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USAGE MODEL BRIEF
Cost-Saving Manageability
Intel® Core™ vPro™ Processor Family

ADVANCED PC MANAGEABILITY DELIVERS COST SAVINGS WITH THE INTEL® CORE™ VPRO™ PROCESSOR FAMILY

There's good news for IT organizations searching for novel ways to stretch budgets while adding new services and functionality. This brief provides insights about how you can step up security and manageability using business PCs based on the Intel® Core™ vPro™ processor family, available from a broad array of notebook and PC manufacturers including Dell, HP, and Lenovo.

These notebooks and PCs are based on a specific combination of hardware components (Intel Core processor, chipset, and network hardware). When activated, these system features provide security and manageability at the hardware level that improve on the robustness of software-only solutions.

A SPECTRUM OF BENEFITS

Intel® Core™ vPro™ processors offer more than just manageability improvements:

- Up to 2.5x faster multitasking that adapts to user needs (Intel® Core™ vPro™ i5 processor compared to a mainstream three-year old PC)[1]
- Up to 50 percent more energy efficient compared to a three-year old PC[2]
- Support for emerging virtualization models including application virtualization, OS streaming, virtual hosted desktops, and client-side virtual containers

The Intel Core vPro processor family is the foundation for business solutions (combinations of hardware, software, and processes) that deliver state-of-the-art manageability to help businesses of all sizes reduce costs. These systems enable administrators and support staff with an appropriate IT management console to secure and manage PCs even when they are powered down or the OS is inoperable. That makes for fewer desk-side visits, lower IT costs, and improved customer uptime, for a more productive business overall.

A management engine built into firmware gives IT the means to establish an encrypted remote connection to the PC, regardless of the power or operating system state. This connection occurs over the same network interface as normal LAN traffic, but it is logically separate. For example, the support organization (or automated software) can establish a remote connection with a powered-down PC, start it up, install a software patch, and power it down again.

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Sharing best practices with the North American IT community, helping you benefit early from emerging trends.

Learn more[3]

Without the Intel Core vPro processor family, those actions would require much more costly desk-side visits or the use of the much less secure Wake on LAN. PCs based on the Intel Core vPro processor family can help your company avoid those costs, with excellent potential to make the business as a whole more profitable. For further insights about what Intel vPro technology can accomplish in your environment, visit the Intel vPro Expert Center.[4]

TAKE REMOTE MANAGEABILITY TO THE NEXT LEVEL

By increasing the amount of management that can be done remotely, companies can make the overall support process more efficient. The ability to perform tasks off-hours without regard to whether the system has been left powered on makes those tasks more successful, providing up to 56 percent faster time to patch saturation.[5,6]

A one-time provisioning process establishes a relationship between PCs with Intel Core vPro processors and a management console that supports Intel vPro technology. Intel has well-established relationships with a large and growing community of independent software vendors, helping to provide support by a wide variety of network-management applications.

EXPLORE. LEARN. CONNECT.

Allow your organization to enter a new dimension of manageability with a one-time connection to provision business PCs based on the Intel® Core™ vPro™ processor family.

Learn more[7]

Once that initial setup is complete, all that remains is for the IT shop to establish processes to take advantage of the new functionality. Intel produces a large body of documentation and guidance that can help you with best practices and techniques to meet that need.

The cost-saving manageability features of Intel Core vPro processors and associated resources from Intel help provide a comprehensive set of benefits for IT management organizations. Key advantages include the following:

- **Reduce desk-side support costs.** Do more from a central location to avoid the costs associated with desk-side visits, so fewer staff can handle a larger user base.
- **Drive up help desk productivity; reduce user downtime.** Avoid planned and unplanned downtime by remotely discovering client PCs, resolving trouble tickets, and preventing maintenance and security issues.
- **Quantify potential cost savings in advance.** Gauge the potential return on investment available from implementing next-generation manageability based on the Intel Core vPro processor family.

Taken together, these advantages form the foundation for a successful transition into a dramatically enhanced management environment for IT that can increase efficiency and reduce operating expenses.

REDUCE DESK-SIDE SUPPORT COSTS

Each time a support organization can avoid making a trip to the desk of an end user, the company saves money. By expanding the scope of trouble tickets that can be resolved without leaving the central management console, PCs based on Intel Core vPro processors can help IT departments and managed service providers meet business needs at lower cost.

By implementing PCs based on the Intel Core vPro processor family, companies like yours can achieve the following cost benefits related to desk-side support, for a healthier bottom line:

- **Reduce the need for desk-side maintenance visits** by up to 56 percent.[5,6]
- **Cut the average time to repair** hardware up to 60 percent and software up to 50 percent.[8]
- **Reduce average system downtime** by up to 36 percent.[8]

The Intel Core vPro processor family helps support staff automate routine maintenance tasks, such as upgrading software and making changes to BIOS settings. It also helps streamline the resolution of trouble tickets by enabling help desk personnel to troubleshoot, diagnose, and resolve more issues, even restore a desktop image from a hidden partition when necessary.

STUDIES IN SUCCESS

See how others have reduced support costs using the Intel® Core™ vPro™ processor family:

- **Video:** Clayton County Public Schools Reduces Desk-Side Visits[9]
- **Erie Insurance:** A Policy of Productivity[10]

More success stories[11]

Select 2010 Intel Core vPro processors and configurations now also support full keyboard-video-mouse (KVM) remote control,[12] even in pre-OS states without the need for a dedicated IP-KVM appliance. Hardware-based KVM remote control makes it possible for support organizations to take full control of the PC, remotely, even on PCs that have been powered down or that have damaged operating systems. This enables a larger proportion of issues to be addressed without the added support expense and customer downtime associated with a desk-side visit.

This set of capabilities helps support personnel do more from a central location. The need to provide less desk-side service builds operating efficiencies so fewer staff are required.

DRIVE UP HELP-DESK PRODUCTIVITY, REDUCE USER DOWNTIME

Helping everyone in the business accomplish more work every day has become mission critical for today's IT organizations. PCs based on the Intel Core vPro processor family are a valuable contributor to that imperative. Using this technology, your company can avoid both planned and unplanned downtime by remotely discovering client PCs, resolving trouble tickets, and preventing maintenance and security issues, regardless of system state.

The Intel Core vPro processor family provides the means for companies of all sizes to unlock benefits that can directly drive up operating efficiencies, saving on costs:

- **Conduct faster hardware and software inventory** by up to 94 percent, compared to manually per PC.[5,6]
- **Reduce laptop asset inventory failures** by up to 62 percent.[5,6]
- **Achieve faster time to patch saturation** by up to 56 percent on cross-client and mobile systems and up to 94 percent on desktop systems.[5,6]

Extend inventory, analysis, and status alerting functionality to powered-down or inoperative clients. Gaining a richer view of managed systems gives support organizations better information that helps fuel operating efficiencies. Since you can perform more in-depth maintenance after hours, regardless of system state, greater compliance and patch saturation are possible.

As a result, IT can save on resource requirements, responding intelligently to the increased demands that are too often paired with reduced operating budgets. That capability helps the IT organization align its efforts better with the needs of the business as a whole, helping to foster success.

MORE STUDIES IN SUCCESS

Learn how other organizations have gained productivity advantages from Intel® vPro™ technology:

- Mortenson Construction Builds a Better PC Environment[13]
- Success Story: Wake Forest University Baptist Medical Center Improves PC Health[14]

More success stories[11]

QUANTIFY POTENTIAL COST SAVINGS IN ADVANCE

An important part of any technology implementation is being able to quantify the benefits beforehand. In addition to the functional advantages of PCs based on the Intel Core vPro processor family, substantial monetary benefits are available, as well. To help quantify the financial implications of refreshing business PCs with these systems, you have access to the Intel PC Total Cost of Ownership (TCO) Estimator.[15]

This sophisticated tool allows you to enter information specific to your environment to calculate optimal refresh rates for your company. It also identifies further TCO benefits available by implementing PCs based on the Intel Core vPro processor family. Filling out a series of well-explained data points in an online form generates figures in the following areas:

- **IT savings.** Based on details about your PC infrastructure, PC incidents and events, and support technician activities, the tool compares costs with and without Intel vPro technology.
- **Power savings.** Using figures you supply about energy costs per kilowatt-hour and how the PCs in your environment are used, the tool examines potential power-cost savings.
- **Productivity gains.** Starting with the hourly billing rate of your users and an estimated rate of productivity savings, the tool calculates the potential for financial productivity gains.

Using the outcomes of those three sets of analysis, the Intel PC TCO Estimator generates a benefits summary that captures the full spectrum of potential financial savings. This summary breaks out the details by category and provides visual charts and tables that make the information readily understandable. The summary serves as a solid base for business cases to support the analysis and proposal for a PC upgrade.

To complement the Intel PC TCO Estimator, you can access the Intel Laptop Refresh Savings Estimator.[17] Developed by IT@Intel, this tool provides a sound financial methodology that can help your organization determine your optimal PC replacement and upgrade cycle. Together, these two tools provide rich support for purchase decisions and strategic planning that helps align technical advances with the needs of the business as a whole.

The breadth of remote management capabilities provided by the Intel Core vPro processor family can make your support organization more effective. Higher operational success at lower cost is within reach, and smart IT organizations are poised to take advantage of the opportunity today.

INTEL PC TOTAL COST OF OWNERSHIP ESTIMATOR[15]

Calculate the savings of a three-year refresh cycle and create a custom assessment that can be tailored to your firm's specific situation using this interactive tool.

Learn more[16]

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redefine the future
of network management:

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1 (Cross Client) Cross-client claim based on lowest performance data number when comparing desktop and mobile benchmarks. Configurations and performance test as follows:

(Mobile) Comparing Intel® Core™ i5-520M processor-based laptops to theoretical installed base of Intel® Core™2 Duo processor T5500. Laptop system configurations: Intel Core i5-520M processor (3 MB cache, 2.4 GHz), in Lenovo ThinkPad* T410 on Intel® HM55 Express Chipset; RAM: Dual-channel DS Micron 4 GB (2x2 GB) DDR3-1066 with Intel® HD Graphics, HDD: Hitachi 320 GB 7200RPM, Intel® Matrix Storage Manager 9.5.7.1002; BIOS: 6IET47WW (1.07), Intel® INF: 9.1.1.1023; Graphics: 8.15.10.2086, Microsoft* Windows* 7 Ultimate 64-bit.

Intel® Core™2 Duo processor T5500 (2 MB cache, 1.66 GHz, 667 MHz FSB) in Lenovo Thinkpad* T60 laptop, mobile Intel® 945GM Express Chipset, in Lenovo ThinkPad T60 laptop on Intel® 945GM Express Chipset; HDD: Hitachi 100 GB 7200RPM; RAM: Dual-channel DS Micron 2GB (2x1 GB) DDR2-667, Intel® Matrix Storage Manager 8.8.0.1009; BIOS: Lenovo 79ETD7WW 2.17, Intel® INF: 8.1.1.1010; Graphics: 7.14.10.1437, Microsoft Windows* Vista*Ultimate 32-bit.

(Desktop) Comparing Intel® Core™ i5-650 processor-based desktops to theoretical installed base of Intel® Core™2 Duo processor E6400. Desktop configurations: Intel Core i5-650 processor (4 MB cache, 3.20 GHz) on Intel® DH57JG Desktop Board, dual-channel DS Micron 4 GB (2x2 GB) DDR3-1333 9-9-9-24 with Intel® HD Graphics, Seagate 1TB HDD; Intel® Rapid Storage Technology: 9.5.0.1037; BIOS: JGIBX10J.86A.0158, Intel® INF: 9.1.1.1020; Graphics: 8.15.10.2086, Microsoft* Windows* 7 Ultimate 64-bit.

Intel® Core™2 Duo Processor E6400 (2 M cache, 2.13 GHz, 1066 MHz FSB) on Intel® DQ45CB, dual-channel DS Micron 2 GB (2x1 GB) DDR2-800 5-5-5-18 with Intel® 3000 Seagate 320 GB HDD, Intel Core2 Duo processor E6400 (2 M cache, 2.13 GHz, 1066 MHz FSB) on Intel® DQ45CB Desktop Board, dual-channel DS Micron 2 GB (2x1 GB) DDR2-800 5-5-5-18 with Intel® Graphics Media Accelerator 3000; HDD: Seagate 320GB HDD; BIOS: CL94510J.86A..0034, Intel® INF: 9.0.0.1011; Graphics: 7.14.10.1329, Microsoft* Windows* Vista Ultimate 32-bit.

Business productivity claims based on SYSmark* 2007, which is the latest version of the mainstream office productivity and Internet content creation benchmark tool used to characterize the performance of the business client. SYSmark 2007 preview features user-driven workloads and usage models developed by application experts. Multitasking claims based on financial calculations workload consisting of advanced spreadsheet calculation measured using Microsoft Excel* Monte Carlo Simulation plus Virus Scan. Security workload consists of SiSoftware Sandra* 2010 - Advanced Encryption Standard (AES) 256 CPU cryptographic subtest measures CPU performance while executing AES encryption and decryption algorithm.

2 (Cross Client) Cross-client claim based on lowest data number when comparing desktop and mobile benchmarks. Configurations and performance test as follows:

(Mobile) Intel® Core™ i5-520M processor (3 MB cache, 2.40 GHz) with Intel® Turbo Boost Technology and Intel® Hyper-Threading Technology and Mobile Intel® HM55 Express Chipset on Lenovo ThinkPad* T410, Intel® HD Graphics and driver ver. 8.15.10.1968, dual-channel Micron 4GB (2x2GB) DDR3-1066, Hitachi 320GB 7200rpm HDD and driver ver. 9.5.0.1037, BIOS Lenovo 6IET38WW (0.38) with default setting, Wireless Intel® Centrino® Advanced-N 6200 AGN with driver ver. 13.0.0.107, screen size 14.1" 1280x800 (32-bit), Microsoft Windows* 7 Ultimate 6.1 Build 7600 64-bit, DirectX* 11, Chipset INF ver. 9.1.1.1020, Power Management Lenovo Power Scheme. Approximate annual energy cost: USD 3.92.**

Intel® Core™2 Duo processor T5500 (2 MB Cache, 1.66 GHz, 667 MHz FSB) in Lenovo Thinkpad* T60 laptop, Mobile Intel® 945GM Express Chipset, Micron PC5300 DDR2 667 2x1 GB 5-5-5-15 memory, Intel® Graphics Media Adapter 950, Hitachi Travelstar* HTS721010G9SA00 SATA 100 GB 7200RPM HDD, BIOS Lenovo 79ETD7WW 2.17 with default settings, Microsoft Windows* Vista* Ultimate. Approximate annual energy cost: USD 6.24.

(Desktop) Intel® Core™2 Duo processor E6400 (2 M cache, 2.13 GHz, 1066 MHz FSB); Chipset: Intel® 945G Express chipset, Intel® chipset software installation file (INF): 9.0.0.1011; BIOS: CL94510J.86A.0034; Memory: Micron MT16HTF12864AY-80ED4 2x1GB DDR2 667MHz, Seagate ST3320620AS 320GB Barracuda 7200.10 (7200 RPM, 16 MB cache, NCQ, SATA2), Integrated Intel® Graphics driver 7.14.10.1329, running on Windows* Vista* x86 Ultimate SP1. Approximate annual energy cost: USD 13.17.**

Intel® Core™ i5-650 processor (4 M cache, 3.20 GHz); Chipset: Intel® Q57, BIOS version TMIBX10J.86A.0020; Memory: Micron MT16JTF25664AZ-1G4 2x2GB DDR3, Seagate Barracuda ST31000528AS 1 TB Serial ATA (7200 RPM, 16 MB cache), Intel® HD Graphics; Chipset driver: Intel® INF 9.1.1.1020; Graphics driver: 8.15.10.1995, Microsoft Windows* 7 Ultimate 64-bit. Approximate annual energy cost: USD 8.07.**

**Energy cost figures derived from Intel Energy Efficient 2.0 methodology, described at http://www.intelcapabilitiesforum.net/EEP. Source of energy cost data: U.S. Department of Energy, "Electric Power Monthly November 2009 with Data for August 2009" (DOE/EIA-0226 (2009/11)); Average Retail Price of Electricity, Year to Date through August 2009: 10.01 cents/kWh. Results are for illustrative purposes only. Any difference in system hardware or software design or configuration may affect actual performance. Buyers should consult other sources of information to evaluate the performance of systems or components they are considering purchasing.

3 http://premierit.intel.com/community/ipip

4 http://communities.intel.com/community/openportit/vproexpert

5 Intel® Active Management Technology (Intel® AMT) requires a computer system with an Intel AMT-enabled chipset, network hardware and software, as well as a connection to a power source and a corporate network connection. Setup requires configuration by the purchaser and may require scripting with the management console or further integration into existing security frameworks to enable certain functionality. It may also require modifications to implementations of new business processes. With regard to notebooks, Intel AMT may not be available or certain capabilities may be limited over a host OS-based VPN or when connecting wirelessly on battery power, sleeping, hibernating, or powered off. System Defense works with only select Intel® vPro technology brand-verified LAN cards. For more information, see http://www.intel.com/technology/platform-technology/intel-amt/

6 Results shown are from the 2007 EDS case studies with the Intel® Centrino® Pro processor and the 2007 EDS case studies with Intel® vPro™ processor technology by LeGrand and Salamasick, a third-party audit commissioned by Intel, of various enterprise IT environments and the 2007 Benefits of Intel® Centrino® Pro Processor Technology in the Enterprise, a Wipro Technologies study commissioned by Intel. The EDS studies compare test environments of Intel® Centrino® Pro processor and Intel® vPro™ processor technology equipped PCs vs. non-Intel® vPro™ processor technology environments. Tested PCs were in multiple OS and power states to mirror a typical working environment. The Wipro study models projected ROI of deploying Intel® Centrino® Pro processor technology. Actual results may vary and may not be representative of the results that can be expected for smaller businesses. The study is available at www.intel.com/vpro, www.eds.com and www.wipro.com.

7 http://communities.intel.com/docs/DOC-3159

8 Results shown are from Intel Managed Service Providers case studies: Alpheon, Brite Computers, Dempsey, Nex-Tech, Sabio, SFT (http://msp.intel.com/). Actual results may vary.

9 http://www.intel.com/references/video/Clayton_Co_FINAL_REV.wmv

10 http://www.intel.com/references/pdfs/Erie_Insurance.pdf

11 http://communities.intel.com/docs/DOC-2260/

12 Keyboard-Video-Mouse (KVM) Remote Control is available with only dual-core Intel® Core™ i5 vPro™ processors and Intel® Core™ i7 vPro™ processors with active integrated graphics. Discrete graphics are not supported.

13 http://www.intel.com/references/pdfs/Mortenson_Construction_Case_Study_LR.pdf

14 http://www.intel.com/references/pdfs/Intel_ESS_Wake_Forest_University_BMC_Case_Study_HR.pdf

15 The results generated in the tool are estimates and should be used only as a guide to evaluate the cost/benefit or feasibility of a future purchase of PCs on a three-year refresh with or without Intel® vPro™ technology. The actual economic results realized as a result of a purchase of PCs on a three-year refresh with or without Intel vPro technology will vary, and there is no guarantee that you will actually realize the economic results forecast by the tool. For more information, see the End User License Agreement at http://www.intel.com/business/business-pc/roi/demo.htm.

16 http://www.intel.com/business/business-pc/roi/demo.htm

17 http://www.intelsalestraining.com/LaptopRefreshEstimator/launch.htm

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