

# Workbook

## COMPARING COSTS

### Benefits of Server Virtualization

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How do you measure potential cost reductions resulting from consolidation of servers achieved through virtualization in the sharing of processing and disk memory management?

**INSTRUCTIONS:** Obtain the inventory of servers currently in place. These servers were originally installed as standalone support for individual applications. In most cases they will be configured for handling peak load capacity and will feature substantial surplus processing power and disk space.

- ▶ Obtain estimates of manpower needed to support the operation of existing servers, plus the estimated costs of electrical power for the computers as well as air conditioning.
- ▶ Estimate the amount of central staff needed to support the servers for capacity management, education, training and configuration management.
- ▶ Obtain comparable data for the proposed consolidated server facilities, including the supporting infrastructure. Increase the supported uptime from two shifts to three shifts and increase the quality of service.
- ▶ Follow calculations at left.

An interactive version of this tool may be downloaded from *Baseline's* Premium Tools site at: [GO.BASELINEMAG.COM/SEP07](http://GO.BASELINEMAG.COM/SEP07).

#### Tool: Calculating Savings From Server Virtualization

BEFORE CONSOLIDATION		EXAMPLE	YOUR COMPANY
A	Number of servers	1,000	
B	Cost per server, installation and software (assumes Dell PowerEdge 6800)	\$10,800	
C	Networking costs per server, including communication ports (Dell PowerConnect 6248)	\$6,990	
D	Disk storage per server (assumes 10 GB Dell PowerVault)	\$9,500	
E	<b>Cost per server (B + C + D)</b>	<b>\$27,290</b>	
F	Annual cost per server (3-year depreciation) (E ÷ 3)	\$9,097	
G	Annual cost of electricity for servers and air conditioning	\$1,100	
H	Annual cost of floor space, security and rack space	\$1,800	
I	<b>Total annual cost per server (F + G + H)</b>	<b>\$11,997</b>	
J	Cost of operating personnel (1 operator per 20 servers @ \$55,000; 2 shifts) (1 × 2 × \$55,000 × A ÷ 20)	\$5,500,000	
K	Cost of systems engineering plus management (1 staff per 100 servers @ \$85,000) (85,000 × A ÷ 100)	\$850,000	
L	<b>Total cost for 1,000-server installation (A × I + J + K)</b>	<b>\$18,346,667</b>	
AFTER CONSOLIDATION			
M	Number of servers	20	
N	Cost per server (assumes SunFire E4900)	\$168,000	
O	Networking costs per server (Dell PowerConnect)	\$27,960	
P	Disk storage per server (StorageTek 6540 7000 GB)	\$200,000	
Q	<b>Cost per server (N + O + P)</b>	<b>\$395,960</b>	
R	Annual cost per server (6-year depreciation) (Q ÷ 6)	\$65,993	
S	Annual cost of electricity for servers and air conditioning	\$11,000	
T	Annual cost of floor space, security and rack space	\$10,800	
U	<b>Total annual cost per server (R + S + T)</b>	<b>\$87,793</b>	
V	Cost of operating personnel (2 operators/10 servers @ \$75,000; 3 shifts) (2 × 3 × \$75,000 × M ÷ 10)	\$900,000	
W	Cost of systems engineering plus management (1 staff @ \$100,000) (100,000 × M ÷ 20)	\$100,000	
X	<b>Total cost for 20-server installation (M × U + V + W)</b>	<b>\$2,755,867</b>	
REDUCTIONS THROUGH VIRTUALIZATION			
Y	Total savings in information technology ((A × F) - (M × R))	\$7,776,800	
Z	Total savings in infrastructure ((G + H) × A - (S + T) × M)	\$2,464,000	
AA	Total savings in personnel ((J + K) - (V + W))	\$5,350,000	
BB	<b>Total savings due to virtualization, percentage change ((L - X) ÷ L)</b>	<b>- 85%</b>	