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RESEARCH & SCHOLARSHIP

The new reality of the research enterprise is reduced federal funding and greater reliance on large, distributed multi-disciplinary teams. UC must act to sustain a research environment that competitively advantages research faculty and staff in the recruitment and retention of colleagues and graduate students, in attracting funding, and in participating in high-profile, multi-institutional initiatives.

WHERE ARE WE?

- The networking requirements of UC's research communities continue to grow and evolve at a rapid pace.
- Nationally and internationally, research networks are implementing higher bandwidth capacities and new connectivity models that surpass UC's current capabilities. In some cases, this is made possible by state, federal and private support.
- In 2002, UC operated 4 out of the top 10 supercomputers in the world, and 7 out of the top 25; in 2006, UC operated 2 out of the top 10, and 3 out of the top 25.
- UC is increasingly challenged by the growing space, power, cooling and support requirements of distributed research computing technologies located throughout the University. Peer institutions are developing managed services as an alternative.

UC faculty and researchers across disciplines require access to a cyberinfrastructure of supported computing resources and services that enable them to perform their work in the context of the University's academic mission.

Research data need to be collected, transmitted, mined and interpreted in increasingly sophisticated ways. Researchers require services for data storage, management, shared access, standards and security – all of which loom large on the horizon for IT service providers.

The University should join forces to develop a UC-wide cyberinfrastructure to ensure its continued research leadership and to support faculty needs for reliable and accessible computing, networking and data management services.

INFORMATION TECHNOLOGY GUIDANCE COMMITTEE

The Information Technology Guidance Committee (ITGC) established by UC Provost Rory Hume is engaged in a consultative, 18-month University-wide planning process to identify and recommend strategic directions for investment in information technology (IT). These draft recommendations reflect the thinking of the ITGC at a particular point in time, and are by no means final. For access to the draft interim report or to send us your feedback: www.universityofcalifornia.edu/itgc.



WHERE MIGHT WE GO TOGETHER?

Potential steps include:

Substantially enhance UC's advanced network services.

Vision: All UC institutions will have the network connectivity required to support their strategic activities.

- Approach:**
- Complete the intercampus optical data communication network by extending a connection to UCSC.
 - Upgrade every campus's primary high-speed network connection to support advanced research requirements (to a minimum of 10 Gbps Ethernet).
 - Satisfy short-term needs and explore long-term requirements for advanced, fiber optic network services within and among UC campuses, and to external entities.
 - Implement technologies and services to ensure end-to-end reliability of network services.

Create UC Grid.

Vision: All faculty will have access to research cyberinfrastructure services delivered via UC Grid, a UC-managed infrastructure that enables sharing of resources throughout the University, as well as providing a gateway to resources around the world.

- Approach:**
- Extend grid access infrastructure to all UC campuses, and expose existing computing resources to the UC Grid for contributing to and accessing computational, data storage, and visualization resources.
 - Add new computing resources to the UC Grid.
 - Develop strategies to encourage appropriate sharing of critical resources, such as data center space and system administrators, as well as computing and storage resources.
 - Develop a set of secure storage services that support collaboration, long-term preservation, and large-scale computation.