



***Nash Networks Inc***  
***IT Consulting***

**Serious about technology. Serious about your business.**

# **Replacing Old Computers: A Guide for Small Business**

**"Making every IT dollar count!"**

**Part 11, November 2009**

# Contents

<b>Executive Summary .....</b>	<b>3</b>
<b>Every computer will fail .....</b>	<b>4</b>
<b>Major reasons to replace computers .....</b>	<b>4</b>
<b>How often should computers be replaced? .....</b>	<b>5</b>
<b>The problem of software upgrades.....</b>	<b>9</b>
<b>Managing the upgrade process .....</b>	<b>10</b>
<b>Types of hardware replacement policies .....</b>	<b>10</b>
<b>Tax implications in Canada .....</b>	<b>11</b>
<b>Sources .....</b>	<b>11</b>
<b>About Nash Networks .....</b>	<b>12</b>

# Executive Summary

🔗 The standard recommendation is to replace hardware after 3-4 years. 📄

## Major reasons to replace computers

- Computer has reached the end of its lifespan according to company policy
- Computer failed, unreliable, slow and productive and/or expensive to maintain
- Too risky to maintain because of age and high likelihood of failure
- Excessive demands on computer from new software or growing data stores

## Implications of maintaining old computers

- Direct and indirect (productivity) costs increase with age of the computer
- Failure rates from any cause increase with age

## Extending the life of hardware

- Memory and hard drive upgrades are often cost-effective
- Computer monitoring software can identify computers on the verge of failure and facilitate “just-in-time” replacement

## Types of hardware replacement policies

- Time-driven – replace PCs on a fixed schedule, usually every 3-4 years
- Performance-driven – replace when performance below a set threshold
- As needed – replace computers when they break or slow down intolerably

## Tax implications in Canada

The 2009 budget allows businesses to expense 100% of hardware purchased between 27 January 2009 and February 1, 2011.

# Every computer will fail

**“All technology has a set lifecycle. Manufacturers call this life cycle MTBF, or mean time between failures.”  
(Brian Roach)**

At some point, every computer will fail. It might silt over gradually and eventually grind to a halt, or it might fail suddenly and spectacularly. A clear hardware replacement strategy, combined with good monitoring software, can help maintain productivity and avoid productivity and budget shocks.

Hardware consumes about a third of IT budgets for small and medium businesses, so keeping hardware for longer would appear to be a good cost-saving measure. This could work in some cases, but businesses should – and often don't - factor in the costs of repair, ongoing maintenance, increasing numbers of issues and problems and associated reduction in productivity.

The challenge for small businesses is to develop a **cost-effective** replacement policy.

## Major reasons to replace computers

- Computer has reached the end of its lifespan according to company policy
- Computer has failed or is unreliable
- Computer is too slow and unproductive
- Too expensive to maintain
- Too risky to maintain because of age and high likelihood of failure
- Excessive demands on computer from new software or growing data stores

# How often should computers be replaced?

**The standard recommendation is to replace hardware after 3-4 years.**

The average useful lifespan of a PC or server is 3-5 years. It could be longer or shorter, depending on what the computer needs to do.

Computer monitoring software makes it possible to track how many errors a computer is making and replace it when it is starting to fail. It's more difficult for organizations to measure how much productive time they are losing from users battling to keep old, slow machines running once 5 to 10 years of data, software and "stuff" has accumulated on them.

How slow is slow? How slow is too slow? How much disruption is too much? It can be difficult to judge, particularly since most people readily adapt to their circumstances and may not realize how poorly a computer is performing. But it's extremely important for business owners to take a step back and look at this on a regular basis.

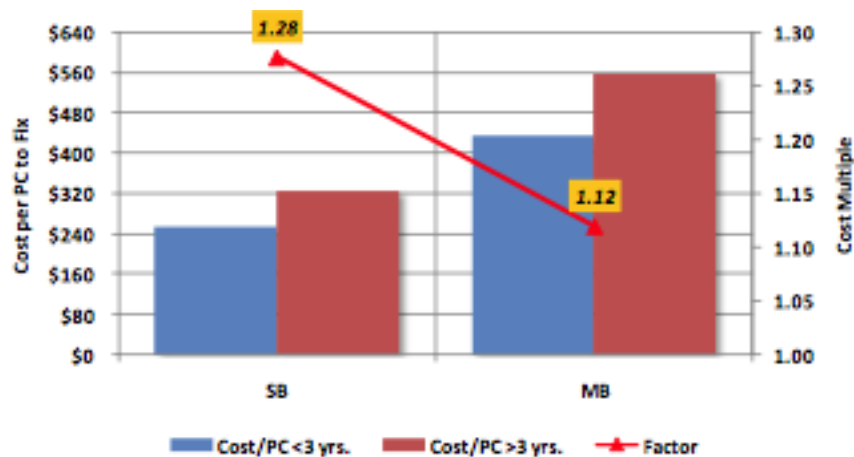
# Old and ageing hardware

## The impact of NOT replacing old hardware

The average direct cost of maintaining a PC older than 3 years is 1.1 to 1.3 times the cost of maintaining a newer PC. That might not be an enormous cost compared with direct costs of replacement and migration, but it doesn't factor in the indirect costs or losses, like lower productivity, downtime or the impact of a total computer failure.

### Cost of maintaining older vs. newer computers. SB: small business, MB: medium business

(Source: TechAisle White Paper: Cost of Maintaining PCs)



The average amount of workstation downtime increases by over 40% when a PC is over 3 years old. The absolute amount of average downtime is still not that high, though (3.5 hrs vs. 5 hrs) - so from a cost-benefit perspective, hanging on to old computers can still make sense in some circumstances.

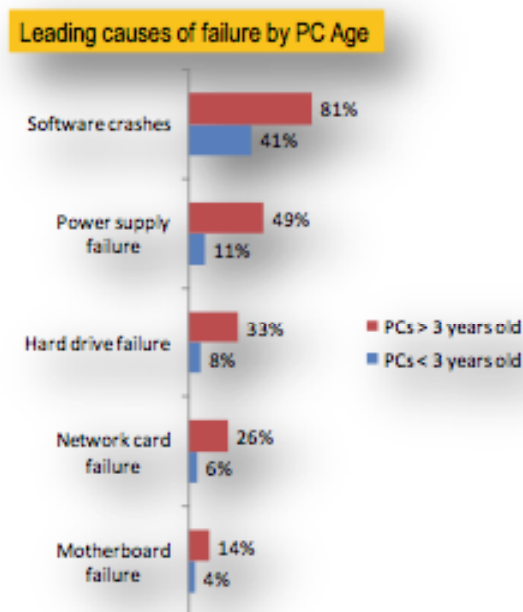
## What fails on older computers?

Failure rates from any cause increase with age. The single biggest cause of failures is software crashes. These are often related to the inability of the underlying hardware to cope with increasing software demands. Intermittent hardware problems like memory errors and overheating will also cause more frequent software crashes.

It's easier to recover from a hardware failure like a blown power supply or failed hard drive, than from a software bottleneck on a machine that's just too old and slow to cope.

### Causes of PC failure

(Source: TechAisle White Paper: Cost of Maintaining PCs)



## Extending the life of hardware

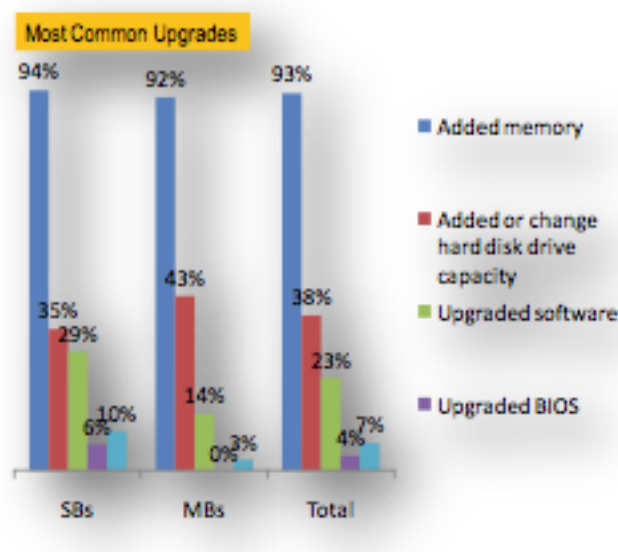
It can be quite feasible to upgrade hardware before replacing it, so long as the upgrade is cost-effective and the computer will still function productively for a reasonable amount of time.

- Memory upgrades are relatively cheap, can substantially boost performance and are usually very cost-effective. This is by far the most common upgrade.

- Hard drives are relatively inexpensive, but the cost of securing backups, reinstalling software and migrating data needs to be balanced against the cost of replacing the machine
- Power supplies are quick, easy and inexpensive to replace

### Common Hardware Upgrades

(Source: TechAisle White Paper: Cost of Maintaining PCs)



### Proactive monitoring can reduce the risk of maintaining older computers

Monitoring software allows proactive intervention on computers that are encountering problems, as these can often be detected before the user is aware of any issues.

Monitoring alerts can:

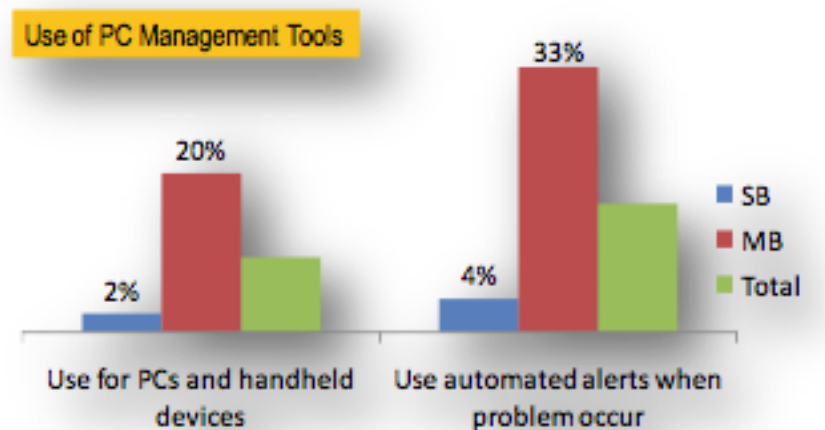
- Pick up the increasing numbers of errors that herald failing components
- Diagnose the cause of a problem by recording the history
- Alert observers to overfull hard drives which, if neglected, will stop a computer from functioning

- Log backups and alert observers to backup problems, a major risk if hardware is at the end of its life

Despite the advantages, only 4% of small businesses and about 33% of medium businesses use monitoring software with automated alerts.

### Use of PC Management Tools by SMBs

(Source: TechAisle White Paper: Cost of Maintaining PCs)



## The problem of software upgrades

Software upgrades come fast and furious. Even if new versions of software aren't needed or wanted, eventually businesses are forced to upgrade to avoid obsolescence and an inability to "talk" to the rest of the world or to other programs. Older hardware is often not powerful enough to cope adequately with new software, and a hardware upgrade or replacement becomes inevitable.

Automatic software updates may also force the business owner's hand by gradually pushing computers to the limits of their capabilities.

It makes sense to plan significant software and hardware upgrades together where possible, so that the new hardware is powerful enough for the new software.

(Our next article will address software upgrades, in particular Windows 7 and Office 2007.)

# Managing the upgrade process

The two major areas to manage when replacing hardware are the true cost of the process, and software implications.

- The cost of replacing hardware includes not just the ticket cost, but also cost of any upgrades (e.g. memory), labour and lost productivity during and after the process. Teething problems and troubleshooting should be taken into account.
- Hardware upgrades often involve software upgrades. It's important to ensure that old or legacy software is compatible with new software. The cost of new software needs to be factored in.
- For significant jumps in software (e.g. Office 2003 to Office 2007), user education and training should also be factored in.
- While data can be transferred from an old to a new computer, typically software has to be reinstalled. Businesses should ensure that they have valid, licensed copies of their critical software on usable media, and for downloads, that they have the license keys.
- It's critical that anyone moving data from an old machine to a new one should be thoroughly familiar with backup techniques and able to ensure that no important data is lost.

## Types of hardware replacement policies

There's no policy that's best for every business. The policy will depend on risk tolerance, budgets and performance requirements.

Time-driven – replace PCs on a fixed schedule, usually every 3-4 years. This is the simplest and safest policy, but carries the highest direct capital costs. It's the best policy for servers because of the impact of failure and downtime and the need for regular major software upgrades.

Performance-driven – replace PCs when performance drops below predetermined or acceptable levels.

As needed – replace computers when they break or slow down intolerably, and repair is not cost-effective. This makes sense for very small organizations with a high tolerance for downtime and small budgets.

“Just in time” – use automated monitoring and replace computers when log errors reach an unacceptable level or disks fill up too regularly

### **Hand-me-downs**

Many organizations pass on older or slower computers from power users to standard users. This is a good way to extend the life of a computer, but the costs of reconfiguring the machine, reinstalling software and migrating data can often outweigh the savings. It might be preferable to keep one or two of these computers as emergency spares.

## **Tax implications in Canada**

The 2009 budget allows businesses to expense 100% of hardware purchased between 27 January 2009 and February 1, 2011. This is a temporary measure and it makes sense to time capital purchases to take advantage of it.

## **Sources**

### **Canada's Economic Action Plan: Action to Support Businesses and Communities**

<http://www.budget.gc.ca/2009/plan/bpc3e-eng.asp>

### **TechAisle White Paper: Cost of Maintaining PCs**

[www.techaisle.com](http://www.techaisle.com)

### **The Top 12 Technology Mistakes Small Business Make And How To Avoid Them**

<http://www.knowtechnology.net/top12.aspx>

# About Nash Networks

## What we do

Our core business is managing and maintaining 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.

## Core Team

Paul Nash  
President  
paul@nashnetworks.ca  
(416) 848-3335 x 402

Noel Sutherland  
IT Consultant  
noel@nashnetworks.ca  
(416) 848-3335 x 405

Linda Jacobson  
General Manager  
Technical Writer  
linda@nashnetworks.ca  
(416) 848-3335 x 401

## Website

<http://www.nashnetworks.ca>