



# Research Computing at UW

- Decentralized
- Diverse
- Department specific



# Central IT

- Administrative computing
- Fully charge back with 65% bill out rate for most IT staff
- Technologies such as central storage, e-mail and database clusters
- Minimal research computing involvement - network only



# Scarcity provides Opportunity

- Departments to provide services
  - CONDOR
  - Departmental Condos
- New datacenters for departments
- Network Engineers to provide high throughput Networks



## Grids - CONDOR

- Extremely successful
- Created a community of researchers
  - Not for everyone
  - Social Contract - Clear use conditions
- Created a community of developers
  - Everyone participates in all aspects
  - High use of graduate and undergraduate students



## Grid - CONDOR

- Runs under HP-UX, Solaris, IRIX, Digital Unix, Tru64, Mac OS X, and Linux.
- Well-suited to running the same job hundreds of times with different input data sets or parameters.
- Matches job requirements specified by the user (called job ClassAds) with advertised resource attributes (called machine ClassAds)
- Checkpoint to resume operation



## Grids - CONDOR

- In an essence given the vision of CONDOR can it be a central IT service?
- Issues of ownership and social contract
- Security



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# Grids - CONDOR



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# Departmental Clusters

- Specialized
- Some administered by departmental IT staff  
some by grad students
- Issues of HVAC, power, UPS, uptime  
addressed by each department
  - Network needs between “desktops”
  - Datacenter part of nearly each new building



## 21st century network

- High throughput network in support of research
- Built to support multiple departmental datacenters
- The central IT datacenter not the largest datacenter from networking perspective
- Departmental IT plays integral role



# Lessons that can be learned from 21CN

- Embrace local IT and provide them with tools to do their job
- Allow departmental IT to be the conduit for the departments
- Rely on central IT expertise for large deployments
- Rely on local IT expertise to translate needs to technical requirements



## Issues with central IT and research computing

- SLA rather than community driven
- Staffing and structure of support
- Costs and funding
- Control and social aspects