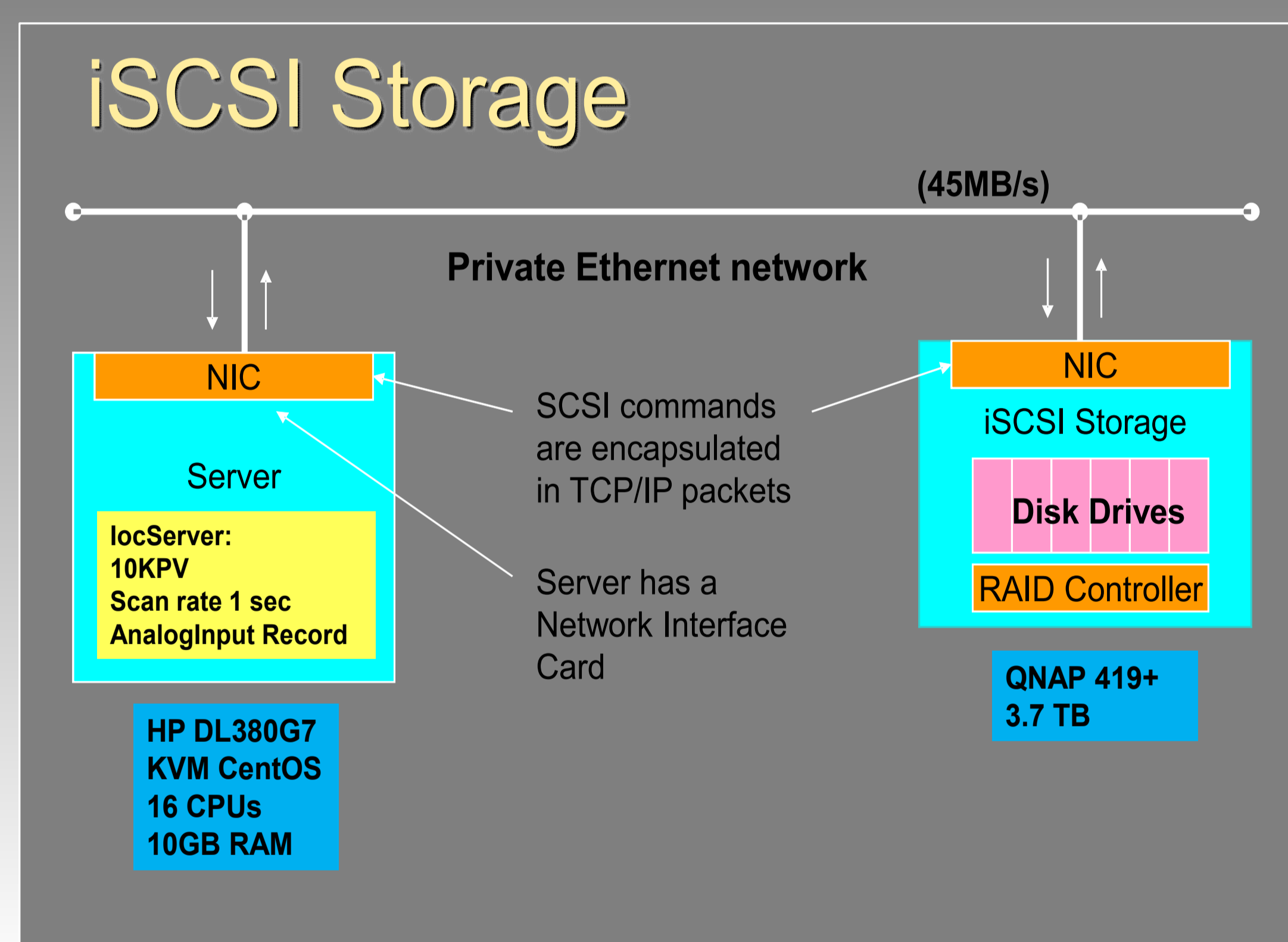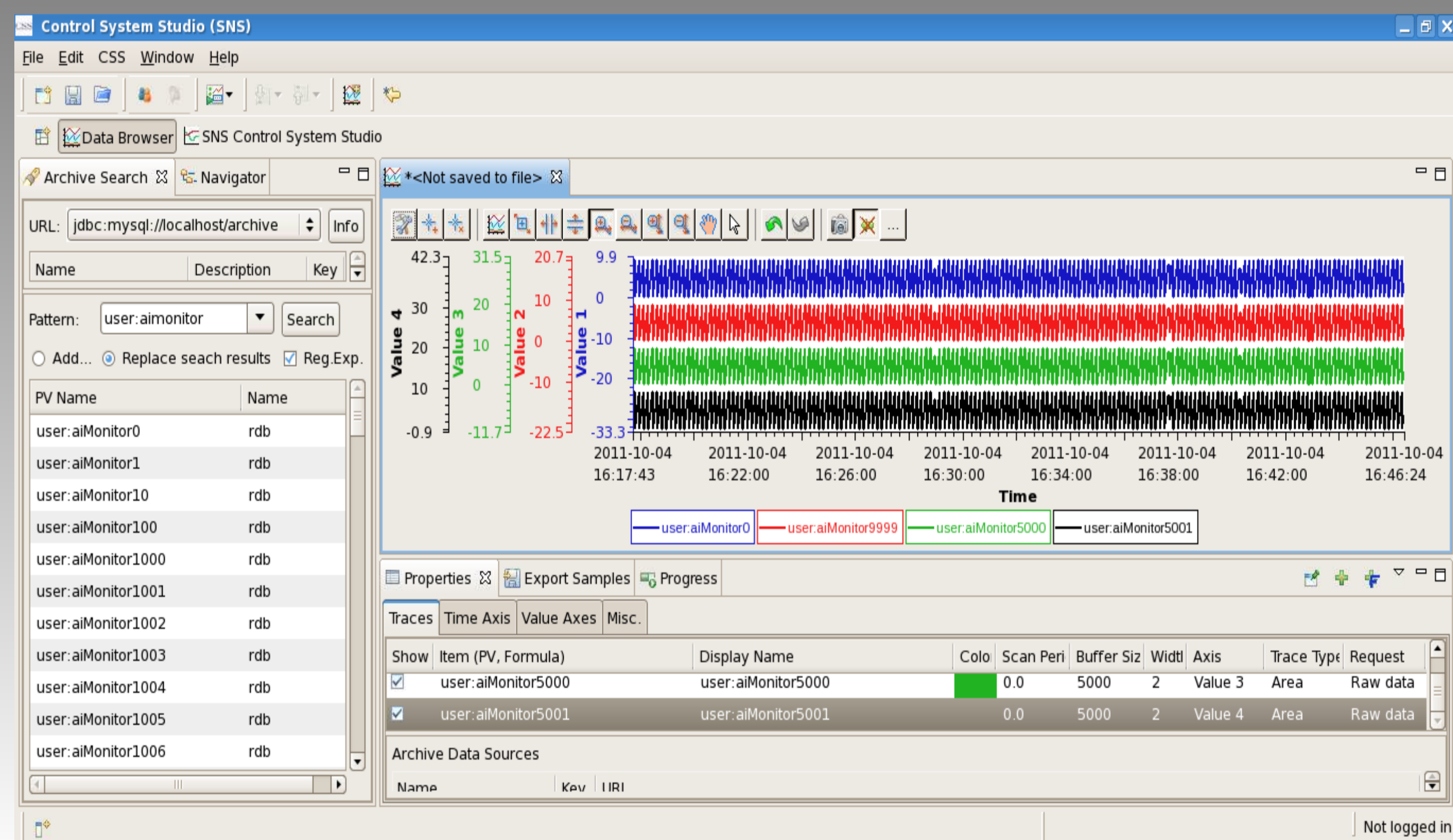# HYPERARCHIVER:
An EPICS Archiver prototype based on Hypertable

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EPICS
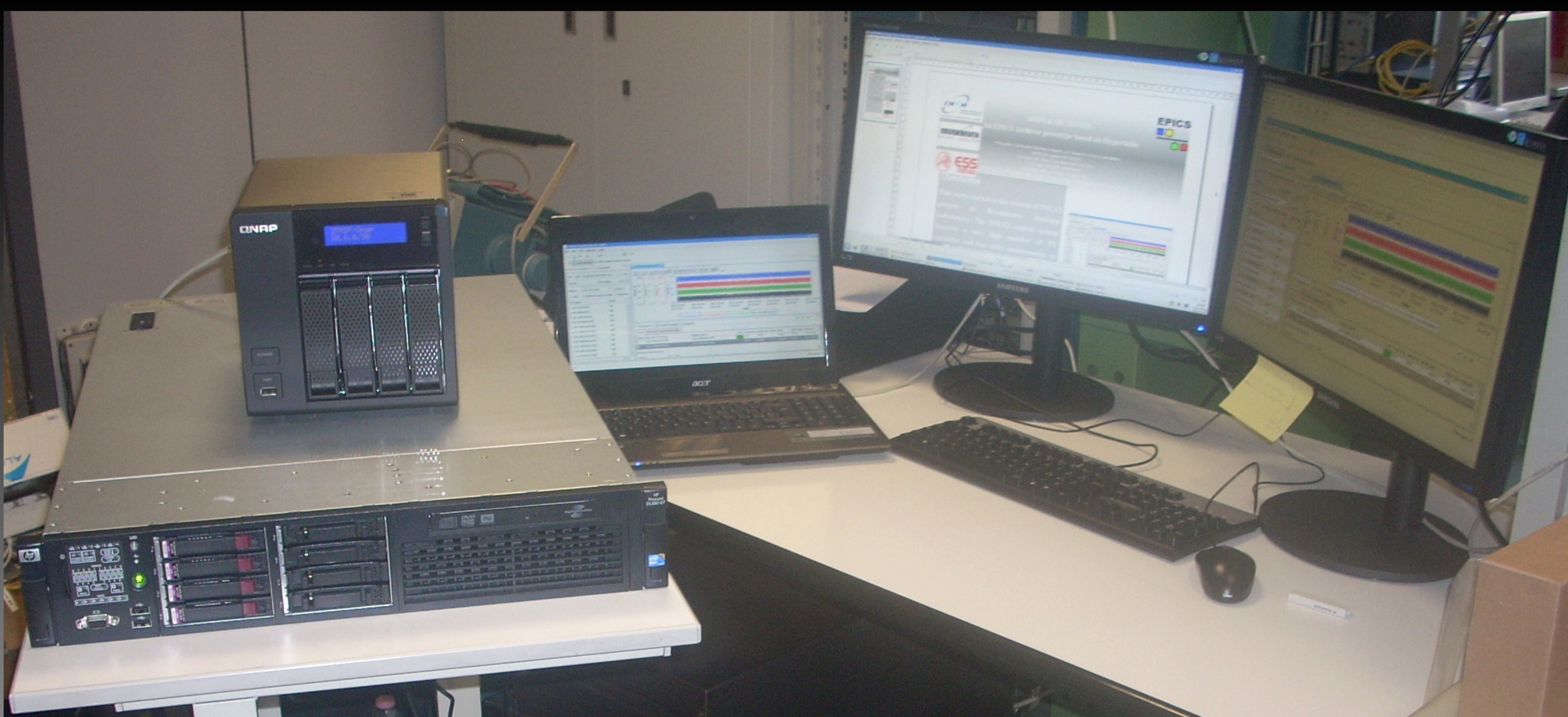
Overview

This work started in the context of NSLS2 project at Brookhaven National Laboratory. The NSLS2 control system foresees a very high number of PV variables and has strict requirements in terms of archiving/retrieving rate: our goal was to store 10K PV/sec and retrieve 4K PV/sec for a group of 4 signals. The HyperArchiver is an EPICS Archiver implementation engined by Hypertable, an open source database whose internal architecture is derived from Google's Big Table.

iSCSI Storage

(45MB/s)

Private Ethernet network

NIC

Server

locServer:
10KPV
Scan rate 1 sec
AnalogInput Record

HP DL380G7
KVM CentOS
16 CPUs
10GB RAM

SCSI commands are encapsulated in TCP/IP packets

Server has a Network Interface Card

NIC

iSCSI Storage

Disk Drives

RAID Controller

QNAP 419+
3.7 TB

THE GOAL

- Store: 10000 channels per second
- Retrieve: 1000 samples for up to 4 channels in less than 1 second
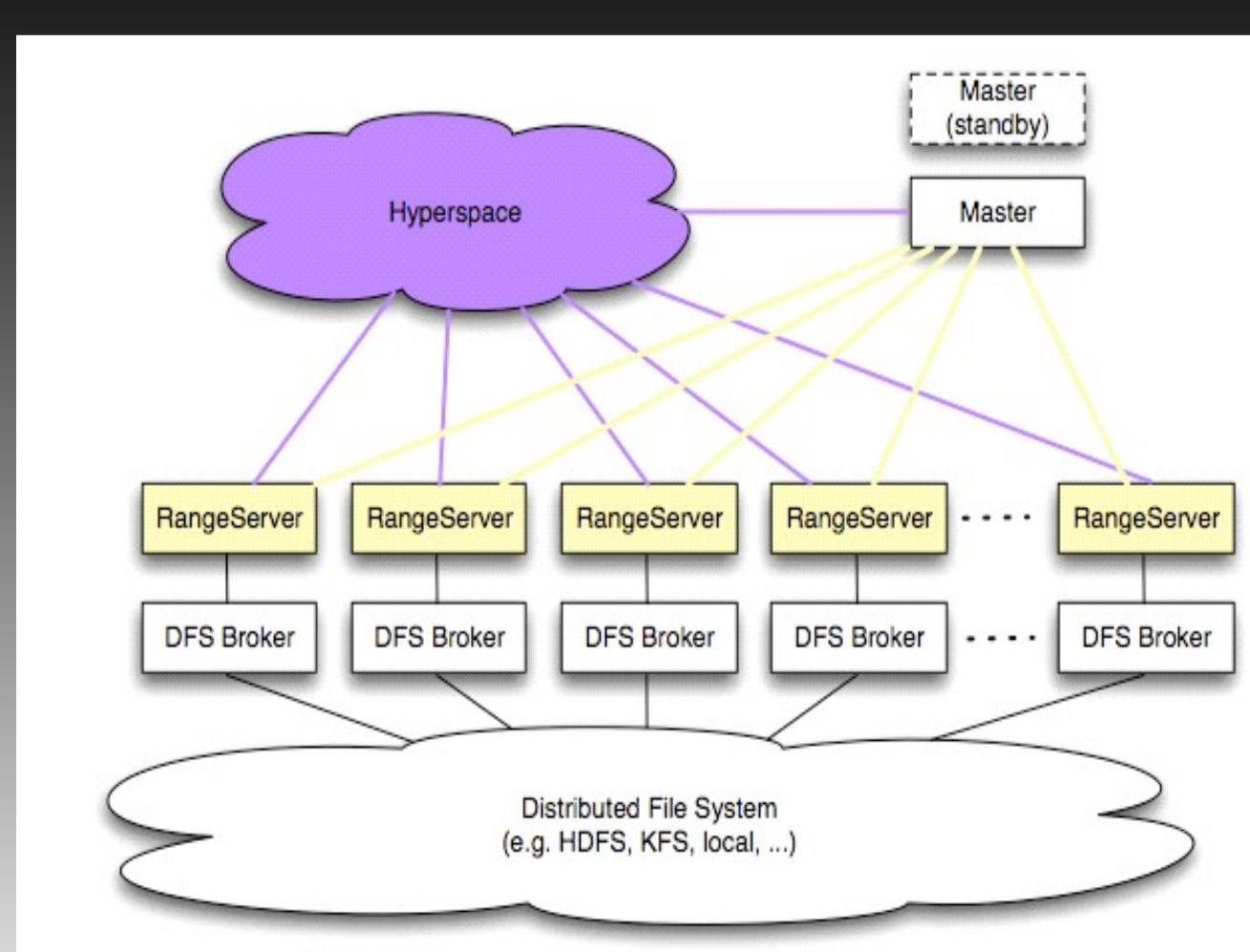
THE RESULT

- Store: 10000 channels in 190msec
- Retrieve: 1000 samples for up to 4 channels in 77msec

High Performance, Open Source Scalable Database.

- Modeled after Bigtable
- High Performance Implementation (C++)
- Project Started in March 2007
- Runs on top of HDFS
- Thrift Interface for all popular languages
  - Java
  - PHP
  - Ruby
  - Python
  - Perl, etc.

HYPERTABLE

www.hypertable.org

Master (standby)

Hyperspace

Master

RangeServer   RangeServer   RangeServer   RangeServer   · · · ·   RangeServer

DFS Broker   DFS Broker   DFS Broker   DFS Broker   · · · ·   DFS Broker

Distributed File System
(e.g. HDFS, KFS, local, ...)

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Professional Support
for Your Next-Gen Big Data Application

Hypertable delivers superior performance over the competition. Hypertable enables scalable data storage so you can easily solve large-scale data-intensive tasks. Hypertable plus a Hypertable, Inc. Support Package ensures your database infrastructure — and your business — is always up and running. Contact us to get started.

Why Choose Hypertable?

High Performance Technology

- Massively scalable
- C++ implementation delivers optimal performance
- Modeled after Google's Bigtable, which powers 100s of Google applications and services.

Hypertable Experts Will Back You Up

Premium Support

Have access to our Hypertable development experts 24 hours a day, 365 days a year. No exclusions. Rest assured your database will be online when you need it to be.
Get the details.

www.lnl.infn.it/~epics/