Computing Division

an attempt to give an
Overview from an Experimental Perspective

Stu Fuess

CD / Scientific Facilities

12-Mar-2009

Computing Division Services
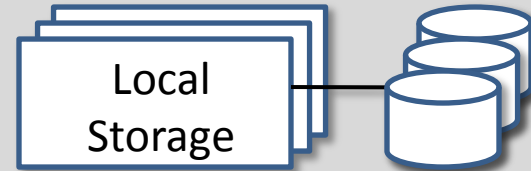
- Take a "layered functionality" view…
  - Not an [Org Chart] view…
  - By no means representative of all of the CD services
    - Largely omitting application and software support
  - Infrastructure centric: "where" things are done as opposed to "how" they are done
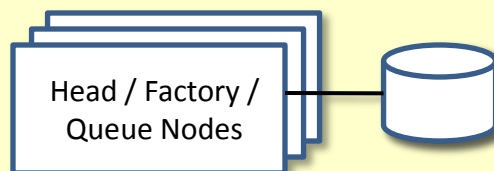 - Roughly "top down" dependencies
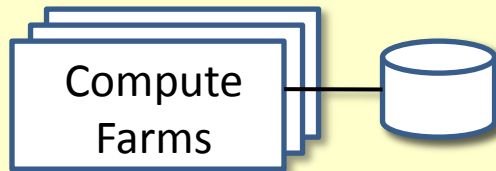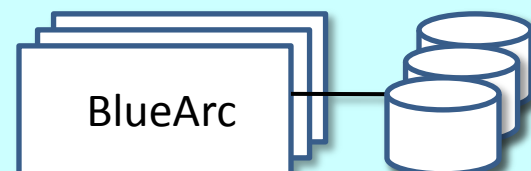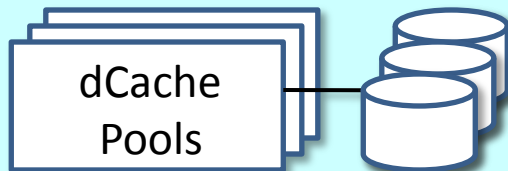
Layered Functionalities

Desktop

Desktops

Interactive

Interactive Pool

Local Storage

Production

Compute Farms

Head / Factory / Queue Nodes

Grid Services

Disk Storage

dCache Pools

BlueArc

Tape Storage

enstore

TIBS

Layered Functionalities

Desktop

Desktops

Interactive

Interactive Pool

Loca[l] Stora[ge]

Databases

Databases

Production

Compute Farms

Head / Factory / Queue Nodes

Disk Storage

dCache Pools

BlueA[rc]

Tape Storage

enstore

TIB[...]
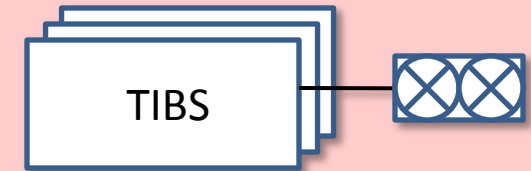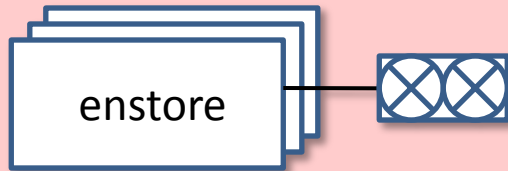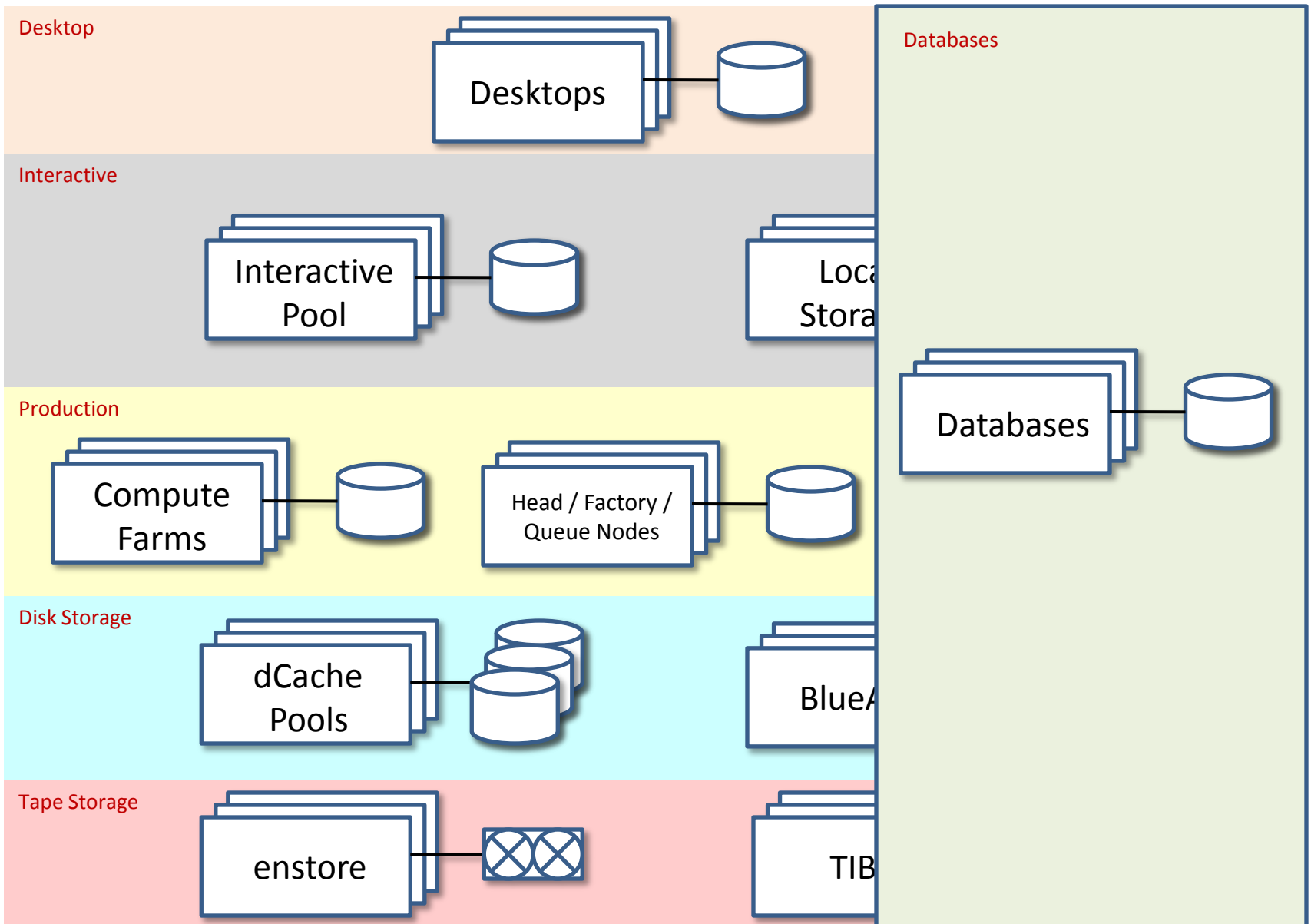
Desktop

Desktops

- Functions
  - User supplied desktops

- CD Services
  - Linux (SLF), Windows, MacOS
  - Security updates

- For assistance:
  helpdesk@fnal.gov

- Issues
  - Users are on their own if they choose something other than supported operating systems and applications

Interactive

- **Functions**
  - Interactive login
    - General or user specific

- **For assistance:**
 helpdesk@fnal.gov
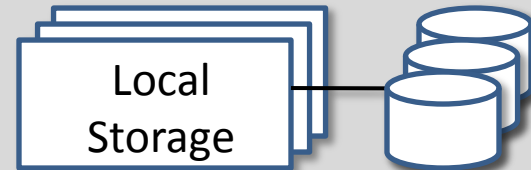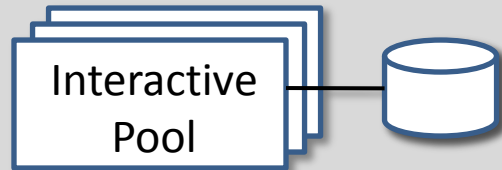
  - Build systems
  - Analysis systems
  - Experiment specific grid job submission

- **Services**
  - System administration
  - Virtualization (future?)
  - Batch system???
  - Procurement advice

- **Issues**
  - Mix of user and CD supported systems
  - Differing OS and SW requirements
  - This is the most mixed and potentially troublesome layer
    - Structure / homogeneity
    - Management
    - Dependencies
    - "Fair share" costs

Looking for common shared solution

Production

- **Functions**
  - Production farms
    - CMS Tier 1 production
      ~ 5,000 cores
    - CDF, D0 Farms
      ~ 10,000 cores
    - GP Farms
      ~ 1,100 cores
  - Grid services

- **For assistance:**
  - helpdesk@fnal.gov

Production
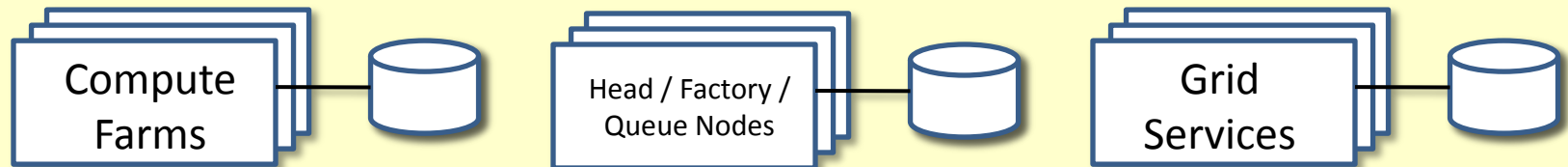
- **Services**
  - System administration
  - Grid submission interface
  - Resource selection
  - Procurement assistance

- **Issues**
  - "Fair share" costs if exceed minimum threshold
  - OS and product version dependencies
  - File system dependencies

Disk Storage

- Functions
  - Near line data storage
    - Dedicated or shared general purpose
  - Application and project area storage

- Services
  - dCache distributed file system
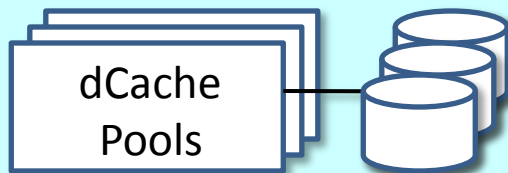 - BlueArc high performance NFS
  - Procurement assistance

- For assistance:
  helpdesk@fnal.gov

- Issues
  - "Fair share" costs or equipment purchase contributions if exceed minimum threshold
  - Understand need for dedicated write or read pools

Disk Storage

dCache Pools

BlueArc

Tape Storage

- Functions
  - Active and archival data storage
  - Large volume backups

- For assistance:
  helpdesk@fnal.gov

- Services
  - enstore
  - TIBS
  - Resource provisioning

- Issues
  - "Fair share" costs if exceed minimum threshold
  - Understand need for duplication and/or geographic dispersion
  - Understand need for long term data retention (and migration) policy

Tape Storage

enstore

TIBS

Databases

- **Functions**
  - Run conditions database
  - Calibration database
  - Data management system

- **Services**
  - Oracle, Postgres, mysql
  - SAM

- **Issues**
  - Not amenable to shared services
  - Support levels for different database products

- **For assistance:**
  helpdesk@fnal.gov

Databases

Databases
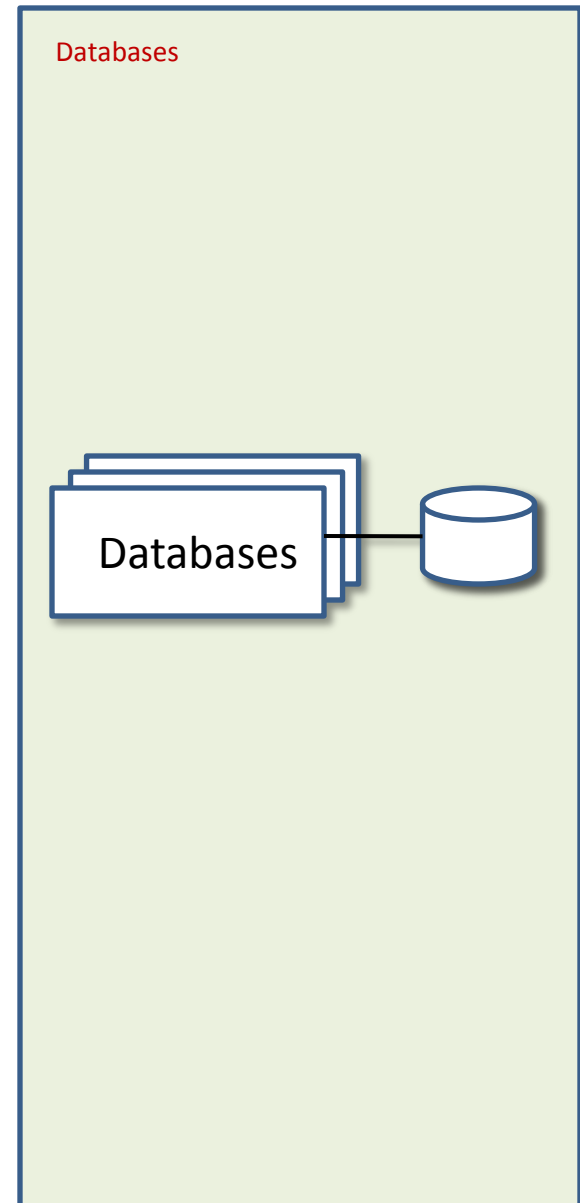
Conclusion

- Think ahead: how can you best leverage "shared solutions" both now and years from now?

- Use the Help Desk as the single point of contact with the CD service providers

- More details from the roundtable participants