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BEFORE THE
POSTAL RATE COMMISSION
WASHINGTON, D.C. 20268-0001

JUL 15 2 53 PM '98

MAILING ONLINE SERVICE

Docket No. MC98-1

DIRECT TESTIMONY OF
DANIEL STIREWALT
ON BEHALF OF
UNITED STATES POSTAL SERVICE

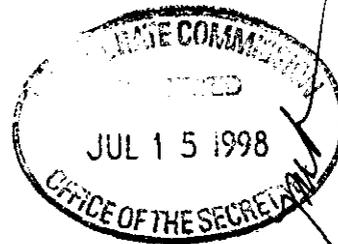


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DIRECT TESTIMONY
OF
DANIEL STIREWALT

AUTOBIOGRAPHICAL SKETCH

1
2 My name is Daniel Stirewalt, and I am a Business Systems Architect in
3 the Information Systems function of the United States Postal Service. I have
4 been with the Postal Service for over fourteen years, most recently at
5 Headquarters since January of 1993. My responsibilities at the Postal Service
6 include management of information technology activities and issues on various
7 projects, including: automating national capital and expense budgets, upgrading
8 postage meter technology, and national call center implementation. Typical
9 activities include project management, application technology review, and budget
10 estimation.

11 Prior to joining the Postal Service, I was employed for four years as a
12 computer programmer for several companies, including the National Cash
13 Register Corporation and the Franklin State Bank of New Jersey. My experience
14 as a computer programmer consisted of the coding, testing, and documentation
15 of computer programs designed to automate bank checking and demand deposit
16 functions.

17 I hold an associate degree from Yeshiva Toras Chaim Rabbinical College,
18 Denver, Colorado, and have completed the Computer Science program offered
19 by Coleman College, San Diego, California.

PURPOSE AND SCOPE OF TESTIMONY

1 The purpose of my testimony is to adopt and incorporate the contents of
2 Library Reference USPS-LR-1/MC98-1. It was prepared by me, and I am able to
3 respond to discovery regarding its contents.

Mailing Online
Information Technology Cost Estimates
Years 1999 - 2003

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Library Reference USPS-LR-1/MC98-1

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Purpose

This document provides a set of estimated information technology costs for operating the proposed Mailing Online service for the calendar years 1999-2003.

This information is a product of United States Postal Service Information Systems staff and is prepared expressly for inclusion in a filing with the Postal Rate Commission.

Information Systems management has reviewed and approved the information contained in this report.

Overview

Mailing Online is an electronic-to-paper mail preparation and delivery service targeted at individuals, small businesses and company departments with smaller mailing needs.

A customer creates an electronic document with an accompanying electronic mailing list using word processing or desktop publishing software on his or her personal computer. When the customer is ready to submit this document and list for mailing, he or she accesses the Postal Service's Mailing Online site on the World Wide Web. Mailing Online accepts the customer's electronic document for print preparation and validates the addresses in the electronic mailing. The electronic document and electronic mailing list are then forwarded to a printer for printing, finishing, mailing preparation, and mailing to the addresses contained in the customer's mailing list. The customer has the option of reviewing a proof copy before submitting a document for printing and mailing.

Methodology

Postal Service Information Systems staff performed the following steps to derive the cost estimates shown on this report.

- The computer hardware, software, and telecommunications currently running the Mailing Online operational test were examined to identify all information technology cost components.
- Estimated numbers of customers, mail pieces, and printers for nationwide service provided by National were applied to the major components of the Mailing Online information technology architecture to calculate computing capacity and telecommunications throughput requirements. *Attachment 1: Computer and Telecommunications Capacity Analysis* documents the results of this analysis.
- A cost figure was assigned to each cost component based on the results reported in Attachment 1. *Attachment 2: Detailed Cost Estimates* documents all cost elements and the costs assigned to each.
- The detailed cost estimates were aggregated to produce the Cost Summary shown in this document.

Assumptions

A set of assumptions was developed to account for conditions for a national service. A list of major assumptions follows:

- Mailing Online print sites will be spread geographically throughout the United States. There are 1500 miles mean distance from the Postal Service Mailing Online processing site to any given print site. Ten sites will perform printing for Mailing Online in 1999, with projections of 17 sites by 2000, and 25 sites in the following years.
- Postal Service personnel within the existing Postal Service Information Systems Customer Support organization will handle the technical help desk function for Mailing Online.

- Mailing Online print sites will be privately owned and operated. The Postal Service will do no printing of customer mailings.
- A Postal Service computer operations facility will serve as the primary processing site for Mailing Online document management, mail merge, and online payment.
- The Postal Service will set up a secondary processing site capable of scaling into a full processing site for purposes of load balancing and disaster recovery. The second processing site's computer hardware, software and telecommunications capability will duplicate that of the primary processing site.
- The Postal Service will set up a testing and staging environment at the primary processing site. This testing and staging area will have the same computer processing components as the primary site, scaled down to accommodate a limited testing and migration function.
- The Postal Service will lease a dedicated telecommunication link between the Mailing Online primary processing site and each printer site.
- The Postal Service will purchase, install, and maintain a network router and File Transfer Protocol (FTP) server (a computer) at each print site.

Attachment 1: Computer and Telecommunications Capacity Analysis describes assumptions used to calculate computer hardware, software and telecommunications costs.

Sources

Information contained in Library Reference USPS-LR-2/MC98-1 is the primary information source calculating computer and telecommunications capacity shown in Attachment 1.

Generally, the numbers reported herein are based upon my expert judgment, which itself results from my experience in the field, discussions with my colleagues, and a general understanding of comparable contracts into which the Postal Service has previously entered. Some of these contracts are identified specifically in *Attachment 3: Sources*.

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Cost Summary

Basic Mailing Online Service and 25% Contribution Margin							
	Cost Estimates in (in Dollars)						Attachment 2 Detailed Cost Estimate Reference
Cost Category	Fixed	1999	2000	2001	2002	2003	
Technical Help Desk	25,566	282,000	282,000	414,775	403,000	403,000	Page 15
Management/ Administration	2,000	120,000	120,000	120,000	120,000	120,000	Page 15
Processing Center	911,821	634,730	634,730	734,730	734,730	734,730	Page 19
Telecommunications	42,000	469,894	791,185	1,135,279	1,111,388	1,109,939	Page 19
Print Sites	166,000	52,000	204,600	262,800	130,000	130,000	Page 20
Totals	1,147,387	1,558,624	2,032,515	2,672,584	2,499,118	2,497,669	Page 20

Attachment 2: Detailed Cost Estimates contains a further breakdown of these costs.

Attachment 1: Computer and Telecommunications Capacity Analysis

CATEGORY / COMPONENT Description	YR 1999 Estimate	YR 2000 Estimate	YR 2001 Estimate	YR 2002 Estimate	YR 2003 Estimate	SOURCE
TELECOMMUNICATIONS INTERNET CONNECTION						
Customers Accessing Mailing Online						
ACCESS - CUSTOMER/USPS						
Total Number of Users	5,981	10,439	16,275	22,815	26,650	Library Reference USPS-LR-2/MC98-1, Section E - Survey Results - Table 19A (# businesses = # users assumed)
Average customer sessions per user per year	12	12	12	12	12	Frequency is unknown at this time; One per month is assumed based on expected mail content: invoices, announcements, statements, forms (Library Reference USPS-LR-2/MC98-1, Section C, Table 5)
Customer sessions per business day	230.04	401.50	625.96	877.50	1025.00	Calculated (sessions per year / 312 business days in a year, 6 day work week assumed)
Percentage usage during daily peak period	0.75	0.75	0.75	0.75	0.75	A Peak Period of Usage is required to plan for maximum capacity. % of users expected during such a period is unknown, 75% usage is therefore assumed.
Customer sessions during peak period	172.53	301.13	469.47	658.13	768.75	Calculated (Cust. Sessions Per day * Peak Percentage)
Average session duration (no. hours)	0.5	0.5	0.5	0.5	0.5	5 hour estimated based on observation during testing (registration/logon on, file uploads=10 minutes, document review/job submit = 20 minutes)
Peak Usage Period Hours	4	4	4	4	4	No peak usage period has been observed during the operation test, but must be considered to plan for maximum capacity: 1PM-5PM EST is assumed here
Avg. No. Concurrent Sessions During Peak Hours	21.57	37.64	58.68	82.27	96.09	Calculated (Customer sessions during peak period/peak period/avg. session duration)
Access Ports Required During Peak Hours	21.57	37.64	58.68	82.27	96.09	One for each session
THROUGHPUT - CUSTOMER/USPS						
Incoming Documents/Mailing Lists Per Second During Peak Period	0.01	0.02	0.03	0.05	0.05	Calculated (Cust sessions during peak period / (no. hours * 3600 seconds per hr)
Number of pages per Document	3.2	3.2	3.2	3.2	3.2	68% 1-2 pages, 11% 3-4 pages, 9% 5-6 pages, 3% 7-10 pages, 2% 11-15 pages, 7% 15+ pages (Library Reference USPS-LR-2/MC98-1, Section E, Table 12)
Number of Bytes Per Page Word Processing/DeskTop Publishing	5020	5020	5020	5020	5020	The size in bytes of an electronic "page" can vary widely, depending of volume of text and presence of graphics. A Microsoft Word file with several paragraphs plain text can require up to 10K bytes. 5K is assumed here.
Number of Addresses Per Mailing List	4,120	4,119	4,119	4,119	4,119	Calculated (annual mail volume estimate / (total customer estimate/avg mailings per customer per annum)
Number of bytes per address	200	200	200	200	200	Although address fields are defined, number of characters, other characteristics of address affect the size, 200 bytes is assumed here.
Average Bytes Per Incoming Customer Transmission	839964.69	839921.65	839956.47	839956.18	839956.43	Calculated (Average no. of pages * no. bytes per page)
Incoming bytes Per Second During Peak Hours	10083.76	17563.99	27384.40	38388.62	44841.42	Calculated (Average Bytes Per Transmission * Incoming documents per second)

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Attachment 1: Computer and Telecommunications Capacity Analysis (Continued)

CATEGORY / COMPONENT Description	YR 1999 Estimate	YR 2000 Estimate	YR 2001 Estimate	YR 2002 Estimate	YR 2003 Estimate	SOURCE
PROCESSING CENTER - APPLICATION SERVER Source File to PDF Conversion						
Bytes Per Second During Peak Hours	10063.76	17563.99	27384.40	38388.62	44841.42	Calculated (Average Bytes Per Transmission * Incoming documents per second)
PROCESSING CENTER - NETPOST COMMAND CENTER SERVER Source File Conversion of Mail Merge Transactions						
Incoming bytes Per Second During Peak Hours	10063.76	17563.99	27384.40	38388.62	44841.42	Calculated (Average Bytes Per Transmission * Incoming documents per second)
Average mailing pieces per document	4,120	4,119	4,119	4,119	4,119	Calculated (total mail volume estimate / total customer estimate)
Number of Bytes Per Mailing Piece Transaction	30720	30720	30720	30720	30720	Actual Number is unknown; estimate based on observation of file sizes generated during Mailing Online software testing activity
Mail Merge Transactions Per Second During Peak Hours	49	86	134	188	220	Calculated (average pieces per document * incoming documents per second)
Bytes Processed Per Second During Peak Hours	1,516,231	2,846,231	4,125,800	5,783,723	6,755,918	Calculated (Mail Merge Transactions Per Second * Number of Bytes per piece)
TELECOMMUNICATIONS - FTP SERVERS Data Sent from USPS to Print Sites						
Number of Printers	10	17	25	25	25	Exhibit USPS-2A, Table 9, Item 20, page 15
Number of Mail Pieces Per Year	295,665,000	516,015,000	804,531,000	1,127,826,000	1,317,404,000	Library Reference USPS-LR-2/MC98-1, Section E, Table 12
Number of Mail Pieces Per Business Day	947,644	1,653,894	2,578,625	3,614,827	4,222,449	Calculated (pieces per year / 312 business days in a year, 6 day work week assumed as per marketing plan)
Average Bytes Per Page in Postscript format	30720	30720	30720	30720	30720	Estimate based on observation of file sizes generated by the Mailing Online software during the pilot.
Percentage mail merge jobs	0.5	0.5	0.5	0.5	0.5	Both mail-merge and no mail-merge are available with Mailing Online. There is no data to indicate what percentage of customer orders require mail merge and since file size varies greatly between the two options, they both must be considered
Percentage non mail merge jobs	0.5	0.5	0.5	0.5	0.5	in this analysis. A 50%-50% split is assumed here.
Compression factor using ZIP	0.15	0.15	0.15	0.15	0.15	Files are compressed using a data compression utility. .15 is an estimate of the average compression factor using any of several data compression utilities used by the Postal Service and industry.
Number of Bytes Per Business Day	1.15721E+15	3.52499E+15	8.56842E+15	1.68384E+16	2.29749E+16	Calculated (pieces/pages per day * bytes per postscript page * mail merge factor * compression factor)*(documents per day * bytes per postscript page * (1-mail merge factor))*(documents per day * bytes per mailing list)
Percentage usage during daily peak period	0.75	0.75	0.75	0.75	0.75	A Peak Period of Usage is required to plan for maximum capacity. % of users expected during such a period is unknown, 75% usage is therefore assumed.
Number of bytes during daily peak period	8.67905E+14	2.64374E+15	6.42632E+15	1.26288E+16	1.72312E+16	Calculated (Total bytes per day * peak usage percentage)

Attachment 1: Computer and Telecommunications Capacity Analysis (Continued)

CATEGORY / COMPONENT Description	YR 1999 Estimate	YR 2000 Estimate	YR 2001 Estimate	YR 2002 Estimate	YR 2003 Estimate	SOURCE
Peak Usage Period Hours	4	4	4	4	4	1PM-5PM EST assumed
Peak Usage Period Seconds	14400	14400	14400	14400	14400	Calculated (hours / 3600)
Peak Usage Throughput Per Second to each Print Site	6027115280	10799610223	17850876702	35079899904	47864327483	Calculated (bytes during peak period / total seconds in period/ no. of printers)
PROCESSING CENTER - DATA STORAGE Financial Transactions						
Total Transactions Per Day	230.04	401.50	625.96	877.50	1025.00	One Payment Per Session
Total Transactions Per Week	1,150	2,008	3,130	4,388	5,125	Calculated (Financial trans. per day * 5) weekend amount minimal
Total Transactions Per Year	59,810	104,390	162,750	228,150	266,500	Calculated (Financial trans. per week * 52)
Bytes Per Transaction	221	221	221	221	221	Calculated. See Attachment 3: Sources for Details
Transaction On-line Storage Duration Requirement (days)	1	1	1	1	1	Online retrieval of payment transaction data would be required for settlement purposes only. Financial transactions are settled daily.
Transaction Backup Duration Requirement (days)	180	180	180	180	180	Per Postal Service Finance and agreement with financial institutions
Transaction Archive Duration Requirement (days)	1460	1460	1460	1460	1460	Duration required by Visa and MasterCard
Compression factor using ZIP	0.15	0.15	0.15	0.15	0.15	Files are compressed using a data compression utility. .15 is an estimate of the average compression factor using any of several data compression utilities used by the Postal Service and Industry.
Transaction On-line Data Requirement (bytes)	7625.78	13309.73	20750.63	29089.13	33978.75	Calculated (bytes per transaction * trans per day * req no. of days * comp. factor)
Transaction Backup Data Requirement (bytes)	1372639.50	2395750.50	3735112.50	5236042.50	6116175.00	Calculated (bytes per transaction * trans per day * req no. of days * comp. factor)
Transaction Archive Data Requirement (bytes)	11133631.50	19432198.50	30295912.50	42470122.50	49608975.00	Calculated (bytes per transaction * trans per day * req no. of days * comp. factor)
PROCESSING CENTER - DATA STORAGE PDF Files						
Total Documents Per Day	230.04	401.50	625.96	877.50	1025.00	Calculated (transaction per year * average pieces per transaction)
Total Documents Per Week	1,150	2,008	3,130	4,388	5,125	Calculated (Trans. per day * 5) weekend amount minimal
Total Documents Per Year	59,810	104,390	162,750	228,150	266,500	Calculated (Trans. per week * 52)
Average Bytes Per Page in PDF format	5,020	5,020	5,020	5,020	5,020	Actual size is unknown at this time; Estimate based on observation of files sizes created during the Mailing Online software testing
PDF File On-line Storage Duration Requirement (days)	30	30	30	30	30	Mailing Online software design leaves document in Win95 Directory
PDF File Backup Duration Requirement (days)	90	90	90	90	90	No backup duration has been agreed upon. 90 days is assumed here.
PDF File Archive Duration Requirement (days)	120	120	120	120	120	No archive duration has been agreed upon. 120 days is assumed here.
Compression factor using ZIP	0.15	0.15	0.15	0.15	0.15	Assumes all backup and archives files will be compressed (.15 compression factor assumed)
PDF File On-line Data Requirement (bytes)	5196568.85	9069885.00	14140471.15	19822725.00	23154750.00	Calculated (bytes per mailing * mailings per day * req. no. of days * mail merge % * comp factor)

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Attachment 1: Computer and Telecommunications Capacity Analysis (Continued)

CATEGORY / COMPONENT Description	YR 1999 Estimate	YR 2000 Estimate	YR 2001 Estimate	YR 2002 Estimate	YR 2003 Estimate	SOURCE
PDF File Backup Data Requirement (bytes)	15589706.54	27209655.00	42421413.46	59468175.00	69464250.00	Calculated (bytes per mailing * mailings per day * req. no. of days * mail merge % * comp factor)
PDF File Archive Data Requirement (bytes)	20766275.38	36279540.00	56561884.82	79290900.00	92619000.00	Calculated (bytes per mailing * mailings per day * req. no. of days * mail merge % * comp factor)
PROCESSING CENTER - DATA STORAGE						
Postscript Files For Non-Mail Merge Jobs						
Average Bytes Per Page in Postscript format	30720	30720	30720	30720	30720	Actual size is unknown at this time; Estimate based on observation of file sizes generated by the Mailing Online software testing activity
Average Bytes In Full Mailing in Postscript format	126,551,145	126,544,535	126,549,884	126,549,838	126,549,878	Calculated (bytes per transaction * average pieces per transaction)
Percentage non-mail merge	0.5	0.5	0.5	0.5	0.5	Both mail-merge and no mail-merge are available with Mailing Online. There is no data to indicate what percentage of customer orders require mail merge. 50% is assumed here.
Postscript On-line Storage Duration Requirement (days)	30	30	30	30	30	Mailing Online software design leaves document in Win95 Directory
Postscript File Backup Duration Requirement (days)	90	90	90	90	90	No backup duration has been agreed upon. 90 days is assumed here.
Postscript File Archive Duration Requirement (days)	120	120	120	120	120	No archive duration has been agreed upon. 120 days is assumed here.
Compression factor using ZIP	0.15	0.15	0.15	0.15	0.15	Assumes all backup and archives files will be compressed (.15 compression factor assumed)
Postscript File On-line Data Requirement (bytes)	65501169231	1.14317E+11	1.78235E+11	2.49857E+11	2.91856E+11	Calculated (bytes per mailing * mailings per day * req. no. of days * mail merge % * comp factor)
Postscript Backup Data Requirement (bytes)	1.96504E+11	3.42952E+11	5.34704E+11	7.49571E+11	8.75567E+11	Calculated (bytes per mailing * mailings per day * req. no. of days * mail merge % * comp factor)
Postscript Archive Data Requirement (bytes)	2.62005E+11	4.57269E+11	7.12938E+11	9.99427E+11	1.16742E+12	Calculated (bytes per mailing * mailings per day * req. no. of days * mail merge % * comp factor)
PROCESSING CENTER - DATA STORAGE						
Mail Lists						
Total Transactions Per Day	230.04	401.50	625.96	877.50	1025.00	One Mailing List Per Session
Total Transactions Per Week	1,150	2,008	3,130	4,388	5,125	Calculated (Mailing lists per day * 5) weekend amount minimal
Total Transactions Per Year	59,810	104,390	162,750	228,150	266,500	Calculated (Mailing lists per week * 52)
Number of Addresses Per Mailing List	4,120	4,119	4,119	4,119	4,119	Calculated = avg. number of pieces per Mailing On-line mailing
Number of bytes per address	200	200	200	200	200	Although address fields are defined, number of characters, other characteristics of address affect the size, 200 bytes is assumed here.
Number of bytes Per mailing list	823,901	823,858	823,892	823,892	823,892	Calculated = avg. number of bytes per address X avg. no. of addresses
Transaction On-line Storage Duration Requirement (days)	30	30	30	30	30	No online storage requirement has yet been identified. It is assumed here for purposes of determining maximum possible storage requirement.
Transaction Backup Duration Requirement (days)	90	90	90	90	90	No backup storage requirement has yet been identified. It is assumed here for purposes of determining maximum possible storage requirement.

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Attachment 1: Computer and Telecommunications Capacity Analysis (Continued)

CATEGORY / COMPONENT Description	YR 1999 Estimate	YR 2000 Estimate	YR 2001 Estimate	YR 2002 Estimate	YR 2003 Estimate	SOURCE
Transaction Archive Duration Requirement (days)	120	120	120	120	120	No archive storage requirement has yet been identified. It is assumed here for purposes of determining maximum possible storage requirement.
Compression factor using ZIP	0.15	0.15	0.15	0.15	0.15	Assumes all backup and archives files will be compressed (.15 compression factor assumed)
Transaction On-line Data Requirement (bytes)	852879807.7	1488504808	2320762500	3253344231	3800203846	Calculated (bytes per transaction * trans per day * req no. of days * comp. factor)
Transaction Backup Data Requirement (bytes)	2558639423	4465514423	6962287500	9760032892	11400611538	Calculated (bytes per transaction * trans per day * req no. of days * comp. factor)
Transaction Archive Data Requirement (bytes)	3411519231	5954019231	9283050000	13013376923	15200815385	Calculated (bytes per transaction * trans per day * req no. of days * comp. factor)
PROCESSING CENTER - APPLICATION SERVER						
Backup Financial Transactions (Night Only)						
Total Transactions Per Day	230.04	401.50	625.96	877.50	1025.00	One Payment Per Session
Bytes Per Transaction	221	221	221	221	221	SEE ATTACHMENT E
Backup Time (Minutes)	30	30	30	30	30	Four hour estimated nightly maintenance period / 8
Bytes Per Second	28.24	49.30	76.85	107.74	125.85	Number of trans. per day * no. of bytes * total secs
PROCESSING CENTER - APPLICATION SERVER						
Backup PDF Files (Night Only)						
Total Transactions Per Day	230.04	401.50	625.96	877.50	1025.00	Calculated (transaction per year * average pieces per transaction)
Average Bytes Per Page in PDF format	5,020	5,020	5,020	5,020	5,020	The size in bytes of an electronic "page" can vary widely, depending of volume of text and presence of graphics. A Microsoft Word file with several paragraphs plain text can require up to 10K bytes. 5K is assumed here.
Backup Time (Minutes)	60	60	60	60	60	Four hour estimated nightly maintenance period / 4
Bytes Per Second	320.78	559.87	872.87	1223.63	1429.31	Number of trans. per day * no. of bytes * total secs
PROCESSING CENTER - APPLICATION SERVER						
Backup Postscript Files For Non-Mail Merge Jobs (Night Only)						
Total Transactions Per Day	230.04	401.50	625.96	877.50	1025.00	
Average Bytes Per Page in Postscript format	30720	30720	30720	30720	30720	Actual size is unknown; Estimate based on observation of file sizes generated by the Mailing Online software testing activity.
Number of pages per Document	3	3	3	3	3	Three Assumed For Basic Service: 21% 5+pages, 79% 1-4 pages - Feasibility Study, page 29
Backup Time (Minutes)	60	60	60	60	60	Four hour estimate nightly maintenance period / 4
Bytes Per Second	5888.98	10278.40	16024.62	22464.00	26240.00	Number of trans. per day * no. of bytes * total secs
PROCESSING CENTER - APPLICATION SERVER						
Backup Mail Lists						
Total Transactions Per Day	230.04	401.50	625.96	877.50	1025.00	
Number of bytes Per mailing list	823,901	823,858	823,892	823,892	823,892	Calculated = avg. number of bytes per address X avg. no. of addresses
Backup Time (Minutes)	120	120	120	120	120	Two hours estimate nightly maintenance period / 2

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Attachment 1: Computer and Telecommunications Capacity Analysis (Continued)

CATEGORY / COMPONENT Description	YR 1999 Estimate	YR 2000 Estimate	YR 2001 Estimate	YR 2002 Estimate	YR 2003 Estimate	SOURCE
Bytes Per Second	26323.45	45941.51	71628.47	100411.86	117290.24	Number of trans. per day * no. of bytes * total secs
TECHNICAL HELP DESK RESOURCE YEARS Help Desk Volumes/Durations						
Total First Time Call Hours	2,991	3,344	4,377	4,905	2,876	No. of new customers (increase over previous year X 1.5 to account for customer turn over) X .5 hour estimate for initial call X 1 initial call per year - average call times estimated from experience during operational test
Total On-going calls hours	1,794	3,132	4,883	6,845	7,995	Total no. of customers X .1 hour estimate for on-going calls X 3 calls average per year - average call times estimated from experience during operational test
Total call hours	4,785	6,475	9,260	11,750	10,871	Total initial call hours X total on-going call hours
Total Help Desk Resource Years	2.66	3.60	5.14	6.53	6.04	Total hours / 1800 average workhours per resource year
Percentage of customer calls requiring technical help	0.50	0.50	0.50	0.50	0.50	Experience during the pilot indicates that this percentage is low, but 50% assumed for capacity planning.
Technical Help Desk Call Hours	2392	3238	4630	5875	5436	Total On-Going Call hours X % of calls req. technical help
Technical Help Desk Resource Years	1.33	1.80	2.57	3.26	3.02	Total Help Desk hours X % of calls req. technical help

Attachment 2: Detailed Cost Estimates

CATEGORY	FIXED COSTS					ANNUAL COSTS												
	Component	Unit	Unit Cost	No. of Units	Amount	Component	Unit	Unit Cost	No. of Units	Amount								
Technical Help Desk (Refer Attachment 1, Page 13, for Capacity Analysis)						Technical Help Desk Manager	Resource Yr	100,000	1	100,000	1	100,000	1	100,000	1	100,000	1	100,000
						Technical Help Desk Staff	Resource Yr	60,000	3	180,000	3	180,000	5	300,000	5	300,000	5	300,000
	Workstations	Digital PC5100 w/Lexmark Printer and 3 Yr Wnty	2000	3	6,000	Workstations	Digital PC5100 w/Lexmark Printer and 3 Yr Wnty	2000	0	0	0	2	4,000	0	0	0	0	0
	Color Printer	HP Color Laser 5	4050	1	4,050	Color Printer	HP Color Laser 5	4050	0	0	0	1	4,050	0	0	0	0	0
	Print Driver Software	Adobe Postscript Level 2 SIMM	498	1	498	Print Driver Software	Adobe Postscript Level 2 SIMM	498	0	0	0	1	498	0	0	0	0	0
	Printer Warranty	Three Year Warranty	3645	1	3,645	Color Printer Three Year Warranty		3645	0	0	0	1	3,645	0	0	0	0	0
	Training for New Hires/ Replacements	1 week course in MOL	1000	3	3,000	Training for New Hires/ Replacements	1 week course in MOL	1000	2	2,000	2	2,000	2	2,000	3	3,000	3	3,000
	Word Processing/ Desk Top Publishing Software for Help Desk staff	Ventura Publishing 7.0	682	3	2,046	Word Processing/ Desk Top Publishing Software for Help Desk staff	Ventura Publishing 7.0	682	0	0	0	0	2	1,364	0	0	0	0
		Quark Express	732	3	2,196		Quark Express	732	0	0	0	0	2	1,464	0	0	0	0
		Word Perfect Suite 8.0	346	3	1,038		Word Perfect Suite 8.0	346	0	0	0	0	2	692	0	0	0	0

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Attachment 2: Detailed Cost Estimates (Continued)

CATEGORY	FIXED COSTS					ANNUAL COSTS												
	Component	Unit	Unit Cost	No. of Units	Amount	YR 1999		YR 2000		YR 2001		YR 2002		YR 2003				
						Component	Unit	Unit Cost	No. of Units	Amount								
		Adobe Acrobat 3.0	212	3	636		Adobe Acrobat 3.0	212	0	0	2	0	2	424	0	0		
		Access 97	361	3	1,083		Access 97	361	0	0	0	0	2	722	0	0		
		Plus! Version 1.0	58	3	174		Plus! Version 1.0	58	0	0	0	0	2	116	0	0		
		Microsoft Office	400	3	1,200		Microsoft Office	400	0	0	0	0	2	800	0	0		
TOTAL TECHNICAL HELP DESK					25,566	282,000 282,000 419,775 403,000 403,000												
Management/ Administration	Workstation	Digital PC5100 w/Lexmark Printer and 3 Yr Wnty	2000	1	2,000	Program Manager (Primary and Secondary Processing)	Resource Yr	120,000	1	120,000	1	120,000	1	120,000	1	120,000		
Total Management Administration					2,000	120,000 120,000 120,000 120,000 120,000												
Processing Center						System Manager (Primary and Secondary Processing)	Resource Yr	120,000	1	120,000	1	120,000	1	120,000	1	120,000		
(Refer Attachment 1, Pages 9-13, for Capacity Analysis)						Data Base Administrator (Primary and Secondary Processing)	Resource Yr	100,000	1.5	150,000	1.5	150,000	1.5	150,000	1.5	150,000		
	Data Storage (On-Line)	CD ROM 7 Bay Tower w/4 Toshiba 12X Drives	1951	6	11,706	Systems Administration (Primary and Secondary Processing)	Resource Yr	100,000	1.5	150,000	1.5	150,000	1.5	150,000	1.5	150,000		

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Attachment 2: Detailed Cost Estimates (Continued)

CATEGORY	FIXED COSTS			ANNUAL COSTS			YR 1999		YR 2000		YR 2001		YR 2002		YR 2003	
	Component	Unit	Unit Cost	No. of Units	Amount	Component	Unit	Unit Cost	No. of Units	Amount						
	Data Storage (Backup)	FTK 9710	50000	2	100,000	Application Software Support (Primary and Secondary Processing)	Resource Yr.	100000	2	200,000	2	200,000	2	200,000	2	200,000
	Data Storage (Archive)	FTK 9710	50000	2	100,000	Application Servers (Prod. Backup)	Unix Sun Ultra/ Additional Processors and Clusters	50000	0	0	0	100,000	2	100,000	2	100,000
	Application Servers (Primary and Secondary Processing)	Unix Sun Ultra Enterprise 3000	110,000	2	220,000											
		DASD Array 80GB	44,500	4	178,000											
		Enhance Service 7X24, four hour response from vendor	3,000	2	6,000											
	FTP Servers (Primary and Secondary Processing)	Digital Priors ZX6200 One Processor (Windows NT)	7,125	2	14,250											
		Enhance Service 7X24, four hour response from vendor	2,850	2	5,700											
	Application Servers (Testing and Staging)	Unix	20,000	1	20,000											

Attachment 2: Detailed Cost Estimates (Continued)

CATEGORY	FIXED COSTS			ANNUAL COSTS			YR 1999		YR 2000		YR 2001		YR 2002		YR 2003	
	Component	Unit	Unit Cost	Unit	No. of Units	Amount	Component	Unit	Unit Cost	No. of Units	Amount	Component	Unit	Unit Cost	No. of Units	Amount
		Enhance Service 7X24, four hour response from vendor	3,000	1	3,000											
	NetPost Cmd Ctr Servers (Testing and Staging)	Unik	20,000	1	20,000											
		Enhance Service 7X24, four hour response from vendor	3,000	1	3,000											
	FTP Servers (Testing and Staging)	Digital Priors ZX6200 One Processor (Windows NT)	7,125	1	7,125											
		Enhance Service 7X24, four hour response from vendor	2,850	1	2,850											
	Payment Servers (Testing and Staging)	Digital Priors ZX6200 One Processor (Windows NT)	7,125	1	7,125											

Attachment 2: Detailed Cost Estimates (Continued)

CATEGORY	FIXED COSTS			ANNUAL COSTS										
	Component	Unit	Unit Cost	YR 1999	YR 2000	YR 2001	YR 2002	YR 2003	YR 1999	YR 2000	YR 2001	YR 2002	YR 2003	
			Amount	No. of Units	Amount	No. of Units	Amount	No. of Units	Amount	No. of Units	Amount	No. of Units	Amount	No. of Units
	Enhance Service 7X24, four hour response from vendor		2,850	1	2,850									
	Payment Processing Software (Secondary and Testing/Staging Servers)	Tellan PC Authorized Hub (Two Pack)	469	1	469									
	Address List Management Software: Primary, Secondary, Testing/Staging	PostalSoft	65,528	3	196,584									
	Encryption Software: Primary, Secondary, Testing/Staging	PGP Server License	2,400	3	7,200									
	Word Processing/Desk Top Publishing Software	Ventura Publishing 7.0	682	1	682									
		Quark Express Word Perfect Suite 8.0	732	1	732									
		Adobe Acrobat 3.0	346	1	346									
			212	1	212									

Attachment 2: Detailed Cost Estimates (Continued)

CATEGORY	FIXED COSTS					ANNUAL COSTS															
	Component	Unit	Unit Cost	No. of Units	Amount	YR 1999		YR 2000		YR 2001		YR 2002		YR 2003							
						Component	Unit	Unit Cost	No. of Units	Amount	No. of Units	Amount	No. of Units	Amount	No. of Units	Amount					
		Access 97	361	1	361																
		Plus! Version 1.0	58	1	58																
		Visual Studio 97	1,571	1	1,571																
TOTAL PROCESSING CENTER					909,821												634,730	634,730	734,730	734,730	734,730
Telecommunication	Setup Network Line to Initial Print Sites	Dedicated Network Line (T1)	3500	10	35,000	Setup Network Line to Add'l Printers	Dedicated Network Line (T1)	3500	0	0	7	24,500	8	28,000	0	0	0	0			
(Refer Attachment 1, Pages 8-9, for Capacity Analysis)	Set Up Internet Connection	Dedicated Network Line (T1)	3500	1	3,500	Annual Charge Network Line from USPS to all Print Sites	T1 Annual Charge (Monthly X 12)	42000	10	420,000	17	714,000	25	1,050,000	25	1,050,000	25	1,050,000			
	Setup Network Line to Credit Card Payment Clearinghouse	Dedicated Network Line (T1)	3500	1	3,500	Annual Charge Network Line from USPS to Credit Card Payment Clearinghouse	T1 Annual Charge (Monthly X 12)	42000	1	42,000	1	42,000	1	42,000	1	42,000	1	42,000			
						Help Desk 1-800 line	Charge per hour use	3.3	2392	7,894	3238	10,685	4630	15,279	5875	19,388	5436	17,939			
TOTAL TELE-COMMUNICATIONS					42,000												469,894	791,185	1,135,279	1,111,388	1,109,939
Printer Sites	Initial Print Sites - FTP Servers	Digital Priors ZX6200 Single One Processor (Windows NT)	10,000	10	100,000	Add'l Sites - FTP Servers	Digital Priors ZX6200 Single One Processor (Windows NT)	10,000	0	0	7	70,000	8	80,000	0	0	0	0			
(Refer Attachment 1, Pages 9, for Capacity Analysis)	Initial Print Sites - Router	1 Router	1500	10	15,000	Add'l Sites - Routers	Estimate	1500	0	0	7	10,500	8	12,000	0	0	0	0			

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Attachment 2: Detailed Cost Estimates (Continued)

CATEGORY	FIXED COSTS					ANNUAL COSTS													
	Component	Unit	Unit Cost	No. of Units	Amount	YR 1999			YR 2000		YR 2001		YR 2002		YR 2003				
						Component	Unit	Unit Cost	No. of Units	Amount	No. of Units	Amount	No. of Units	Amount	No. of Units	Amount			
	Install Equipment at Initial Print Sites - Labor	Resource Hrs (6) @ \$65.00 per hour	40	10	26,000	Install Equipment at add'l Print Sites - Labor	Resource Hrs @ \$65.00 per hour	40	0	0	7	18,200	8	20,800	0	0	0	0	
	Install Equipment at Initial Print Sites - Travel	Cost Per Trip: Airfare, Hotel, Local Transport, Per Diem	2500	10	25,000	Install Equipment at add'l Print Sites - Travel	Cost Per Trip: Airfare, Hotel, Local Transport, Per Diem	2500	0	0	7	17,500	8	20,000	0	0	0	0	
						USPS Equipment Maintenance at all Print Sites	100 Resource hrs/yr @ \$65.00 per hour	80	10	52,000	17	88,400	25	130,000	25	130,000	25	130,000	
Total Print Sites					166,000				52,000	204,600	262,800	130,000	130,000						
GRAND TOTALS					1,145,387				1,558,624	2,032,515	2,672,584	2,499,118	2,497,669						

NOTES

All labor estimates are in resource years, not number of personnel. Personnel are not assumed to be working full-time on Mailing Online. Actual number of personnel assigned to Mailing Online over time will vary according to work load.

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Attachment 3: Sources

Primary sources for *Attachment 1: Computer and Telecommunications Capacity Analysis*

- Library Reference USPS-LR-2/MC98-1:
 - ◊ Types of correspondence customers will send using the Mailing Online service (*Section C, Table 5*)
 - ◊ Estimated mail volumes for the years 1999 through 2003 (*Section E, Table 12*)
 - ◊ Estimated number of Mailing Online customers (*Section E, Table 19A*)
- Exhibit USPS-2A, Table 9, Item 20 (page 15):
 - ◊ Number of Printers
- Current USPS Finance policy and terms of agreements between the Postal Service and financial institutions:
 - Financial Transaction Data Backup
 - Financial Transaction Data Archival
- Financial Transaction Length: Calculated as follows:

Field	Size
PC Auth Batch & Sequence Number	8
Company id for this transaction	9
Employee id for this transaction	2
Merchant ID e.g. NetPost, DTPO	4
Source ID used in 1412	4
Session ID for the transaction	7
Identifier for an item in the shipping basket	16
Billing address for this transaction	50
Billing address for this transaction	5
Date of this transaction	8
Transaction Type	2
Which credit card was used	2
Credit card number - encrypted	16
Expiration Date on the credit card	4
Amount of this transaction	2
Payment authorization code	8
Payment Authorization Response	2
Text authorization response message	25
AVS status code	2
Textual AVS Response message	25
Initials of the operator entering this transaction	3
IP address of the session creating this transaction	15
TOTAL	221

Attachment 3: Sources (Continued)

Primary sources for *Attachment 2: Detailed Cost Estimates*

- Hardware:
 - ◊ Computers (except UNIX), Printers, Data Storage Devices, and Warranties: USPS ADEPT contract price schedule (Digital Equipment Corp. is vendor)
 - ◊ UNIX Computers: Storage Technology (STK) (vendor) Prices
- Software:
 - ◊ Word Processing/ Desk Top Publishing Software/Address List Mgmt software: Pacific Computer Supply, Redwood City, California (vendor) Purchase Price
 - ◊ Payment Processing Software: Tellan Software, San Jose, California (vendor) Purchase Price
 - ◊ Encryption Software: Network Associates (vendor) Purchase Price
- Telecommunications:
 - ◊ Data Links: USPS Managed Network Services (MNS) contract (MCI is the Vendor)
 - ◊ Voice Links: Sprint (vendor) prices charged to the Postal Service for voice service