Joint Venture ITAC funding request

Requested for 2007-2008 funding cycle

Virtualized Distributed Data Center Prototype

Partners: Business, Communication, Engineering & others benefiting

Costs and contributions	Funding
Requested ITAC contribution	**$300,000**
Business contribution	**$175,000**
Communication contribution	**$75,000**
Engineering contribution	**$175,000**
Total:	**$725,000**

Supporting information:

Maintaining mission critical data and services in a single geographic location is an escalating concern and risk for the entire campus. Single points of failure weight heavy upon the minds of IT system administrators who understand the increasing needs of faculty, students and other business units of the campus to have highly reliable access to data and services.

Course critical content is already highly distributed and although linkages to content will likely emanate from the campus courseware solution, the content will be housed at increasingly dispersed locations. A wholly centralized solution is insufficient to address the inherently distributed nature of content creation and curation. Business, Communication and Engineering are certainly interested in helping to mature and deploy this much needed model across campus and find it reasonable to have the costs of this endeavor to be shared by an ITAC investment.

A well architected, virtualized, distributed and redundant data center culture needs to be prototyped and implemented across campus. Engineering, Business, Communication and other Colleges/Schools such as the Law School envision working together to identify and build a practical and replicable distributed data center model for the campus in concert with appropriate centralized data center facilities.

Business, Communication and Engineering are proposing to build cooperative data center nodes that will host appropriately synchronized/duplicated/replicated data and services. The data center will have both active and passive components and will be architected around virtual servers running on space efficient blade server or multi-processor hardware using an affordable Storage Area Networks. Sophisticated switching and networking accommodations will permit rapid switch-over should failsafe services be needed.

Leveraging the benefits of compact and scalable data center technologies which have already proven themselves in industry will permit dramatic cost savings over heretofore conventional data center implementations. The virtualized and distributed node model will provide active load balancing options and more affordable and faster recovery from disaster situations than either conventional or wholly centralized solutions.

The initial data center nodes will be able to host a total of 240 servers in server/SAN racks. Business, Communication and Engineering are anticipating only needing about 20 servers each to replicate appropriate mission critical services and the excess capacity could be used to address other College or ITS data/server needs. If these estimates scale, potentially all College critical data/service needs could be distributed for roughly 1.5 million dollars. The characteristics, costs and human resource needs of these capabilities will be quantified as a model for replication.

The magnitude of savings compared with conventional approaches and potential benefit to the campus at large certainly make this a compelling prototype pursuit and Business, Communication and Engineering are willing to invest substantially to help the campus realize the potential of this distributed data center solution to run both primary and failsafe services.

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