

IBM Server Consolidation TCO Calculator for Power (Unix) by XTEND

March 26, 2010

Prepared For:
Valued Customer

XTEND

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1. Project Overview

This ROI and TCO Analysis was created specifically for CUSTOMER, with research and analysis completed on March 26, 2010 as provided by Alinean, Inc..

IBM Systems Consolidation Evaluation Tool derives its estimations based on the current (AS-IS) cost of ownership for server operations, as entered by each individual end user, to a proposed (To-Be) IBM server solution. Consolidation estimations help to assess the return on investment (ROI) by switching or migrating to the proposed platform and the total cost of ownership (TCO) of the proposed solution. All estimates are based on individual end user input and publicly available data provided by Alinean, Inc..

The results in this report, based on a 3 year outlook were created from the CUSTOMER's own profile and opportunity metrics (specifically provided by the team) and industry research metrics and financial calculations contained in the Alinean ROI Analyst™ software, an independent financial modeling tool and model developed by worldwide leading and independent analyst firm IDC (<http://www.idc.com>) and ROI consultancy Alinean, The IT Value Experts (<http://www.alinean.com>).

2. Executive Summary

For this analysis a TCO comparison and a risk adjusted cost-benefit analysis of the proposed solution's impact was conducted.

Comparing the Solution A: Current (As Is) Environment with Solution B: IBM Server Solution results in a \$989,496 advantage for Solution B.

Comparing the proposed costs and benefits of Solution B: IBM Server Solution versus the As Is opportunities, it was projected that implementing the proposed solutions resulted in \$1,709,393 of 3 year cumulative benefits. Of these projected benefits, \$1,709,393 are direct (hard) benefits and \$0 are indirect (soft) benefits.

Top cumulative benefits for the project include:

- Server Software Costs - \$1,296,552
- Server Hardware Costs - \$240,480
- Power and Facilities Costs - \$88,900
- Systems Management Labor - \$83,461

These benefits can be grouped regarding business impact as:

- \$1,709,393 in IT cost reductions

The proposed project is expected to help the company meet the following goals and drive the following benefits:

- Reduce IT Infrastructure Costs \$1,625,932
- Improve IT Staff Efficiency / Productivity \$83,461

The proposed project is expected to deliver the following benefits to specified stakeholders:

- Information Technology - IT \$1,620,493
- Operations \$88,900

To implement the proposed project will require a 3 year cumulative investment of \$775,266 including:

- \$227,486 in initial expenses
- \$775,266 in capital expenditures
- \$0 in operating expenditures

Comparing the costs and benefits of the proposed project using discounted cash flow analysis and factoring in a risk-adjusted discount rate of 12.5%, the proposed business case predicts:

- Risk Adjusted Return on Investment (RA ROI) of 103%
- Return on Investment (ROI) of 120%
- Net Present Value (NPV) savings of \$680,119
- Internal Rate of Return (IRR) of 146%
- Payback period of 8.0 month(s)

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Note: The project has been risk-adjusted for an overall deployment schedule of 6 months, realized benefits to include 100.0% of direct benefits and 20.0% of indirect benefits and a deployment schedule (adoption curve) of 85.0% for year 1, 95.0% for year 2, and 100.0% over each successive year of the analysis.

3. Opportunity

Based on our discovery, the company was profiled as follows:

- Industry: Financial Services
- Primary Geographic Location: United States
- Annual Revenue: \$0.0
- Number of server users for this project: 0
- Current server replacement: Power based servers
- Primary business application focus: Multiple Workloads

4. Proposed Solution

Based on your unique opportunities, it was determined that the following solution (Solution B: IBM Server Solution) would help address your goals and opportunities:

Solution Component	Recommendation	Quantity	Net Price
Servers	IBM - Power System 750 Express 3.3GHz (16)	2	\$202,526
Operating system	IBM AIX + PowerVM	2	\$24,960
Database	Oracle EE	16	\$0
Application server	None	0	\$0
Systems management	None	0	\$0
Email	None	0	\$0
Other software (specify)	None	0	\$0
Professional Services		0	\$0
Training		0	\$0
Special incentive allowances		0	\$0
Total			\$227,486

5. TCO Analysis and Benefit Summary

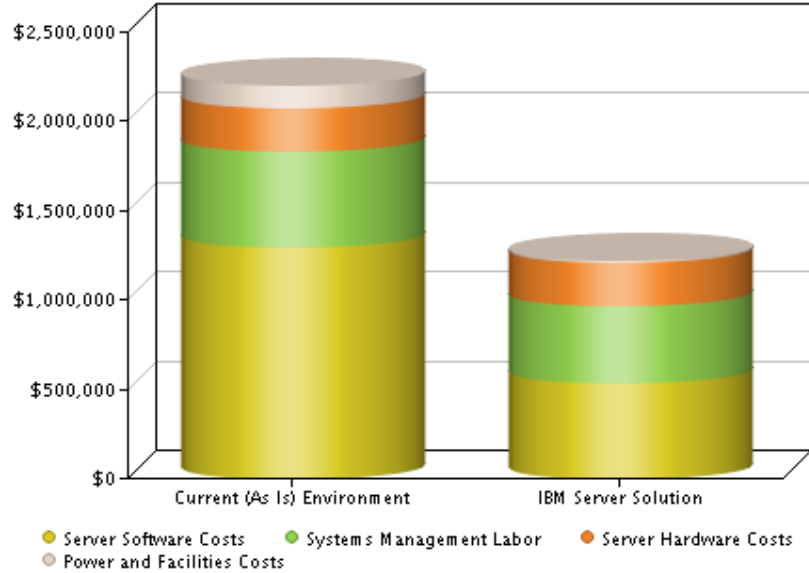
Comparing the Solution A: Current (As Is) Environment with Solution B: IBM Server Solution results in A \$989,496 advantage for Solution B. For this analysis, the cumulative 3 year TCO comparison is as follows:

TCO Comparison Cumulative 3 Year	Solution A: Current (As Is) Environment	Solution B: IBM Server Solution	Difference (A - B)	Difference (A - B)%
IT Costs				
Server Hardware Costs	\$240,480	\$236,226	\$4,254	1.8%
Server Software Costs	\$1,296,552	\$539,040	\$757,512	58.4%
Systems Management Labor	\$543,122	\$432,749	\$110,373	20.3%
Power and Facilities Costs	\$127,791	\$10,434	\$117,357	91.8%
Professional Services Fees	\$0	\$0	\$0	0.0%
Total IT Costs	\$2,207,945	\$1,218,449	\$989,496	44.8%
Business Operating Costs				
Unplanned Downtime - Productivity Impact	\$0	\$0	\$0	0.0%
Planned Downtime - Productivity Impact	\$0	\$0	\$0	0.0%
Business Agility - Productivity Impact	\$0	\$0	\$0	0.0%
Total Business Operating Costs	\$0	\$0	\$0	0.0%
Business Strategic Costs				
Unplanned Downtime - Business Costs	\$0	\$0	\$0	0.0%
Planned Downtime - Business Costs	\$0	\$0	\$0	0.0%

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Business Agility - Revenue Impact	\$0	\$0	\$0	0.0%
Total Business Strategic Costs	\$0	\$0	\$0	0.0%
Total	\$2,207,945	\$1,218,449	\$989,496	44.8%

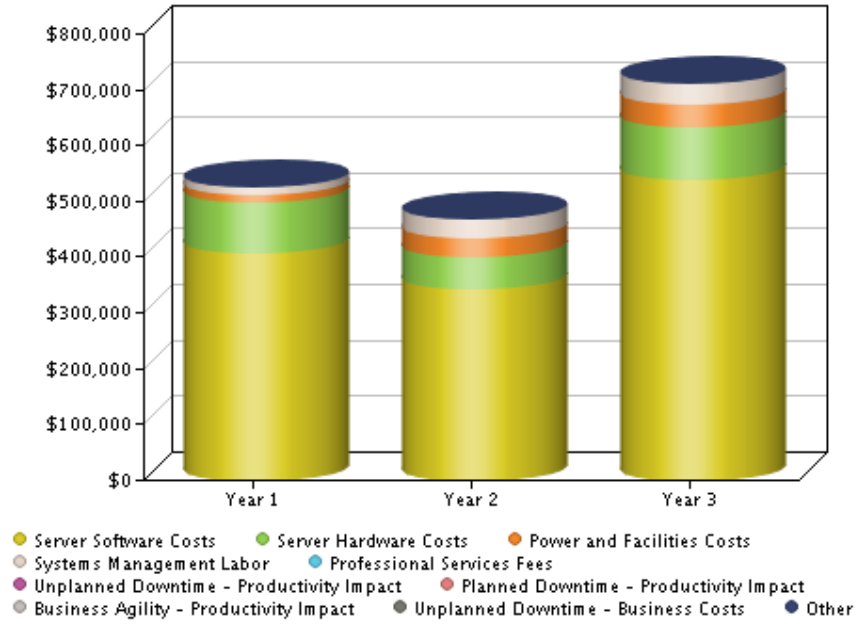
TCO Comparison - 3 Year Cumulative



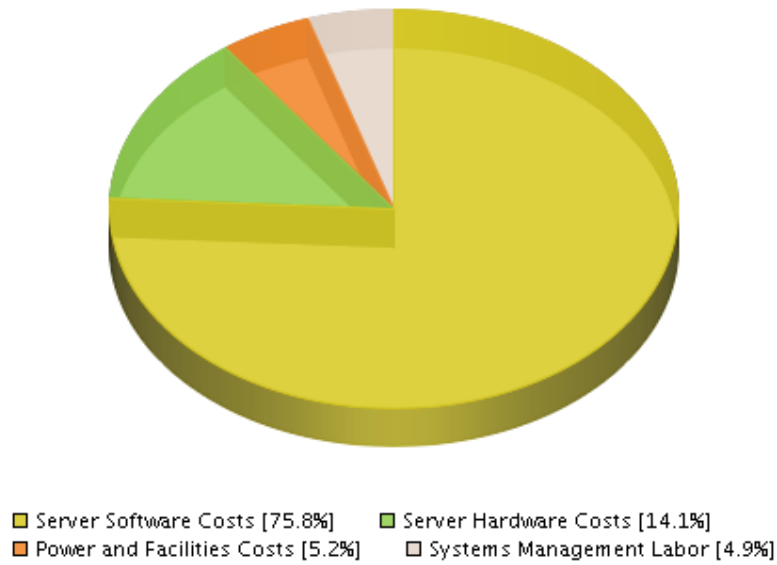
Comparing the As Is current costs and opportunities to the proposed solution yields expected benefits of \$1,709,393 over the 3 year analysis period, with \$1,709,393 in direct (hard) benefits, and \$0 in indirect (soft) benefits.

Benefits Summary	Year 1	Year 2	Year 3	Total
Total Benefits (to Solution B from Current (AS IS))	\$528,008	\$468,207	\$713,179	\$1,709,393
Top Benefits				
Server Software Costs	\$409,554	\$345,897	\$541,101	\$1,296,552
Server Hardware Costs	\$88,808	\$56,688	\$94,984	\$240,480
Power and Facilities Costs	\$15,364	\$33,909	\$39,627	\$88,900
Systems Management Labor	\$14,282	\$31,713	\$37,467	\$83,461
Unplanned Downtime - Business Costs (Indirect)	\$0	\$0	\$0	\$0
Planned Downtime - Business Costs (Indirect)	\$0	\$0	\$0	\$0
Professional Services Fees	\$0	\$0	\$0	\$0
Unplanned Downtime - Productivity Impact (Indirect)	\$0	\$0	\$0	\$0
Business Agility - Revenue Impact (Indirect)	\$0	\$0	\$0	\$0
Business Agility - Productivity Impact (Indirect)	\$0	\$0	\$0	\$0
All other included benefits.	\$0	\$0	\$0	\$0
Total Top Benefits	\$528,008	\$468,207	\$713,179	\$1,709,393
Direct Benefits	\$528,008	\$468,207	\$713,179	\$1,709,393
Indirect Benefits	\$0	\$0	\$0	\$0

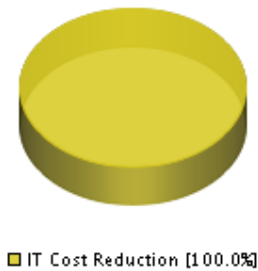
Benefits



Top Benefits

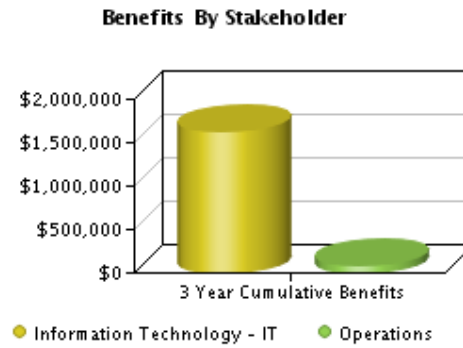
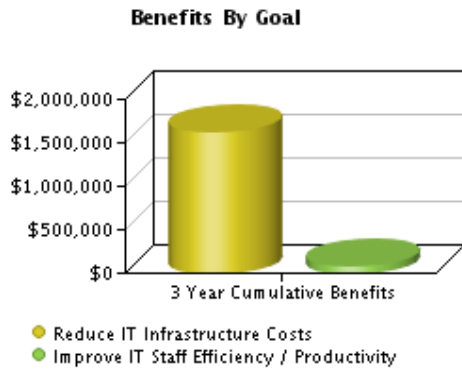


Benefits By Category



Direct vs Indirect Benefits



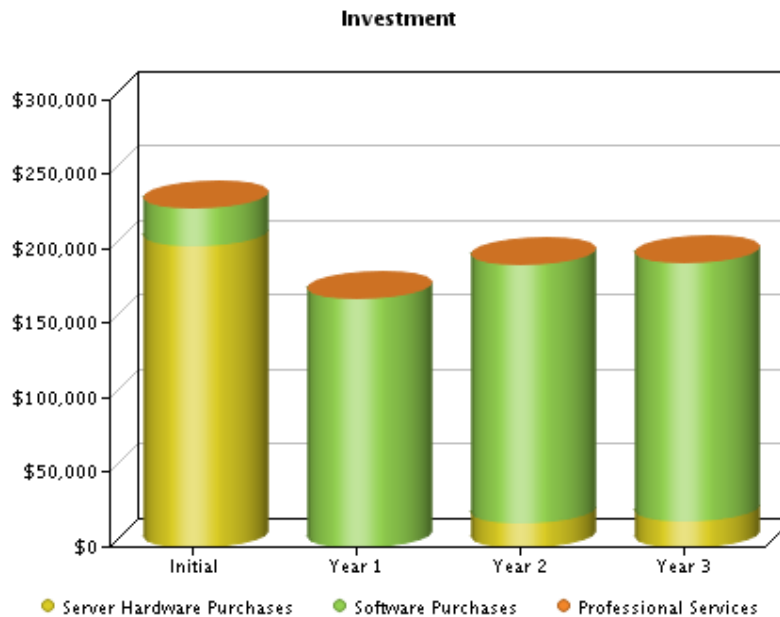


6. Investment Summary

To implement the proposed project will require a 3 year cumulative investment of \$775,266 including:

- \$227,486 in initial expenses
- \$775,266 in capital expenditures
- \$0 in operating expenditures

Investment Summary	Initial	Year 1	Year 2	Year 3	Total
Total Investment	\$227,486	\$167,200	\$189,642	\$190,938	\$775,266
Capital Investment					
Software Purchases (IT)	\$24,960	\$167,200	\$173,440	\$173,440	\$539,040
Server Hardware Purchases (IT)	\$202,526	\$0	\$16,202	\$17,498	\$236,226
Total Capital Investment	\$227,486	\$167,200	\$189,642	\$190,938	\$775,266
Operating Investment					
Professional Services (IT)	\$0	\$0	\$0	\$0	\$0
Total Operating Investment	\$0	\$0	\$0	\$0	\$0



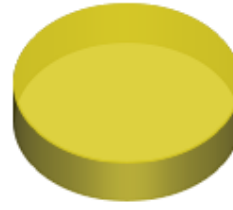
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Investment By Category



■ IT Costs [100.0%]

Investment by Expense Type



■ Capital Expenditure [100.0%]

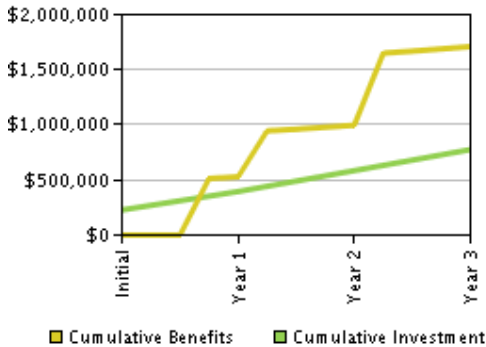
7. ROI Analysis

Analyzing the opportunity, and applying the proposed solution, the cash flow and key financial metrics were calculated, resulting in a:

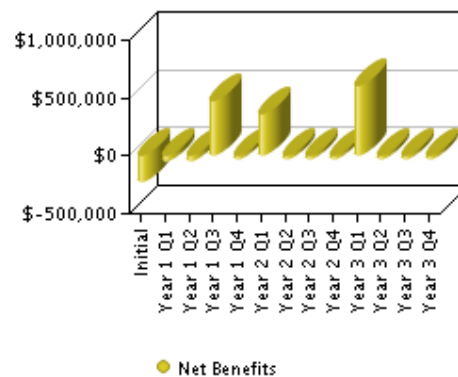
- Risk Adjusted Return on Investment (RA ROI) of 103%
- Return on Investment (ROI) of 120%
- Net Present Value (NPV) savings of \$680,119
- Internal Rate of Return (IRR) of 146%
- Payback period of 8.0 month(s)

ROI Analysis (Solution B) (Probable Case)	Initial	Year 1	Year 2	Year 3
Benefits (to Solution B from Current (AS IS))	\$0	\$528,008	\$468,207	\$713,179
Cumulative Benefits		\$528,008	\$996,215	\$1,709,393
Investment (Solution B)	\$227,486	\$167,200	\$189,642	\$190,938
Cumulative Investment	\$227,486	\$394,686	\$584,328	\$775,266
Cash Flow	(\$227,486)	\$360,808	\$278,565	\$522,241
Cumulative Cash Flow	(\$227,486)	\$133,322	\$411,887	\$934,127
ROI	120%			
Risk Adjusted ROI	103%			
NPV Savings	\$680,119			
IRR	146%			
Payback period (including deployment period)	8 month(s)			
Risk Adjusted Discount Rate	12.5%			

Breakeven



Cash Flow



8. Financing Analysis

IBM Global Financing typically can provide credit qualified clients with access to fixed rate capital at competitive rates with flexible terms in supported countries. Financing typically helps to deliver improved ROI and lower TCO as compared to a capital expenditure based purchase, thus helping your company to better match costs with expected IT benefits.

The following table shows the sample terms and rates used in this analysis to project the impact that financing may have on the expected returns for this investment.

Internal cost of capital 9.5%

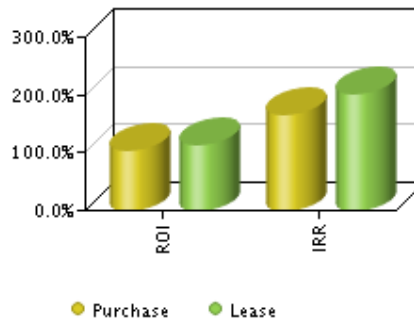
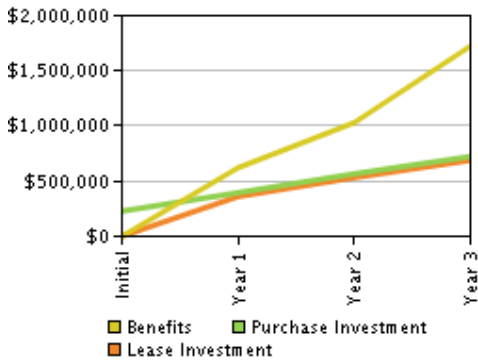
Cost of debt 5.0%

Implementation period (months) 6

Solution Component	Purchase Price	Term (Months)	Monthly Payment
Server Hardware	\$202,526	36	\$5,055.05
Server Software	\$24,960	36	\$745.56
Professional Services	\$0	36	\$0.00
Total	\$227,486		\$5,800.61

Based on the demonstration financing terms described above this project could yield an 10.1% higher ROI by leveraging IBM Global Finance compared to an upfront capital purchase. Financing could potentially accelerate the payback for this project by 3 months.

Investment Analysis	Purchase	Purchase (NPV)	Lease (NPV)
Initial Investment	\$227,486	\$227,486	\$193,541
Total Three Year Investment	\$775,266	\$722,695	\$688,750
Total Three Year Benefits	\$1,723,644	\$1,484,077	\$1,484,077
Return on Investment (ROI)	122.3%	105.4%	115.5%
Internal Rate of Return	166.7%	166.7%	200.9%
Payback Period (months)	10	10	7



IBM Global Financing offerings are provided through IBM Credit LLC in the United States and other IBM subsidiaries and divisions worldwide to qualified commercial and government customers. Rates are based on a customer's credit rating, financing terms, offering type, equipment type and options, and other factors, including the regulatory environment, and rates and offerings available may vary by country. Other restrictions may apply. Rates and offerings are subject to change, extension or withdrawal by IBM Global Financing without notice.

Minimum transaction sizes are US\$ 5,000 on a loan, and US\$ 25,000 (or local equivalent) on Fair Market Value or Full Payout Lease (in each case, where available from IBM Global Financing). Monthly payments are estimates based on financing rates for installations of qualified products and services in the United States in the current quarter for "Best" credit customers (as determined by IBM Global Financing) for a thirty-six month term. Your actual rates may vary based on your creditworthiness, configuration details, and other factors etc. and are subject to credit approval by IBM Credit LLC or the relevant local IBM Global Financing company. For some clients, total software and services financing is limited to 75% of hardware financed. Other restrictions and conditions may apply, so please contact your IBM Authorized Business Partner or IBM or IBM Global Financing representative for more information.

The rates and offering descriptions provided are for informational purposes only and do not represent a commitment by IBM Global Financing to offer leasing or financing, whether at these rates and terms or any other rates and terms.

Appendix A: Questionnaire (As Is)

IBM System Consolidation Evaluation Tool

This TCO / ROI evaluation tool was developed independently by the leading tool developer, Alinean, Inc. The tool is designed to provide customers with a quick initial high level analysis of potential consolidation savings by switching to current IBM platforms. This version quantifies potential benefits based on IBM Power Systems and System x servers with planned subsequent editions to include IBM Mainframe systems.

Demonstrated results are based on projected costs associated with specified growth and replacement plans for future years, should you continue with your current hardware and software environment.

This tool is sponsored by the Move Up To IBM at: <http://www.ibm.com/systems/migratetoibm>

Contact IBM

Company Profile

What is the closest industry match to your company / organization?

Financial Services n1

Where are the primary locations for your data center operations?

United States n2

What is the annual revenue (or budget equivalence) for the organization supported by the specified servers?

(in Millions) \$0.0 n3

How many users access the servers in the scope of this project?

0 n4

Current (As Is) Workload Profile

Please indicate the servers to be consolidated by the proposed solution. (If your specific server model is not listed, please choose a proxy that is a close match.)

Workload Group	Workload Types	Server Type	Server Count	Average Cores per Server	
Production	Financial / Trading	Sun Fire V490 (Ch 4\ Co 8)	6	8	n5
Test	Engineering and Development	Sun Fire V490 (2Ch /4Co)	3	4	n6
QA	Engineering and Development	Sun Fire V490 (2Ch /4Co)	6	4	n7
	Please Select	None	0	0	n8
	Please Select	None	0	0	n9
Total			15	84	

Cumulative estimated workload factor for current servers (used in estimating capacity of target servers)

552.1 n10

Projected costs for the current environment are based on the following growth and replacement values for the current server architecture.

Average annual growth in computing requirements

8.0% n11

Average server replacement period (years)

5.0 n12

Current (As Is) Software Profile

Please update the software packages, license levels and pricing to reflect your unique environment.

Workload Group	Operating System	OS License Fee per Server	Database	Database Licenses per Server	Price per Database License	
Production	Sun Solaris	\$0	Oracle EE	4	\$47,500	n13
Test	Sun Solaris	\$0	Oracle SE	0	\$0	n14
QA	Sun Solaris	\$0	Oracle EE	0	\$0	n15
	Microsoft Windows	\$0	Microsoft SQL Server	0	\$0	n16
	Microsoft Windows	\$0	Microsoft SQL Server	0	\$0	n17

Additional Enterprise Software Packages	Predominant Package Type	Total Enterprise Licenses	Average Price per License	Annual Support per License	
Application server (per core)	None	17	\$0	\$0	n18
Systems management (per core)	None	84	\$0	\$0	n19
Email (per user)	None	0	\$0	\$0	n20
Other software (specify)	None	0	\$0	\$0	n21

Current (As Is) Systems Administration Profile

Specify the current systems administration and operations staff full time equivalents (FTEs).

Systems Administration and Operations Staff	Number of FTEs	Average Annual Unburdened Salary	
Systems administrators	0.83	\$104,067	n22
Systems operators	0.50	\$85,625	n23
Other (specify)	0.00	\$0	
Total	1.33	\$97,134	

Current (As Is) Availability Profile

Specify your current availability (downtime).

Current Availability (Downtime)	Annual Hours of Downtime	Availability	Percentage of Users Impacted per Outage	Revenue Impact per Hour of Outage

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Average annual system availability	26.3	99.70%	20.0%	\$0	n24
Average annual scheduled downtime	45.0		5.0%	\$0	n25

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v2.7.8

Notes:

1. The type of organization. This, along with the primary location of the organization scales key metrics in the tool, particularly relating to salary and any other industry-related metrics.
2. The primary geographic location where the company or organization operates, and the company data centers. The specification should be made for the in-scope users and data centers as part of this project. This, along with the industry type of the company or organization helps scale key metrics in the tool, particularly relating to salary and any other geographic related metrics.
3. The annual revenue for the scope of the organization for this analysis helps to estimate storage capacity and factors such as the cost of downtime.
4. The user population for the scope of this analysis helps estimate storage requirements and the cost of downtime.
5. The selected server information is used to estimate costs for maintaining and growing the current environment, as well as estimating the appropriate IBM system for consolidation. Workload Types include the following classifications:
(Web Infrastructure) - Web servers, proxy servers, http servers, connectors
(Application Development) - Developer workbench, dev and test servers, Rational, Eclipse
(Database) - All production and test databases
(Decision Support) - Data mining, data warehousing, analytics
(IT Infrastructure) - ftp servers, file and print servers, monitoring consoles, LDAP, DNS, test
(Business Processing) - transaction processing, batch processing, customer relationship management, enterprise planning
6. See above
7. See above
8. See above
9. See above
10. The workload factor is based on Alinean research using a combination of published benchmarks to estimate approximate computing capacity for the specified current servers.
11. According to Alinean research most organizations processing capacity grows between 12 - 23% per year. This factor is used to estimate costs for growing the current environment.
12. Typically organizations replace aging server equipment on a regular basis with newer faster and more reliable servers. This factor is used to estimate costs for replacing aging equipment.
13. The selected server software information is used to estimate costs for maintaining and growing the current environment, as well as estimating the appropriate IBM system for consolidation. All software licensing costs are consolidated at a total per server level.
14. See above
15. See above
16. See above
17. See above
18. The application server type is used to estimate annual maintenance costs as well as costs for additional licenses for growth.
19. The systems management information is used to estimate annual maintenance costs as well as costs for additional licenses for growth.
20. Email software costs are included for comparison with proposed configuration. Information is used to estimate annual maintenance costs as well as costs for additional licenses for growth.
21. If you have additional software for consideration, please enter that information here.
22. Default assumes 1 systems administrator FTE for every 18 servers. Average annual unburdened salary is estimated at \$79,000 USD base salary and scaled by industry and location.

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23. Default assumes 1 systems operator FTE for every 30 servers. Average annual unburdened salary is estimated at \$65,000 USD base salary and scaled by industry and location.

24. Average annual downtime and the costs of downtime are based on Alinean research 2009.

25. Average annual downtime and the costs of downtime are based on Alinean research 2009.

Appendix B: Solution Selection (To Be)

IBM Solution Recommendations

Optimizing workloads and driving towards a Smarter Systems environment are critical paths IT must begin to achieve in 2010 and beyond. The IBM Systems recommendations below are based on a high level assessment of relative workload requirements for the specified systems in the Questionnaire tab and based on published benchmarks. The demonstration systems below represent a sustained level of high utilization and extensive virtualization. The new IBM POWER7 products are capable of sustained utilization rates in excess of 90%. Many factors will influence the final solution needed to consolidate your environment and those final results may be different from the tool recommendations. List pricing for the various systems models represent typical and average configurations including memory, storage, network interface cards, cables, and chassis. Cost for racks and HMC is not included. All prices are in USA \$. Prices from resellers may vary. Prices are subject to change without notice.

Will software licenses be transferred from retired systems where applicable, or purchased new? Transferred n1
 Would you like to include server virtualization in the analysis? Yes n2

Server Component	Recommendation	Quantity	Price	Net Price
X Servers	IBM - Power System 750 Express 3.3GHz (16)	2	\$101,263	\$202,526 n3
X Operating system	IBM AIX + PowerVM	2	\$12,480	\$24,960 n4
X Database	Oracle EE	16	\$47,500	\$0 n5
Application server	None	0	\$0	\$0 n6
Systems management	None	0	\$0	\$0 n7
Email	None	0	\$0	\$0 n8
Other software (specify)	None	0	\$0	\$0 n9
X Professional Services Fees			\$0	\$0 n10
Training			\$0	\$0 n11
Special incentive allowances			\$0	\$0 n12
Total			\$987,486	\$227,486

Estimated workload factor for the demonstrated systems are based on sustained high utilization levels and highly virtualized environments.

Your actual consolidation results will vary depending on your unique systems/workload optimization needs.

Initial hardware purchase discount level

2,736.4 n13

Initial software purchase discount level

0.0% n14

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0.0% n15

Notes:

- Often software licenses are transferred free of charge from retired servers to new servers during a consolidation.
 - Virtualization is included by default to Power systems.
 - The recommended server type and quantity is based on a comparison with the relative workload of the servers entered in the Questionnaire. This model takes a conservative approach and does not factor in increase utilization which often occurs in a server consolidation.
- The default recommendations have been compared to several real world cases. The recommendations are generally very appropriate, however, computing workloads and characteristics can vary significantly. Please select the most appropriate target system and quantity, if you believe there is a better solution for your needs.
- The operating system selection is used to estimate the costs for the proposed solution. If licenses of the same type are available to be transferred from the retired systems, the cost for those licenses are not added to the proposed solution. (Pricing for IBM AIX and IBM i includes the PowerVM option.)
 - The database selection is used to estimate the costs for the proposed solution. If licenses of the same type are available to be transferred from the retired systems, the cost for those licenses are not added to the proposed solution. The price for the IBM DB2i database is included in the IBM i operating system license.
 - The application server selection is used to estimate the costs for the proposed solution. If licenses of the same type are available to be transferred from the retired systems, the cost for those licenses are not added to the proposed solution.
 - The systems management selection is used to estimate the costs for the proposed solution. If licenses of the same type are available to be transferred from the retired systems, the cost for those licenses are not added to the proposed solution.
 - The email selection is used to estimate the costs for the proposed solution. If licenses of the same type are available to be transferred from the retired systems, the cost for those licenses are not added to the proposed solution.
 - If you have additional software for consideration, please enter that information here.

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10. Please use this field to capture any estimated services costs that would be required to install and configure the new servers. Application porting or migration efforts can be included. For granularity of services costs you can click on the Professional Services link to bring up the individual worksheet. Please update the professional services estimates to reflect your anticipated project costs.

11. The tool does not estimate training costs. Please update this information to reflect your expectations for training.

12. Enter special incentives that reduce the Net Price Total of your solutions such as IGF Competitive Buyback, Trade-in values, IBM Rewards, or other special incentives from IBM and our Partners.

13. Workload factor for the demonstrated systems are based on sustained high utilization levels and highly virtualized environments. Your actual consolidation results will vary depending on your unique systems/workload optimization needs.

14. Enter the anticipated discount value to be applied across the hardware costs. To discount components individually, simply input the desired Net Price in the table above.

15. Enter the anticipated discount value to be applied across the software costs. To discount components individually, simply input the desired Net Price in the table above.

Appendix C: TCO and Benefit Details

Server Software Costs

This worksheet compares the server software costs for on-going support and growth expectations for the current environment versus the purchase price and growth expectations for the server software for the proposed IBM server solution.

Cumulative Benefits (3 - Year): \$1,296,552
 Organization financial benefit type: Net Fixed Assets (NFA - Cumulative)
 Values map to benefit class: Direct Benefits
 Goal: Reduce IT Infrastructure Costs
 Stakeholder: Information Technology - IT

Average annual growth rate in computing requirements

8.0%

Server Software Costs	Year 1	Year 2	Year 3	Year 4	Year 5
Current (As Is) Environment					
Server count (beginning of year)	15	18	18	20	23
Annual server purchases for growth	3	0	2	3	0
Annual OS & DB license purchases	\$190,000	\$0	\$190,000	\$190,000	\$0
Annual OS & DB support costs	\$291,828	\$291,828	\$332,896	\$375,052	\$375,052
Annual application server license purchases	\$0	\$0	\$0	\$0	\$0
Annual application server support costs	\$0	\$0	\$0	\$0	\$0
Annual systems management license purchases	\$0	\$0	\$0	\$0	\$0
Annual systems management support costs	\$0	\$0	\$0	\$0	\$0
Annual Email license purchases	\$0	\$0	\$0	\$0	\$0
Annual Email support costs	\$0	\$0	\$0	\$0	\$0
Annual other software license purchases	\$0	\$0	\$0	\$0	\$0
Annual other software support costs	\$0	\$0	\$0	\$0	\$0
Annual software license purchases	\$190,000	\$0	\$190,000	\$190,000	\$0
Annual software support costs	\$291,828	\$291,828	\$332,896	\$375,052	\$375,052
Total annual software costs	\$481,828	\$291,828	\$522,896	\$565,052	\$375,052

Server Software Costs	Year 1	Year 2	Year 3	Year 4	Year 5
IBM Server Solution					
Server count (beginning of year)	2	2	2	2	2
Annual server purchases for growth	0	0	0	0	0
OS (IBM AIX + PowerVM) license purchases	\$24,960	\$0	\$0	\$0	\$0
OS (IBM AIX + PowerVM) support costs	\$0	\$6,240	\$6,240	\$6,240	\$6,240
DB (Oracle EE) license purchases	\$0	\$0	\$0	\$0	\$0
DB (Oracle EE) support costs	\$167,200	\$167,200	\$167,200	\$167,200	\$167,200
AppSrv (None) license purchases	\$0	\$0	\$0	\$0	\$0
AppSrv (None) support costs	\$0	\$0	\$0	\$0	\$0
Mgmt (None) license purchases	\$0	\$0	\$0	\$0	\$0
Mgmt (None) support costs	\$0	\$0	\$0	\$0	\$0
Email (None) license purchases	\$0	\$0	\$0	\$0	\$0
Email (None) support costs	\$0	\$0	\$0	\$0	\$0
Other (None) license purchases	\$0	\$0	\$0	\$0	\$0
Other (None) support costs	\$0	\$0	\$0	\$0	\$0
Annual software license purchases	\$24,960	\$0	\$0	\$0	\$0
Annual software support costs	\$167,200	\$173,440	\$173,440	\$173,440	\$173,440
Total annual software costs	\$192,160	\$173,440	\$173,440	\$173,440	\$173,440

Annual Benefits	Year 1	Year 2	Year 3	Year 4	Year 5
Software costs for current (As Is) environment IBM software costs are included in investment	\$481,828	\$291,828	\$522,896	\$565,052	\$375,052

Current (As Is) Environment

Server Group	OS Package	DB Package	Average OS & DB License Fee per Server	Average Annual OS & DB Support per Server
Production	Sun Solaris	Oracle EE	\$190,000	\$39,980
Test	Sun Solaris	Oracle SE	\$0	\$1,088
QA	Sun Solaris	Oracle EE	\$0	\$1,088
	Microsoft Windows	Microsoft SQL Server	\$0	\$0

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Microsoft Windows	Microsoft SQL Server	\$0	\$0
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Current (As Is) Environment	Year 1	Year 2	Year 3	Year 4	Year 5
Production - Sun Fire V490 (Ch 4\ Co 8)					
Server count (beginning of year)	6	7	7	8	9
Annual server purchases for growth	1	0	1	1	0
OS & DB license costs per new server	\$190,000	\$190,000	\$190,000	\$190,000	\$190,000
Annual OS & DB license costs	\$190,000	\$0	\$190,000	\$190,000	\$0
Annual OS & DB support costs	\$279,860	\$279,860	\$319,840	\$359,820	\$359,820
Test - Sun Fire V490 (2Ch /4Co)					
Server count (beginning of year)	3	4	4	4	5
Annual server purchases for growth	1	0	0	1	0
OS & DB license costs per new server	\$0	\$0	\$0	\$0	\$0
Annual OS & DB license costs	\$0	\$0	\$0	\$0	\$0
Annual OS & DB support costs	\$4,352	\$4,352	\$4,352	\$5,440	\$5,440
QA - Sun Fire V490 (2Ch /4Co)					
Server count (beginning of year)	6	7	7	8	9
Annual server purchases for growth	1	0	1	1	0
OS & DB license costs per new server	\$0	\$0	\$0	\$0	\$0
Annual OS & DB license costs	\$0	\$0	\$0	\$0	\$0
Annual OS & DB support costs	\$7,616	\$7,616	\$8,704	\$9,792	\$9,792
- None					
Server count (beginning of year)	0	0	0	0	0
Annual server purchases for growth	0	0	0	0	0
OS & DB license costs per new server	\$0	\$0	\$0	\$0	\$0
Annual OS & DB license costs	\$0	\$0	\$0	\$0	\$0
Annual OS & DB support costs	\$0	\$0	\$0	\$0	\$0
- None					
Server count (beginning of year)	0	0	0	0	0
Annual server purchases for growth	0	0	0	0	0
OS & DB license costs per new server	\$0	\$0	\$0	\$0	\$0
Annual OS & DB license costs	\$0	\$0	\$0	\$0	\$0
Annual OS & DB support costs	\$0	\$0	\$0	\$0	\$0
Annual OS & DB license costs	\$190,000	\$0	\$190,000	\$190,000	\$0
Annual OS & DB support costs	\$291,828	\$291,828	\$332,896	\$375,052	\$375,052
Annual server software costs	\$481,828	\$291,828	\$522,896	\$565,052	\$375,052

Realized Benefits (Probable)	Year 1	Year 2	Year 3
Solution A Current (As Is) Environment	\$481,828	\$291,828	\$522,896
Solution B IBM Server Solution	\$192,160	\$173,440	\$173,440
Worksheet / Ideal Benefit (to Solution B from Current (AS IS))	\$481,828	\$291,828	\$522,896
Q1	\$0.00	\$345,897.09	\$541,101.11
Q2	\$0.00	\$0.00	\$0.00
Q3	\$409,553.80	\$0.00	\$0.00
Q4	\$0.00	\$0.00	\$0.00
Realized Total Benefits	\$409,554	\$345,897	\$541,101

Server Hardware Costs

This worksheet compares the server hardware costs for on-going maintenance and growth expectations for the current environment versus the purchase price and growth expectations for the server hardware for the proposed IBM server solution.

Cumulative Benefits (3 - Year): \$240,480
 Organization financial benefit type: Net Fixed Assets (NFA - Cumulative)
 Values map to benefit class: Direct Benefits
 Goal: Reduce IT Infrastructure Costs
 Stakeholder: Information Technology - IT

Average annual growth rate in computing requirements 8.0%
 Average server replacement period (years) 5.0

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Server Hardware Costs	Year 1	Year 2	Year 3	Year 4	Year 5
Current (As Is) Environment					
Server count (beginning of year)	15	18	18	20	23
Annual growth rate in computing requirements	8.0%	8.0%	8.0%	8.0%	8.0%
Annual server purchases for growth	3	0	2	3	0
Annual server purchases for replacement	0	0	0	5	5
Average price per server	\$21,333	\$0	\$24,000	\$22,000	\$22,400
Annual server purchase costs	\$64,000	\$0	\$48,000	\$176,000	\$112,000
Average annual server support costs	11.0%	11.0%	11.0%	11.0%	11.0%
Annual server support costs	\$40,480	\$44,000	\$44,000	\$61,600	\$68,640
Annual server hardware costs	\$104,480	\$44,000	\$92,000	\$237,600	\$180,640

Server Hardware Costs	Year 1	Year 2	Year 3	Year 4	Year 5
IBM Server Solution					
Server count (beginning of year)	2	2	2	2	2
Annual growth rate in computing requirements	8.0%	8.0%	8.0%	8.0%	8.0%
New server purchases for growth	0	0	0	0	0
Server upgrades for growth	\$0	\$16,202	\$17,498	\$18,898	\$20,410
Annual server purchase costs	\$202,526	\$16,202	\$17,498	\$18,898	\$20,410
Average annual server support costs	0.0%	0.0%	0.0%	11.0%	11.0%
Annual server support costs	\$0	\$0	\$0	\$28,064	\$30,309
Special incentive allowances	\$0	\$0	\$0	\$0	\$0
Annual server hardware costs	\$202,526	\$16,202	\$17,498	\$46,962	\$50,719

Annual Benefits	Year 1	Year 2	Year 3	Year 4	Year 5
Server costs for current (As Is) environment IBM server costs are included in investment	\$104,480	\$44,000	\$92,000	\$237,600	\$180,640

Server Hardware Costs (Current Environment)	Year 1	Year 2	Year 3	Year 4	Year 5
Production - Sun Fire V490 (Ch 4/ Co 8)					
Server count (beginning of year)	6	7	7	8	9
Annual server purchases for growth	1	0	1	1	0
Annual server purchases for replacement	0	0	0	2	2
Average price per server	\$32,000	\$32,000	\$32,000	\$32,000	\$32,000
Annual server purchase costs	\$32,000	\$0	\$32,000	\$96,000	\$64,000
Annual server support costs	\$24,640	\$24,640	\$24,640	\$35,200	\$38,720
Test - Sun Fire V490 (2Ch /4Co)					
Server count (beginning of year)	3	4	4	4	5
Annual server purchases for growth	1	0	0	1	0
Annual server purchases for replacement	0	0	0	1	1
Average price per server	\$16,000	\$16,000	\$16,000	\$16,000	\$16,000
Annual server purchase costs	\$16,000	\$0	\$0	\$32,000	\$16,000
Annual server support costs	\$5,280	\$7,040	\$7,040	\$8,800	\$10,560
QA - Sun Fire V490 (2Ch /4Co)					
Server count (beginning of year)	6	7	7	8	9
Annual server purchases for growth	1	0	1	1	0
Annual server purchases for replacement	0	0	0	2	2
Average price per server	\$16,000	\$16,000	\$16,000	\$16,000	\$16,000
Annual server purchase costs	\$16,000	\$0	\$16,000	\$48,000	\$32,000
Annual server support costs	\$10,560	\$12,320	\$12,320	\$17,600	\$19,360
- None					
Server count (beginning of year)	0	0	0	0	0
Annual server purchases for growth	0	0	0	0	0
Annual server purchases for replacement	0	0	0	0	0
Average price per server	\$0	\$0	\$0	\$0	\$0
Annual server purchase costs	\$0	\$0	\$0	\$0	\$0
Annual server support costs	\$0	\$0	\$0	\$0	\$0
- None					
Server count (beginning of year)	0	0	0	0	0
Annual server purchases for growth	0	0	0	0	0
Annual server purchases for replacement	0	0	0	0	0
Average price per server	\$0	\$0	\$0	\$0	\$0
Annual server purchase costs	\$0	\$0	\$0	\$0	\$0
Annual server support costs	\$0	\$0	\$0	\$0	\$0
Annual server hardware purchase costs	\$64,000	\$0	\$48,000	\$176,000	\$112,000
Annual server hardware support costs	\$40,480	\$44,000	\$44,000	\$61,600	\$68,640

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Total annual server hardware costs	\$104,480	\$44,000	\$92,000	\$237,600	\$180,640
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Realized Benefits (Probable)	Year 1	Year 2	Year 3
Solution A Current (As Is) Environment	\$104,480	\$44,000	\$92,000
Solution B IBM Server Solution	\$202,526	\$16,202	\$17,498
Worksheet / Ideal Benefit (to Solution B from Current (AS IS))	\$104,480	\$44,000	\$92,000
Q1	\$0.00	\$56,688.40	\$94,983.60
Q2	\$0.00	\$0.00	\$0.00
Q3	\$88,808.00	\$0.00	\$0.00
Q4	\$0.00	\$0.00	\$0.00
Realized Total Benefits	\$88,808	\$56,688	\$94,984

Power and Facilities Costs

This worksheet compares the facilities (space and power) costs for the current environment versus the proposed IBM server solution.

Cumulative Benefits (3 - Year): \$88,900
 Organization financial benefit type: Operating Expense (Allocated)
 Values map to benefit class: Direct Benefits
 Goal: Reduce IT Infrastructure Costs
 Stakeholder: Operations

Measure datacenter space using (square feet or square meters)

Square Feet

Space Requirements	Current (As Is) Environment	IBM Server Solution	Savings
Number of servers	15	2	13
Average space required per server (Square Feet)	0.89	0.63	0.26
Total datacenter space requirements (Square Feet)	13.35	1.26	12.09
Average annual cost per square foot of datacenter space	\$62.50	\$62.50	
Total annual costs for datacenter space (year 1)	\$834	\$79	\$755

Power and HVAC Requirements	Current (As Is) Environment	IBM Server Solution	Savings
Number of servers (processors for IBM)	15	2	13
Average power consumption per server (Watts)	1,680	1,025	24,175
Average HVAC consumption per server (Watts)	1,512	923	21,757
Total hourly power and HVAC consumption (Watts)	47,880	3,896	43,984
Annual operating hours	8,766	8,766	
Annual power and HVAC consumption (kWatt hours)	419,716	34,152	
Average cost per kWatt hour	\$0.0918	\$0.0918	
Total annual power and HVAC costs (year 1)	\$38,530	\$3,135	\$35,395

Average annual growth in computing resources

8.0%

Annual Facilities Costs	Year 1	Year 2	Year 3	Year 4	Year 5
Current (As Is) Environment annual facilities costs	\$39,364	\$42,513	\$45,914	\$49,587	\$53,554
IBM Server Solution annual facilities costs	\$3,214	\$3,471	\$3,749	\$4,049	\$4,373
Annual savings in facilities costs	\$36,150	\$39,042	\$42,165	\$45,538	\$49,181

Notes:

1. Default is the average cost of electricity in the U.S. according to Energy Information Administration, "Average Retail Price of Electricity to Ultimate Customer by End-Use Sector, by State." http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html

Realized Benefits (Probable)	Year 1	Year 2	Year 3
Solution A Current (As Is) Environment	\$39,364	\$42,513	\$45,914
Solution B IBM Server Solution	\$3,214	\$3,471	\$3,749

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Worksheet / Ideal Benefit (to Solution B from Current (AS IS))	\$36,150	\$39,042	\$42,165
Q1	\$0.00	\$7,681.88	\$9,272.48
Q2	\$0.00	\$7,681.88	\$9,272.48
Q3	\$7,681.88	\$9,272.48	\$10,541.25
Q4	\$7,681.88	\$9,272.48	\$10,541.25
Realized Total Benefits	\$15,364	\$33,909	\$39,627

Systems Management Labor

This worksheet compares the systems management labor costs for the current environment versus the proposed IBM server solution.

Cumulative Benefits (3 - Year): \$83,461
 Organization financial benefit type: Operating Expense (Allocated)
 Values map to benefit class: Direct Benefits
 Goal: Improve IT Staff Efficiency / Productivity
 Stakeholder: Information Technology - IT

Average annual burden rate for labor 28.0% n1

Systems Management Labor	Current FTEs	Expected Savings	Proposed FTEs	Average Annual Fully Burdened Salary	Annual Savings Year 1
Systems administrators	0.83	20.0%	0.66	\$133,206	\$22,645
Systems and backup operators	0.50	20.0%	0.40	\$109,600	\$10,960
Other (specify)	0.00	0.0%	0.00	\$0	\$0
Total	1.33	20.3%	1.06		\$33,605

Average annual growth in systems management staff 5.2% n3
 Average annual growth in systems management salaries 4.0%

Systems Management Labor	Year 1	Year 2	Year 3	Year 4	Year 5
Current (As Is) Environment - FTEs	1.33	1.40	1.47	1.55	1.63
Current (As Is) Environment - annual labor costs	\$165,361	\$180,574	\$197,187	\$215,328	\$235,138
IBM Server Solution - FTEs	1.06	1.12	1.18	1.24	1.30
IBM Server Solution - annual labor costs	\$131,756	\$143,878	\$157,115	\$171,570	\$187,354
Annual savings - FTEs	0.27	0.28	0.29	0.31	0.33
Annual savings - labor costs	\$33,605	\$36,696	\$40,072	\$43,758	\$47,784

Notes:

- The annual salary burden factor includes additional costs such as paid time off and benefits that the company incurs beyond the employees base salary. This factor is based on geography, where the average is 26% for the US and 35% for Europe.
- Server consolidation reduces the number of physical servers and help standardize configurations leading to reduced labor requirements.
- The growth in staff is estimated at 2/3rds the growth rate in servers. This is used to estimate the growth in labor costs.

Realized Benefits (Probable)	Year 1	Year 2	Year 3
Solution A Current (As Is) Environment	\$165,361	\$180,574	\$197,187
Solution B IBM Server Solution	\$131,756	\$143,878	\$157,115
Worksheet / Ideal Benefit (to Solution B from Current (AS IS))	\$33,605	\$36,696	\$40,072
Q1	\$0.00	\$7,141.06	\$8,715.30
Q2	\$0.00	\$7,141.06	\$8,715.30
Q3	\$7,141.06	\$8,715.30	\$10,018.00
Q4	\$7,141.06	\$8,715.30	\$10,018.00

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Realized Total Benefits	\$14,282	\$31,713	\$37,467
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Unplanned Downtime - Business Costs

The IBM server solution supports high availability capabilities, which can significantly reduce business interruptions due to system failures.

Cumulative Benefits (3 - Year): \$0
 Organization financial benefit type: Revenue or Equivalent
 Values map to benefit class: Indirect Benefits
 Goal: Improve IT System Availability / Service Levels
 Stakeholder: Sales and Marketing

Unplanned Downtime	Current (As Is) Environment	Expected Benefits with Proposed Solution	Expected Availability for Proposed Solution
Average annual system availability	99.700%	66.7%	99.900% n1
Annual hours of unplanned system downtime	26.3	17.5	8.8
Estimated revenue or equivalent cost per hour of unplanned downtime	\$0		\$0
Annual business losses due to availability issues	\$0	\$0	\$0
Net incremental contribution	22.9%		22.9%
Annual incremental margin contribution	\$0	\$0	\$0

Unplanned Downtime	Year 1	Year 2	Year 3	Year 4	Year 5
Current (As Is) costs	\$0	\$0	\$0	\$0	\$0
Incremental margin contribution	\$0	\$0	\$0	\$0	\$0
Proposed (To Be) costs	\$0	\$0	\$0	\$0	\$0
Incremental margin contribution	\$0	\$0	\$0	\$0	\$0
Reduction in business loss from improved availability	\$0	\$0	\$0	\$0	\$0
Incremental margin contribution	\$0	\$0	\$0	\$0	\$0

Annual benefit growth (starting in year 2) 5.0% n2

Note - Availability includes all aspects of potential downtime, including hardware system errors, software errors, configuration issues and administrative issues. The IBM servers historically have delivered system availability approaching 5 9s, or 99.999%. The default expectations in this model assume much more conservative estimates based primarily on other factors which may impact total system availability.

Notes:

- The IBM server solution supports high availability capabilities, which can significantly reduce business interruptions due to storage failures.
- Used to calculate annual benefits in ongoing years of the analysis. By default, equal to the annual growth in revenue or equivalent.

Realized Benefits (Probable)	Year 1	Year 2	Year 3
Incremental Revenue or Equivalent			
Solution A Current (As Is) Environment	\$0	\$0	\$0
Solution B IBM Server Solution	\$0	\$0	\$0
Worksheet / Ideal Benefit (to Solution B from Current (AS IS))	\$0	\$0	\$0
Q1	\$0.00	\$0.00	\$0.00
Q2	\$0.00	\$0.00	\$0.00
Q3	\$0.00	\$0.00	\$0.00
Q4	\$0.00	\$0.00	\$0.00
Realized Total	\$0	\$0	\$0
Net Contribution: Incremental Revenue or Equivalent			
Solution A Current (As Is) Environment	\$0	\$0	\$0
Solution B IBM Server Solution	\$0	\$0	\$0
Worksheet / Ideal Benefit (to Solution B from Current (AS IS))	\$0	\$0	\$0

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Q1	\$0.00	\$0.00	\$0.00
Q2	\$0.00	\$0.00	\$0.00
Q3	\$0.00	\$0.00	\$0.00
Q4	\$0.00	\$0.00	\$0.00
Realized Total	\$0	\$0	\$0

Planned Downtime - Business Costs

The IBM server solution supports improved systems management capabilities, which can reduce or even eliminate planned downtime and business interruptions.

Cumulative Benefits (3 - Year): \$0
 Organization financial benefit type: Revenue or Equivalent
 Values map to benefit class: Indirect Benefits
 Goal: Improve IT System Availability / Service Levels
 Stakeholder: Sales and Marketing

Planned Downtime	Current (As Is) Environment	Expected Benefits with Proposed Solution	Potential Planned Downtime for Proposed Solution
Annual hours of planned system downtime per year	45.0	50.0%	22.5
Estimated revenue or equivalent cost per hour of planned downtime	\$0		\$0
Annual business losses due to scheduled downtime	\$0	\$0	\$0
Net incremental contribution	22.9%		22.9%
Annual incremental margin contribution	\$0	\$0	\$0

Planned Downtime	Year 1	Year 2	Year 3	Year 4	Year 5
Current (As Is) costs	\$0	\$0	\$0	\$0	\$0
Incremental margin contribution	\$0	\$0	\$0	\$0	\$0
Proposed (To Be) costs	\$0	\$0	\$0	\$0	\$0
Incremental margin contribution	\$0	\$0	\$0	\$0	\$0
Reduction in business loss from reduced planned downtime	\$0	\$0	\$0	\$0	\$0
Incremental margin contribution	\$0	\$0	\$0	\$0	\$0

Annual benefit growth (starting in year 2)

5.0%

Notes:

- The IBM server solution supports improved storage management capabilities, which can reduce or even eliminate planned downtime and business interruptions.
- Used to calculate annual benefits in ongoing years of the analysis. By default, equal to the annual growth in revenue or equivalent.

Realized Benefits (Probable)	Year 1	Year 2	Year 3
Incremental Revenue or Equivalent			
Solution A Current (As Is) Environment	\$0	\$0	\$0
Solution B IBM Server Solution	\$0	\$0	\$0
Worksheet / Ideal Benefit (to Solution B from Current (AS IS))	\$0	\$0	\$0
Q1	\$0.00	\$0.00	\$0.00
Q2	\$0.00	\$0.00	\$0.00
Q3	\$0.00	\$0.00	\$0.00
Q4	\$0.00	\$0.00	\$0.00
Realized Total	\$0	\$0	\$0
Net Contribution: Incremental Revenue or Equivalent			
Solution A Current (As Is) Environment	\$0	\$0	\$0
Solution B IBM Server Solution	\$0	\$0	\$0
Worksheet / Ideal Benefit (to Solution B from Current (AS IS))	\$0	\$0	\$0
Q1	\$0.00	\$0.00	\$0.00
Q2	\$0.00	\$0.00	\$0.00

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Q3	\$0.00	\$0.00	\$0.00
Q4	\$0.00	\$0.00	\$0.00
Realized Total	\$0	\$0	\$0

Professional Services Fees

This worksheet compares the professional services and IT training costs for the current environment versus the proposed IBM server solution.

Cumulative Benefits (3 - Year): \$0
 Organization financial benefit type: Operating Expense (Allocated)
 Values map to benefit class: Direct Benefits
 Goal: Improve IT Resource Utilization
 Stakeholder: Information Technology - IT

Annual Professional Services Fees	Year 1	Year 2	Year 3	Year 4	Year 5
Current (As Is) Environment					
Annual professional services fees	\$0	\$0	\$0	\$0	\$0
Annual training fees	\$0	\$0	\$0	\$0	\$0
Total annual professional services fees	\$0	\$0	\$0	\$0	\$0
IBM Server Solution					
IBM GTS Server Optimization and Integration Services	\$0	\$0	\$0	\$0	\$0
IBM GTS IT Facilities Consolidation Services	\$0	\$0	\$0	\$0	\$0
IBM GBS Migration Factory Services	\$0	\$0	\$0	\$0	\$0
IBM Lab Services & Training	\$0	\$0	\$0	\$0	\$0
IBM Partner Services	\$0	\$0	\$0	\$0	\$0
General Professional Services	\$0	\$0	\$0	\$0	\$0
Total annual professional services fees	\$0	\$0	\$0	\$0	\$0
Annual training fees	\$0	\$0	\$0	\$0	\$0
Total professional services and training fees	\$0	\$0	\$0	\$0	\$0
Total annual savings for IBM Server Solution	\$0	\$0	\$0	\$0	\$0

Notes:

1. Savings is the cost avoidance of the Current (As Is) Environment. The cost of the IBM solution is considered in the investment section.

Realized Benefits (Probable)	Year 1	Year 2	Year 3
Solution A Current (As Is) Environment	\$0	\$0	\$0
Solution B IBM Server Solution	\$0	\$0	\$0
Worksheet / Ideal Benefit (to Solution B from Current (AS IS))	\$0	\$0	\$0
Q1	\$0.00	\$0.00	\$0.00
Q2	\$0.00	\$0.00	\$0.00
Q3	\$0.00	\$0.00	\$0.00
Q4	\$0.00	\$0.00	\$0.00
Realized Total Benefits	\$0	\$0	\$0

Unplanned Downtime - Productivity Impact

The IBM server solution supports high availability capabilities, which can significantly reduce business interruptions due to system failures.

Cumulative Benefits (3 - Year): \$0
 Organization financial benefit type: Operating Expense (Allocated)
 Values map to benefit class: Indirect Benefits
 Goal: Improve IT System Availability / Service Levels

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Stakeholder: Enterprise-wide Target User Population

Unplanned Downtime	Current (As Is) Environment	Expected Benefits with Proposed Solution	Expected Availability for Proposed Solution
Average annual system availability	99.700%	66.7%	99.900% n1
Annual hours of unplanned system downtime per year	26.3	17.5	8.8
Average number of knowledge workers impacted per outage	0.0		0.0 n2
Average productivity impact on knowledge workers during outage	60.0%		60.0% n3
Annual productivity losses due to availability issues (hours)	0.0	0.0	0.0
Average fully burdened hourly wage for knowledge workers	\$56.21		\$56.21 n4
Annual cost of productivity losses due to availability issues	\$0	\$0	\$0

Unplanned Downtime	Year 1	Year 2	Year 3	Year 4	Year 5
Current (As Is) costs	\$0	\$0	\$0	\$0	\$0
Proposed (To Be) costs	\$0	\$0	\$0	\$0	\$0
Reduction in productivity losses from improved availability	\$0	\$0	\$0	\$0	\$0
FTE productivity improvements	0.00	0.00	0.00	0.00	0.00

Annual benefit growth (starting in year 2) 5.0% n5

Note - Availability includes all aspects of potential downtime, including hardware system errors, software errors, configuration issues and administrative issues. The IBM servers historically have delivered system availability approaching 5 9s, or 99.999%. The default expectations in this model assume much more conservative estimates based primarily on other factors which may impact total system availability.

Notes:

- The IBM server solution supports high availability capabilities, which can significantly reduce business interruptions.
- The number of knowledge workers impacted per outage is based on the total number of application users times the percentage of users impacted from the Questionnaire.
- The expected productivity impact is based on the type of application selected, based on research by Alinean.
- The average fully burdened hourly wage is based on an annual salary of \$60,000, which uplifted based on a burden rate for benefits and paid time off, and adjusted for industry and geography based on Alinean research.
- Used to calculate annual benefits in ongoing years of the analysis. Default set equal to the growth in salaries.

Realized Benefits (Probable)	Year 1	Year 2	Year 3
Solution A Current (As Is) Environment	\$0	\$0	\$0
Solution B IBM Server Solution	\$0	\$0	\$0
Worksheet / Ideal Benefit (to Solution B from Current (AS IS))	\$0	\$0	\$0
Q1	\$0.00	\$0.00	\$0.00
Q2	\$0.00	\$0.00	\$0.00
Q3	\$0.00	\$0.00	\$0.00
Q4	\$0.00	\$0.00	\$0.00
Realized Total Benefits	\$0	\$0	\$0

Business Agility - Revenue Impact

Server consolidation and virtualization can often speed the deployment of new applications by reducing the time required for purchasing, installing and configuring new server resources. Often new server resources can simply be created by defining additional virtual machines on an existing physical server.

Cumulative Benefits (3 - Year): \$0
 Organization financial benefit type: Revenue or Equivalent
 Values map to benefit class: Indirect Benefits
 Goal: Improve Time to Market for New Offerings
 Stakeholder: Sales and Marketing

ROI Analyst™

Business Agility - Revenue Impact	Current (As Is) Environment	Benefits with Proposed Solution	IBM Server Solution
New application projects per year	0		0
Average system provisioning time per application (days)	45	50.0%	23
Average annual revenue value per new application	\$0		\$0
Average lost revenue opportunity per system provisioning	\$0		\$0
Annual value of potential revenue losses due to system provisioning	\$0	\$0	\$0
Net incremental contribution	22.9%		22.9%
Annual incremental margin contribution	\$0	\$0	\$0

Business Agility - Revenue Impact	Year 1	Year 2	Year 3	Year 4	Year 5
Current (As Is) costs	\$0	\$0	\$0	\$0	\$0
Incremental margin contribution	\$0	\$0	\$0	\$0	\$0
Proposed (To Be) costs	\$0	\$0	\$0	\$0	\$0
Incremental margin contribution	\$0	\$0	\$0	\$0	\$0
Reduction in business loss from system provisioning	\$0	\$0	\$0	\$0	\$0
Incremental margin contribution	\$0	\$0	\$0	\$0	\$0

Annual benefit growth (starting in year 2)

5.0%ⁿ¹

Notes:

- Used to calculate annual benefits in ongoing years of the analysis. By default, equal to the annual growth in revenue or equivalent.

Realized Benefits (Probable)	Year 1	Year 2	Year 3
Incremental Revenue or Equivalent			
Solution A Current (As Is) Environment	\$0	\$0	\$0
Solution B IBM Server Solution	\$0	\$0	\$0
Worksheet / Ideal Benefit (to Solution B from Current (AS IS))	\$0	\$0	\$0
Q1	\$0.00	\$0.00	\$0.00
Q2	\$0.00	\$0.00	\$0.00
Q3	\$0.00	\$0.00	\$0.00
Q4	\$0.00	\$0.00	\$0.00
Realized Total	\$0	\$0	\$0
Net Contribution: Incremental Revenue or Equivalent			
Solution A Current (As Is) Environment	\$0	\$0	\$0
Solution B IBM Server Solution	\$0	\$0	\$0
Worksheet / Ideal Benefit (to Solution B from Current (AS IS))	\$0	\$0	\$0
Q1	\$0.00	\$0.00	\$0.00
Q2	\$0.00	\$0.00	\$0.00
Q3	\$0.00	\$0.00	\$0.00
Q4	\$0.00	\$0.00	\$0.00
Realized Total	\$0	\$0	\$0

Business Agility - Productivity Impact

Server consolidation and virtualization can often speed the deployment of new applications by reducing the time required for purchasing, installing and configuring new server resources. Often new server resources can simply be created by defining additional virtual machines on an existing physical server.

Cumulative Benefits (3 - Year): \$0
 Organization financial benefit type: Operating Expense (Allocated)
 Values map to benefit class: Indirect Benefits
 Goal: Improve Time to Market for New Offerings
 Stakeholder: Enterprise-wide Target User Population

ROI Analyst™

Business Agility - Productivity Impact	Current (As Is) Environment	Benefits with Proposed Solution	IBM Server Solution
New application projects per year	0		0
Average system provisioning time per application (days)	45	50.0%	23
Average annual value in productivity improvement per application	\$0		\$0
Average lost productivity improvement value per system provisioning	\$0	\$0	\$0
Annual value of productivity losses due to system provisioning	\$0	\$0	\$0

Business Agility - Productivity Impact	Year 1	Year 2	Year 3	Year 4	Year 5
Current (As Is) costs	\$0	\$0	\$0	\$0	\$0
Proposed (To Be) costs	\$0	\$0	\$0	\$0	\$0
Reduction in productivity losses from improved agility	\$0	\$0	\$0	\$0	\$0

Annual benefit growth (starting in year 2)

5.0% n1

Notes:

- Used to calculate annual benefits in ongoing years of the analysis. Default set equal to the growth in salaries.

Realized Benefits (Probable)	Year 1	Year 2	Year 3
Solution A Current (As Is) Environment	\$0	\$0	\$0
Solution B IBM Server Solution	\$0	\$0	\$0
Worksheet / Ideal Benefit (to Solution B from Current (AS IS))	\$0	\$0	\$0
Q1	\$0.00	\$0.00	\$0.00
Q2	\$0.00	\$0.00	\$0.00
Q3	\$0.00	\$0.00	\$0.00
Q4	\$0.00	\$0.00	\$0.00
Realized Total Benefits	\$0	\$0	\$0

Planned Downtime - Productivity Impact

The IBM server solution supports improved systems management capabilities, which can reduce or even eliminate planned downtime and lost productivity.

Cumulative Benefits (3 - Year): \$0
 Organization financial benefit type: Operating Expense (Allocated)
 Values map to benefit class: Indirect Benefits
 Goal: Improve IT System Availability / Service Levels
 Stakeholder: Enterprise-wide Target User Population

Planned System Downtime	Current (As Is) Environment	Expected Benefits with Proposed Solution	Potential Planned Downtime for Proposed Solution
Annual hours of planned system downtime per year	45.0	50.0%	22.5
Average number of knowledge workers impacted per outage	0.0		0.0 n1
Average productivity impact on knowledge workers during outage	60.0%		60.0% n2
Annual productivity losses due to scheduled downtime (hours)	0.0	0.0	0.0
Average fully burdened hourly wage for knowledge workers	\$56.21		\$56.21 n3
Annual cost of productivity losses due to scheduled downtime	\$0	\$0	\$0

Unplanned Storage Downtime	Year 1	Year 2	Year 3	Year 4	Year 5
Current (As Is) costs	\$0	\$0	\$0	\$0	\$0
Proposed (To Be) costs	\$0	\$0	\$0	\$0	\$0
Reduction in productivity losses from improved availability	\$0	\$0	\$0	\$0	\$0
FTE productivity improvements	0.00	0.00	0.00	0.00	0.00

Annual benefit growth (starting in year 2)

5.0% n4

Notes:

ROI Analyst™

1. The number of knowledge workers impacted per outage is based on the total number of application users times the percentage of users impacted from the Questionnaire.
2. The expected productivity impact is based on the type of application selected, based on research by Alinean.
3. The average fully burdened hourly wage is based on an annual salary of \$60,000, which uplifted based on a burden rate for benefits and paid time off, and adjusted for industry and geography based on Alinean research.
4. Used to calculate annual benefits in ongoing years of the analysis. Default set equal to the growth in salaries.

Realized Benefits (Probable)	Year 1	Year 2	Year 3
Solution A Current (As Is) Environment	\$0	\$0	\$0
Solution B IBM Server Solution	\$0	\$0	\$0
Worksheet / Ideal Benefit (to Solution B from Current (AS IS))	\$0	\$0	\$0
Q1	\$0.00	\$0.00	\$0.00
Q2	\$0.00	\$0.00	\$0.00
Q3	\$0.00	\$0.00	\$0.00
Q4	\$0.00	\$0.00	\$0.00
Realized Total Benefits	\$0	\$0	\$0

Appendix D: Investment Details

Software Purchases

The initial software licensing costs and annual support costs for the proposed IBM server solution.

Cumulative Cost (3 - Year): \$539,040
 Organization financial cost type: Net Fixed Assets (NFA)
 Values map to expense category: Capital Expenditure

Software Purchases	Initial	Year 1	Year 2	Year 3	Year 4	Year 5
Software license purchases	\$24,960	\$0	\$0	\$0	\$0	\$0
Annual software support	\$0	\$167,200	\$173,440	\$173,440	\$173,440	\$173,440
Annual software costs	\$24,960	\$167,200	\$173,440	\$173,440	\$173,440	\$173,440

Realized Investments	Initial	Year 1	Year 2	Year 3
Worksheet / Ideal Investment (Purchased)	\$24,960	\$167,200	\$173,440	\$173,440
Annual Cash Flow	\$24,960	\$167,200	\$173,440	\$173,440
Q1		\$41,800.00	\$43,360.00	\$43,360.00
Q2		\$41,800.00	\$43,360.00	\$43,360.00
Q3		\$41,800.00	\$43,360.00	\$43,360.00
Q4		\$41,800.00	\$43,360.00	\$43,360.00
Realized Total	\$24,960	\$167,200	\$173,440	\$173,440

Server Hardware Purchases

The initial purchase cost and on-going maintenance and upgrades for the proposed IBM server solution hardware.

Cumulative Cost (3 - Year): \$236,226
 Organization financial cost type: Net Fixed Assets (NFA)
 Values map to expense category: Capital Expenditure

Server Hardware Purchases	Initial	Year 1	Year 2	Year 3	Year 4	Year 5
Annual server hardware purchases	\$202,526	\$0	\$16,202	\$17,498	\$18,898	\$20,410
Annual support costs	\$0	\$0	\$0	\$0	\$28,064	\$30,309
Special incentive allowances	\$0	\$0	\$0	\$0	\$0	\$0
Total annual server hardware costs	\$202,526	\$0	\$16,202	\$17,498	\$46,962	\$50,719

Realized Investments	Initial	Year 1	Year 2	Year 3
Worksheet / Ideal Investment (Purchased)	\$202,526	\$0	\$16,202	\$17,498
Annual Cash Flow	\$202,526	\$0	\$16,202	\$17,498
Q1		\$0.00	\$4,050.50	\$4,374.50
Q2		\$0.00	\$4,050.50	\$4,374.50
Q3		\$0.00	\$4,050.50	\$4,374.50
Q4		\$0.00	\$4,050.50	\$4,374.50
Realized Total	\$202,526	\$0	\$16,202	\$17,498

Appendix E: Realized Benefit Schedule

The Implementation Plan and Realized Benefits section establishes how the benefits calculations are adjusted for various risks and realizations in order to create more conservative, risk adjusted results. These adjustments include:

- Project implementation plan and potential delays (benefits do not get realized until after deployment)
- Discounting of direct (hard) or indirect (soft) benefits
- Adoption curve (delays in realizing full benefits based on rollout or user adoption delays)

Realized Benefits and Schedule	
Project Implementation Plan (months from kickoff to deployment)	6
Default Realized Benefits	
Direct Benefits (Hard)	100.0%
Indirect Benefits (Soft)	20.0%
Benefit Schedule/Adoption Curve (starting from deployment)	
First Year (months 1-12 from deployment)	85.0%
Second Year (months 13-24 from deployment)	95.0%
Third Year (months 25-36 from deployment)	100.0%

Appendix F: Project Risk

Cost of Capital / Discount Rate 9.5%

Risks of Implementing / Deploying This Project	Likelihood	Impact
Requirements	Little probability of occurrence (1)	Little Impact (1)
Schedule	Little probability of occurrence (1)	Little Impact (1)
Resource Capability and Maturity	Little probability of occurrence (1)	Little Impact (1)
Technology / Infrastructure	No Risk (0)	No Impact (0)
Vendor / Service Provider	No Risk (0)	No Impact (0)
Management Commitment and Funding	Little probability of occurrence (1)	Little Impact (1)
User Acceptance	Little probability of occurrence (1)	Little Impact (1)
Market / Business Environment	Little probability of occurrence (1)	Little Impact (1)

Total Risk Score: 3.0%

Risk Adjusted Discount Rate: 12.5%