IT@Intel Brief

Intel Information Technology

Computer Manufacturing

Client Management

May 2009

PCs as Strategic Assets

By actively managing Intel's PC fleet as a strategic asset, Intel IT has consistently decreased total cost of ownership (TCO) for PCs, achieving a 67 percent reduction since 1995.

Because PC acquisition costs typically account for only 20 to 30 percent of TCO, we don't fixate on these costs alone. Instead, we align our PC fleet investments and management practices with Intel's strategic goals.

Profile: PC Strategies

- TCO reduction of 67% since 1995.
- Notebook PCs provide greater than 5% time savings per employee per week.
- More capable PCs improve productivity and security, and increase fleet manageability, while reducing TCO.

In addition to TCO considerations, shown in Figure 1, we evaluate and put an emphasis on the top-line productivity benefits that new PC technologies bring to our employees. This includes adopting notebook PCs, new wireless technologies, Voice over IP (VoIP), and remote asset management to help increase productivity while driving down the high cost of supporting PCs.

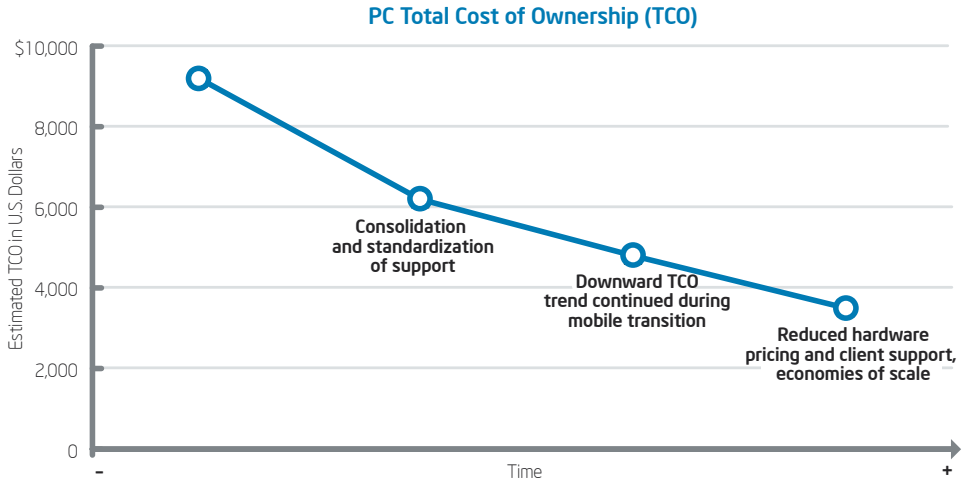

Figure 1. At Intel, PC total cost of ownership (TCO) has shrunk by 67 percent since 1995. Intel reduced PC TCO over time while adding strategic capabilities, including a major shift to mobile computers that started in 2000. TCO savings come from reductions in costs for hardware, software, and user support.

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Technology Decisions Impact TCO

In the mid-1990s, Intel's PC policy was based on two assumptions: a four-year depreciation cycle and that lower-cost, minimally equipped PCs for general use was the most economical purchasing strategy. However, when we examined the return on investment (ROI) of more powerful mainstream systems, we learned that this was not the case.

We discovered that we were consistently moving older PCs to users with less powerful system requirements much earlier than expected. Not only were those lower-cost PCs unable to support the latest OS and application updates, but they also rarely lasted their expected life spans.

Legacy OSs and older versions of Web browsers increased security risks and reduced productivity, requiring us to make additional PC purchases. This effectively forced us into a more frequent refresh cycle than we had planned and increased our overall costs. We actually shortened the useful life of our assets by not buying more-capable PCs.

To help ensure that our PCs last the duration of their expected life spans, we adopted new practices to manage our PCs. By minimizing the number of different hardware configurations whenever possible and by using the same standardized software image, we've been able to reduce TCO through decreased support costs. Adopting a standard minimum configuration for our desktop and notebook PCs reduces complexity and enables us to use a centralized support model, further driving down costs.

Moving to a Strategic Approach

This shift in perspective led us to view our PCs as strategic assets. They now have to meet line-of-business requirements and also address a broader range of factors that are not accounted for in TCO but nonetheless significantly affect Intel's bottom line and competitiveness.

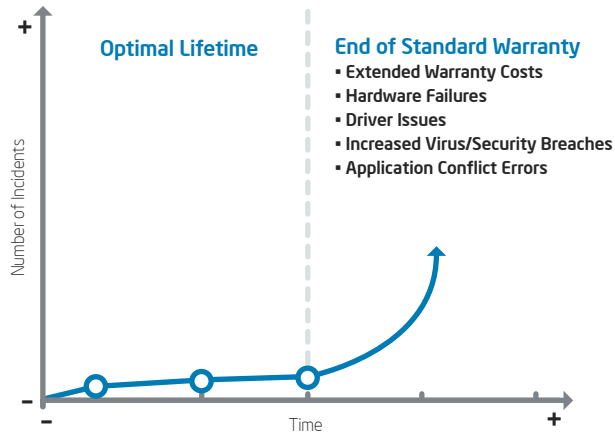

Figure 2. Support costs increase substantially after the first three years of a PC's life span.

We focus on three objectives for our PC fleet selection and management:

- Enhanced security
- Improved productivity for both users and IT staff
- Lower costs

Optimizing performance and reducing costs require simplification through standardizing platforms and processes, as well as taking advantage of new technologies to achieve improved productivity, efficiency, and security.

Simplifying Enterprise PC Management

We achieve many benefits by simplifying our PC fleet:

- Reduced complexity of the installed PC base decreases overall costs and improves network security.
- Fewer hardware configurations decrease IT support costs by reducing training, documentation, and unique process requirements, and minimize break and fix costs by requiring fewer system and component inventories.
- IT staff can deliver solutions faster and cheaper because it takes less time to qualify and test software and updates.
- Security patches can be deployed 10 to 30 percent faster, significantly improving network security.[1]

Simplifying the PC environment involves not only reducing the number of configurations deployed but also proactively decommissioning older systems that no longer deliver adequate performance or provide optimal security protections. Studies demonstrate that keeping PCs longer than three years significantly increases support costs and security exposure, suggesting that a three-year refresh cycle is optimal, as shown in Figure 2.[2]

Extending the Reach of Support

We've moved from a traditional, high-touch support model to a centralized model that is lower touch and cost effective. Figure 3 illustrates this change.

- **One to one.** The traditional model, in which technicians provided one-to-one deskside support to resolve hardware and software problems, was personnel intensive, expensive, and difficult to schedule. We no longer use this model.
- **PC service center.** We migrated to a PC service center support model that involves employees and technicians bringing PCs to a central location for troubleshooting. This helps to reduce the number of support personnel required, but is not an ideal solution.
- **Remote support model.** We continue to use the PC service center model in combination with a centralized help desk model and self-support tools. One component of our model has been the adoption of Intel® vPro™ technology, which provides remote

1 "Measuring the Benefits of Mobile Computing in the Enterprise." Wipro Consulting Ltd., 2005.
2 "The Financial Aspects of PC Fleet Management." Intel Corporation, June 2003.

PC asset and problem resolution capabilities, even when systems are powered off, and hardware-enhanced security capabilities. In addition, with our self-service PC Health Check utility, users can quickly run a series of diagnostic tests and resolve many problems without assistance from the PC service center.

Shifting from a one-to-one support approach to a centralized remote support model lets us manage the support needs of many systems concurrently, reducing operating costs and the time users have to wait for system repairs. In fact, a recent employee survey shows a 96-percent approval rating for help desk support center satisfaction.

Managing the PC Life Cycle Proactively

To simplify Intel's PC environment, we have reduced the variety of platforms we support. Purchasing higher-performing PCs allows us to offer a smaller number of standard desktop PC and notebook configurations that apply across usage segments and consequently reduce TCO. For example, our standard notebook configuration for knowledge workers—which includes Intel® dual-core technology, increased memory, and higher-resolution displays—also scales to engineering users. This eliminates one of the platform configurations we must support.

In planning our refresh cycles, we take into account strategic line-of-business and fleet management requirements, which include:

- **Buying manageability built in.** We buy PCs that we can integrate into our standard management consoles and manage from day one, eliminating the need to buy additional software or create customized solutions.
- **Planning for tomorrow's needs.** We make sure PCs can meet the demands of tomorrow's computing environment by using multi-core processors along with components and applications that can scale for future needs.
- **Selecting standard components.** Using standard components, such as common chipsets, graphics capabilities, and networking hardware, across all PCs simplifies engineering, procurement, and support.

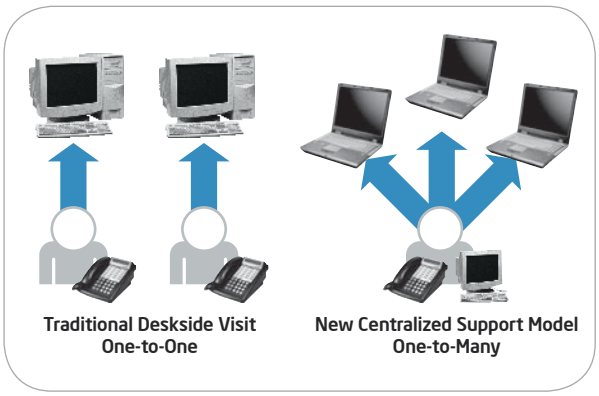

Figure 3. We've replaced our traditional one-to-one, high-touch support model with a centralized model that is low touch and cost effective.

Productivity Gains and Improved Manageability

Our analysis indicates adoption of Intel® vPro™ technology helps us gain greater efficiency in PC manageability, leading to reduced support costs, increased user productivity, and faster problem resolution.

We currently are measuring our primary cost and productivity benefits, based on three use cases:

- Remote diagnosis and remote repair
- Remote diagnosis and local repair
- Remote configuration

We expect additional savings over time as we add use cases that focus on security and asset discovery.

We control our costs by developing a single, gold software image build for our selected stable PC platforms. This consequently improves security because we can update the fleet quickly, without compatibility problems.

We also invest in technologies, such as Intel vPro technology, that simplify our PC fleet management processes and reduce our support costs.

Finally, we streamline our software acquisitions and deployments, aligning them with hardware release dates to create predictable, cyclical transitions from one generation of software and PC technology to the next. We take advantage of programs such as Intel® Stable Image Platform Program (Intel® SIPP), which helps ensure a sufficiently long buying cycle—12 to 15 months—and lowers engineering effort.

Securing the PC Fleet

We found that a secure PC fleet has a number of benefits, including reduced costs, improved productivity, and protection of intellectual property. To meet the everyday challenges that security threats pose, managing our PC fleet proactively is critical.

- We use software tools, patches, and updates that help us identify and respond to security risks. Being able to quickly isolate, recover, and repair a PC if necessary reduces downtime and improves business continuity.
- Our PCs must be powerful enough to run existing security tools while also being able to support additional security technology as it becomes available.
- Using notebook PCs provides additional redundancy in the event of a large-scale business or environmental interruption.
- We proactively retire our oldest systems, further lowering our security risk.

We continue to add layers of protection in response to security threats, further safeguarding our systems.

Improving Productivity through Technology

We improve productivity by providing machines optimized for the way employees work and for the computing demands placed upon them, delivering business value in addition to lowering TCO. Intel has shifted predominantly to mobile computing based on analyses of productivity and business value gains. Figure 4 shows this transition.

Mobility has brought many benefits, including:

- Improved remote usability
- Business continuity
- Cost savings from reduction in office space and power use
- Improved ability to work virtually and adapt to work hours outside of the normal 8:00 a.m. to 5:00 p.m. workday

Many of our employees work on collaborative teams that are globally distributed across campuses and time zones. Mobility has helped to provide a flexible and accommodating work environment that is essential to their work and collaboration across global teams.

- Two-thirds of Intel teams are virtual.
- One-fifth of our employees have remote managers.
- Two-thirds of our employees work on several teams at once.
- Eighty percent of our employees are satisfied with enterprise collaboration applications, such as chat applications, which help to equalize the effects of remote management.

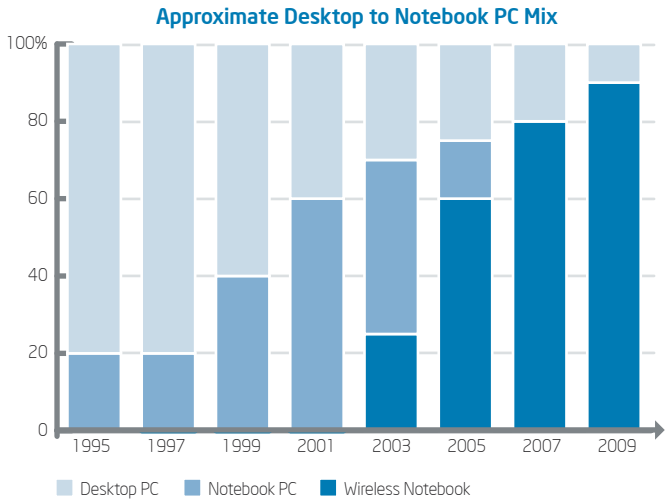

Figure 4. Intel shifted from desktop to notebook PCs to enhance productivity through mobility. Wireless and mobile technologies offer a greater than five percent time savings in an employee's work week.

Through user surveys and observational studies, we demonstrated that wireless and mobile technologies offer a greater than five percent time savings in an employee's work week. This time savings more than covers the increased hardware costs of notebooks over desktop PCs. By replacing 6,400 desktops with notebooks, we achieved productivity gains valued at USD 26 million (three-year net present value). Over five years, we transitioned to an 80:20 ratio of notebook to desktop systems, improving productivity and continuing to drive down TCO.

As we transitioned to mobile computing, we also looked at enhancing the mobile user's productivity by reconfiguring our office environments and adding services that benefit the individual user's experience. These changes included:

- Adding PC-based telephony and collaboration tools, such as VoIP, instant messaging, and unified communications.
- Enhancing wireless connectivity throughout our campuses to support more efficient mobile usage.
- Better use of office space with more conference areas, shared spaces, and setups dedicated to the mobile user instead of the traditional desktop environment.

These types of applications, connectivity, and environments have improved and extended our mobile workers' productivity while resulting in built-in manageability, less downtime, and faster repair times.

Conclusion

By managing our PCs as strategic assets, streamlining our processes, and buying more-capable PCs with built-in manageability that improve productivity and security, we not only reduce TCO but also deliver measurable top-line benefits year after year.

Adopting a centralized support model, focusing on technology that enhances PC manageability, and shifting to mobile computing are all investments that align with Intel's strategic goals and give Intel employees increasing levels of productivity.

Learn more about Intel IT's best practices at www.intel.com/IT

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