Network Analyser for EPICS

Motivation

✓ Facilitate troubleshooting of EPICS
✓ Channel Access issues during deployment of an EPICS system and development of EPICS applications.

EPICS Channel Access

✓ A network protocol used by EPICS
  ✓ Discovery of input-output controllers (IOCs) hosting EPICS records (typically via UDP/IP broadcasts)
  ✓ Subscription requests to changes of EPICS record values (client-to-IOC)
  ✓ Monitoring of EPICS record values (IOC-to-client)
  ✓ Setting of values (client-to-IOC)

Wireshark (former Ethereal)

✓ A network analyzer
  ✓ Cross-platform (Windows, Linux, Darwin, …)
  ✓ Written in C

✓ Supports plug-ins
  ✓ Shared libraries (.so, .dll)
  ✓ Introduce a dissector without re-compiling

✓ Can capture packets off a network interface
  ✓ Save/load to trace files

✓ Support for higher-level protocol analysis
  ✓ Awareness of TCP sessions, etc.

Conclusion

✓ We implemented a dissector plug-in for Wireshark
  ✓ Non-intrusive analysis of EPICS interactions (no change to clients, IOCs or configuration required)
  ✓ Recognizes all EPICS CA messages
  ✓ Shows connection-specific channel IDs as human-readable channel names
  ✓ Plugin available for Linux, Windows and Darwin
  ✓ Binaries and source code available here

http://www-linac.kek.jp/cont/epics/wireshark