

APPENDIX G CALCULATIONS FOR ASSUMPTIONS

This appendix lists calculations that are associated with architectural assumptions described in Section 5. Many of these calculations are based on “Current System” data that is listed in Section 3. ED provided this data in response to the *Current System Questionnaire*, which is listed within appendix C. Additionally, several of the calculations listed within this section reference fiscal year budget estimates originally published within the General Accounting Office report titled: *Multiple, Nonintegrated Systems Hamper Management of Student Financial Aid Programs* (May 15, 1997).

Assumption 1 Calculation Details

Current System Data from Section 3.2	Batch	Batch w/ Online Data Collection	Online Query	Online Inquiry & Data Collection	Real-Time Control	Remote Job Entry
	Processing Mode in %					
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 Direct Loan System	70%	0%	10%	0%	10%	10%
Loan Origination System	0%	100%	0%	0%	0%	0%
Loan Servicing System (CDSI)	75%					
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 (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 Participant System	0%	0%	0%	0%	100%	0%
Title IV Wide Area Network	35%	0%	65%	0%	0%	0%

Assumption 1 Calculation Details (Continued)

System	Custom Application Software	Source Lines of Code (SLOC)	Total System SLOC	% of Total System
Campus Based Programs System	COBOL II	45000	65000	0.36%
	CIPPER 5.3	20000		
Central Processing System	COBOL II	1000000	1000000	5.51%
EDEExpress	Visual C++	1000000	1000000	5.51%
Central Database System	Cobol IEF		2300000	12.67%
	Cobol II,			
	C++			
Loan Origination System	Microfocus Cobol	78370	123370	0.68%
	Power Builder	40000		
	C	5000		
Loan Servicing System (CDSI)	COBOL II	1000000	1000000	5.51%
Loan Servicing System (EDS)	COBOL		0	0.00%
	Visual Basic			
	C++			
Loan Servicing System (ELSC)	VAX COBOL		1000000	5.51%
	Visual Basic	1000000		
Loan Servicing System (E-Systems)	COBOL (IEF)		0	0.00%
	SAS			

Current System Data from Section 3.3.1

Calculated by dividing total system SLOC for each system by total "overall" SLOC

Assumption 1 Calculation Details (Continued)

Table Continued

System	Custom Application Software	Source Lines of Code (SLOC)	Total System SLOC	% of Total System
Federal Family Education Loan System	COBOL II	4000000	4245566	23.38%
	Assembler	6848		
	JCL	238718		
Multiple Data Entry System (ACT)	SAS	8000	88000	0.48%
	C	40000		
	Rexx	25000		
	DELB	15000		
Multiple Data Entry System (I-NET)	C/C++	362000	487800	2.69%
	Gupta	70000		
	Visual Basic	55300		
	Nawk Scripting	500		
National Student Loan Data System	COBOL II (IEF)	4600000	4860000	26.76%
	Rexx	20000		
	Cobol (Manual)	240000		
Pell Grant Recipient/Financial Management System	COBOL	750000	790000	4.35%
	COBOL II	30000		
	Dbase	10000		
Postsecondary Education Participants System	Developer 2000		500000	2.75%
	PL/SQL and Oracle Pro C	500000		
Title IV wide Area Network	COBOL II	700,000	700,000	3.85%
Total SLOC		15,859,736.0	18,159,736.0	100.00%

Assumption 1 Calculation Details (Continued)

From previous table

	% of Total System	Batch	Batch w/ Online Data Collection	Online Query	Online Inquiry & Data Collection	Real-Time Control	Remote Job Entry
	Processing Mode in %						
Campus Based System	0.36%	0%	0%	0%	100%	0%	0%
Central Processing System	5.51%	99%	0%	1%	0%	0%	0%
EDExpress	5.51%	0%	0%	5%	45%	50%	0%
Central Database Direct Loan System	12.67%	70%	0%	10%	0%	10%	10%
Direct Loan Origination System	0.68%	0%	100%	0%	0%	0%	0%
Direct Loan Servicing System (CDSI)	5.51%	75%					
Direct Loan Servicing System (EDS)	0.00%	15%	10%	5%	35%	10%	25%
Direct Loan Servicing System (ELSC)	5.51%	75%	10%	0%	0%	15%	0%
Direct Loan Servicing System (E-Systems)	0.00%	80%	20%	0%	0%	0%	0%
Federal Family Education Loan System	23.38%	60%	15%	4%	8%	8%	5%
Multiple Data Entry System (ACT)	0.48%	70%	0%	20%	10%	0%	0%
Multiple Data Entry System (NET)	2.69%	0%	0%	0%	10%	90%	0%
National Student Loan Data System	26.76%	88%	0%	10%	0%	2%	0%
Pell Grant Recipient/Financial Management System	4.35%	80%	0%	20%	0%	0%	0%
Postsecondary Education Participant System	2.75%	0%	0%	0%	0%	100%	0%
Title IV Wide Area Network	3.85%	35%	0%	65%	0%	0%	0%

Assumption 1 Calculation Details (Continued)

Calculated by multiplying "% of Total System" data and "processing mode" data for each system

	Batch	Batch w/ Online Data Collection	Online Query	Online Inquiry & Data Collection	Real-Time Control	Remote Job Entry	Total
Percentage of "Overall" Processing Performed in Particular Mode By Each System							
Campus Based System	0.00%	0.00%	0.00%	0.36%	0.00%	0.00%	0.36%
Central Processing System	5.45%	0.00%	0.06%	0.00%	0.00%	0.00%	5.51%
EDEExpress	0.00%	0.00%	0.28%	2.48%	2.75%	0.00%	5.51%
Central Database Direct Loan System	8.87%	0.00%	1.27%	0.00%	1.27%	1.27%	12.67%
Direct Loan Origination System	0.00%	0.68%	0.00%	0.00%	0.00%	0.00%	0.68%
Direct Loan Servicing System (CDSI)	4.13%	0.00%	0.00%	0.00%	0.00%	0.00%	4.13%
Direct Loan Servicing System (EDS)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Direct Loan Servicing System (ELSC)	4.13%	0.55%	0.00%	0.00%	0.83%	0.00%	5.51%
Direct Loan Servicing System (E-Systems)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Federal Family Education Loan System	14.03%	3.51%	0.94%	1.87%	1.87%	1.17%	23.38%
Multiple Data Entry System (ACT)	0.34%	0.00%	0.10%	0.05%	0.00%	0.00%	0.48%
Multiple Data Entry System (NET)	0.00%	0.00%	0.00%	0.27%	2.42%	0.00%	2.69%
National Student Loan Data System	23.55%	0.00%	2.68%	0.00%	0.54%	0.00%	26.76%
Pell Grant Recipient/Financial Management System	3.48%	0.00%	0.87%	0.00%	0.00%	0.00%	4.35%
Postsecondary Education Participant System	0.00%	0.00%	0.00%	0.00%	2.75%	0.00%	2.75%
Title IV Wide Area Network	1.35%	0.00%	2.51%	0.00%	0.00%	0.00%	3.85%
Total	65%	5%	9%	5%	12%	2%	99%

Assumption 4 Calculation Details

System	Data Volume (GB)	Estimated Annual Data Volume Growth (%)	Estimated Annual Data Volume Growth (GB)	Annual Total Data Volume Growth
Campus Based System	2	1.50%	0.033	0%
Central Processing System	19	2%	0.38	0%
Central Database Direct Loan System	60	20%	12	9%
Direct Loan Origination System	50	25%	12.5	10%
Direct Loan Servicing System (CDSI)	428	7%	29.96	23%
Direct Loan Servicing System (EDS)			0	0%
Direct Loan Servicing System (ELSC)			0	0%
Direct Loan Servicing System (E-Systems)	198	13%	25.74	20%
Federal Family Education Loan System	90	10%	9	7%
Multiple Data Entry System (ACT)			0	0%
Multiple Data Entry System (I-NET)	600	2%	12	9%
National Student Loan Data System	300	9%	27	21%
Pell Grant Recipient/Financial Management System	15	4%	0.6	0%
Postsecondary Education Participants System	3	10%	0.25	0%
Title IV wide Area Network			0	0%
Total	1,764.7		129.5	

Current System Data from Section 3.3.3

Expected Annual Data Volume Growth	7%
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Calculated by dividing the "Estimated Annual Data Volume Growth by the Total Data Volume

Assumption 7 Calculation Details

Current System Data
from Section 3.3.3

System	Significant Transactions	Transaction Volumes	Estimated Annual Transaction Volume Growth (%)	Estimated Annual Transaction Volume Growth	Annual Total Transaction Volume Growth
Campus Based System	FISAP Update	4,200	10.00%	420	3540
	Award Processing	4,200	10.00%	420	
	Account Processing	27,000	10.00%	2700	
Central Processing System	Application	6,000,000	2.00%	120000	440000
	Renewal Application	6,000,000	2.00%	120000	
	Correction	4,000,000	5.00%	200000	
Central Database Direct Loan System				0	0
				0	
				0	
Direct Loan Origination System	Disbursements	5,124,813	1.25%	64060.1625	157304
	Reconciliations	4,958,255	1.25%	61978.1875	
	Proissory Notes	2,501,270	1.25%	31265.875	
Direct Loan Servicing System (CDSI)				0	0
				0	
				0	
Direct Loan Servicing System (EDS)				0	2
				2	
				0	

Assumption 7 Calculation Details (Continued)

Table Continued

System	Significant Transactions	Transaction Volumes	Estimated Annual Transaction Volume Growth (%)	Estimated Annual Transaction Volume Growth	Annual Total Transaction Volume Growth
Direct Loan Servicing System (E-Systems)				0	0
				0	
				0	
Federal Family Education Loan System	CIC transaction	15,000,000	17.00%	2550000	2550000
				0	
				0	
Multiple Data Entry System (ACT)	MIS	500,000		0	0
	History Correction			0	
	Application			0	
Multiple Data Entry System (I-NET)	FAFSA Application		0.00%	0	0
	Renewal Application		10.00%	0	
	History Correction		0.00%	0	
National Student Loan Data System	Loan Update	312,000,000	10.00%	31200000	47840000
	Pre-Screening	26,000,000	4.00%	1040000	
	SSCR Processing	312,000,000	5.00%	15600000	
Pell Grant Recipient/Financial Management System	Grant Award	5,000,000	4.00%	200000	400000
	Award Confirmation	5,000,000	4.00%	200000	
				0	
Postsecondary Education Participants System	IDS Migration	10,000	40.00%	4000	4000
				0	
Total		704,129,738		51,394,846	51,394,846

Expected Annual total Transaction Volume Growth	7%	Calculated by dividing the "Estimated Annual Transaction Volume Growth by the Total Transaction Volume (for 3 most significant transactions managed by each system)
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