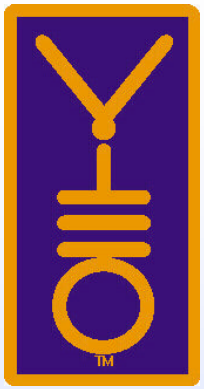


VIEO, INC.

InfiniBand™ Integration Solutions

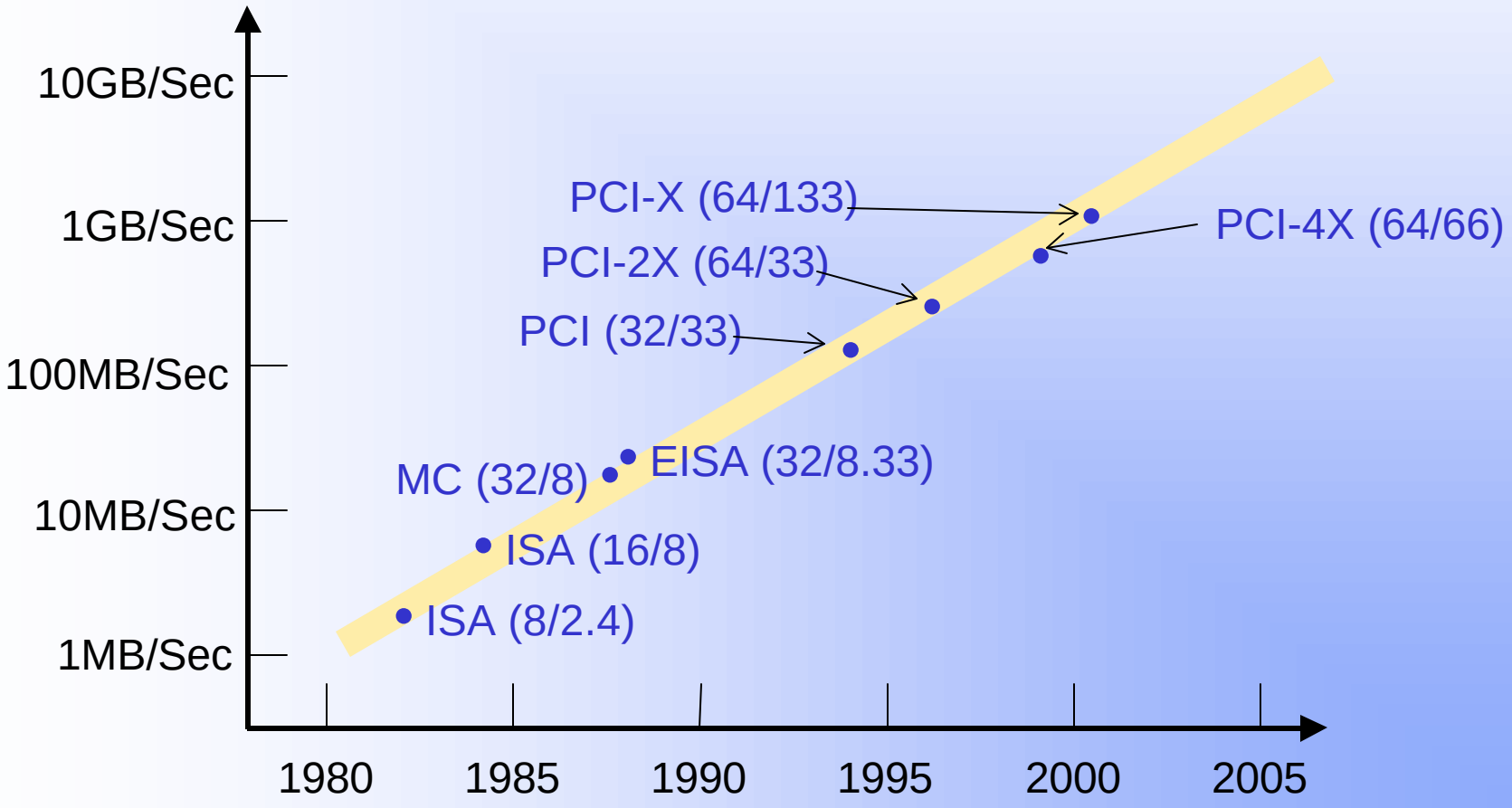
“We weave InfiniBand™ into Fabrics”

Agenda

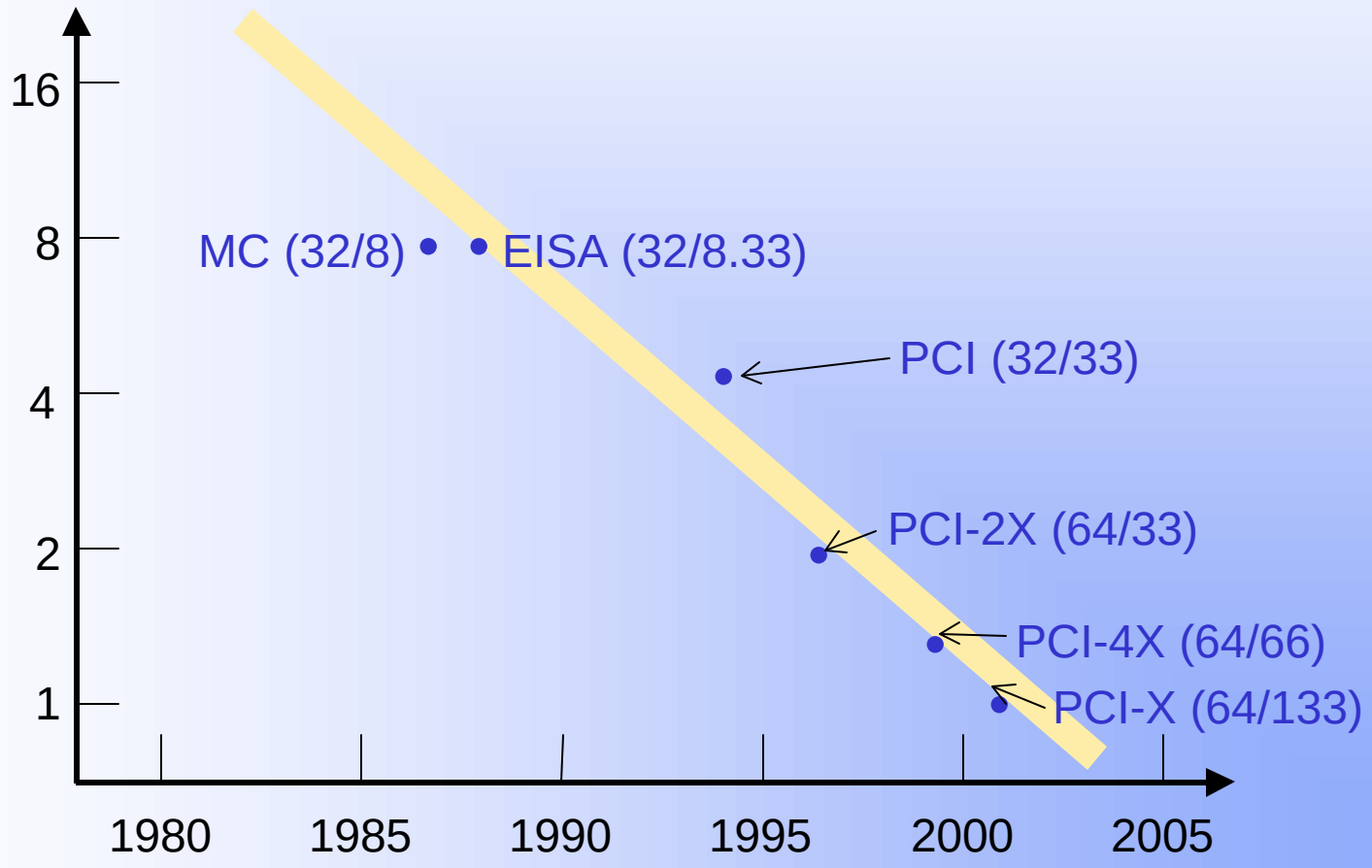
- Background
- InfiniBand™
- InfiniBand™ Basics
- InfiniBand™ Architecture
- InfiniBand™ Applications

Background

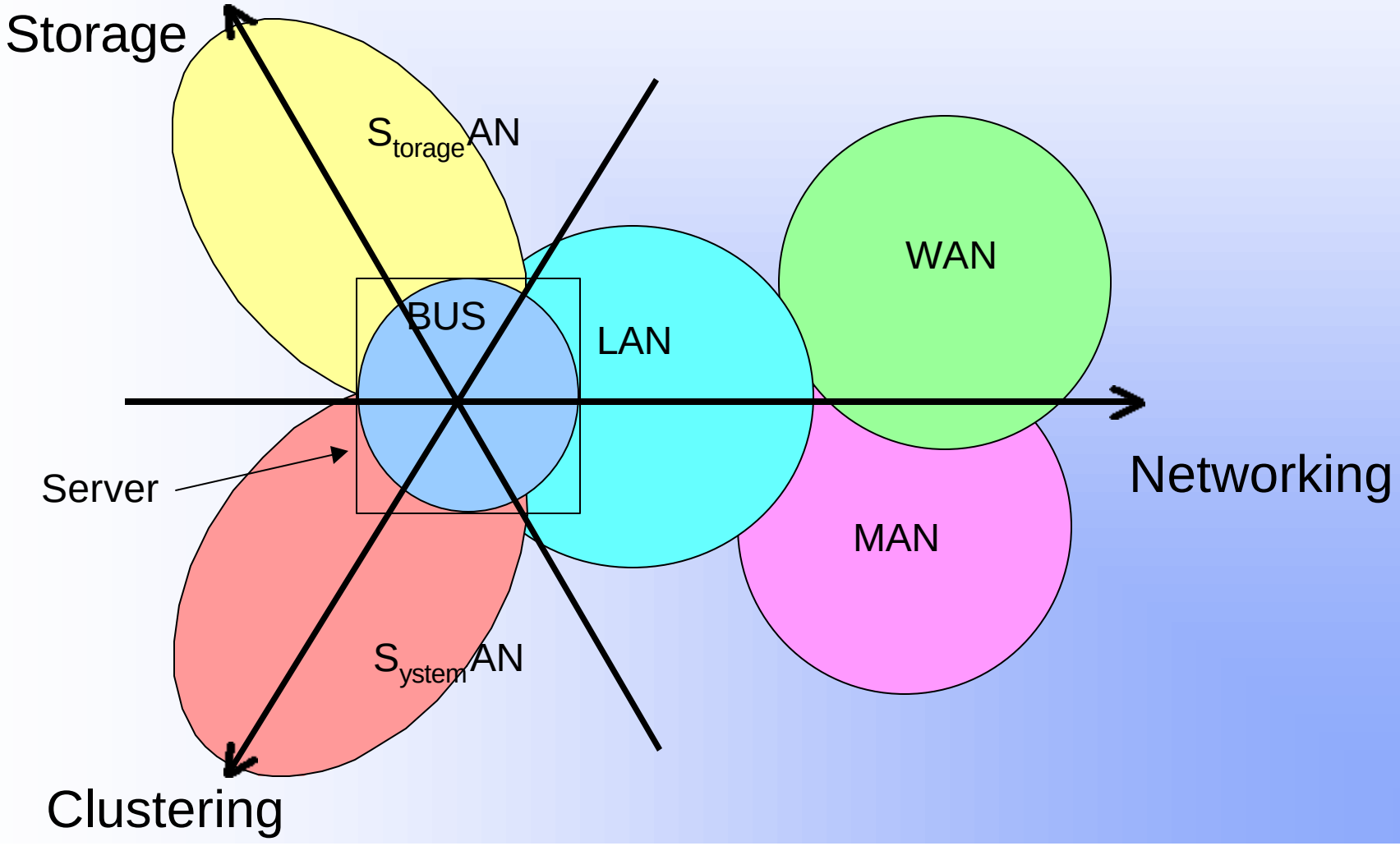
Current I/O Bus Performance



Current I/O Bus Scaling



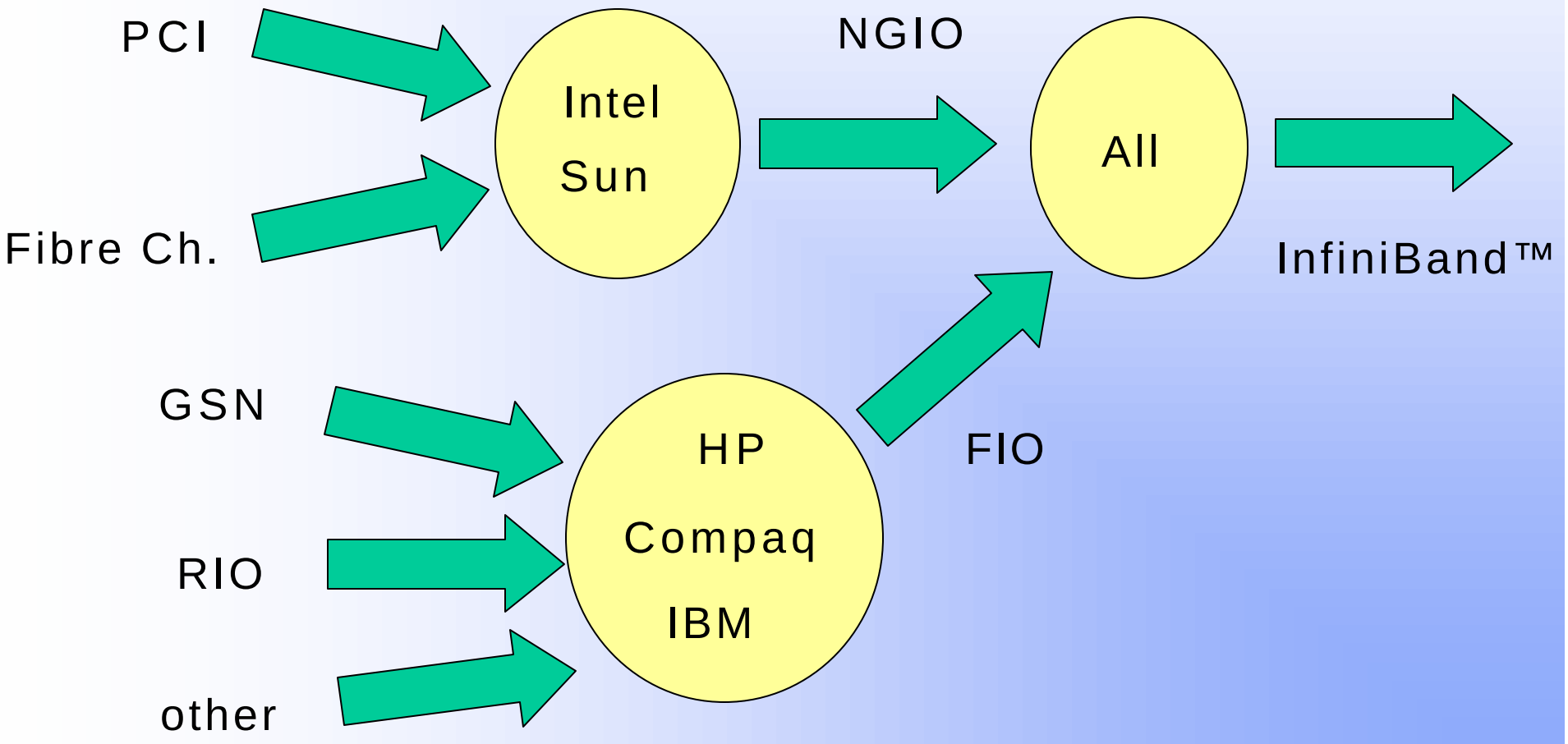
Current System I/O architecture



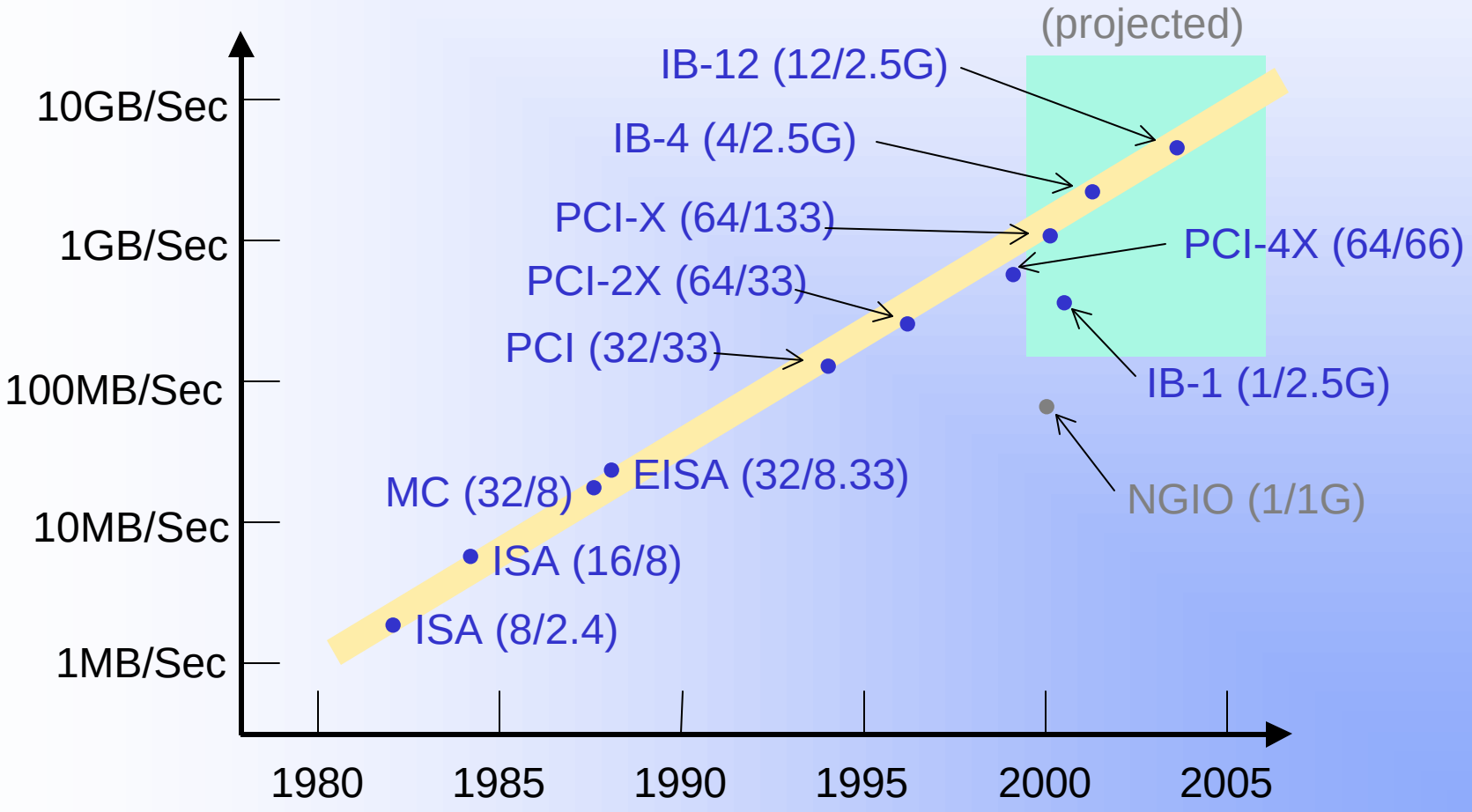
InfiniBand™

Total IBTA membership ~ 190 companies

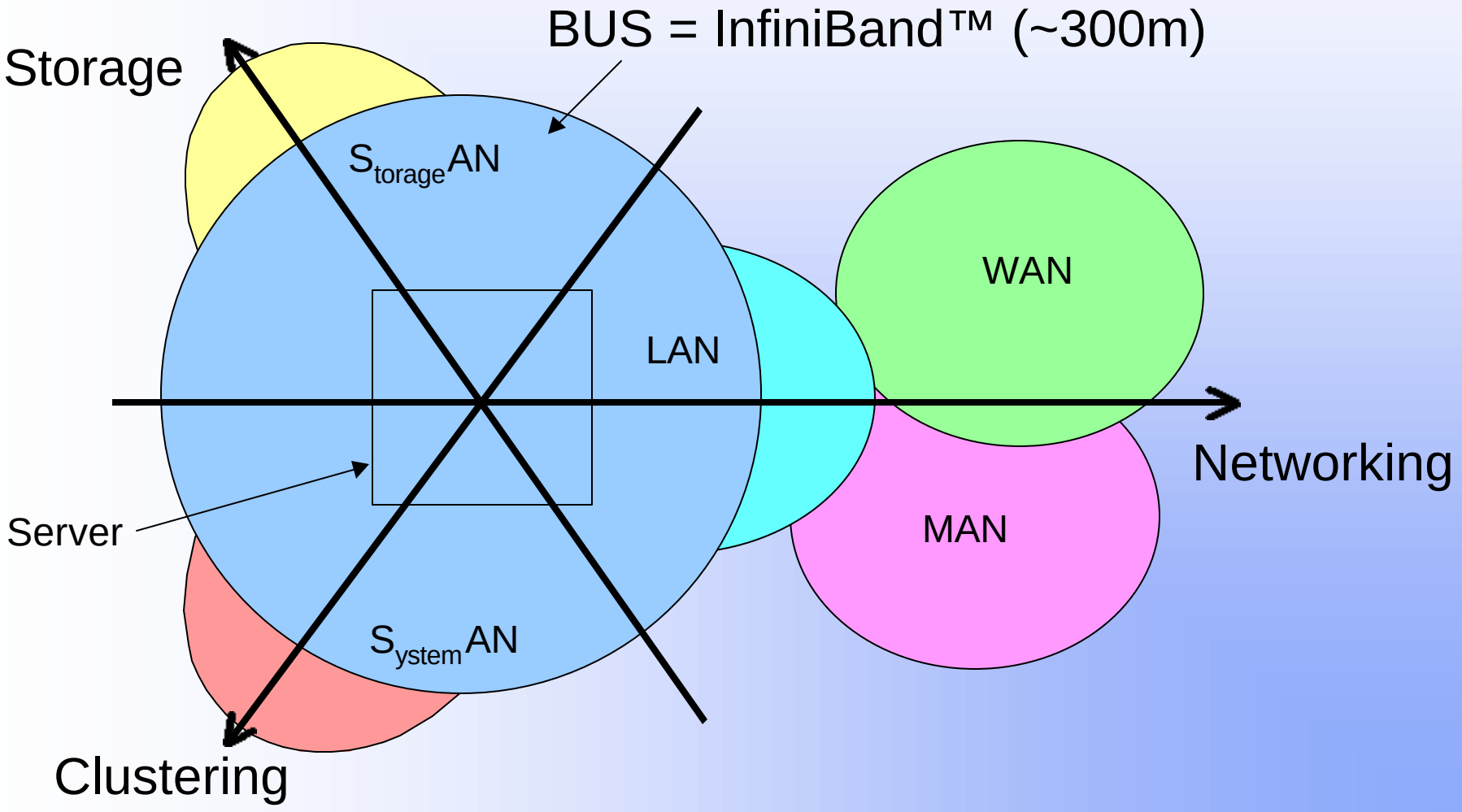
InfiniBand™ Family Tree



InfiniBand™ I/O Bus Performance

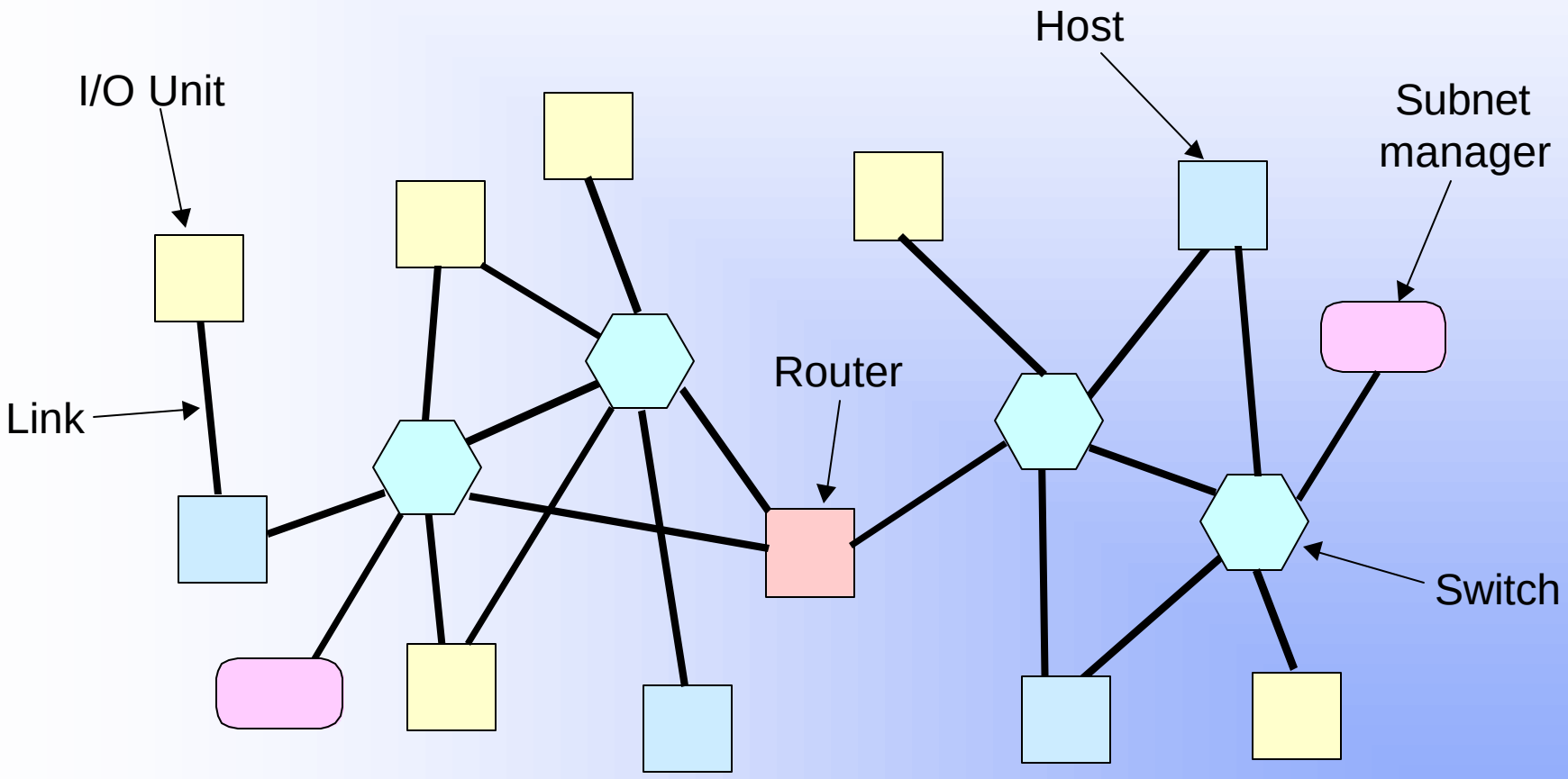


InfiniBand™ I/O Revolution

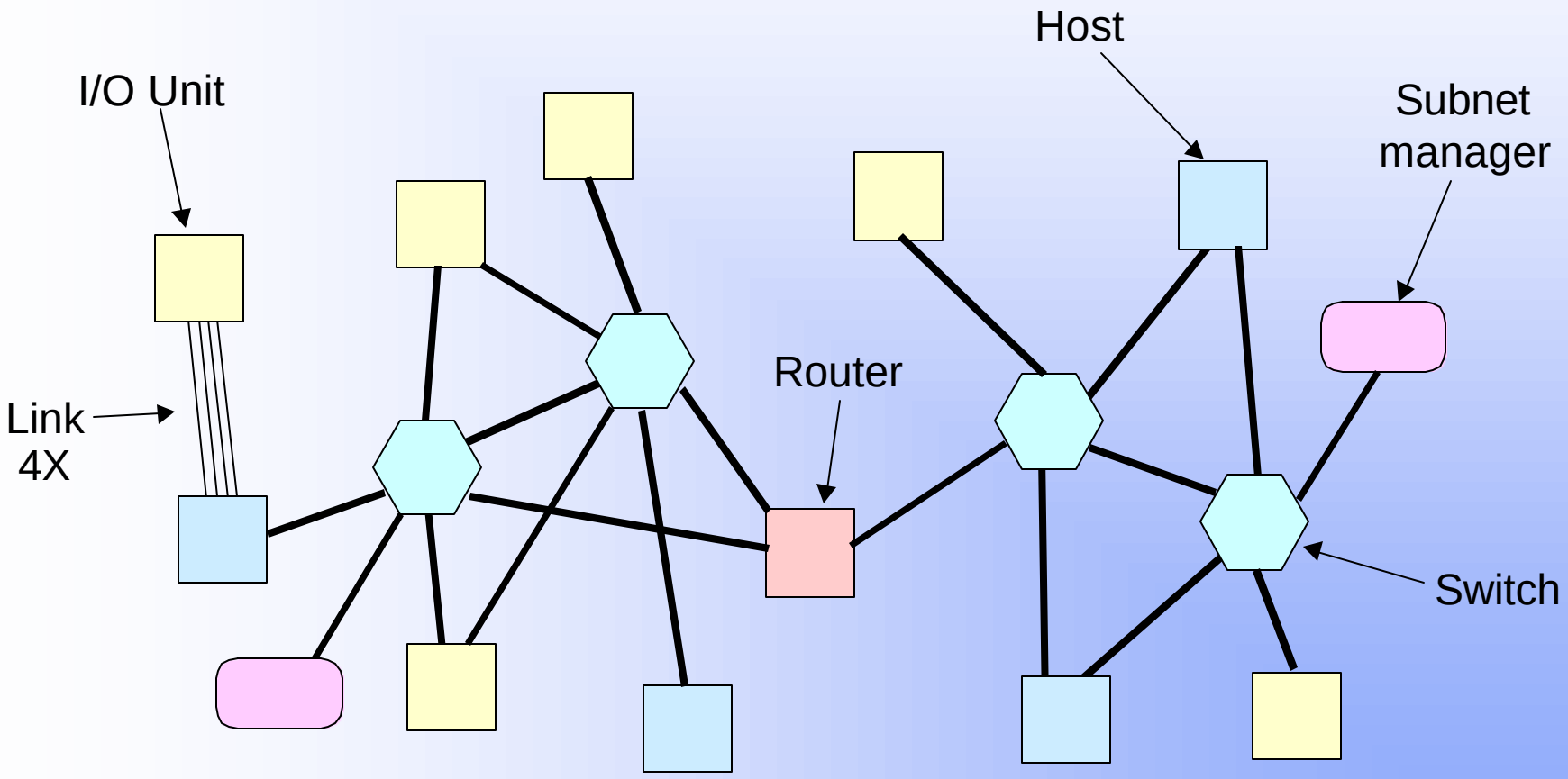


IBA Basics

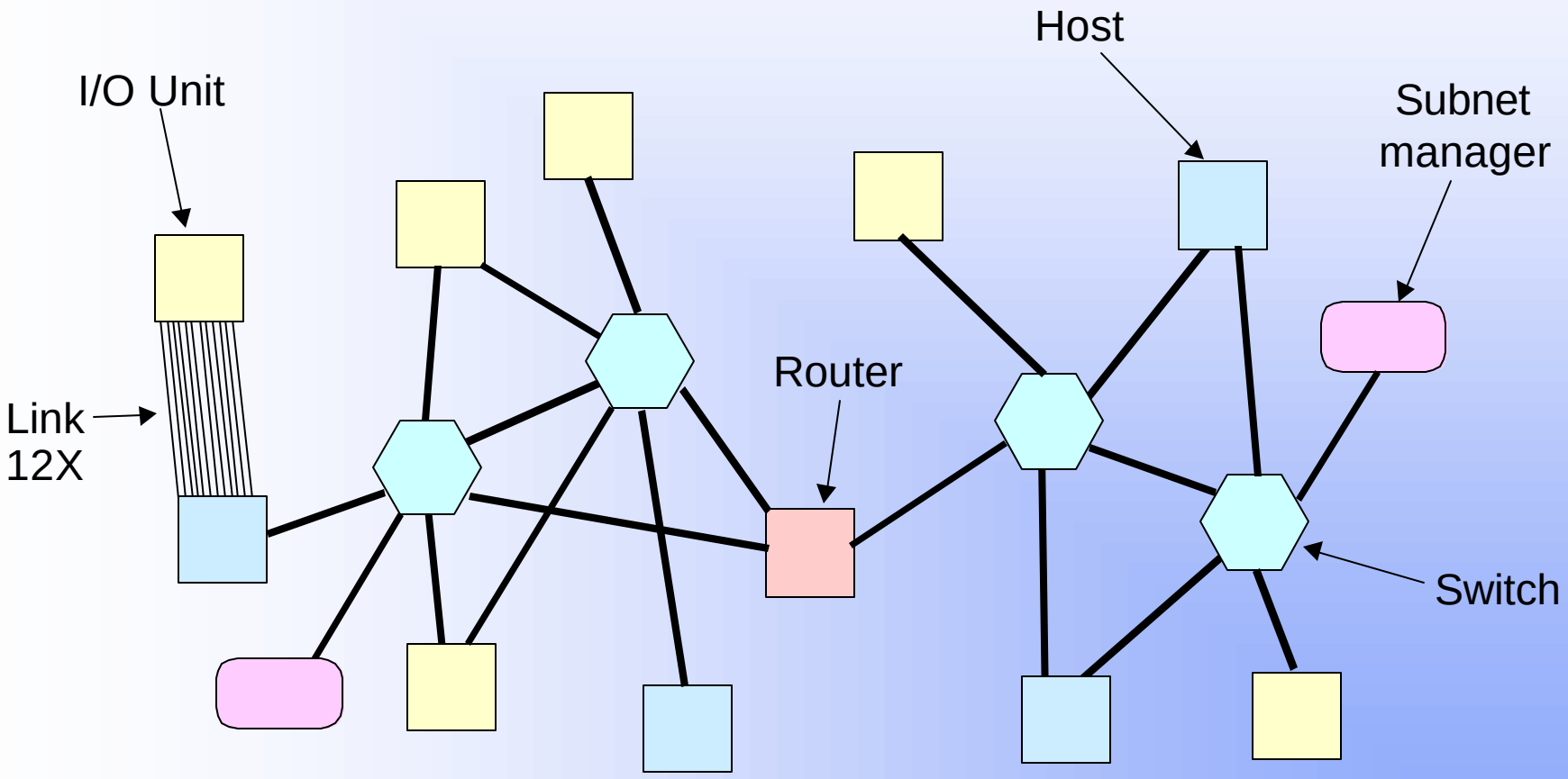
IBA Beastiary



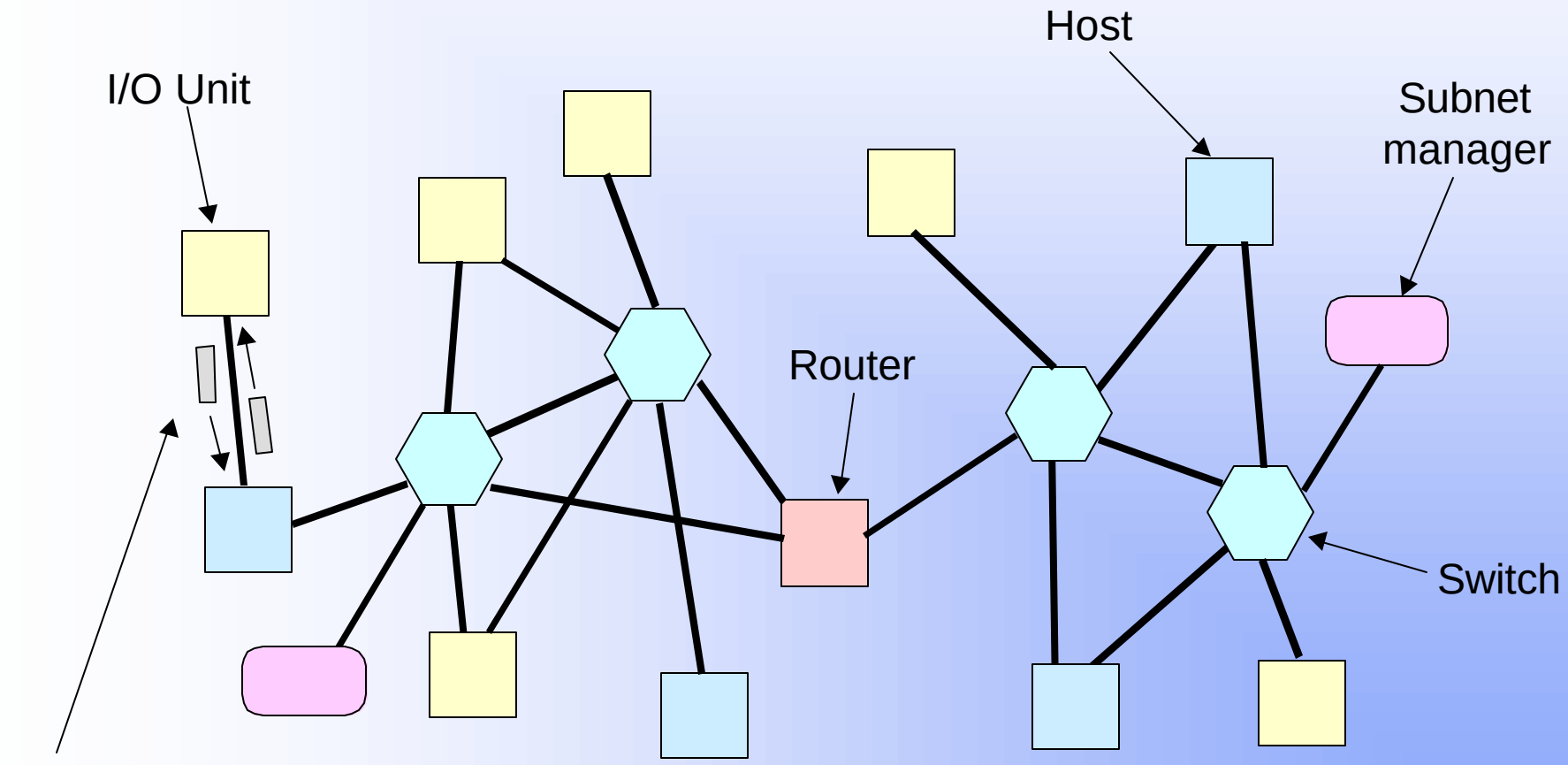
IBA 4X Link



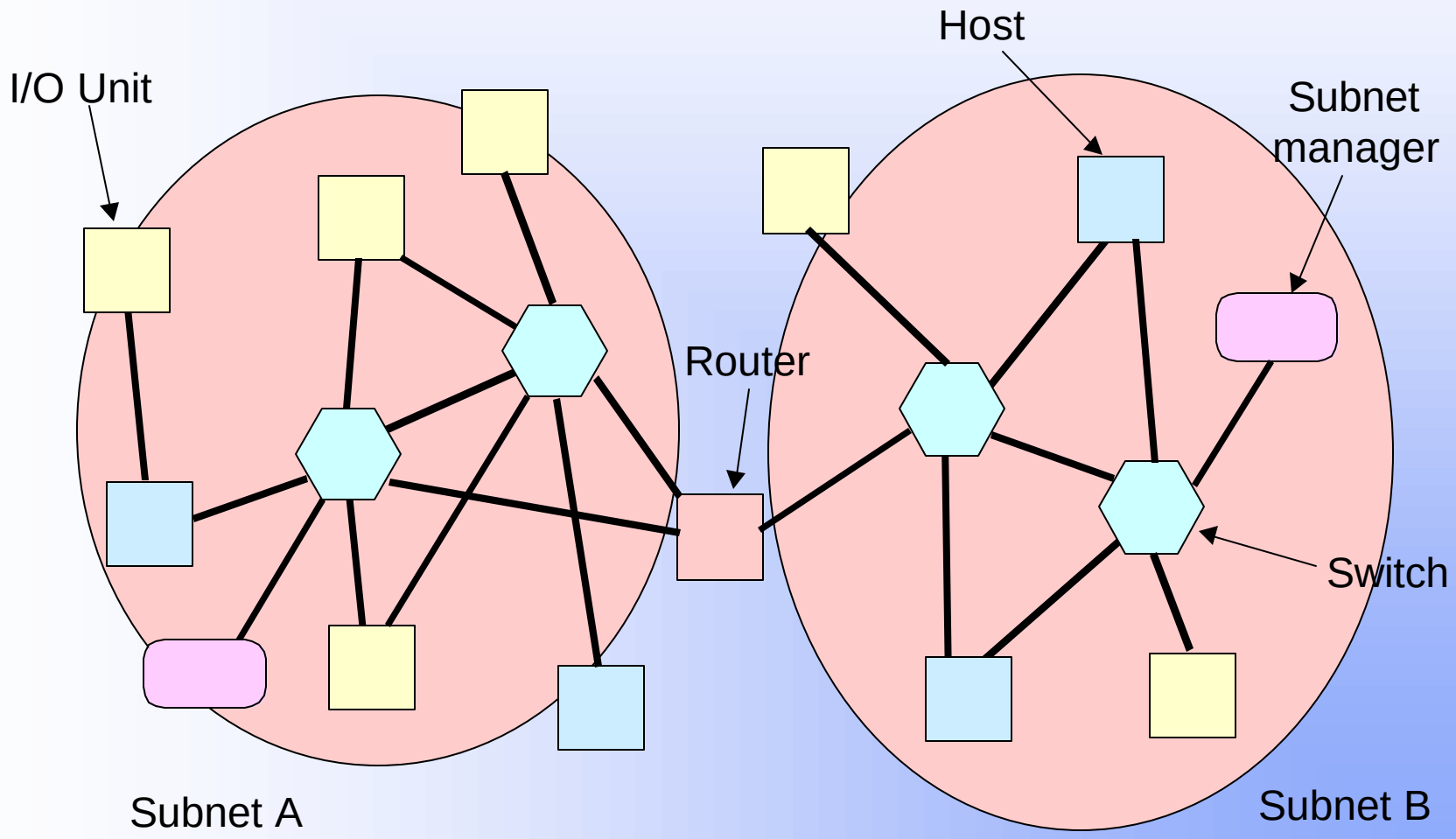
IBA 12X Link



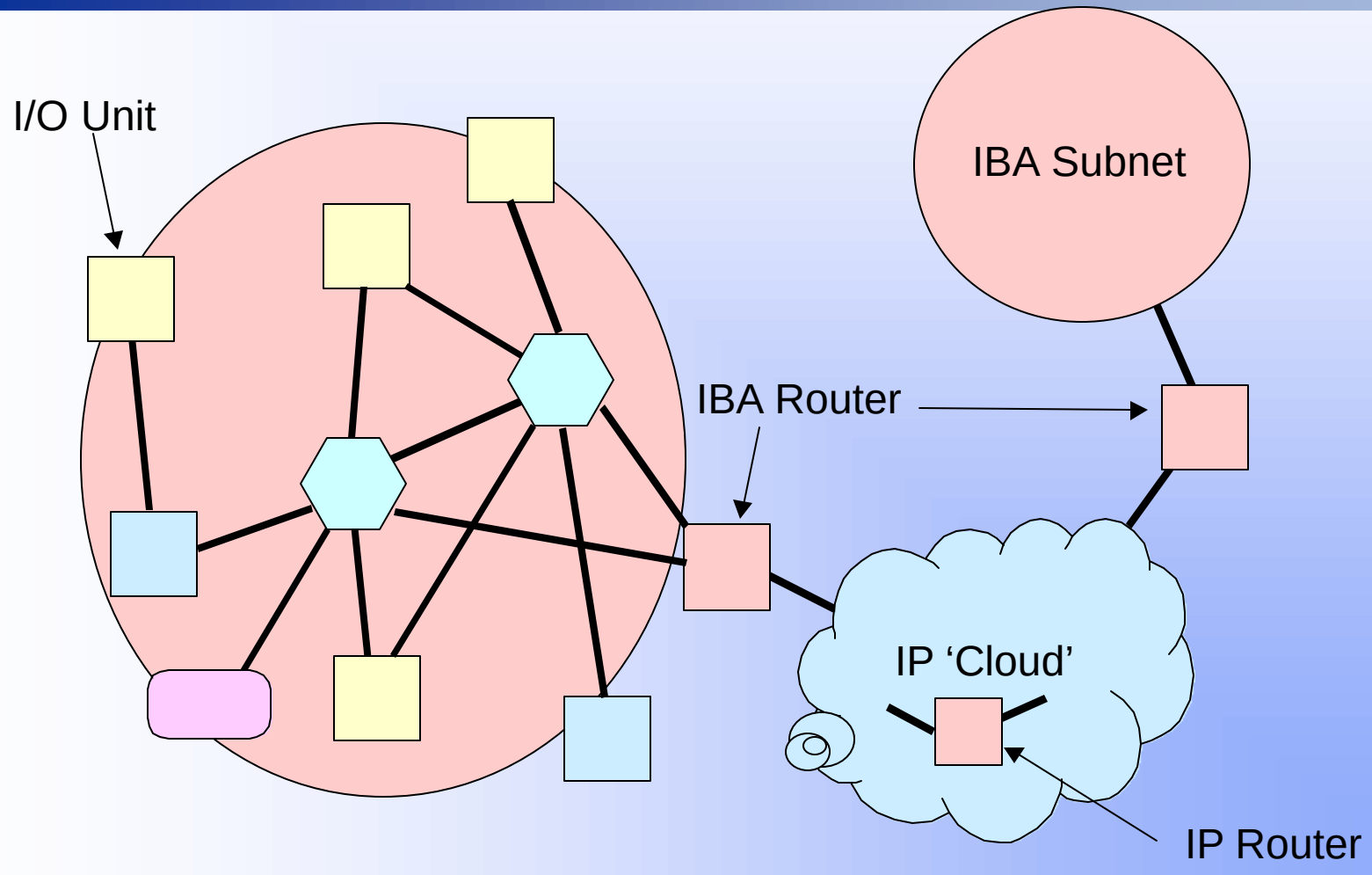
IBA Link Function



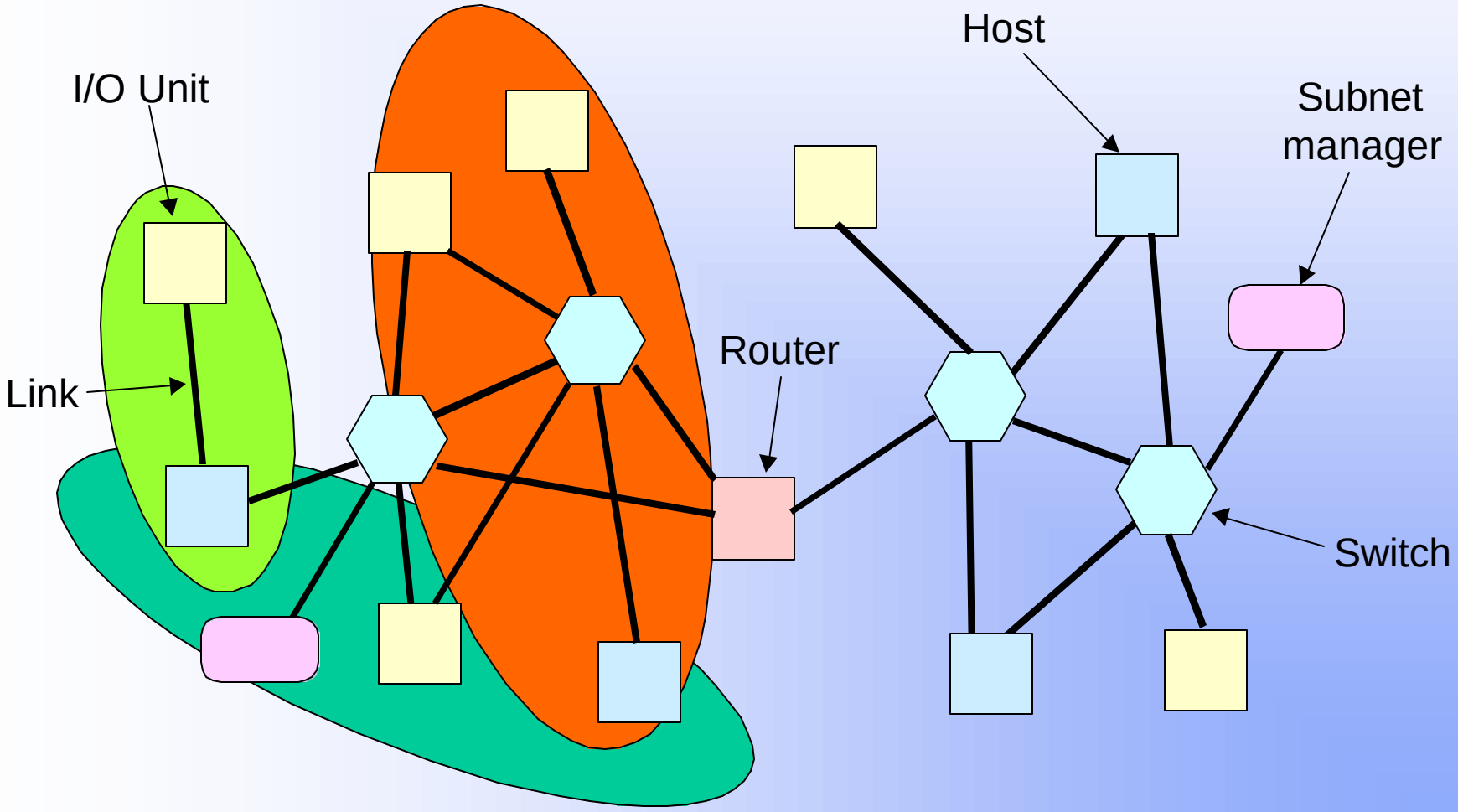
IBA Subnet



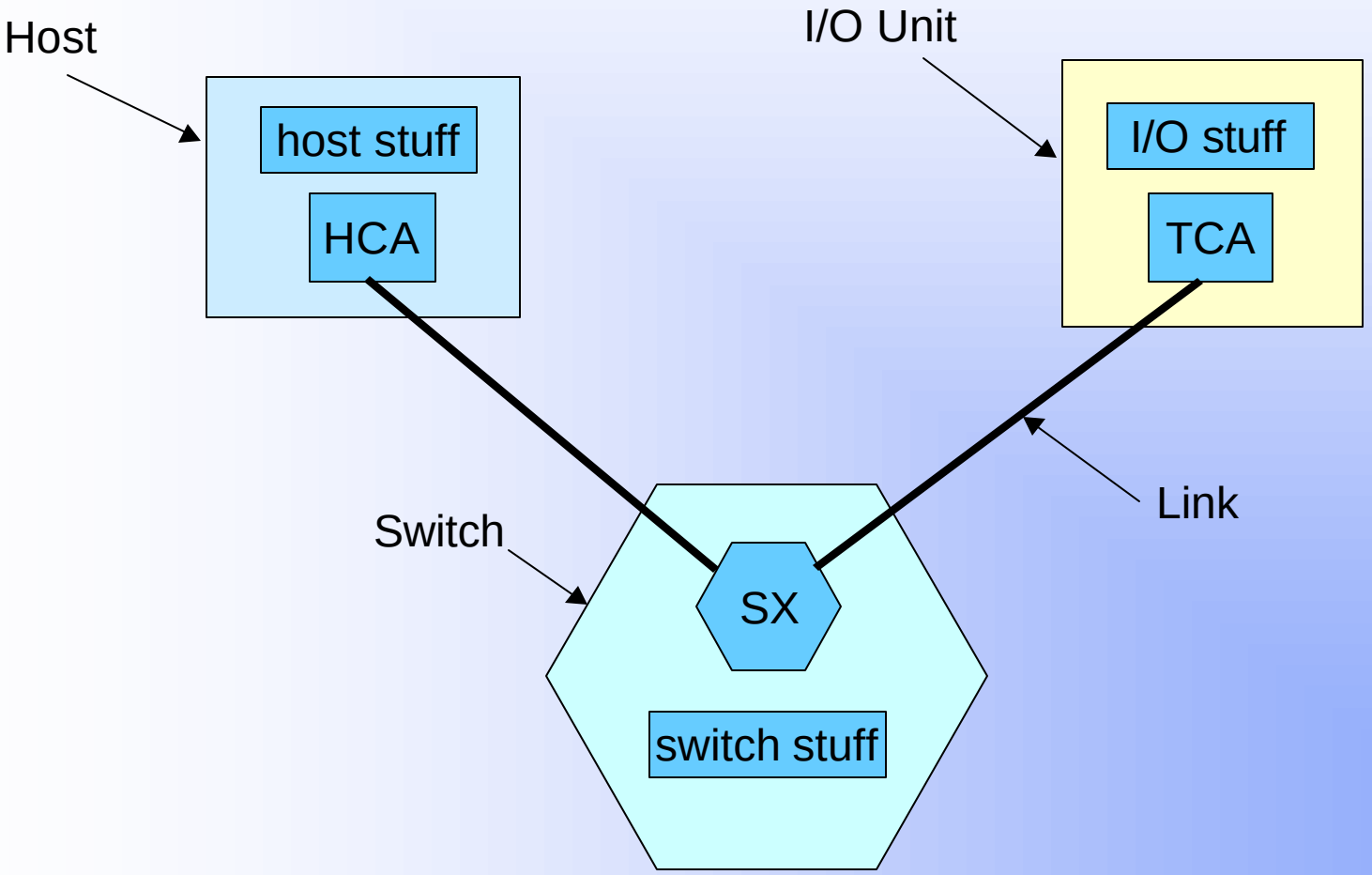
IBA is IP Friendly



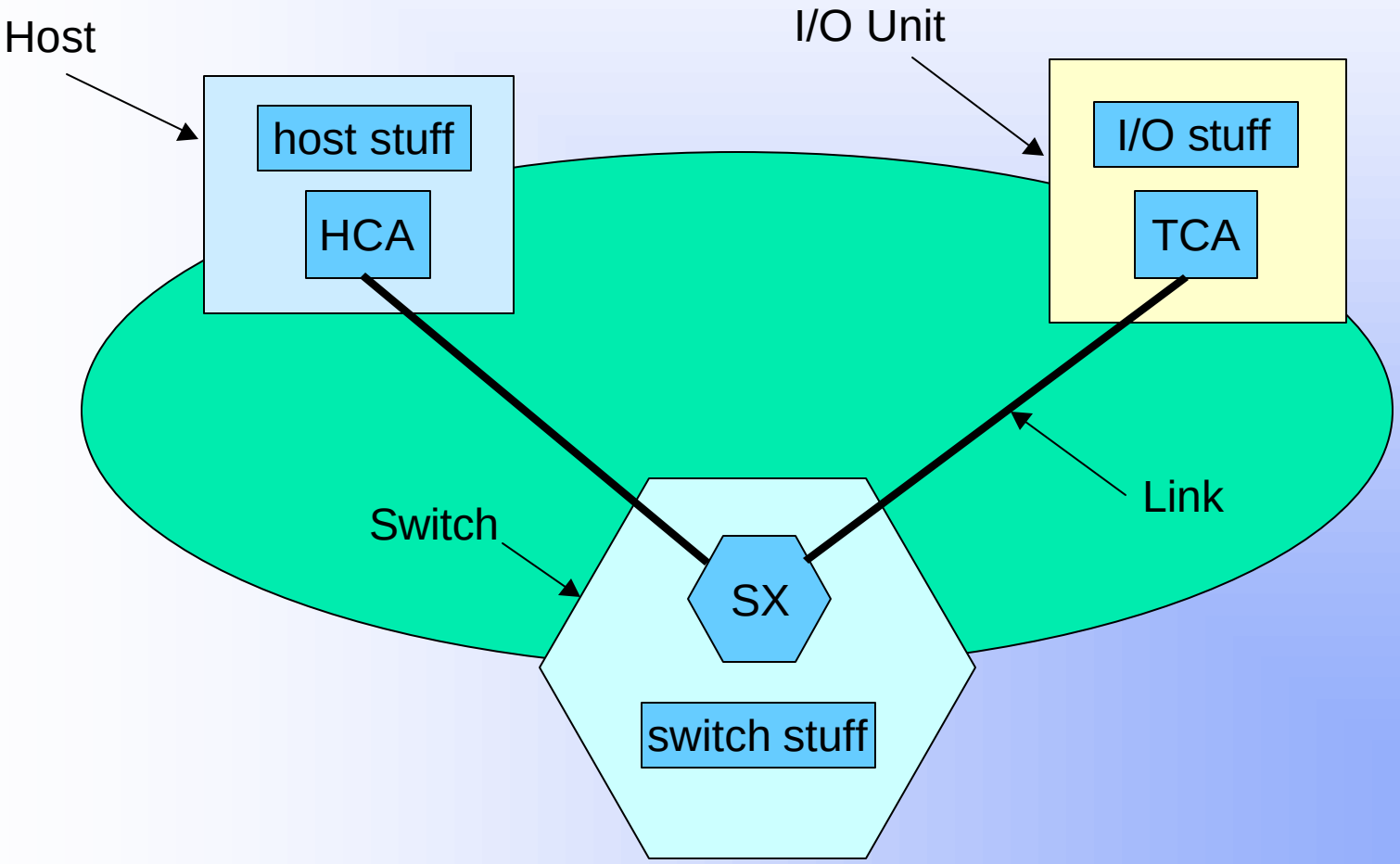
IBA Partitions



IBA Basic Elements

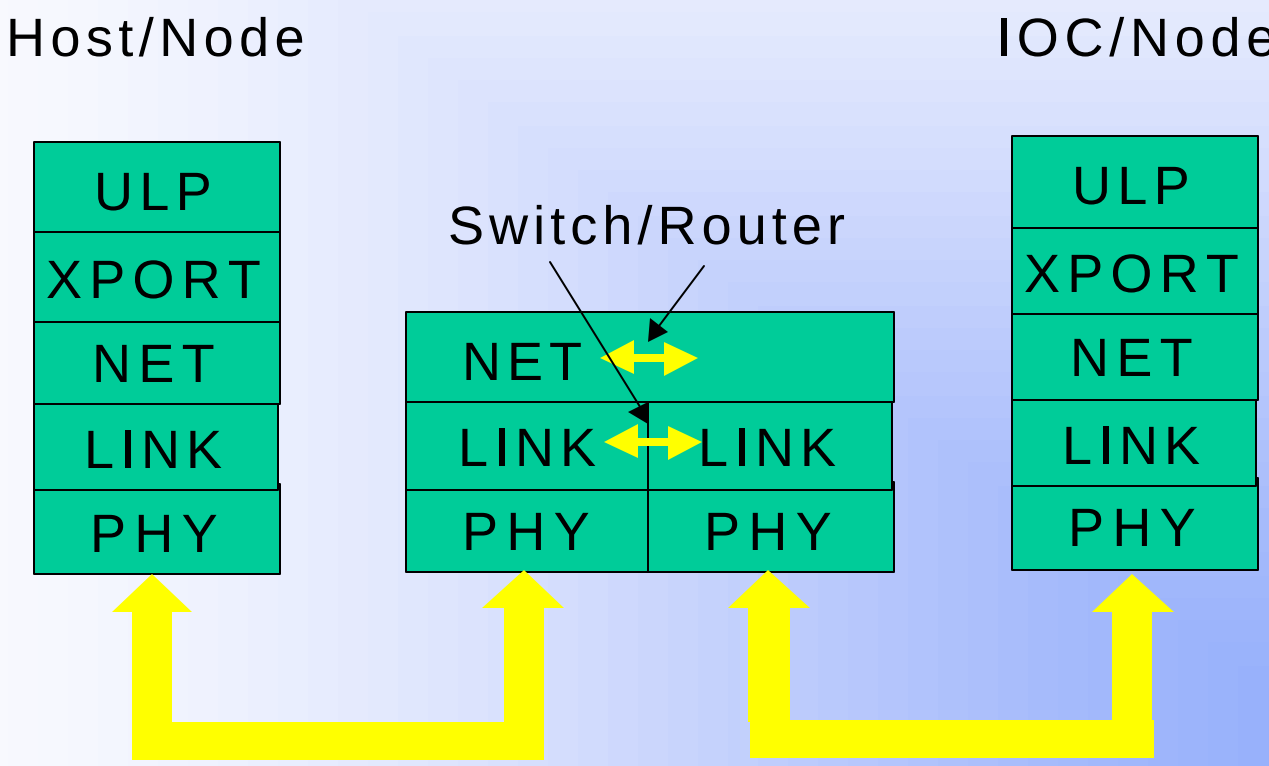


IBA “Technology”



IBA Architecture

IBA Transport Architecture



Physical Layer

- 1, 4 or 12 2.5Gb/sec bi-directional links
- Links are 8b/10b encoded and byte stripped
- Per link clock recovery
- Link negotiation and training

- Supports copper and optical cable
- Supports various module form factors

Link Layer

- Sends and receives ‘Packets’
  - analogous to GSN micropackets
  - MTU is 256-4096 bytes negotiated
- Link level addressing LID’s
- Link level flow control
- Virtual lanes up to 16

Network Layer

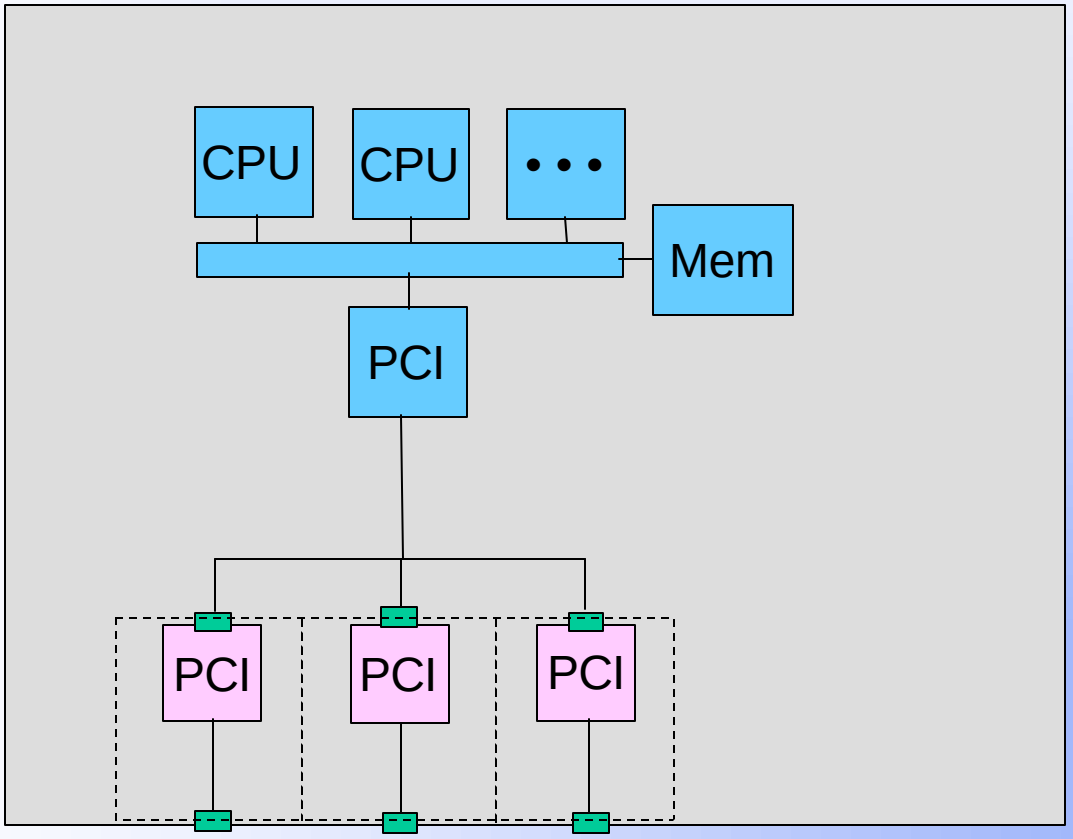
- Optional processing of IPV6 routing headers
- Borrowed from IETF

Transport Layer

- Supports several primitive transport types
  - RDMA read/write
  - Send/Recv (reliable/unreliable)
  - Multicast
  - Atomic
  - Raw
- Interfaced to ULA through queue pairs (QP's)

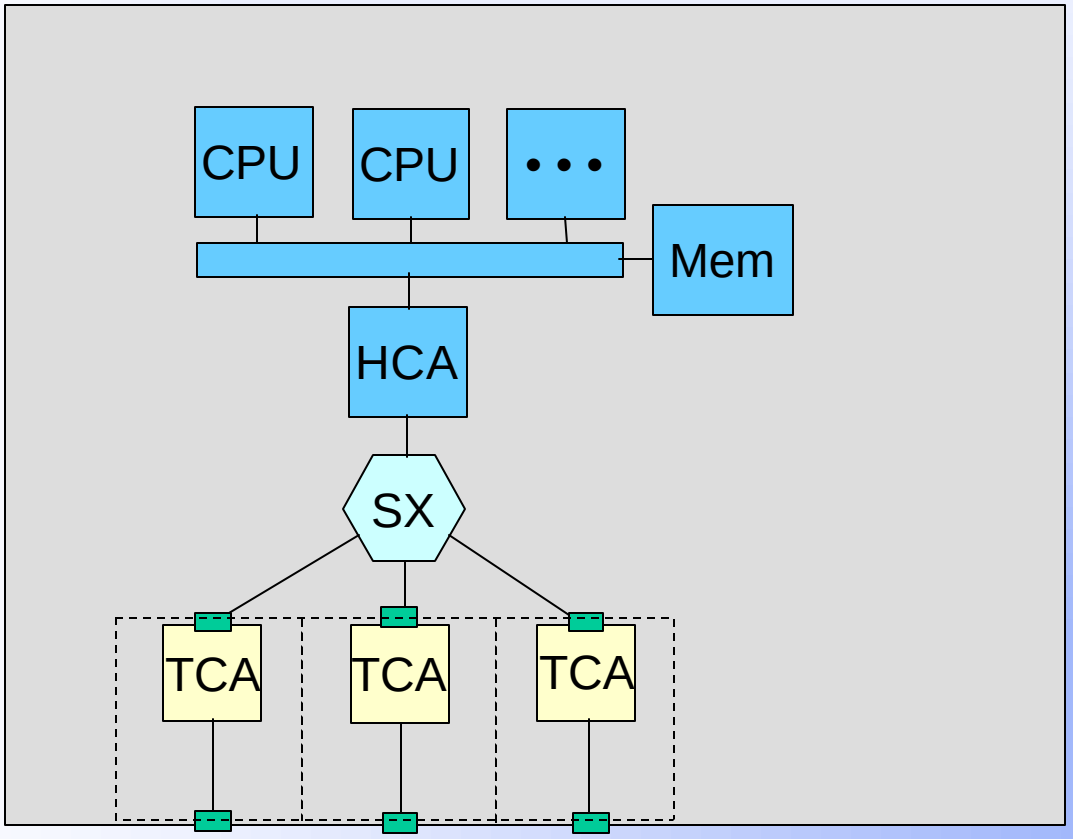
IBA Applications

Classic box



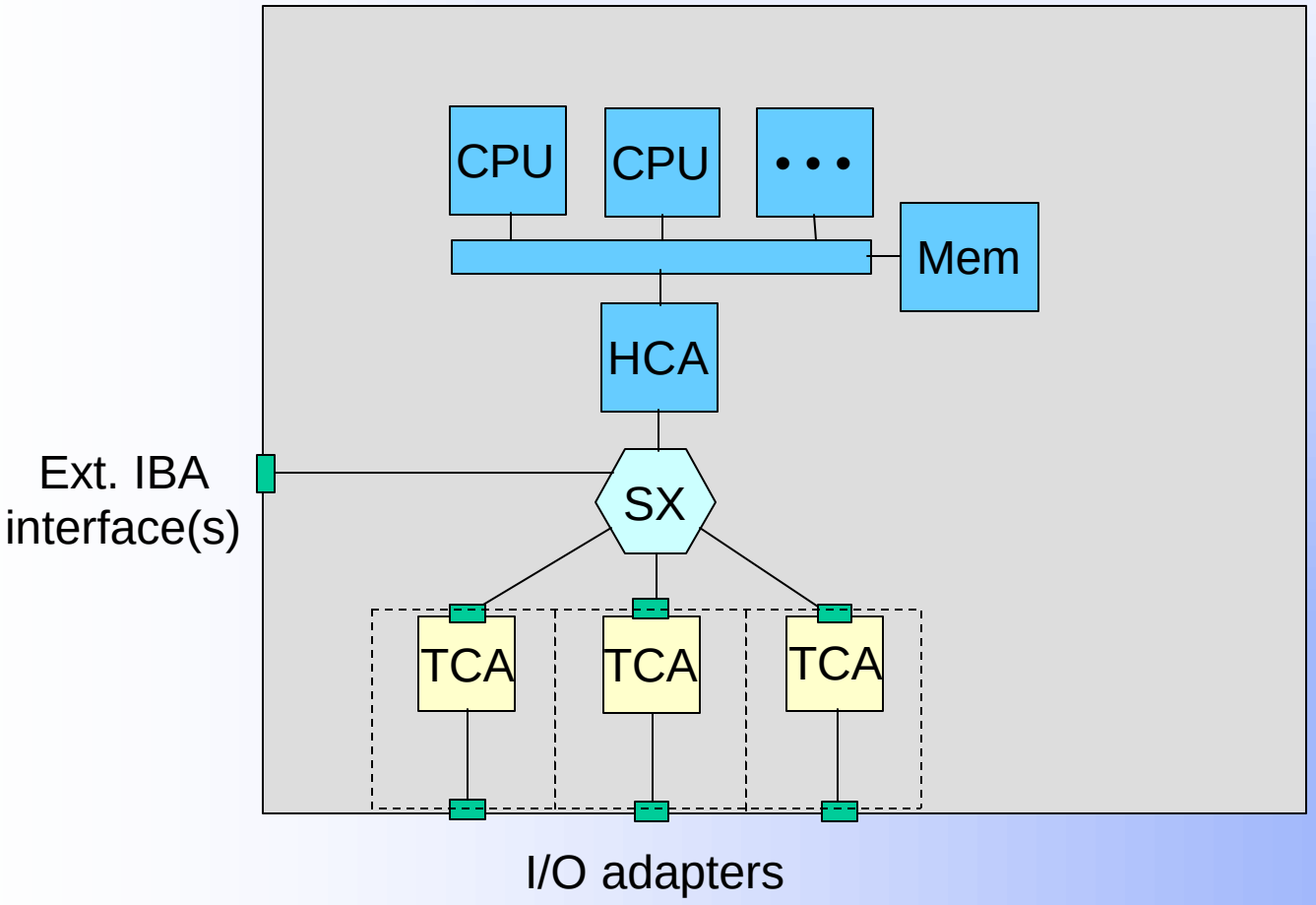
I/O adapters

IBA in the box (PCI replacement)

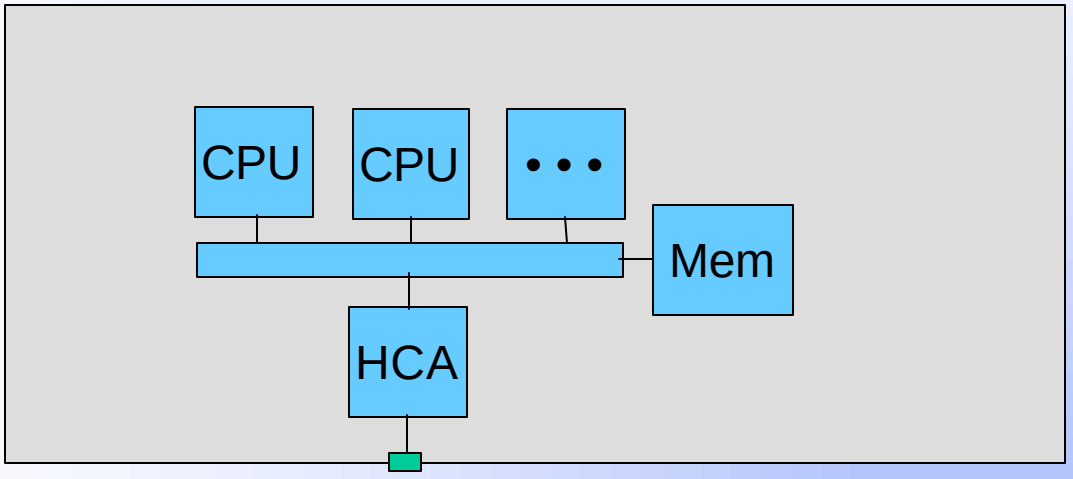


I/O adapters

IBA external interface

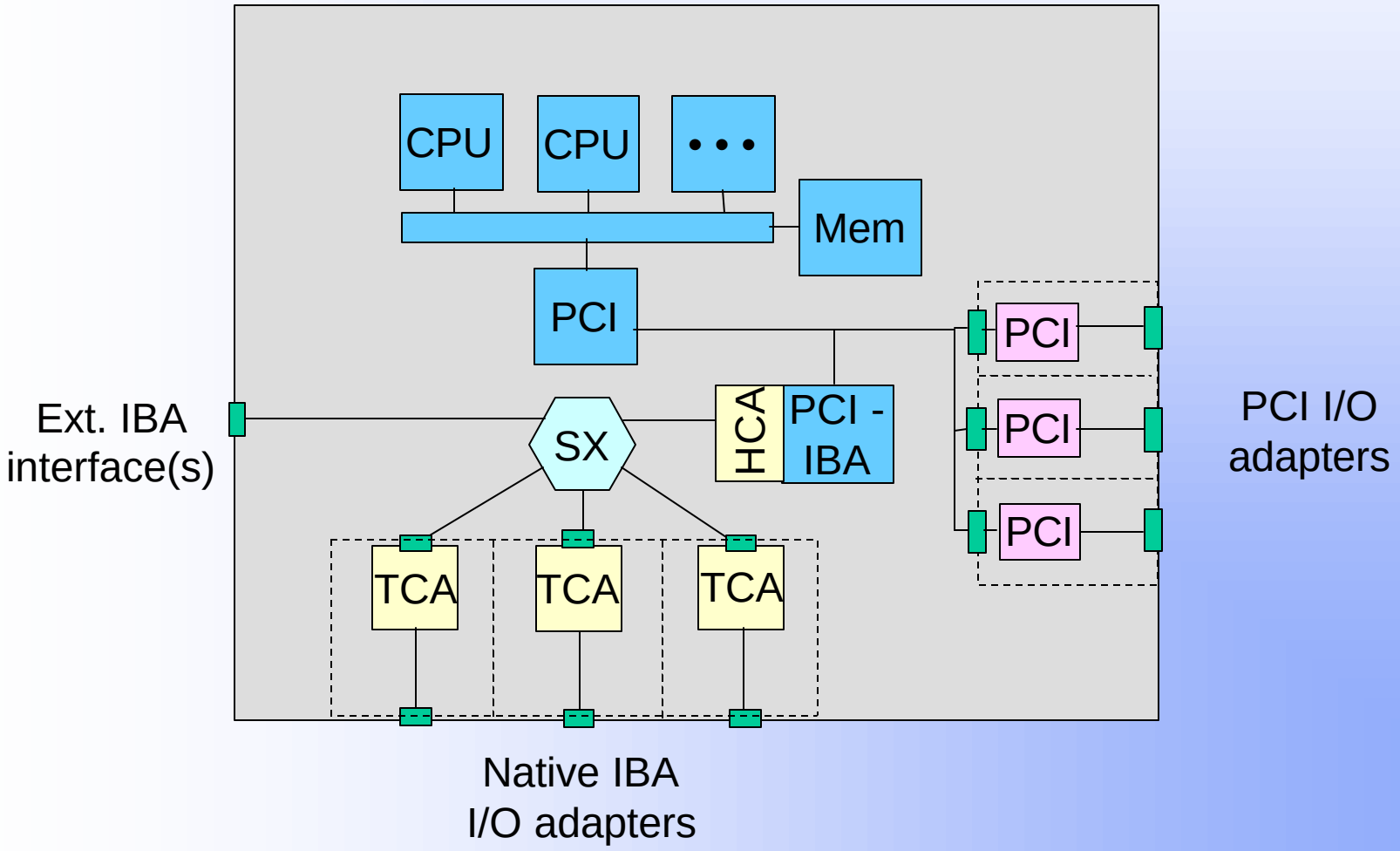


Simplest server

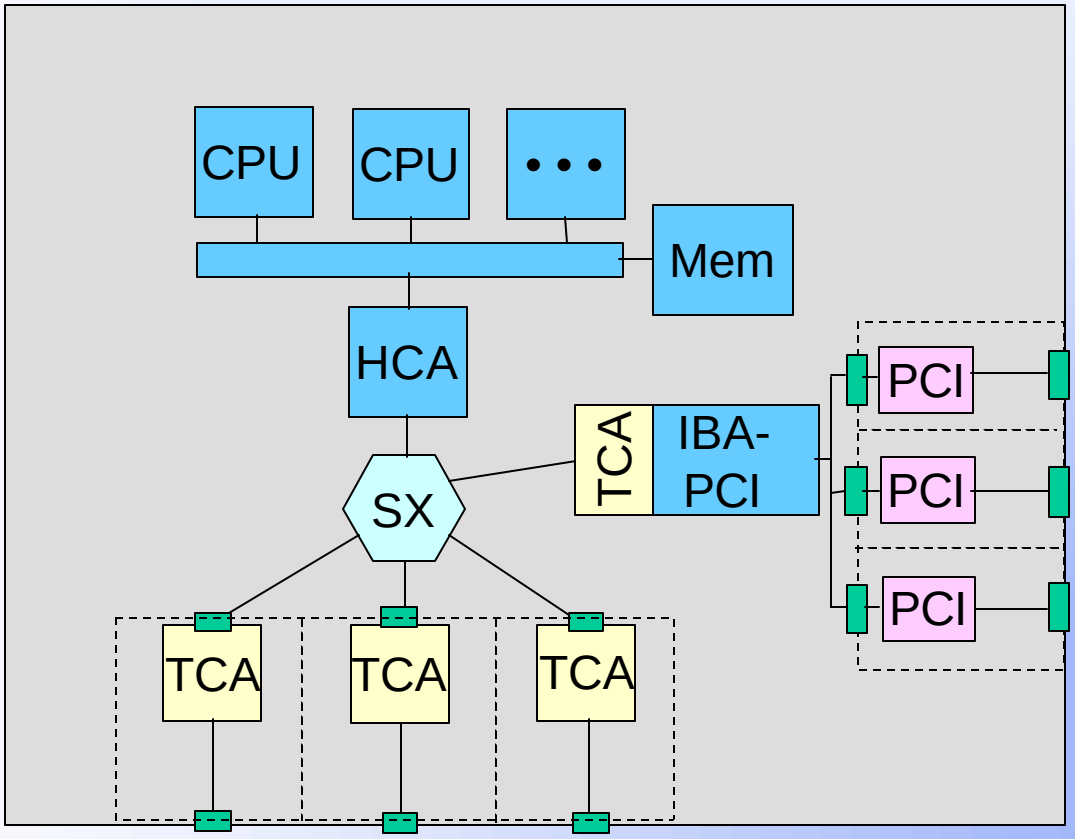


Ext. IBA
interface

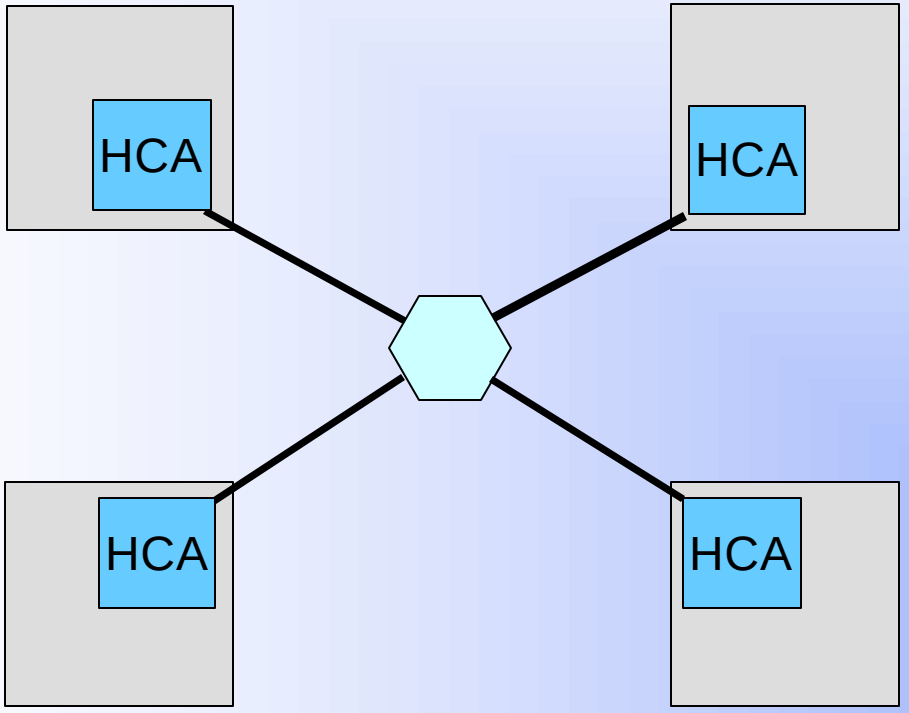
IBA on PCI (Transition strategy)



PCI on IBA (Legacy I/O support)



IBA Applications: Interconnect



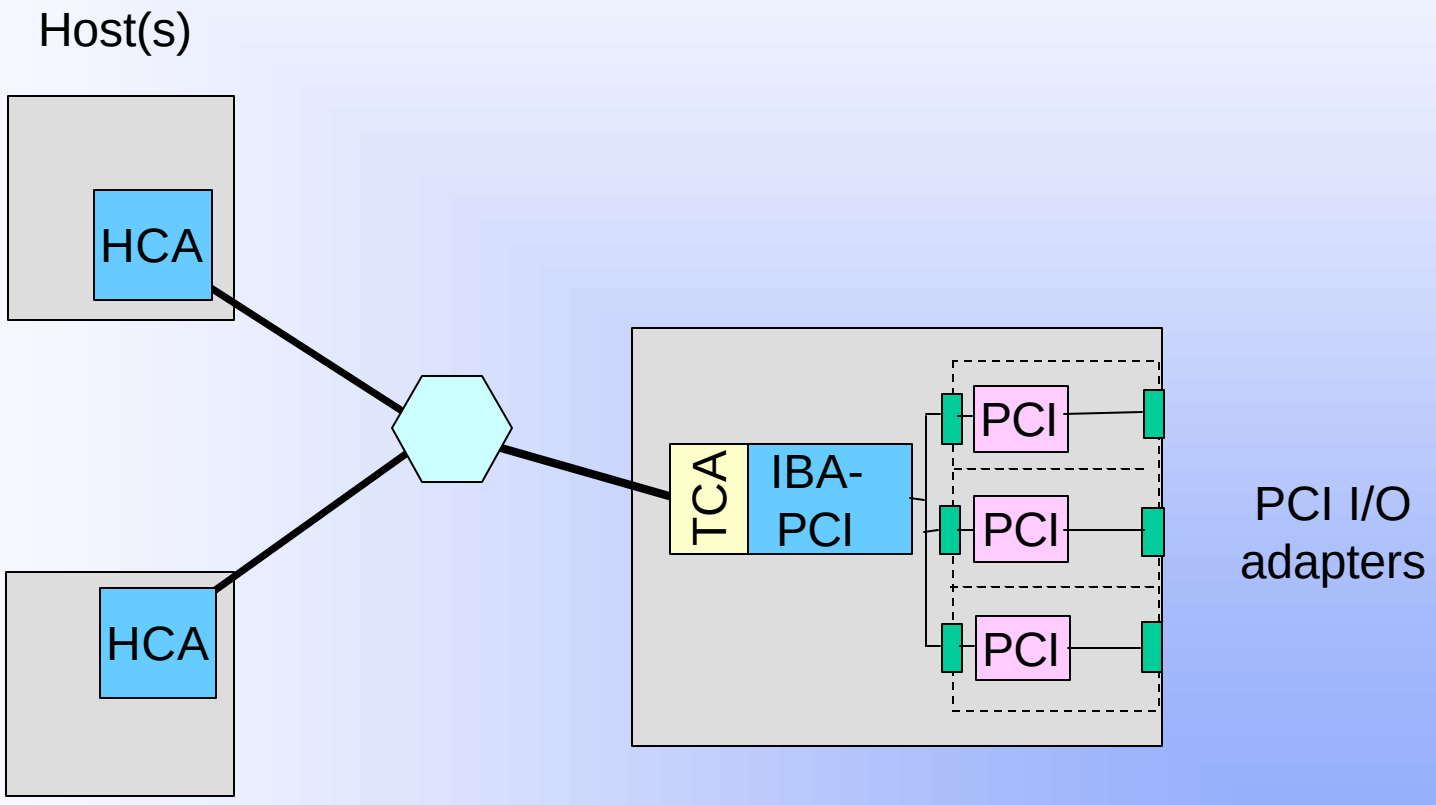
Rack to Rack

- Early adopters
- Backplane interconnect
- Telecom

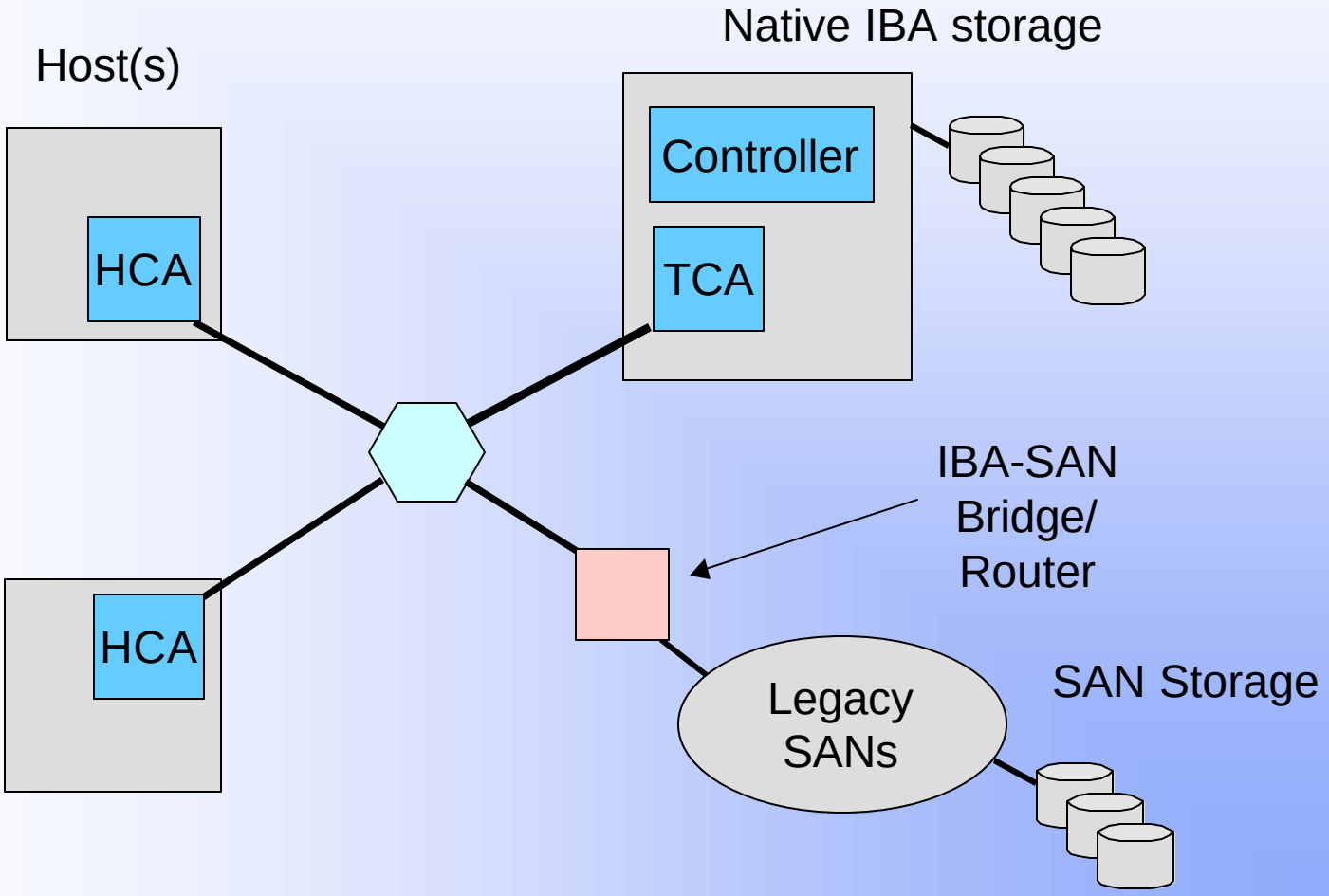
Clustering

- Early adopters
- High bandwidth
- Low latency

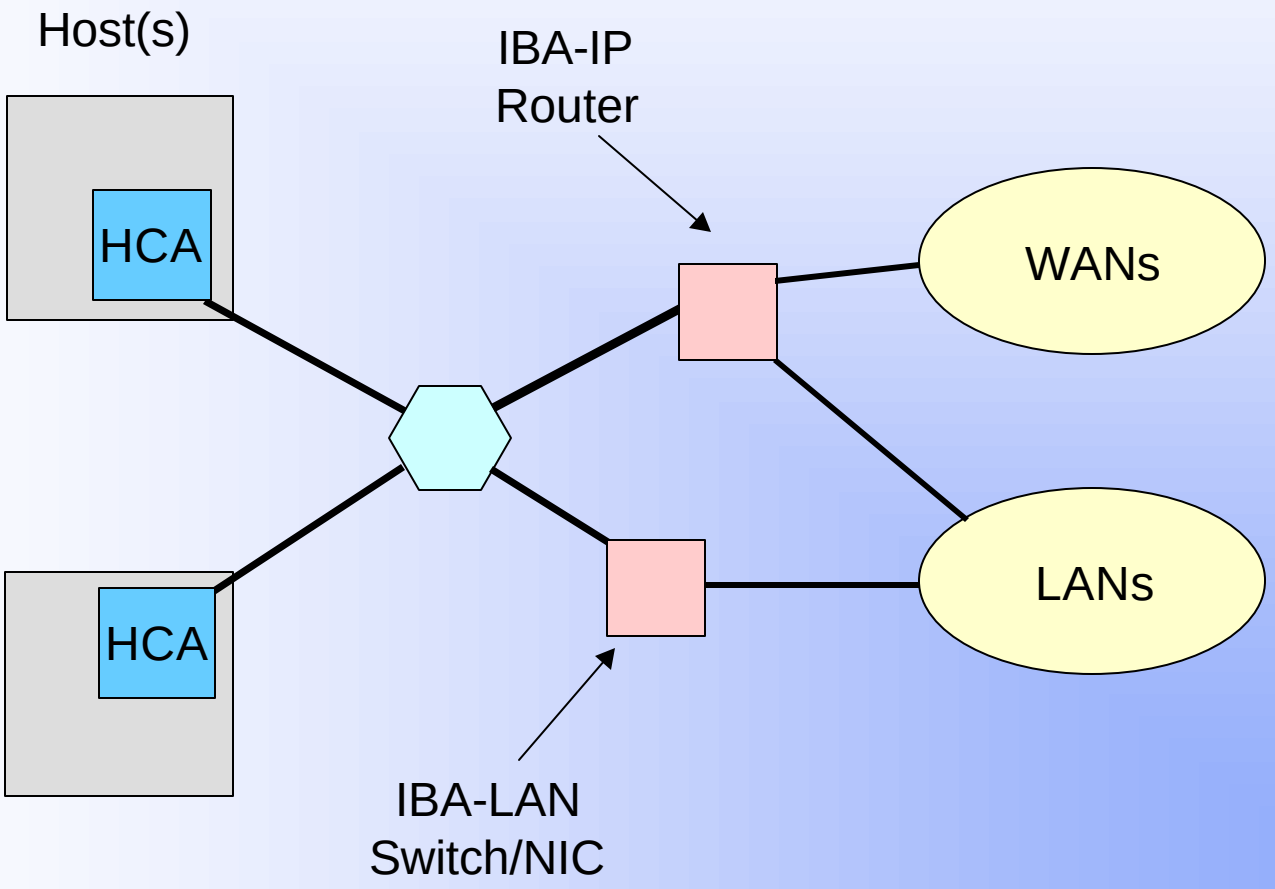
IBA Applications: I/O Extension



IBA Applications: Storage



IBA Applications: Networking



More Information

- VIEO www.vieo.com
  bpearson@vieo.com
- InfiniBand www.infinibandta.org
- Next Developers Forum
  Oct 22-24 Las Vegas