VMware TCO/ROI Calculator Report

VMware VDI

Based upon the information provided for the 100 user desktops being planned for virtualization, the projected outcome of this proposed VMware VDI solution over the 3-year analysis includes:

•Virtualize the desktop infrastructure for 100 desktops, reducing capital costs by A$ 90,000, operating costs by A$ 48,213 and power and cooling cost by A$ 2,022 over the next three years, A$ 22.77 per desktop in savings on average.

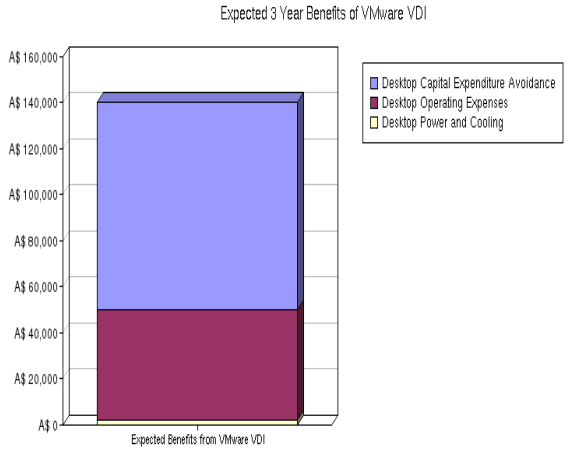
•Achieve an ROI of 5.1% from an investment of A$ 133,404 in virtual desktop infrastructure solution, and projected savings of A$ 6,831.

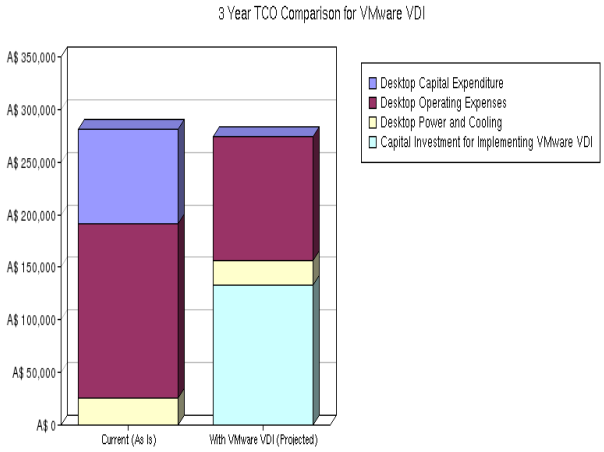
•An NPV savings of A$ 1,521 and a projected payback period of 12 months.

Cumulative 3 Year TCO Comparison	Current (As Is)	With VMware VDI (Projected)	Difference (A$ and % savings)	
VMware VDI Benefits				
Desktop Capital Expenditure	A$ 90,000	A$ 0	A$ 90,000	100.0%
Desktop Operating Expenses	A$ 165,847	A$ 117,634	A$ 48,213	29.1%
Desktop Power and Cooling	A$ 25,404	A$ 23,382	A$ 2,022	8.0%
Investment Required				
Capital Investment for Implementing VMware VDI	A$ 0	A$ 133,404	A$ -133,404	0.0%
Total TCO (3 year)	**A$ 281,251**	**A$ 274,420**	**A$ 6,831**	**2.4%**
TCO average per year per desktop (1 year)	**A$ 937.50**	**A$ 914.73**		**A$ 22.77**

Expected Benefits from VMware VDI	Year 1	Year 2	Year 3	Total
Desktop Capital Expenditure	A$ 30,000	A$ 30,000	A$ 30,000	A$ 90,000
Desktop Operating Expenses	A$ 15,445	A$ 16,063	A$ 16,705	A$ 48,213
Desktop Power and Cooling	A$ 674	A$ 674	A$ 674	A$ 2,022
Total Benefits	**A$ 46,119**	**A$ 46,737**	**A$ 47,379**	**A$ 140,235**

Expected Investment in VMware Solution	Initial / Year 1	Year 2	Year 3	Total
Capital Investment for Implementing VMware VDI	A$ 44,468	A$ 44,468	A$ 44,468	A$ 133,404





Appendix A: Details for VMware VDI

Desktop Capital Expenditure

With VDI, current desktop expenditures to refresh existing desktop systems can be avoided, replaced with the VDI virtualized desktop infrastructure.

Technology Refresh Costs for Current Desktops	Current Number of Desktops	Unit Cost per Desktop	Total Technology Refresh Costs for Current Desktops
Total capital expenditure for status-quo physical desktops based deployment (replacing all desktops)	100	A$ 900	A$ 90,000

	Current (As Is) - Per yr capital expenditure based on life expectancy for user desktops (3 yrs)	Proposed Net Savings from VDI	With VDI (Projected) - Per yr capital expenditure based on life expectancy for VDI (5 yrs)
Ideal amortized annual cost and savings	A$ 30,000	A$ -11,038	A$ 41,038

Desktop Capital Expenditure Avoidance	Year 1	Year 2	Year 3
Costs with current (As Is)	A$ 30,000	A$ 30,000	A$ 30,000
Realizable savings	0.0%	0.0%	0.0%
Schedule for virtualization	100.0%	0.0%	0.0%
Total realizable savings (cost avoidance)	**A$ 30,000**	**A$ 30,000**	**A$ 30,000**

Desktop Operating Expenses

Savings in Operating Expenses to manage the desktop infrastructure.

Operational Expenses Costs for Desktop Infrastructure	Current (As Is) Cost (annual per desktop)	Proposed Savings from VDI	With VDI (Projected) Cost (annual per desktop)
Technical Services			
User administration (Adds and Changes)	A$ 11.98	30.0%	A$ 8.39
Hardware configuration / reconfiguration	A$ 28.31	-27.0%	A$ 35.95
Hardware deployment	A$ 7.62	20.0%	A$ 6.10
Software deployment	A$ 131.73	50.0%	A$ 65.87
Application Management	A$ 34.84	20.0%	A$ 27.87
Backup, archiving, recovery	A$ 7.62	100.0%	A$ 0.00
Service Desk (Tier 0/1)	A$ 260.20	20.0%	A$ 208.16
Security Management	A$ 32.66	50.0%	A$ 16.33
IT Administration	A$ 16.33	50.0%	A$ 8.17
Total per desktop per year	A$ 531.29	A$ 154.45	A$ 376.84
Total for all desktops	A$ 53,129	A$ 15,445	A$ 37,684

Desktop Operating Expenses	Year 1	Year 2	Year 3
Costs with current (As Is)	A$ 53,129	A$ 55,254	A$ 57,464
Schedule for virtualization	100.0%	0.0%	0.0%
Costs With VMware VDI (Projected)	A$ 37,684	A$ 39,191	A$ 40,759
Total realizable savings	**A$ 15,445**	**A$ 16,063**	**A$ 16,705**

Desktop Power and Cooling

Savings in power and cooling costs for the desktop infrastructure.

Desktop Power and Cooling Costs	Current (As Is)
Operating power (watts/hour)	120
Cooling power (watts/hour)	150
Operating hours per day	8
Total power consumption per day (watts)	216,000
Total power and cooling (kWatts per year)	77,760
Total annual cost	A$ 8,468

Desktop Power and Cooling Costs	Virtual Desktop Server	Thin Client	Total
Operating power (watts/hour)	750	11	761
Cooling power (watts/hour)	938	14	952
Operating hours per day	24	12	36
Total power consumption per day (watts)	168,800	30,000	198,800
Total power and cooling (kWatts per year)	**60,768**	**10,800**	**71,568**
Total annual cost	**A$ 6,618**	**A$ 1,176**	**A$ 7,794**

Desktop Power and Cooling Costs	Year 1	Year 2	Year 3
Costs with current (As Is)	A$ 8,468	A$ 8,468	A$ 8,468
Schedule for virtualization	100.0%	0.0%	0.0%
Costs With VMware VDI (Projected)	A$ 7,794	A$ 7,794	A$ 7,794
Total realizable savings	**A$ 674**	**A$ 674**	**A$ 674**

Appendix A: Details for VMware VDI (continued)

Capital Investment for Implementing VMware VDI

The capital investment in hardware and software for VDI.

VDI Configuration	Units	Unit Cost	Total Cost for the VDI Solution
ESX server hardware	5	A$ 15,398.57	A$ 76,993
VC servers	1	A$ 1,415.31	A$ 1,415
VDI software	100	A$ 163.31	A$ 16,331
Windows operating systems for VC management server	1	A$ 163.31	A$ 163
Windows XP Pro fully packaged product/volume licenses	100	A$ 293.95	A$ 29,395
Thin clients	100	A$ 272.18	A$ 27,218
Keyboard, mouse, monitor sets	100	A$ 217.74	A$ 21,774
FC SAN switch ports	5	A$ 4,790.28	A$ 23,951
FC SAN storage capacity cost	1	A$ 6,532.20	A$ 6,532
Connection broker server hardware	1	A$ 1,415.31	A$ 1,415
Total capital expenditure for VDI (implementing for all desktops)			A$ 205,187
With VDI (Projected) - per year capital expenditure based on life expectancy for VDI (5 yrs)			A$ 41,038

Annual support and subscription rate (starting in year 1)	**21.0%**
Annual VMware subscription service	A$ 3,430

VDI (Amortized Costs)	Initial	Year 2	Year 3
Total cost	A$ 44,468	A$ 44,468	A$ 44,468
Schedule for virtualization	100.0%	0.0%	0.0%
Scheduled total cost	A$ 44,468	A$ 44,468	A$ 44,468

Additional Assumptions for VMware VDI

Discount Rate	Value Used in Analysis
What discount rate should be used for net present value (NPV) calculations?	10.0%

Salary and Other Profiles	Value Used in Analysis
What is the average hourly burdened labor rate for IT administration and support staff?	A$ 60.00
What is the average hourly burdened labor rate for IT system provisioning staff?	A$ 60.00
What is the fully burdened rate of development per hour for bug reproduction?	A$ 60.00
What is the fully burdened rate of development per hour for customer support engineer?	A$ 60.00
What is the average annual increase in salaries anticipated over next 3 years?	4.0%
What is the adjustment that should be made for any soft (indirect) benefits?	10.0%

Desktop Virtualization Schedule	Value Used in Analysis
What percentage of the desktops will be virtualized in:	
Year 1?	100.0%
Year 2?	0.0%
Year 3?	0.0%
Total	100.0%

Current Operational Expenses for Desktop Infrastructure per Year	Current (As Is) - Value Used in Analysis
Technical Services	
User administration (adds and changes)	A$ 11.98
Hardware configuration / reconfiguration	A$ 28.31
Hardware deployment	A$ 7.62
Software deployment	A$ 131.73
pplication management	A$ 34.84
Backup, archiving, and recovery	A$ 7.62
Service desk (Tier 0/1)	A$ 260.20
Security management	A$ 32.66
IT administration	A$ 16.33
Total per desktop per year	A$ 531.29

Desktop Virtualization Configuration	Value Used in Analysis
What is the estimated number of users or desktops per core? (default value is 6)	6
How much RAM will you assign to each virtual desktop?	1 GB
How much disk space will you assign to each virtual desktop (in GB)?	10
On average, how many processor cores will each server have?	4
Will you be deploying connection broker on physical hardware?	Yes
Do you want to add 1 Yr Gold/Limited VMware SnS?	Yes
Do you want to include the purchase of new thin clients and keyboard, mouse and monitors costs in this model?	Yes
Do you want to include SAN storage costs in this model?	Yes
What is the number of desktops administered by each Virtual Center server?	1,000
On average, how much RAM (GB) will each server have? (recommended value is provided as a default)	24
What is the useful life of a VDI solution (in years)?	5
What is the useful life of a desktop (in years)?	3

Desktop Virtualization Power and Cooling	Current (As Is) - Value Used in Analysis
What is the average operating power (watts/hour) for the virtual desktop server?	750
What is the operating hours per day for the virtual desktop server?	24
What is the average operating power (watts/hour) for thin clients?	11
What is the operating hours per day for thin clients?	12
What is the current price of electricity (cost per kWatt hour) for the data center facilities?	A$ 0.1089
What is the estimated cooling load factor (Watts of cooling electricity needed to dissipate 1W of heat)?	1.25

Additional Assumptions for VMware VDI (continued)

Operational Savings with Desktop Virtualization	Value Used in Analysis
Reduce the cost of user administration (adds and changes)	30.0%
Reduce the cost of hardware configuration / reconfiguration	-27.0%
Reduce the cost of hardware deployment	20.0%
Reduce the cost of software deployment	50.0%
Reduce the cost of application management	20.0%
Reduce the cost of backup, archiving, and recovery	100.0%
Reduce the cost of service desk (Tier 0/1)	20.0%
Reduce the cost of security management	50.0%
Reduce the cost of IT administration	50.0%