

3. CURRENT SYSTEM

This section describes the 16 information systems ED uses to administer and deliver Federal student financial aid authorized by Title IV of the Higher Education Act of 1965, as amended. These Title IV systems range from recently developed client/server systems to legacy mainframe systems; many were originally developed 15 or more years ago and were designed to provide stand-alone support to a specific program or function. The current systems analysis completed on May 15, 1997, considered existing systems to estimate data volume, transaction volume, and performance requirements for Project EASI/ED candidate architectures.

The following subsections describe the current systems in terms of size, process distribution and operation, data and transaction volumes, and technology. Subsection 3.1 briefly describes each of ED's current Title IV systems and identifies correlations between these systems and functional areas within Project EASI/ED. Subsection 3.2 describes the processing model (e.g. batch, online query, remote job entry) each system uses. Subsection 3.3 describes the technologies comprising each of ED's Title IV systems. Subsection 3.4 describes current system limitations in terms of Project EASI/ED requirements.

3.1 Current System Descriptions

The information systems ED currently uses to support Title IV aid programs are:

- Campus-Based Programs System.
- Central Database System (CDS).
- Central Processing System (CPS) (plus EDExpress, Free Application for Federal Student Aid [FAFSA] Express).
- Loan Origination System (LOS).
- Loan Servicing Systems (LSS) (four systems).
- Federal Family Education Loan Program (FFELP) System.
- Institutional Data System (IDS).
- Multiple Data Entry (MDE) Systems (two systems).
- National Student Loan Data System (NSLDS).
- Pell Grant Recipient and Financial Management System (PGR/FMS).
- Postsecondary Education Participants System (PEPS).
- Title IV Wide Area Network (TIVWAN).

In addition to the systems cited above, the following ED systems provide supplementary support to the Title IV programs:

- Primary Accounting System (PAS).
- Payment Management System (PMS).
- Central Registry System (CRS).
- ED Central Facility.

The following paragraphs briefly describe each Title IV system.

Campus Based Programs System supports processing for the Campus Based Programs Fiscal Operations Report and Application to Participate (FISAP) cycle. This primarily involves uploading FISAP data received from participating schools, editing data, calculating tentative and final institutional awards, notifying institutions of their award levels, allocating funds, and reconciling institutional accounts. The Campus Based Programs system contains no student-level information; it uses only summary data by school. The system is primarily a stand-alone mainframe system, supplemented with 16 microcomputer-based programs that are used primarily to track key program indicators and suspense dates.

CDS is the central repository for summary-level data on Direct Loans, including aggregated financial data reported from Direct Loan servicer(s). CDS receives loan records from LOS when loans are booked and tracks which servicer is responsible for each loan.

CPS is used to confirm applicant eligibility for Federal student financial assistance; to calculate the Estimated Family Contribution (EFC); to calculate eligibility for Federal aid (i.e., determine financial need); to report eligibility information to applicants, schools, and guarantors; and to support management information and analysis requirements of other ED managers and staff. CPS works hand in hand with EDExpress, a microcomputer-based software package distributed by ED to schools to support aid packaging, Federal Pell Grant and Direct Loan origination, Student Status Confirmation Reporting (SSCR), and drawdown of data for use by schools.

LOS supports Direct Loan origination, is used to book loans, supports reconciliation with schools, and receives disbursement information from schools as each loan is disbursed. LOS is the schools' single point of interface with ED's Direct Loan information systems.

LSS are used to service Direct Loans while borrowers are in school, in deferment status, or in repayment. There is currently one Direct Loan Servicing System, but three additional servicers are developing loan-servicing systems for ED.

FFELP System is used to pay interest and special allowances to lenders and to pay Administrative Expense Allowance (AEA) to guarantors. The FFELP System, Debt Collection Subsystem, supports ED collection of defaulted loans from all Title IV loan programs and collection of Federal Pell Grant overpayments. Defaulted Direct Loans are assigned to this system as soon as they are considered in default; other loans are assigned to ED for collection only after the loan holder(s) exhaust their own efforts to return the loans to repayment status.

IDS is used to track lender and guarantor participation in the Title IV programs. IDS is being replaced by PEPS.

MDE Systems receive paper FAFSAs from applicants, optically scan or key enter the FAFSAs into an information system, and submit the data electronically to CPS. MDEs also collect signature sheets from applicants who submit FAFSAs to ED electronically, and apprise CPS of signature receipt so that CPS can process electronic FAFSA.

NSLDS is a national database of loan and grant-level data on the Title IV programs. The system tracks data on Direct Loans, FFELP loans, Campus Based Program loans and grants, Federal Pell Grants, and Federally Insured Student Loans. NSLDS provides a research database and also supports operational functions, including prescreening Title IV aid applicants for eligibility, SSCR, provision of Financial Aid Transcript (FAT) information to schools, reasonability tests on lender and guarantor billings to ED, borrower tracking, and Credit Reform Act reporting.

PGR/FMS supports delivery of aid under the Federal Pell Grant program. PGR/FMS tracks at the grant level all Federal Pell Grants awarded each year, tracks planned and actual disbursements, supports reconciliation, calculates eligibility amounts, aggregates planned Federal Pell Grant disbursements by school and submits this information to ED's accounting systems to authorize drawdown of funds.

PEPS maintains data on school participation (e.g., eligibility, certification, address, program participation) in Title IV programs, supports institutional reviewers and related activities, is the official source of information regarding schools and their associated school codes, and supports the annual calculation of default rates for FFEL and Direct Loan Programs. This system has partially replaced IDS; additional increments of functionality in development or planned for development will enable PEPS to totally replace IDS.

TIV WAN is a value-added network provided by General Electric Information Services (GEIS). The TIV WAN functions as a participant management system through which users indicate which services they want to use from the systems that the TIV WAN supports (i.e., CPS, NSLDS, PGR/FMS, LOS, and FFELP System [soon]).

PAS, PMS, CRS provide Department-level accounting for the Title IV programs and support disbursement of Title IV funds to schools for the Direct Loan Program, Campus-Based Programs, and the Federal Pell Grant Program. Under the Education Central Automated Processing System (EDCAPS) program, these systems are being replaced with an integrated financial system using more current technology.

ED Central Facility is a contractor-owned and contractor-operated mainframe data center in which various ED information systems run. Currently, PGR/FMS, the mainframe portion of the Campus-Based Programs System, and IDS run on this facility.

The following table, Figure 3-1, indicates the extent to which each of these systems support the functional areas defined within Project EASI/ED.

Title IV Systems	Information Sharing	Applying	Distributing Funds	Enrollment Tracking and Reporting	Repayment	Program Management and Oversight
	Business Processes in %					
Campus Based System	10	0	50	10	0	30
Central Processing System	0	90	0	0	0	10
Central Database System	40	0	20	0	10	30
Loan Origination System	5	40	45	5	0	5
Loan Servicing System (CDSI) ¹	0	0	15	0	85	0
Loan Servicing System (EDS)	0	0	15	0	85	0
Loan Servicing System (ELSC)	0	0	15	0	85	0
Loan Servicing System (E-Systems)	0	0	15	0	85	0
Federal Family Education Loan System	4	0	8	0	88	0
Multiple Data Entry System (ACT)	0	100	0	0	0	0
Multiple Data Entry System (NET)	0	80	0	0	0	20
National Student Loan Data System	50	10	0	20	0	20
Pell Grant Recipient/Financial Management System	10	0	80	0	0	10
Postsecondary Education Participants System	50	0	0	0	0	50
Title IV Wide Area Network	100	0	0	0	0	0

Figure 3-1. Title IV Systems Business Processes by Functional Areas

¹ LSS representatives indicated different percentages (on the Current Systems Questionnaire) for the business processes performed by their respective systems. After discussing this with ED staff, it was determined that all the four LSS systems perform the same functions, 15 percent disbursement and 85 percent repayment.

3.2 Operational Profile

This subsection identifies the processing models used by each of ED's Title IV systems, expressed as a percentage of total system operation. (See Subsection 2.2.2 for a description of processing models.)

Title IV Systems	Batch	Batch w/ Online Data Collection	Online Query	Online Inquiry & Data Collection	Real-Time Control	Remote Job Entry
	% of Processing					
Campus Based System	0	0	0	100	0	0
Central Processing System	99	0	1	0	0	0
EDExpress	0	0	5	45	50	0
Central Database System	70	0	10	0	10	10
Loan Origination System	0	100	0	0	0	0
Loan Servicing System (CDSI)	75	<i>Not Provided</i>	<i>Not Provided</i>	<i>Not Provided</i>	<i>Not Provided</i>	<i>Not Provided</i>
Loan Servicing System (EDS)	15	10	5	35	10	25
Loan Servicing System (ELSC)	75	10	0	0	15	0
Loan Servicing System (E-Systems)	80	20	0	0	0	0
Federal Family Education Loan System	60	15	4	8	8	5
Multiple Data Entry System (ACT)	70	0	20	10	0	0
Multiple Data Entry System (I-NET)	0	0	0	10	90	0
National Student Loan Data System	88	0	10	0	2	0
Pell Grant Recipient/Financial Management System	80	0	20	0	0	0
Postsecondary Education Participants System	0	0	0	0	100	0
Title IV Wide Area Network	35	0	65	0	0	0

Figure 3-2. Operational Profile of Title IV Systems

3.3 Technology Profile

The following subsections describe the application software, hardware, data management, system services, and network technologies used by ED's Title IV systems.

3.3.1 Application Software Profile

This subsection describes the application software used by ED's Title IV systems. Figure 3.3 documents information regarding physical software distribution models, custom and COTS software, and software size in terms of source lines of developed code. (See Subsection 2.2.2.1 for definitions of the distribution models used.)

Title IV System	Application Distribution Model	Integrated COTS Software	Custom Application Software	Estimated Source Lines of Code (Custom)
Campus Based System	Monolithic	Not Applicable	COBOL II CIPPER 5.3	45,000 SLOC 20,000 SLOC
Central Processing System	Monolithic	Enfin	COBOL II	1,000,000 SLOC
EDEXpress	User Preference	Crystal Reports	Visual C++	1,000,000 SLOC
Central Database System	Remote Presentation	FARS	IEF Cobol Cobol II, C++	<i>Not Provided</i> <i>Not Provided</i> <i>Not Provided</i>
Loan Origination System	Remote Data Management	SNAP RJE MS-Access CA -Unicenter	Microfocus Cobol PowerBuilder C	78,370 SLOC 40,000SLOC 5,000 SLOC
Loan Servicing System (CDSI)	Monolithic	PowerBuilder, Cognos, Easytrieve, Filenet	COBOL II	1,000,000 SLOC
Loan Servicing System (EDS)	Distributed Data Management	MS-Office, IFA, Image Extender, SEQUEL Rep, CAS/BASE	COBOL Visual Basic C++	<i>Not Provided</i> <i>Not Provided</i> <i>Not Provided</i>
Loan Servicing System (ELSC)	Remote Presentation	FileNet, Xerox, Robohelp	VAX COBOL Visual Basic	<i>Not Provided</i> 1,000,000 SLOC
Loan Servicing System (E-Systems)	Monolithic	CA-7, CA-1, RACF, Easytrieve, SQL	COBOL (IEF) SAS	<i>Not Provided</i> <i>Not Provided</i>
Federal Family Education Loan Program System	Monolithic	DYL - Audit, Informix ViewPoint	COBOL II Assembler JCL	4,000,000 SLOC 6,848 SLOC 238,718 SLOC
Multiple Data Entry System (ACT)	Distributed Logic and Remote Data Management	PowerScan, KIPP, Image Key, RexxLib, PVFS	SAS C Rexx DELB	8,000 SLOC 40,000 SLOC 25,000 SLOC 15,000 SLOC
Multiple Data Entry System (I-NET)	Distributed Logic	RRI FormsWork, PowerScan	C/C++ Gupta Visual Basic Nawk Scripting	362,000 SLOC 70,000 SLOC 55,300 SLOC 500 SLOC
National Student Loan Data System	Monolithic	<i>Not Provided</i>	COBOL II (IEF) Rexx Cobol (Manual)	4,600,000 SLOC 20,000 SLOC 240,000 SLOC
Pell Grant Recipient/Financial Management System	Monolithic	Easytrieve, SAS	COBOL COBOL II Dbase	750,000 SLOC 30,000SLOC 10,000 SLOC

Figure 3-3. Application Technology Profile of Title IV Systems

System	Application Distribution Model	Integrated COTS Software	Custom Application Software	Source Lines of Code (Custom)
Postsecondary Education Participants System	Remote Data Management	HP-UX, CA-Unicenter	Developer 2000 PL/SQL and Oracle Pro C	Not Applicable 500,000 SLOC
Title IV Wide Area Network	Distributed Logic	Focus, DataAnalyzer, Easytrieve	COBOL II	700,000 SLOC

Figure 3-3. Application Technology Profile of Title IV Systems (cont'd)

3.3.2 Hardware Profile

This subsection describes the hardware used by ED's Title IV systems. Figure 3.4 documents information regarding hardware type, operating system, and system resources.

Title IV Systems	Hardware	Operating System	Random Access Memory (RAM)	Instructions Per Second (MIPS)
Campus Based System	Amdahl 5995	MVS/ESA	8MB	13MIPS
Central Processing System	IBM 9672	MVS	1GB	118MIPS
EDExpress	IBM Compatible PC	DOS, Windows95	<i>Not Provided</i>	<i>Not Provided</i>
Central Database System	IBM 3090	MVS/ESA	1GB	80MIPS
Loan Origination System	HP T500 Servers HP NetServer HP NetServer	HP-UX, Netware OS2	2GB 32MB 19GB	<i>Not Provided</i>
Loan Servicing System (CDSI)	DEC VAX 7610 Hitachi EX9000 VAX 7000	Open VMS MVS/XA <i>Not Provided</i>	3GB <i>Not Provided</i> <i>Not Provided</i>	450 VUP's <i>Not Provided</i> <i>Not Provided</i>
Loan Servicing System (EDS)	AS400	O/S400	512MB	<i>Not Provided</i>
Loan Servicing System (ELSC)	DEC VAX DEC Alpha Hitachi	Open VMS <i>Not Provided</i> MVS/XA	<i>Not Provided</i> <i>Not Provided</i> <i>Not Provided</i>	<i>Not Provided</i> <i>Not Provided</i> <i>Not Provided</i>
Loan Servicing System (E-Systems)	ES9000 Equivalent	ESA	512MB	116MIPS
Federal Family Education Loan Program System	IBM 9672	MVS/ESA	120GB	88MIPS
Institutional Data System	IBM 3090	MVS/ESA	<i>Not Provided</i>	<i>Not Provided</i>
Multiple Data Entry System (ACT)	SUN SPARC20 Compaq	SunOS NT	<i>Not Provided</i> 208MB	<i>Not Provided</i> 120MHz
Multiple Data Entry System (I-NET)	SUN SPARC Workstation	SunOS	128MB	<i>Not Provided</i>
National Student Loan Data System	Hitachi GX8214	MVS/ESA	<i>Not Provided</i>	115MIPS

Figure 3-4. Hardware Technology Profile for Title IV Systems

Title IV Systems	Hardware	Operating System	Random Access Memory (RAM)	Instructions Per Second (MIPS)
Pell Grant Recipient/Financial Management System	Amdahl 5990, SUN	MVS/ESA 4.2.0 SunOS 4.1.3	8M 128MB	13MIPS 6MIPS
Postsecondary Education Participants System	HP T500 Server	HP-UX	1GB	512MIPS
Title IV Wide Area Network	IBM 9672	MVS/ESA	16GB	118MIPS

Figure 3-4. Hardware Technology Profile for Title IV Systems (cont'd)

3.3.3 Data Management Technology Profile

This subsection describes the data management technologies used by ED's Title IV systems, the data and transaction volumes managed by existing Title IV systems, and estimates of expected data volume growth.

Title IV System	Data Management Software	Data Volume	Estimated Data Volume Growth (Annually)	Annual Transaction Volume (for 3 most significant transactions)	% of Expected Transaction Volume Growth
Campus Based System	VSAM	2.2GB	1.5%	FISAP Update – 4,200 Award Processing – 4,200 Account Processing - 27,000	10% 10% 10%
Central Processing System	DB2	19GB ²	2%	Application - 6,000,000 Renewal Application - 6,000,000 Correction - 4,000,000	2% 2% 5%
Central Database System	DB2	60GB	20%	<i>Not Provided</i>	<i>Not Provided</i>
Loan Origination System	Informix MS-Access	50GB	25%	Disbursements - 5,124,813 Reconciliation - 4,958,255 Promissory Notes - 2,501,270	1.25% 1.25% 1.25%
Loan Servicing System (CDSI)	<i>Not Provided</i>	428GB	7%	<i>Not Provided</i>	<i>Not Provided</i>
Loan Servicing System (EDS)	MS Access, DB2/400	Not in Production	Not in Production	Not in Production	Not in Production
Loan Servicing System (ELSC)	RDB, SQL/Server	Not in Production	Not in Production	Not in Production	Not in Production
Loan Servicing System (E-Systems)	DB2, IMS, CICS	198GB (Not in Production)	13% (Not in Production)	Not in Production	Not in Production
Federal Family Education Loan Program System	IDMS, Informix	90GB	10%	CIC transactions 15,000,000	17%

Figure 3-5. Data Management Technology Profile for Title IV Systems

² Estimate based on data volume, as reported in the presentation titled *Future title IV Delivery System Draft Systems Architecture and Plan of Action*. This information was originally presented to the Advisory Committee on Student Financial Assistance by the Gunnison Consulting Group, Inc. on March 14, 1996.

Title IV System	Data Management Software	Data Volume	Estimated Data Volume Growth (Annually)	Annual Transaction Volume (for 3 most significant transactions)	% of Expected Transaction Volume Growth
Multiple Data Entry System (ACT)	DB2, MS-Access, RRI DMS	<i>Not Provided</i>	<i>Not Provided</i>	MIS - 500,000 History Correction -1,500,000 Application - 4,000,000	<i>Not Provided</i> <i>Not Provided</i> <i>Not Provided</i>
Multiple Data Entry System (I-NET)	Oracle	600GB	Minimal	FAFSA Application <i>Volume Not Provided</i> Renewal Application <i>Volume Not Provided</i> History Correction <i>Volume Not Provided</i>	0% 10% 0%
National Student Loan Data System	DB2, CICS	300GB	9% ³	Loan Update - 312,000,000 Pre-Screening - 26,000,000 SSCR Processing - 312,000,000	10% 4% 5%
Pell Grant Recipient/Financial Management System	Oracle	15GB	4%	Grant Award - 5,000,000 Award Confirmation - 5,000,000	4% 4%
Postsecondary Education Participants System	Oracle	2.5GB	10%	Migration Forms IDS – <i>Volume Not Provided</i> Data Storage <i>Volume Not Provided</i>	40% 10%

Figure 3-5. Data Management Technology Profile for Title IV Systems (cont'd)

3.3.4 System Services Technology Profile

This subsection describes system services technologies used by ED's Title IV systems. Figure 3.6 lists information about system management software, archive management software, and distributed system services software. Distributed system services include:

- Directory Services** The service used to locate and regulate access to networked system resources. (e.g., Novell Directory Service [NDS], Distributed Computing Environment Cell Directory Service [DCE CDE]).
- Distributed Naming Services** The service use to manage and distribute associations between logical host names and network addresses. (e.g., Domain Name System [DNS], Network Information Service [NIS, NIS+]).
- Distributed Time Services** The service used to synchronize and manage the system clocks of distributed system components (e.g., Network Time Service [NTS], BSD Unix TimeD).

³ Estimation based on storage projection as stated in the report titled *An Analysis of NSLDS Architecture Alternatives*. This report was prepared by Performance Engineering Corporation on February 19, 1997 .

Title IV System	System Management Software	Archive Management Software	Directory and Name Services Software	Network Time Services Software
Campus Based System	MVS/ESA	FDR/ABR	IBM's catalog facility	<i>Not Provided</i>
Central Processing System	Hear, DB2, Custom software for System Performance Monitoring	FDR	Not Applicable	Not Applicable
Central Database System	TMON, Composer	FDR, DB2	Not Applicable	Not Applicable
Loan Origination System	Harvest, CA-Unicenter, McAfee	Informix backup	HP's DNS	<i>Not Provided</i>
Loan Servicing System (CDSI)	DEC PS	SLS Storage Linear System	<i>Not Provided</i>	<i>Not Provided</i>
Loan Servicing System (EDS)	OS/400	NT, OS/400	NT 4.0, WINS	NT 4.0
Loan Servicing System (ELSC)	Harvest, Open VMS, MUS/XA	RMU, OSCAR, TA92	<i>Not Provided</i>	<i>Not Provided</i>
Loan Servicing System (E-Systems)	INFOMAN, SMF/RMF	ACC/SRS, FDR	<i>Not Provided</i>	<i>Not Provided</i>
Federal Family Education Loan Program System	CA-11, LandMark	FDR	NT, DNS	NTS
Multiple Data Entry System (ACT)	SAT, Inventory Manager	ARC Serve, FDR	Novell	NDS Time Server
Multiple Data Entry System (I-NET)	I-Net Smart, RRI Flow Manager, NETManager	SUN Soltice	NT Server	<i>Not Provided</i>
National Student Loan Data System	INFOMAN, NetView, OmegaMon, TMON	ACC/SRS, FDR	<i>Not Provided</i>	<i>Not Provided</i>
Pell Grant Recipient/Financial Management System	Not Applicable	FDR	Not Applicable	Not Applicable
Postsecondary Education Participants System	HP-UX, CA-Unicenter	CA-Unicenter	Not Applicable	Not Applicable
Title IV wide Area Network	Heat, WAN System	FDR	Not Applicable	Not Applicable

Figure 3-6. System Services Technology Profile of Title IV Systems

3.3.5 Network Technology Profile

This subsection describes the network technologies used by ED's Title IV systems. Figure 3.7 lists information regarding current system network types, protocols, media, topologies, data link technologies, and operating systems. Network components and structures are defined as:

- **Physical Media** Media used to interconnect or network computers according to a specified topology. Media selections are made based upon expected data transmission volumes, required data rates, data link protocols, attenuation characteristics, network environment, security requirements, and other considerations (examples: Twisted Pair, Coaxial Cable, Fiber Optic Cable).
- **Data Link Protocol** Using network physical media, data link technologies package network data into frames, or packets. These frames include addressing, routing, control, and other information that is used by other stations on the network to recognize, accept, and route the frames, as appropriate (examples: Token Ring, Ethernet, Fiber Distributed Data Interchange [FDDI]).
- **Topology** The pattern by which media interconnects the various computers forming a network. Like network media, network topology choices are largely dependent upon the network's data link protocol; one cannot simply choose a network media and interconnect network resources using any topology. The data link layer protocol imposes definite restrictions regarding topology options. The amount of attenuation inherent to the media, the speed of the signal, and the length of the cable segments are all factors that must be accounted for by the data link protocol. Topology is therefore selected in most cases as a result of the data link protocol decision (examples: Bus, Ring, Star).
- **Network & Transport Protocols** Using data link technology, network and transport protocols provide the routing functionality by which packets are routed to stations on a network or across internets. Network protocols also provide error detection, error correction, and flow control services. Together, these protocols deliver the quality of service network required (examples: Internet Protocol [IP], Transmission Control Protocol [TCP], Internet Packet Exchange [IPX], Sequenced Packet Exchange [SPX]).

Title IV Systems	Network Protocol(s)	Network Physical Media	Network Topology	Network Data Link Technology	Network Operating System
Campus Based System	TCP/IP	<i>Not Provided</i>	<i>Not Provided</i>	<i>Not Provided</i>	NT
Central Processing System	TCP/IP, SNA	Lease Line	<i>Not Provided</i>	Token Ring, Ethernet	<i>Not Provided</i>
Central Database System	TCP/IP, SDLC	Twisted Pair, ISDN, T1	STAR	Ethernet, Token Ring	VTAM, NT
Loan Origination System	TCP/IP, IPX/SPX	Twisted Pair	BUS	Ethernet	Novell, UNIX
Loan Servicing System (CDSI)	TCP/IP, DEC/Net	Twisted pair	STAR	Ethernet	Novell, PathWorks
Loan Servicing System (EDS)	TCP/IP, NetBEUI	CAT 5, UTP	FDDI Ring, Ethernet	Switched Ethernet, Token Ring	Windows NT, OS/400
Loan Servicing System (ELSC)	TCP/IP	<i>Not Provided</i>	<i>Not Provided</i>	Ethernet	Novell, NT
Loan Servicing System (E-Systems)	TCP/IP	T1	<i>Not Provided</i>	<i>Not Provided</i>	NCP
Federal Family Education Loan System	TCP/IP, SNA, NAS, NetView	56KB	Ring, STAR	Ethernet, Token Ring	NT, MVS
Multiple Data Entry System (ACT)	TCP/IP, IPX/SPX, NetBIOS	CAT 5	STAR	Ethernet, FDDI	Netware 4.0
Multiple Data Entry System (I-NET)	TCP/IP	Twisted pair	BUS	Ethernet,	NT, UNIX
National Student Loan Data System	SNA, TCP/IP	<i>Not Provided</i>	<i>Not Provided</i>	Token Ring, PTP	<i>Not Provided</i>
Pell Grant Recipient/ Financial Management System	TCP/IP, IPX	Twisted Pair	BUS	Ethernet	Novell
Postsecondary Education Participants System	TCP/IP, XNS	CAT 5, Fiber	STAR	Ethernet, FDDI	HP-UX, Novell

Figure 3-7. Network Technology Profile of Title IV Systems