The Radicati Group, Inc.

Messaging Total Cost of Ownership
– in Enterprise and Service Provider Environments
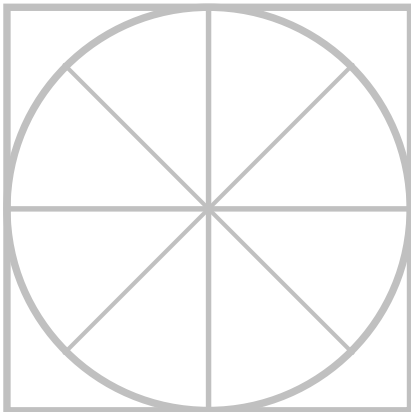
A White Paper
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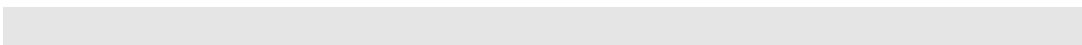
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This White Paper represents a brief summary of a full study entitled "Messaging Total Cost of Ownership in Enterprise and Service Provider Environments", published by The Radicati Group, Inc., in December 2001. The full study is available for sale only from The Radicati Group, Inc. and contains the following additional information:

- Full TCO formulas
- Detailed information on deployed environments and IT staffing infrastructure
- Detailed costs for Configuration, Training, Administration, Downtime, and Software Acquisition
- Detailed information on Application Deployment and other environment information

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Messaging Total Cost of Ownership

An Assessment of Operational Costs of Messaging within both Enterprise and Service Provider Environments

1.0 Scope

This survey of Global 1000 enterprises and Service Providers on a worldwide basis was conducted by The Radicati Group, Inc. during late 2001 and provides an analysis and comparison of the messaging total cost of ownership in those environments.

- In the Global 1000 enterprise sector, 10 organizations were surveyed, deploying messaging systems from IBM/Lotus (Notes 5.5) and Microsoft (Exchange 2000).

- In the Service Provider sector, 17 organizations were surveyed, deploying messaging systems from Critical Path, iPlanet, Mirapoint, and Microsoft.

In addition, to detailed cost of ownership information and comparisons for each of the messaging systems listed above, the study also provides extensive information regarding the overall messaging system infrastructure and applications environments deployed.

Sponsorship of the Study

The enterprise section of the study was sponsored (in equal amounts) by Lotus, and Microsoft.

The service provider section of the study was sponsored (in equal amounts) by Critical Path, iPlanet, Microsoft, and Mirapoint.

We originally intended to include Openwave in this TCO study, however, the company declined to sponsor, or provide any reference customers. We contacted a number of providers which we believe to be

Openwave customers, but were unable to identify any who would be willing to speak about the company's products.

2.0 Methodology

The data and analysis in this report is based on primary research conducted by analysts of The Radicati Group, Inc. in the form of a specially designed questionnaire administered by phone, email or in person. Respondents interviewed were largely senior managers, high level administrators, telecommunications managers, and IT managers knowledgeable about messaging within enterprise and service provider organizations. A description of the survey population is provided in the Survey Profile sections of this report, copies of the questionnaires used for enterprises and service providers are included in Appendix A and B, respectively of this study.

General Assumptions

All financial information shown in this study is in US$, unless explicitly noted.

The TCO model used in this study makes the following assumptions regarding salaries:

o   The salary of a Messaging Administrator is assumed to be $120,000.00 per year fully loaded (i.e. includes overhead, benefits, taxes etc.), which is about $58.00/hr.

o   The salary of a Help Desk Staff employee is assumed to be $70,000 per year fully loaded (i.e. includes overhead, benefits, taxes etc.), which is about $34.00/hr.

o   The salary of a typical User is assumed to be US$60,000.00 per year fully loaded (i.e. includes overhead, benefits, taxes etc.), which is about $29.00/hr.

3.0 Enterprise Messaging TCO

3.1 Enterprise Survey Sample

- The survey sample consists of a total of 10 Global 1000 companies and organizations which were provided as customer references by the two messaging vendors reviewed: Lotus, and Microsoft. The sample profile includes:

  - Global 1000 corporations (92%)
  - Government organizations (8%)

- The total interview sample presented in this study, therefore, consists of the following:

  - five (5) Lotus Notes 5.5 customers,
  - five (5) Microsoft Exchange 2000 customers,

- The enterprise organizations surveyed (see Figure 1) represent a wide range of vertical industries including:

  - banking and financial services (20%)
  - education (10%)
  - food services (10%)
  - government (10%)
  - health care (10%)
  - insurance (10%)
  - retail (10%)
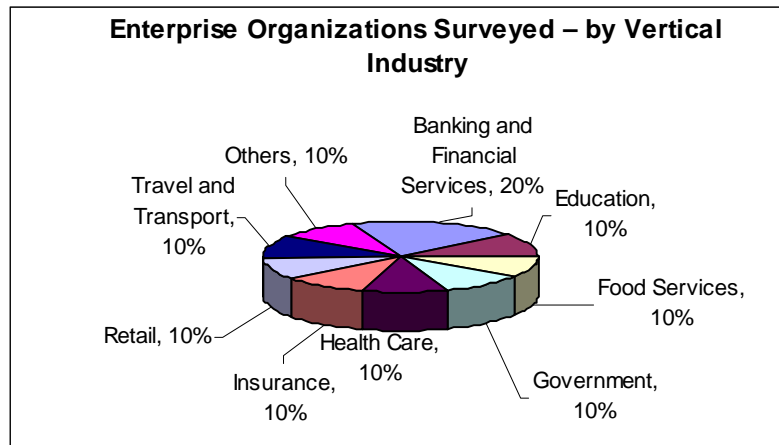 - travel and transportation (10%)
  - others (10%).

Figure 1: Enterprise Organizations Surveyed – by Vertical Industry

In terms of company size, the breakdown of the enterprise organizations surveyed is as follows:

- 38% of the companies surveyed are very large email deployments with more than 25,000 email users.
- 15% of the companies surveyed have between 15,000 and 25,000 email users.
- 46% of the companies surveyed have less than 15,000 users.

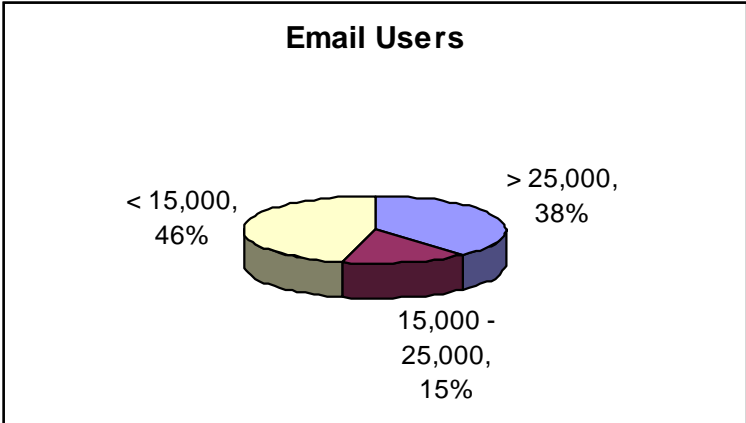**Email Users**

< 15,000, 46%

> 25,000, 38%

15,000 - 25,000, 15%

Figure 2: Enterprise Organizations Surveyed – by Company Size

Figure 3, below, shows the Enterprise companies' geographical breakout:

Enterprise Organizations Surveyed – by Region

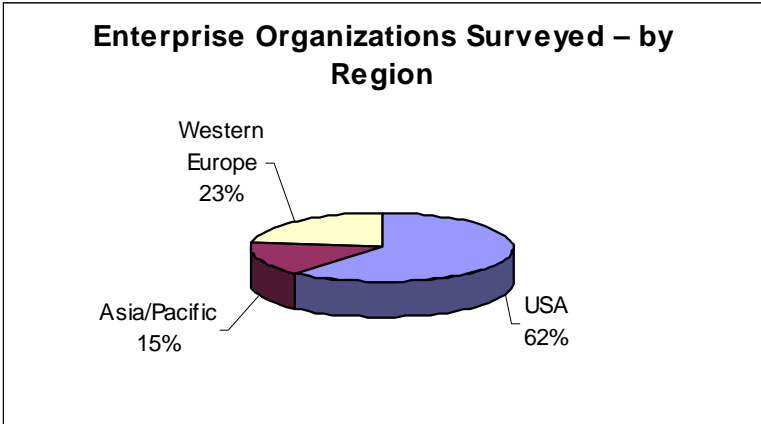Western Europe 23%

Asia/Pacific 15%

USA 62%

Figure 3: Enterprise Organizations Surveyed – by Region

3.2 Enterprise TCO Model

The study focuses on measuring the Total Cost of Ownership, intended primarily as the operational cost of running each system over a three year period. It includes: acquisition, maintenance, installation and configuration, administration, downtime and training costs for each system.

The cost of ownership model used in this study is based on an assessment of the following components of cost:

o *Acquisition Costs -* These comprise the cost of what the messaging system is running on. In measuring acquisition costs of the Enterprise Messaging System, we took into account: messaging software and hardware, messaging client software, and directory services hardware and software.

o *Maintenance Costs -* These comprise the cost of yearly support contracts for maintaining messaging and directory services products. Both server software and client software costs were taken into consideration.

o *Installation and Configuration Costs -* These include the initial installation and configuration costs for both the messaging hardware and software. In measuring installation and configuration, we took into account the following major tasks (at a minimum):

o *Administration Costs -* These include a series of tasks, on-going as well as corrective, performed by Messaging Administrators to ensure the efficient update and operation of the messaging system.

o *Downtime Costs -* These include any lost productivity caused by failure (i.e. downtime) of the messaging systems. These include both scheduled and unscheduled downtime.

o *Training Costs -* These include training costs for Messaging Administrators, and Help Desk Staff.

In order to calculate the Average Total Cost of Ownership per User per Year over a 3-year period we make the following assumptions:

1. 35 % of the total user population is configured during the 1st year of operation of the system, and a 25% population turnover is configured every following year.

2. Training costs for the 1st year are somewhat higher (as evidenced by the interview responses) than training costs in the following years.

The Average Total Cost of Ownership per User per Year is derived by averaging the costs in Year 1, Year 2, and Year 3.

4.0 Major Findings – Enterprises

Table 1, below, provides a quick summary of the enterprise messaging environment which emerged from the survey sample of Lotus Notes and Microsoft Exchange customers.

	Lotus Notes	MS Exchange
Hardware platform	Compaq Proliant 6500, 3000, 2500; Sun Solaris E4500; IBM RS6000	Compaq Proliant 6500; IBM Netfinity 7600, Dell
Average # of Users	17,040	18,140
Average # of Servers	55	53
Average # of users/server	148	342
Avg. max. # of users/server	1,140	3,410
% of remote users	16%	42%
Directory services in use	Notes	MS Active Directory
Avg. # of gateways	4	22
Full-time Admin. staff	7.2	3.9
Help-desk staff	5.8	17.3

Table 1 – Enterprise - Environment Comparison

Note 1: Lotus Notes customers are typically running a mixture of Domino Mail Server and Domino Enterprise Server. Therefore, for the purposes of this study we are assuming a 25% deployment of Domino Enterprise Server and 75% of Domino Mail Server. In terms of the client cost, we are assuming the Notes for Messaging client.

Note 2: Microsoft Exchange customers are typically running a mixture of Exchange 2000 Standard Server and Exchange 2000 Enterprise Server. Therefore, for the purposes of this study we are assuming a 25% deployment of Exchange 2000 Enterprise Server and 75% of Exchange 2000 Standard Server. On the client side, we are assuming CAL license pricing.

In terms of acquisition costs, Lotus had the lower total acquisition cost (including messaging and directory services hardware and software) with $145.93/user, followed by Microsoft with $148.40/user.

In terms of total maintenance cost/user (including hardware and software) Lotus was lower with $29.43/user followed by Microsoft with $32.72/user.

Lotus also had a lower total installation and configuration cost with $17.94/user, followed by Microsoft with $41.15/user.

In terms of administration cost/user, Microsoft had the lower administration cost with $25.54/user, followed by Lotus with $93.04/user.

For the purposes of this study, we assume that unscheduled downtime affects 25% of the total user population, whereas scheduled downtime affects only the messaging IT staff.

Lotus had the lower total downtime (including both scheduled and un-scheduled) with $20.73/user, followed by Microsoft with $69.72/user.

The fairly high amount of downtime for Microsoft was due largely to un-scheduled downtime. Lotus downtime, on the other hand, was largely for scheduled downtime.

1st year and follow-on training cost/user for the 2 systems were:

o Lotus – $1.39 in 1st year, and $0.77 in follow-on years,
o Microsoft – $0.70 in 1st year, and $0.42 in follow-on years.

According to the study, Microsoft had the lower average TCO per user over a 3-year period with $217.93/user, followed by Lotus with $220.84/user.

If we were to look only at the 1st year TCO costs, however, Lotus Notes has the lowest TCO/user, as follows:

• Lotus Notes 5.5: $279.03/user
• Microsoft Exchange 2000: $285.51/user

Table 2 summarizes the major TCO components for each of the three systems.

Avg. Cost/User	Lotus Notes	MS Exchange
Acquisition	$ 145.93	$ 148.40
Maintenance	$ 29.43	$ 32.72
Installation & Configuration	$ 17.94	$ 41.15
Administration	$ 93.04	$ 25.54
Downtime	$ 20.73	$ 69.72
1st Year Training	$ 1.39	$ 0.70
Follow-on Year Training	$ 0.77	$ 0.42
TCO – 1st year	**$ 279.03**	**$ 285.51**
TCO – 3 Year Average	**$ 220.84**	**$ 217.93**

Table 2 – Enterprise - TCO Summary

5.0 Service Providers Messaging TCO

5.1 Service Provider Survey Sample

- The survey sample consists of 17 Service Providers on a worldwide basis which were provided as customer references by the four sponsoring messaging vendors: Critical Path, iPlanet, Microsoft, and Mirapoint. The total sample profile includes:

  - Service Providers focusing on consumers (19%)
  - Service Providers focusing on corporate business use (81%)

- Despite customer lists provided directly from the vendors in question, as well as a through canvassing of our own databases, we were not able to assemble a similar sample of interviews for each product. The total interview sample presented in this study, therefore, consists of the following:

  - 5 Critical Path CP^{TM} Messaging Server customers,
  - 3 iPlanet Messaging Server (IMS) 5.0 customers,
  - 5 Microsoft Exchange 2000 customers,
  - 4 Mirapoint Internet Message Server customers.

- The organizations surveyed (see Figure 4) represent a broad range of diverse Service Providers, reflecting overlapping and evolving business models in this industry, as follows:

  - ISPs (50%)
  - ASPs (15%)
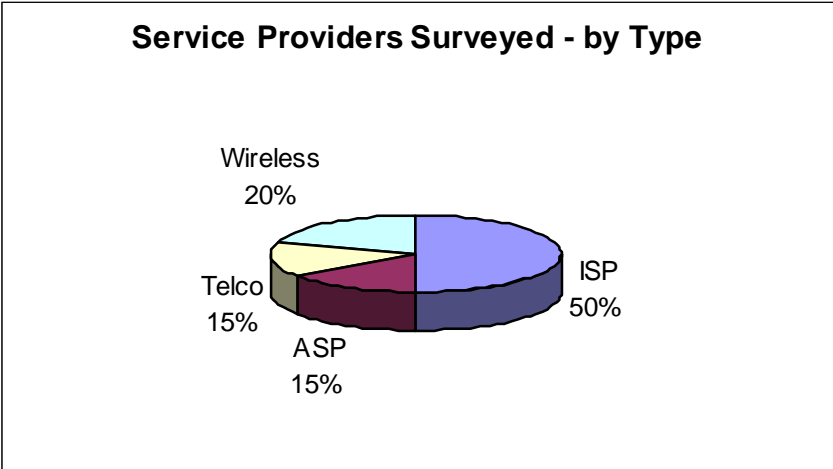 - Telcos (15%)
  - Wireless Providers (20%)

Figure 4: Service Providers Surveyed – by Type

In terms of Service Provider subscriber population, the breakdown of the survey sample is as follows:

- 25% of the Service Providers surveyed are very large email deployments with more than 5,000,000 subscribers.
- 15% of the Service Providers surveyed have between 1,000,000 and 5,000,000 subscribers.
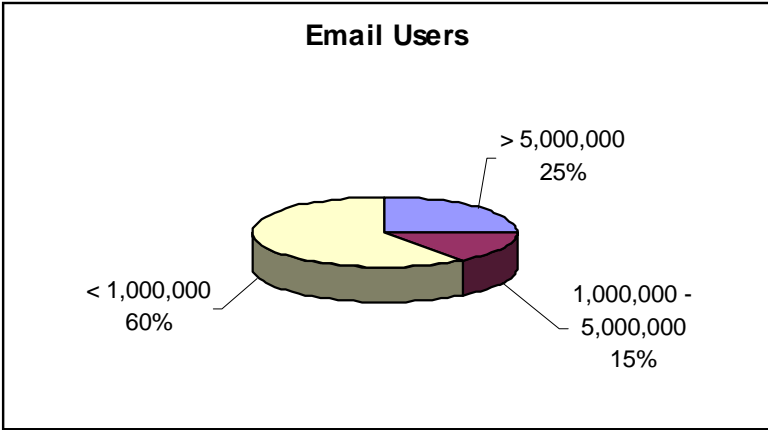- 60% of the Service Providers surveyed have less than 1,000,000 subscribers.

Figure 5: Service Providers Surveyed – by Subscriber Population

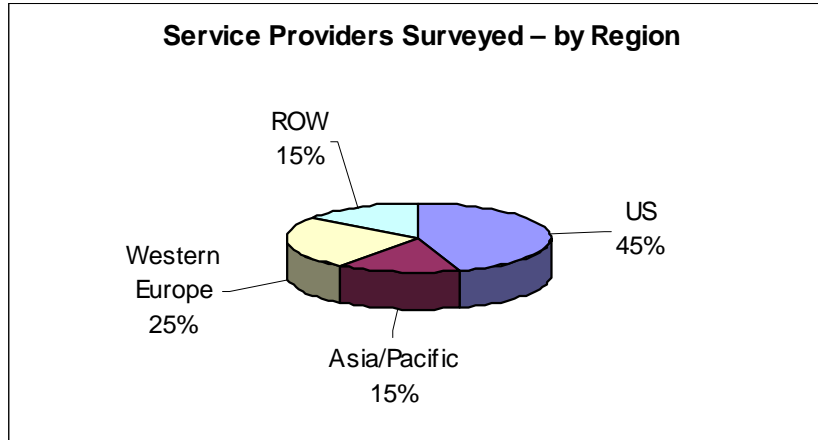Figure 6 shows the Service Provider companies by regional breakout:

Figure 6: Service Providers Surveyed – by Region

5.2 Service Provider TCO Model

The Total Cost of Ownership Model for Service Providers used in this study focuses on the operational costs of running each system over a three year period. It is based on as assessment of the following components of costs: acquisition, maintenance, physical space, system integration and customization, installation and configuration, administration, downtime and training.

o *Acquisition Costs -* These comprise the cost of what the messaging system platform including hardware and software, as well as directory services hardware and software.

o *Maintenance Costs -* These comprise the cost of support contracts on an annual basis for maintaining both messaging-related hardware and software.

o *Physical Space Costs -* This is the cost of the actual physical space each messaging system takes up in the Service Provider's data center it is installed in, measured in square meters. The study assumes a cost of US$10.00 per square meter for all the environments surveyed.

o *System Integration and Customization Costs -* These include any initial integration and customization work necessary to integrate the messaging system with the Service Provider's existing business and operational environment (such items as integration with the billing software, account provisioning, etc.).

o ***Installation and Configuration Costs*** - *These include initial installation and configuration costs of both the messaging hardware and software.*

o ***Administration Costs*** - *These include a series of tasks, on-going as well as corrective, performed by Messaging Administrators to ensure the efficient update and operation of the messaging system.*

o ***Downtime Costs*** - *These include time spent by full-time administrators dealing with system failures (i.e. unscheduled-downtime) as well as scheduled downtime. We assume that both scheduled and un-scheduled downtime affects all full-time messaging administrators. We do not attempt to measure the effect on the subscribers, though here the impact of higher downtime probably translates into higher subscriber attrition.*

o ***Training Costs*** - *These include training costs for Messaging Administrators, Help Desk Staff and Users. In measuring training, we took into account messaging administrator and help-desk staff training for the 1st year of operation, as well as follow-on years.*

In order to calculate the Average Total Cost of Ownership per Subscriber over a 3-year period, we make the following assumptions:

1. We assume that the subscriber population increases by 30% a year.

2. For simplicity sake, we also assume that all System Integration and Customization work takes place in the first year.

3. Acquisition and installation costs in Year 2 and 3 are only for the incremental increase in subscribers.

The Average Total Cost of Ownership per User per Year is derived by averaging the costs in Year 1, Year 2, and Year 3.

6.0 Major Findings – Service Providers

Table 3 provides a quick summary of the service provider messaging environment which emerged from the survey sample of Critical Path, iPlanet, Microsoft and Mirapoint customers.

	Critical Path	iPlanet	Microsoft	Mirapoint
Hardware platform	Sun E220, SunE420, SunE4500	SunE420R SunE450	Compaq HP	Intel-based
Usage Scenario	50% Basic; 25% Knowledge Worker; 25% Consumer	40% Basic; 60% Knowledge Worker	20% Basic; 80% Knowledge Worker	30% Basic; 20% Knowledge Worker; 50% Consumer
Planned Subscriber Capacity	10,600,000	390,000	55,600	700,000
Actual Subscriber Capacity	3,740,000	107,500	9,733	400,000
Avg. # of msg. servers	14.6	3.3	12.6	3.2
# of CPUs/Server	4	4	4	1
Avg. RAM capacity	138 GB	3.3 GB	2.9 GB	3.2 GB
Avg. Disk sub-system capacity	6.8 TB	2.2 TB	5.3 TB	1.8 TB
Avg. # of directory servers	2.7	2.3	4.3	2
Avg. # of routers	0.6	1.7	3,5	2.3
Avg. # of switches	1.4	2.3	7.5	1.3
Avg. # of load balancer devices	2.4	3	4	2
Avg. # of firewalls	0.6	2	3	1.5
Initial physical space allocation	34.8 sq. m	10 sq. m	40.2 sq. m	8 sq. m
Incremental space over 12-18 mos.	5.6 sq. m	14.1 sq. m	106.4 sq. m	10 sq. m
Full-time Admin. staff	2.5	1.8	3.8	2.4
Help-desk staff	0.9	2.7	5.6	8.2

Table 3 – Service Provider - Environment Comparison

The acquisition and maintenance cost/subscriber information for hardware and software used in this study is based on information gathered from the service provider surveys and cross-checked with the four vendors – Critical Path, iPlanet, Microsoft, and Mirapoint.

It should be noted, however, that the estimated acquisition costs profiled in this study are based on typical customer pricing for a basic level of service. In general, acquisition costs are determined by specific customer environments and will vary depending on several factors including types of services and storage requirements.

The pricing among the different products also differs highly due to (a) the ratio of type of users in the sample (Basic vs. Knowledge Workers vs. Consumers) and (b) the number of planned and actual subscribers in each vendor's sample.

In terms of acquisition costs, Mirapoint had the lowest acquisition cost with $0.29/subscriber, followed by Critical Path with $0.83/subscriber, iPlanet with $1.22/subscriber, and Microsoft $23.59/subscriber.

Mirapoint's low acquisition cost is due largely to the company's strategy of bundling hardware, and software (including the operating system software) into a pre-configured product package.

The high acquisition cost/subscriber for Microsoft is due largely to the ASP model of most of its service providers, which impacts different cost factors, such as the number of servers.

Mirapoint had a maintenance cost of only $0.05/subscriber, followed by Critical Path ($0.14), iPlanet ($0.28) and Microsoft ($0.83).

This study assumes a cost of US$10.00 per square meter for each of the messaging environments surveyed. The Physical Space Cost/Subscriber for each of the four systems was negligible, as follows:

- Critical Path – $0.00003 (current); $0.00005 (incremental)
- iPlanet - $0.00026 (current); $0.00036 (incremental)
- Microsoft – $0.007 (current); $0.00 (incremental)
- Mirapoint – $0.00011 (current); $0.00014 (incremental)

However, physical space is an important consideration for some service providers, despite the seemingly low magnitude of cost.

In terms of system integration and customization cost/subscriber, Critical Path was lowest with $0.009/subscriber, followed by Mirapoint ($0.08), iPlanet ($0.33) and Microsoft ($3.08).

Mirapoint had the lowest installation and configuration cost/subscriber with $0.007, followed by Critical Path ($0.01), iPlanet ($0.013) and Microsoft ($0.21).

In terms of administration cost/subscriber, Critical Path was the lowest with $0.08 – followed by Mirapoint ($0.24), iPlanet ($1.01) and Microsoft ($8.58).

Critical Path also had the lowest downtime, with a downtime cost of $0.0006/subscriber, followed by Mirapoint ($0.01), iPlanet ($0.03), and Microsoft ($0.28).

In order to calculate training costs, we look at 1st year training costs (when the system is new to both administrators and help-desk staff and most training costs are incurred) and at follow-on year costs, when the cost drops considerably to reflect only relatively small incremental training.

The 1st year Training Cost/Subscriber for each of the four systems were as follows:

- Critical Path – $0.001 in the 1st year, and $0.0004 in follow-on years
- iPlanet – $0.018 in the 1st year, and $0.0145 in follow-on years
- Microsoft – $0.46 in the 1st year, and $0.48 in follow-on years
- Mirapoint – $0.02 in the 1st year, and $0.003 in follow-on years

Mirapoint had the lowest average TCO per subscriber over a three-year period with $0.49/subscriber, followed very closely by Critical Path with $0.79/subscriber, iPlanet with $2.55/subscriber, and Microsoft with $26.92 per subscriber.

The average subscriber populations for each of the four systems analyzed were very different – Critical Path had by far the largest subscriber population with 3,740,000 active subscribers, followed at great distance by Mirapoint with 400,000 active subscribers, iPlanet with 107,500 active subscribers, and Microsoft with 9,733 active subscribers.

With an average subscriber base of 3.7M, Critical Path's results are reflective of subscriber bases nearly ten times the installed base of the next vendor, Mirapoint. This has important implications in terms of infrastructure requirements and the scalability, reliability and availability of the messaging platform.

It should be noted that iPlanet's slightly higher TCO values are a reflection of the fact that many of iPlanet's customers are currently in the process of migrating from iPlanet's NMS and SIMS platforms to the newer IMS 5.0 platform

The broad variance in TCO among the various products also reflects a difference in the mix of subscribers among consumer, basic email and knowledge workers across each of the sample service provider environments analyzed. Knowledge workers, for instance, represent a higher cost load – especially as they use the system more and with more features.

Table 4 summarizes the major TCO components for each of the four systems analyzed.

Avg. Cost/Subscriber	Critical Path	iPlanet	Microsoft	Mirapoint
Usage Scenario	50% Basic; 25% Knowledge Worker; 25% Consumer	40% Basic; 60% Knowledge Worker	20% Basic; 80% Knowledge Worker	30% Basic; 20% Knowledge Worker; 50% Consumer
Acquisition	$ 0.83	$ 1.22	$ 23.59	$ 0.29
Maintenance	$ 0.14	$ 0.28	$ 0.83	$ 0.05
Physical Space	$ 0.00003	$ 0.00036	$ 0.019	$ 0.000009
System Integration	$ 0.009	$ 0.33	$ 3.08	$ 0.08
Installation & Configuration	$ 0.01	$ 0.013	$ 0.21	$ 0.007
Administration	$ 0.08	$ 1.01	$ 8.58	$ 0.24
Downtown	$0.0006	$ 0.03	$ 0.28	$0.01
1st Year Training	$ 0.001	$ 0.018	$ 0.48	$ 0.02
Follow-on Year Training	$ 0.0004	$ 0.0145	$ 0.46	$ 0.003
TCO – 1st Year	$ 1.31	$ 3.61	$ 42.80	$ 0.72
TCO – 3 Year Average	**$ 0.79**	**$ 2.55**	**$ 26.92**	**$ 0.49**

Table 4 – Service Provider – TCO summary

7.0 Conclusions

In the enterprise space, Microsoft has the lowest TCO over a 3-year period with $217.93/user.

If we were to look only at the 1st year TCO costs, however, Lotus Notes has the lowest TCO/user, with a 1st year TCO of $279.03/user.

In the Service Provider space, results were more mixed with each of the four vendors showing lower costs in various respects.

Mirapoint has the lowest TCO over a 3-year period of $0.49/subscriber, mainly due to the company's strategic bundling of software and hardware functionality into a ready-to-use appliance solution.

Critical Path, however, is a very close second with a 3-year TCO of $0.79/subscriber.

Evaluation of a platform's TCO represents only one aspect of a Service Provider's platform selection. The other side are the opportunities the platform gives the Service Providers to provide revenue-generating services that retain customers.

Overall, we were pleasantly surprised that all 3-year average TCO/subscriber results in the Service Provider space were under $30/subscriber. This

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confirms that messaging is a worthwhile value-added application for Service Providers, and in particular that it is cost-effective enough to allow Service Providers to expand on it in terms of additional premium services, such as unified messaging and unified communications.