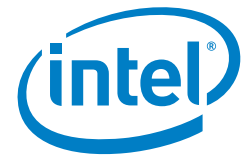


ROI Analysis

Intel® Core™2 Processor with vPro™ Technology

Education



Leaner and Greener Because of Intel® Core™2 Processors with vPro™ Technology¹

The University of Plymouth, located in the U.K., serves approximately 30,000 students.² An international ranking of 119 universities recently reported that the University of Plymouth is the U.K.'s best-performing university, as evaluated on various environmental criteria that include environmental policy, environmental staff, waste recycling, reduction in carbon emissions, efficient water usage, and Fairtrade status.² The university's goal is to become recognized as the top enterprise university in Europe, demonstrating economic, social, cultural, and environmental innovation and leadership for students, staff, the community, and industry.

Recently, the University of Plymouth completed a refresh of their 4,800 desktop PCs, upgrading the systems to PCs with Intel® Core™2 processors with vPro™ technology in order to offer students the latest in IT services. The university was particularly interested in Intel® vPro™ technology because of the potential to allow intelligent power management, which could reduce power consumption and reduce the university's carbon footprint.

After deploying the new PCs, the university studied the return on investment (ROI) realized by deploying the PCs in their distributed environment.³ Within two months of initiating intelligent power management enabled by Intel vPro technology, the University of Plymouth saved approximately £5,200 in electricity costs.³ The break-even point for Intel vPro technology was achieved in under a year. With a positive ROI of approximately 790% projected over

4 years, the university is extremely pleased with the new PCs, and is already planning to implement additional capabilities of Intel vPro technology to further reduce IT costs, enhance IT services, and advance the University of Plymouth's environmental leadership.³

TCO/ROI investigation

The University of Plymouth's investigation was conducted in an environment with 4,800 desktop PCs with Intel vPro technology, of which 1,200 PCs were configured with intelligent power management. Power consumption was monitored and measured for PCs with and without intelligent power management.³ Data was then analyzed to determine energy savings due to intelligent power management and identify carbon emissions for PCs powered up 24/7 versus PCs powered up only when needed by users or for IT servicing.

Power costs per kWh vary, depending on the time of day or night in which power is consumed. Carbon footprint is constant and is directly related to kWh consumed. Data was then projected for four years, with the assumption that the number of desktop PCs would decrease 4% per year due to consolidation of PCs.³ Projections also took into account different PC usage patterns for academic and summer months. ROI was calculated conservatively, based only on the one area of power consumption.

Key findings from TCO/ROI analysis³

- **Positive ROI of 790% over 4 years**, after deploying PCs with Intel® vPro™ technology to support intelligent power management.
- **Break-even point achieved at 9 months.**
- **Reduced CO₂ emissions by more than 1.3 million kg.**
- **Projected savings of up to £274,400 in power costs** over 4 years by using intelligent power management, enabled by Intel vPro technology. The university switches PCs to standby mode (very low power mode) after a period of inactivity. IT then uses the Intel vPro technology remote, encrypted power-up capability in order to power PCs on at night to run software maintenance tasks. PCs are then put back into standby mode until needed by students or staff.

Positive results

Based on the results of their investigation (see Table 1), the University of Plymouth concluded that power consumption could be dramatically reduced by taking advantage of the remote power-up capability of Intel vPro technology to allow IT to power off PCs when systems are not in use, and still allow off-hours IT work. This will not only significantly lower costs for the University of Plymouth, but help it maintain their top position as an environmentally acclaimed organization.

- Save approximately £5,200 in power costs in the first two months after implementing intelligent power management via Intel vPro technology³

- Reduce power consumption by up to 3,060,000 KWh over 4 years.³
- Improved the success rate for patch deployment from 80% to 90% simply by being able to remotely power up PCs that had accidentally been powered off overnight.³
- Reduce CO₂ emissions by 1,320,000 kg³

The University of Plymouth is now looking at implementing other aspects of Intel vPro technology – such as remote maintenance, patching, diagnostics, and security – in order to see additional financial and service benefits.

Table 1. Cost and ROI analysis for intelligent power management via Intel® vPro™ technology^{3,4}

| Power costs | Year 1 ^{a,b} 4,350 PCs | Year 2 ^c 4,176 PCs | Year 3 ^c 4,009 PCs | Year 4 ^c 3,849 PCs | Estimated savings with 100% PCs with Intel® vPro™ technology ³ |
|---|------------------------------------|----------------------------------|----------------------------------|----------------------------------|---|
| Typical PCs, without power management | £143,500 | £143,000 | £137,200 | £131,800 | Cumulative 4-year savings: £274,400 Annual reduction in power costs: 50% |
| PCs with Intel vPro technology, with power management | £97,300 | £63,700 | £61,200 | £58,700 | |
| Annual savings when managing PCs with Intel vPro technology | £46,200 | £79,200 | £76,000 | £73,000 | |
| ROI Summary^d | | | | | |
| Implementation costs | £32,100 | 0 ^e | 0 ^e | 0 ^e | Cumulative NPV: £221,600 |
| Net present value (NPV) | £14,100 | £75,400 | £69,000 | £63,100 | Break-even point achieved at 9 months Projected positive ROI for 4 years: 790% |

^a Year 1 savings are calculated based on an implementation schedule with an initial deployment of 23% of Intel vPro technology-based PCs at the beginning of the year, and 100% deployment of Intel vPro technology-based PCs by mid-year.

^b Data in Q2 is the result of measurements; data in Q1, Q3, and Q4 is the result of projections.

^c Data is the result of projections.

^d ROI is calculated based solely on the IT area of intelligent power management and assumes a 5% discount rate.

^e PC failures are accounted for in the consolidation of the PC fleet.

¹ PCs with Intel® Core™2 processor with vPro™ technology include powerful 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 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. For more information, see www.intel.com/technology/platform-technology/intel-amt/.

² All content about University of Plymouth was provided by University of Plymouth.

³ Source: The University of Plymouth 2007-2008 Pilot of PCs with Intel® Core™2 processor with vPro™ technology, conducted in 2007, at the university's distributed sites in the United Kingdom.

⁴ Source: Where limited data around hardware was available, Intel internal and Industry standards were provided.

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