The Next EPICS Data Storage

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EPICS: Experimental Physics and Industrial Control System

Collaboration:
- Over 150 independent projects in North America, Europe, Africa, Australia, South America, and Asia
- Applications in particle physics, astronomy, and industrial control
- Independent development, co-development and incremental development of code done by members
- Large collaboration meetings to report new work, discuss future directions, explore new applications, and explore new requirements for existing codes

Distributed Architecture:
- Flat architecture of front-end controllers and operator workstations that communicate via TCP/IP and UDP
- Client/server based with independent data stores providing read/write access directly between any two points

Collection of Numerous Tools
NSLS-II

one of the new EPICS-based projects

1 M streams from 30,000 heterogeneous physical devices

power supplies, diagnostics, RF, vacuum system, etc

2TB/day
Beamline DAQ

one of the new EPICS directions

Detector data rate: ~ 50 GB /s
Storage data rate: ~ 2 TB /day

Courtesy of Qun Shen (NSLS-II)
SciDB Array-Oriented API

CREATE ARRAY Example < a1:integer, a2:float, a3:MyType> [Dim1=0:* , 1000, 0]
Integrated System
EPICS Collaboration Meeting, PSI, Switzerland, 3-7 October, 2011