CLEARCUBE®

Cost Reduction Justification of ClearCube Zero Clients

January 2014

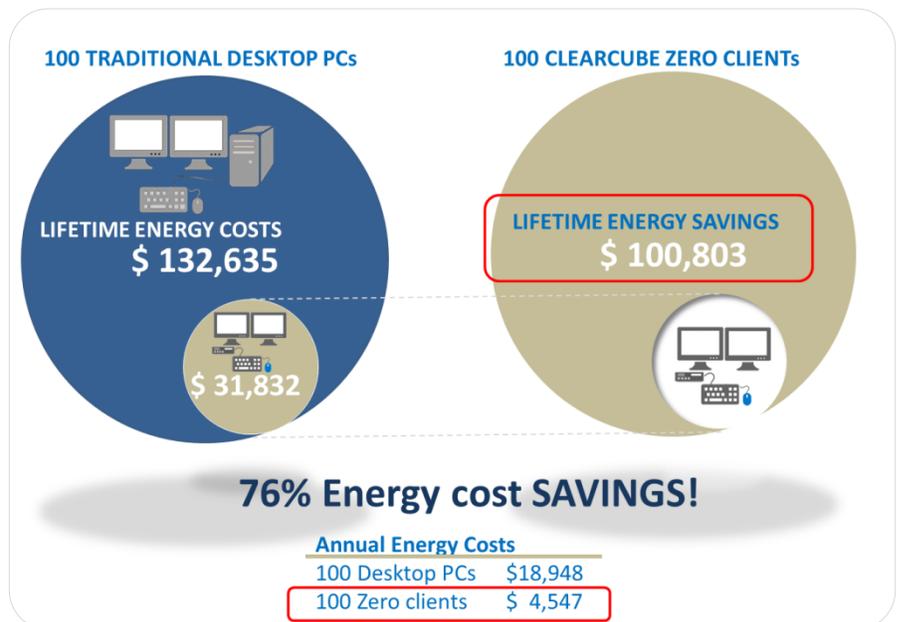## COST REDUCTION JUSTIFICATION USING CLEARCUBE TECHNOLOGY PRODUCTS.

Enterprises experience significant business value from the deployment of ClearCube Zero Clients and Virtual Desktop Infrastructure (VDI). In order to capitalize on these benefits, now formalized initiatives throughout the DoD are in place for multiple branches to replace physical desktop PCs with Zero Clients.

By removing the traditional desktop PC from the endpoint, abstracting the operating system, applications and data away from the physical edge device and moving them to a secure datacenter, government enterprises are saving money and demonstrating good stewardship with taxpayers' dollars in four meaningful ways:

- Lower platform costs
- Increased operational efficiency
- Consistent and secure service
- Quality of service

Energy Costs Savings

One component of lower total cost of ownership of the platform is reduced energy costs. Compare 100 traditional desktop PCs' energy costs to 100 zero clients and the datacenter infrastructure energy costs over 7 years. The result will be the VDI and zero client solution will cost 76% less for energy than traditional desktop PCs

100 TRADITIONAL DESKTOP PCs

LIFETIME ENERGY COSTS
$ 132,635

$ 31,832

100 CLEARCUBE ZERO CLIENTs

LIFETIME ENERGY SAVINGS
$ 100,803

76% Energy cost SAVINGS!

Annual Energy Costs	
100 Desktop PCs	$18,948
100 Zero clients	$ 4,547

Efficiency Costs Savings

Consolidated IT infrastructure with virtualization increases the ability of IT departments to support IT services far more efficiently. Installation of zero clients and virtual desktops is far less time consuming than desktop PCs.

A typical desktop PC requires 2.7 hours to install, configure and deploy while a virtual desktop requires 0.8 of an hour to install, configure and deploy. Assuming an average burdened hourly wage of an IT engineer is $42 per hour, 100 traditional desktop PCs will cost $11,340 versus 100 virtual desktops' cost of $3,360, a savings of $7,980 in installation labor costs.

From a speed to productivity perspective, there are 2 other impacts worth considering:

- End user time to productivity
- IT Engineer time on task

End users with zero clients and virtual desktops are productive far sooner

INSTALLATION TIME SAVINGS LEADS TO 70% TIME TO PRODUCTIVITY GAINS

100 TRADITIONAL DESKTOP PCs — 270 hours to install

190 productivity hours recovered — 70% savings IT staff & end users
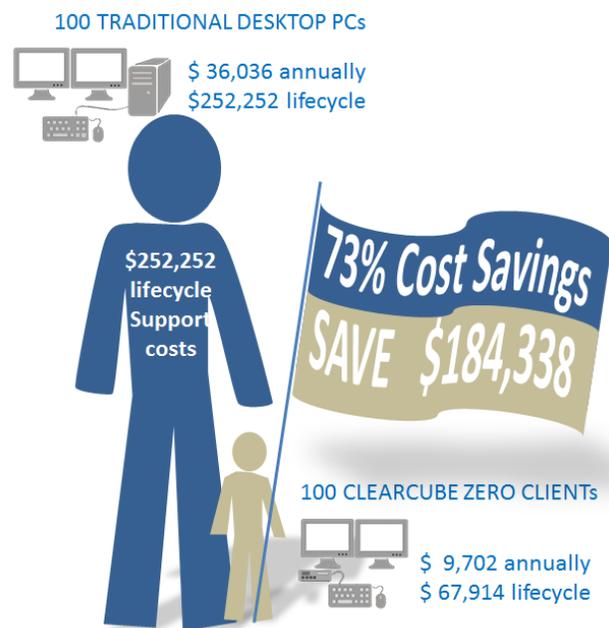
80 hours to install

100 CLEARCUBE ZERO CLIENTs

than the desktop PC end users. IT engineers, having completed the installation in less than 30% of the time the PC would have required, are able to move on to other IT objectives sooner.

Ongoing support

On average traditional desktop PC clients require 1 administrator for every 150 desktop PCs supported and requires an average of 13 hours administrator time annually at $42 per hour; whereas a single administrator can easily manage 300 virtual desktops which require only an average of 7 hours annually for administration. Tasks include administering software patches, software upgrades, advanced technical support, networking issue resolution, anti-virus, etc.

Lifecycle IT Administration Costs

100 TRADITIONAL DESKTOP PCs

$ 36,036 annually
$252,252 lifecycle

$252,252 lifecycle Support costs

73% Cost Savings
SAVE $184,338

100 CLEARCUBE ZERO CLIENTs

$ 9,702 annually
$ 67,914 lifecycle
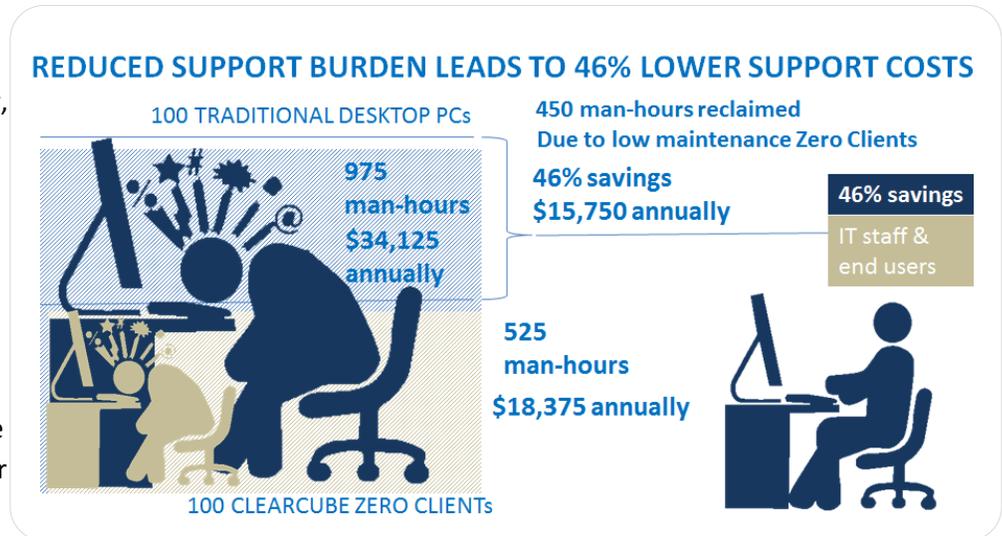
100 virtual desktops with ClearCube Zero Clients will produce an estimated savings of $184,338 in administrative support costs over the 7 year lifecycle.

Another layer of cost involves the reduced productivity of end users with failing computers. Assuming the average burdened hourly wage of the end user is $35 per hour and that they may still be 25% productive without their computers, the organization employing zero clients gets its workforce back to 100% productivity in only 525 man-hours. This represents a 46% savings over the expected 975 hours of downtime experienced by the desktop PC enabled workers.

Unplanned downtime

Unplanned downtime can wreak havoc on productivity, loyalty, profitability and reputation among other things and estimating the costs of this downtime is easiest by using a table that shows the impact of 6 downtime use cases. Reviewers may use the table to create a likely scenario for your own use case.

REDUCED SUPPORT BURDEN LEADS TO 46% LOWER SUPPORT COSTS

100 TRADITIONAL DESKTOP PCs

975 man-hours $34,125 annually

450 man-hours reclaimed Due to low maintenance Zero Clients

46% savings $15,750 annually

46% savings IT staff & end users

525 man-hours $18,375 annually

100 CLEARCUBE ZERO CLIENTs

For an example, assume an 8 hour workday; 246 workdays per year, 100 employees, $10.23 enterprise average hourly wage[1] and 75% of the employees are impacted by downtime.

Unplanned downtime (mission-critical)	Hours/Year	Typical uptime	Hours down per year	Producitivity cost *	% Impacted	Downtime risk $
Peerless in class	1968	99.9999%	0.002	$ 10,226.12	75%	$ 15
Best in class		99.999%	0.02	$ 10,226.12	75%	$ 153
Good		99.900%	1.97	$ 10,226.12	75%	$ 15,109
Better than average		99.500%	9.84	$ 10,226.12	75%	$ 75,469
Average		99.000%	19.68	$ 10,226.12	75%	$ 150,938
Worse than average		98.000%	39.36	$ 10,226.12	75%	$ 301,875

* per unplanned downtime hour for the typical impacted user group $ 10.23

An "Average" organization (from the table above) could experience almost 20 hours of downtime per year in which 75 % of the employees are impacted. That outage may cost $150,938 in lost employee productivity. This scenario does not factor in the external impacts such as lost sales revenue, lost customers, damaged reputation, etc., any of which can make the employee productivity costs seem trivial in some cases.

Security benefits and added savings from MILS reduced logistics

In addition to the primary security benefit of zero clients (no OS, no data, no memory) and all data in a secure datacenter, our specialty zero clients offer special security benefits unique to ClearCube and our customers.

For multiple security domains (MILS) to the desktop access, ClearCube's ClientCube offers up to 4 independent networks to the desktop in one small package. This combination saves in desktop workspace and power consumption (removes 4 PCs from the desktop). A single keyboard and mouse eliminates the unneeded replication of peripheral purchases by a factor of 4 as well. Surprisingly the potential savings from shipping costs alone, as experienced by some of our current customers, almost

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[1] Blended salaries 50 task workers, 25 knowledge and 25 power users

covers the cost of the ClientCube acquisition. For example, the shipping fees for shipping an order of 4 PCs for 100 desktops would be a minimum of 12 medium large shipping boxes per desktop, or 1200 boxes on the loading dock. The fully configured ClientCube for 4 networks will arrive in 3 boxes per desktop (a monitor, a keyboard and a ClientCube) or 300 smaller boxes as opposed to 1200.

Other areas where meaningful savings may be realized include:

- Security cyber-attack through endpoint costs – average cost in North America $805,549: SMBs average 5% of gross revenues
- Moves, adds and changes have zero ($0.00) associated costs in the virtual environment
- Loss of customer or intellectual property data due to security breach
- Disaster recovery and data backup
- Lost opportunity as by-product of downtime
- Customer loyalty loss as by-product of downtime

Summary