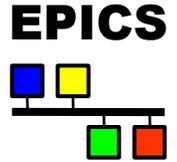# APS Status
JLAB EPICS Meeting November 2002

Marty Kraimer
APS/ANL

IOC Report

EPICS

- ◆ ASD/Controls has responsibility for
  - ◆ 236 operational IOCs
  - ◆ 493235 records
- ◆ Upgraded all IOC's to R3.13.6/T202 in May
  - ◆ More robust: netTask crashes eliminated
  - ◆ Resource creep.
    - ◆ 10 CPUs more memory; Many now marginal on memory
    - ◆ mv167=>PPC on a few IOC's
    - ◆ T202 buffer allocation=> bad CA clients cause problems
    - ◆ Many IOC's booted simultaneously=>network storms
    - ◆ caSnooper will be important tool
  - ◆ Reverse gateway => central monitoring of gateways
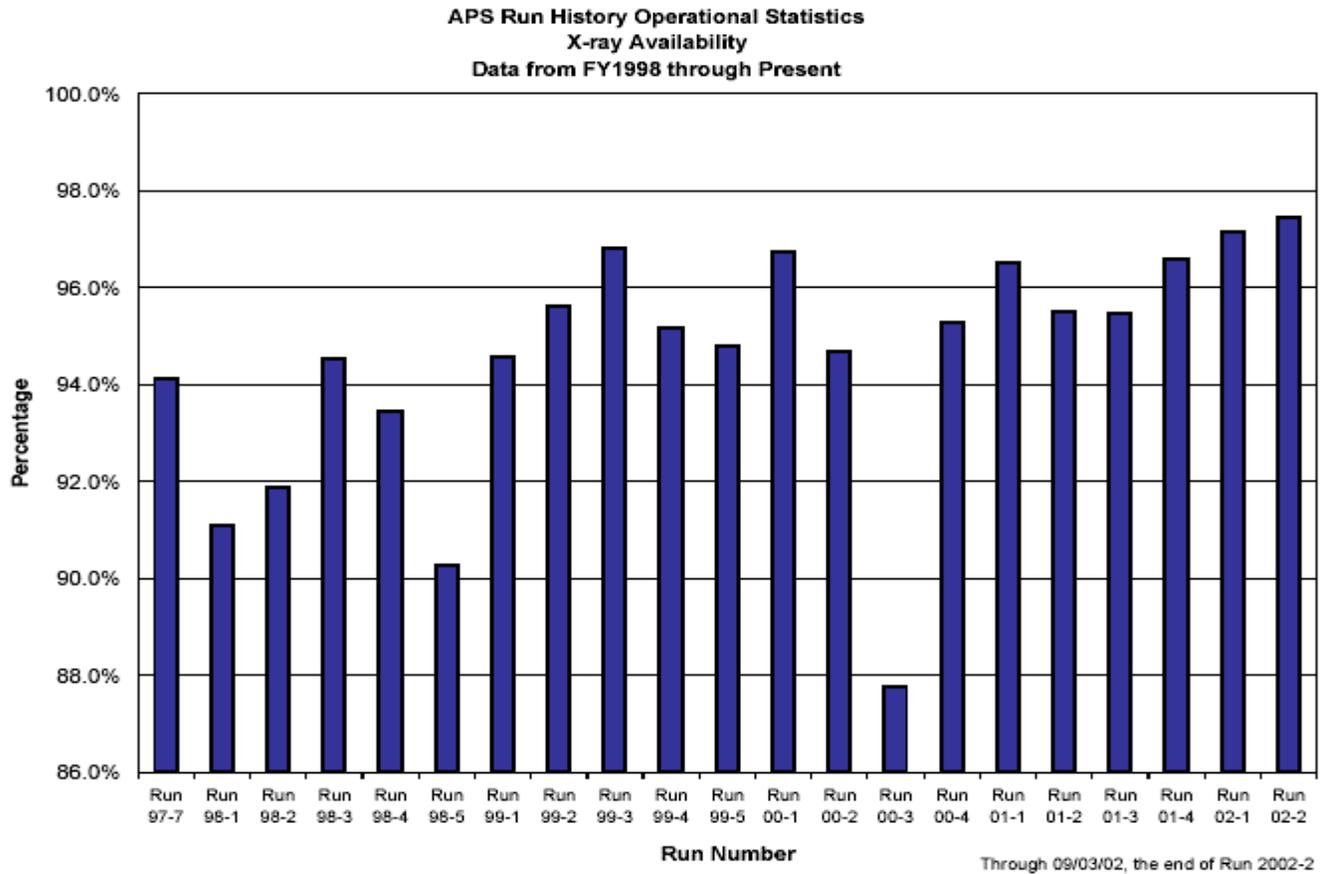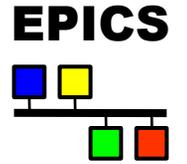- ◆ Two solaris IOC's running GPIB instruments

Operational Statistics
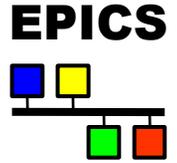
◆ FY02 (Oct. 2001 to Sept. 2002)

  ◆ Scheduled Beam Hours - 4999 hours

  ◆ Availability: 97.1%

  ◆ MTBF - 33 hours

◆ FY03-to-date (Oct. 2002 to Nov. 14)

  ◆ Scheduled Beam Hours - 730 hours

  ◆ Availability - 98.64%

  ◆ MTBF - 48.01 hours

  ◆ Two trips assigned to "Controls"

    ◆ Random valve closure; not EPICS related

    ◆ Feedback IOC crash; 4 CPUs in same crate; not EPICS related
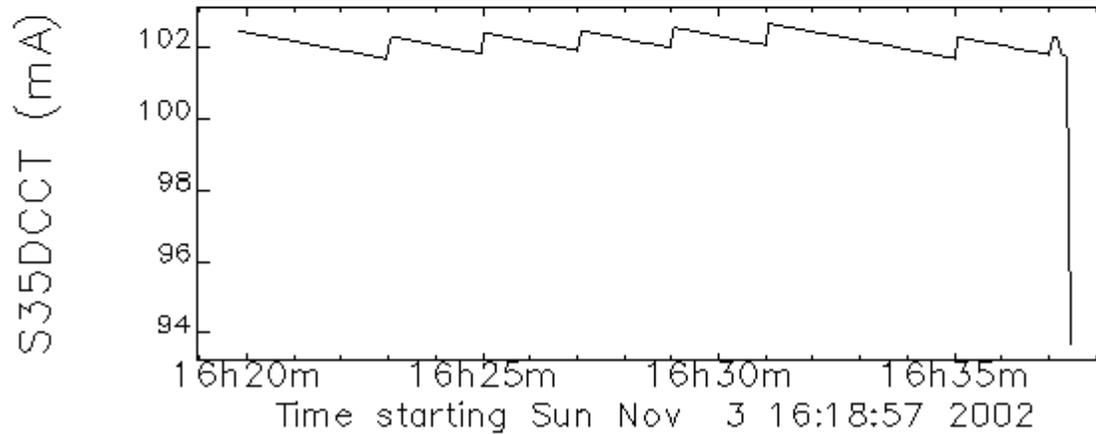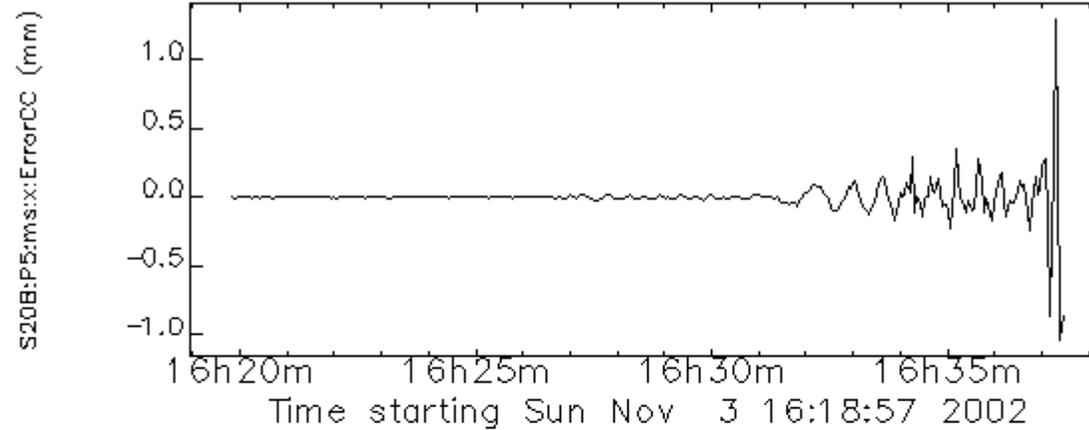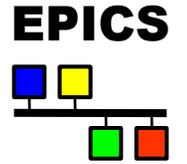
Operational Statistics

APS Run History Operational Statistics
X-ray Availability
Data from FY1998 through Present

Through 09/03/02, the end of Run 2002-2

Strange Beam Loss
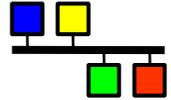
Station: JFWS LHZ
2002 NOV 3 UTC
Start: 00:00:00.25
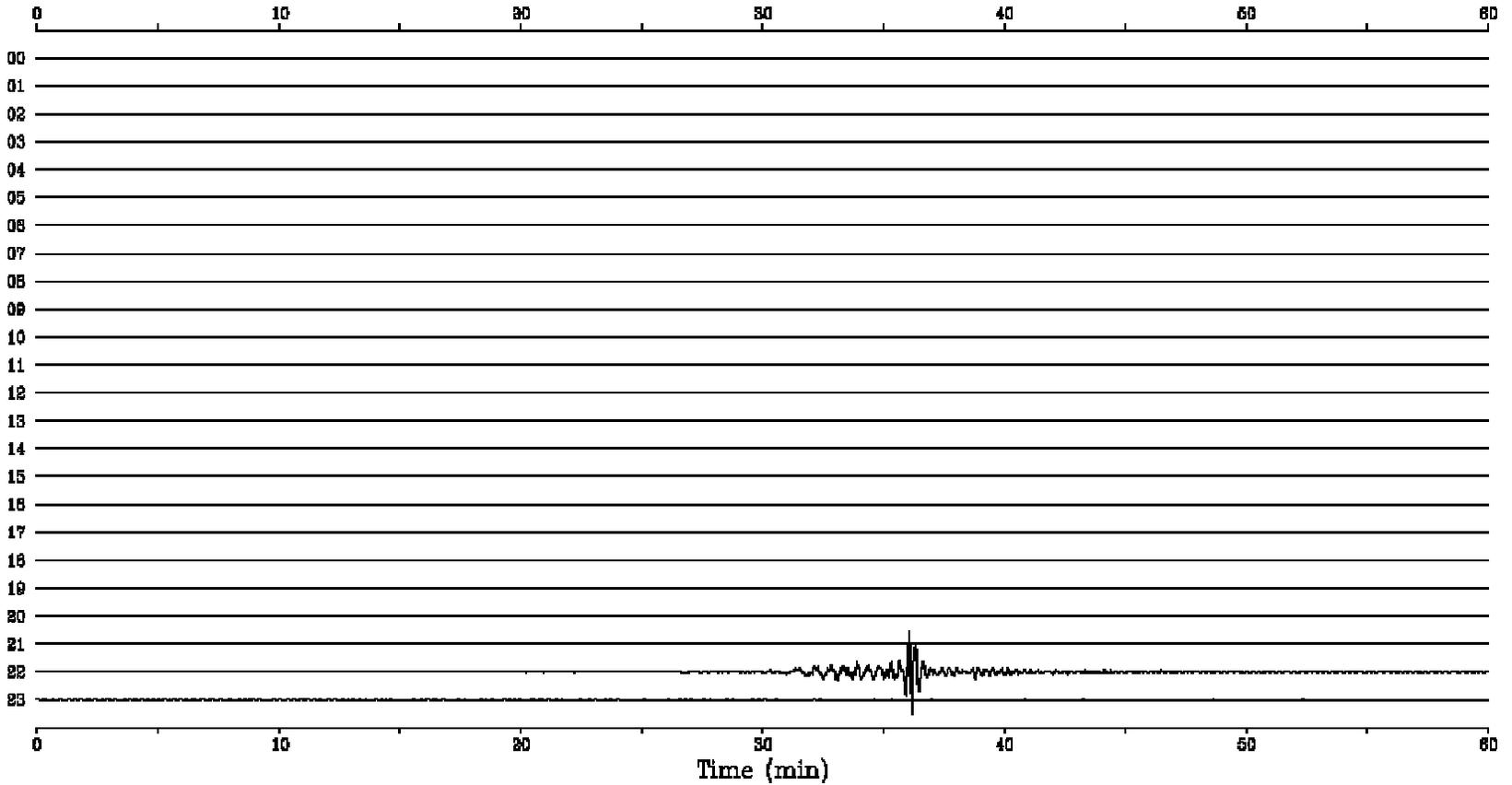
Beam Loss Explained!!
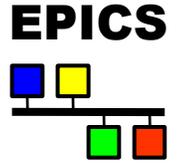
◆ Earthquake in Alaska 2002 11 03 22:12:41 UTC

◆ Seismograph Wisconsin 2002 11 03 22:37 UTC

◆ Beam loss APS 2002 11 03 22:37 UTC

    ◆ Local time is 6 hours earlier than UTC

    ◆ 16:00 Local time is 22:00 UTC

◆ APS is a very expensive Seismograph!!

◆ What actually happened

    ◆ Compression wave made ring oscillate

    ◆ Beam keep original orbit

    ◆ Beam position within magnets oscillated

    ◆ Tune went to ½ integral resonance

VCCT

EPICS
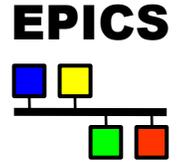
- ◆ Visual Connection Configuration Tool
  - ◆ Documents all installed devices
  - ◆ Shows connections:
    - ◆ Datapaths from I/O device to CPU
    - ◆ Power supply connections/distribution
  - ◆ Used for
    - ◆ Spares inventory
    - ◆ Cross training
    - ◆ Tracing faults
    - ◆ Cable documentation,...
  - ◆ 13000+ devices so far
  - ◆ Expect a paper at PAC
- ◆ Oracle + tools to capture data from source
  - ◆ IOC databases, dbior reports, etc.

File   IOC   Report   View

iocs35bpm

Device

Device Name: MVME 172-353   **Description:** "MVME 172-353; 2 IP, 32M"

logical card # 0   physical slot # 1   ☑ owned   level-4 ▼

location: S.R. MEZZANINE RELAY RACK 35-03   S/N: 0.0

MFG: Motorola   **FORM FACTOR:** B-size Eurocard   **FUNCTION:** CPU

| Replace | Add | Copy | Paste | Loc | Own | Remove |

Device Connection Tree

○ ○ ○ ○ ○ ○ ○ ○ ◉ ○ ○ ○ ○

- 📁 MVME 172-353:0/1
  - 📁 IP-488:0/A
    - 📁 IPI100:_/2
      - 📁 IPG100:_/R2
        - 📁 GPIB_Link:13/_
          - ● HP3458A:22/22
  - 📁 VME Chassis - System 22 Type 1:_/_
    - ● CTM101:0/3
    - 📁 VME-MXI:16/4
      - 📁 MXI-1_Link:_/_
        - 📁 VXI-MXI:17/0
          - 📁 VXI Chassis - HPE1401A:17
            - ● BTM400:108/1
            - ● Memory Scanner:109/2
            - ● SCDU:110/3
            - ● SCDU:111/4
            - ● SCDU:112/5
            - ● SCDU:113/6
            - ● SCDU:114/7
            - ● SCDU:115/8
            - ● SCDU:116/9
            - ● SCDU:117/10
            - ● SCDU:118/11
            - ● Beam History/Terminatc
            - ● VXI Power Supply - (E14
        - ● "MXI-1 Cable, 2m":_/_
  - 📁 EVR100:0/5
    - ● ERI100:0/R5
    - ● XVME-566:0/6

VME Chassis - System 22 Type 1:_/_

VXI Chassis - HPE1401A:17/_

iocs35bpm   VME Chassis – System 22 Type 1:_/_

| PS#	Device	LN	RearSlot
1	MVME 172-353	0	
2	IPI100	_	IPG100
3	CTM101	0	
4	VME-MXI	16	
5	EVR100	0	ERI100
6	XVME-566	0	
7	AVME9440	0	
8	LMP100	0	
9	FOM101	0	
10	MSL100	0	
11	HPE1366A	0	
12	BCG100	0	
13	XRX352	0	
14	FOM117	0	
15	ICT/FCT	0	
16	BPLDa	0	BPLDb
17	DBPLD	0	
18			
19	TIM100	0	
20	FOM112	0	
21	TIM101	0	

iocapps tools
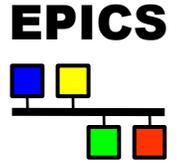
- capr - CA version of dbpr
- ctllog - Info on list-server used as controls Knowledge Base
- iocappsHelp - List all iocappps tools
- iocBoot - Print bootparams and bootlog messages
- iocBsp - Find appropriate vxWorks image (record type, device support, etc.) by searching directories/files for a user supplied string
- iocFindSupport - Find EPICS support
- iocSupport - List path names of support module releases
- pvChanges2sdds - create an sdds file describing PV name changes/deletions
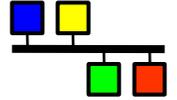
```
gaea{nda}52% iocBoot ioclid2
ioclid2 boot parameters:
   boot device      : ei0
   processor number : 0
   host name        : helios
   file name        : /usr/local/vxWorks/T202/mv172-asd2_nodns
   inet on ethernet (e) : 164.54.2.11:fffffc00
   host inet (h)    : 164.54.2.167
   user (u)         : vw5
   ftp password (pw) (blank = use rsh): **********
   flags (f)        : 1
   target name (tn) : ioclid2
   startup script (s)  :
/usr/local/iocapps/R3.13.6/ioc/linac/2/iocBoot/ioclid2/st.cmd
ioclid2 boot log:
   08/30/02 05:43:43.929409999   ***       ******
   09/04/02 09:52:37.156409999   nda       Trying 3.13.2 for CPU loading
   09/04/02 09:56:41.986409999   nda       Returning to R3.13.6
   ...
```
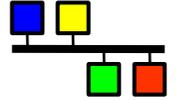
```
gaea{nda}52% iocBsp R3.13.6
R3.13.6 mv162 /usr/local/vxWorks/T202/mv162-asd3
R3.13.6 mv162 /usr/local/vxWorks/T202/mv162-asd3_nodns
R3.13.6 mv162lc /usr/local/vxWorks/T202/mv162lc-asd3
R3.13.6 mv162lc /usr/local/vxWorks/T202/mv162lc-asd3_nodns
R3.13.6 mv167 /usr/local/vxWorks/T202/mv167-asd3
R3.13.6 mv167 /usr/local/vxWorks/T202/mv167-asd3_nodns
R3.13.6 mv172 /usr/local/vxWorks/T202/mv172-asd3
R3.13.6 mv172 /usr/local/vxWorks/T202/mv172-asd3_nodns
R3.13.6 mv172 /usr/local/vxWorks/T202/mv172-asd3_busy_nodns
R3.13.6 mv177 /usr/local/vxWorks/T202/mv177-asd3
R3.13.6 mv177 /usr/local/vxWorks/T202/mv177-asd3_nodns
R3.13.6 mv2100 /usr/local/vxWorks/T202/mv2100-asd3
R3.13.6 mv2100 /usr/local/vxWorks/T202/mv2100-asd3_nodns
R3.13.6 mv2700 /usr/local/vxWorks/T202/mv2700-asd3
R3.13.6 mv2700 /usr/local/vxWorks/T202/mv2700-asd3_nodns
```