

# Developing a Comprehensive Disaster-Recovery Plan

Prepared for CENIC  
by USC Information Technology Services  
March 2010

# Why Business Continuity and Disaster Recovery?

We want to provide continuous service and improved backup for mission-critical systems and normal business operations.

USC is located in Southern California, where there is a significant risk of a large earthquake in the near future.

There is also concern that an outbreak of flu could require faculty, students, and staff to work remotely for 1 to 3 weeks.

# USC Goals

## **For Business Continuity:**

- critical teaching functions to be restored as soon as feasible (within 7 days)
- critical research functions to be restored as soon as feasible (within 14 days)

## **For Disaster Recovery:**

- identified ITS services to be restored within required timeframes

# Business-Impact Analysis

ITS is working with a certified business-continuity specialist to:

1. Conduct a business-impact analysis.
2. Evaluate business-recovery strategies.
3. Develop the business-continuity plan.
4. Maintain that plan on an ongoing basis.
5. Test that plan annually.

# Critical ITS Business Functions

- USC emergency website
- University's phone operators
- University's voice network service
- ITS Network Operations Center
- Internal data network service
- External data network service
- Security of information
- Web-based communications systems

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# Critical ITS Business Functions

- Customer support center & communications services
- ITS purchasing
- Enterprise systems, disk storage, student information systems, and related facilities
- Colocation services
- Online educational technology applications (including Blackboard)
- ITS timekeeping and payroll

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# Critical ITS Business Functions

- Support for classroom labs, multimedia classrooms, and computer centers
- Audio/video conferencing services
- USC's Center for High-Performance Computing and Communications (HPCC)
- Support for the USC Shoah Foundation Institute video archives
- ITS budget administration

# Business-Continuity Planning

ITS is identifying those core services that require the attention of key staff members. To mitigate risk, ITS is developing contingency plans by service, including:

- Improved documentation.
- Cross-training of staff.
- Development of telecommuting options and guidelines.



# ITS Disaster-Recovery Tier-1 Services

Timeframe: online within 24 hours of a disaster with no more than 24 hours of data loss.

- critical to ITS business processes, or
- critical to university infrastructure, or
- critical to teaching, or
- critical in order for other departments' critical business processes to function and/or vital records to be accessed.
- examples: authentication, student information system, email, and Blackboard

# ITS Disaster-Recovery Tier-2 Services

Timeframe: online within 7 days after disaster.

- critical to research, or
- critical in order for other departments' critical business processes to function and/or vital records to be accessed, or
- non-critical but necessary services supporting ITS's infrastructure or service offerings, or
- identified as non-critical but necessary services supporting other departments.

# ITS Disaster-Recovery Tier-3 Services

Timeframe: online within 14 days after disaster.

- supporting ITS's infrastructure or service offerings, or
- non-critical secondary services supporting other departments' operations.

# ITS Disaster-Recovery Tier-4 Services

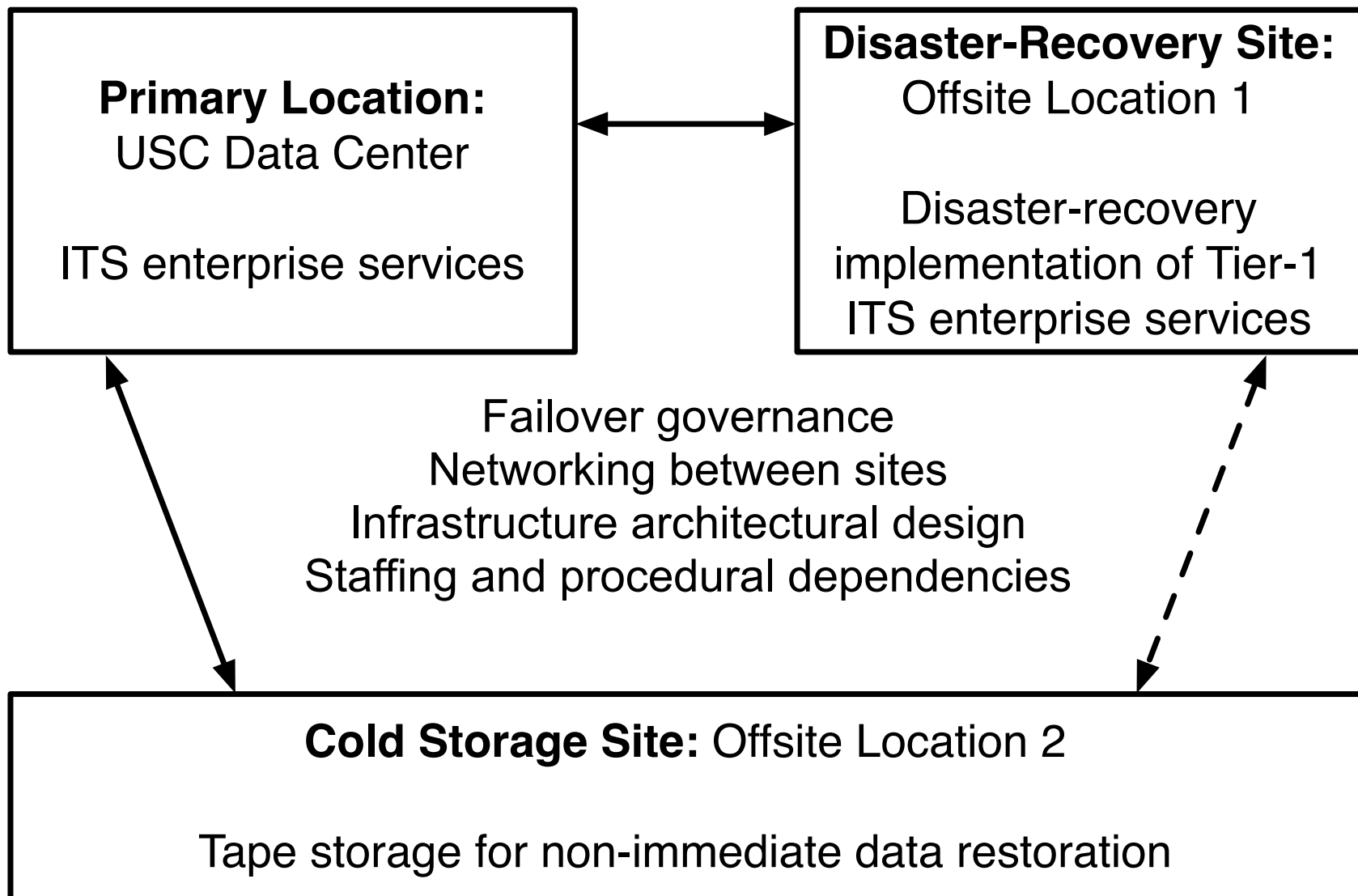
Timeframe: unlikely to be brought up in the short-term following a disaster; online within months of a disaster.

- considered necessary for normal operations, but not considered necessary for short-term, post-disaster operations, and
- downtime-tolerant.

# ITS Disaster-Recovery Site and Network Design Considerations

- Bandwidth
- Cost
- Redundancy
- Last-mile challenges
- Disaster-recovery site is geographically distant enough to be outside of a likely earthquake zone and still within driving distance
- Cold storage site is on the U.S. East Coast

# ITS Disaster-Recovery Site Design



# Service Interdependencies

Both system and business-process interdependencies need to be identified early as part of the disaster-recovery planning process.

Interdependencies must also be reflected in the restoration-process design.

# Critical ITS Tier-1 Enterprise Services

Connectivity, load balancers, console aggregators, network management, fiber channel service, backup/restoral management tools and metadata

System, disk array and network monitoring and performance alert tools

Domain Name Service (DNS), Network Time Protocol (NTP)

Network Information Service (NIS), shared directories, networking, wireless, and systems databases and services (including DHCP)

Databases, database management services, and related middleware applications

Accounting, accounts management and related databases, affiliate accounts and password management, and first login

Person Registry (PR), Global Directory Service (GDS), Kerberos, Lightweight Directory Access Protocol (LDAP), and Shibboleth (single sign-on)

USC main web server, portals, blogs, content management systems and other web-based communication services

USC enterprise email services including Google Apps for students

Learning management system and grading roster tools

Student Information System (SIS) and associated applications:

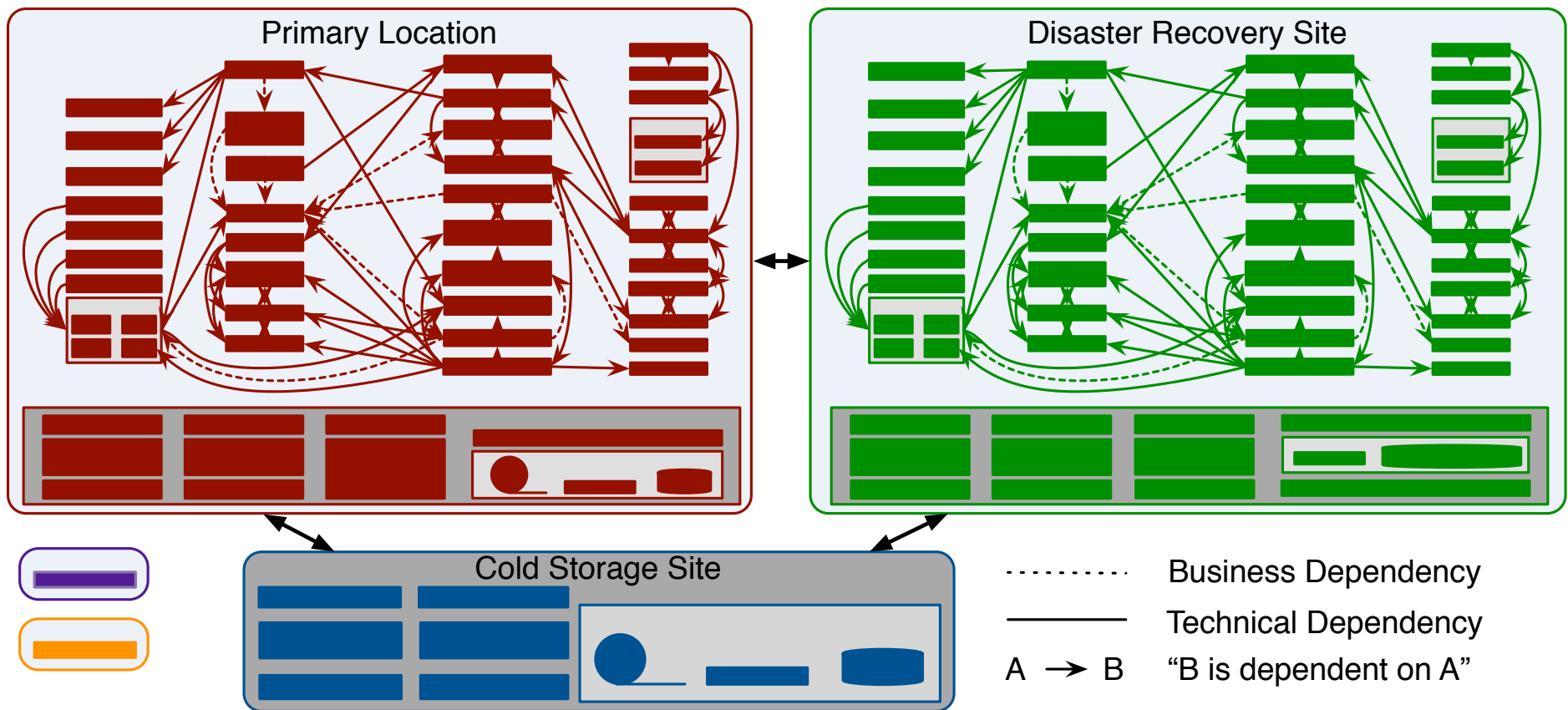
Document management, admissions, prospective students' portal and application management tools, enrollment, schedule of classes, course registration, degree audit reporting system, advisement, curriculum and bookstore services, and associated connectors to e-pay service

ITS website, ticket request tracking, customer service and knowledgebase tools

Tools and services required by regulatory agencies



# Critical ITS Tier-1 Enterprise Service Interdependencies



## Center for Scholarly Technology

Building partnerships for technology-enhanced learning

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### Maintaining Your Classes in an Emergency

On September 1, 2009, Provost Nikias sent a memorandum to all USC faculty members, titled [Maintaining Your Classes in an Emergency](#) (PDF). This memo outlines eight key points to help faculty members fulfill their duties to students in the event of an extended emergency situation, such as that caused by a flu pandemic, earthquake, or other crisis.

Information Technology Services is committed to providing support and services to help faculty maintain their classes during an emergency. A list of key Blackboard services and guidelines is included below.

#### Blackboard

According to Provost Nikias's memo, faculty members should activate all their courses in Blackboard with an instructor of record and a syllabus. Whether or not faculty members use Blackboard regularly, these steps represent crucial preparations for possible emergency situations.

Faculty who are not familiar with Blackboard should enroll in the Blackboard online workshops for instructors that are offered by the Center Scholarly Technology (CST).

- To view a complete listing of Blackboard online workshops, visit [http://cst.usc.edu/events/bbworkshop\\_online](http://cst.usc.edu/events/bbworkshop_online).
- To schedule a customized Blackboard training workshop for your academic unit, contact [blackboard@usc.edu](mailto:blackboard@usc.edu). Training workshops can be arranged for groups of 10 or more.
- USC's Blackboard learning management system is available at [blackboard.usc.edu](http://blackboard.usc.edu). Contact your academic unit's class scheduler to obtain Blackboard sites for your courses.
- To access Blackboard self-help materials, training videos, and other guides, please visit [www.usc.edu/its/blackboard/support/bb9/#guides](http://www.usc.edu/its/blackboard/support/bb9/#guides).
- For 24/7 Blackboard support, contact ITS Customer Service Center at 213-740-5555 and choose Option 3, or send an email to [blackboard@usc.edu](mailto:blackboard@usc.edu).

#### Plan B Assignment

Instructors should be prepared to give students a "Plan B" assignment, if courses are canceled for one to three weeks during an emergency. If you would like help designing an assignment that engages students in active learning, has a service learning component, or employs collaboration, communication, social networking, or multimedia technologies, please contact the CST ([cst@usc.edu](mailto:cst@usc.edu)) or the Institute for Multimedia Literacy ([iml@cinema.usc.edu](mailto:iml@cinema.usc.edu)).



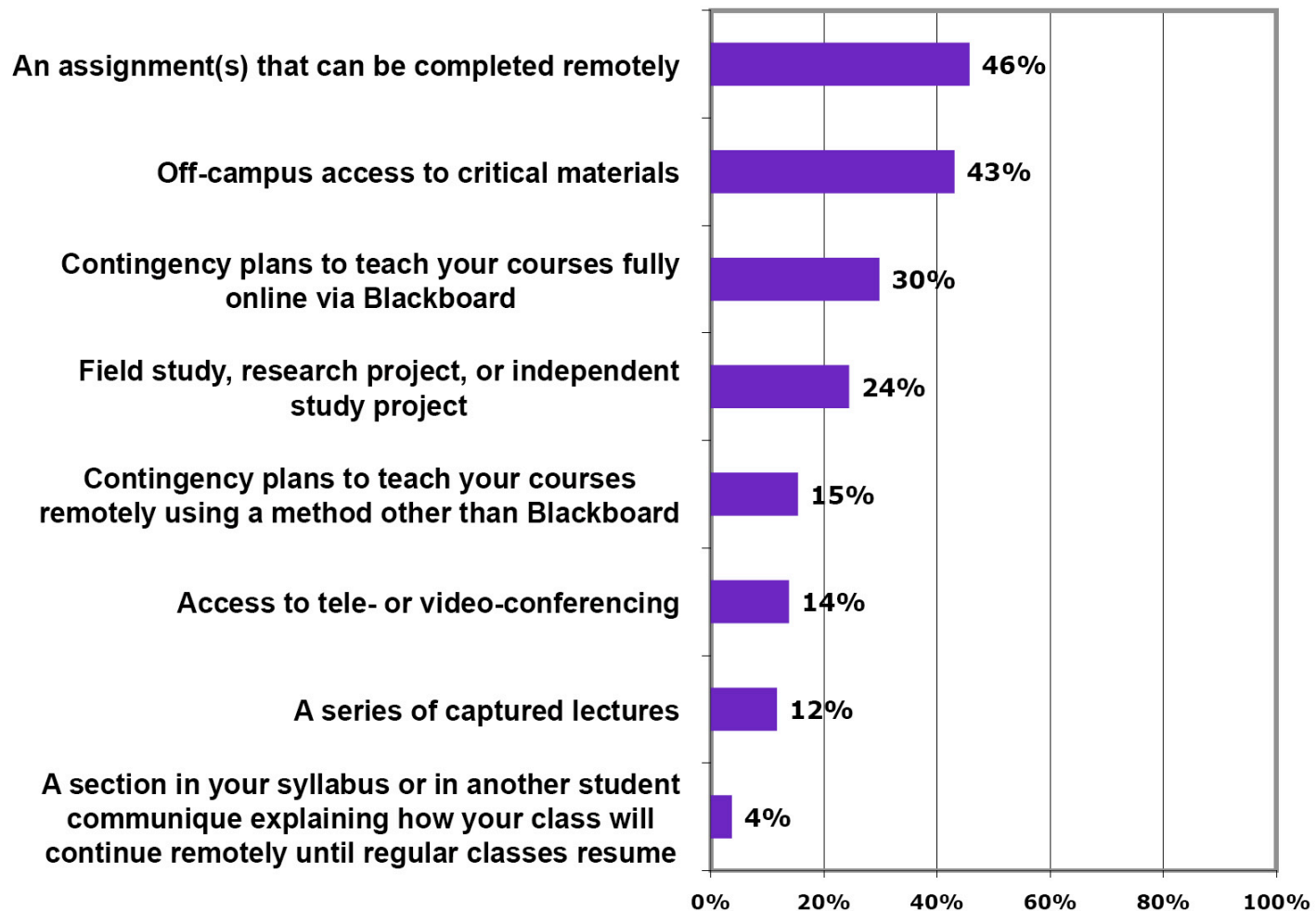
#### Services

- Designing Technology Enhanced Learning
  - CST Service Process
  - Instructional Design
  - Grants & Incentives
- Managing Blackboard
- USC e-learning Community
  - Faculty Forum Series
  - Communities of Practice
  - TEL Technical Circle
  - TWT Conference
- Training & Workshops
- Learning Environments
- USC Distance Learning

<http://cst.usc.edu/services/emergencyprep.html>

# Faculty Survey Response

**Q51. Elements of Emergency Preparedness Faculty Have in Place in the Event the University Suspends Classes for One to Three Weeks, n=188**



# Teaching with Technology Incentive Grants

Funding to faculty to develop a 1-to-3-week active learning assignment, accessible via Blackboard learning management system.

- Assumes basic network connectivity, electricity, and Blackboard availability.
- Aligns with the Provost's Emergency Preparedness initiative.
- Includes a course design and implementation planning workshop led by the Institute for Multimedia Literacy and the Center for Scholarly Technology (CST).
- Includes an assessment and evaluation workshop and consultations led by CST and the Center for Outcomes Research and Evaluation.

# Closing and Discussion

For additional information  
concerning this presentation:

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