



Oregon State
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DRAFT LIST OF CONSORTIUM COMPUTING TASKS

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Computing Consortium

- Tasks at every level
 - ▣ System experts
 - ▣ Physicist experts
 - ▣ Future experts
- Resources at every level
 - ▣ CPU for production
 - ▣ Disk for general access
 - ▣ CPU/disk for local/regional analysis



Computing goals

- Acquire and store data
 - ▣ Main event stream
 - ▣ Important other information
- Calibrate and Reconstruct those data
- Make processed data available for analysis by all DUNE collaborators
- Make code available and easy to use by all DUNE collaborators
- Robust documented reproducible procedures



DUNE needs: Large scale resources



- Many are **already accessible** thanks to WLCG/OSG
 - Requests for enhanced resources through national funding agencies
 - Access resources at institutions dedicated to local scientists
- Requires **local experts** to help with integration
 - This has been done successfully at multiple sites
- We need **tools** to monitor/optimize resources
- DUNE computing resources board will need to **assess, track and allocate resources** contributed by collaborating institutions and nations



DUNE needs: Technical Projects



These require highly trained experts with system access. We will try to use pre-existing infrastructure where possible but need to integrate into DUNE

- **RUCIO** for file management
- Databases
- Accounting and monitoring systems to track performance/access
- Job management systems – need to evaluate and integrate
- Code and configuration management
- Adapting DUNE algorithms to use HPC's for large scale processing
- **User support**

All need to be evaluated and upgraded where necessary



DUNE needs: Operations/Policies



Need people to keep everything running – these may be students, or computer professionals.

- **Interfaces with Physics/Detector groups**
 - Through membership in the technical board
- **Data model! Who needs what when and where!**
- Monitoring and steering data flow
- Monitoring and tracking reconstruction processing
- Maintaining access lists and grid maps
- Maintaining metadata relevant to physics analyses
- **Databases**
- Algorithms
- Data Quality monitoring and interfaces
- Generate and upload calibrations



Databases

- Content definition and documentation
- Schema design
- Hardware Implementation
- Distributed DB's
- Population and updates



Production

- Definition of tasks
- Testing
- Storage configuration
 - ▣ (file families/cvmfs/stashcache)
- Site configuration
- Operations
- Audit
- Shifts – non-experts can really help here (and become experts)



Data management

- Catalog
- Storage sites
- Storage policies
- Rucio development
- Operations



Code management

- Releases
- Larsoft integration
- Cvmfs
- Code distribution
- CI tests
- Package management



User/Operations support

- Onboard new users
- Documentation
- Liaison with facilities
- Tutorials
- Help with questions
- Communication of downtimes/policies
- Automation of processes
- Ticketing system



Networking

- Local networks at experiment sites (other Consortia?)
- Connection between sites (ESNET/FNAL)



Management

- Need an architect
- Consortium Board
 - ▣ 1 rep per institution
- Technical Board
 - ▣ Leads + architect + nominees



Resources

- OSG/WLCG shared CPU resources
- Resources reserved for your institution
- Shared storage
- Hosting shared infrastructure
 - ▣ Databases
 - ▣ Documentation
 - ▣ Other services

