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FSA Modernization Partner

FSA Technology Infrastructure Blueprint

Version 2.2

Business-Technology Alignment

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2.0	April 30, 2002	Karen Anderson, Bill Malyszka	Includes information from system surveys. Added several systems. Points of Contact and Programming Languages were added for each system.
2.1	May 15, 2002	Bill Malyszka, Karen Anderson	Web enabled document with Target Architecture.
2.2	May 21, 2002	Karen Anderson, Bill Malyszka	Incorporated client feedback.

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1 INTRODUCTION

The Federal Student Aid (FSA) Technology Infrastructure Blueprint (TIB) describes the common, enterprise-wide technology infrastructure supporting FSA at all levels of the organization. In addition, it contains:

- A set of technology models and statements that guide FSA toward a consistent, compatible technology infrastructure based on FSA defined standards and supporting FSA's modernization vision
- A high-level design illustration of the essential components of the FSA technology infrastructure
- A description of the technology infrastructure that is the foundation for each FSA application defined by the Target State Vision (TSV)
- Points of contact for each system within the FSA technology infrastructure

The TIB details the production architecture which is the collection of technology infrastructure elements upon which applications are executed. The conceptual model of the development architecture is summarized in the TIB, but a detailed description of specific development architectures is not provided in this document.

This document will be updated and published at a minimum on an annual basis through the BTA eprocess.

2 FSA INFRASTRUCTURE CONCEPTUAL MODEL

The FSA Infrastructure is portrayed in the Target State Vision (TSV). The infrastructure reduces the need for customized point-to-point system interfaces. This infrastructure provides support for seamless integration between application touch-points through a set of interfaces or connectors.

Figure 1 –2002 FSA Target shows how the technology infrastructure provides seamless integration between the FSA applications. The EAI layer is the glue for providing the integration between the applications where interfaces do not exist. The EAI layer provides a set of application adapters and communication services.

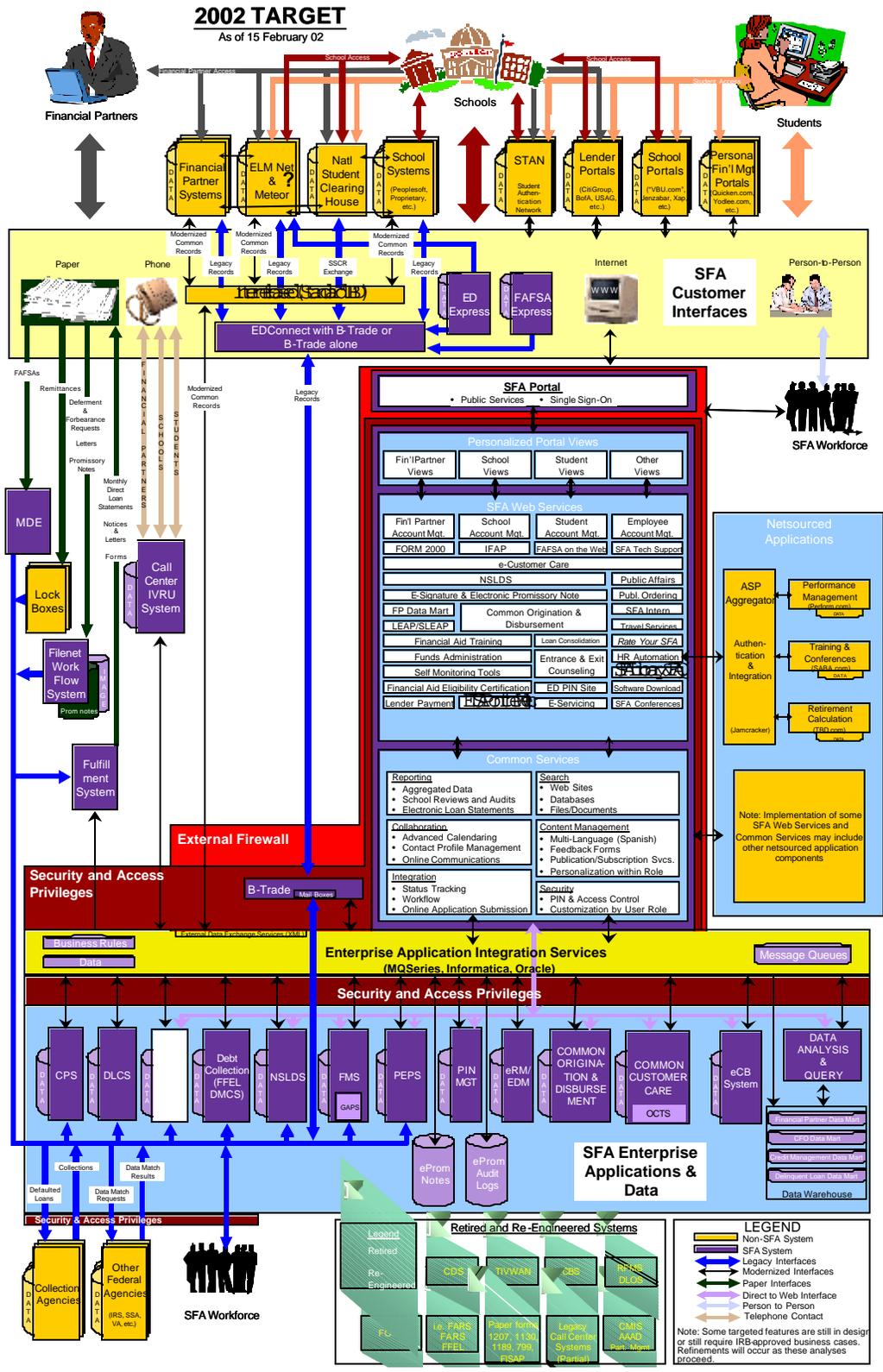


Figure 1 –2002 FSA Target Architecture

2.1 Enterprise Application Integration

The Enterprise Application Integration (EAI) provides the services necessary to support application integration across the FSA Enterprise. The topology supports the implementation of an asynchronous messaging back-plane that forms the basis for the deployment of a hub and spoke network infrastructure. The topology also supports application connectivity and transaction processing through the integration of pre-built application adapters, gateways and connector frameworks. The following topology diagram depicts execution topology and product mapping for the EAI Infrastructure Domain.

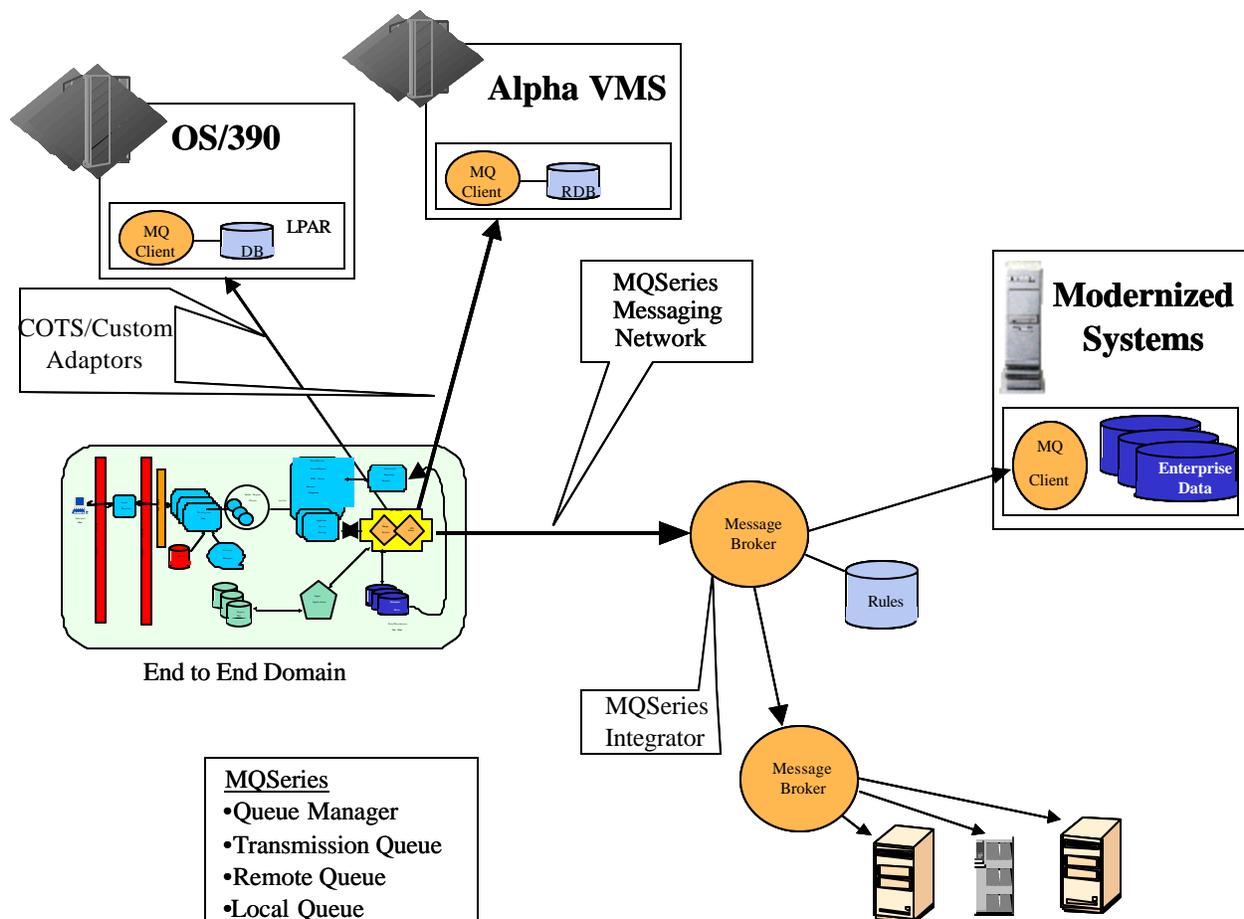


Figure 2 – EAI Infrastructure Domain

The EAI includes the following components or nodes:

- Queue Managers – Queue Managers are run-time processes that are responsible for managing queues of messages for application programs using International Business Machine’s (IBM) MQSeries. Queue Managers help maintain the flow of messages through a queue and manage communication links between other queues.
 - Message Broker -The role of the Message Broker is to provide a layer of logic to the messaging layer. The Message Broker is the ‘glue’ between intercommunicating applications. The Message Broker ensures that messages are routed correctly between applications and in a format in which the applications can understand each other. FSA applications will use the Message Broker MQSeries Integrator (MQSI) to provide a mechanism for:
 - Intercommunication between applications that are served by the application server
 - Asynchronously obtaining data from legacy applications
 - Asynchronously updating legacy applications
 - Routing data to and from Enterprise Data Warehouses and Data Marts.
- Workflow Server – The Workflow node uses the messaging infrastructure for communication. The role of a Workflow Server is to automate business processes involving people and applications to give the enterprise added control over business activities. In the case of FSA it allows the developer to establish rules for managing updates to applications across the enterprise.
- Application Adapters - Application Adapters provide direct connectivity to applications and disparate data sources. Application Adapters allow applications to coordinate transactional updates across different data sources. Application Adapters are used by Application Servers such as Component Broker (CB) to provide support for On-Line Transaction Processing (OLTP).

2.2 FSA Applications

The FSA TIB consists of two types of systems; legacy systems and modernization systems.

- *Legacy Systems* are systems store information primarily in DB2 databases on OS/390 servers. Direct access and acquisition of data stored in DB2 is not easy because the database schemas are not normalized and highly coupled to their respective applications. Data stored in the legacy systems must be considered a secondary data repository once its controlling application is deprecated or duplicated.

- *Modernization Systems* are data repositories that will be supported by future enterprise applications. Modernization Systems are comprised of data warehouses, data marts and operational data stores. The data stored in Modernization Systems is considered to be the ‘official’ copy of FSA’s corporate data. Modernization Systems provides FSA with a more normalized data schema that lends itself to the use of business components and object relational mapping.

3 PRODUCTION INFRASTRUCTURE SUMMARIES

Each system on the FSA IT production infrastructure is represented with a brief description of the function of the application, a list of the technologies used in the system, and conceptual model of the system. The programs detailed include:

FSA Modernization Systems	FSA Legacy Systems
CFO Data Mart	Central Processing System (CPS)
Common Orig. & Disbursement (COD)	Direct Loan Consolidation System (DLCS)
Credit Management Data Mart (CMDM)	Direct Loan Origination System (DLOS)
eCampus Based System (eCB)	Direct Loan Servicing System (DLSS)
Electronic Record Management	Fed. Family Ed. Loan Program (FFEL)
Enterprise Application Integration (EAI)	National Student Loan Database System (NSLDS)
eServicing	Post-secondary Education Participants System (PEPS)
FAFSA 6.0	Recipient and Financial Mgmt Sys (RFMS)
Financial Mgmt. Systems (FMS)	
Financial Partners Data Mart (FPDM)	
FSA Intranet	
FSA Portals	
FSA to the Internet HR Modernization	
Info for Financial Aid Partners (IFAP)	
Ombudsman	
Single Sign On	

3.1 FSA Modernization Systems

FSA Modernization systems are infrastructure elements that employ FSA technology standards to provide the business functions of the systems. Modernization systems also are integrated with other FSA modernization and legacy systems.

3.1.1 CFO Data Mart

Last updated 4/30/2002

Description

The CFO Data Mart provides an automated financial analysis and reporting process. Financial Management Systems Software (FMSS), a Department of Education system, serves as the source system for data used in the CFO data mart. User-supplied cross-reference data is also used to populate the mart (e.g., Channel, Lim, Activity). FMSS performs nightly extracts of activity from the previous day. The extracted data is exported via FTP to the Informatica server at the VDC. Informatica then imports the data into Oracle, performs the necessary transformations, and populates the CFO data mart. The data mart is accessed by MicroStrategy Intelligent Server to satisfy user requirements that are sent via a web interface. Users access the CFO data mart directly through the FSA intranet.

The CFO, FP, and CM Data Marts have identical architectures with the exception that CFO is on Oracle 8.1.7, while FP and CM are on 8.1.6.

Infrastructure Technologies

Product	Server	Use
Oracle 8i 8.1.7	HPV2	Database Management
Informatica Power Center Server 5.0	SU35E18	Data Acquisition
MicroStrategy 7.1.2	SFANT002 SFANT003	End User Data Access
Intelligence Server 7.0	SFANT004	End User Data Access
IBM Network Dispatcher	SU22E4 SU22E3	Web Server
HP-UX 11.0	HPV2	Operating System
Sun Solaris 2.6	SU22E4 SU22E3 SU35E18	Operating System
Microsoft Windows NT	SFANT002 SFANT003 SFANT004	Operating System

Programming Languages

Language	Version
<i>None reported</i>	

System Interfaces

Direction	System	Data Transfer Method
Receive Data from	FMSS (Dept. of Education)	Informatica

The incoming feed from FMSS has been disabled since 1/22/02, due to a financials upgrade by ED. ETC to resume the feed is currently unknown.

Points of Contact

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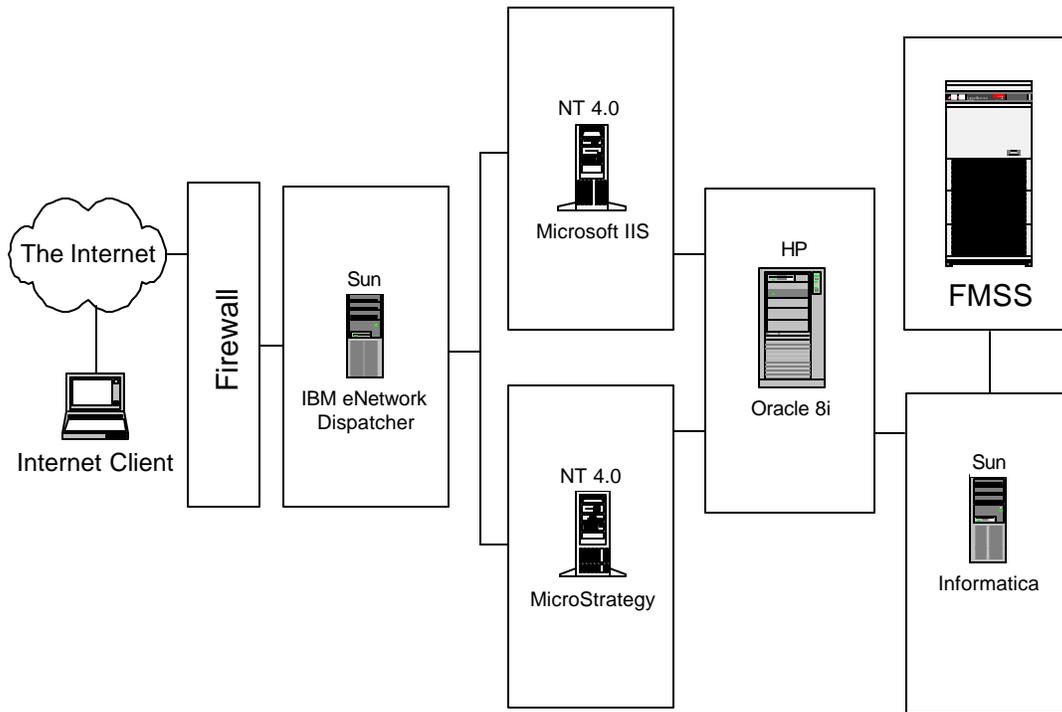


Figure 3 – CFO Data Mart Conceptual Model

3.1.2 Common Origination & Disbursement (COD)

Last updated 11/30/2001

Description

The COD application will simplify the process for schools to obtain financial aid for their students. COD supports the FSA objective of achieving an enterprise-wide solution that provides real-time data to students, schools, and financial partners via web portals. In addition, the COD solution will provide FSA with cost efficiencies by enabling FSA to deliver financial aid for Pell Grants, Direct Loans, and Campus-based programs through a common process. DLOS and RFMS are legacy systems that are being replaced by COD.

COD resides on a proprietary architecture at subcontractor Total Systems (TSYS). This is an evolving architecture that uses IBM MQSeries Messaging and Integrator for connectivity to FSA EAI.

Infrastructure Technologies

Product	Server	Use
MQSeries Workflow v3.2.2	EAI	Workflow Management
Sendmail	TSYS	Mail Server
IBM DB2	TSYS	Database Management
Web Trends	TSYSS	Web Server Monitoring
MQSeries Server v5.2		Middleware
MQSeries Client v5.2		Middleware
CommerceQuest Data Integrator 4.0.1		File Transfer
BTRADE	EAI	Electronic Data Interchange
WinZip		File Compression
OS/390 MVS 2.11		Mainframe Operating System
CICS		Mainframe Operating System
Computer Associates Endeavor		Configuration Management
CheckPoint Firewall-1		Firewall Services
RACF		Access Control
Tripwire		Host Intrusion Detection
Router/Hardware Encryption		Encryption
Verisign		Encryption
DES3		Encryption

Programming Languages

Language	Version
<i>None reported</i>	

System Interfaces

Direction	System	Data Transfer Method
Bi-directional	CPS	EAI Batch
Bi-directional	DLOS	EAI Batch
Bi-directional	DLSS	EAI Batch
Bi-directional	eMPN	EAI Transactional
Bi-directional	FMS	EAI Transactional
Bi-directional	NSLDS	EAI Batch
Bi-directional	SAIG	EAI Batch & Transactional
Receive data from	PEPS	Transactional

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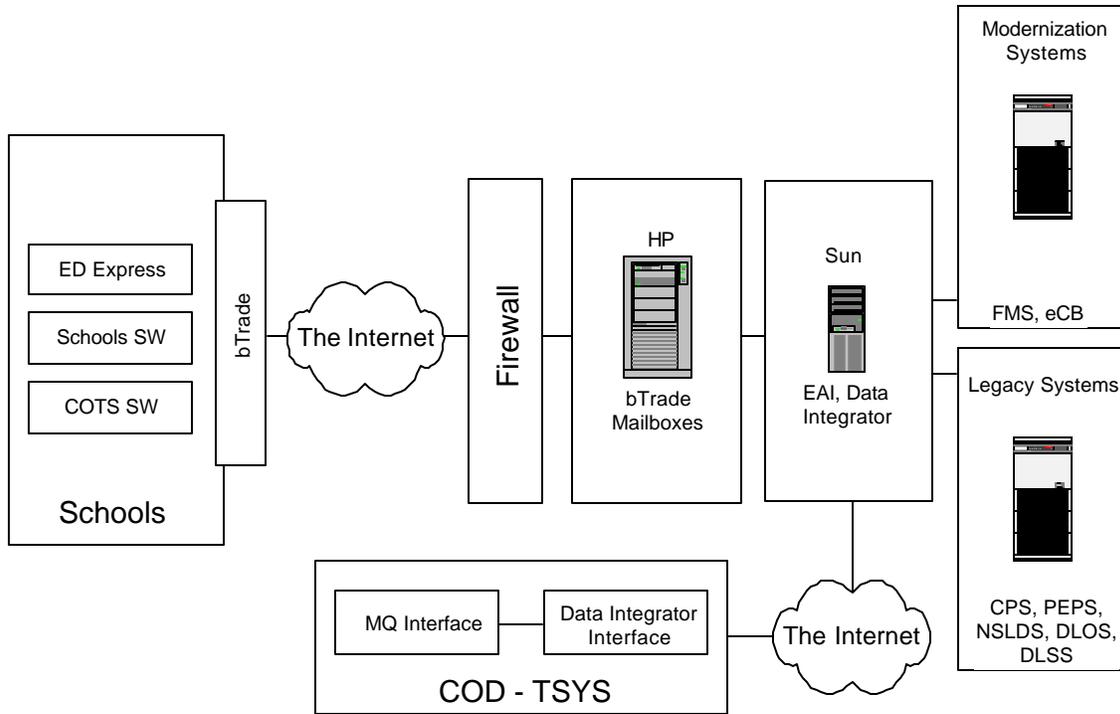


Figure 4 – COD Conceptual Model

3.1.3 Credit Management Data Mart

Last updated 4/30/2002

Description

The Credit Management Data Mart (CMDM) is being created to support reporting requirements at the level of detailed financial transaction. This is something that FMS cannot support. The functional objectives of CMDM include:

- Provide FSA CFO and Student Credit Management with a tool to report on detailed financial transactions
- Provide a transaction register to FMS for DLSS transactions
- Provide Credit Management and other departments with a tool to complete MIS reporting from Direct Loan Data
- Provide access to end users so they can retrieve reports as needed
- Provide access to designated FSA users so they can create new reports

CMDM provides various levels of reporting capabilities to end-users. It serves as the primary reporting tool for the Direct Loan Program at the borrower level.

The CFO, FP, and CM Data Marts have identical architectures.

Infrastructure Technologies

Product	Server	Use
Oracle 8i/8.05	HPV2	Database Management
Informatica Power Center Server 5.0	SU35E18	Data Acquisition
MicroStrategy 7.1.2	SFANT002 SFANT003 SFANT004	End User Data Access
Intelligence Server 7.0	SFANT004	End User Data Access
Web 7.0	SFANT002 SFANT003	End User Data Access
Microsoft IIS	SFANT002 SFANT003	Web Server
MQ Series Client v5.2	SU35E18 HPV2	Middleware

CommerceQuest Data Integrator 4.0.1	SU35E18 HPV2	File Transfer
HP/UX v11.0	HPV2	Operating System
Microsoft Windows NT v4.0	SFANT002 SFANT003 SFANT004	Operating System
Sun Solaris v2.6	SU35E18	Operating System
Verisign (SSL)	SFANT002 SFANT003	Encryption

Programming Languages

Language	Version
PL/SQL	8

System Interfaces

Direction	System	Data Transfer Method
Receive data from	FMS	MQ Series / Data Integrator
Receive data from	DLSS	MQ Series / Data Integrator

Points of Contact

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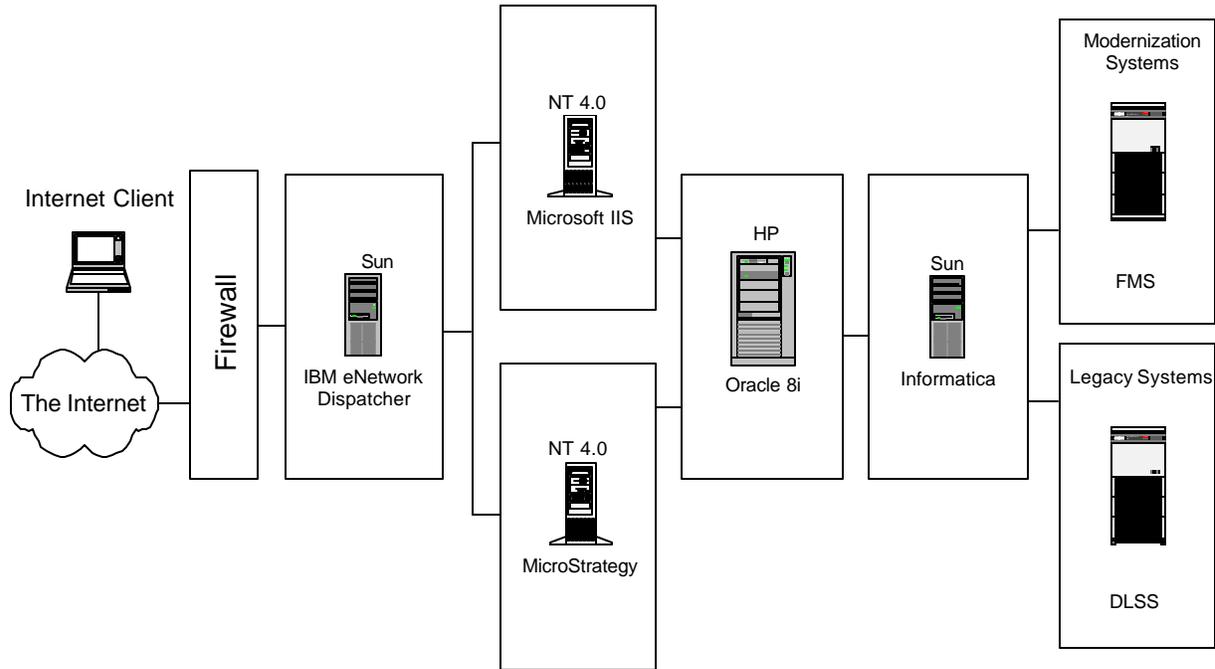


Figure 5 – Credit Management Data Mart Conceptual Model

3.1.4 eCampus Based (eCB)

Last updated 4/30/2002

Description

This initiative modernized the legacy Campus Based System. The storage of data in its legacy form made it very difficult for FSA staff and institutions to access information when they needed it. The electronic Campus Based (eCB) initiative transformed the existing Campus Based from a mainframe to an Oracle based web environment. eCB provides efficient interaction with other FSA systems.

Infrastructure Technologies

Product	Server	Use
Oracle 8i/8.05	HPV2	Database Management
MicroStrategy 7.1.2	To be determined when system goes live. (SFANT002, SFANT003, SFANT004)	End User Data Access
IBM WebSphere Enterprise Edition v3.5.5	SU35E9 SU35E13	Application Server
IBM IHS Server v1.3.12 (bundled with WebSphere application server)	SU35E10 SU35E12	Web Server
Web Trends		Web Server Monitoring
Sun Solaris v2.6	SU35E10 SU35E12 SU35E9 SU35E13 SU22E3 SU22E4	Mid Tier Operating System
Sun Solaris v2.7	SU35E3 SU35E14	Mid Tier Operating System
Rational ClearCase v4.1 (Non-mainframe)	Hosted by the eCB Development contractor, Beacon Technologies	Configuration Management
IBM Network Dispatcher		Load Balancing
FSA PIN (Custom Application)		Authentication
Tripwire (Sun Solaris)	SU35E10 SU35E12 SU35E9 SU35E13 SU22E3 SU22E4 SU35E3 SU35E14	Host Intrusion Detection

Verisign v3.0	SU35E10 SU35E12	Encryption
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RSA BSAFE Libraries		Encryption
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Programming Languages

Language	Version
Java	1.2.2 with WAS 3.5.5
PL/SQL	

System Interfaces

Direction	System	Data Transfer Method
Receive data from	PEPS	EAI Batch
Send data to	Customers (Schools)	SMTP
Send data to	FMS	EAI Batch

Points of Contact

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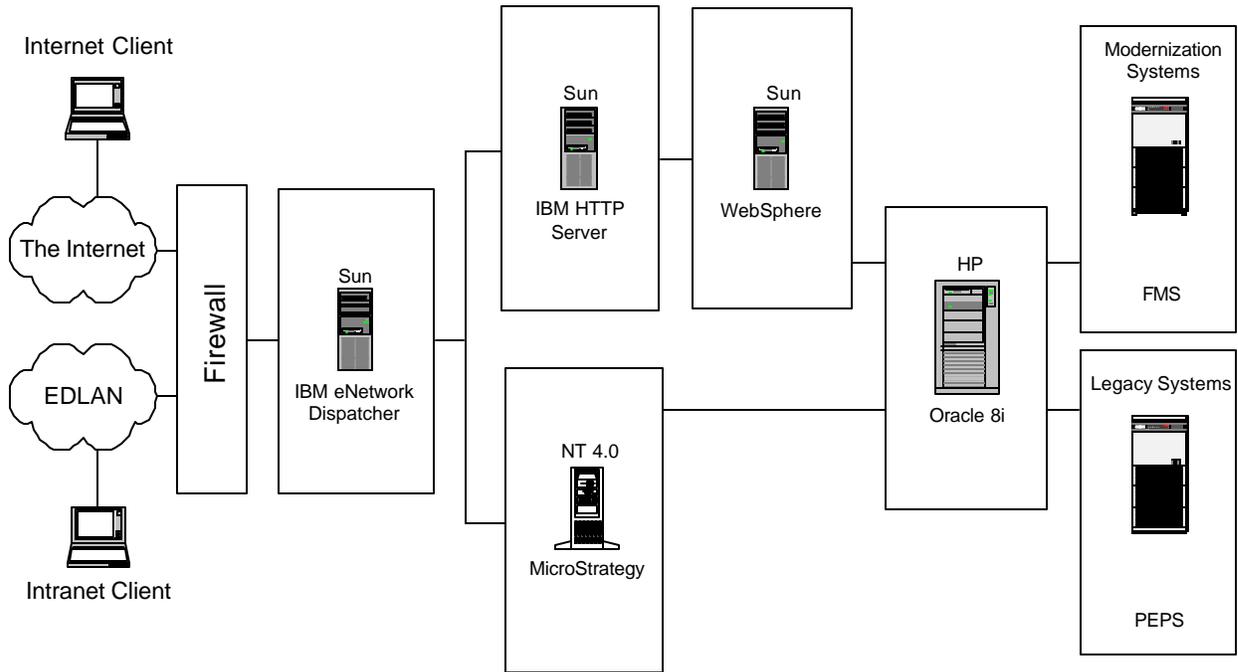


Figure 6 – eCB Conceptual Model

3.1.5 Electronic Records Management

Last updated 4/30/2002

Description

The Electronic Records Management (ERM) is used to image, store, and retrieve paper documents by converting them to graphic images.

Infrastructure Technologies

Product	Server	Use
Microsoft Windows NT 4.0		Mid Tier Operating System
Microsoft SQL Server 7.0		Database Management
Optika Acorde Document Imaging, Workflow, and Collaboration Suite		Document Management
Microsoft Software Management System		Software Management System

Programming Languages

Language	Version
<i>None reported</i>	

System Interfaces

Direction	System	Data Transfer Method
<i>None reported</i>		

Points of Contact

Role	Contact	Organization	Phone	Email Address
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3.1.6 Enterprise Application Integration (EAI)

Last updated 4/30/2001

Description

The EAI Core Architecture effort consists of the design and implementation of the MQSeries integration architecture for the Department of Education, Office of Student Financial Assistance (FSA).

Collectively, the implementation of the EAI components and architecture is referred to as the EAI Bus. The EAI components provide the core architecture to enable FSA applications to utilize a common, reusable infrastructure for connecting disparate, heterogeneous systems. The EAI core architecture provides the EAI components and services to connect the FSA Internet Domain and nine FSA legacy systems to the EAI bus. Middleware communications are provided by MQSeries Messaging, transformation and routing is provided by MQSeries Integrator, and application connectivity is provided by the adapters.

Infrastructure Technologies

Product	Server	Use
Sun Solaris 7		Mid Tier Operating System
Microsoft Windows NT Server 4.0		Mid Tier Operating System
Sun Java Development Kit 1.3 (required for AMI)		Application messaging interface adapters
IBM MQSeries Messaging 2.2.1.1		FSA EAI middleware comm. standard for OpenVMS
IBM MQSeries Messaging 5.2		FSA EAI middleware comm. standard for many platforms
IBM MQSeries Messaging 5.1		FSA EAI middleware comm. standard for NT 4.0
IBM MQSeries AMI 1.2.1		FSA EAI application messaging interface standard
IBM MQSeries Integrator 2.01		FSA EAI message transformation and routing
CommerceQuest Data Integrator 4.2.4		Data transfer service (100+ MB)
IBM DB2 6.1 (bundled with MQSI)		Database

Programming Languages

Language	Version
<i>None reported</i>	

System Interfaces

Direction	System	Data Transfer Method
Bi-directional	DLSS	EAI
Bi-dierectional	CPS	EAI
Bi-directional	NSLDS	EAI
Bi-directional	SAIG	EAI
Bi-directional	FMS	EAI
Bi-directional	EServicing	EAI
Bi-directional	eMPN	EAI
Bi-directional	PEPS	EAI
Bi-directional	eCB	EAI
Bi-directional	CMDM	EAI
Bi-directional	COD	EAI
Bi-directional	FP Data Mart	EAI

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Data Architect				
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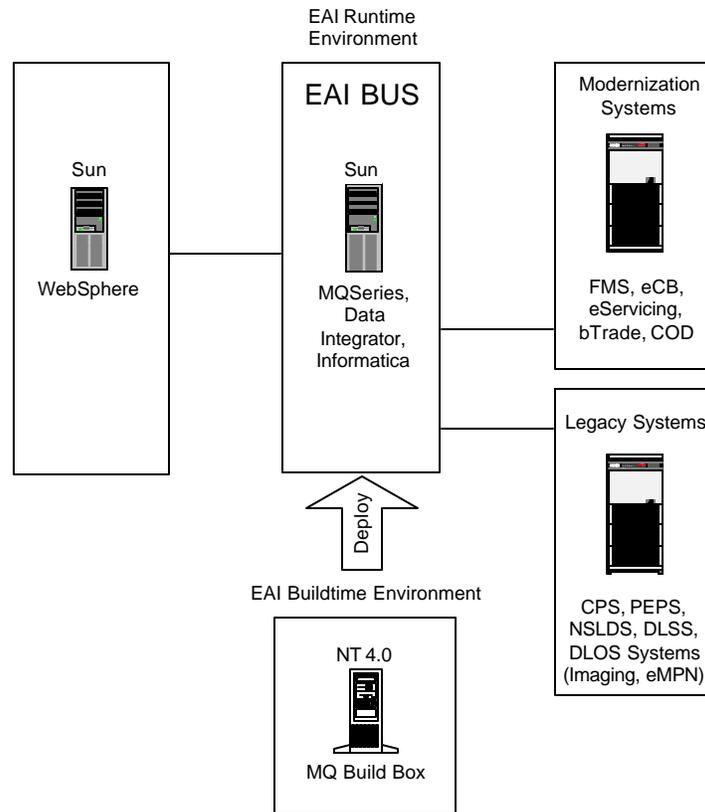


Figure 7 – EAI Conceptual Model

3.1.7 eServicing

Last updated 4/30/2001

Description

Direct Loan eServicing will provide Internet bill presentment and payment, On-Line Correspondence, and an enhanced Customer Management System. By integrating these three components, DLSS will provide a uniform and high-quality customer service experience for our borrowers regardless of how they choose to interact with DLSS – via the Internet, the VRU, or Customer Service Representatives (CSRs).

Infrastructure Technologies

Product	Server	Use
Microsoft Windows NT Server 4.0		Mid-Tier Operating System
HP-UX 11.0		Mid-Tier Operating System
Oracle 8i 8.1.6		Database Management
Microsoft SQL Server 7.0		Database Management
Siebel eFinance 6.3		Finance CRM application suite
IBM MQSeries Messaging 5.2		FSA EAI interface transport layer
IBM MQSeries Server 5.2		FSA EAI interface queue client
IBM MQSeries Client 5.2		FSA EAI interface queue server
IBM MQSeries AMI 1.2.1		FSA EAI application messaging standard
IBM MQSeries Integrator 2.02		FSA EAI message transformation and routing
EDOCs (EBPP/OC)		Bill presentment and payment online correspondence tool
Avaya CentreVu CT		CTI software
Intervoice-Brite Write 1		IVR software
Avaya CentreVu CMS		CTI call management software
CommerceQuest Data Integrator 4.0.1		File Transfer
HP Service Guard		Load Balancing
FSA PIN		Authentication
McAfee		Virus Protection
Computer Associates		Workflow Management

UniCenter AutoSys

Programming Languages

Language	Version
PL/SQL	8.17
C++	6

System Interfaces

Direction	System	Data Transfer Method
Bi-directional	DLSS Oracle RDB	MQ
Bi-directional	ECRM - FSA System (PIN Site)	Oracle stored procedure
Send data to	CPS	Direct access to Oracle stored procedures
Bi-directional	DLSS	EAI Batch & Transactional

Points of Contact

Role	Contact	Organization	Phone	Email Address
FSA Sponsor	Dan Hayward	FSA		dan.hayward@ed.gov
Project Lead	Kerry Trahan	Accenture		kerry.j.trahan@accenture.com
Technical Architect	John Coleman	Accenture		john.f.coleman@accenture.com
Application Architect				
Data Architect				
Business Architect				
System Monitoring				
Issues & Upgrades	Leonard T. Matthews			leonard.t.matthews@accenture.com
Operations Account Manager				
Operations Service Delivery				

Manager

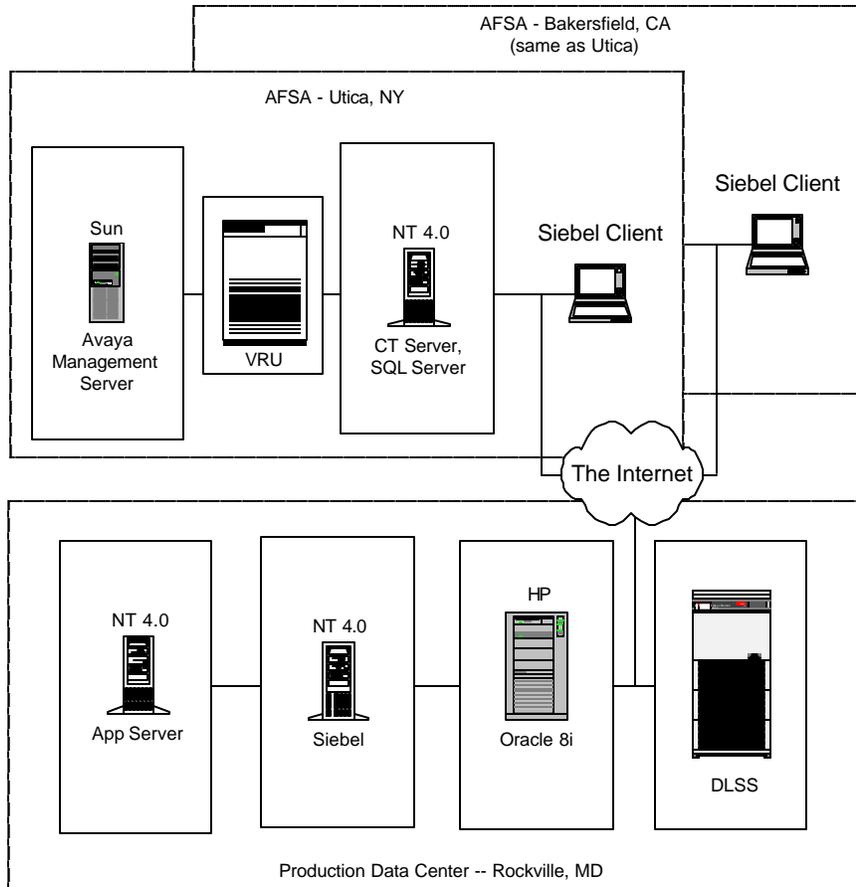


Figure 8 – eServicing Conceptual Model

3.1.8 FAFSA on the Web 6.0

Last updated 4/30/2002

Description

Free Application for Federal Student Aid (FAFSA) is an application used by college students and schools to submit financial aid applications via the Internet. The FAFSA on the Web redesign initiative is an effort to modernize FAFSA on the Web and accommodate a projected increase in users.

In the first release (FAFSA on the Web release 6), the architecture will migrate from a two-tiered architecture to an N-tier architecture where business and presentation logic are separated. This approach will alleviate redundancy between applications and be more easily integrated with new and existing systems.

In subsequent releases, a seamless user experience will be created between FAFSA on the Web, the Students Portal, and other state and institutional sites.

Infrastructure Technologies

Product	Server	Use
Oracle 8i/8.05	HPV2	Database Management
IBM DB2	CPS	Database Management
IBM WebSphere Enterprise Edition v3.5.5	HPN7 HPN8 HPN15 HPN16 HPA2	Application Server
IBM IHS Server v1.3.12 (bundled with WebSphere application server)	HPN13 HPN14 HPN4 HPL3	Web Server
Rational ClearCase v4.1 (Non-mainframe)		Configuration Management
IBM Network Dispatcher		Load Balancing
Web Trends		Web Server Monitoring

Programming Languages

Language	Version
<i>None reported</i>	

System Interfaces

Direction	System	Data Transfer Method
Bi-directional	CPS	Batch
Bi-directional	FSA PIN	PIN API

Points of Contact

Role	Contact	Organization	Phone	Email Address
FSA Sponsor	Jeanne Saunders	FSA, Students Channel	202-377-3246	jeanne.saunders@ed.gov
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Application Architect	Matt Kain	NCS Pearson	319-339-6902	matt_kain@ncs.com
Data Architect	Matt Kain	NCS Pearson	319-339-6902	matt_kain@ncs.com
Business Architect	Chris Paladino	Accenture	202-962-0863	chris.d.paladino@accenture.com
System Monitoring	Alex Lefur	Accenture	720-530-4910	alex.h.lefur@accenture.com
Issues & Upgrades	Alex Lefur	Accenture	720-530-4910	alex.h.lefur@accenture.com
Operations Account Manager	Jeff Robinson	CSC	301.794.6740	
Operations Service Delivery Manager	Mike Healy	CSC	703.338.7345	

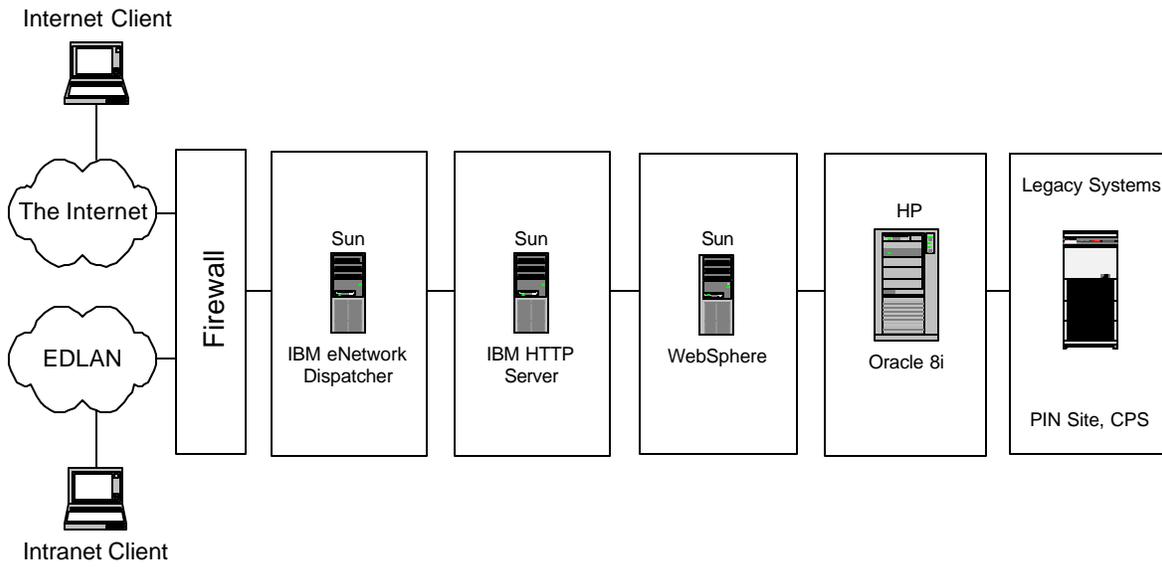


Figure 9 – FAFSA on the Web 6.0 Conceptual Model

3.1.9 Financial Management Systems (FMS)

Last updated 4/30/02

Description

FMS, an Oracle Federal Financials Application (Rel. 11.0.3) System, serves as the centralized financial accounting system. It manages the flow of all financial information for FSA. FMS facilitates the FSA transformation by giving the CFO the ability to report information across loan and grant programs, consolidate redundant processes, and account for FSA Title IV funds. Phase III of FMS was fully implemented on September 30, 2001. This phase incorporated core accounting for Direct Loan, Campus Based, Pell, and Debt Collection Services. Phase IV is scheduled for implementation in April 2002 for Common Origination and Disbursement (COD).

Infrastructure Technologies

Product	Server	Use
Oracle Financials Rel 11.0.3	HPV2	Financial Accounting
Oracle 8i/8.05	HPV2	Database Management
Oracle Application Server v3.0.2	HPL10 HPL11	Application Server
FTP	HPL10	File Transfer
CommerceQuest Data Integrator 4.0.1	HPL10	File Transfer
BTRADE (Planned for Phase IV)	HPL10	Electronic Data Interchange
Compress	HPL10	File Compression
Citrix (Internal project team uses this to get to EDNet for remote EDNet email only)	Dept of Ed - ROB3 server(s)	Remote Access Services
CheckPoint VPN-1	HPL10	Virtual Private Network
HP/UX v11.0	HPL10 HPL11 HPV2	Mid Tier Operating System
Rational ClearCase v4.1 (Web Version)	Desktops	Configuration Management
Rational ClearQuest 2001 v4.0 (Planned Aug – Oct '01)	Desktops	Configuration Management

Hewlett Packard OpenView (Used by CSC to manage our machines)	HPL10 HPL11 HPV2	Operations Management (Network Monitoring)
HP Service Guard (Used by CSC for fail-over)	HPV2	Load Balancing
Tripwire	HPL10 HPL11 HPV2	Host Intrusion Detection

Programming Languages

Language	Version
PL/SQL	Oracle 8.0.4

System Interfaces

Direction	System	Data Transfer Method
Bi-directional	DLOS	FTP
Bi-directional	DLSS	FTP
Bi-directional	eCB	EAI Batch & Transactional
Bi-directional	FFEL	Direct On-line Entry File Transfer
Bi-directional	FMS	Database Link
Bi-directional	PELL	FTP
Receive data from	Accounts Receivable (Planned 6/02)	EAI
Receive data from	CODE	EAI Batch
Receive data from	DLCS	FTP
Receive data from	LEAPP/SLEAPP Guaranty Agencies (GAs)	Direct on-line Entry
Send data to	CFO Data Mart	Database Link
Send data to	Credit Management Data Mart	Database Link

Points of Contact

Role	Contact	Organization	Phone	Email Address
FSA Sponsor	Paul Stonner	FSA CFO	202.377.3494	paul.stonner@ed.gov

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Data Architect	Edgar Kline	Montrea	962.0688	edgar.kiline@ed.gov
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System Monitoring	VDC Cmd Ctr Marcus Daughtry	CSS FMS/sub	962.0691	marcus.daughtry@ed.gov
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Operations Account Manager	Ray Thomas	CSC	202.842.7398	
Operations Service Delivery Manager	Mike Healy	CSC	703.338.7345	

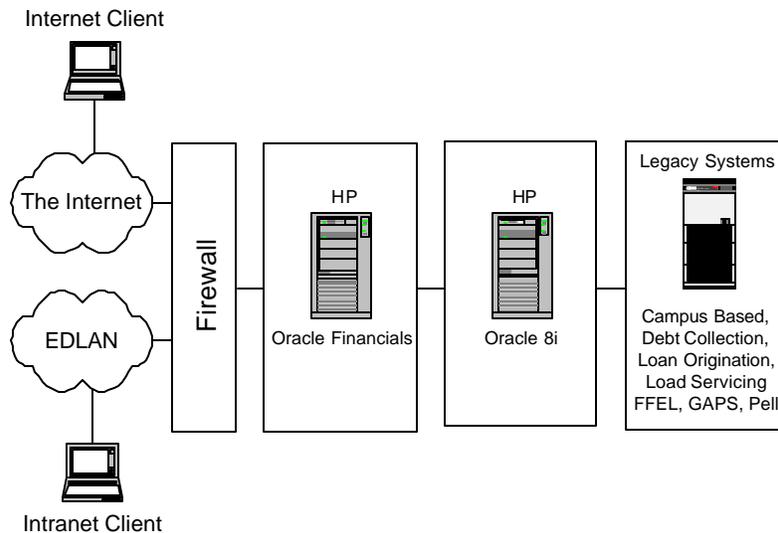


Figure 10 – FMS Conceptual Model

3.1.10 Financial Partners Data Mart

Last updated 4/30/2002

Description

Within the Financial Partners (FP) Channel, data is fragmented across various legacy systems, making the process of extracting information time consuming, inconsistent, and costly. The FP Data Mart is the infrastructure/system that provides customer information for employees and partners. The FP Data Mart will ultimately be the main source of consolidated customer information supporting several key business areas within the FP Channel.

Infrastructure Technologies

Product	Server	Use
Oracle 8i/8.05	HPV2	Database Management
Informatica Power Center Server 5.0	SU35E18	Data Acquisition
MicroStrategy 7.1.2	SFANT002 SFANT003	End User Data Access
Intelligence Server 7.0	SFANT004	End User Data Access
IBM IHS Server v1.3.12 (bundled with WebSphere application server) (IBM Network Dispatcher)	SU22E4 SU22E3	Web Server

Programming Languages

Language	Version
<i>None reported</i>	

System Interfaces

Direction	System	Data Transfer Method
Receive data from	Raytheon (provides Lender info.)	Informatica
	FMS	EAI Batch
	NSLDS	EAI Batch
	PEPS	EAI Batch

Points of Contact

Role	Contact	Organization	Phone	Email Address
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Application Architect				
Data Architect				
Business Architect				
System Monitoring	Josh Stauffer	Accenture	202-962-0742	josh.stauffer@accenture.com
Issues & Upgrades				
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Operations Service Delivery Manager	Jack Gillotti	CSC	203.317.4816	

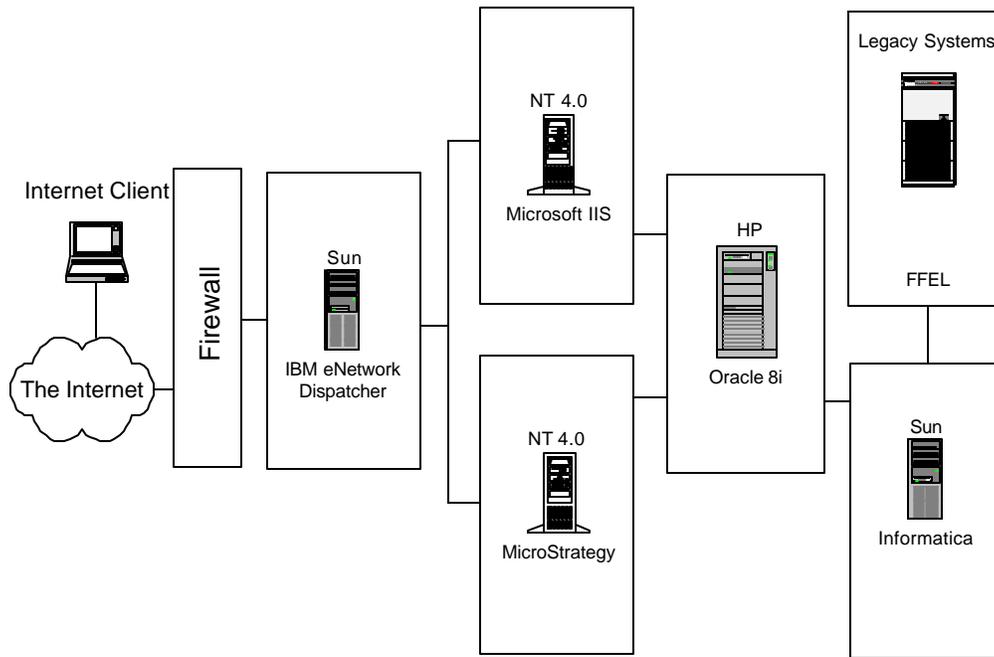


Figure 11 – Financial Partners Data Mart Conceptual Model

3.1.11 FSA Intranet

Last updated 4/30/2002

Description

The FSA Intranet provides FSA staff with internal documentation and enterprise wide information. The site is made up of the following core components:

- *Employee Services* – Information regarding Life at Work, News & Events, Travel, Administration, My Commute.
- *Career Zone* – FSA’s employee development center. It’s a resource for all FSA staff to access learning and career development services.
- *FSA University* – Provides business learning services to support FSA employees and partners.
- *FSA Communications* – Provides Press Releases, announcements, and publications
- *Students Channel* – Provides information relating to the Students Channel
- *Schools Channel* – Provides information, tools, and news relating to the Schools Channel
- *Financial Partners* – Provides information and contacts for all Financial Partners
- *Ombudsman* – Provides information on policy, reports, forms and letters
- *CFO* – Provides information relating to purchasing, administration, financial management, and training
- *CIO* – Provides information on CIO related activities such as IT Services Report, Vision/Mission, IT Security, People Library, IRB Activities, Career Planning, Giga Group, and etc.
- *Analysis* – Provides analysis and performance metrics on the enterprise
- *Human Resources* – HR related information and links
- *Acquisitions* – Information regarding acquisitions and contract performance

These core components of the FSA Intranet are run from the Virtual Data Center (VDC) in Meriden, Connecticut. Computer Sciences Corporation (CSC) staff are responsible for the operation, maintenance, and security of this system from a hardware and operating system perspective, with the support of ROH staff for application administration and maintenance.

Infrastructure Technologies

Product	Server	Use
Autonomy Knowledge Suite v3.1	SU35E7 SU35E15	Knowledge Management Search Engine
Interwoven Teamsite v5.0	SU35E1	Content Management
Interwoven OpenDeploy v5.0		Content Management
Sendmail	SU35E9 SU35E13	Mail Server
IBM WebSphere Enterprise Edition v3.5.3	SU35E9 SU35E13	Application Server
IBM IHS Server v1.3.12 (bundled with WebSphere application server)	SU35E10 SU35E12	Web Server
Web Trends		Web Server Monitor
Sun Solaris v2.6	SU35E1 SU22E3 SU22E4 SU35E7 SU35E9 SU35E10 SU35E12 SU35E13 SU35E15	Mid Tier Operating System

Programming Languages

Language	Version
Java	1.2.2

System Interfaces

Direction	System	Data Transfer Method
Bi-directional	COD	EAI Bus/Adapter/Connector API
Bi-directional	CPS	EA Client
Bi-directional	Direct Loan (EDS)	EA Client
Bi-directional	DLQRPT(ACS Gov Solutions)	EA Client
Bi-directional	FISAP (UAL)	EA Client
Bi-directional	NSLDS (Raytheon)	EA Client
Bi-directional	RFMS(ACS)	EA Client

Points of Contact

Role	Contact	Organization	Phone	Email Address
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Application Architect	Jamie Steapp	NCS Pearson	319-339-7987	steaja@ncs.com
Data Architect	Jim Taylor	BTrade		jtaylor@btrade.com
Business Architect	Steve Johnson	NCS Pearson	319-665-7874	johnst@ncs.com
System Monitoring				
Issues & Upgrades	Paul Izzo Colleen Ward /Lydia Morales	CSC Accenture FSA	203-317-5051 703-947-2980 202-377-3589	pizzo@csc.com colleen.m.ward@accenture.com lydia.morales@ed.gov
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Operations Service Delivery Manager	Dave Lass	CSC	203.317.5037	

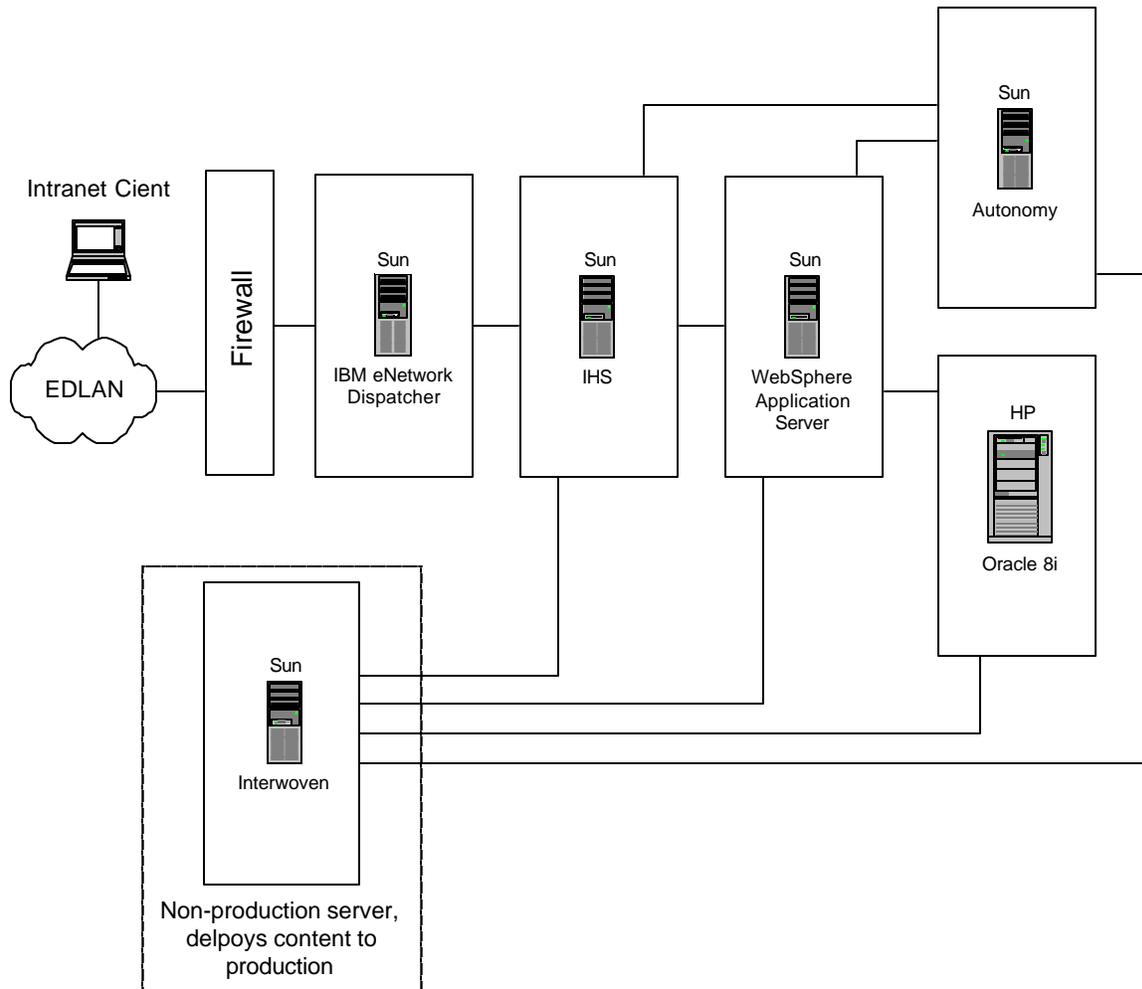


Figure 12 – FSA Intranet Conceptual Model

3.1.12 FSA Portals

Last updated 4/30/2002

Description

FSA is developing an enterprise portal strategy that utilizes a common architecture and enables each of the business channels to create a channel specific view. These views give the impression of separate portals providing information on each business channel, while operating on a single integrated architecture. Portals pull data from a variety of sources and present the information in a consolidated fashion. With key information posted and accessible from an integrated web portal, FSA expects a reduction in calls to the call center. The completed Schools Portal View is the first component of the FSA enterprise portal. FSA is also planning development of a Students Portal and a Financial Partners Portal.

Infrastructure Technologies

Product	Server	Use
Autonomy Knowledge Suite v3.1	SU35E7 SU35E15	Knowledge Management Search Engine
Interwoven Teamsite v5.0	SU35E1	Content Management
Oracle 8i/8.05	HPV2	Database Management Authentication
IBM WebSphere Enterprise Edition v3.5.5	SU35E9 SU35E13	Application Server
Oracle Application Server		Application Server
IBM IHS Server v1.3.12 (bundled with WebSphere application server)	SU35E10 SU35E12	Web Server
Web Trends		Web Server Monitoring
HP/UX v11.0	HPV2	Mid Tier Operating System
Rational ClearCase v4.1 (Non-mainframe)		Configuration Management
FSA PIN (Custom Application)		Authentication

Programming Languages

Language	Version
Java	2

System Interfaces

Direction	System	Data Transfer Method
<i>None reported</i>		

Points of Contact

Role	Contact	Organization	Phone	Email Address
FSA Sponsor	Jennifer Douglas	FSA, Students Channel	202-377-3201	jennifer.douglas@ed.gov
Project Lead	Mary K Muncie	FSA, Students Channel	202-377-3202	mary.k.muncie@ed.gov
Technical Architect	Matt Wilson	Accenture	202-377-3072	matthew.b.wilson@accenture.com
Application Architect				
Data Architect	Matt Wilson	Accenture	202-377-3072	matthew.b.wilson@accenture.com
Business Architect	Eliud Gerena	Accenture	202-377-3038	eliud.gerena@accenture.com
System Monitoring	CSC			
Issues & Upgrades				
Operations Account Manager	Jerry Ryznar	CSC	202.842.7397	
Operations Service Delivery Manager	Jack Gillotti	CSC	203.317.4816	

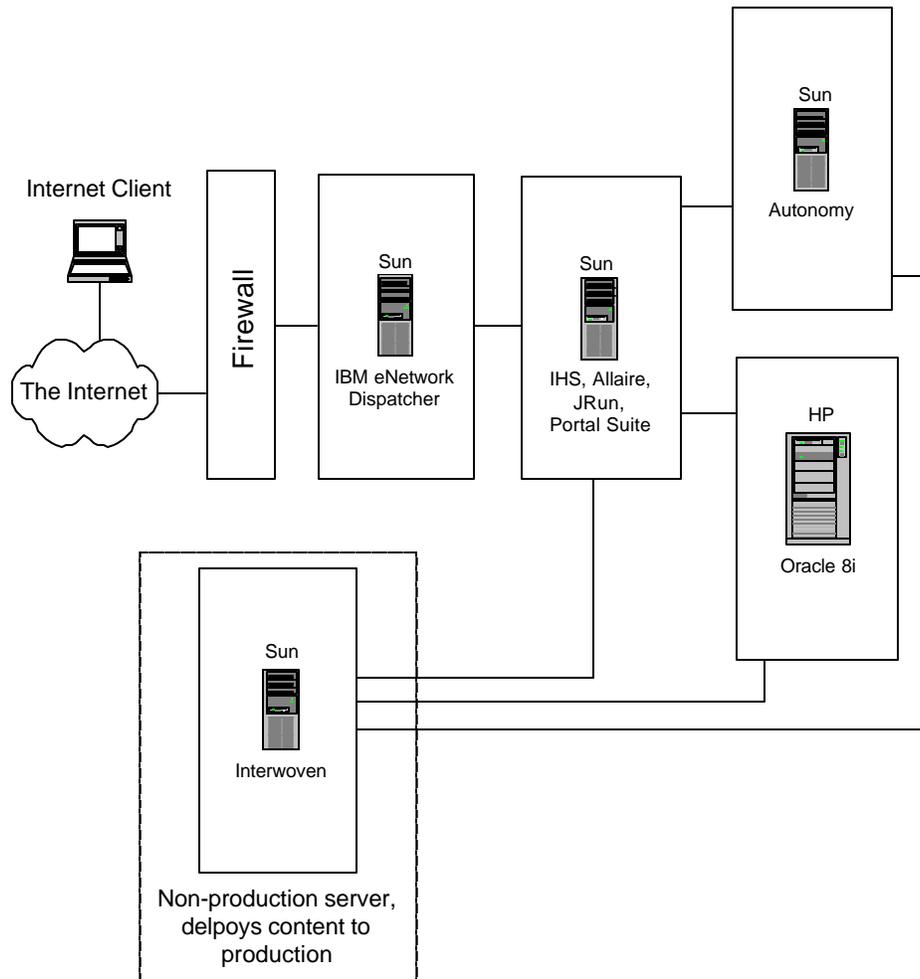


Figure 13 – Portals Conceptual Model

3.1.13 HR Modernization

Last updated 4/30/2002

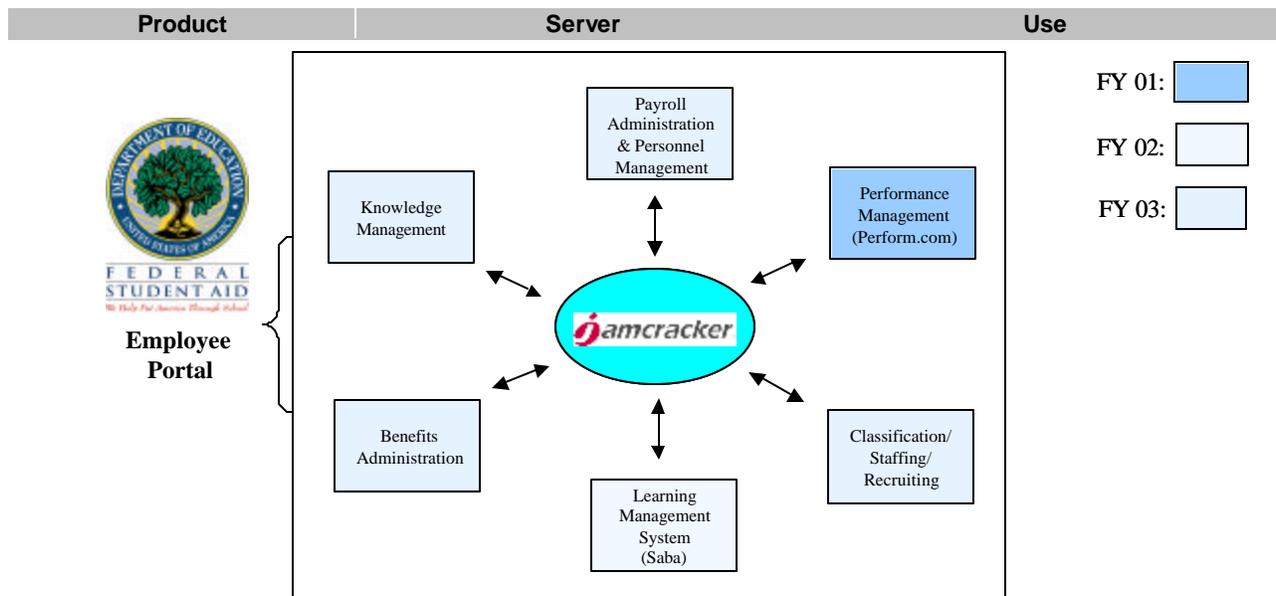
Description

HR Modernization focuses on building out the core services of our recently created FSA HR organization. These services are critical to enable FSA’s workforce to enhance the service to our Students, Schools and Financial Partners, while finding avenues to increase efficiency and reduce overall delivery cost. FSA HR is filling in the gaps and transforming ineffective solutions of current HR functions, to enable FSA and the Department of Education (ED) to capitalize on the potential of its employees.

Phase II will build upon the foundation of the Jamcracker platform and associated processes that were established in Phase I of HR Modernization. The Jamcracker platform is designed to facilitate the rapid deployment of netsourced applications. Netsourced applications are a key component of FSA’s Target State Vision. Maintenance and support activities are outsourced to Jamcracker to provide 24/7 virtual support to our employees. Through this outsourcing economies of scale are realized as additional applications are launched on the platform,

The HR Automation vision was created to provide a framework for the rapid deployment of “Best-of-Breed” HR Application Service Provider (ASP) systems, facilitate the automation of these core processes and support FSA’s PBO transformation by enabling ownership and control of crucial HR functions. The FSA HR Automation vision uses an Aggregator (Jamcracker) and multi-ASP model to enable seamless integration and single sign-on capabilities for all connected applications.

Infrastructure Technologies



Hummingbird Xceed (X Windows, Telnet, NFS)	Emulation
MQ Series Workflow v3.2.2	Workgroup Management
Oracle 8i/8.05	Database Management Authentication
Informatica Power Center Server 5.0	Data Acquisition
Crystal Reports 8.0	End User Data Access
MQ Series Server v5.2	Middleware
MQ Series Client v5.2	Middleware
Innovision XML Server	XML Server
Compress	File Compression
WinZip	File Compression
Citrix	Remote Access Services
CheckPoint VPN-1	Virtual Private Network
CICS	Mainframe Operating System
Microsoft Windows NT v4.0	Mid Tier Operating System
Microsoft Windows 2000	Mid Tier Operating System
Sun Solaris v2.6	Mid Tier Operating System
CheckPoint Firewall-1	Firewall Services
Single Sign On (TBD)	Authentication
Top Secret (Mainframe)	Database Security Services
Verisign (SSL)	Encryption
RSA BSAFE Libraries	Encryption
DES3	Encryption
Norton Antivirus	Virus Protection
BEA	Message Bus
Apache	Web Server
BEA WLPI	Workflow Management
BEA Weblogic	Application Server
Netegrity	(Security, SSO – identification, authentication, authorization, user credentials)
Business Objects	(Data Warehouse)
Clarify	Customer Relations Management
Jamcracker	

Programming Languages

Language	Version
<i>None reported</i>	

System Interfaces

Direction	System	Data Transfer Method
<i>None reported</i>		

Points of Contact

Role	Contact	Organization	Phone	Email Address
FSA Sponsor	Calvin Thomas	FSA, Human Resources	(202) 377-3011	calvin.thomas@ed.gov
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Technical Architect				
Application Architect				
Data Architect				
Business Architect				
System Monitoring				
Issues & Upgrades				
Operations Account Manager				
Operations Service Delivery Manager				

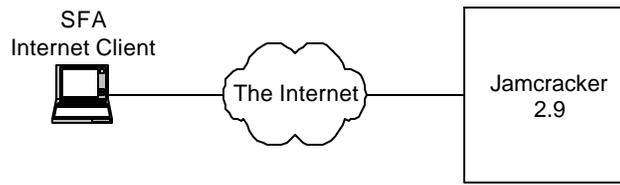


Figure 14 – HR Modernization Conceptual Model

3.1.14 Information for Financial Aid Partners (IFAP)

Last updated 4/30/2001

Description

The Information for Financial Aid Professionals (IFAP) web site (<http://ifap.ed.gov>) is an electronic library for financial aid professionals containing publications, regulations, and guidance regarding the administration of the Title IV Federal Student Financial Aid Programs. IFAP is managed by the Customer Support Branch (CSB) within Federal Student Aid of the Department of Education.

IFAP has a subscription option that notifies registered customers via email when new information (Dear Partner Letter, Announcement, Federal Register, etc.) has been added to the wealth of information available on IFAP. The email is customized based on users' subscription selections.

Users can select to be notified when new documents are added to the IFAP catalog based on Publication Type and Program/Service categories. Users can select more than one Publication Type or Program/Service category. Even if selections overlap, the system is designed to not send duplicate notifications of a single document.

Infrastructure Technologies

Product	Server	Use
IBM Network Dispatcher 2.1.2		Load Balancing
IBM WebSphere Enterprise Edition v3.5.3	SU35E9 SU35E13	Application Server
IBM IHS Server v1.3.12	SU35E10 SU35E12	Web Server
HP-UX 11.0		Mid-Tier Operating System
Sun Solaris 2.6		Mid-Tier Operating System
Oracle 8i 8.1.7	HPV2	Database Management
Interwoven OpenDeploy v5.0	SU35E1	Content Management
Interwoven Teamsite v5.0	SU35E1	Content Management
Autonomy Knowledge Suite v3.1	SU35E7 SU35E15	Knowledge Management Search Engine
Web Trends		Web Server Monitoring

Programming Languages

Language	Version
Java	

System Interfaces

Direction	System	Data Transfer Method
Receive data from	CSCC (FSA)	Interwoven TeamSite

Points of Contact

Role	Contact	Organization	Phone	Email Address
FSA Sponsor	Colleen Kennedy	FSA	202-377-4119	colleen.kennedy@ed.gov
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Application Architect	Lisa Phillips	Accenture	202-962-0724	lisa.a.phillips@accenture.com
Data Architect	Dorothy Pan	Accenture	202-962-0725	yuhui.pan@accenture.com
Business Architect	Scott McConaghie	Accenture	202-962-0722	scott.a.mcconaghie@accenture.com
System Monitoring	Scott McConaghie	Accenture	202-962-0722	scott.a.mcconaghie@accenture.com
Issues & Upgrades	Mark Mandrella	Accenture	202-962-0721	mark.e.mandrella@accenture.com
Operations Account Manager	Jerry Ryznar	CSC	202.842.7397	
Operations Service Delivery Manager	Jack Gillotti	CSC	203.317.4816	

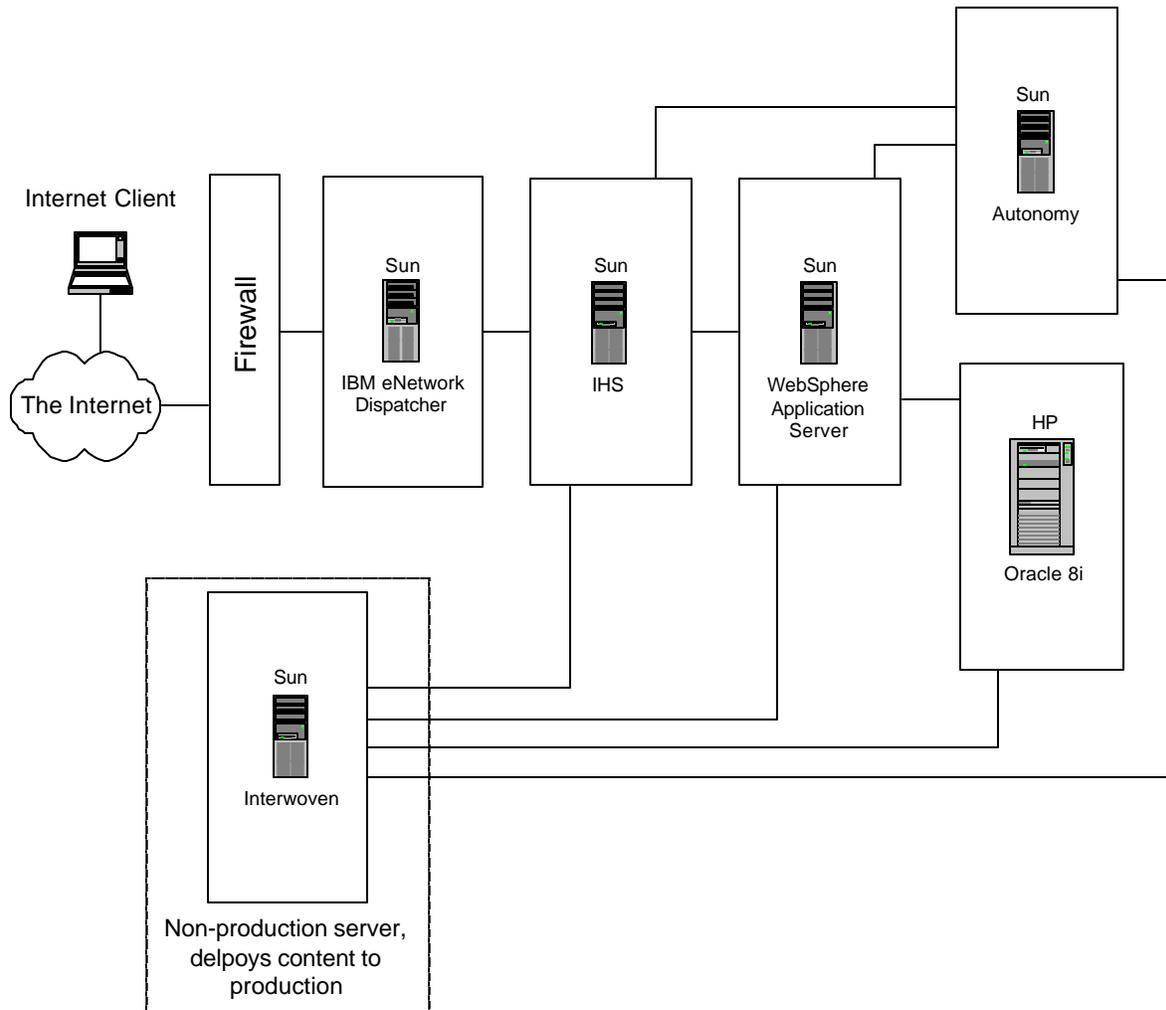


Figure 15 – IFAP Conceptual Model

3.1.15 *Ombudsman*

Last updated 4/30/2002

Description

The Ombudsman system provides customer relations management for callers to the Ombudsman Office.

Infrastructure Technology

Product	Server	Use
MQ Series Workflow v3.2.2	SFANT005	Workflow Management
Siebel	SFANT005	Business Services
Sterling Software CoolGen	SFANT008	Data Modeling
Oracle Application Server	SFANT005	Application Server
Web Trends	SFANT008	Web Server Monitoring
Microsoft Windows NT v4.0	SFANT005	Mid Tier Operating System
Netscape Certificate Server	SFANT008	Digital Certificate Server Services

Programming Languages

Language	Version
<i>None reported</i>	

System Interfaces

Direction	System	Data Transfer Method
Bi-directional	NSLDS	EAI Transactional

Points of Contact

Role	Contact	Organization	Phone	Email Address
FSA Sponsor	Debra Wiley	FSA	(202) 377-3801	debra.wiley@ed.gov
Project Lead				
Technical Architect				
Application Architect				

Data Architect

Business Architect

System Monitoring

Issues & Upgrades

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Operations Service Delivery Manager	Jack Gillotti	CSC	203.317.4816
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3.1.16 *Single Sign On*

Last updated 4/30/2002

Description

Single Sign On services will give users the ability to logon once to an FSA Portal and gain access to all systems for which they are granted access rights. There are a number of business, operational, and technology needs that must be addressed in order to provide an effective business capability. This service must ensure system security and enhance FSA’s ability to deliver systems worthy of trust.

Benefits of a single single-on service include the following:

- Improve customer access to FSA systems
- Strengthen cyber-security
- Establish a reusable single sign-on service for FSA systems
- Provide a consistent standard and architecture for system access
- Provide a basis for potential future savings in the areas of enrollment, user access management, and customer support

Logon functions for both individuals and institutions are often unique for each FSA system. System users request access to an FSA system and, if approved, are issued a logon credential (ID/password, etc.). Users have to repeat this process for each additional FSA system they want to use. Logon credentials are issued by FSA based on the type of access required by a user. The result is multiple sets of credentials, by FSA systems, that are necessary for users to logon and conduct their business.

The single sign on service will provide users with one set of credentials that will identify and authenticate who they are. Once identified and authenticated, the users will not be required to logon individually to other systems they have access to. This capability will be available to both new and current users. With the introduction of portals focused at user needs, the single sign on capability has the potential for significantly simplifying customer access to FSA systems. The service is expected to become the standard for logon to FSA systems. Once implemented, single sign on service can form the basis for better user access management as well as integration among the various systems.

Infrastructure Technologies

Product	Server	Use
Single Sign On is currently being designed. The infrastructure technologies are being identified.		

Programming Languages

Language	Version
<i>None reported</i>	

System Interfaces

Direction	System	Data Transfer Method
Bi-directional	COD	TBD
Bi-directional	CPS	TBD
Bi-directional	eCB	TBD
Bi-directional	GAPS	TBD
Bi-directional	NSLDS	TBD

Points of Contact

Role	Contact	Organization	Phone	Email Address
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	Mike Bruce	Accenture	202-962-0856	michael.bruce@accenture.com
Technical Architect	Frank Siepmann	Accenture	202-962-0857	frank.h.siepmann@accenture.com
Application Architect				
Data Architect				
Business Architect	Mike Bruce	Accenture	202-962-0856	michael.bruce@accenture.com
System Monitoring				
Issues & Upgrades	Yateesh Katyal	Accenture	202-962-0882	yateesh.katyal@accenture.com
	Mike Bruce	Accenture	202-962-0856	michael.bruce@accenture.com
Operations Account Manager				
Operations Service Delivery Manager				

3.1.17 *Student Aid Internet Gateway*

Last updated 4/30/2002

Description

The Student Aid Internet Gateway (SAIG) Portal provides telecommunications support for the delivery and administration of Title IV programs via the Internet. The U.S. Department of Education (ED), and its modernization partners Accenture and NCS Pearson, are sponsoring the SAIG Portal to promote the electronic exchange of Title IV information between educational and others over the internet.

SAIG Portal is composed of a HP-UX mid tier server that supports the mailboxing system and a Microsoft Windows NT/IIS server running a web administration application. Supplementary systems include mainframe, enrollment web application, and PC systems. The SAIG Portal is a Commercial Off-the-Shelf (COTS) application from bTrade.com and is made up of the following components:

- *Secure Portal* – An open architecture gateway that will be used as the ‘mailbox’ application for the storing and retrieval of data.
- *EasyAccess* - The client software used to send and receive FSA data transmissions securely over the internet using SSL 3.0 and the Diffie-Hellman Dynamic Key Exchange algorithm.
- *SecureManager* - Product that will be used to manage Title IV destination point mailboxes and data. This is referred to as TDCCommunity Manager or Online Secure Manager (OSM).

These components of the SAIG Portal are run from the Virtual Data Center (VDC) in Meriden, Connecticut. Computer Sciences Corporation (CSC) staff are responsible for the operation, maintenance, and security of this system with the support of Accenture and NCS Pearson staff for application administration and maintenance.

Substantial cost savings to FSA is achieved by moving FSA data transmissions to the internet. The SAIG Portal provides FSA with a non-intrusive solution for customers, reduces the overall cost of delivering student aid, and reduces operating costs by consolidating operations and systems. FSA to the Internet went live on September 20, 2001.

SAIG is critical to FSA and the Title IV programs because it provides the infrastructure for transferring data and messages. If the system is down or experiencing performance decreases for extended periods of time the exchange of critical data would be impacted and detrimental to the grant and loan processes on which schools and students depend.

Infrastructure Technologies

Product	Server	Use
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Oracle Database v8.1.7	HPL16	Database Management
Oracle Application Server	SFANT014	Application Server
JRun v3.0	SFANT014	Application Server
MQ Series Server v5.2	HPL16	Middleware
BTrade EAclient API	HPL16	File Transfer
BTrade (Edconnect & Eaclient)		Electronic Data Interchange
Compress		File Compression
HP/UX v11.0	HPL16	Mid Tier Operating System
Microsoft Windows NT v4.0	SFANT014	Mid Tier Operating System
Java Development Kit v1.3	SFANT014	Programming Tools
PVCS Tracker		Configuration Management
Computer Associates TNG (Mid Tier)	HPL16	Operations Management
Cisco Local Director	HPL16 HPN9	Load Balancing
HP Service Guard	HPL16 HPN9	Load Balancing
Computer Associates TNG	HPL16 SFANT014	Access Control
Tripwire (Windows NT)	SFANT014	Host Intrusion Detection
Norton Antivirus	SFANT014	Virus Detection

Programming Languages

Language	Version
<i>None reported</i>	

System Interfaces

Direction	System	Data Transfer Method
Bi-directional	CPS	Batch
Bi-directional	DLOS	Batch
Bi-directional	DLSS	Batch
Bi-directional	eCB	Batch
Bi-directional	FMS	Batch

Bi-directional	NSLDS	Batch
Bi-directional	PEPS	Batch
Bi-directional	RFMS	Batch

Points of Contact

Role	Contact	Organization	Phone	Email Address
FSA Sponsor	Lydia Morales	FSA	202-377-3589	lydia.morales@ed.gov
Project Manager	Colleen Ward	Accenture	703-947-2980	colleen.m.ward@accenture.com
Project Lead	Deb Sheets	NCS Pearson	319-665-7882	deb_sheets@ncs.com
Technical Architect	Jamie Steapp	NCS Pearson	319-339-7987	steaja@ncs.com
Application Architect	Jim Taylor	BTrade		jtaylor@btrade.com
Data Architect	Steve Johnson	NCS Pearson	319-665-7874	johnst@ncs.com
Business Architect				
System Monitoring	Paul Izzo	CSC	203-317-5051	pizzo@csc.com
Issues & Upgrades	Colleen Ward	Accenture	703-947-2980	colleen.m.ward@accenture.com
Operations Account Manager	Jennifer Hance	CSC	202.842.7399	
Operations Service Delivery Manager	Gary Adams	CSC	202.842.8614	

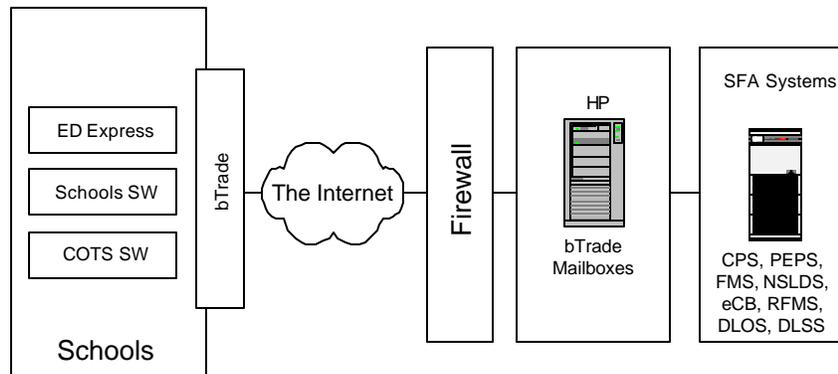


Figure 16 – Student Aid Internet Gateway Conceptual Model

3.2 FSA Legacy Systems

The Technology Infrastructure Blueprint includes high-level infrastructure details on FSA legacy systems that are subject to FSA standards and integrate with other systems in the Target State Vision (see Figure 1 –2002 FSA Target). This section contains system descriptions, infrastructure technologies, system interfaces, and points of contact for each FSA legacy system. Additional details on legacy systems, including interface specifics, can be referenced in the *Legacy System Inventory Report*, Task Order #16, Deliverable #16.1.1.

3.2.1 Central Processing System (CPS)

Last updated 4/30/2002

Description

CPS processes Federal Student Aid applicant data and sends the results to students, schools, and the Department of Education. The processing is performed at the Virtual Data Center (VDC) in Meriden, CT, while the printing is done at NCS Pearson in Cedar Rapids, Iowa.

Students may file either a paper or electronic application. All application data transmitted to the CPS must pass an extensive series of computerized edits. Selected records are sent out to a different external matching agencies such as, Social Security Administration (SSA), Veteran's Administration (VA), Immigration and Naturalization Service (INS), National Direct Student Loan Data System (NSLDS), and Selective Service Agency (SS). There are additional edits check for incomplete or inconsistent data. CPS calculates the EFC for applications that successfully pass the computer edits.

CPS generates several different outputs. An Institutional Student Information Report (ISIR) is sent to the organization submitting an electronic application. An ISIR is also sent to organizations and state agencies listed on the student's application and participating in the Department of Education's Electronic Data Exchange (EDE). CPS prints and sends a Student Aid Report (SAR) to applicants who file by paper. A one-page paper SAR Acknowledgement is sent to applicants who submitted electronic applications through their institution's financial aid offices or via FOTW and ROTW.

Infrastructure Technologies

Product	Server	Use
Oracle 8i/8.05		Database Management
DB2	CPSP	Database Management
IBM Image Plus	CPSP	Imaging
IBM WebSphere Enterprise Edition v3.5.5		Application Server
IBM IHS Server v1.3.12 (bundled with WebSphere application server)		Web Server
Netscape Server		Web Server
Web Trends		Web Server Monitoring
BTRADE	CPSP	Electronic Data Transfer
Netscape Directory Server		Directory Server
OS/390 MVS v2.08	CPSP	Mainframe Operating System

CICS v4.1	CPSP	Mainframe Operating System
HP/UX v11.0		Mid Tier Operating System
Sun Solaris v2.6		Mid Tier Operating System
Rational ClearCase v4.1 (Non-mainframe)		Configuration Management
Computer Associates Endeavor v3.8 (Mainframe)	CPSP	Configuration Management
Computer Associates CA-7 (Mainframe)	CPSP	Operations Management
Computer Associates TNG (Mid Tier)		Operations Management
Cisco Local Director		Load Balancing
RACF (Mainframe)	CPSP	Access Control Authentication
Tripwire		Host Intrusion Detection
Verisign		Encryption

Programming Languages

Language	Version
Java	
XML	
PL/SQL	
C++	

System Interfaces

Direction	System	Data Transfer Method
<i>None reported</i>		

Points of Contact

Role	Contact	Organization	Phone	Email Address
FSA Sponsor	Jeanne Saunders	FSA	202-377-3246	jeanne.saunders@ed.gov
Project Lead				
Technical Architect				

Application
Architect

Data Architect

Business Architect

System Monitoring

Issues & Upgrades

Operations Account Manager	Jeff Robinson	CSC	301.794.6740
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Operations Service Delivery Manager	Gary Adams	CSC	202.842.8614
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3.2.2 Direct Loan Consolidation System (DLCS)

Last updated 11/30/2002

Description

DLCS supports the Department of Education's Federal Direct Loan Program. DLCS allows borrowers to consolidate multiple student loans from multiple sources into one direct loan, funded and serviced by the Department of Education. DLCS provides mechanisms to convert DL and FFELP originated loans into DL loans.

Infrastructure Technologies

Product	Server	Use
HP-UX 11.0		Server OS
Informix 7.31		Database

Programming Languages

Language	Version
<i>None reported</i>	

System Interfaces

Direction	System	Data Transfer Method
<i>None reported</i>		

Points of Contact

Role	Contact	Organization	Phone	Email Address
FSA Sponsor	Denise Leifeste	FSA	202-377-3293	denise.leifeste@ed.gov
Project Lead				
Technical Architect				
Application Architect				
Data Architect				
Business Architect				

System Monitoring

Issues & Upgrades

Operations Account
Manager

Operations Service
Delivery Manager

3.2.3 Direct Loan Origination System (DLOS)

Last updated 11/30/2001

Description

The Direct Loan Origination System (DLOS) performs regular loan originations and PLUS loan originations. DLOS provides a direct interface with schools, 3rd party servicers, and the Student Account Manager (SAM). DLOS receives and processes all loan applications and disbursements, and records the receipt of the completed promissory note. It provides the principle communication link with the schools to regulate the flow of information. DLOS and RFMS are legacy systems that are being replaced by COD.

Infrastructure Technologies

Product	Server	Use
HP-UX 11.0		Server OS
Informix 7.31		Database

Programming Languages

Language	Version
<i>None reported</i>	

System Interfaces

Direction	System	Data Transfer Method
<i>None reported</i>		

Points of Contact

Role	Contact	Organization	Phone	Email Address
FSA Sponsor	Stephen Wingard	FSA	202-377-3127	steve.wingard@ed.gov
Project Lead				
Technical Architect				
Application Architect				

Data Architect

Business Architect

System Monitoring

Issues & Upgrades

Operations Account Manager	Jerry Ryznar	CSC	202.842.7397
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Operations Service Delivery Manager	Jack Gillotti	CSC	203.317.4816
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3.2.4 Direct Loan Servicing System (DLSS)

Last updated 11/30/2001

Description

DLSS services direct loans while borrowers are in school, in deferment status, or in repayment. DLSS receives all booked student loans from DLOS, and maintains them for their remaining life. DLSS performs functions including placing the loan into repayment at the proper time, billing the borrower, and tracking subsequent payments and delinquencies.

Infrastructure Technologies

Product	Server	Use
MicroStrategy InfoCenter 6.5		Personalized information portal software
Compaq Alpha Open VMS 7.2		Mainframe OS
Windows 2000 Server		Server OS
Microsoft Windows NT Server 4.0		Server OS
Oracle 7.0		Database
Microsoft SQL Server 7.0		Database
Microsoft SQL Server 2000		Database
Avaya CentreVu CMS		CTI call management software
Intervoice-Brite Write 1		IVR software
Check Point Firewall-1		Firewall Services

Programming Languages

Language	Version
<i>None reported</i>	

System Interfaces

Direction	System	Data Transfer Method
<i>None reported</i>		

Points of Contact

Role	Contact	Organization	Phone	Email Address
FSA Sponsor	Dan Hayward	FSA	202-377-3207	dan.hayward@ed.gov
Project Lead				
Technical Architect				
Application Architect				
Data Architect				
Business Architect				
System Monitoring				
Issues & Upgrades				
Operations Account Manager				
Operations Service Delivery Manager				

3.2.5 Federal Family Education Loan Program (FFEL)

Last updated 4/30/2002

Description

Federal Family Education Loan (FFEL) provides program management, payment of federal reinsurance on defaulted loan claims submitted by guaranty agencies, and collections on defaulted loans by GAs. FFEL supports the collection process for federally guaranteed loans: receives defaulted loan data from GAs; interfaces with external systems, agencies and contractors for skip tracing; produces dunning notices; provides on-line support for collection agents; interfaces with private collection agencies; sets up loan repayment schedules; produces loan payment notices; and tracks receipts.

Infrastructure Technologies

Product	Server	Use
Oracle 8.0.5		Database
IBM MQSeries AMI 1.2.1		FSA EAI application messaging standard
Oracle Financials 11.0.3		Accounting and financial management application suite
Check Point Firewall-1		Firewall Services
Tripwire 2.4		Host Intrusion Detection

Programming Languages

Language	Version
<i>None reported</i>	

System Interfaces

Direction	System	Data Transfer Method
<i>None reported</i>		

Points of Contact

Role	Contact	Organization	Phone	Email Address
FSA Sponsor	Brian Sullivan	FSA	202-377-3254	brian.sullivan@ed.gov

Project Lead

Technical Architect

Application Architect

Data Architect

Business Architect

System Monitoring

Issues & Upgrades

Operations Account Manager	Jeff Robinson	CSC	301.794.6740
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Operations Service Delivery Manager	Jack Gillotti	CSC	203.317.4816
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3.2.6 National Student Loan Database System (NSLDS)

Last updated 4/30/2001

Description

NSLDS centralizes all Title IV student aid data obtained from schools, guaranty agencies, and many internal FSA systems. The first stage of the modernization effort in FY01 was to find ways to improve customer service delivery and the processes and techniques around NSLDS without significant technology change. In a future phase, FSA will determine how to integrate data from NSLDS and other sources using data store technology.

Infrastructure Technologies

Product	Server	Use
Microsoft IIS 4.0		Web Server
OS/390 2.8		Mainframe OS
IBM CICS 2		Application server
Microsoft Windows NT Server 4.0		Server OS
IBM DB2 5.1		Database
IBM MQSeries Messaging 5.2		FSA EAI interface transport layer
Product		Use
IBM RACF 2.2		Security authentication and access authority component

Programming Languages

Language	Version
<i>None reported</i>	

System Interfaces

Direction	System	Data Transfer Method
<i>None reported</i>		

Points of Contact

Role	Contact	Organization	Phone	Email Address
FSA Sponsor	F. Lynn Alexander	FSA	202-377-3546	
Project Lead	John Zoldan	Accenture	202-962-0635	john.w.zoldan@accenture.com
Technical Architect				
Application Architect				
Data Architect				
Business Architect				
System Monitoring				
Issues & Upgrades				
Operations Account Manager	Jerry Ryznar	CSC	202.842.7397	
Operations Service Delivery Manager	Gary Adams	CSC	202.842.8614	

3.2.7 Post-secondary Education Participants System (PEPS)

Last updated 4/30/2002

Description

Post-secondary Education Participants Systems (PEPS) provides consistent and reliable data and flexible reporting on post-secondary institutions, accrediting bodies, state licensing agencies, lenders, guarantors, and servicers for a large number of users with diverse business needs. On-line users include FSA, OPE, OIG, GAO, all FFEL guarantors, regional and national accreditors, and state licensing agencies. Off-line users of the web site include schools, lenders, servicers, and the general public looking for eligibility and certification statuses of schools.

The PEPS impact on the business of FSA is both ‘high’ and ‘critical’ since all of FSA, both regional and headquarters, keeps its eligibility, certification, and oversight information in PEPS.

The PEPS impact on other Title IV delivery systems and education community systems is both ‘high’ and ‘critical’. PEPS provides the Title IV delivery systems pertinent information about postsecondary institutions on a nightly basis. PEPS provides the Financial Partners' data mart with the information they need on postsecondary institutions. PEPS provides ED's OCFO with school, lender, and guarantor audit and program review information on a weekly basis. PEPS provides a downloadable, extensive school file on the PEPS web site, which lenders, schools, guarantors, and servicers actually download into their systems.

PEPS' impact on the higher education community and on other ED nationwide is critical. PEPS is also critical to both international and domestic schools, since it provides the web application which all of them must use to transmit their data used to apply for eligibility and certification as well as to make updates to ED.

Business is seriously disrupted if PEPS goes down for more than a short while, given the data PEPS collects from postsecondary institutions worldwide and the data it provides to the education community nationwide.

Some major functions include:

- Provides data on postsecondary institutions, to include eligibility, certification for various Title IV programs, locations of instruction and courses offered;
- Provides institutional reviewer data;
- Supports twice yearly default rate calculations for FFEL and Direct Loan schools, as well as FFEL lenders and guarantors. Chooses the ramifications of three years' worth of rates,

selecting the correct letter to be sent to the schools, and providing notification to the schools.
Provides the Secretary of Education’s press package regarding national default rates;

- Logs hardware/software problem calls from PEPS users and forwards them to the appropriate area of response;
- Provides program review data on schools, lenders, and guaranty agencies;
- Provides technical assistance data concerning schools;
- Provides Direct Loan School participation information;
- Provides Distance Learning information;
- Provides internal FSA staff with a place to record ‘pre-finalization of review findings’ discussions;
- Provides audit data on schools, lenders, and guarantee agencies (including interface to Dept. of ED OCFO
- Provides closure information concerning schools;
- Provides Administrative Actions and Appeals data concerning schools;
- Provides an extensive on-line query ability for on-line users, which includes the ability of users to download these queries into extracts and create their own reports;
- Runs SQL queries for the FSA community (internal and external)
- Monitor and record GA and lender servicer participation;
- Provide audit data on lenders and guarantee agencies including interface to Dept of ED OCFO;
- Allows guarantors to enter data concerning lender and school reviews, and to view ED’s reviews of those same entities;
- Assigns OPEID’s as well as program id’s to all schools;
- Keeps crosswalk of all id’s known to have been used by each school;

Infrastructure Technologies

Product	Server	Use
Hummingbird Xceed (X Windows, Telnet, NFS)	ELIGCERT HPK2	Emulation

Microsoft Exchange	WDCROBEXC01	Mail Server
Oracle 8i/8.05	HPK2	Database Management
Oracle Application Server	WDCROBORA05 AWAATL01 AWABOS01 AWACHI01 AWADAL01 AWADEN01 AWAKAN01 AWAPHI01 AWASAN01 AWASEA01	Application Server
Microsoft IIS	STANT012 STANT024	Web Server
Web Trends	STANT012 STANT024	Web Server Monitoring
MQ Series Server v5.2	HPK2	Middleware
Citrix	Citrix Server	Remote Access Services
HP/UX v10.20	HPK2	Mid Tier Operating System
Microsoft Windows NT	SFANT012 SFANT024	Mid Tier Operating System
Starbase	CBMI Developer Site	Configuration Management
Computer Associates TNG (Mid Tier)	HPK2	Operations Management
CA UniCenter (Mid-tier)	HPK2	Authentication
Oracle	HPK2	Authentication
Oracle (Mid-tier)	HPK2	Database Security Services
Router/Hardware Encryption	HPK2	Encryption

Programming Languages

Language	Version
PL/SQL	8.0.5.2.1

System Interfaces

Direction	System	Method
Send data to	COD	FTP
Send data to	EDCAPS	FTP

Send data to	IPOS	FTP
Send data to	LO	FTP
Send data to	NSLDS	FTP
Send data to	PEPS web site	FTP
Send data to	RFMS	FTP

Points of Contact

Role	Contact	Organization	Phone	Email Address
FSA Sponsor				
Division Director	Rana O'Brien	FSA, PEPS	(202) 377-4312	rana.o'brien@ed.gov
Technical Architect				
Application Architect				
Data Architect				
Business Architect				
System Monitoring	Sam DeJong	FSA, PEPS	(202)377-4321	samuel.dejong@ed.gov
	Randy Mongold	FSA, PEPS	(202)377-4320	randy.mongold@ed.gov
Issues & Upgrades	Sam DeJong	FSA, PEPS	202)377-4321	samuel.dejong@ed.gov
	Randy Mongold	FSA, PEPS	(202)377-4320	randy.mongold@ed.gov
Operations Account Manager	Jerry Ryznar	CSC	202.842.7397	
Operations Service Delivery Manager	Jack Gillotti	CSC	203.317.4816	

3.2.8 Recipient and Financial Management System (RFMS)

Last updated 11/30/2001

Description

The Recipient and Financial Management System is used to generate obligation information and monitor grant funds at both the institution and recipient level. RFMS performs the following functions:

- Authorizing the distribution of funds through the participating institutions to permit payment of vouchers
- Monitoring the use of funds throughout the award year to permit reallocation of supplemental awards as necessary to correspond with student attendance
- Verifying institutional expenditures through comparing disbursements reported at the recipient level
- Responding to informational requests from institutions, recipients, and others
- Defining, collecting, and reporting data to assist in the evaluation of the Pell Grant program and in projecting future needs

DLOS and RFMS are legacy systems that are being replaced by COD.

Infrastructure Technologies

Product	Server	Use
IBM CICS 4.1		Application server
OS/390 MVS		Mainframe Operating System
Microsoft Windows NT Server 4.0		Mid Tier Operating System
IBM DB2 5.1		Database Management
IBM RACF 2.4		Authentication

Programming Languages

Language	Version
<i>None reported</i>	

System Interfaces

Direction	System	Data Transfer Method
<i>None reported</i>		

Points of Contact

Role	Contact	Organization	Phone	Email Address
FSA Sponsor	Leonard Brown	FSA	202-377-3104	lenny.brown@ed.gov
Project Lead				
Technical Architect				
Application Architect				
Data Architect				
Business Architect				
System Monitoring				
Issues & Upgrades				
Operations Account Manager	Jerry Ryzmar	CSC	202.842.7396	
Operations Service Delivery Manager	Gary Adams	CSC	202.842.8614	

4 DEVELOPMENT INFRASTRUCTURE

The majority of FSA systems use a standard development infrastructure, detailed in Figure 17 – FSA Standard Development Infrastructure below. This standardization helps reduce the cost, complexity, and start up time for a new effort.

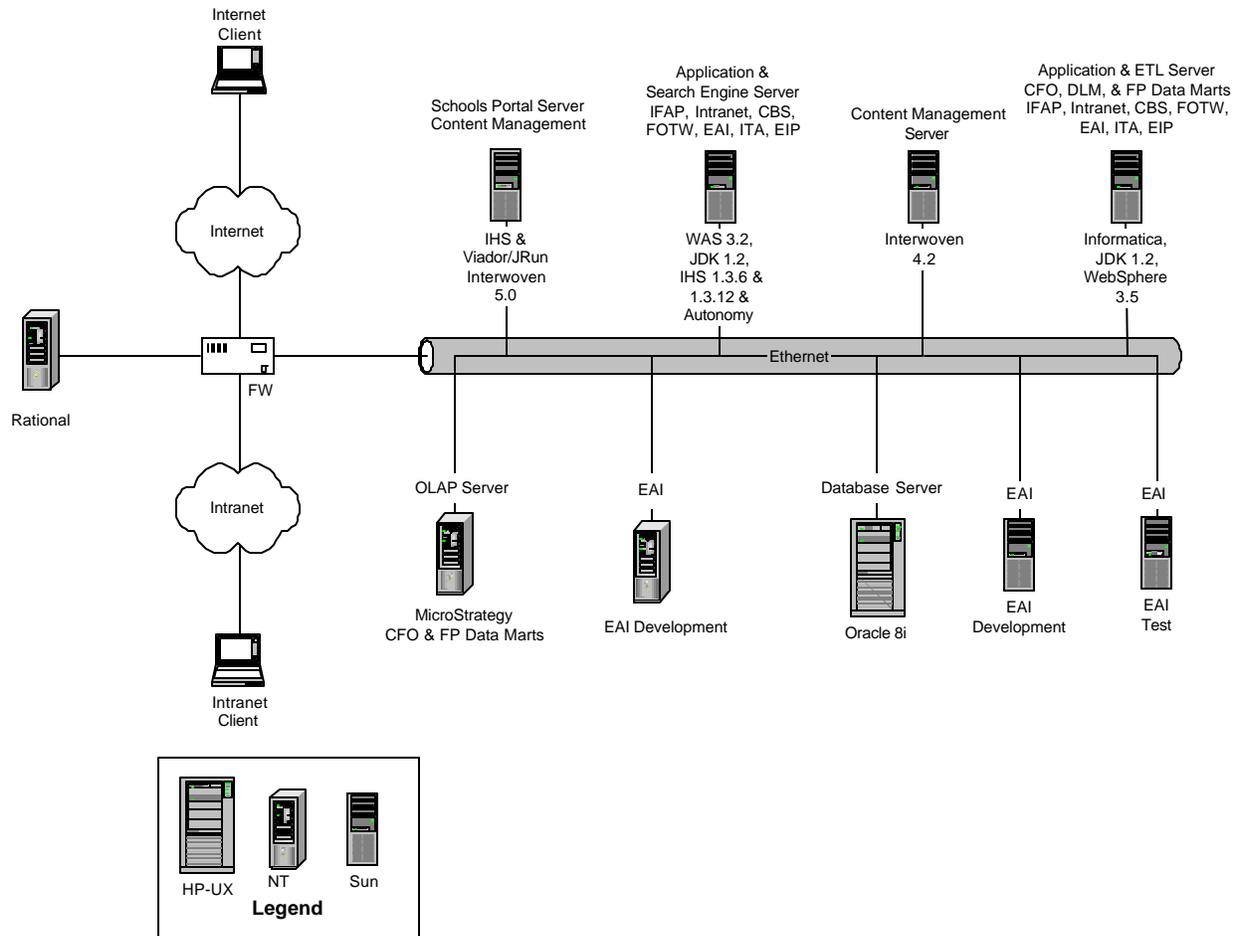


Figure 17 – FSA Standard Development Infrastructure

The Development Infrastructure provides the development tools, methods, standards and procedures that support the project teams involved in the analysis, design, construction and maintenance of FSA business applications. It is the combination of these development tools, methods, standards and procedures that are essential for a comprehensive, integrated environment.

APPENDIX A: POINTS OF CONTACT

Contact	Application	Role
Adams, Gary	Central Processing System (CPS)	Operations Service Delivery Manager
	eCampus Based (eCB)	Operations Service Delivery Manager
	National Student Loan Database System (NSLDS)	Operations Service Delivery Manager
	Recipient and Financial Management System (RFMS)	Operations Service Delivery Manager
	Student Aid Internet Gateway	Operations Service Delivery Manager
Alden, Jen	Financial Management Systems (FMS)	Business Architect
Alex, Jiji	Electronic Records Management	Business Architect
	Electronic Records Management	Project Lead
	Electronic Records Management	Technical Architect
Alexander, F. Lynn	National Student Loan Database System (NSLDS)	FSA Sponsor
Alvarez, Jose	FAFSA on the Web 6.0	Technical Architect
Baum, Wayne	Common Origination & Disbursement (COD)	Issues & Upgrades
Beavers, Rosemary	Common Origination & Disbursement (COD)	FSA Sponsor
Bone, Scott	HR Modernization	Project Lead
Brown, Leonard	Recipient and Financial Management System (RFMS)	FSA Sponsor
Bruce, Mike	Single Sign On	Business Architect
	Single Sign On	Project Lead
Coleman, John	eServicing	Technical Architect
Crowley, Katie	Common Origination & Disbursement (COD)	Business Architect
Daughtry, Marcus		
DeJong, Sam	Post-secondary Education Participants System (PEPS)	Issues & Upgrades
	Post-secondary Education Participants System (PEPS)	System Monitoring
Douglas, Jennifer	FSA Portals	FSA Sponsor
Elliott, Todd	Credit Management Data Mart	Business Architect
	Financial Management Systems (FMS)	Project Lead
Gerena, Eliud	FSA Portals	Business Architect

Contact	Application	Role
Gillotti, Jack	CFO Data Mart	Operations Service Delivery Manager
	Common Origination & Disbursement (COD)	Operations Service Delivery Manager
	Credit Management Data Mart	Operations Service Delivery Manager
	Direct Loan Origination System (DLOS)	Operations Service Delivery Manager
	Federal Family Education Loan Program (FFEL)	Operations Service Delivery Manager
	Financial Partners Data Mart	Operations Service Delivery Manager
	FSA Portals	Operations Service Delivery Manager
	Information for Financial Aid Partners (IFAP)	Operations Service Delivery Manager
	Ombudsman	Operations Service Delivery Manager
Post-secondary Education Participants System (PEPS)	Operations Service Delivery Manager	
Gray, Scott	Enterprise Application Integration (EAI)	Technical Architect
Greene, James	CFO Data Mart	FSA Sponsor
	Financial Partners Data Mart	FSA Sponsor
Griffith, Gray	Credit Management Data Mart	Project Lead
Guarriello, Chris		
Hance, Jennifer	Credit Management Data Mart	Operations Account Manager
	Ombudsman	Operations Account Manager
	Student Aid Internet Gateway	Operations Account Manager
Hawald, Steve	Single Sign On	FSA Sponsor
Hayward, Dan	Direct Loan Servicing System (DLSS)	FSA Sponsor
	eServicing	FSA Sponsor
Healy, Mike	Enterprise Application Integration (EAI)	Operations Service Delivery Manager
	FAFSA on the Web 6.0	Operations Service Delivery Manager
	Financial Management Systems (FMS)	Operations Service Delivery Manager
Holman, Jane	eCampus Based (eCB)	FSA Sponsor
Izzo, Paul	FSA Intranet	Issues & Upgrades
	Student Aid Internet Gateway	System Monitoring
Johnson, Steve	FSA Intranet	Business Architect
	Student Aid Internet Gateway	Data Architect
Kain, Matt	FAFSA on the Web 6.0	Application Architect
	FAFSA on the Web 6.0	Data Architect
Katyal, Yateesh	Single Sign On	Project Lead
Kennedy, Colleen	Information for Financial Aid Partners (IFAP)	FSA Sponsor

Contact	Application	Role
Kingsley, Bruce	Enterprise Application Integration (EAI)	Project Lead
Kline, Edgar	Financial Management Systems (FMS)	Data Architect
Lass, Dave	FSA Intranet	Operations Service Delivery Manager
Lefur, Alex	eCampus Based (eCB)	Technical Architect
	FAFSA on the Web 6.0	Issues & Upgrades
	FAFSA on the Web 6.0	System Monitoring
Leifeste, Denise	Direct Loan Consolidation System (DLCS)	FSA Sponsor
Liu, Tina	CFO Data Mart	Application Architect
	CFO Data Mart	Issues & Upgrades
Mandrealla, Mark	Information for Financial Aid Partners (IFAP)	Issues & Upgrades
	Information for Financial Aid Partners (IFAP)	Technical Architect
Marks, Carrie	eCampus Based (eCB)	Project Lead
Marks, David	Enterprise Application Integration (EAI)	Business Architect
Mathney, Len	Electronic Records Management	Issues & Upgrades
	Electronic Records Management	Operations Account Manager
	Electronic Records Management	Operations Service Delivery Manager
	Electronic Records Management	System Monitoring
Matthews, Leonard T.	eServicing	Issues & Upgrades
McCann, Brian	Financial Management Systems (FMS)	Application Architect
McConaghie, Scott	CFO Data Mart	Business Architect
	CFO Data Mart	Project Lead
	Common Origination & Disbursement (COD)	Application Architect
	Common Origination & Disbursement (COD)	Data Architect
	Financial Partners Data Mart	Project Lead
	Information for Financial Aid Partners (IFAP)	Business Architect
	Information for Financial Aid Partners (IFAP)	Project Lead
	Information for Financial Aid Partners (IFAP)	System Monitoring
Merril, Chris	Common Origination & Disbursement (COD)	Project Lead
Mongold, Randy	Post-secondary Education Participants System (PEPS)	Issues & Upgrades
	Post-secondary Education Participants System (PEPS)	System Monitoring
Morales, Lydia	FSA Intranet	FSA Sponsor
	FSA Intranet	Issues & Upgrades
	Student Aid Internet Gateway	FSA Sponsor

Contact	Application	Role
Muncie, Mary K.	FSA Portals	Project Lead
O'Brien, Rana	Post-secondary Education Participants System (PEPS)	Division Director
Paladino, Chris	FAFSA on the Web 6.0	Business Architect
	FAFSA on the Web 6.0	Project Lead
Pan, Dorothy	CFO Data Mart	Data Architect
	Information for Financial Aid Partners (IFAP)	Data Architect
Peck, Paul	Common Origination & Disbursement (COD)	Technical Architect
Phillips, Lisa	Information for Financial Aid Partners (IFAP)	Application Architect
Phillips, Sybil	Credit Management Data Mart	FSA Sponsor
Queen, Cheryl	Electronic Records Management	FSA Sponsor
Reddy, Ganesh	Enterprise Application Integration (EAI)	FSA Sponsor
Robinson, Jeff	Central Processing System (CPS)	Operations Account Manager
Robinson, Jeff	FAFSA on the Web 6.0	Operations Account Manager
	Federal Family Education Loan Program (FFEL)	Operations Account Manager
	Financial Partners Data Mart	Operations Account Manager
Ross, Jeff	Financial Management Systems (FMS)	Issues & Upgrades
	Financial Management Systems (FMS)	Technical Architect
Ryzmar, Jerry	CFO Data Mart	Operations Account Manager
	Common Origination & Disbursement (COD)	Operations Account Manager
	Direct Loan Origination System (DLOS)	Operations Account Manager
	Enterprise Application Integration (EAI)	Operations Account Manager
	FSA Intranet	Operations Account Manager
	FSA Portals	Operations Account Manager
	Information for Financial Aid Partners (IFAP)	Operations Account Manager
	National Student Loan Database System (NSLDS)	Operations Account Manager
	Post-secondary Education Participants System (PEPS)	Operations Account Manager
Recipient and Financial Management System (RFMS)	Operations Account Manager	
Sattler, Neil	Single Sign On	Project Lead
Saunders, Jeanne	Central Processing System (CPS)	FSA Sponsor
	FAFSA on the Web 6.0	FSA Sponsor
Shantharaj, Madhu	Credit Management Data Mart	Application Architect
	Credit Management Data Mart	Data Architect
	Credit Management Data Mart	Technical Architect

Contact	Application	Role
Sheets , Deb	Student Aid Internet Gateway	Project Lead
	FSA Intranet	Technical Architect
Shina, Rob	eCampus Based (eCB)	Application Architect
	eCampus Based (eCB)	Business Architect
	eCampus Based (eCB)	Data Architect
Siepmann, Frank	Single Sign On	Technical Architect
Stauffer, Josh	CFO Data Mart	System Monitoring
	Financial Partners Data Mart	System Monitoring
Steapp, Jamie	FSA Intranet	Application Architect
	Student Aid Internet Gateway	Technical Architect
Stonner, Paul	Financial Management Systems (FMS)	FSA Sponsor
Sullivan, Brian	Federal Family Education Loan Program (FFEL)	FSA Sponsor
Suzuki, Eric	Enterprise Application Integration (EAI)	Issues & Upgrades
Taylor, Jim	FSA Intranet	Data Architect
	Student Aid Internet Gateway	Application Architect
Thomas, Calvin	HR Modernization	FSA Sponsor
Thomas, Ray	eCampus Based (eCB)	Operations Account Manager
	Financial Management Systems (FMS)	Operations Account Manager
Thomas, Milton	Credit Management Data Mart	Issues & Upgrades
	Credit Management Data Mart	System Monitoring
	eCampus Based (eCB)	Issues & Upgrades
Trahan, Kerry	eServicing	Project Lead
Urban, Theresa	Credit Management Data Mart	Issues & Upgrades
	Credit Management Data Mart	System Monitoring
	eCampus Based (eCB)	Issues & Upgrades
Usmani, Ahmad	Financial Partners Data Mart	Technical Architect
Ward, Colleen	FSA Intranet	Issues & Upgrades
	FSA Intranet	Project Lead
	Student Aid Internet Gateway	Issues & Upgrades
	Student Aid Internet Gateway	Project Manager
Wiley, Debra	Ombudsman	FSA Sponsor
Wilson, Matt	FSA Portals	Data Architect
	FSA Portals	Technical Architect

Contact	Application	Role
Wingard, Stephen	Direct Loan Origination System (DLOS)	FSA Sponsor
Zoldan, John	National Student Loan Database System (NSLDS)	Project Lead