

FY11 Plan for Scientific Database Applications

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Relevant Strategic Plans –

- Strategic Plan for Cosmic Frontier
- Strategic Plan for Intensity Frontier
- Strategic Plan for Run II Computing

Goal –

- Support scientific program of the Lab by designing, developing and supporting scientific databases and applications

Scientific Database Applications Strategy –

1. Develop and maintain expertise in modern database and application development technologies
2. Maintain close working relationship with experiments in Astrophysics and High Energy Physics areas
3. Develop common solutions usable by multiple experiments

FY10 Accomplishments

1. Took over CRL support
2. Moved CRL, D0 applications to redundant web servers failover infrastructure
3. Developed DES Constants Database and DES Telemetry Viewer for DES SISPI
4. Began development of the prototype for JDEM/SOC database
5. Finished development of D0 Luminosity database
6. Finished development of NOvA Hardware Database

Not accomplished in FY10

1. Due to lack of funding, we were not able to upgrade our development and production servers. We are still sharing rexdb01, dbweb1 and dbweb2 with Central Services, and these computers are very old and nearing end of their life.

Objectives for FY11

- Continue development of JDEM/SOC database prototype
- Participate in the proposed Trace Hound project
- Migrate all Python applications to Python 3
- Continue development and support of scientific database applications for RunII, Intensity and Cosmic Frontier experiments

ACTIVITIES

Activity= SCIENTIFIC SIMULATIONS & SOFTWARE / Scientific Databases / Scientific Applications / NoVA

- Activity type: Project
- Description: Support and some development of NOvA Hardware DB
- Timescale: FY11
- Milestones:
- Metrics: -----

Activity= INTENSITY FRONTIER / General Computing Support / Data Management

- Activity type: Project
- Description: Design and develop Hardware Database for Minerva
- Timescale: FY11
- Milestones:
- Metrics: -----

Activity= SCIENTIFIC SIMULATIONS & SOFTWARE / Scientific Databases / Scientific Applications / DES SISPI

- Activity type: Project, Service
- Description: Support Constants DB, Telemetry Viewer; continue support of SISPI DB and Web Interface, continue support of SISPI DB replicator
- Timescale: FY11
- Milestones:
- Metrics: -----

Activity= SCIENTIFIC SIMULATIONS & SOFTWARE / Scientific Databases / Scientific Applications / Large Databases

- Activity type: Project
- Description: Research available freeware and commercial products to implement very large (~100TB+) scientific databases
- Timescale: FY11
- Milestones:
- Metrics: -----

Activity= ASTROPHYSICS / JDEM / SNAP Science Operations Center

- Activity type: Project
- Description: Research, propose, prototype JDEM/SOC database
- Timescale: FY11
- Milestones:

- Metrics -----

Activity= SCIENTIFIC SIMULATIONS & SOFTWARE / Scientific Databases / Scientific Applications / Control Room Logbook

- Activity type: Service
- Description: Support CRL application for multiple experiments
- Timescale: FY11
- Milestones:
- Metrics -----

Activity= SCIENTIFIC SIMULATIONS & SOFTWARE / Scientific Databases / Scientific Applications / CDF

- Activity type: Service
- Description: Support CDF applications
- Timescale: FY11
- Milestones:
- Metrics -----

Activity= RUN2 / D0 Computing Support / Grid Computing / Improvement to Ops

- Activity type: Service
- Description: Support D0 applications – Trigger, Speakers Bureau, Luminosity
- Timescale: FY11
- Milestones:
- Metrics -----

Activity= SCIENTIFIC SIMULATIONS & SOFTWARE / Scientific Databases / Scientific Applications / Project X

- Activity type: Service
- Description: Support ILC Ground Motion Database, participate in other projects
- Timescale: FY11
- Milestones:
- Metrics -----

Activity= SCIENTIFIC SIMULATIONS & SOFTWARE / Scientific Databases / Scientific Applications / Python3 Migration

- Activity type: Project
- Description: Investigate feasibility and migrate all Python-based applications to Python3
- Timescale: FY11
- Milestones:
- Metrics -----

Activity= GRID & CLOUD COMPUTING / Grid Services / Security / Trace Hound Project

- Activity type: Project
- Description: Participate in Trace Hound project, if it gets approved
- Timescale: FY11

- Milestones:
- Metrics -----

Priorities:

1. RunII support
2. Cosmic and Intensity Frontier applications

Risk Assessment: However, amount of resources we have seems to be sufficient to provide application support.

Ageing hardware very significant risk factor. Our development and production computers are recycled farm nodes, which are close to their end of life, and we share them with Central Services. Although production servers are redundant, and failure of one of them will not immediately affect production, we do need to replace these computers in FY11.

RESOURCES REQUEST

Staffing Request per role (FTE-years)

- Database Expert - 1.30
- Developer – 2.45
- Total – 3.75

3.75 – existing personnel

Hardware Request:

• Replace development server rexdb01 –	\$10000
• Replace 2 production servers dbweb1,2 -	\$10000
• Desktop purchase, repairs -	\$6000
• Travel	
○ Domestic	\$6000
○ Foreign	\$10000
• Training, books, software	\$3000
Total	\$45000