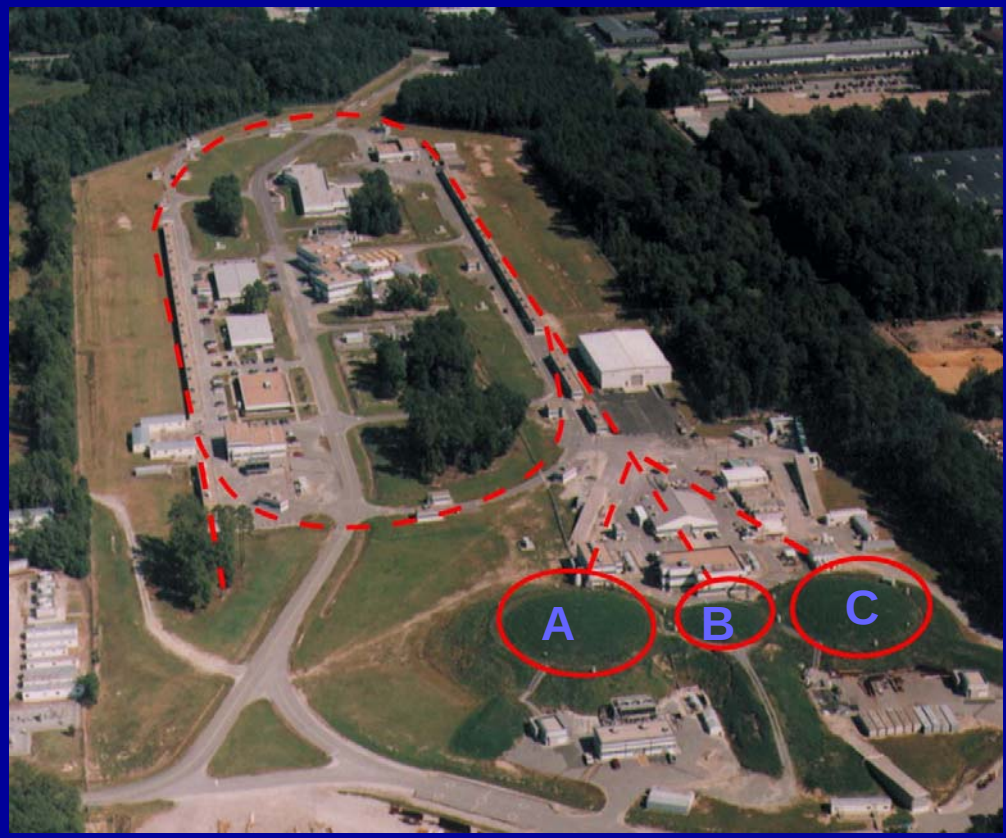
Control System Developments at Jefferson Lab

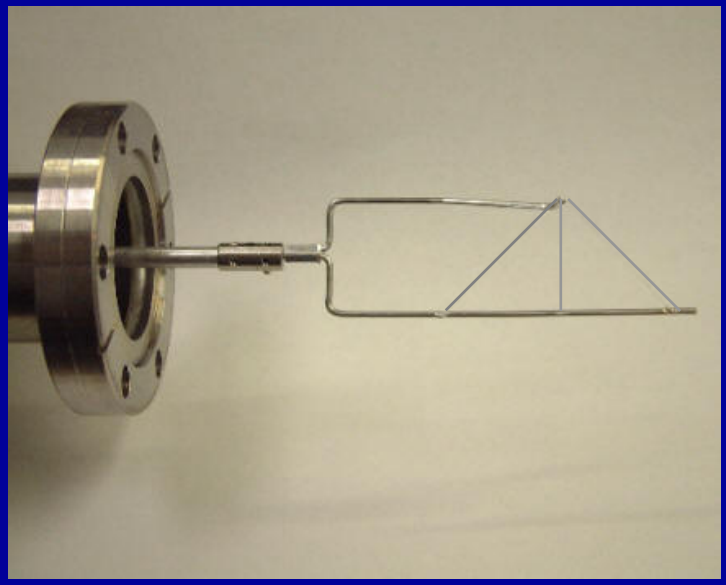
Pavel Chevtsov

CEBAF

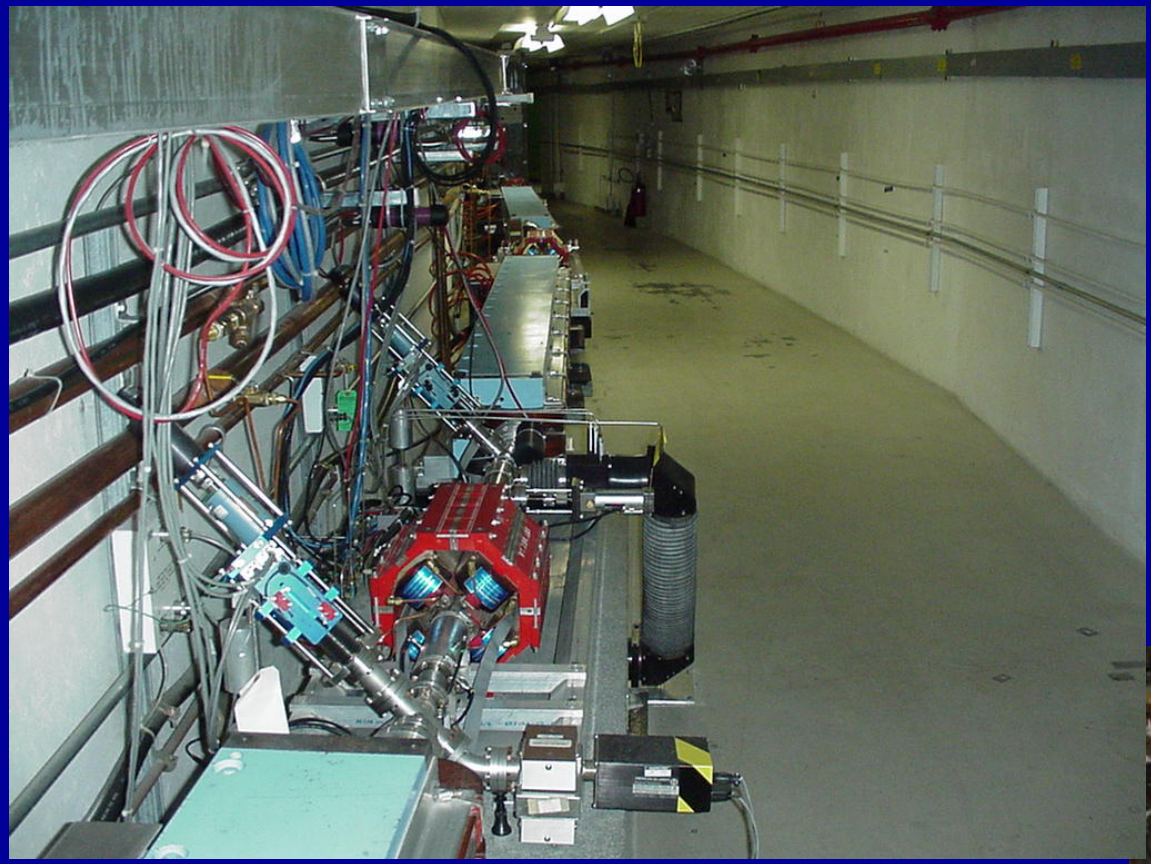


Upgraded and New Beam Diagnostics Applications

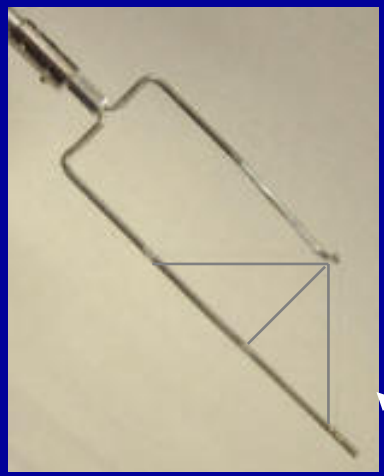
Wire scanner control software



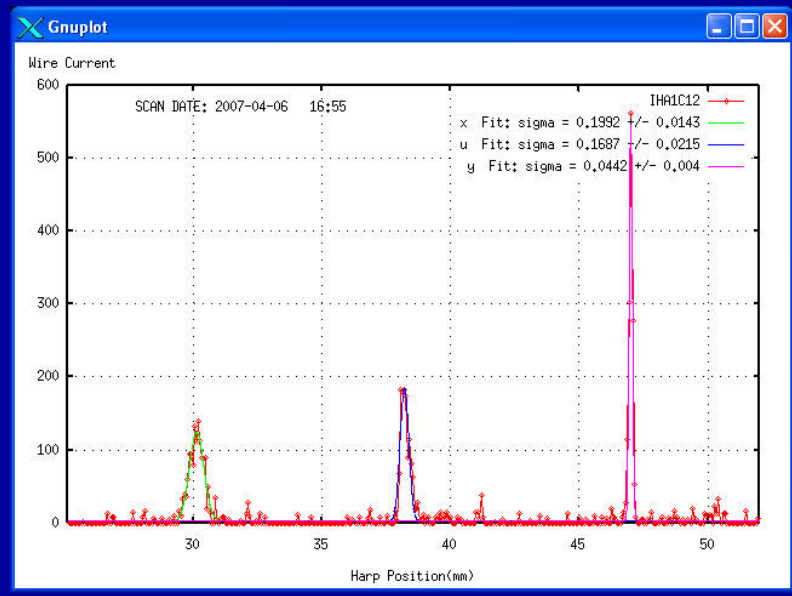
A typical wire scanner (WS) at Jefferson Lab



main WS mode (automatic)

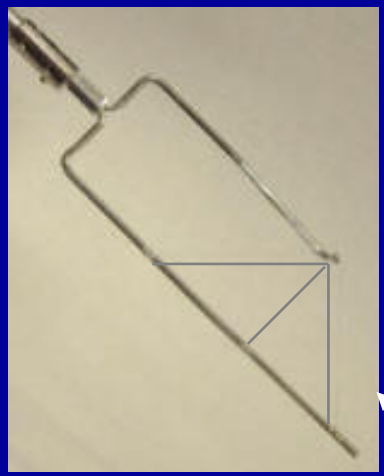


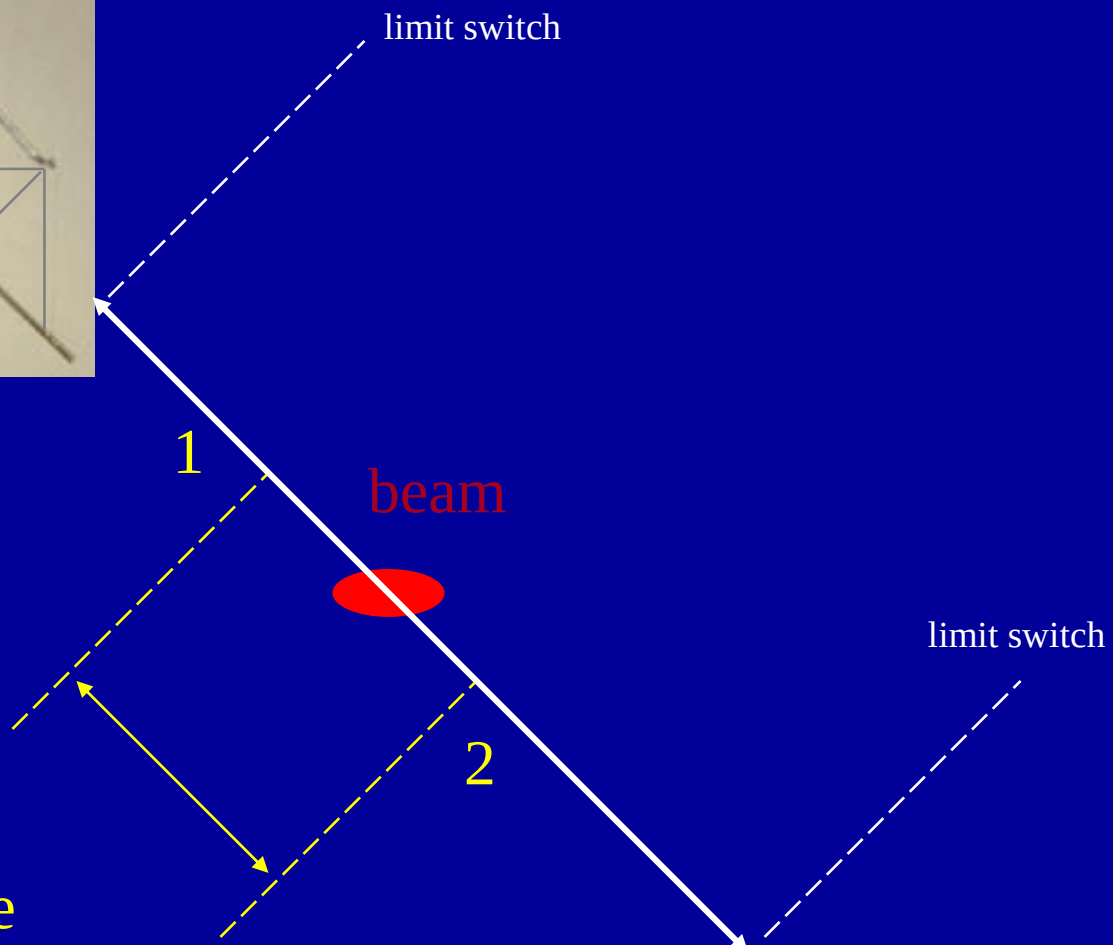
limit switch



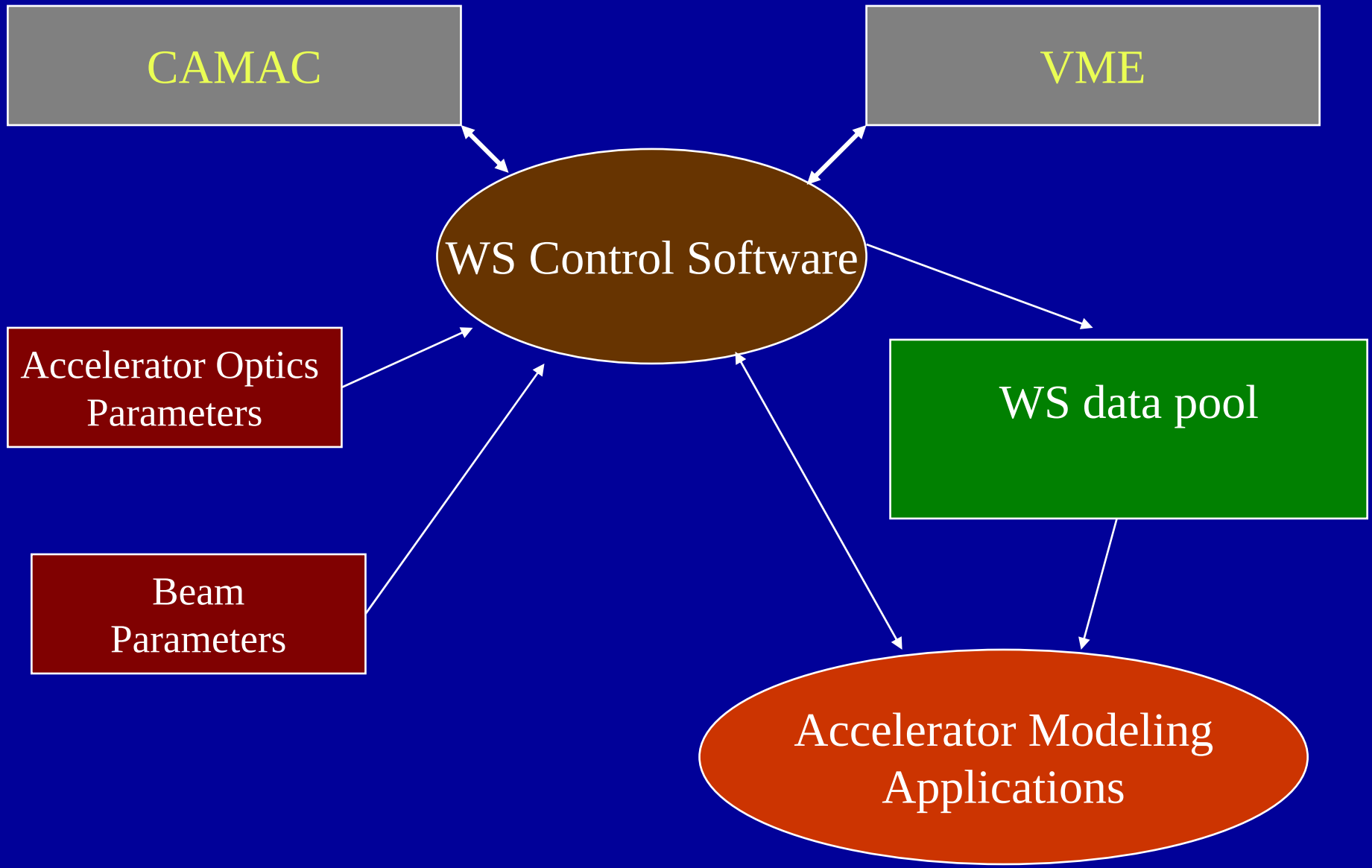
beam

limit switch





SA WS mode


CAMAC
VME
WS Control Software
Accelerator Optics Parameters
WS data pool
Beam Parameters
Accelerator Modeling Applications

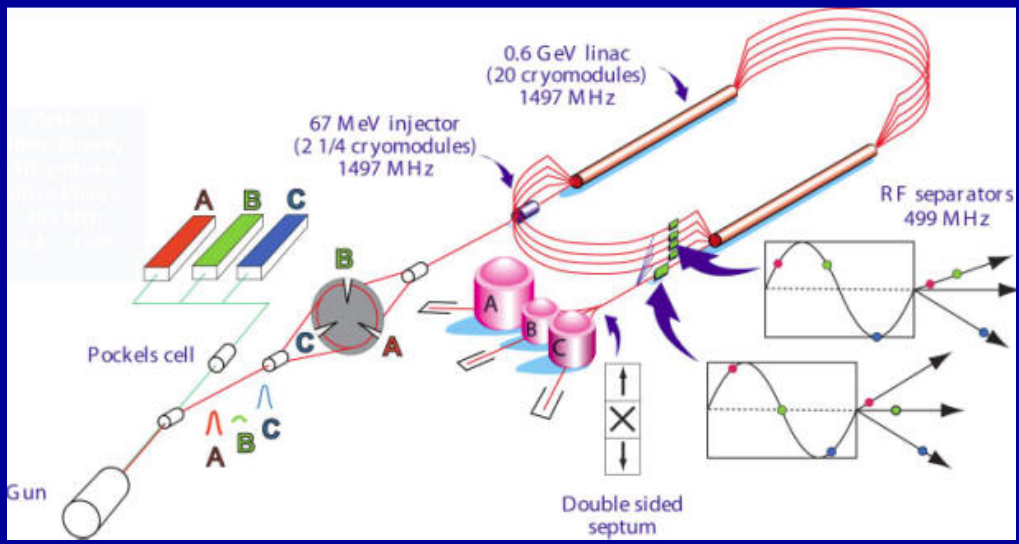
A great tool for:

- CEBAF model verification

- Very accurate and fast beam emittance measurements, which is important for hyper-nuclear physics experiments

Jefferson Lab
Thomas Jefferson National Accelerator Facility

Beam Image Analysis Software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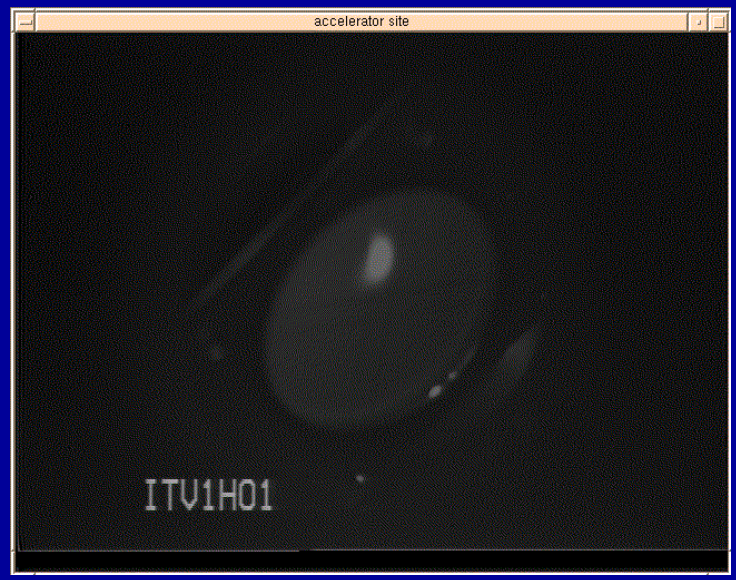
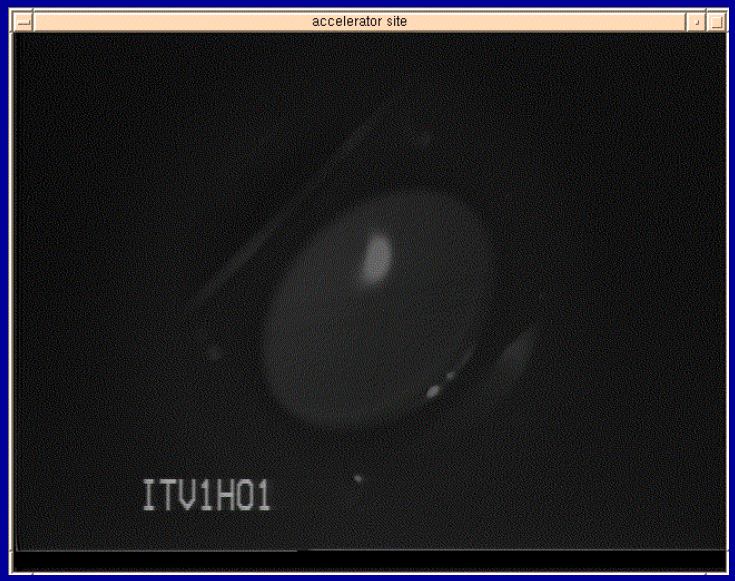
(20 cryomodules)
1497 MHz
67 MeV injector
(2 1/4 cryomodules)
1497 MHz
RF separators
499 MHz
A B C
Pockels cell
Gun
Double sided
septum


accelerator site
ITV1H01

accelerator site
ITV2C00 LAMBERTSON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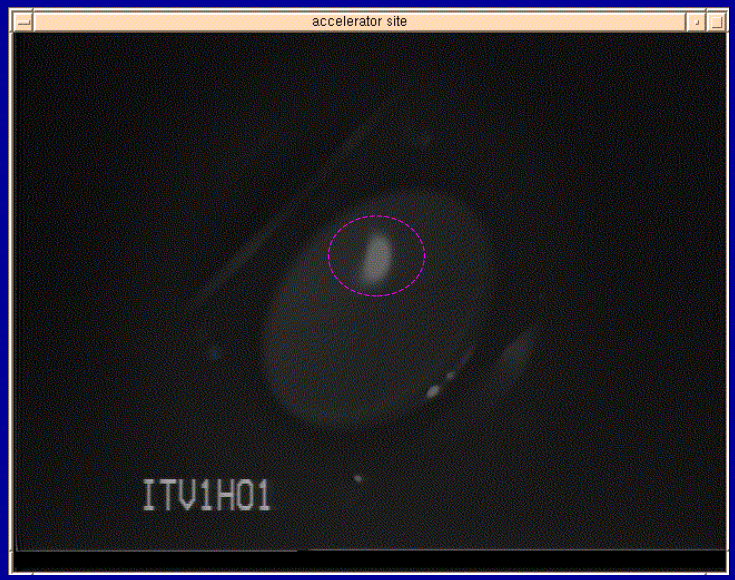
ITV1H01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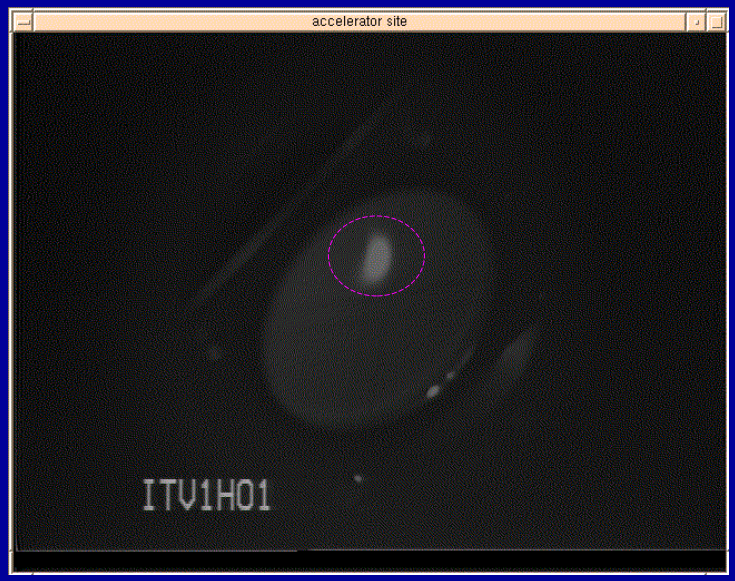

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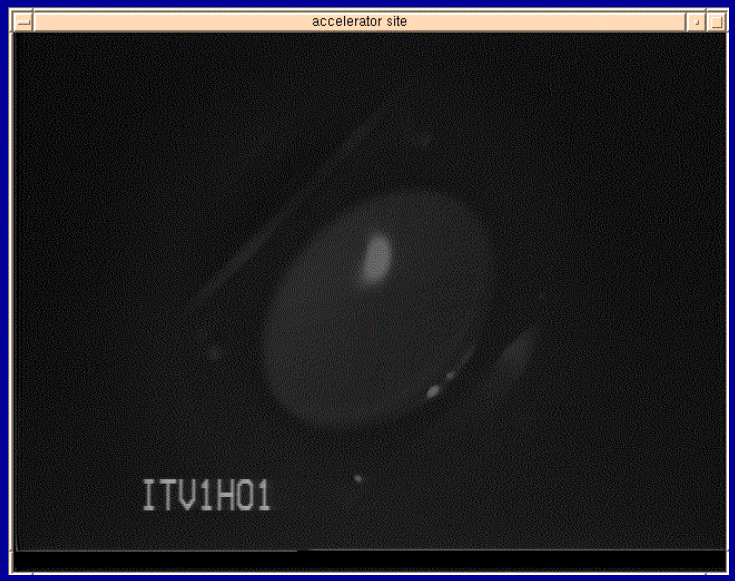

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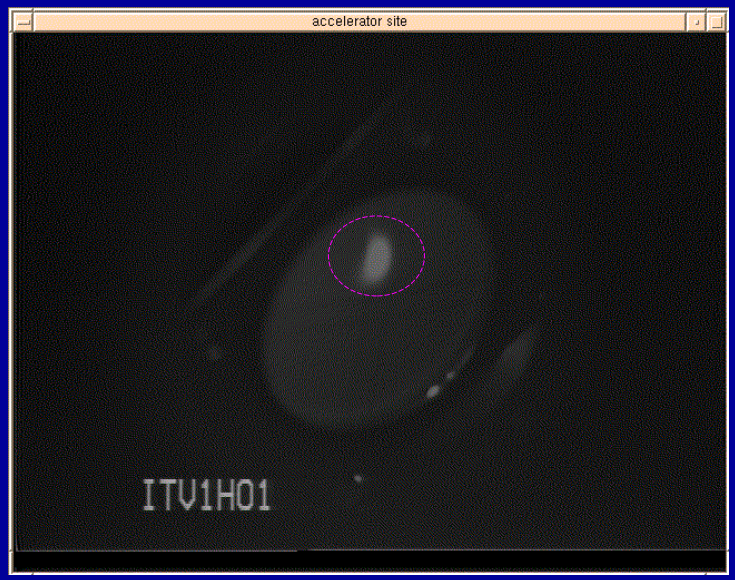
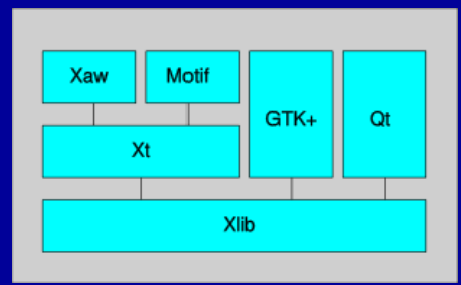


File
(Beam Steering
Template)

Beam Steering Assistant Tool



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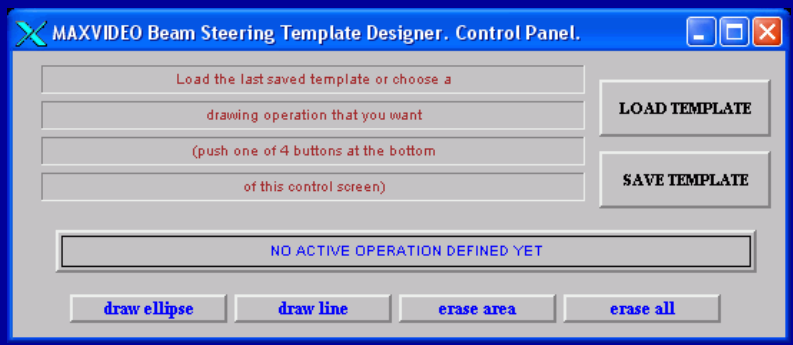
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of this control screen)
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erase area
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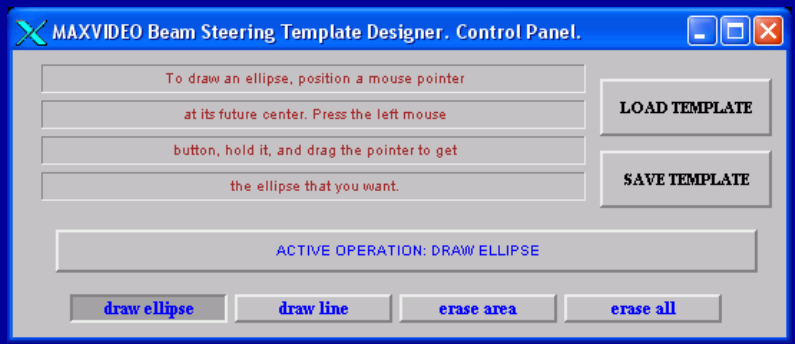
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LOAD TEMPLATE
SAVE TEMPLATE
ACTIVE OPERATION: DRAW ELLIPSE
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erase area
erase all

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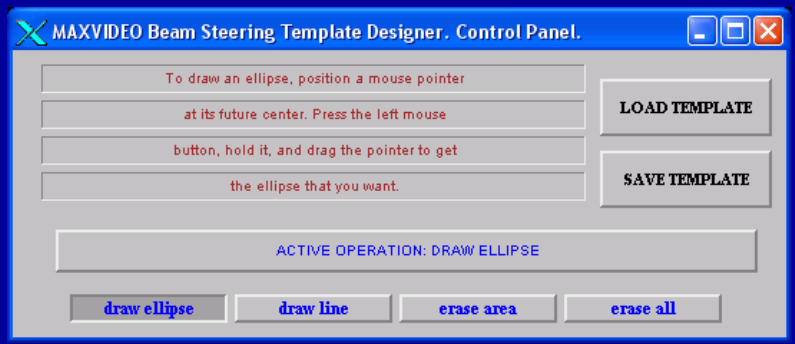
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LOAD TEMPLATE
SAVE TEMPLATE
ACTIVE OPERATION: DRAW ELLIPSE
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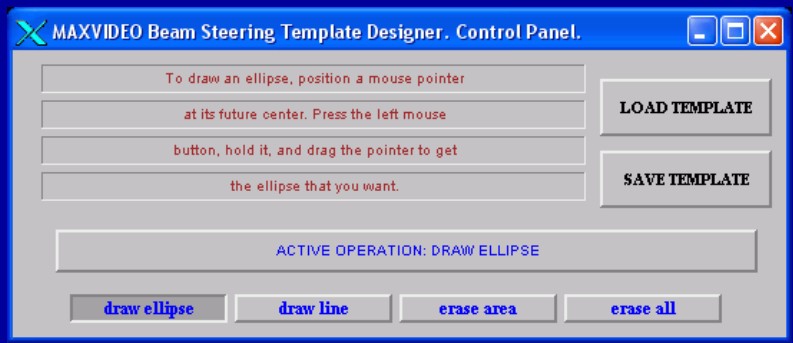
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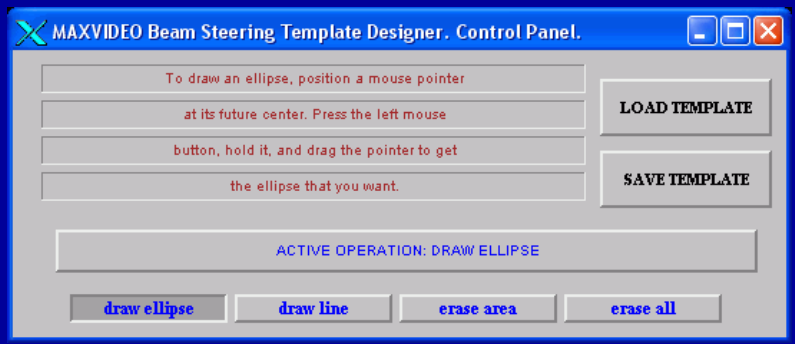
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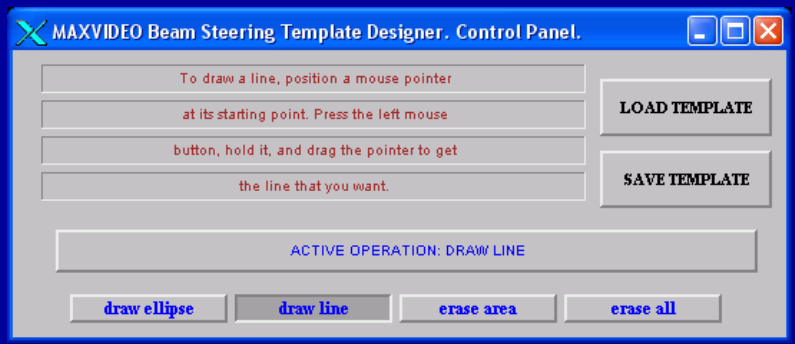
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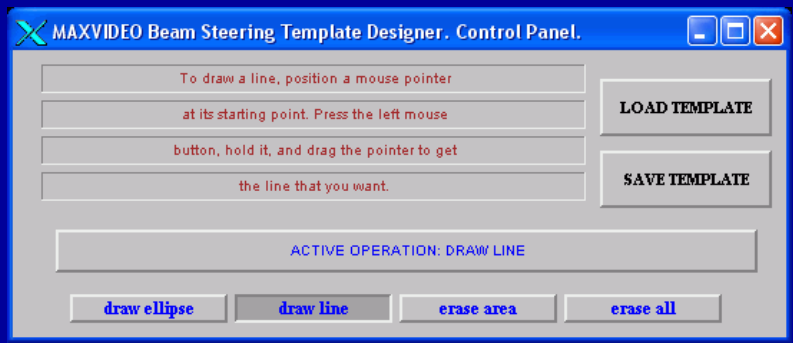
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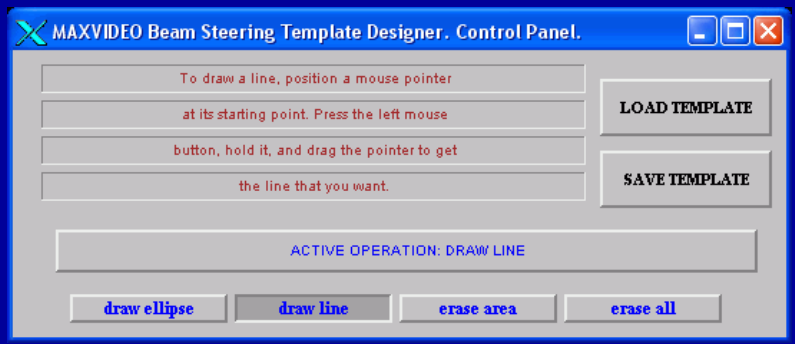
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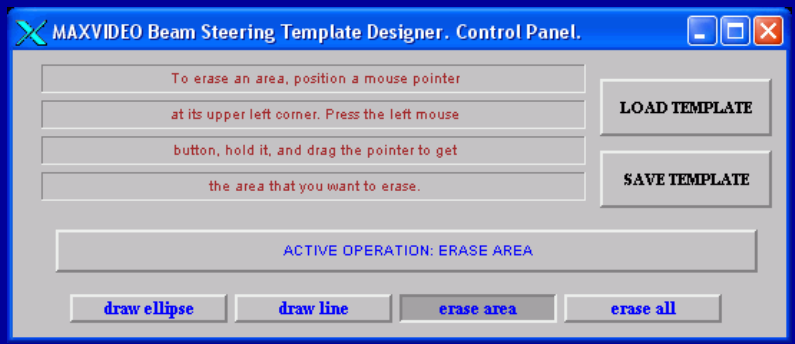
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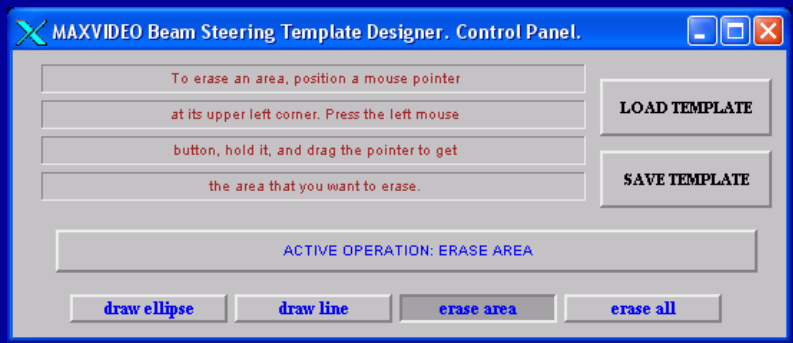
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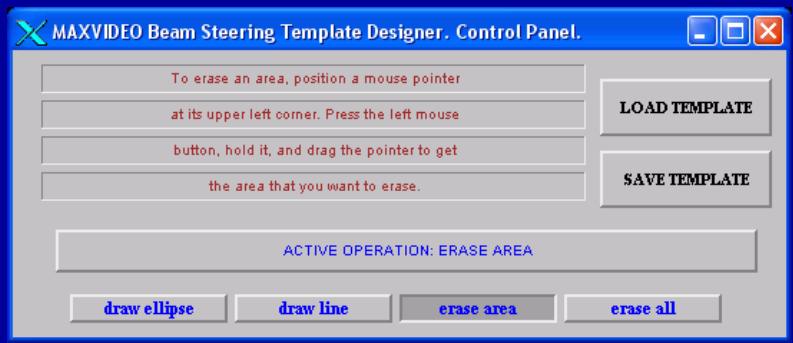
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LOAD TEMPLATE
SAVE TEMPLATE
ACTIVE OPERATION: ERASE AREA
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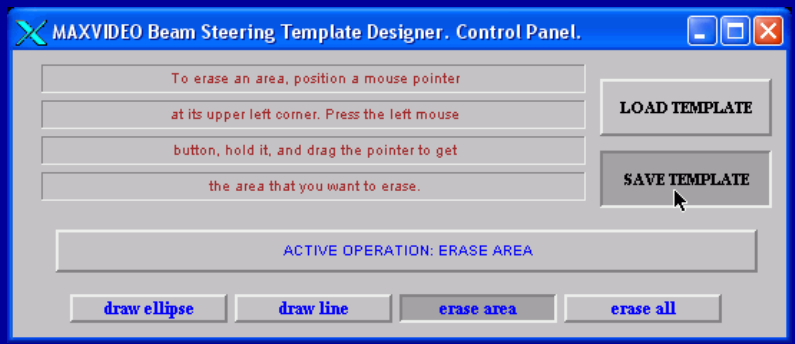
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ACTIVE OPERATION: ERASE AREA
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MAXVIDEO Beam Steering Template Designer. Monitoring Screen.
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MAXVIDEO Beam Steering Template Designer. Control Panel.
Now you can begin designing
a new beam steering template
for this viewer
LOAD TEMPLATE
SAVE TEMPLATE
LAST ACTIVE OPERATION WAS: ERASE ALL
draw ellipse
draw line
erase area
erase all

MAXVIDEO Beam Steering Template Designer. Monitoring Screen.
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for this viewer
LOAD TEMPLATE
SAVE TEMPLATE
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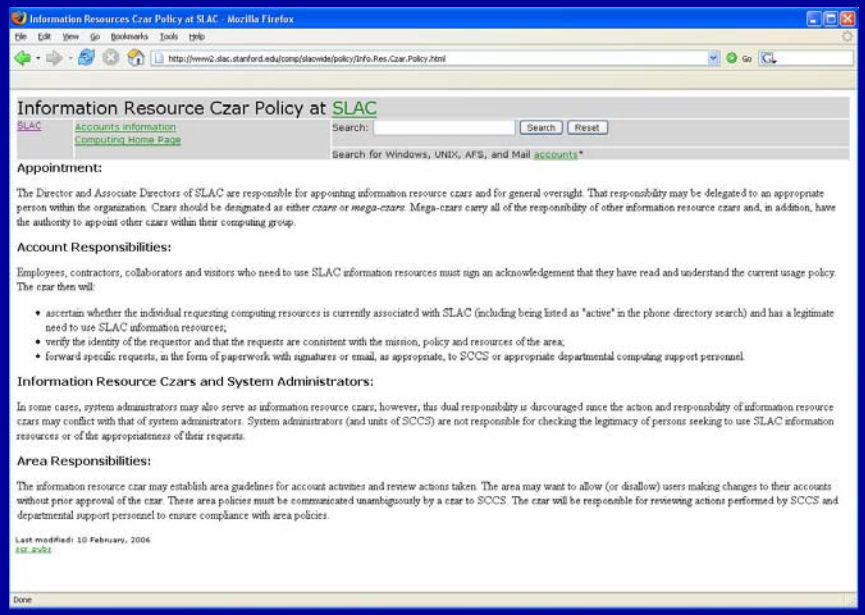
erase area
erase all

Jefferson Lab
Thomas Jefferson National Accelerator Facility

…from CZAR to MYA

..?..


Information Resources Czar Policy at SLAC - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
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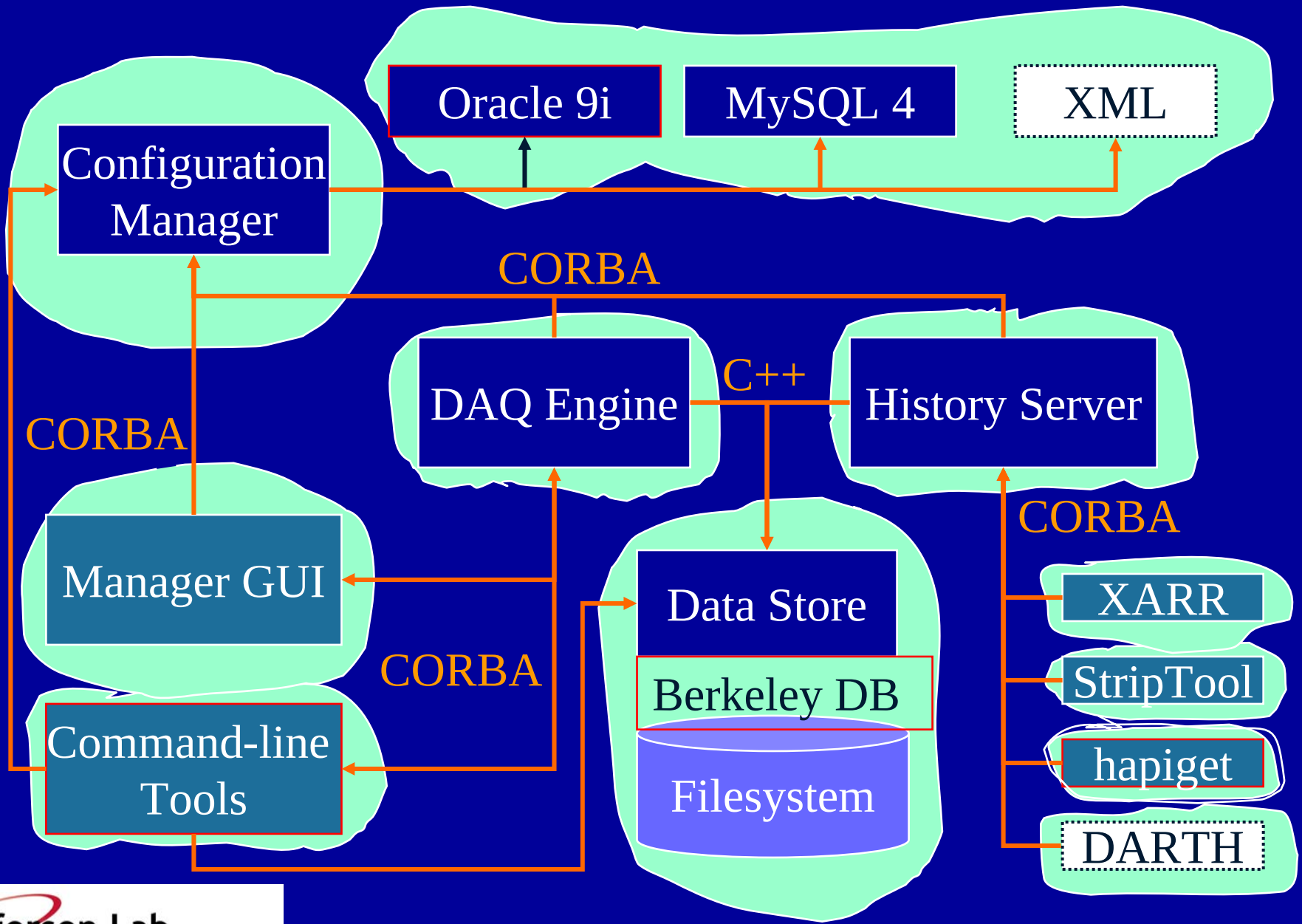
Information Resource Czar Policy at SLAC
SLAC
Accounts information
Computing Home Page
Search:
Search
Reset
Search for Windows, UNIX, AFS, and Mail accounts*
Appointment:
The Director and Associate Directors of SLAC are responsible for appointing information resource czars and for general oversight. That responsibility may be delegated to an appropriate person within the organization. Czars should be designated as either czars or mega-czars. Mega-czars carry all of the responsibility of other information resource czars and, in addition, have the authority to appoint other czars within their computing group.
Account Responsibilities:
Employees, contractors, collaborators and visitors who need to use SLAC information resources must sign an acknowledgement that they have read and understand the current usage policy. The czar then will:
ascertain whether the individual requesting computing resources is currently associated with SLAC (including being listed as "active" in the phone directory search) and has a legitimate need to use SLAC information resources;
verify the identity of the requestor and that the requests are consistent with the mission, policy and resources of the area;
forward specific requests, in the form of paperwork with signatures or email, as appropriate, to SCCS or appropriate departmental computing support personnel.
Information Resource Czars and System Administrators:
In some cases, system administrators may also serve as information resource czars; however, this dual responsibility is discouraged since the action and responsibility of information resource czars may conflict with that of system administrators. System administrators (and units of SCCS) are not responsible for checking the legitimacy of persons seeking to use SLAC information resources or of the appropriateness of their requests.
Area Responsibilities:
The information resource czar may establish area guidelines for account activities and review actions taken. The area may want to allow (or disallow) users making changes to their accounts without prior approval of the czar. These area policies must be communicated unambiguously by a czar to SCCS. The czar will be responsible for reviewing actions performed by SCCS and departmental support personnel to ensure compliance with area policies.
Last modified: 10 February, 2006
Done

..?..

mya
FEAR OF FLYING

CZAR (Channel access Zippy ARchiver) overview



CZAR performance data (B. Bevins, 2005)

- About 37000 signals connected
- Stores ~ 2 GB/day
- 250 billion data points available on-line
- Platform:
  Redhat ES3, dual 3 GHz P4, 16 GB memory,
  1 TB RAID array

MYA: New Data Archiving Project

C. Slominski

- **Utilize mature MySQL**

  high speed file I/O
  concurrency
  backup capabilities
  client/server transport level

- **Distributed design; scalable**

- ***May replace CZAR if successful***

Hardware Inventory

- PowerEdge 2850 server (1U rack size)
  - Two dual-core 2.8 GHz CPUs (2x2 MB cache)
  - 800 GHz fast system bus
  - 12 GB memory (400 MHz)
- RAID disk enclosure
  - RAID 0+1 (stripe & mirror)
  - 16 300 GB SCSI drives
  - 2 TB total capacity

Software Inventory

- MySQL 5.0.24
- Real-time multi-threaded engine
- EPICS 3.13.10 CA client

Capabilities

- One hardware instance:
  - Archive 100,000+ channels
  - Handle 30,000+ updates per second
  - Provide 150,000 history events per second to remote clients
  - Data latency of < 0.5 seconds

E N D