Nash Networks Inc
IT Consulting

Serious about technology. Serious about your business.

"Making every IT dollar count!"

Part 1, January 2009

Total Cost of Ownership (TCO) of IT

Contents

Executive Summary

➢ Total cost of ownership (TCO) includes the direct and indirect costs over the lifecycle of an asset.

➢ The biggest direct IT costs are hardware, software and support.

➢ The purchase price of hardware and software is typically less than 50% of the total direct costs.

➢ Indirect, or "hidden", costs are caused by lost or reduced productivity because of downtime, informal peer support, suboptimal performance and other causes of poor functioning or wasted time.

➢ Indirect costs can account for more than half the TCO. Despite this, they are often totally overlooked.

➢ Costs can be reduced and productivity increased by proper planning and management.

➢ Detailed calculation of TCO doesn't make much sense for most small businesses, but understanding the true costs, their relative importance and how they can be contained, is critically important.

➢ Decision-makers must always balance the costs of a system versus the benefits it brings to the business and the end users. **"Cost is what you pay. Value is what you get."** (Warren Buffett).
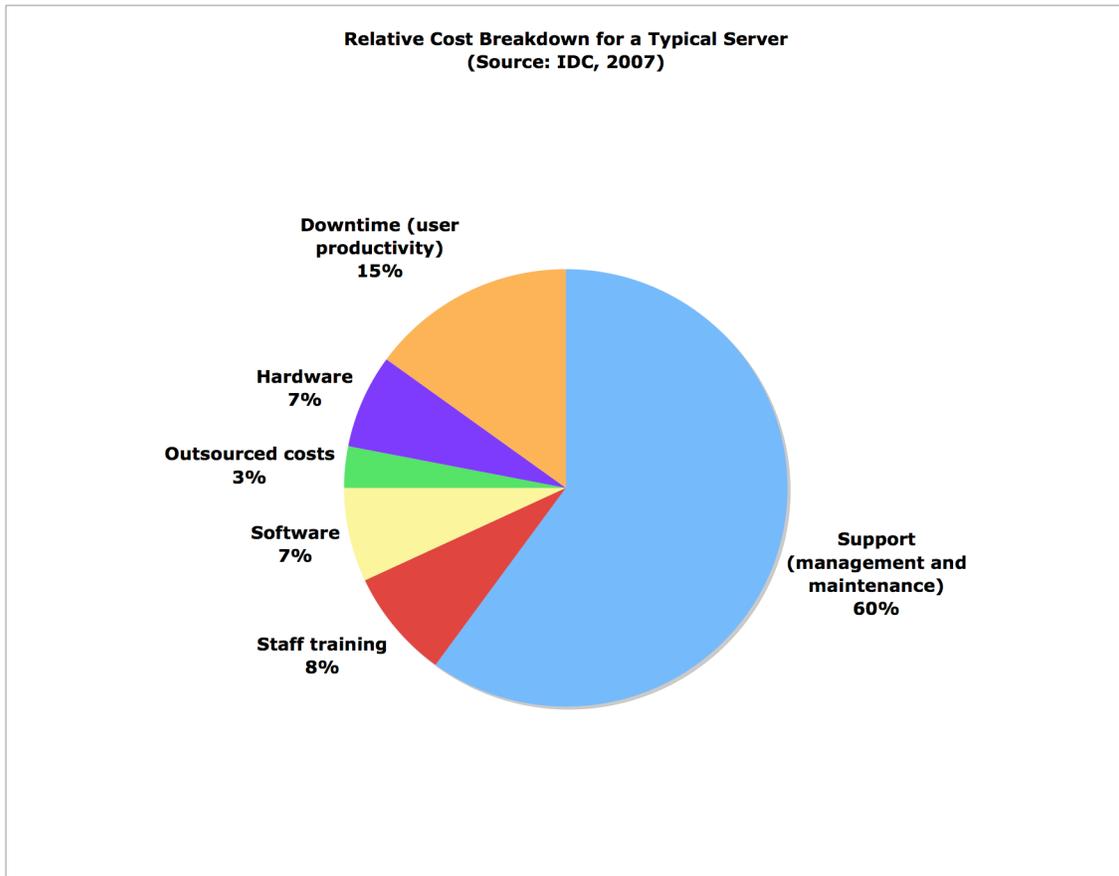
What Is TCO and Why Does It Matter?

TCO calculates the direct and indirect costs of IT over its lifecycle.

It's important because it gives a realistic picture of the true cost of IT, and from there it's possible to decide how to make IT expenditure most cost-effective.

Typical TCO and TCO Breakdown

The TCO of typical office PC systems ranges from $3,000 to $10,000 per unit per year. One study found that TCO was 2½ - 3 times the direct cost of hardware, software and support. In other words, for every dollar spent on direct costs, another dollar or two was spent indirectly.

For a typical server, management and maintenance represent about 60% of total costs and downtime chews up 15% (see graph).

Relative Cost Breakdown for a Typical Server
(Source: IDC, 2007)

- Downtime (user productivity) 15%
- Hardware 7%
- Outsourced costs 3%
- Software 7%
- Staff training 8%
- Support (management and maintenance) 60%

➢ TCO differs between organizations, given their different computing environments, user experience level and IT expertise.

➢ PC systems have much higher indirect costs than direct costs.

➢ TCO analysis is always inexact, due to the many assumptions and unknowns that have to be taken into account.

➢ As you provide more functionality and capability to end users, TCO rises.

➢ As you install more software or provide more complex hardware at the hands of end users, you pay increasingly more for support and maintenance.

The following table shows the TCO for a single desktop PC over its 3-4 year lifecycle. This example doesn't take all hidden costs into account, which is why it's so much lower than other estimates in this paper, but the numbers still demonstrate that the total cost of the computer over its lifetime is **more than double** the purchase cost.

Phase of Lifecycle	Cost
Purchase (computer; printer/scanner/fax; cables, printer ink; paper)	$3,090
Deployment (Setup, staff downtime)	$500
Operations (Admin, downtime)	$1,040
Support	$1,680
Retirement	$630
TOTAL COST	**$6,940**
APPROX. ANNUAL COST	**$2,000**

Microsoft's 2008 figures for a similar analysis are $5,384 **per year** over the lifecycle of a PC, of which acquisition costs average $1,364 per year.

Direct Costs

Direct IT costs typically include:

➢ **Hardware and software**

➢ **Support**

➢ **Consumables**

➢ **Network-related recurring costs** (e.g. Internet)

➢ **Facilities** (e.g. environment-controlled server room)

➢ **Administration** (human resources, training)

For direct costs alone, support is usually more than half the total IT budget. A study of US schools estimated that a well-supported technology program requires annual expenditures of 30-50% of the original investment. On university campuses, direct costs were broken down as hardware 24%, software 7% and personnel-related 53%. Another source estimated that 65% of IT budgets go to ongoing support.

The following tables show **direct** costs from 51 large organizations with average revenues of over $450 million and average staff numbers over 2,500 (Gartner 2007). Smaller organizations may have lower costs per user because of smaller budgets, less waste and less complexity, but on the other hand they lack the advantage of economies of scale and may need to maintain ageing systems.

Overview (Gartner 2007)

IT budget	
Average IT operating budget as % of revenue	5.5%
Average IT capital budget as % of revenue	2.5%
Average IT operating budget per employee	$9,100

Breakdown of direct IT costs (Gartner 2007)

IT spending by category	
Hardware	26%
Software	20%
Support (staff, external providers, contractors)	41%
Telecommunications	13%

Average operating budget (per employee per year) in different industries (Gartner 2007)

Industry	Annual cost per employee per year
Average for all industries	$6,800
Communications	$15,800
Construction	$4,100
Distribution - Retail	$3,300
Distribution – Wholesale	$6,100
Financial Services – Banking	$13,800
Financial Services – Insurance	$9,800
Financial Services – Other	$11,200
Media	$11,000
Professional services	$9,100
Transportation	$5,900

Indirect Costs

Indirect costs are all, in some way, related to **lost productivity** – with direct implications for profitability and competitiveness.

Availability takes precedence over all other requirements: A system is only useful if it's up, running and functioning well! Maintaining high availability requires significant maintenance and management and a pro-active approach.

Hidden costs include:

➢ **Downtime** – scheduled and unscheduled. All or part of the network is not available to users.

➢ **Suboptimal functioning** – e.g. inappropriate or outdated applications software, slow computers or poorly trained users.

➢ **User-induced problems** – e.g. deleting critical files, ignoring warning messages, clicking on pop-ups that install viruses, changing configurations.

➢ **"Shadow support"** – internal support provided by advanced end users on top of their official job duties. (When these end users are proficient and know their limits, this can save, rather than cost, money, but only if the time they spend on IT saves more than the productivity lost from their normal duties.)

➢ **"Futz" Factor** - use of computers for non-business purposes (e.g. online games, surfing the Web or personal emails).

➢ **"Fiddle factor"** – time spent by users changing the look and feel of their computers e.g. changing the desktop, installing desktop accessories, fiddling with fonts.

➢ **Time that is often not tracked or is overlooked** – for example, time spent researching purchases and getting quotes; time spent dealing with vendors before a problem is diagnosed and fixed.
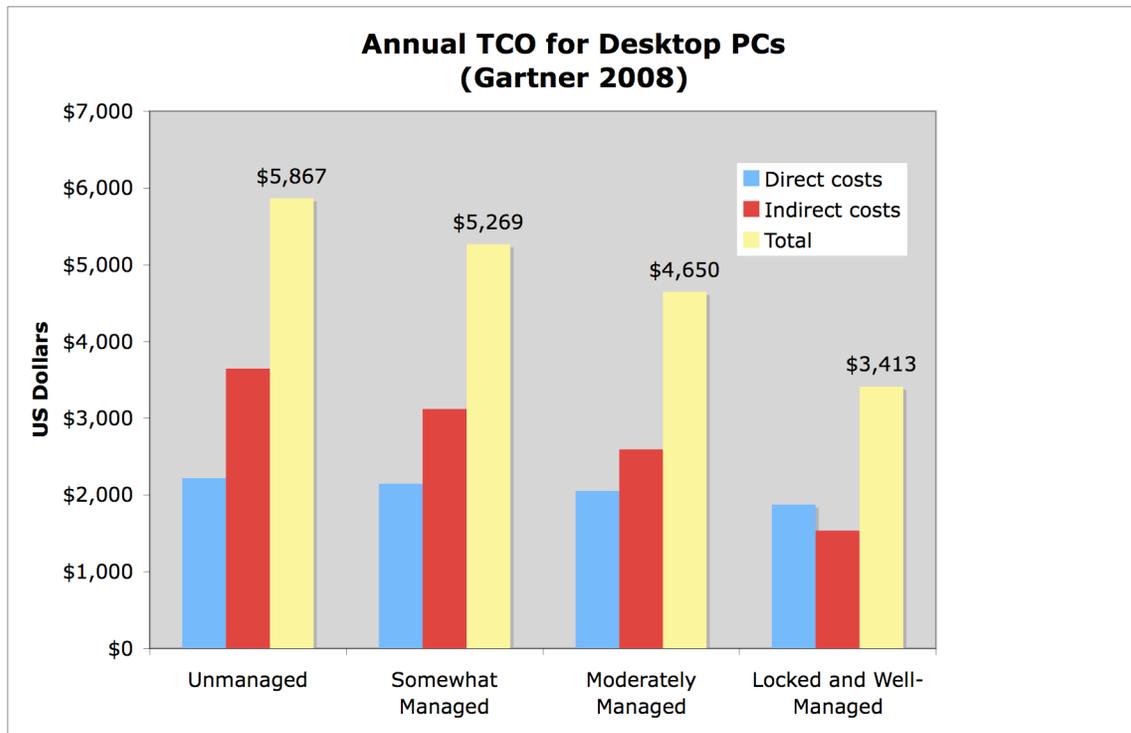
Quantifying Hidden Costs

Quantifying hidden or indirect costs is extremely difficult and it is generally pointlessly time-consuming to quantify them in great detail. However, it's certainly well worth the exercise of working through the different categories and putting an estimate to each. You might find the results surprising or even shocking!
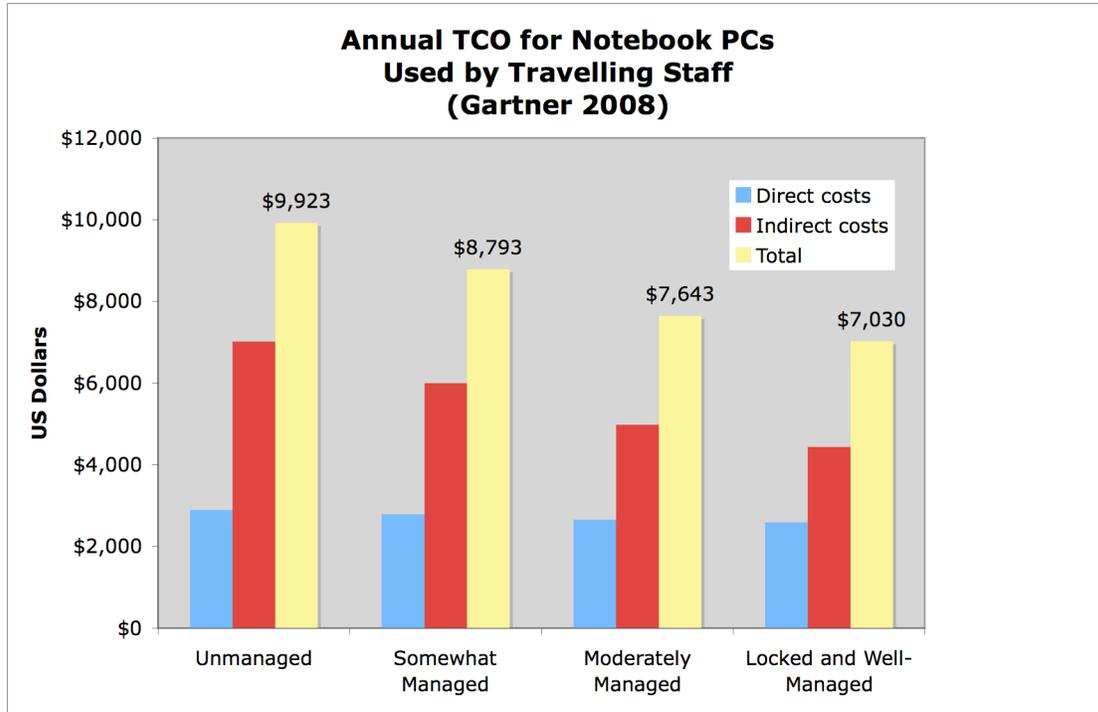
You can download a free TCO calculator, in Excel format, from Info-Tech, or download Tri-Active's white paper, "Calculating Your Total Cost of Ownership (TCO)". Both are free, but require registration.

Cost Reduction Strategies

How do you find the right balance between managing costs and optimizing productivity?

➢ **Active management** of PCs can substantially reduce lifetime costs. The following graphs demonstrate savings for desktop and notebook PCs.

Annual TCO for Notebook PCs
Used by Travelling Staff
(Gartner 2008)

US Dollars

- Direct costs
- Indirect costs
- Total

Unmanaged: $9,923
Somewhat Managed: $8,793
Moderately Managed: $7,643
Locked and Well-Managed: $7,030

(Notebooks have significantly higher TCO than desktops because they are more difficult to support and are generally provided to users with higher salaries than those using desktops.)

➢ **Pro-active monitoring.** Monitoring tools, in experienced hands, allow problems to be addressed and resolved before they reach crisis point. Recently, we identified a faulty hard drive on a client's server before it had actually crashed. We were able to back up and replace the drive with no disruption to the organization. Without the monitoring, they would have found themselves with a crashed server, no backup and days of disruption and lost productivity.

➢ **Planning.** Proper planning can cut both direct and indirect costs. For example, upgrading an entire network at once, if planned properly, can cost substantially less than piecemeal upgrades. You can negotiate volume discounts with suppliers, minimize downtime with a proper project schedule, ensure that all staff use the same systems and bring in trainers to ensure that everyone will be using the new system efficiently.

➢ **Policies & standards.** In many organizations, users customize their computers to the extent that each is effectively operating a different kind of machine. This dramatically increases support costs as well as chewing up users' time. Clear policies on computer set-up and what is and isn't allowed will help dramatically. Proper Internet usage policies will cut virus and spyware infections.

➢ **Training.** Poor IT skills in the workplace are a significant cause of lost productivity. Examples are slow and inaccurate typing, inability to effectively use a wide range of functions for key software like Office and inadvertently downloading viruses. Nobody would learn to drive a car by trial and error! Proper training is essential for cost-effective use of IT resources.

➢ **Vendor management.** The more complex an environment becomes, the harder it is for business owners to diagnose the source of a problem. Let's say email isn't going out or coming in. Is it the Internet connection? The wireless router? The incoming email provider? The outgoing email provider? The spam filter? The BES server? The Exchange server? Outlook?

Staff or owners typically spend a lot of time working with multiple vendors to try to pinpoint the problem. Users may not know what questions to ask, and vendor support personnel may be junior and limited in their ability to diagnose. Vendors are also notorious for passing the buck.

By using a knowledgeable managed services provider as your single point of contact to liaise with and manage vendors, a whole lot of these issues magically disappear.

➢ **Automation.** The last few years have seen an explosion of superb monitoring and management tools, yet a surprising number of IT consultants don't use them. That's bad news for their clients, because reactive on-site support costs more.

Upgrades, for example, used to be a slow and laborious task, but can now be scheduled to run automatically outside of business hours, with no disruption to users. Remote patch management allows managed services providers to delay installing patches until they've been pronounced safe and then install automatically at convenient times.

➢ **Remote support** tools allow the number of site visits to be cut by up to 90%, with dramatic savings. Not only do consultants not need to factor in travel costs, but techs can also work on several computers at once. That means you only pay for the time they spend working on your computer, not the hours it sometimes takes for processes to run while the tech hangs around your office drinking your coffee.

➢ **Backup and Disaster Recovery.** An appropriate, well-functioning backup and DR system is a critical part of business insurance. It can save significant money and productivity, and, in some cases, whole businesses.

➢ **Security.** Effective and appropriate security measures can prevent significant disruptions, and are essential to some organizations.

Keep It In Perspective

It certainly makes sense to keep costs as low as possible, but decision-makers must always **balance the costs of a system versus the benefits it brings to the business and the end users.**

Internet connectivity is a good example. Costs are significant - the connection, cabling, security, potential damage from hackers, viruses, and other malicious activities, staff time wasted on unauthorized surfing etc. On the other hand, what business can adequately compete or even survive without the access to information, worldwide reach, and accessibility to customers that the Internet provides?

Ultimately, many IT decisions you make will not be due to cost-avoidance but rather on the basis of **business advantage.**

Remember: **"Cost is what you pay. Value is what you get."** (Warren Buffett).

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About Nash Networks

What we do
We manage and maintain IT networks for small businesses.

Philosophy
We understand that every business is unique, with unique technology needs. We provide and support the mix of technology that's right for each client.

We aren't a one-solution shop. There's no such thing as one-size-fits-all in technology (or socks).

Skills
We know a lot about a lot: Windows, Unix, Macintosh, programming, connectivity, VoIP, virtualization, security, disaster prevention … and much more.

People
Our consultants are all university-educated, experienced, highly skilled and excellent problem-solvers.

Vendors & subcontractors
We recommend and use only quality vendors whom we know and trust.

Technology
We use state-of-the-art monitoring, remote support and backup tools.

We constantly update and upgrade our tools and capabilities - but where it makes sense, we continue to use tried and trusted, older technologies. We're not driven by fads.

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