Metsähovi Expertise and Ambitions

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Metsähovi Expertise

➢ High-speed data acquisition systems using COTS components

➢ High-speed data transfer using reliable UDP-based protocols

➢ Converting different VLBI data formats to each other

   ➢ Both hw connections and sw data formats

What's available?

- Developed in Jun2001—Apr2002

    - <u>Since Aug2002</u>: VSI standard 0.5Gbps recorder available "off-the-shelf" at under 2k€

    - <u>Since Oct2002</u>: 1Gbps VSI recorder (< 4k€)

    - <u>Since Jun2003</u>: 2Gbps VSI (< 8k€)

- Over 50 boards sold worldwide, including ATNF

    - VSIC for converting any std -> VSI

eVLBI

➢ <u>Since Oct2004</u>: disk data transfers at >640Mbps with just a pair of 2k€ PCs

➢ <u>Since Feb2005</u>: Real-time 0.5Gbps error-protected UDP-based transfers

  ➢ With simultaneous disk file backups at both ends!

  ➢ Under construction: distributed RT for grid-based software correlation

Metsähovi Ambitions

➢ Utilize emerging commodity technologies to improve the sensitivity of VLBI experiments:

   ➢ 10 Gbit/s Ethernet and Internet trunk lines

   ➢ Direct IF sampling

   ➢ Improved disk subsystems:

      ➢ SATA-II, SATA port multipliers, SAS, SAS edge expanders, PCI Express based RAID/SATA controllers

Metsähovi Ambitions

➢ Improve data acquisition to multigigabit/s speeds, then wait for the rest of the world to catch up

  ➢ In practice: a PCI Express (VSI-H?) input board

➢ Utilize new computing facilities for efficient software correlation

  ➢ E.g. Cell processor (in Sony Playstation 3), multi-core processors of AMD & Intel etc.

Serial ATA Disks

➢ <u>Since Mar2005</u>: Serial ATA 4-packs