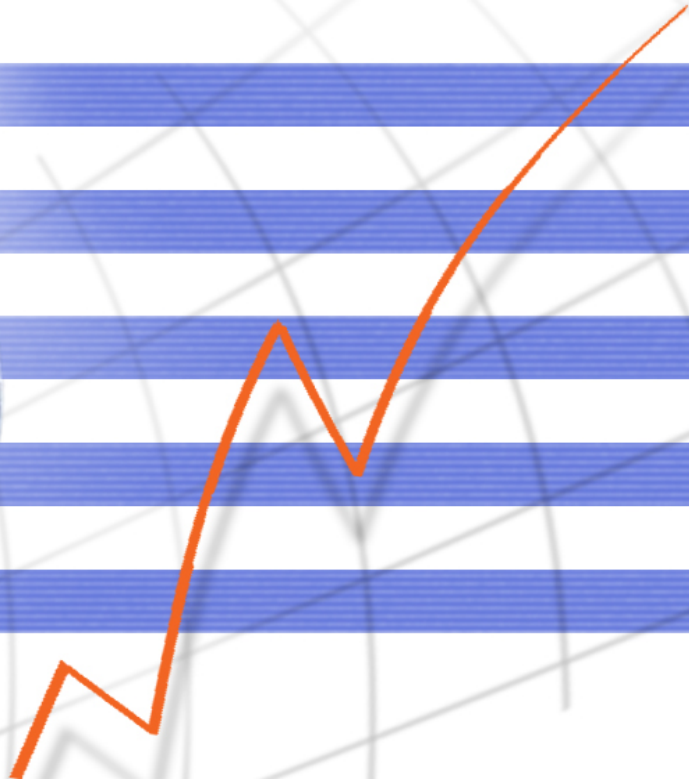




IBM Global Business Services
Application Services Conversions & Migrations



Server Makeover Analysis
Findings Report

Client: IBM Customer

Date: 9/24/2007

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1 Introduction

IBM is pleased to present you with the findings from IBM's Server Makeover Analysis. These findings are based upon the information you provided us. We have augmented your information as needed with information from our knowledge base using our Server Makeover Analysis process. A description of the Server Makeover Analysis is in the next section.

This Server Makeover Analysis Findings Report contains cost information which is intended to be an aid in your planning efforts and does not represent a commitment by IBM.

The financial calculations in this document are based strictly on historical information and estimated customer price. These financial calculations should be adjusted to reflect your actual expenditures. Once adjusted, these financials may vary significantly from the projections contained in this document.

1.1 Server Makeover Analysis

The Server Makeover Analysis used data provided by you in the data collection spreadsheet coupled with historical information to demonstrate to you what may be possible by working with IBM to plan a 'makeover of your server environment. We do this by showing you the;

1. Number of physical machines that can be replaced in your current environment (box plan)
2. Number of virtual machines that can be replaced in your current environment (image plan)
3. Estimated makeover effort
4. Projected makeover time
5. TCO Analysis
6. How to get started.

The analysis in this report illustrates what may be achieved given certain assumptions. IBM can help you validate these report results, help you get started immediately to makeover your environment or do both.



2 Scope

IBM Customer is operated by and to support the activities associated with the Parent Company. The IBM Customer assists the Parent Company by providing legal services.

The scope of this analysis was approximately 82 Sun Solaris servers in one location.

The target platform being proposed is 3 4-way and 5 8-way IBM System p servers running the AIX operating system.

This estimate covers the activities related to planning and completing a server makeover project.

2.1 High-Level Application Profile

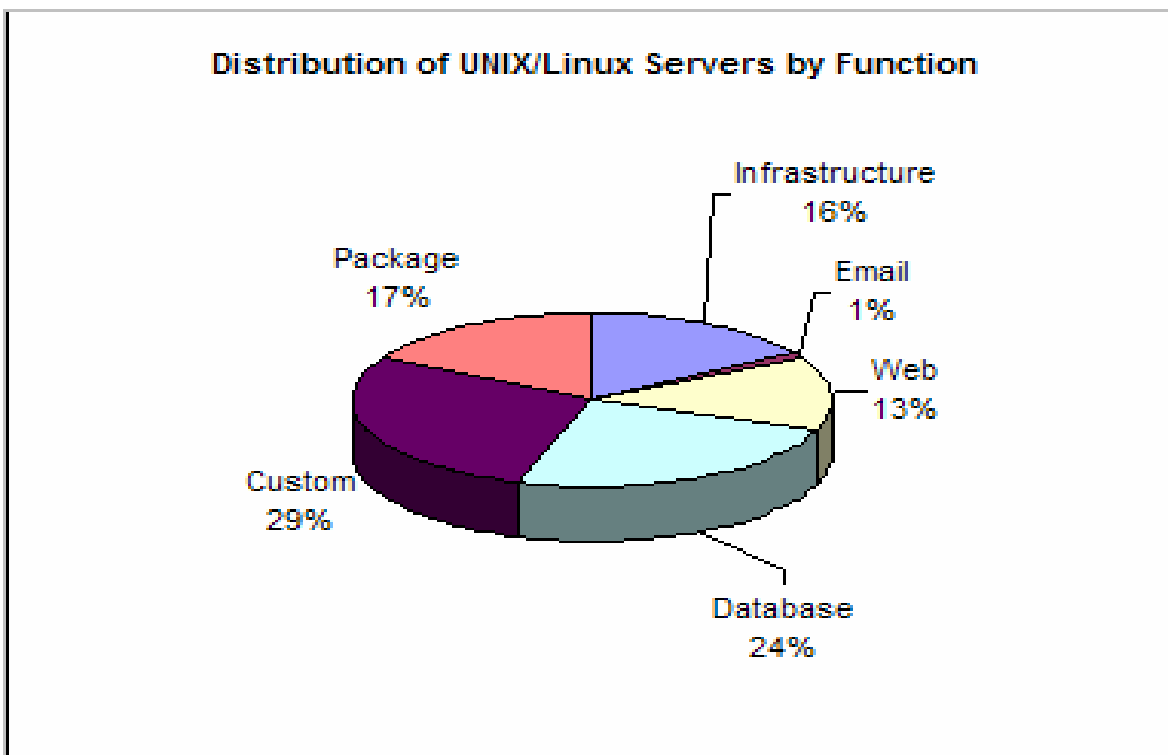
Average Lines of Code(LOC) and Testing Labor by Application Type				
Application Type	Small	Medium	Large	Enterprise
Lines of Code	< 20K	20K – 100K	100K – 300K	> 300K
Testing Labor	< 80 Hours	< 160 Hours	< 480 Hours	> 480 Hours
RISC based	65%	26%	7%	2%



2.2 Server Taxonomy

A server taxonomy is a breakdown of servers based on their primary function. The following taxonomy was generated based on information you provided. If you were unable to provide the information we used our knowledge database to generate one based on our experience working with customers with server environments similar to yours. This taxonomy is important because we use it to generate the projected server configuration and the transition effort.

- Package: The primary server function is supporting a packaged application
- Custom: The primary server function is supporting an application developed by you.
- Infrastructure: Servers used to support the environment such as DNS, file and print.
- Email: Servers running email applications.
- Web: Servers running Web related applications (HTTP page servers, Tomcat, etc.)
- Database: The primary Server function is running a DBMS instance (or instances).



3 Summary of the IBM Customer Findings

UNIX/Linux Servers – Physical Makeover Targeted Results		
Description	% of Current Server Base	Net Number of Servers
Installed Base of Servers	100%	82
Candidates for Consolidation*	75%	62
Target Consolidation of Candidates	10%	8
Servers to Remain (out of scope)*	25%	21
Total Servers to Support after Makeover	34%	28
*Note: It is very rare that 100% of the server inventory can be consolidated. There are many factors that may prevent consolidation from being cost-effective or practical, e.g. location-specific dependencies, applications / databases being retired, unsupported software and source code not available, etc. In our experience, it is normal for 15-25% of the installed base to be considered out of scope for various reasons.		
UNIX/Linux Servers – Logical Makeover Targeted Results		
Description	% of Current OS Images	Net Number of OS Images
Existing Server OS Images	100%	82
OS Image Candidates for Consolidation*	75%	62
Target Consolidation of Candidate Server OS Images	26%	21
Server OS Images to Remain (out of scope)*	25%	21
Total OS Images to Support after Makeover	50%	41
*Note: In lieu of specific server-by-server information, we assume that the current base of servers is not partitioned, i.e. they were implemented according to the prevailing norm of one application (OS Image) per server.		

Financial Summary					
Cost of Transformation		\$1,222,000			
Project duration (in months)		9			
Estimated Savings					
Year 1	Year 2	Year 3	Year 4	Year 5	Cumulative
-\$276,000	\$1,596,000	\$1,640,000	\$1,680,000	\$1,716,000	\$6,356,000

The financial calculations in this document are based strictly on historical information and estimated customer price. These financial calculations should be adjusted to reflect your actual expenditures. Once adjusted, these financials may vary significantly from the projections contained in this document.



4 Transition Estimates

The transition estimates are based on a typical IBM engagement that uses a combination of local and offshore IBM Global Resources. We factor our Global resources into our estimates to the extent we believe is practical to deliver to the most cost effective solution.

The transition estimate also assumes the following:

- Any third-party and COTS products (and licenses) used on the source platform(s) are available for installation on the target platform(s).
- IBM Customer is responsible any third-party costs related to licenses for new versions of software or operating systems that are required.
- Unknown third-party/Commercial off the Shelf (COTS) software or specialized hardware/devices that might be impacted by platform migration/porting are not addressed in these findings, nor are any industry or IBM Customer-specific testing requirements



5 IBM Assumptions

Sequence Number	Description	Source	Comments
1	Unless specifically noted in this list of assumptions, all porting is like-for-like	IBM	All servers
2	Fully shareable resources were assumed for all servers that were candidates for consolidation	IBM	All servers
3	Server consolidation was assumed to NOT be constrained, since no known limitations were identified at the time of this estimate, including network infrastructure, and other technical or non-technical limitations	IBM	All servers
4	Current version of databases may require upgrades to a newer version of the database to be installed on the target platform. Conversions to new database versions are considered out of scope	IBM	All servers
5	All servers with unknown functionality were considered to be custom applications	IBM	All servers
6	WEB applications are considered custom applications	IBM	All servers
7	Automated data collection is tool-based with limited manual data gathering. It is intended to augment but not replace the customer responsibility to supply data required for the project	IBM	All servers
8	software or database conversion (e.g. Sybase to DB2) is considered out-of-scope	IBM	All servers
9	DNS/DHCP will be ported as currently implemented, i.e. like-for-like	IBM	All servers
10	For UNIX/Linux servers, 75% of the servers were assumed to be candidates for consolidation	IBM	UNIX/Linux servers
11	For UNIX/Linux servers, the distribution of servers was assumed to be: 31% are infrastructure servers; 25% are database servers; 16% are packaged applications servers; 28% are custom code applications servers	IBM	UNIX/Linux servers
12	For UNIX/Linux servers, if the OS version was older than the current version or was not supplied, the server was assumed to require upgrading prior to migration/consolidation	IBM	UNIX/Linux servers
13	For UNIX/Linux servers, if the number of CPUs was not supplied, 4 was assumed	IBM	UNIX/Linux servers
14	For UNIX/Linux servers, if the CPU speed was not supplied, 800 (MHz) was assumed	IBM	UNIX/Linux servers
15	For UNIX/Linux servers, if the current (peak) utilization was not supplied, 30% was assumed	IBM	UNIX/Linux servers
16	For UNIX/Linux servers, 75% was assumed as the desired (peak) utilization for the target servers	IBM	UNIX/Linux servers
17	For UNIX/Linux servers, 61 servers are to be migrated and consolidated (heterogeneous)	IBM	UNIX/Linux servers
18	For UNIX/Linux servers, the generalized distribution of applications by size, based on historical models: 2% are enterprise applications (defined as more than 300,000 lines of code and more than 480 person hours to test); 7% are large applications (defined as 100,000 - 300,000 lines of code and less than 480 person hours to test); 26% are medium applications (defined as 20,000 - 100,000 lines of code and less than 160 person hours to test); 65% are small applications (defined as less than 20,000 lines of code and less than 80 person hours to test)	IBM	UNIX/Linux servers
19	For UNIX/Linux servers, the target servers were assumed to be IBM Series p servers	IBM	UNIX/Linux servers



5.1 Assumptions about the Workload Portfolio

Platform	Type	Details	Candidates	Total Apps	Small Apps	Medium Apps	Large Apps	Enterprise Apps
RISC	Custom	Port Solaris to AIX/Linux (current versions only)	17	6.16	4.00	1.60	0.43	0.12
RISC	Database	Port/Consolidate (Solaris to AIX/Linux; HP-UX to AIX/Linux - current versions only)	15	21.43	13.93	5.57	1.50	0.43
RISC	Infrastructure	Email	1	0.75	0.75	0.00	0.00	0.00
RISC	Infrastructure	File or print	2	1.50	1.50	0.00	0.00	0.00
RISC	Infrastructure	Misc infrastructure	8	8.25	8.25	0.00	0.00	0.00
RISC	Infrastructure	Web servers	8	8.25	8.25	0.00	0.00	0.00
RISC	Package	Port/Consolidate (Solaris to AIX/Linux; HP-UX to AIX/Linux - current versions only)	11	3.39	2.20	0.88	0.24	0.07



5.2 Assumptions about the Hardware Analysis

5.2.1 UNIX/Linux Server Analysis

Platform	Complexity	Type	FB Type	Servers	Percent Candidates	Candidates	Current (peak) Utilization	Desired (peak) Utilization	Available TPM	New Servers	Images on New Servers	Servers to Remain	Images to Remain	Total Servers (New and Servers to Remain)	Total Images (New and Images to Remain)
RISC	4 Port/Consolidate	Custom	APP	23	75%	17	30%	75%	746753	2	7	6	6	7	13
RISC	4 Port/Consolidate	Database	DB	20	75%	15	30%	75%	649350	1	4	5	5	6	9
RISC	1 Port/Consolidate only	Infrastructure	GW	1	75%	1	30%	75%	32468	1	1	0	0	1	1
RISC	1 Port/Consolidate only	Infrastructure	FP	2	75%	2	30%	75%	64935	1	1	1	1	2	2
RISC	1 Port/Consolidate only	Infrastructure	INF	11	75%	8	30%	75%	357143	1	2	3	3	4	5
RISC	1 Port/Consolidate only	Infrastructure	WEB	11	75%	8	30%	75%	357143	1	2	3	3	4	5
RISC	4 Port/Consolidate	Package	APP	14	75%	11	30%	75%	454545	1	4	4	4	5	8
Totals for RISC				82		62				8	21	21	21	28	41



5.2.2 Box Plan

BOX PLAN																					
Server Type	Server Counts at the End of Each Quarter																				
	Today	Q1*	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
Intel																					
Existing Servers:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Non-Candidates:	NA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Replacement Servers:	NA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Spare New:	NA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Servers:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UNIX/Linux																					
Existing Servers:	82	62	34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Non-Candidates:	NA	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Replacement Servers:	NA	0	4	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Spare New:	NA	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Servers:	82	82	59	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
Total Servers to Support:	82	82	59	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
* IBM plan starts after transition is complete																					



5.2.3 Image Plan

IMAGE PLAN																					
Server Type	Total Images to Support at the End of Each Quarter																				
	Today	Q1*	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
Intel																					
Existing Images:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Non-Candidates:	NA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
New Images:	NA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Images:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UNIX/Linux																					
Existing Images:	82	62	34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Non-Candidates:	NA	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
New Images:	NA	0	9	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
Total Images:	82	82	63	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
Total Images to Support:	82	82	63	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
* IBM plan starts after transition is complete																					



6 Total Cost of Ownership (TCO)

Current Cost Assumptions			Future Cost Assumptions (after consolidation)			Savings						Cumulative Savings
Item	Per Month Average - Intel	Per Month Average - UNIX/Linux	Item	Per Month Average - Intel	Per Month Average - UNIX/Linux	Year 1	Year 2	Year 3	Year 4	Year 5		
Hardware Lease/Purchase:	\$370	\$2,400	Hardware Lease/Purchase:	\$1,000	\$8,000	-\$276,000	\$1,596,000	\$1,840,000	\$1,880,000	\$1,716,000	\$6,356,000	
Hardware Maintenance:	\$170	\$360	Hardware Maintenance:	\$1,000	\$500							
Support (FTE):	\$380	\$890	Support (FTE):	\$800	\$2,000							
OS Cost:	\$100	\$250	OS Cost:	\$100	\$250							
SW Cost:	\$0	\$0	SW Cost:	\$0	\$0							
Facilities/Power:	\$20	\$40	Facilities/Power:	\$20	\$40							
Total w/ Support:	\$1,040	\$3,940	Total w/ Support:	\$2,920	\$10,790							
Total w/o Support:	\$660	\$3,050	Total w/o Support:	\$2,120	\$8,790							

Current Costs	Current Boxes	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
Intel	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
UNIX/Linux	82	\$969,000	\$969,000	\$969,000	\$969,000	\$969,000	\$969,000	\$969,000	\$969,000	\$969,000	\$969,000	\$969,000	\$969,000	\$969,000	\$969,000	\$969,000	\$969,000	\$969,000	\$969,000	\$969,000	\$969,000
Total Current Costs:		\$969,000	\$969,000	\$969,000	\$969,000	\$969,000	\$969,000	\$969,000	\$969,000	\$969,000	\$969,000	\$969,000	\$969,000	\$969,000	\$969,000	\$969,000	\$969,000	\$969,000	\$969,000	\$969,000	\$969,000

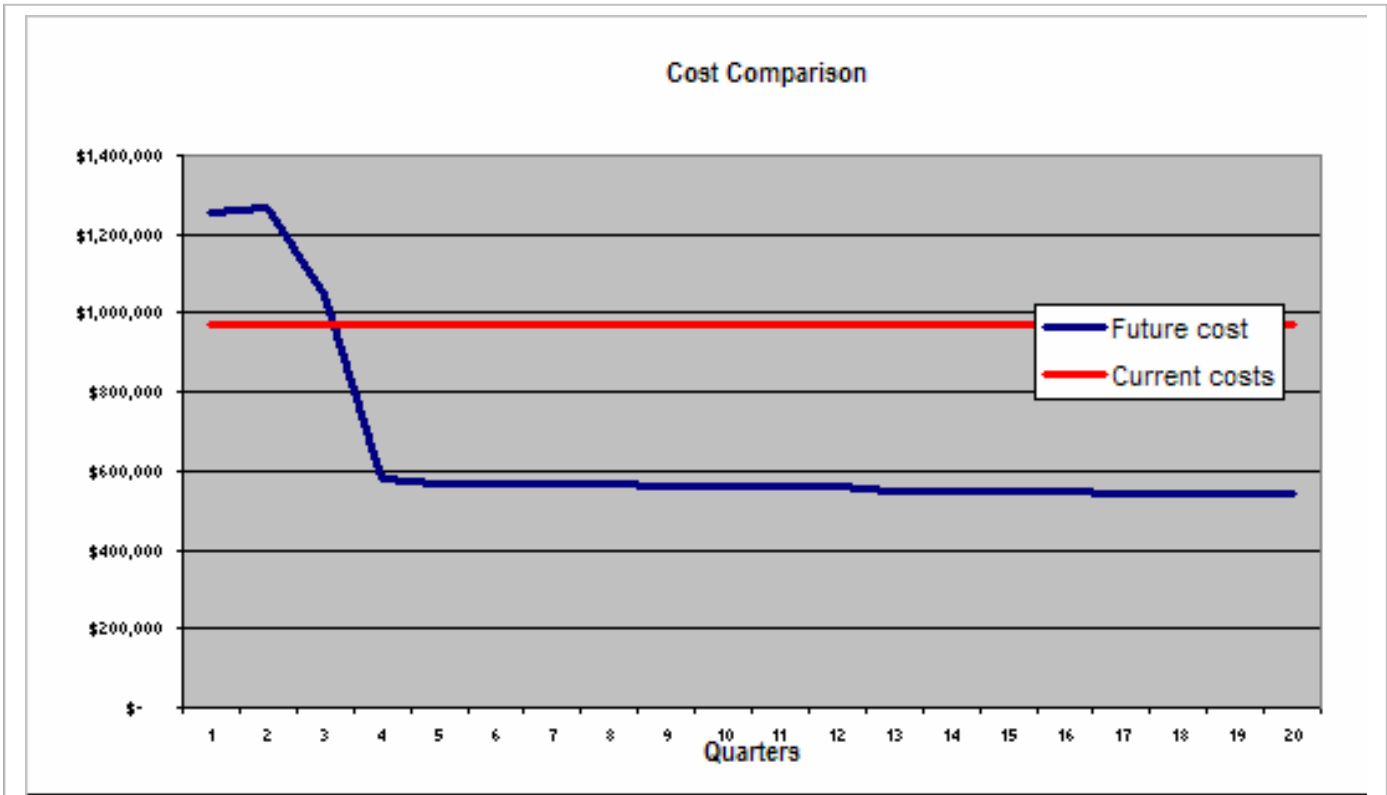
Proposed Costs	Transition	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
Old Intel Boxes:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Old UNIX/Linux Boxes:	62	34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Intel Non-Candidates:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UNIX/Linux Non-:	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Costs (with support):		\$ 969,000	\$ 638,000	\$ 236,000	\$ 236,000	\$ 236,000	\$ 236,000	\$ 236,000	\$ 236,000	\$ 236,000	\$ 236,000	\$ 236,000	\$ 236,000	\$ 236,000	\$ 236,000	\$ 236,000	\$ 236,000	\$ 236,000	\$ 236,000	\$ 236,000	\$ 236,000
Transform Labor Costs:	\$ 286,000	\$ 465,000	\$ 465,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

New Environment	Future State	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
New Intel Boxes:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
New UNIX/Linux Boxes:	0	4	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
New Intel Images:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
New UNIX/Linux Images:	0	9	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
Hardware Lease/Purchase:	\$ -	\$ 96,000	\$ 192,000	\$ 192,000	\$ 192,000	\$ 192,000	\$ 192,000	\$ 192,000	\$ 192,000	\$ 192,000	\$ 192,000	\$ 192,000	\$ 192,000	\$ 192,000	\$ 192,000	\$ 192,000	\$ 192,000	\$ 192,000	\$ 192,000	\$ 192,000	\$ 192,000
Hardware Maintenance:	\$ -	\$ 6,000	\$ 12,000	\$ 12,000	\$ 12,000	\$ 12,000	\$ 12,000	\$ 12,000	\$ 12,000	\$ 12,000	\$ 12,000	\$ 12,000	\$ 12,000	\$ 12,000	\$ 12,000	\$ 12,000	\$ 12,000	\$ 12,000	\$ 12,000	\$ 12,000	\$ 12,000
Support (FTE):	\$ -	\$ 54,000	\$ 126,000	\$ 126,000	\$ 113,000	\$ 113,000	\$ 113,000	\$ 113,000	\$ 102,000	\$ 102,000	\$ 102,000	\$ 102,000	\$ 92,000	\$ 92,000	\$ 92,000	\$ 83,000	\$ 83,000	\$ 83,000	\$ 83,000	\$ 83,000	\$ 83,000
OS Cost:	\$ -	\$ 7,000	\$ 16,000	\$ 16,000	\$ 16,000	\$ 16,000	\$ 16,000	\$ 16,000	\$ 16,000	\$ 16,000	\$ 16,000	\$ 16,000	\$ 16,000	\$ 16,000	\$ 16,000	\$ 16,000	\$ 16,000	\$ 16,000	\$ 16,000	\$ 16,000	\$ 16,000
Facilities/Power:	\$ -	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000
Totals by Quarter (projected):		\$ 1,255,000	\$ 1,266,000	\$ 1,048,000	\$ 383,000	\$ 570,000	\$ 570,000	\$ 570,000	\$ 570,000	\$ 559,000	\$ 559,000	\$ 559,000	\$ 559,000	\$ 549,000	\$ 549,000	\$ 549,000	\$ 540,000	\$ 540,000	\$ 540,000	\$ 540,000	\$ 540,000

The financial calculations in this document are based strictly on historical information and estimated customer price. These financial calculations should be adjusted to reflect your actual expenditures. Once adjusted, these financials may vary significantly from the projections contained in this document.



This cost comparison chart is based on the TCO above and is an example of the type of savings resulting from similar projects IBM has provided to other clients.



The financial calculations in this document are based strictly on historical information and estimated customer price. These financial calculations should be adjusted to reflect your actual expenditures. Once adjusted, these financials may vary significantly from the projections contained in this document.



7 Next Steps

This report was based on a high level analysis of information supplied by you. The next steps will require additional analysis and more information. Validation and realization of the TCO outlined in this report would require the creation of a comprehensive makeover plan and a more detailed review of your environment. Here are some next steps you can take to begin the transition and realize and understand immediate benefits:

Database Server Consolidation

Our analysis shows that you have/may have 20 database servers. Our experience tells us that your environment could be consolidated to as few as 1 database server, effectively reducing both the number of servers and the number of RDBMS licenses you have to maintain. A detailed analysis to produce a plan for this effort and show the costs/savings would take approximately 2 weeks.

Infrastructure and Web Server consolidation

Our analysis shows that you have/may have 24 infrastructure and web servers. Our experience tells us that your environment could be consolidated to as few as 9 servers. A detailed analysis to produce a plan for this effort and show the costs/savings would take approximately 2 to 6 weeks.

NOTE: It is common practice for a company to begin the makeover effort in the database and infrastructure/web server areas concurrently with the completion of a detailed makeover study and plan. We encourage this activity so that a company can see benefits and savings early in the makeover process.

Detailed Makeover plan

If you want to engage in a full makeover project, IBM can provide you with assistance to plan and execute a detailed makeover. Time and effort associated with makeover planning can vary significantly from customer to customer.

Contact IBM

Additionally if desired, we can furnish a detailed presentation describing our server and workload optimization capabilities and process. If you have any questions or are interested in any of the options described above, please contact:

Name IBM Sales Representative

Phone 1-916-555-1212

Email salesrep@us.ibm.com

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