



# Guide to the TCO of Encryption

Deployment of Check Point data security  
can reduce the total cost of ownership by half

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## Executive summary

As the familiar saying goes, “There’s no such thing as a free lunch.” So it is with using information technology. Even so-called “free” open-source applications carry unavoidable costs of installation, management, and usage. Some of these costs can be controlled or even eliminated by smart use of appropriate applications, management technology, and best practices. But in the end, everything of value costs something to own and use.

This white paper, Guide to the TCO of Encryption, provides a rational model for analyzing the total cost of owning, managing, and using full-disk encryption in large organizations. Encryption is a cyber security technology used to protect the confidentiality, integrity, and availability of information stored on or transmitted between computers. Pointsec solutions by Check Point automatically obscure digital files and make them unreadable by unauthorized people. The software allows authorized users to automatically unencrypt files for use with appropriate applications. Mobile devices protected with Pointsec encryption prevent unauthorized people from accessing confidential stored information—even if a mobile device is lost or stolen.

This white paper describes the costs of owning and using encryption from many perspectives. It surveys five types of operational costs such as installation, administration, and providing end-user support. An analytical model described here helps organizations consider these costs in perspective of their frequency and associates them with the human costs of performing those tasks. This white paper also factors in costs of encryption software licensing and maintenance.

Analysis of total lifecycle costs of implementing Pointsec encryption solutions and two major alternatives shows that management efficiencies with Pointsec encryption can reduce the total cost of ownership (TCO) by half—even if the alternate solutions were given away.

### Also read: Guide to the ROI of Encryption

Check Point presents a companion white paper on encryption economics titled Guide to the ROI of Encryption. It assesses financial risks to information loss if an organization does not use encryption and how those losses can be reduced by using encryption. The guide shows that using encryption solutions from Check Point, organizations can cut the annual recurring costs of security exposure by 90 percent or more.

## Considering the TCO of encryption

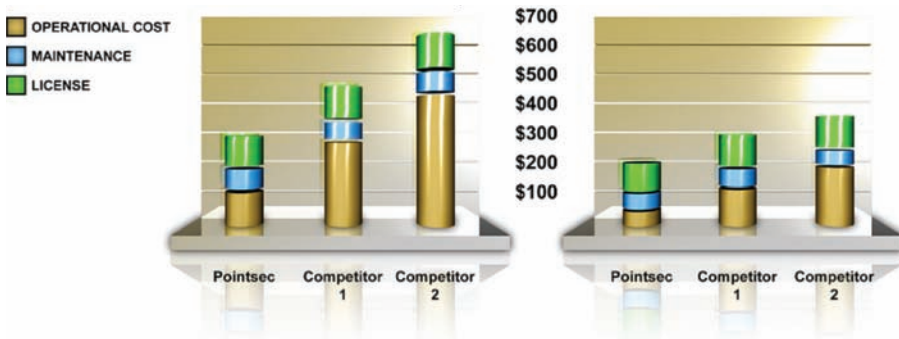
There are three elements to calculating total cost of ownership (TCO) for encryption: operations, licensing, and annual maintenance. Of these, operational costs far outweigh the price of encryption software. Organizations may negotiate with software providers on the cost of licensing and maintenance, but there is no flexibility or negotiation available for limiting operational costs beyond the management capabilities of the encryption software deployed in the enterprise.

As demonstrated in this paper, Pointsec solutions by Check Point provide the lowest TCO in large part due to their superior lightweight architecture, which provides strong encryption technology without the need for expensive servers or databases to support enterprise-wide full-disk encryption. For example, a large global financial services organization uses Pointsec encryption on 180,000 seats and administers the entire deployment with just three people. Check Point's mobile security software allows large organizations to "set it and forget it," making use of full-disk encryption an entirely transparent process to the workforce.

### Check Point has the lowest TCO

The graphs below compare TCO for Check Point and two leading competitors over a three-year period. The graph on the left is the total cost per seat in a 1,000-seat installation. The graph on the right is for a 10,000-seat installation. Each bar shows license fees on top, maintenance fees in the middle and operational costs on bottom.

In both scenarios, Check Point TCO is dramatically lower—even if both competitors gave away their products with no license fee.



The rest of this paper describes how these numbers were derived with an analytical model for determining the enterprise TCO of encryption.

## Market leader

Gartner ranked Pointsec as a leader in its MAGIC QUADRANT for Mobile Data Protection.

Gartner Research  
August 2006

## Operational costs

Operational costs of using encryption include two categories: administrative and end-user support. The most obvious costs pertain to administrative tasks such as installing encryption software, changing policies, and performing individual adds, moves, and changes. End-user support is often overlooked in considering TCO, but the use of encryption carries a clear user-oriented price tag, such as for resetting passwords, reconfiguring encryption after users upgrade desktop applications, and helping them recover from a crashed system.

These operational actions and value of associated human effort to complete them are detailed below. Descriptions include variables and frequencies for the respective tasks.

The TCO model developed by Check Point incorporates these actions by applying typical variables and frequencies reported by its customers and by numerous customers who have replaced competitive encryption products with Check Point data security solutions. Organizations may modify any of these variables in the model to reflect their own assumptions in projecting TCO for encryption.

## Installation

This category pertains to the installation of encryption software on an organization's local and remote PCs.

Installation task	Variables	Frequency
Initial installation of administration system	Time required to install and configure all components of the encryption product administration system	Once
Software upgrade	Effort depends on availability of software distribution and management tools	Once a year
Subsequent installation without imaging	Entails installing encryption software on remotely networked computers, typically about 70 percent of the PC inventory	Once
Subsequent installation with imaging	Additional task for encryption software architecture to image the software and updates onto new or recycled locally networked PCs, usually about 30 percent of the inventory	Approximately once a year

## Administration

This category pertains to routine administrative tasks associated with the management of encryption software.

Administrative task	Variables	Frequency
Security policy update	Could require extensive manipulation of software depending on encryption application's management capabilities	Less than twice a year
Security policy change domain	Reflects changes to policy for a domain or to a corresponding number of multiple groups to update a full domain	Less than twice a year
Security policy change group		Less than twice a year
Security policy change user level		Less than twice a year
Adding, deleting, or modifying a user account	Entails adding accounts for new employees, deleting employees that left an organization, and moving a user from one group to another	Dozen times a year
Audit of all computers in system	Entails viewing a combined log of all events based on time, and on some systems this may require manually exporting and then importing each log file	Twice a year
Audit of one computer in system	Subset of auditing all systems	Four times a year

## User interaction with product

This category includes direct costs of supporting end users of full-disk encryption. The most common incidents entail resetting passwords. Organizations that already provide end-user support for other applications may find that adding support for encryption is a minor incremental cost.

User task	Variables	Frequency
Password reset after it is forgotten by user		Twice a year
Forgotten token by user—issue temporary password	Amount of work for the task depends on what needs to be done to get the user productive today and to reset the user back to token-use tomorrow	Once a year
Manual password synchronization by user		Twice a year
Password synchronization by user with Windows		Twice a year
Updating recovery disk	Required by some systems, which may require user participation	Dozen times a year
Initial user name configuration	Entails entering a user name for use with the encryption application. Administrator must ensure the name is unique if the application uses the Windows logon name or pulls it from a directory	Once

### Administration of other applications

Upgrades to other applications using Wake on LAN may require additional administration related to an organization’s deployment of encryption. The matrix below presents a typical large organization’s portfolio of applications on a desktop PC. Upgrades of each application may affect configuration of encryption software. This model assumes an organization will upgrade just two of these applications once a year. Typical upgrade frequencies are often much higher.

Support task	Variables	Frequency
Troubleshooting	May require using a DOS-based utility with review of extensive error logs	Rare
Recovery of a damaged disk	Includes time to create, distribute, and use disk-recovery functions	Rare
Repairing damaged Windows installation	Sometimes a disk must be unencrypted before repair can be made	Rare
Hands-on access	Updating a local encryption product configuration may require temporary administrator rights—possibly requiring on-site work by support staff	Rare

### User support

This category includes other tasks for user support of encryption that require an on-site visit from a support technician. Such incidents are rare, so this model assumes just four-tenths of one occurrence per PC during a three-year period.

Administrative task	Variables	Frequency
Application software upgrade configuration	Amount of work depends on the number of upgraded applications. A typical portfolio includes: <ul style="list-style-type: none"> <li>• Word processing</li> <li>• Spreadsheet</li> <li>• Presentation</li> <li>• VPN software</li> <li>• Corporate application such as Enterprise Resource Planning</li> <li>• Browser</li> <li>• Browser plug-ins for Web-based applications</li> </ul>	Twice a year

## Licensing costs

Licensing costs for encryption include two elements. First is the initial cost of purchasing the software for managing encryption in an enterprise, along with licenses for each local and remote device to be protected with encryption capability. The second element is the annual technical support and software maintenance cost, which can range from 20 to 40 percent of the initial cost of licensing.

## Using the TCO spreadsheet model

Performing lifecycle cost calculations is best done with a TCO model for encryption. To help evaluate realistic scenarios, Check Point developed a model for an encrypted IT environment that specifies encryption-related operational events described above, accounts for real-world frequency of events, and calculates the reasonable effort-based labor cost of those events for support staff and for end users.

A -- Cost Elements		B -- Frequency												C -- TCO Calculations			D -- Weightings (effort per incident)					
		Year 1			Year 2			Year 3			Pointsec	Competitor A	Competitor B	Pointsec	Competitor A	Competitor B	admin	user				
Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4				admin	user	admin	user				
<b>TCO Data Encryption solution</b>																						
<b>Installation</b>																						
- Initial install of Administration system		1																				
- Software upgrade				1		1			1				\$258.00	\$330.00	\$138.00	2	0.1	2	0.5			
- Subsequent install without imaging		1											\$20.00	\$20.00	\$8.00	0.5		0.5	0			
- Imaging used to install		1		1					1				\$16.00	\$640.00	\$640.00	0.1		4				
<b>Administration</b>																						
- Security policy update				1		1			1				\$40.00	\$100.00	\$0.00	0.2		0.5				
- Security Policy Change Domain				1		1			1				\$200.00	\$200.00	\$200.00	1		1				
- Security Policy Change Group				1		1			1				\$20.00	\$60.00	\$20.00	0.1		0.3				
- Security Policy Change User Level				1		1			1				\$20.00	\$40.00	\$20.00	0.1		0.2				
- Adding, Deleting and Modifying a user		3	3	3	3	3	3	3	3	3	3		\$288.00	\$576.00	\$144.00	0.2		0.4				
- Audit of all computers in system		1		1		1			1				\$120.00	\$120.00	\$72.00	0.5		0.5				
- Audit of one computer in system		1		1		1			1				\$48.00	\$96.00	\$48.00	0.1		0.2				
<b>Subtotal Installation and Administration</b> (excluding password reset, which is below in "User Interaction" elements)																						
Admin for 1000 Users														\$41,360	\$87,440	\$51,920						
Admin for 10,000 Users														\$78,000	\$186,000	\$116,800						
Admin for 100,000 Users														\$312,800	\$744,800	\$468,800						
<b>User interaction with product</b>																						
- Password reset PIV forgotten by user		1		1		1			1				\$30.00	\$60.00	\$60.00	0.05	0.05	0.1	0.1			
- Forgotten token by user - temp password		1		1		1			1				\$21.00	\$33.00	\$33.00	0.1	0.05	0.25	0.05			
- Manual Password reset by user		1		1		1			1				\$0.00	\$18.00	\$18.00	0	0	0	0.05			
- Password reset by user with windows		1		1		1			1				\$0.00	\$18.00	\$18.00	0	0	0	0.05			
- Updating recovery disk		3	3	3	3	3	3	3	3	3	3		\$0.00	\$216.00	\$0.00	0	0	0	0.01			
- Initial user name configuration		1							1				\$0.00	\$1.20	\$4.00	0	0	0	0.01			
<b>Administration of other applications</b> (in a fully encrypted environment)																						
- Application software upgrade VCL		1		1		1			1				\$4.80	\$4.80	\$4.80	0.02		0.02	0.02			
<b>User support (Admin visits user)</b>																						
- Troubleshooting													\$140	\$2.80	\$2.80	0.2	0.1	0.4	0.2			
- Recovery of damaged disk													\$2.60	\$4.60	\$4.60	0.5	0.1	1	0.1			
- Repairing damaged windows installation													\$0.40	\$4.60	\$4.60	0.1	0	1	0.1			
- Hands-on access													\$1.00	\$4.60	\$4.60	0.1	0.1	1	0.1			
<b>User interaction costs</b>																						
1000 seat population														\$61,195	\$173,195	\$154,395						
10,000 seat population														\$305,938	\$695,938	\$771,938						
100,000 seat population														\$1,410,047	\$4,473,939	\$3,859,939						
<b>License and Maintenance costs</b>																						
1000 seat license														\$58.88	\$118.83	\$105.44	\$40	admin cost	\$40	admin cost (\$/hr)		
10,000 seat license														\$55.33	\$71.33	\$63.26						
10,000 seat maintenance														\$51.20	\$79.95	\$98.78	\$60	user cost	\$60	user cost (\$/hr)		
100,000 seat license and maintenance*														\$54.72	\$47.97	\$59.86						
100,000 seat license and maintenance*														N/A	N/A	N/A						
100,000 seat license and maintenance*														N/A	N/A	N/A						
* (Not Available - No access to competitive data)																						
<b>Total Operational Cost (3 year)</b>																						
1000 seat population														\$102,555	\$266,635	\$206,315						
10,000 seat population														\$383,938	\$1,081,938	\$888,798						
100,000 seat population														\$1,722,847	\$5,224,739	\$4,328,739						
<b>Total Year</b>																						
1000 seat population														\$34,185	\$88,878	\$68,772						
10,000 seat population														\$127,959	\$360,666	\$296,266						
100,000 seat population														\$574,262	\$1,741,000	\$1,442,933						
<b>Cost/copy/year</b>																						
1000 seat population														\$34	\$89	\$69						
10,000 seat population														\$13	\$36	\$30						
100,000 seat population														\$6	\$17	\$14						
<b>Total Cost of Ownership (3 year)</b>																						
1000 seat population														\$250,763	\$456,763	\$375,019						
10,000 seat population														\$1,943,988	\$2,361,188	\$2,494,958						
100,000 seat population (N/A)														N/A	N/A	N/A						

All values may be modified as desired. An independent tester populated this model with Pointsec-encryption solution-specific data and with similar information for the two nearest competitive products for large-scale encryption deployments. The event and cost data were then validated with customers who have switched from an alternate product to Pointsec encryption solutions. The analysis presents TCO for a three-year lifecycle with endpoint populations of 1,000, 10,000, and 100,000 seats.

A printout of the model is shown on the previous page. Its four sections are labeled A – D:

- Section A details operational events and licensing cost elements
- Section B assigns frequency-per-seat of these events quarter-by-quarter over a three-year period
- Section C presents cost calculations for Pointsec encryption and the two major alternate solutions
- Section D provides weightings for the TCO calculations. Values less than 1 respectively discount the effort required to complete a particular action. Labor rate values are specified for IT support and end users. A matrix at the lower right of Section D applies an enterprise “scaling factor” that further discounts the values based on the greater economies of scale experienced in larger environments

### **Calculating costs for a specific environment**

Check Point invites you to contact us for more information about the economics of rapidly deploying our Pointsec encryption solutions in your organization’s IT environment. We encourage your organization to perform its own TCO analysis by using information presented in this paper. Please contact your Check Point sales representative at 800-579-3363 or 630-392-2300, or visit our web site at [www.checkpoint.com](http://www.checkpoint.com).



## About Check Point Software Technologies Ltd.

Check Point Software Technologies Ltd. ([www.checkpoint.com](http://www.checkpoint.com)) is a leader in securing the Internet. The company is a market leader in the worldwide enterprise firewall, personal firewall, data security and VPN markets. Check Point's PURE focus is on IT security with its extensive portfolio of network security, data security and security management solutions. Through its NGX platform, Check Point delivers a unified security architecture for a broad range of security solutions to protect business communications and resources for corporate networks and applications, remote employees, branch offices and partner extranets. The company also offers market leading data security solutions through the Pointsec product line, protecting and encrypting sensitive corporate information stored on PCs and other mobile computing devices. Check Point's award-winning ZoneAlarm Internet Security Suite and additional consumer security solutions protect millions of consumer PCs from hackers, spyware and data theft. Extending the power of the Check Point solution is its Open Platform for Security (OPSEC), the industry's framework and alliance for integration and interoperability with "best-of-breed" solutions from hundreds of leading companies. Check Point solutions are sold, integrated and serviced by a network of Check Point partners around the world and its customers include 100 percent of Fortune 100 companies and tens of thousands of businesses and organizations of all sizes.

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