EXPReS/Fabric Data Acquisition System

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Three options

- Recycle old junk
- Develop the PCEVN further
- Move to new technologies (eg. iBOB)

Recycling old junk

➢ Pros:

  ➢ Everybody has an 20-year-old Mk4 or 15-year-old VLBA data acquisition rack

  ➢ The PCEVN is good enough for these

  ➢ The PCEVN has significant advantages for eVLBI

➢ Cons:

  ➢ Old DARs are falling apart, no upgrade path

  ➢ Nothing new, except working eVLBI

Developing PCEVN further

- Pros:
  - Working design, upgrade to 4Gbit/s possible
  - Interoperable with DBE or DBBC or old systems
- Cons:
  - 4-lane PCIe chips not available yet
  - VSI is at end of life cycle, should be phased out
  - Some work is involved

Moving to iBOB and 10Gbps Ethernets

➢ Hardware-assisted UDP/IP packetizer

➢ On-chip Linux needed only for initialization and retransmissions

➢ The network distributes the data to correlating computers

iBOB pros and cons

➢ Pros:

  ➢ Easy upgrade to multi-Gbps systems

  ➢ Easy upgrade to distributed software correlation

  ➢ Rate-based protocols easier with FPGAs than CPUs

➢ Cons:

  ➢ VHDL programming not always fun

  ➢ 10Gbps Ethernet firmware ETA 3Q/4Q 2006