



CENTRAL OREGON
community college

BANNER DISASTER RECOVERY TEST

INFORMATION TECHNOLOGY SERVICES

Spring 2014

Public Document – Confidential Information Removed

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EXECUTIVE SUMMARY

During fall 2013, Dan Cecchini, Chief Information Officer, tasked the Information Technology Services (ITS) department of Central Oregon Community College to perform a disaster recovery (DR) test of the Ellucian Banner enterprise resource planning (ERP) application. The main drivers for this decision were the fact that Banner is the main mission-critical application for the College, and that a lengthy unplanned outage for Banner would be extremely detrimental to the institution. Compounded with the fact that the DR plan for COCC's ERP solution was almost completely theory, it was important for the department to perform an actual DR exercise and investigate all of the components involved directly. Summary of the departments findings are as follows:

Disaster Recovery test successful, although not effectual: As indicated on by the test results detailed on page 5, the Banner Disaster Recovery environment successfully came online. The system accurately represented data from the system backups, allowing each COCC business unit to access the data, perform transactions, and report as necessary to continue the mission critical business functions Banner services.

Disaster Recovery readiness must be prebuilt: Many necessary tasks required to bring hardware supporting Banner online from backups require several days' worth of work to accomplish. Case in point - building an Oracle virtual machine environment onto a server chassis and preparing it to host a restored COCC Banner virtual machine (VM) takes several weeks of preparation. Oracle recommends having a pre-staged disaster recovery environment online, running at an offsite disaster recovery datacenter. In addition to the core Banner server, the ITS Infrastructure team must have prepared equipment dedicated to disaster recovery efforts on-site, as orders for recovery switches and routers may take several days to arrive from Portland and then require configuration by the staff.

INTRODUCTION

Central Oregon Community College utilizes Ellucian Banner to manage the enterprise resource planning functions for the organization. In an effort to facilitate continued availability of this service, and to minimize the potential for future unplanned outages, Dan Cecchini commissioned a project for Information Technology Services to perform a disaster recovery test for the systems comprising Banner. This project assessed the current disaster recovery capability of the Banner system using existing resources, provided a real world example of the efforts and time required for recovering from a catastrophic hardware failure.

PURPOSE

Once the DR test team had officially determined that Banner was the primary focus for the disaster recovery test, the team investigated all options for recovery and investigated the most likely applicable recovery scenarios. As COCC does not yet have any form of offsite datacenter for recovery, the team concluded that current DR process would be to a recovery of the Banner systems onto existing unused hardware. Information Technology Services expected to accomplish this by powering up existing unused, antiquated hardware, and then rebuilding or restoring operating systems and databases from backup storage mediums as appropriate.

SCOPE

- While testing disaster recovery (particular, while testing Banner, the core collegiate business systems,) it is possible that restored technology will conflict with existing production technology. *It would be unacceptable that DR test recovery systems interfere with business functions.*
- The project must ensure that it does not alter any production data.
- In an effort to save costs, the project should use existing infrastructure where possible.
- The DR test team should include representatives from each major business functional area (see page 6), so that verification of the recovered data is as holistic as possible.
- While testing, representatives from business functional areas should also test and verify that they can modify and report against business data, as would be required by their departments during a declared emergency and recovery effort.

PARTICIPATING DEPARTMENTS / MEMBERS

| | |
|----------------------------|--|
| ITS | Dan Cecchini – CIO |
| MIS | Ed Sea –Director –Managed Info Systems |
| INF | Laura Boehme – Director- Infrastructure |
| ECS | Cindy Jeffreys – Systems Integrator |
| INF | Jeff Floyd – Sr. Network Administrator |
| INF | Wade DeBraul – Network Administrator |
| MIS | Paul Niswonger – DBA |
| MIS | Lynn Roy – Banner Programmer |
| User Services | Juan Olmeda-Chavez – Microcomputer Specialist |
| Payroll | Unavailable – End of Year workload |
| Fiscal Services | Lisa Bloyer – Director of Accounting |
| ITS (Purchase Orders) | Stephanie Goetsch – Admin Asst. |
| Human Resources | Katie Graham – HR Specialist |
| Financial Aid | Pam Beyer |
| Student Module | Chris Mills - Student Module Manager/ Analyst |
| Admissions and Records | Stella Mackey |
| Campus Public Safety | Cady-Mae Hunt – Office Specialist/ Dispatcher |
| Continuing Education | Jerry Schulz - Director |
| Purchase Orders | Stephanie Goetsch – Admin Asst. |
| Course section level setup | Elaine Simay - Barton |
| Course catalog setup | John Armour |
| Banner Self Service | Chris Mills – Student Module Mgr. |

AUTHORITIES AND REFERENCES

ORACLE OFFICIAL DISASTER RECOVERY DOCUMENTATION

[Oracle VM 3: Overview of Disaster Recovery Solutions](#)

[Oracle VM 3: Backup and Recovery Best Practices](#)

DR BUSINESS GROUP RESULTS

Payroll:

Payroll was unable to participate in testing do to both the fact that the department had recently changed leadership to Shelley Huckins, and the fact that preparation for the test was happening during the end of the year processing.

Fiscal Services:

Testing was successful and largely uneventful. The only exception being that during the timeframe when Lisa Bloyer ran her reports, and when the ITS performed the system backups, some students had made payments to their accounts online. Lisa was able to reconcile these transactions and they verify that they were no data integrity issues.

Human Resources:

Katie Graham was able to test successfully and found no issues.

Financial Aid:

Pam Beyer created the disaster recovery test plan for her department, however was unable to test because of scheduling issues.

Student Module:

Chris Mills was able to test successfully and found no issues.

Admissions and Records:

Stella Mackey was able to test successfully and found no issues.

Campus Public Safety:

Cady-Mae Hunt was able to test successfully and found no issues. However her department relies on with information from Argos, including a 'Weekly Parking Offenders' report which is emailed from Argos. As Argos is not part of the testing, things of this nature are not in the scope of this report.

Community Learning:

Jerry Schulz was able to test successfully and found no issues.

Purchase Orders:

Stephanie Goetsch was able to test successfully and found no issues.

Course Section Level Setup:

Elaine Simay-Barton was able to test successfully and found no issues. However as Form Fusion was not setup, many printed reports were missing content such as logos, bar codes, digital signatures, and any other information requiring images or special typographical fonts.

Course Catalog Setup:

John Armour was able to test successfully and found no issues.

Self Service:

Chris Mills was able to test successfully and found no issues.

ACRONYMS

Active Directory (AD): A system storing the configuration of servers and workstations for COCC's Windows networked infrastructure including user accounts, file and printer shares, security policies, and numerous other items.

Banner: Enterprise Resource Planning software used by COCC, sold and supported by the vendor 'Ellucian'.

Cisco switch: A networking device that processes network traffic between servers, workstations, and telecommunication devices.

Datacenter: A facility used to house computer systems and associated components, such as telecommunications and storage systems.

Disaster Recovery (DR): Recovery or continuation of technology infrastructure, which are vital to an organization after a natural or human-induced disaster. Disaster recovery focuses on the technology systems that support business functions, as opposed to business continuity, which involves planning to keep all aspects of a business functioning in the midst of disruptive events.

Enterprise Computer Services (ECS): The ITS department which performs server and storage integration for the applications MIS supports, email, backup services, and plethora other services.

Enterprise Resource Planning (ERP): ERP is form of business management software, often an integrated suite of applications, that a company can use to collect, store, manage and interpret data from core business activities.

Environment: Loosely defines a collection of applications, network and server infrastructure, configurations and data resulting in a functional conglomeration of technology that supports a set of business functions.

Ethernet: A family of networking technologies for local area networks.

Infrastructure (INF): The Information Technology Services department which supports network WAN & LAN, cabling, switch and router management, firewall and DMZ technologies, and myriad other services.

Demilitarized Zone (DMZ): Perimeter network or sub network that contains and exposes Central Oregon Community College's external-facing services such as website and Bobcat Web to the Internet.

Wide Area Network (WAN): A network covering a broad area, often spanning and bridging metropolitan areas such as Redmond, Madras, Prineville and Bend.

Local Area Network (LAN): Computer network interconnecting computers within a limited area, such as Metolius, Pioneer, Boyle Education Center, and other main college campus buildings.

Information Technology Services (ITS): The department responsible for implementing and supporting computing systems and related services at Central Oregon Community College.

Image: A backup file of the hard drive of a workstation, saved as a large file onto a server used to restore said workstation to the same configuration as existed at the time of image creation.

Java: An interpreted programming language, used for numerous things. Most noteworthy in this context is the fact that Java is required for workstations to connect to Ellucian Banner.

Management Information Systems (MIS): The ITS department which supports Banner, Argos, Bobcat Web, Ektron Web, and other college business applications.

Argos: An enterprise reporting solution designed to meet the reporting needs of organizations by utilizing ad-hoc queries, advanced dashboards, interactive charts and data cubes.

Network Interface Card (NIC): A controller that implements the electronic circuitry required to communicate using electricity over network cables, or radio waves in a wireless network. NICs allow workstations and servers to communicate with each other over the COCC LAN.

Oracle Servers: Servers running Oracle operating systems and databases, most commonly used at COCC for a platform on which Banner operates.

Oracle VM Manager (OVM): Operating system that hosts Oracle virtual machine systems.

Oracle: Vendor which provides many technologies used to host and run the Banner application.

Risk: The potential to lose something of value when a threat (such as a fire) takes advantage of a vulnerability (our buildings, even with sprinklers, are not fireproof.)

Threat: A threat is a negative action or occurrence that may cause harm, such as a fire, power outage, or disgruntled employee.

Virtual LAN (VLAN): A methodology for segregating physical networks into separate logical networks, enhancing network security and performance.

Virtual Machine (VM): A software-based emulation of a computer. This technology allows for significant cost savings and efficiency by running many 'virtual machines' inside of one physical computer. As a result, expensive hardware produces more computational workload per dollar.

Vulnerability: Vulnerability is a weakness that could potentially allow a threat to cause harm.

Workgroup Mode: Workstations networked together in a peer-to-peer configuration, tied to the controlling directory structure of the institution. In this case, part of the segregation of the DR network from COCC's production network.

Workstation: A computer used by the institution for inputting, researching, processing and reporting business data.