White Paper Executive Summary:

Case Studies with Intel® vPro™ processor Technology

An Analysis of Early Testing of Intel® vPro™ processor technology in Large IT Departments

Introduction: This information is based on the original white paper by Charles Le Grand, Principal TechPar Group, CHL Global Associates and Mark Salamasick, Director of Center for Internal Auditing Excellence, School of Management at The University of Texas at Dallas. They reviewed compiled, and discussed the results from ten pilot implementations of Intel® vPro™ processor technology based PCs. Observations and data came from pilots conducted by EDS (Electronic Data Systems), a large IT services provider supporting millions of PCs worldwide. Companies involved in these pilots had an average installed base of 40,000 PCs.

Patch Management and Security: Most pilot participants could only patch a PC when it was on. PCs were either left on all the time or patches were deployed when the user turned their system on. One company was able to successfully deploy patches on average 70 percent of the time. Those with a predefined distribution schedule said if a PC was not available it would wait for the next scheduled deployment.

EDS Observations on the Pilots

"Participants consistently commented that patching can only occur when the PC is on. As a result, either the PC must be left on all the time, or the patches must be deployed when the user turns on the system. All participants felt that the ability to schedule the time to power up systems and boot them during off-peak hours would make coverage more complete. People will not be around to "defer" update nor will they see the system slow down because of patching during work hours."

Improving Patch Management and Security: Intel vPro processor technology enables secure remote access to any PC connected to power and a network. Always available communications enables delivery of remote updates and patches, accelerating distribution and reducing overall vulnerability. Enterprise-wide actions like mass shutdown can be performed during off hours as an automatic process. In addition, features like IDE redirect, Serial over LAN and event logs enable IT to more effectively fix problems remotely. With features like TLS/PKi, Kerberos and digital certificates available in enterprise mode, customers saw Intel vPro processor technology enabling more secure remote management compared to capabilities like Wake on LAN.

Patch Management	Current Process	With Intel vPro processor technology	Percent Improvement
Average # hours to patch 1000 PCs	64.8	9.2	85.8%
% of PCs requiring desk-side patch	7.5%	2%	73.3%
Average # hours to achieve saturation	278.4	16.8	94.0%

Total Cost of Ownership (TCO): One thing came out during pilots is that IT support personnel as well as the people using the PCs are looking for solutions to reduce desk-side support or recovery visits. Existing software tools can be limited in their ability to manage PC in instances where the PC is powered off or the OS is absent or not available. This can impact activities like software updates or remotely diagnosing hardware or software problems and result in desk-side visits, which consume IT time and resources.

Reducing TCO: Participants commented about how this technology can help reduce cost. Intel vPro processor technology uses an integrated hardware and software architecture, which improves remote problem diagnosis and repair. Many problems which currently require a desk-side visit to resolve can now be handled remotely, shifting problem resolution to level one support, reducing cost and saving time. Pilot participants also felt Intel vPro processor technology could help reduce cost through improved asset management, reduced need for special software agents, reduced power consumption with improved power management.

> "vPro represents the only solution we've evaluated that will assist us in lowering our TCO. We concluded that by not adopting this technology we would continue to see our support costs rise." ***Pilot Participant***

Reducing Desk-side visits	Current Process	With Intel vPro processor technology	Percent Improvement
Average desk-side visits for software fix	1.64	0.14	91.4%
Average desk-side visits for hardware fix	2.29	1	56.3%

Compliance Challenges: Companies reported as many as 30 percent of PCs may fail to respond to remote inventory polling at any given time, and it could take two weeks or longer to complete the inventory via multiple attempts and onsite visits. One participant commented that inventory process involved "managing a 5 column spreadsheet, which requires lots of time and effort to maintain and yet the inventory is still not accurate."

Improving Compliance: Access to any PC at any given time and communicating via a secure channel below the OS, helps reduce inventory management to a fraction of the time currently required. Customers were interested in the ability to collect key information like asset tags, warranty end date, purchase order, owning department, and purchase date; and tying it back to the specific PC at little or no additional cost. Customers expect to close the door on the last 20 percent of PCs in their environment that are out of compliance because the machine was turned off or couldn't be accessed, preventing automated updates. Pilots demonstrated that this technology gives IT the ability to achieve 98 percent penetration rates for critical security patches without desk-side visits.

> "Right now each department runs itself. We don't have a central control over configurations. But with this technology we can cut across departmental lines by communicating directly with the PCs regardless of where they are." ***Pilot Participant***

Compliance	Current Process	With Intel vPro processor technology	Percent Improvement
Time to discover 1000 PCs one site (hrs)	71	0.3	99.6%
Typical inventory accuracy 5000 PCs	84%	98%	16.7%
Success rate: automated hardware inventory	81%	99%	22.2%

Conclusion: From our observations and discussions during the pilots we noted Intel vPro processor technology provides the technology framework for improved protection, reliability, and availability of each individual PC, plus features that improve compliance with enterprise and regulated control standards. As independent researchers working with technology security issues for a number of years we are greatly encouraged by the number of issues Intel vPro processor technology addresses through a hardware based solution.

The full version is posted at:
http://www.intel.com/business/casestudies/intel_case_studies.pdf.