



ROI Analysis

Intel® Core™2 Processor with vPro™ Technology

Shinshu University Hospital

Health Care

Hospital Achieves Positive ROI in Using Intel® vPro™ Technology to Improve Remote PC Management and Support in Wired and Wireless Environment

Shinshu University Hospital (SUH) is a well-known hospital in Nagano, Japan.¹ Founded in 1949, the hospital manages 11 departments in internal medicine and 14 departments in surgery. The hospital employs about 1,300 professionals, such as physicians, nurses, pharmacists, and medical technicians. Currently, SUH has approximately 1,500 PCs which are used for health care administration, patient record management, medical information access, and office productivity applications. More than 200 of the PCs are mobile laptops with wireless connectivity. A number of these laptops are carried around by hospital staff for patient visits and bedside consultation during the day. SUH believes that wireless mobile computing has helped improve the efficiency and quality of patient care delivery.

One of the key responsibilities of the Division of Medical Informatics in SUH (SUH-DMI) is to ensure that up-to-date patient information and medical data is available on hospital PCs. Each workday prior to the start of busy hours of operation, SUH-DMI is required to distribute file updates and/or software patches to their desktop and laptop PCs. SUH-DMI is also responsible for providing responsive PC helpdesk support to the hospital staff.

In the past, SUH-DMI had to spend a great deal of effort to complete PC management and support processes. For example, on average about 10% of the PCs failed to receive file updates or patches distributed by the remote management software.² Many failures were caused by PCs not being powered on. The majority of these failures required SUH-DMI staff to make desk-side visits to locate the PCs and manually turn them on. In addition, desk-side support was often required to diagnose and resolve software issues reported by users.

Recently, SUH-DMI has deployed new desktop and laptop PCs with Intel® Core™2 processor with vPro™ technology.³ The desktop PCs are connected to the hospital's Ethernet LAN. The laptop PCs are configured to support WiFi Protected Access (WPA) protocol for protected wireless networking. They are often carried around on DC power during the day and are connected to AC power when not in use after hours. SUH-DMI has adopted remote management software that can utilize the capabilities of Intel® vPro™ technology on the new PCs.

With Intel vPro technology, the wired desktop PCs and wireless laptop PCs in the hospital can be remotely powered up on a daily basis to receive file updates and software patches as long as the PCs are connected to AC power. Intel vPro technology also enables SUH-DMI staff to conduct remote diagnostics and do remote repair when responding to software problems reported to the helpdesk by users. Since both the above tasks are now handled remotely, desk-side operational support is substantially reduced compared to the original mode of support.

After deploying the PCs with Intel vPro technology, SUH-DMI investigated the return on investment (ROI) that could be realized via remote power-up and remote software remediation.⁴ SUH-DMI is excited about the results of the investigation. It has dramatically reduced the time spent on file updates and patching issues by 70%.⁴ The time saved may be reallocated for other value-added IT activities. In financial terms, the reduction in PC management and support cost in the first 6 months is estimated to be about \$28,000.⁴ Net benefits over 5 years is projected to be \$242,300, with a break-even point in about 22 months, and a 5-year ROI of 170%.⁴

Key findings from TCO/ROI analysis

- **Projected ROI of 170% over 5 years**, from use of Intel® vPro™ technology to support file and patch distribution, and software diagnostics and repairs on wired and wireless PCs.⁴
- **Break-even point in 22 months.**⁴
- **Projected net benefit of up to \$242,300 across 5 years**, by reducing desk-side visits and improving IT efficiencies for daily PC management and support tasks.⁴

TCO/ROI investigation

The SUH ROI investigation was conducted over a 6-month period, in an environment with 1,461 PCs, of which 1,097 were PCs with Intel vPro technology. Data was collected and analyzed for two key PC service tasks: file and patch distribution, and software diagnostics and repairs. Data was then projected for 4.5 years, with the assumption that the number of desktops and laptops would increase 1% per year, and the hospital would complete their migration to Intel vPro technology-based PCs by mid-2010⁴. The labor cost for an IT technician was documented to be about \$33 per hour.² ROI was calculated conservatively, for only those two PC service tasks.

Positive results

Since deploying the PCs with Intel vPro technology, SUH-DMI has found that almost all those PCs in SUH can remotely receive software patches and data updates even if they are powered off. In addition, a significant portion of software issues on those PCs can be resolved

down-the-wire without the user's help and without desk-side support. These improvements have led to substantial time savings. Specifically, SUH-DMI has been able to:

- Reduce the average time spent on resolving data update issues by 70% – from 130 minutes to 40 minutes per PC per year.⁴
- Reduce the average time spent on resolving software problems by 67%, and virtually eliminate desk-side visits for this task.⁴

The study also shows additional benefits. SUH-DMI can perform remote asset tracking on a daily basis with little manual effort to make sure all PCs are on premise and in working condition. In addition, by upgrading to energy-efficient PCs with Intel vPro technology, the hospital has significantly reduced energy consumption for computing. The hospital is eager to complete their deployment of PCs with Intel vPro technology and continue to evaluate the benefits of the technology.

Table 1. Cost and Benefit projections for IT tasks performed via Intel® vPro™ technology^{3,4}

IT service task	Without Intel® vPro™ technology	PCs with Intel vPro technology					Estimated savings with 100% PCs with Intel vPro technology
	Year 0 ^a	Year 1 ^b	Year 2 ^c	Year 3 ^c	Year 4 ^c	Year 5 ^c	
	1,461 PCs	1,097 (75%) Intel vPro PCs	1,476 (100%) Intel vPro PCs	1,490 (100%) Intel vPro PCs	1,505 (100%) Intel vPro PCs	1,520 (100%) Intel vPro PCs	
Desk-side visits to resolve daily file update and patching	28,050	10,360	4,530	4,580	4,620	4,670	Failures: 84% fewer
Cost of desk-side visits to resolve daily file update and patching failures	\$105,200	\$50,100	\$32,100	\$32,400	\$32,800	\$33,100	Cost due to failures: 69% lower
Desk-side visits to resolve software issues	12	3	~0	~0	~0	~0	Desk-side visits virtually eliminated
Cost of desk-side visits to resolve software issues	\$990	\$490	~\$330	~\$330	~\$340	~\$340	Software service cost: 66% lower
ROI Summary^d							
Cost of Intel® vPro™ Technology Implementation	N/A	\$89,400	\$22,500	\$1,700	\$1,700	\$1,700	Cumulative 5-year Net Benefit NPV: \$193,000
Total Benefit	N/A	\$55,600	\$74,100	\$75,600	\$76,300	\$77,100	Break-even point: 22 months ^d
Cumulative Net Benefit	N/A	(\$33,800)	\$18,500	\$92,400	\$166,900	\$242,300	Positive ROI: 170% by Year 5 ^d

^aData is the result of measurements.

^bData in Q1 and Q2 of Year 1 is the result of measurements; data in Q3 and Q4 of Year 1 is the result of projections based on measured data in Q1 and Q2 of Year 1, SUH-DMI's PC management and support workload, PC deployment plan, and IT labor cost.

^cData in Years 2-5 is the result of projections based on measured data in Q1 and Q2 of Year 1, SUH-DMI's PC management and support workload, PC deployment plan, and IT labor cost.

^dROI is calculated based solely on the IT areas of patch and file updates, and software diagnostics and repair; and assumes a 2% yearly inflation rate and 10% cost of capital. Financial calculations assume 90¥ to 1 USD as of Feb. 2010.

For more information about PCs with Intel Core 2 processor with vPro technology, visit www.intel.com/vpro.

¹All content about Shinshu University Hospital was provided by Shinshu University Hospital.

²Source: The Shinshu University Hospital knowledge base.

³PCs with Intel® Core™2 processor with vPro™ technology include Intel® Active Management Technology (Intel® AMT). Intel AMT requires the computer system to have an Intel AMT-enabled chipset, network hardware and software, as well as connection with 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 of implementation of new business processes. With regard to laptops, 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. For more information, see www.intel.com/technology/platform-technology/intel-amt/.

⁴Source: The Shinshu University Hospital 2009 Pilot of PCs with Intel® Core™2 processor with vPro™ technology, conducted in 2009, at the hospital's campus in Nagano, Japan.

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