

FSA Modernization Partner
United States Department of Education
Federal Student Aid



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1 Introduction

1.1 Executive Summary

The *Technical Architecture Application Maintenance Report: September 2002 for FY 2002* summarizes the Integrated Technical Architecture (ITA) team's tasks related to resolving issues associated with the maintenance of FSA applications in production, for the specified month. The ITA provides a standardized, reusable infrastructure for enabling business capabilities within the FSA application community. The long-term vision of the ITA is to provide an integrated, enterprise-wide technical architecture that will enable FSA to reduce the number of custom-built applications that are difficult and costly to update and maintain.

2 FSA Applications Maintained by the ITA in Production

- FAFSA – the Free Application for Federal Student Aid on the web is an application used by college students and schools to submit financial applications via the Internet
- IFAP – Information for Financial Professionals web site is an electronic library for financial aid professionals containing publications, regulations, and guidance regarding the administration of Title IV Federal Student Aid Programs
- FSA Intranet – is an internal portal for FSA employees that provides general information about FSA, FSA Channels, and the Department of Education. The portal also houses information about FSA standards
- Schools Portal – is a homepage for Schools-specific information with links, headlines and calendar function frequented by the schools. The site is customizable and can store bookmarks
- eCampus Based – FSA initiated the Institution or Campus Based (CB) Modernization project. The intent of the project is to modernize the existing CB application architecture; migrating from the current platform (COBOL, IBM Mainframe, VSAM data store) to a relational database platform (Oracle), developing a web-based user interface (WebSphere), along with additional software functionality enhancements. This modernized solution is named eCB (electronic Campus Based). The main objective of the modernization effort is to offer institutions and CB staff an integrated and intuitive solution that increases access to information and self-service capabilities supporting FSA's strategic goals
- Financial Partners Data Mart – provides executive information and decision support capabilities around several key business functions for both the Guaranty Agencies (GAs) and the Lenders. The Data Mart initiative provides infrastructure within the channel and provides initial Risk Management, Customer Relationship Management, Compliance Management, and Portfolio Management functionality related to the thirty-six Guaranty Agencies and the approximately four thousand lenders



- CFO Data Mart – provides reporting capabilities to the Chief Financial Office implementing MicroStrategy and Informatica
- Exit Counseling – utilizes WebSphere and MQ Series to access NSLDS mainframe for specific information
- Students.gov - an award-winning interagency portal sponsored by FSA that provides access to a wide range of public and private information and services targeted towards prospective and current post-secondary education students and their parents
- Program Guidance – provides a central location for resources needed by the Program Development Division within FSA. The application provides documents and profiles to identify relevant information quickly for members of this division.
- Students & Financial Partners Portal – Portals were developed for the Students and Financial Partners channels to provide a central location for information needed by students and financial partners.
- Ombudsman Redesign - Web site containing information and resources about FSA Ombudsman. The site contains searchable content and links to quickly retrieve information.
- LaRS - Lender Reporting System is part of the Financial Management System phase IV and is an Oracle Financials based application that improves the reliability of lender billing data through a redesigned loan payment process.

3 ITA Products

- IBM HTTP Server – web server
- IBM WebSphere – Java application server
- Network Dispatcher – cluster load balance and failover
- Interwoven – content management application
- Informatica – mainframe data tool that converts mainframe data for Oracle so reports can be generated by MicroStrategy
- Autonomy – search engine
- Viador / JRun – Viador is the product or application for the Schools Portal and JRun is the application server
- Microstrategy – Business intelligence software that integrates reporting, analysis, and information delivery capabilities

4 Issue Matrix

The following matrix details the issues encountered by the ITA team from September 1, 2002 to September 30, 2002. The matrix is organized chronologically by application name and date to illustrate the team's progress in resolving the majority of issues and the instances in which



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the team directed its efforts to seek resolution for an issue. Subsequently, the matrix consists of the following categories: name of the application connected to an issue, description of the issue, steps taken by the ITA team to resolve an issue, the issue's level of priority ranging from high to medium to low, the issue's status whether new, in progress, or closed, and the issue's resolution date. Some issues span a greater time period and closure may not have been possible before the deadline of this report.



5 Issue Resolution Log

Date Opened	Application	Description	Resolution	Priority	Issue Status	Issue Resolution/ Target Date
8/1/02	FAFSA	WebSphere is recreating the table in the session database when it restarts under a heavy load. This issue has been observed three times in the production environment.	Tested IBM's temporary fix to the Session Creation problem. This fix does not allow WAS to drop the table since it already exists. The fix also prints extra debug messages, which explains why WAS drops the session table. This fix is now installed on all WAS servers. Recreation of this problem to identify the reasons for WebSphere's creation of the table has not been successful. Scenarios are still being investigated to determine root cause of this problem. This will be done during performance testing of the FAFSA application.	Medium	Open	11/5/02



Date Opened	Application	Description	Resolution	Priority	Issue Status	Issue Resolution/ Target Date
8/1/02	FAFSA	Web server processes are failing to respond to requests from I.H.S and causing a single CPU to peak at 100% utilization. The application is not impacted, but the server performance is skewed.	<p>This is an ongoing problem. IBM has recommended an upgrade to I.H.S, but this must be tested throughout each environment. As a temporary solution, the process that is hanging the CPU is 'killed' so that performance resumes normally. A schedule to upgrade the version of I.H.S will be presented. This upgrade must be executed and tested in each environment before it can be moved into production.</p> <p>There has been an error detected with the fix provided by IBM. We are currently working with IBM support to fix the installation. IBM has provided another fix for this problem. It has been tested in the development environment and now must be tested in the staging environment before going into production. This upgrade was tested in a staging server with CSC and will be migrated to production.</p>	Low	Open	10/13/02



Date Opened	Application	Description	Resolution	Priority	Issue Status	Issue Resolution/ Target Date
8/1/02	FAFSA	Operations have reported that the FAFSA WebSphere configuration takes some time to initialize if all Servers are rebooted together.	The WAS admin database was only setup for a maximum of 100 connections from the WAS cluster by the CSC admin. ITA has requested that this be increased to 500. These initial attempts to resolve this problem have not been successful. The ITA team is currently working with IBM to try to recreate this problem outside of the production environment. A window in production will need to be established to test some scenarios. Tests will be executed in the performance test environment to try to recreate the error. These will be executed during the FAFSA performance tests.	Medium	Open	11/5/02
8/1/02	FAFSA	The FAFSA demo production environment needs to move in to a production system.	As a first step, the ITA moved the environment's databases to the production database server. Next, the FAFSA demo site will be migrated to the SUN production environment.	Medium	Open	10/6/02
8/1/02	FAFSA	When the session database goes down for the FAFSA application, WebSphere sends an infinite number of requests to the database server to attempt updates to sessions and create new sessions.	IBM has provided an efix to limit the number of tries to connect to the session database to two before it stops trying. This efix is included in WebSphere 3.5.6. The FAFSA environments will be upgraded to this new version during the month of August, and then migrated into production in October. This will be tested during FAFSA performance testing.	Medium	Open	10/26/02



Date Opened	Application	Description	Resolution	Priority	Issue Status	Issue Resolution/ Target Date
8/1/02	FAFSA	An issue has been identified with Network Dispatcher. When the backup server restarts while the primary is running, an incorrect MAC address is put to the firewall and it hangs there until the routing table is refreshed.	The ITA team has been working with IBM to recreate this problem in their environments. An efix has been provided, and now the ITA team is waiting for Akamai performance testing to be completed so this fix can be tested. The fix has been tested and the problem has been resolved. Due to the large number of requests scheduled to migrate into production on 9/29/02, the fix will be migrated on 10/6/02.	Medium	Open	10/6/02
9/22/02	LaRS	LaRS production migration requires Network Dispatcher configuration updates.	The ITA team provided the necessary instructions and scripts in order to create this environment in production. The Change Request was completed by CSC during the maintenance window.	Medium	Closed	9/22/02
9/18/02	IFAP, Program Guidance, Students and FP Portals, FSANet	Deployments through Interwoven to the production environment (su35e10 and su35e12) were failing.	The ITA determined that the Interwoven OpenDeploy receiver process on the target server, su35e10, had stopped. The ITA contacted CSC to restart the process.	High	Closed	9/18/02
9/18/02	Ombudsman Redesign	Ombudsman Redesign Production migration requires IBM HTTP Server and WebSphere configuration updates.	The ITA team provided the necessary instructions and scripts in order to create this environment in production. The Change Request was completed by CSC during the maintenance window on 9/29/02.	Medium	Closed	9/29/02
9/18/02	Ombudsman Redesign	Ombudsman Redesign Production migration requires Autonomy configuration updates.	The ITA team made the necessary changes during the maintenance window on 9/29/02.	Medium	Closed	9/29/02



Date Opened	Application	Description	Resolution	Priority	Issue Status	Issue Resolution/ Target Date
9/23/02	Program Guidance	Program Guidance team reported a problem with their application in production and required assistance to update their development environment in order to recreate the problem.	The ITA team submitted a change request to have production code copied to the development server and ensured the development environment mirrored production. The Program Guidance team is debugging the issue.	Low	Ongoing	9/25/02

6 WebSphere Upgrade

The following table outlines the upgrade to WebSphere from 3.5.5 to 3.5.6 in the FAFSA HP environment.

Enhancements		
WebSphere upgrade to 3.5.6 scheduled for Mid-October	WebSphere	In order to take of advantage of additional functionality and bug fixes, the ITA team scheduled an upgrade to WebSphere in all FAFSA HP environments (not including production). This upgrade took place over the month of September and was completed September 13, 2002. The production upgrade is scheduled to occur in late October when WebSphere 3.5.6 has been run through multiple performance tests for FAFSA.

7 Solaris Upgrade

The following table outlines the upgrade to Solaris from 2.6 to 2.8 on all SUN servers.



Enhancements		
Solaris upgrade is scheduled to occur over next several months	Solaris	In order to take of advantage of additional functionality, the ITA team is scheduling an upgrade to Solaris on all SUN servers. This upgrade will take place over the next several months and will include all environments and applications. Communication will be sent out as each environment is upgraded and tested to validate all applications. A completion date will be provided once the project is further along. Two SUN 220R Servers with Solaris 8 were built on September 26 and are targeted for Network Dispatcher in the performance test environment. ITA is working with CSC to complete this task.