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Flash Paper 2

We can save $9.2 million in three years by converting most of our physical servers to virtual servers. Ten servers will be consolidated onto a virtual server, increasing hardware utilization and allowing each individual server to run concurrently, reducing purchase, maintenance and power costs. Since we are at the start of a hardware refresh cycle requiring a repurchase of 1,000 servers this year, virtualizing many of our servers is our most cost-effective option.

Virtual servers increase the hardware utilization by allowing several servers to run on a single machine. Individual servers typically have excess resources because their tasks may not deploy all their resources. In addition, individual servers may frequently be idle. By consolidating several servers virtually to a single physical server, more of the server's computing resources such as RAM and CPU may be used; for example, ten machines using an average 1GB of RAM out of a possible 4GB of RAM can be combined onto a single physical server with 12GB of RAM. These consolidations result in cost savings as fewer servers need to be purchased, maintained and powered.

By virtualizing our servers during this hardware refresh cycle, we will save $9.2 million over three years. The purchasing, maintenance and power costs of these servers will be $4.8 million for 80 virtual and 200 physical servers rather than $14 million for 1,000 physical servers, resulting in a net benefit of $9.2 million. Virtualization enables us to reduce the number of servers and thereby reduce related hardware and maintenance costs for years to come.

Appendix

Works Consulted

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Diagram 1

	Type	**Servers**	**Purchase Cost**	**Maintenance cost**
			$	$
Current server cost	Physical	1000	8,000,000	2,000,000
Upgraded server cost	Virtual	80	$ 1,280,000	$ 240,000
	Physical	200	$ 1,600,000	$ 400,000
*80 virtual servers can support 800 physical servers (=800/10)				
Upgraded server cost (combined)			$ 2,880,000	$ 640,000

	Year 1	**Year 2**	**Year 3**	**Total**	
	$	$	$	**$**	
Cost (Current)	10,000,000	2,000,000	2,000,000	**14,000,000**	(Benefit)
	$	$	$	**$**	
Cost (Upgraded)	3,520,000	640,000	640,000	**4,800,000**	(Cost)
Year 1: Purchase and maintenance costs		**Upgrade - net benefit (savings)**		**$ 9,200,000**	
Years 2, 3: Maintenance costs					