disks or an enclosure that contains HDD's

RAID - Redundant Array of Independent (or Inexpensive) Disks

SAN - Storage Area Network: The collection of SEL's, switches, and ISL's that connect servers, controllers, tapes and SAN appliances to each other

Storage Device – e.g. JBOD, Tape Device, RAID, Media Controller, Translation Device, ...

Storage Enclosure – Enclosure of Backplane Storage Devices. e.g. JBOD, ...

Definitions of Links

BEL - Back-End Link:

Connects JBODS, RAID, other storage devices, back-end switches, controller back ends and server back ends using cable assemblies, not backplanes. Technology like SEL, but typically requires shorter links and lower data rates.

BPL - Inter-Device Link:

Backplane interconnect for switch blades, internal switch connections, Blade Servers, ASIC interconnects and related uses. Technology like IDL, but typically requires longer links and higher data rates.

IDL - Inter-Device Link:

Backplane interconnect for storage peripherals

ISL - Inter-Switch Link:

Connects switches to switches

SEL - SAN Edge Link:

Connects edge switches to servers, controllers, or tapes

Notes:

- **A variant is the collected specifications that allow a link to operate. Variant specifications include encoding scheme, speeds, signal requirements, return loss, etc. Some variants may also include connector and interconnect requirements while others may not. Links only operate under the specifications for a single variant at a time (although some links may have limited variant to variant agility).**
- **Encoding maps with variant, not with speed - 8b10b may be used at any speed supported by a variant, 64b66b may be used at any speed supported by a variant (presently only specified for 10 GFC variants).**
- **A variant may be used in any application (except backplanes, IDL, presently only use electrical variants and distances above approximately 15 meters use only optical variants).**
- **Switches, controllers, and servers all have the capability of having multiple ports where the ports may operate at different speeds (i.e., different variants) in the same switch, controller, or server.**

Notes: (Continued)

- **Controllers and servers contain the Back End Link and SAN Edge Link FC Port function (e.g., HBA).**
- **Switches contain the fabric FC port functions (for both ISL and SEL ports) and may contain BPLs.**
- **If the back end interconnect contains one or more switches the back end interconnect may be called a back end fabric (for portions that are attached to a back end switch). Both BELs and BPLs may be used.**
- **Servers may operate with no SAN edge connections (i.e., only have direct attached storage). This condition has SEL's between the server and the storage but there is no SAN.**
- **Servers may have multiple HBA's with each HBA possibly having multiple ports.**
- **Tapes are directly attached to edge switches (i.e., not behind controllers) because tapes are not collocated with the disks and controllers do not serve any relevant purpose for tapes. Also controllers may interfere with the streaming requirements of tapes**