

FSA Integration Partner
United States Department of Education
Federal Student Aid



ITA Architecture Maintenance Goals Report VI

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1 Introduction

1.1 ITA Overview

The Integrated Technical Architecture (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.

1.2 Executive Summary

The ITA Architecture Maintenance Goals Report VI (January 15, 2004) documents the architecture maintenance services provided by the ITA team between December 15, 2003 and January 15, 2004. These maintenance services were provided to FSA applications using ITA product software and Reusable Common Services hosted in the ITA production, development, testing, and staging environments. The following is a brief overview of the contents of each section of this report:

Section 1 Introduction:

- Provides an overview of the contents of this report.
- Describes FSA applications maintained in the ITA environments and identifies the ITA products being maintained.

Section 2 ITA Environments:

- Describes the ITA environments (production, development, testing, staging) and includes detailed diagrams of the environments.

Section 3 ITA Product Software:

- Includes a table of the servers and applications that incorporate the ITA product software.
- Provides a summary of ITA product software.

Section 4 Infrastructure Updates and Enhancements:

- Provides an overview of the updates and enhancements section of this document.
- Summarizes the updates and enhancements that were performed between December 15, 2003 and January 15, 2004

Section 5 Reusable Common Services (RCSs)

- Summarizes the changes to any RCS's hosted in the ITA architecture.

Section 6 Maintenance Services

- Summarizes ITA availability for maintenance services.
- Provides a brief summary of pages and calls, and includes the total number of incidents.

Section 7 Performance Tests



- Summarizes and provides status of the performance tests performed by ITA between December 15, 2003 and January 15, 2004.

1.3 FSA Applications

This section provides an overview of FSA applications hosted in the ITA environments. The ITA team provides the following maintenance services to these applications:

- Environment maintenance.
- Upgrades and patches as needed.
- Change request processing.

1.3.1 Credit Management Data Mart (CM Data Mart)

The CM Data Mart initiative provides reporting & data warehousing through Informatica.

CM Data Mart receives ITA support for the Informatica product.

1.3.2 eCampus Based

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.

The eCampus Based application receives support for WebSphere Application Server, IBM HTTP Server, and Network Dispatcher.

1.3.3 EExpress Basics

The EExpress Basics is an online CBT (Computer Based Training) course for FSA customers. A portion of the training returns user feedback to a servlet within the ITA environment

The EExpress Basics application receives support for WebSphere Application Server, IBM HTTP Server, and Network Dispatcher.

1.3.4 eZ-Audit

eZ-Audit is an online submission tool for financial statements and compliance audits for schools with Title IV eligibility. Once the submissions are received, eZ-Audit also provides case tools for FSA to track and screen submission.

ITA provides WebSphere Application Server and IBM HTTP Server product support to the Ez-Audit application.



1.3.5 Free Application for Federal Student Aid on the Web (FAFSA on the Web)

The FAFSA on the Web application is used by college students and schools to submit financial aid applications to FSA via the Internet.

ITA provides FAFSA on the Web with support for Autonomy, WebSphere Application Server, IBM HTTP Server, and Network Dispatcher.

1.3.6 FAFSA on the Web Demo Site

The FAFSA on the Web application is used by college students and schools to submit financial aid applications to FSA via the Internet. The demo site provides an interface to train and showcase the functionality of the full FAFSA production site listed in 1.3.5.

ITA provides FAFSA on the Web Demo Site with support for Autonomy, WebSphere Application Server, IBM HTTP Server, and Network Dispatcher.

1.3.7 Financial Partners Data Mart (FP Data Mart)

The FP Data Mart initiative 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.

FP Data Mart receives ITA support for the Informatica product.

1.3.8 FSA Computer-Based Orientation to Aid Concepts and How-to's (FSA COACH)

FSA COACH is a comprehensive introductory course on school requirements for administering post-secondary student financial aid programs.

ITA provides Network Dispatcher and IBM HTTP Server product support to the FSA COACH application.

1.3.9 FSANet

FSANet is an internal portal for FSA employees. It provides general information about FSA, FSA Channels, and the Department of Education. The portal also houses information about FSA standards.

ITA provides Autonomy, Interwoven, WebSphere Application Server, IBM HTTP Server, and Network Dispatcher product support to the FSANet Application.

1.3.10 Information for Financial Aid Professionals (IFAP)

The IFAP website is an electronic library for financial aid professionals containing publications, regulations, and guidance regarding the administration of Title IV Federal Student Aid Programs.

IFAP receives ITA support for Autonomy, Interwoven, WebSphere Application Server, IBM HTTP Server, and Network Dispatcher.



1.3.11 Lender Reporting System (LaRS)

LaRS is part of the Financial Management System phase IV project. LaRS is an Oracle Financials based application that improves the reliability of lender billing data through a redesigned loan payment process.

ITA provides Network Dispatcher product support to the LaRS application.

1.3.12 Ombudsman Redesign

The Ombudsman website contains information and resources about FSA Ombudsman. The site contains searchable content and links to quickly retrieve information.

ITA provides Autonomy, Interwoven, WebSphere Application Server, IBM HTTP Server, and Network Dispatcher product support.

1.3.13 PIN Site

The PIN Site provides authentication for multiple applications within FSA.

ITA provides Autonomy, Interwoven, WebSphere Application Server, IBM HTTP Server, and Network Dispatcher product support.

1.3.14 Program Guidance

The Program Guidance application 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.

ITA provides Autonomy, Interwoven, WebSphere Application Server, IBM HTTP Server, and Network Dispatcher product support.

1.3.15 Schools Portal

The Schools Portal is a homepage for school-specific information with links, headlines, and calendar functions frequented by the schools. The site is customizable and can store bookmarks.

ITA provides Autonomy, Interwoven, WebSphere Application Server, IBM HTTP Server, and Network Dispatcher product support.

1.3.16 Students.gov

Students.gov provides a categorized directory of links of interest for students searching for government resources.

ITA provides WebSphere Application Server, IBM HTTP Server, and Network Dispatcher product support.

1.3.17 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.



ITA provides Autonomy, Interwoven, WebSphere Application Server, IBM HTTP Server, and Network Dispatcher product support.

1.3.18 XML Registry and Repository

The FSA XML Registry and Repository provides a central access point for FSA's XML Core Components, XML Schemas, and supporting documentation. The XML Registry and Repository provides FSA with a common set of enterprise data definitions that can be used to exchange data between FSA's systems. Users can access the Registry and Repository to search, view, upload, and download the XML Core Component definitions and documentation.

ITA provides WebSphere Application Server and IBM HTTP Server product support.

1.3.19 Table of FSA Application Release Numbers

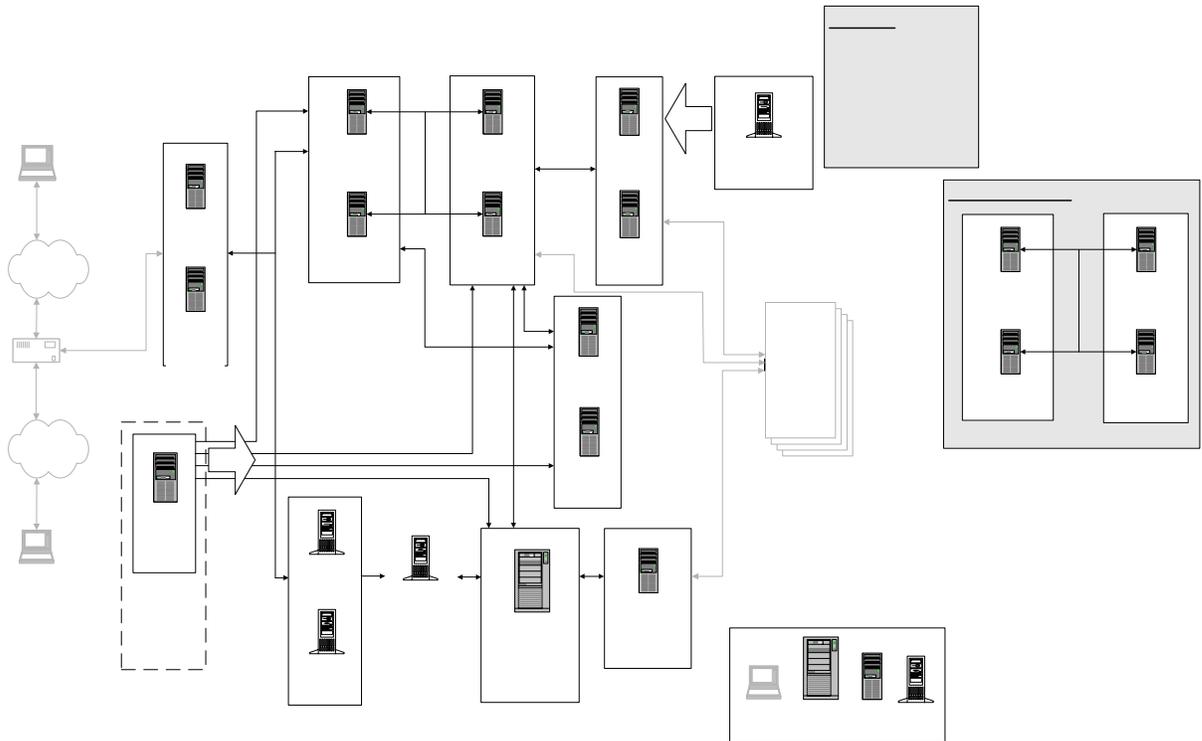
The table below presents the release numbers of the FSA applications supported by the ITA team:

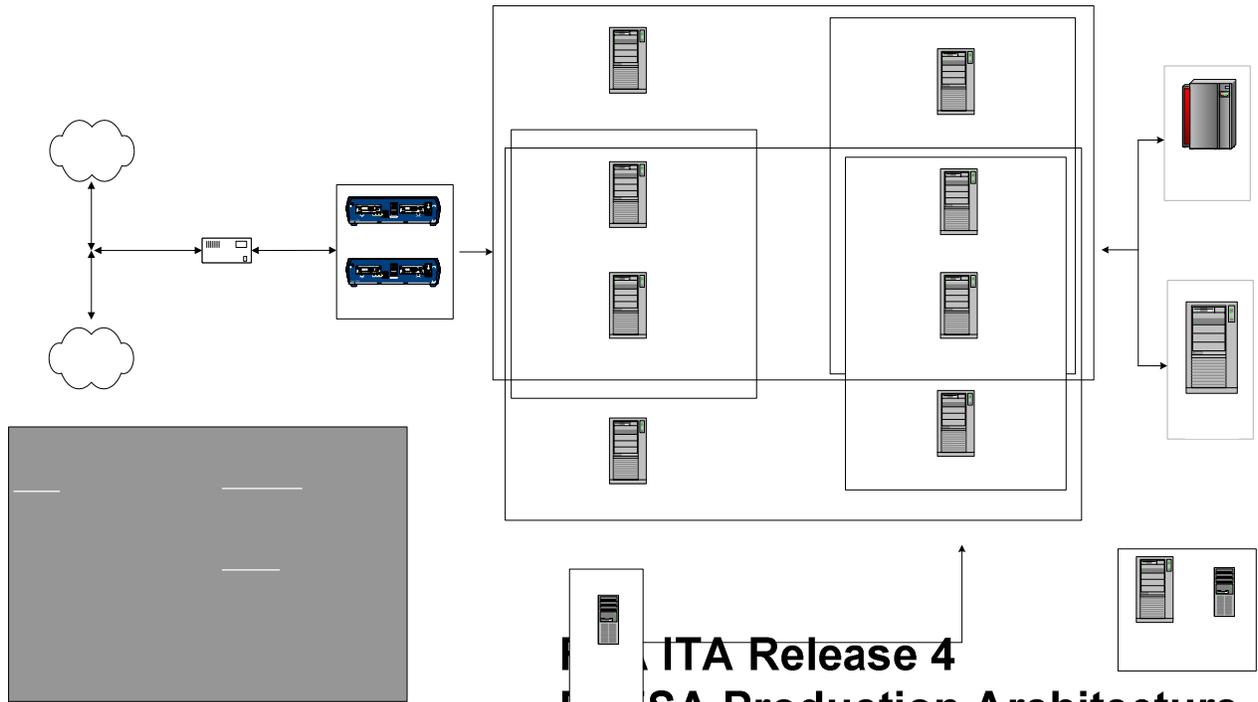
Application	Current Release Number
CM Data Mart	-
eCampus Based	3.0
EDExpress Basics	-
eZ-Audit	1.01.07
FAFSA on the Web	8.0
FAFSA on the Web Demo Site	8.0
FP DataMart	2.0
FSA Coach	1.0
FSANet	2.0
IFAP	2.0
LaRS	4.11
Ombudsman	-
PIN Site	-
Program Guidance	1.0
Schools Portal	2.0
Students.gov	2.0
Students Portal	2.0
Financial Partners Portal	2.0
XML Registry and Repository	1.0

2 ITA Environments

2.1 Production Environment

The ITA team provides Tier II support in maintaining and monitoring the production environments. Below are the Logical Diagrams of the servers maintained in the ITA Production environments. Additional diagrams can be found in Appendix A.





ITA Release 4 FSA Production Architecture Physical Diagram

2.2 Development/Testing/Staging Environment

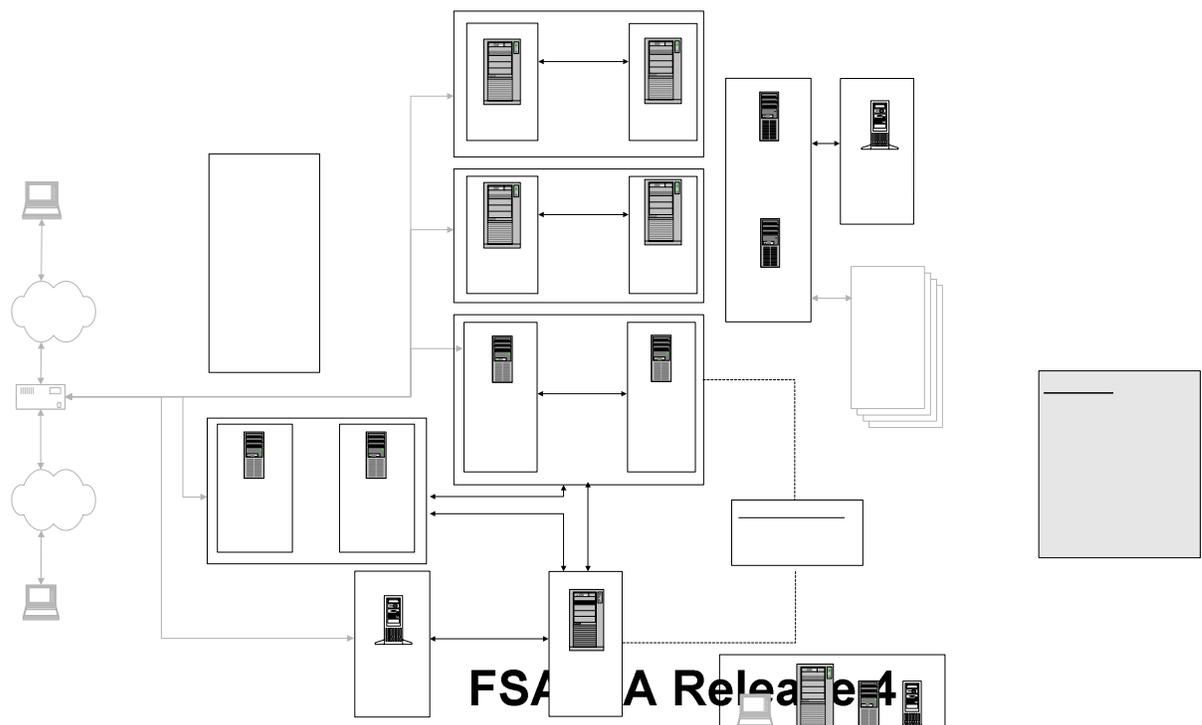
The ITA team hosts and maintains the pre-production environments consisting of the development, test, and staging environments. In the development environment, the application teams develop components that will be used in various applications. These components are then tested for functionality in the testing environment. The final area of pre-production, staging, offers the opportunity to prepare the components before their migration to the production environment.

Internet

2.2.1 Pre-production Environment Diagram

Below is the Logical Diagram of the servers maintained in the ITA pre-production environments. Additional diagrams can be found in Appendix A.

FW



**FSA ITA Release 4.0
Development / Testing / Staging Environment
Logical Diagram
As of 01/15/2004**

Internet
Client

Internet

- CBS
- EAI
- EDEXpress Base
- ezAudit
- FP Portal
- FSA Coach
- FSANet
- IFAP
- ITA
- Ombudsman
- Program Guide
- Schools Portal
- Students Portal
- Students.gov
- XMLRegistry



3 ITA Product Software

Another key objective of ITA Architecture Maintenance Services is to provide product software maintenance. This section provides the details of the ITA product software.

3.1 Table of ITA Production Product Software

The table below presents the version(s) of the software products installed in the ITA production environment:

Software	Server Name	O/S	Env	Current Version	Applications	Post Refresh
IBM HTTP Server (IHS)	SU35E10	Solaris 2.8	Prod	v1.3.12	eCampus Based EDEXpress Basics eZ-Audit FSA Coach FSANet IFAP Ombudsman Program Guidance Schools Portal Students.gov Students Portal FP Portal	RP5470-3
	SU35E12	Solaris 2.8	Prod	v1.3.12	eCampus Based EDEXpress Basics eZ-Audit FSA Coach FSANet IFAP Ombudsman Program Guidance Schools Portal Students.gov Students Portal FP Portal	RP5470-5
	HPN13	HP-UX 11i	Prod	v1.3.26	FAFSA FAFSA Demo Site PIN Site	HPN13
	HPN14	HP-UX 11i	Prod	v1.3.26	FAFSA FAFSA Demo Site PIN Site	HPN14
	HPN6	HP-UX 11i	Prod	v1.3.26	PIN Site	
	rp7410-1	HP-UX 11i	Prod	v1.3.26	FAFSA FAFSA Demo Site	rp7410-1



Software	Server Name	O/S	Env	Current Version	Applications	Post Refresh
WebSphere Application Server (WAS)	SU35E9	Solaris 2.8	Prod	v3.5.5	eCampus Based EExpress Basics eZ-Audit FSA Coach FSANet IFAP Ombudsman Program Guidance Schools Portal Students.gov Students Portal FP Portal	RP5470-8
	SU35E13	Solaris 2.8	Prod	v3.5.5	eCampus Based EExpress Basics eZ-Audit FSA Coach FSANet IFAP Ombudsman Program Guidance Schools Portal Students.gov Students Portal FP Portal	RP5470-9
	HPN4	HP-UX 11i	Prod	v5.0.1	FAFSA FAFSA Demo Site	HPN4
	HPN7	HP-UX 11i	Prod	v5.0.1	PIN Site	HPN7
	HPN15	HP-UX 11i	Prod	v5.0.1	FAFSA FAFSA Demo Site PIN Site	HPN15
	HPN16	HP-UX 11i	Prod	v5.0.1	FAFSA FAFSA Demo Site PIN Site	HPN16
Autonomy	SU35E7	Solaris 2.8	Prod	v3.1.13.2	FAFSA FSANet IFAP Ombudsman Program Guidance Schools Portal Students Portal FP Portal	n/a



Software	Server Name	O/S	Env	Current Version	Applications	Post Refresh
	SU35E15	Solaris 2.8	Prod	v3.1.13.2	FAFSA FSANet IFAP Ombudsman Program Guidance Schools Portal Students Portal FP Portal	n/a
eNetwork Dispatcher (eND)	SU22E4	Solaris 2.8	Prod	v4.0.2.25	eCampus Based EExpress Basics eZ-Audit FSA Coach FSANet IFAP Ombudsman Program Guidance Schools Portal Students.gov Students Portal FP Portal	Cisco CSS
	SU22E3	Solaris 2.8	Prod	v4.0.2.25	eCampus Based EExpress Basics eZ-Audit FSA Coach FSANet IFAP Ombudsman Program Guidance Schools Portal Students.gov Students Portal FP Portal	Cisco CSS
Microstrategy	SFANT002 SFANT003 SFANT004	NT 4.0	Prod	7.2.3	CM FP Data Mart eCampus-Based	N/A



Software	Server Name	O/S	Env	Current Version	Applications	Post Refresh
Interwoven	SU35E1	Solaris 2.8	Prod	v5.0.1	eCampus Based EExpress Basics eZ-Audit FSA Coach FSANet IFAP Ombudsman Program Guidance Schools Portal Students.gov Students Portal FP Portal	fsasvsmrd 8
	SU35E16	Solaris 2.8	Prod	V5.5.2	eCampus Based EExpress Basics eZ-Audit FSA Coach FSANet IFAP Ombudsman Program Guidance Schools Portal Students.gov Students Portal FP Portal	fsasvsmrd 9

3.2 Table of ITA Pre-Production Product Software

The table below presents details of the product software installed in the ITA pre-production environments.

Note: Some of the hardware refresh servers are not currently in use, but have been included in this table to display the refresh work that is taking place.

Software	Server Name	O/S	Env	Current Version	Applications	Post Refresh
IBM HTTP Server (IHS)	HPL3	HP-UX 11i	Dev Test ITA Stage	v1.3.26	FAFSA FAFSA Demo PIN	TBD



Software	Server Name	O/S	Env	Current Version	Applications	Post Refresh
	SU35E2	Sun Solaris 2.8	Dev Test ITA Stage	v1.3.12 v1.3.26	eCampus-Based ED Express Basics Exit Counseling FAFSA Demo FP Portal FSA Coach FSANet IFAP Ombudsman Ombudsman Redesign Program Guidance FSA Coach Students Portal Schools Portal Students.gov	RP5470-2
	RP5470-2	HP-UX 11i	Dev Test ITA Stage	1.3.26	eCampus-Based FP Portal FSA Coach FSANet IFAP Ombudsman Ombudsman Redesign Program Guidance FSA Coach Students Portal Schools Portal Students.gov XML Registry	N/A
	RP7410-2	HP-UX 11i	FAFSA Perf	1.3.26	FAFSA FAFSA Demo PIN	N/A
	RP7410-4	HP-UX 11i	FAFSA Perf	1.3.26	FAFSA FAFSA Demo PIN	N/A
	RP5470-4	HP-UX 11i	ITA Perf	1.3.26	Currently no applications.	N/A
WebSphere Application Server (WAS)	HPA2	HP-UX 11i	Dev Test ITA Stage	3.5.6 5.0.1 (co-existing versions)	FAFSA FAFSA Demo PIN	TBD



Software	Server Name	O/S	Env	Current Version	Applications	Post Refresh
	SU35E5	Sun Solaris 2.8	Dev Test ITA Stage	3.5.5 5.0.1 (co-existing versions)	eCampus-Based ED Express Basics Exit Counseling FAFSA Demo FP Portal FSANet IFAP Ombudsman Redesign Program Guidance FSA Coach Students Portal Schools Portal Students.gov	RP5470-6
	RP5470-6	HP-UX 11i	Dev Test ITA Stage	5.0.1	eCampus-Based FP Portal FSANet Ombudsman Redesign Program Guidance FSA Coach Students Portal Students.gov XML Registry	N/A
	RP7410-3	HP-UX 11i	FAFSA Perf	5.0.1	FAFSA FAFSA Demo PIN	N/A
	HPN8	HP-UX 11i	FAFSA Perf	5.0.1	FAFSA FAFSA Demo PIN	N/A
	RP5470-7	HP-UX 11i	ITA Perf	5.0.1	Currently no applications.	N/A
	SU22E20	Sun Solaris 2.8	FAFSA Perf ITA Perf	5.0.1 (WAS Deployment Manager)	N/A	TBD
	SU22E24	Sun Solaris 2.8	FAFSA Perf ITA Perf	5.0.1 (WAS Deployment Manager)	N/A	TBD
Autonomy	SU35E2	Sun Solaris 2.8	Dev Test ITA Stage	AXE - 4.3.3.34069 Auto Indexer - 2.5.12.111 HTTP Fetch	FAFSA FP Portal FSANet IFAP Ombudsman Program Guidance	RP5470-2



Software	Server Name	O/S	Env	Current Version	Applications	Post Refresh
				- 2.2.4.88	Schools Portal Students Portal	
	RP5470-2	HP-UX 11i	Dev Test ITA Stage	As of 12/15/03, CSC is researching the HP equivalent version.	FAFSA FP Portal FSANet IFAP Ombudsman Program Guidance Schools Portal Students Portal	N/A
eNetwork Dispatcher	SU22E20	HP-UX 11i	ITA Perf	4.0.2.25	FAFSA FAFSA Demo PIN Portals	Cisco CSS
	SU22E24	HP-UX 11i	ITA Perf	4.0.2.25	FAFSA FAFSA Demo PIN Portals	Cisco CSS
Interwoven	SU35E1	Sun Solaris 2.8	Dev Test ITA Stage	TeamSite - 5.0.1 OpenDeploy - 5.0.1 DataDeploy - 4.5	FP Portal FSANet IFAP Ombudsman Program Guidance Schools Portal Students Portal	Fsasvs- mrd8 Fsasvs- mrd9
	Fsasvs- mrd8	Sun Solaris 2.8	Dev Test ITA Stage	TeamSite - 5.5.2 OpenDeploy - 5.6 DataDeploy - 5.6	FP Portal FSANet IFAP Ombudsman Program Guidance Schools Portal Students Portal	N/A
	Fsasvs- mrd9	Sun Solaris 2.8	Dev Test ITA Stage	TeamSite - 5.5.2 OpenDeploy - 5.6 DataDeploy - 5.6	FP Portal FSANet IFAP Ombudsman Program Guidance Schools Portal Students Portal	N/A
Microstrategy	SFANT0 01	NT 4.0	Dev Test	7.2.3	CM FP Data Mart eCampus-Based	N/A
Informatica	SU35E5	Sun Solaris 2.8	Dev Test	5.1.2	CM FP Data Mart eCampus-Based	RP5470-6
	RP5470-6	HP-UX 11i	Dev	5.1.2	CM	N/A



Software	Server Name	O/S	Env	Current Version	Applications	Post Refresh
			Test		FP Data Mart eCampus-Based	

3.3 ITA Products

3.3.1 IBM HTTP Server (IHS)

IBM's web serving offering is based upon the Apache web server. The implementation that IBM has custom tailored allows for tight integration into the IBM WebSphere applications and other IBM products. It allows for the serving of multiple web documents, while providing necessary application interaction.

3.3.2 IBM WebSphere Application Server (WAS)

The IBM WebSphere Application Server manages, deploys, programs, and integrates development like IBM's WebSphere. It makes use of Java technology compatibility for most web application offerings. One of its most useful features is that it is a highly configurable solution for a small offering or a large enterprise. It is the middleware between the HTTP servers and the databases.

3.3.3 Autonomy

Through the use of Autonomy the entire Internet offering is easily parsed into a searchable resource. Users can seamlessly search for content throughout enterprise offered information. It does this through its connectors that combine varying forms of resources (databases, HTML pages, e-mails, etc.) into one easily accessible resource.

3.3.4 Network Dispatcher

This IBM product is an integrated portion of the IBM Edge Server. Network Dispatcher provides load balancing. It administers the resource balancing between clusters of web servers and application servers. It is one of many components within the ITA network architecture that allows for high availability.

3.3.5 Interwoven TeamSite

As a product of the Interwoven Platform, TeamSite enables content contribution, collaboration, and management across the enterprise. It provides the necessary components to streamline business processes, integrate currently used productivity tools, and accelerate all eBusiness initiatives.

3.3.6 Microstrategy

This product provides reporting, analysis, and information delivery capabilities.

3.3.7 Informatica

Informatica is a mainframe data tool that converts mainframe data for Oracle so reports can be generated by MicroStrategy.



4 Infrastructure Updates and Enhancements

4.1 Updates and Enhancements Matrix

The updates and enhancements log included in Section 4.2 of this document provide detailed information for production, development, testing, and staging environment issues addressed with updates or enhancements between December 15, 2003 and January 15, 2004. The matrix is organized chronologically by application name.

This matrix consists of the following categories:

- **Date Opened:** Provides the date the issue was opened.
- **Application:** Denotes the name of the application.
- **Description:** Offers a description of the issue.
- **Environment:** Lists the environment(s) in which the issue occurred (Production, Development, Test, Staging, Performance).
- **Resolution:** Summarizes steps taken by the ITA team to resolve an issue.
- **Priority:** Provides the issue's level of priority ranging.
- **Issue Status:** Indicates the issue's status (open, closed).
- **Issue Resolution/Target Date:** Provides the issue's resolution date or target date.
- **Approximate Time Spent:** The number of hours spent resolving the issue.

Note: Additional updates and enhancements were made to the Performance Test environment during the December 15, 2003 – January 15, 2004 time period. The majority of these changes are not included in the matrix but they are counted in the Ad-Hoc issues in Appendix D.



4.2 Production Updates and Enhancements Log

Date Opened	Project	Env	Description	Resolution	Priority	State	Issue Resolution/ Target Date	Approx. Time Spent (hours)
12/17/2003	FAFSA	Prod	<p>Max Clients reached on HPN13/14. Partial loss of functionality on FAFSA and Pin for 4 minutes. Web demons went to max and went back down. No clone errors found. No WebSphere errors or clone failures. System recovered. Similar problem on 1/1 and 1/5.</p> <p>1/5 server response times on Pin slow. Lots of time outs to mainframe. Correlated with time of batch job running on the mainframe. Lock ups occurring.</p>	<p>The issue is tied to performance degradations on the CPS Mainframe.</p> <p>The ITA Team recommended a lower web time out from 30 seconds to 15 seconds to make it less sensitive to CICS performance degradation.</p>	1 - High	Closed - Continue to Monitor	1/11/2004	80
12/17/2003	FAFSA	Prod	<p>During the course of investigating the previous issue, we noticed a large number of TCP/IP connections in the FIN_WAIT_2 state between the web and application servers.</p>	<p>The ITA team previously recommended to set the timeout for FIN_WAIT_2 from infinity (do not time out) to twenty minutes.</p> <p>After consulting with HP support, the recommendation has been lowered to ten minutes. The change has been completed in the FAFSA Production environment</p>	4 - Low	Closed	1/11/2004	20



Date Opened	Project	Env	Description	Resolution	Priority	State	Issue Resolution/ Target Date	Approx. Time Spent (hours)
1/8/2004	FAFSA	Prod	Search Function not working for 2004-2005 information.	<p>Pearson did not request a search database created or indexed for the new 2004-2005 information in the same manner that they did for the FAFSA Demo information. Therefore, the database was not created nor was any of the new content indexed.</p> <p>The ITA Team submitted the request to create the database and index the new content.</p>	2 - Alert	Closed	1/13/2004	4
11/18/2003	FAFSA/ PIN	Prod	<p>During the outage on November 18 the FAFSA clone n16c1 was identified as being non responsive. The same date both PIN clones had taken out of memory for most of the day.</p> <p>This indicates that these JVM's were under stress possible due to a memory leak.</p>	<p>A java dump was taken and a thread lock to the session cache within the JVM was identified. IBM Engineering has suggested this problem can occur if the heap is under stress.</p> <p>Both problems specified above have indicated that a memory leak exists Steps have been taken to monitor heap usage and a PMI memory leak has been identified.</p> <p>The PMI interfaces for both FAFSA & PIN have been turned off pending resolution from Wily and IBM.</p>	2 - Alert	Closed	12/28/2003	40



Date Opened	Project	Env	Description	Resolution	Priority	State	Issue Resolution/ Target Date	Approx. Time Spent (hours)
12/15/2003	FAFSA	Prod	HPN4 FAFSA Clone 2 experienced degradation and recycled itself.	The problem was tracked down by the ITA team to be caused by the ShadowDirect driver. After consulting Neon, the recommend upgrading the drivers. The old drivers have experienced problems and do not provide some debug tools. VDC 6625 has been submitted, with the instructions to implement on 1/4/2004. CSC delayed implementation because of time constraints to 1/11/2004	3 - Normal	Closed	1/11/2004	20
1/1/2004	FAFSA	Prod	Heavy Garbage Collections noted. Large number of objects created. Overrunning the java heap new area and reducing the tendering time. Full Garbage Collections are occurring every 1-3 minutes and taking 6-8 seconds each.	The ITA Team recommended adding two clones to the FAFSA environment to help alleviate the heavier than expected memory load. Clone FOTWn15c3 has been added to hpn15 and is working fine. Clone FOTWn16c3 was added to hpn16, but would not start during the maintenance window. Significant improvement in Garbage Collections has been noted.	3 - Normal	Closed - Continued Monitoring	1/11/2004	25
12/15/2003	IFAP	Prod, Dev, & Test	Request to update the TeamSite DD file with a file sent from the IFAP team. The IFAP team requested the file be placed in the /iw-home/opendeploy/OpenDeployNG/conf/odconf /sp/CONFIG/ directory.	Updated the TeamSite DD file as requested.	3-Normal	Closed	12/15/2003	1



Date Opened	Project	Env	Description	Resolution	Priority	State	Issue Resolution/ Target Date	Approx. Time Spent (hours)
12/15/2003	IFAP	Prod, Dev, & Test	Request to update the TeamSite su35e2 file in /iw-home/opendeploy/OpenDeployNG/conf/odconf/sp/HOSTS/development/ with a file sent from the IFAP team. The change was updated in line 6 to use ifaptst instead of ifapstg.	Updated the TeamSite file as requested.	3-Normal	Closed	12/15/2003	1
12/15/2003	IFAP	Prod, Dev, & Test.	Request to update the TeamSite DD file with a file sent from the IFAP team. The IFAP team requested the file be placed in the /iw-home/opendeploy/OpenDeployNG/conf/odconf/sp/CONFIG directory. The change was updated in lines 10-25 to use the new primary key field named DCRNAME.	Updated the TeamSite DD file as requested.	3-Normal	Closed	12/29/2003	1
12/15/2003	IFAP	Prod, Dev, & Test.	Request to grant the following two su35e1 users access to Teamsite as Editor, and make sure they are only allowed to access ifap_dm branch (unix group: ifapdm): bestern zaqvrom	Added the users as requested.	3-Normal	Closed	12/29/2003	1



Date Opened	Project	Env	Description	Resolution	Priority	State	Issue Resolution/ Target Date	Approx. Time Spent (hours)
12/17/2003	IFAP	Prod, Dev, & Test	Request to update the TeamSite DD file with a file sent from the IFAP team. The IFAP team requested the file be placed in the /iw-home/opendeploy/OpenDeployNG/conf/odconf/ifap_dm/CONFIG directory. The IFAP team also requested enabling of Data Deployment to the development and production databases for the ifap_dm branch with the deployment name "guide".	Added the data deploy configuration to the environment. Named the deployment as "DefaultManagement/guide" so that it gets invoked by the deployment script.	3-Normal	Closed	12/29/2003	1
12/18/2003	IFAP	Prod, Dev, & Test	Request to add a data-type element to the ifap_dm templating.cfg file as detailed below: <pre> <data-type name="homepage"> <presentation> <template name="main.tpl" extension="html"> <locations> <branch vpath-regex=".*" preview- dir="/"> <directory dir-regex=".*" /> </branch> </locations> </template> </presentation> </data-type> </pre>	Added the requested configuration to Interwoven templating.cfg file.	3-Normal	Closed	12/29/2003	1



Date Opened	Project	Env	Description	Resolution	Priority	State	Issue Resolution/ Target Date	Approx. Time Spent (hours)
12/31/2003	IFAP	Prod, Dev, & Test	The IFAP team was receiving a TeamSite Templating error when creating a new DCR under the IFAP branch.	ITA team copied the Templating configuration files from /iw-home/local/config on su35e1 to the same directory on mrd09. Once the updated configuration files were added, the problem was resolved.	2-High	Closed	1/2/2004	6



4.3 Pre-Production Updates and Enhancements Log

Date Opened	Project	Env	Description	Resolution	Priority	State	Issue Resolution/ Target Date	Approx. Time Spent (hours)
12/18/2003	eCampus Based	Dev.	Request to change the permissions on the following directories to 777 after deploying the EAR file, so that the crontabs will be able to write to those directories. /www/dev50/ecb/acct /www/dev50/ecb/data /www/dev50/ecb/datasync /www/dev50/ecb/database /www/dev50/ecb/upload	The requested directories were already set at 777 permissions and are not updated when the EAR file is deployed so no change was necessary.	3-Normal	Rejected	1/5/2004	1
12/30/2003	eCampus Based	Dev.	The file system /www on su35e5 is currently full and the eCB team is unable to ftp any files. The eCB team has deleted most of the old or unused logs, data files, etc. related to eCB, but still could not ftp files because the disk space is full. For WAS 5.0 eCB has been updated on the HP Servers, so the /www/dev50/cbs and /www/tst50/cbs can be removed to free some disk space on e5. Please treat this as high priority as it is stopping development work.	Removed old and unused files from the /www file system. Also requested Application Development teams to remove old or unused files. After the joint effort in removing files, the /www disk utilization has been reduced to 20%.	1-Emergency	Closed	12/30/2003	3



Date Opened	Project	Env	Description	Resolution	Priority	State	Issue Resolution/ Target Date	Approx. Time Spent (hours)
12/15/2003	eZ-Audit	Dev.	Request to grant the following userid's sudo access to the WAS 5.0 eZ-Audit scripts on rp5470-6: accbxc accrpd	Granted accrpd access to the eZ-Audit sudo scripts on rp5470-6. accbxc already had access so no updates were necessary for that userid.	3-Normal	Closed	12/30/2003	1
12/16/2003	eZ-Audit	Dev.	Ez-Audit Team needs permission to create directories on the dev box (4.20.18.75) under dev50/ezaudit.	Updated the permissions to 775 for the /www/dev50/ezaudit directory. This will allow the members of the ezaudit team to create sub-directories of the ezaudit directory.	2-High	Closed	12/29/2003	1
12/17/2003	eZ-Audit	Dev.	The Ez-Audit team needs permission to create folders/files on 4.20.18.72 (HP WEBSERVER) under /www/dev/ezaudit	Updated the group permission to "ezdev" to allow eZ-Audit developers access to create and update files and file systems under /www/dev/ezaudit.	2-High	Closed	12/29/2003	1
12/17/2003	eZ-Audit	Dev.	Ez-Audit Team needs access to /opt/dev50/WebSphere/AppServer/logs/EZServer on rp5470-6 to be able to view the log files.	Updated the permissions of the EZServer logs directory to 755 so the eZ-Audit development team can view the logs.	3-Normal	Closed	12/29/2003	1



Date Opened	Project	Env	Description	Resolution	Priority	State	Issue Resolution/ Target Date	Approx. Time Spent (hours)
12/17/2003	FAFSA	Dev.	Request to upgrade the Shadow Direct Drivers on Dev and Test. Also need to add a parameter. This should be done in Dev the morning of 12/18. This should be done in Test after work on 12/18 so as to not impact the system testers. The drivers can be found on Neon's web site. The new parameter is: AUST=NO	The Shadow Direct Drivers were updated in the Dev environment during the WAS 5.0 upgrade. As a result, this request was already complete with the exception of the new parameter. Added the new parameter to the Shadow configuration as requested.	2-High	Closed	12/18/2003	3
1/6/2004	FAFSA	Test	The FAFSA plugin needs to be re-generated for the FAFSA Dev, Test, and Demo Dev environments.	Regenerated the plugin file in Dev and Test and copied over to the Web Servers. The Dev environment includes both the FAFSA Dev and FAFSA Demo applications.	2-High	Closed	1/6/2004	1
1/6/2004	FAFSA	Test	Request to create a new userid and password for ED users that want to access the test site to get screen shots for presentations. Want this ID separate so it can be shut off if needed.	Added the username (fsa) with password (fsatest) to the Test environment for both the FAFSA and PIN applications. This can be turned off by either commenting out, or removing from the password script.	2-High	Closed	1/6/2004	1
12/18/2003	Students and FP Portal	Dev.	Request to change file owner for /www/dev50/portals/ and /www/tst50/portals to indcyy.	Updated the owner to indcyy for the requested directories.	3-Normal	Closed	1/5/2004	1



Date Opened	Project	Env	Description	Resolution	Priority	State	Issue Resolution/ Target Date	Approx. Time Spent (hours)
12/18/2003	Students and FP Portal	Dev.	Request to restart the Students and FP Portal application in Dev and Test.	Restarted the WAS 3.5 Students and FP Portal applications as requested.	3-Normal	Closed	12/18/2003	1
12/19/2003	Students and FP Portal	Dev.	Students Portal, FP Portal, and Schools Portal servers are not responding. Receiving an Internal Server Error when trying to connect to the sites. Request to restart WAS.	WAS was up and running. Confirmed with the Portals team they were able to access the sites.	3-Normal	Rejected	12/29/2003	1
12/22/2003	Students and FP Portal	Test	Unable to deploy files as part of the Interwoven upgrade test. Receiving an Internal Server Error message when accessing the FP branch.	In order to test the Interwoven Upgrade, the Portals development team was trying to deploy to directories that did not exist on the server. Added the directories to the server and the Portals team was able to deploy successfully.	2-High	Closed	12/22/2003	2



4.4 Outstanding Issues

Date Opened	Project	Env	Description	Resolution	Priority	State	Issue Resolution/Target Date	Approx. Time Spent (hours)
12/31/2003	eCampus Based	Dev.	This request is to change permissions on all files and if possible the owner after deploying the EAR file. Currently after deploying the EAR file all the files are owned by root, and do not have read/write/execute permissions for the eCB team. As a result, the eCB team could not execute any shell scripts or sqls etc. Please change the permissions as well as the owner to the original owner of the file instead of root.	Updated the permissions to 755 of the deployed eCB EAR file in Dev. The issue was resolved with a permissions update, but there seems to be a problem with the Dev eCB Deployment Script setting the appropriate permissions. The ITA team is currently investigating and will continue to update the permissions on deployments upon the eCB team's requests until the script issue is resolved.	2-High	Open	1/16/2004	4
1/9/2004	FAFSA	Prod	IHS servers (HPN13, HPN14 and RP7410) and a WAS server (HPN4), MAX Clients peaked at 20:30 to just below the threshold then immediately started coming down without any intervention. This degradation lasted for approximately one hour.	The ITA team has reviewed with CSC the Oracle ORA-17401 errors that appeared in the logs before and after this outage. Initial observation indicates an issue between the Oracle driver on the WebSphere	2 - Alert	Open	1/25/2004	25



11/18/2003	FAFSA/ PIN	Prod	During the outage on November 18, the Deployment Manager crashed.	<p>IBM Support has asked that the JVM be placed in Server mode. By default it is placed in client mode.</p> <p>The ITA team has documented the test procedure for Server Mode and has submitted an ECM to implement fix"</p> <p>Config change to FAFSA Deployment Manager scheduled. ECM 6675</p>	3 - Normal	Open, pending impleme ntation	1/18/2004	20
11/18/2003	FAFSA/ PIN	Prod	<p>In the analysis following the November 18th outage, the ITA team identified an error within a specific FAFSA/PIN application path.</p> <p>This error is caused when a user has bookmarked a page within the application and then return at a later time. A Duplicate Key Exception is thrown by the application.</p>	<p>The ITA team built a test servlet and re-created the error in the test environment.</p> <p>In debugging the Duplicate key exception, We found that several production session databases have slightly different configurations.</p> <p>ECM scheduled for 1/11 for FAFSA and 1/18 for PIN to fix this issue.</p>	3 - Normal	Open, pending impleme ntation	1/18/2004	30
1/8/2004	FAFSA/ PIN	Prod	During the course of investigating the outages during the past month, the Tiger Team observed that SSL is turned on for the communications between IHS and WAS.	<p>The ITA team recommended to turn off SSL between IHS and WAS.</p> <p>VDC 6751 was submitted and scheduled for 1/11/2004. CSC delayed implementation because of time constraints to 1/18/2004</p>	3 - Normal	Open, pending impleme ntation	1/11/2004	10



1/2/2004	IFAP	Prod, Dev, & Test	Not able to assign tasks as part of the workflow when logging in as Admin under the IFAP Branch in the Interwoven Upgrade Environment.	From the available_templates.cfg configuration on su35e1, it does not appear that any workflow templates have been configured for the "assign" button. Responded to the IFAP team on 1/2/2004 requesting the specific workflow templates that they thought were missing but have not received a response. ITA team is assuming there is no problem but is awaiting confirmation from the IFAP team.	2-High	Open	1/16/2004	1
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Total Prod. Issues								Total Prod. Hours
18								286

Total Pre-Prod. Issues								Total Pre-Prod. Hours
15								18



5 Reusable Common Services (RCS)

The RCS provides common technical and business services that are required for virtually every web-based application within FSA. These services can be built once and reused across all the applications. ITA Release 4.0 is maintaining the existing RCS library. The following list details updates and information regarding the RCS components maintained in Release 4.0:

- Updated the RCS Jar files in the FAFSA production environment with the latest RCS Jars.
- The RCS Framework now consists of the following jar files:

StartupRcs.jar
rcs.email.5.0.jar
rcs.exception.5.0.jar
rcs.logging.5.0.jar
rcs.persistence.5.0.jar
rcs.search.5.0.jar

- In addition, the RCS jar files utilize the following third party Jar files:

commons-httpclient-2.0-beta1.jar
commons-logging-api.jar
commons-logging.jar
jakarta-oro-2.0.5.jar
protomatter-1.1.8.jar



6 Maintenance Services

6.1 Availability

The ITA team offers continuous secondary production support (tier two) to CSC in their maintenance escalation process of resolving production issues. ITA provides support twenty-four hours a day, seven days a week. This level of support helps ITA ensure a high level of service as outlined in the Service Level Agreements (SLAs) with each application team. The schedules & team used to provide this support are detailed in Appendix B & C.

Target Availability: 100% (24/7 production support)

Actual Availability: The IT Services Report is published on a daily basis. Actual Availability is detailed in these individual reports. However, there is no comprehensive report with numbers on Availability for multiple weeks. The details of these reports can be obtained as issued by Ernest Sheffield at Lin.Sheffield@ed.gov.

6.2 Pager Support

The ITA team provides non-business hour support through pager support. The ITA team has escalation procedures to ensure that support for production issues is readily available. During business hours the ITA team answers an average of 5 calls per day. During non-business hours the ITA team answers 4 pages per week. Additionally, the ITA team has been participating in weekly production issue status calls. The incidents (production issues) that have been captured thus far include those that are logged in the change request tool that are described in Section 4.2. An additional table of historical data is provided in Appendix D.



7 Performance Tests

The ITA team performed the following Performance Tests on the FAFSA on the Web application during the December 15, 2003 – January 15, 2004 time period:

7.1 CSS and eND Switching Procedure

CSS was scheduled to go-live in the FAFSA production environment on December 21, 2003. ITA performance tested this procedure and provided detailed instructions and support to CSC.

Priority: High
Status: Complete

7.2 Test New Shadow Direct Driver

Updated the Shadow Direct Driver to v3.8 in the Performance Test environment. Ran the FAA Correction business process and did not see any segmentation fault.

Priority: High
Status: Completed performance test and opened an ECM to implement in production on December 29, 2003.

7.3 WAS Time Out

The JVMs in the Production environment were experiencing more full garbage collections (2/minute) and also type 1 full garbage collections, than were seen during the FAFSA Performance Test. At the time, this was attributed to the fact that a number of FAFSA users (15-20%) allow their sessions to be timed out by WebSphere. The ITA team needed to run a test (at least 8-10 hours) to validate the theory. Running the performance test for a long period (8-10 hours) was also hoped to replicate some problems seen in production.

Priority: High
Status: Complete. ITA ran the test for three hours. For this test 20% of the users were not invalidating their session. While the test may need to be run for a longer time period, ITA did not see any capacity issues with 20% of the users not invalidating the session during the test.

7.4 Investigate the Cause of Fin_Wait_2 TCP Connections

Priority: High
Status: Sniffer was placed in the Performance Test environment and several tests were run. Information from the tests was provided to IBM for further review.

7.5 Memory Leak Error

It was found that in the production environment, a memory leak occurs when WebSphere PMI (Performance Monitoring Infrastructure) was turned on and the Wily monitoring client for PMI was enabled. PMI was turned off in production and the Wily PMI client disabled to eliminate the memory leak. Performance tests are planned to validate tests that CSC and Wily have found, but will not be completed until after FAFSA peak.



Priority: Medium
Status: Performance test not yet scheduled.

7.6 Profiling the FAFSA Business Process

ITA installed Jprobe in the Performance Test environment to profile all ten FAFSA business processes. Profiling using JProbe will help to tune the application code.

Priority: Medium
Status: If there is any down time ITA will proceed with the application profiling.

7.7 Investigate Rapid Garbage in Production

ITA ran a performance test with default heap parameters on January 7, 2004:

- Heap was defaulted to 1/3 new, 2/3 old.
- 2 Survivor areas each set to 1/12 of new.
- 1500 users for 1 hour to gather size and tenuring information during garbage collections (GC's)
- Zero full garbage collections

ITA also ran a performance test with a lowered survivor size:

- Survivor size reduced to 1/100 of new.
- Saw increased number of full GC's. Survivor was being overrun into the old generation.
- 6 full garbage collections - each lasting approximately 3 seconds.
- Test was run with 1500 users for 1 hour.

ITA needs to further investigate and run these kinds of tests to determine if there is a capacity issue in production.

Priority: High
Status: In Progress