Intel® Platform
Administration
Technology

Intel® Platform Administration Technology and

Intel® Platform Administrator White Paper

V.1.1

Overview

The main purpose of this document is to introduce **Intel® Platform Administration technology** and **Intel® Platform Administrator**, which includes an overview of **Intel® Platform Administration technology**, **Intel® Platform Administrator** introduction, the system architecture, and the system configuration.   The objective of this document is to help users understand the system architecture and the main functions of Intel® Platform Administrator.

Intel® Platform Administration technology is based on the Intel® Innovation Framework for EFI, including Motherboard technology components, firmware components, software components for both clients and servers, and Application Programming Interfaces (API's) for enabling further development of applications on **Intel® Platform Administration technology.**   **Intel® Platform Administration technology** delivers added value to help users in administrating computing platforms and applications in a networked environment, in improving service quality and working efficiency, and in reducing management costs.   Its main target is middle and small size enterprises, such as i-Cafés.

Intel® Platform Administrator is an Intel software solution built on top of **Intel® Platform Administration technology.**

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Background

With the development of network technology, the i-Café industry has seen rapid growth in many Asian countries.　China alone has more than 110,000 i-Cafés with over 6200,000 personal computers in total　（Data source: CBI Research 2005 China i-Café Industry Survey Report）. However the rapid expansion of the size of i-cafes combined with lack of appropriate technology to manage such operations effectively caused many problems related to maintenance and management tasks. Specific difficulties include: mass computer system installation, mass computer software upgrading, the time-consuming and troublesome computer operating system crash-and-recovery process, the remote management of networked computers, and the hardware theft problems. For **Intel® Platform Administration technology,** these difficulties also lead to an application opportunity at small and medium-sized enterprise network systems. **Intel® Platform Administrator** addresses these problems completely by providing an integrated network solution that has been developed from a deep understanding of the issues.　This solution greatly reduces the workload of i-Café IT managers and improves efficiency.　**Intel® Platform Administration technology** successfully application in the i-Café industry indicates a bright future in schools and other industries.

Intel® Platform Administration Technology

Intel® Platform Administration technology is a computing platform that simplifies the management and administration of computers and software applications in small and medium-sized computer networks.　With the tools provided, the administrators of small and medium-sized networks such as i-cafés can achieve ease of management and maintenance.　This platform makes it easier for cost-sensitive organizations such as small businesses, Internet cafés and schools to maintain more stable and secure computing environments and to minimize computer downtime without investing significant resources in PC management.

Intel® Platform Administration technology includes:
- Motherboard technology components
- Firmware components
- Software components for both clients and servers
- Application Programming Interfaces (API's) for enabling further development of applications on Intel® Platform Administration Technology

Key features of the **Intel® Platform Administration technology** include:
- Out-of-box PC set up by automating and simplifying OS and software installations for multiple PCs.
- Asset monitoring and remote management.
- Software upgrades through the simultaneous deployment of new software packages to multiple PCs in a network environment.
- System recovery and hard-disk protection capabilities.

Intel® Platform Administrator

Intel® Platform Administrator is an Intel software solution built on top of **Intel® Platform Administration technology**. The package includes the following:
- Intel® Platform Administrator Server (i-Cafe Professional Edition 1.1)
- Intel® Platform Administrator Client (Professional Edition 1.1)
- Intel® Platform Administrator Agent (Professional Edition 1.1)

Intel® Platform Administrator provides the following features:
- Multicast (1-to-many) deployment of a 1GB OS image to hundreds of clients within a few minutes in a 100Mb Ethernet environment.
- Block-level incremental disk image creation and deployment for faster application software deployment and upgrades.
- Low performance-penalty hard-disk protection technology: The automatic creation of multiple checkpoints in order to avoid damage caused by viruses and malicious attacks.
- Network recovery to allow quick and easy restoration of crashed PCs.
- Hardware and software asset management.
- OS-independent remote control: Power on, power off, reset and status query of clients
- Remote BIOS update based on firmware component technology and auto update of **Intel® Platform Administrator** client software
- Asset monitoring function with alerts for abnormal client LAN connections and the unauthorized modification of software and hardware

The main functions are as follow：

Table 1. Intel® Platform Administrator Feature List

Main Function	Subsidiary Function	Description
Mass Image Deployment through Network†	Remote server deployment of images to clients, including: - Operating System images - Data images - Disk partition images (used	Multicast (1-to-many) deployment of a 1GB OS image to hundreds of clients within a few minutes in a 100Mb Ethernet environment. Faster application software upgrades through package delivery within the

	for computer recovery)	network environment. Out-of-box PC set up by automating and simplifying OS and software installations for multiple PCs.
	Remote server deployment of incremental package to clients. (Used for software upgrades, removal and add on ,etc.)	
Remote management	Remote control of clients from server's management console： ▪ Power on, power off, and reset of clients ▪ Execute commands on clients	Remote control of client PCs regardless of OS status: ▪ Power on, power off, reset and query the status of clients.
	Remote configuration of clients from server： ▪ Set the client PC's IP address, computer name, gateway and DNS	
Asset management	Server can record and monitor the hardware configuration on client PCs, and report hardware changing status	Management of hardware and software assets through constant monitoring of client PCs' OS lifecycle status, hardware configuration, software configuration, and network connection status
	Server can monitor and report the software status the client PC's.	
	Server will create an alarm when the hardware or software of client PCs have undergone unauthorized modification or are operating abnormally	
Hard-disk protection	Low performance-penalty protection of client PC hard disks against viruses and malicious operations.	System recovery supports up to 32 checkpoints , low performance-penalty hard-disk protection without the need for hard-disk protection cards, protecting client PCs against viruses and malicious operations
Automated Client PC Recovery	Recovery from previously-recorded HD configuration data	Remote server re-deployment of previous images/installation packages to clients for system recovery purpose
Asset Monitoring	Client computers LAN connection and power lost	Intel® Platform Administration Technology includes asset monitoring capabilities for both software and hardware. Abnormal client computer behavior will be reported to the server console under certain conditions.
	Hardware component removal such as, hard drive, RAM and graphics adapter. Note that the alarm triggers only after PC is	

	rebooted	Certain monitoring features may remain active regardless of the client computer's power state.
	Abnormal conditions on client operating system or computer processor operation	Note:
	Chassis intrusion. The feature is enabled by pre-installed sensors in the chassis (only in selected chassis)	– Alert notification times may vary under different conditions. – Specific alerts can be enabled or disabled at the discretion of the administrator.
	USB device removal (Only available on Intel® Desktop D915PDT board. Only support USB devices that strictly comply with USB 2.0 standard.)	
	Intel® Platform Administrator Client or Intel® Platform Administrator Server versions conflict	

† Due to network environment difference, very limited clients may experience failure during mass image deployment through network. Redeploy image to these clients will solve this problem.

[Remind]
For a detailed feature description please refers to "**Intel® Platform Administrator user manual**".

Intel® Platform Administrator, based on **Intel® Platform Administration technology,** provides an integrated solution not only from server to client but also from BIOS Firmware components to the application software. This solution delivers value added service for PC management in a network environment by improves working efficiency and reducing management costs. Its service targets are small and medium-sized network enterprise operations such as i-cafés.

System Architecture

Figure1. System Architecture Diagram
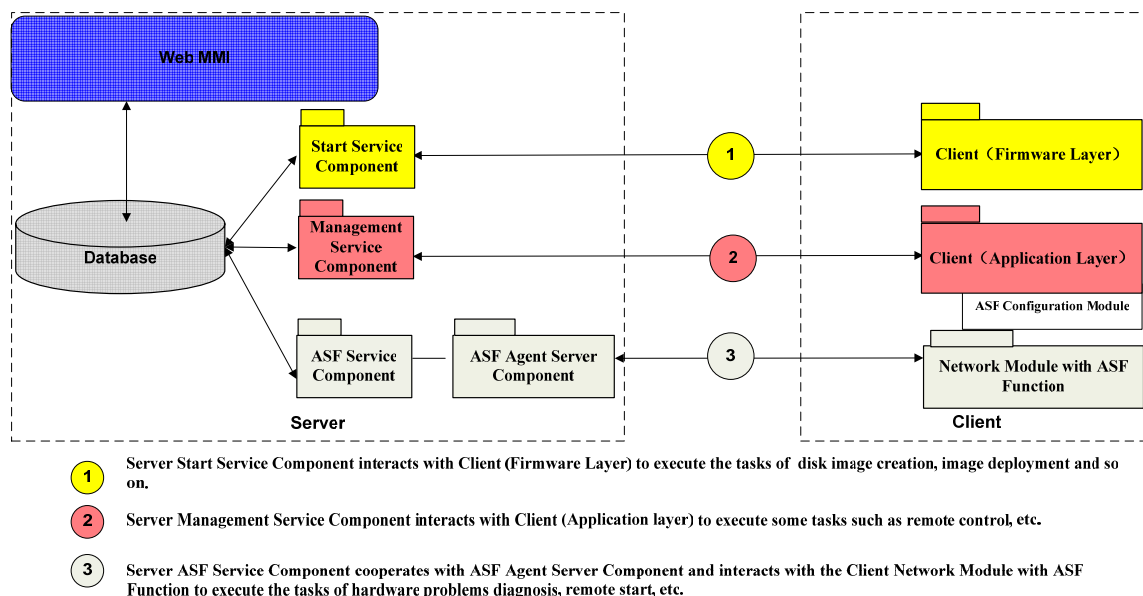
- **Intel® Platform Administrator Server** is a server version application, which includes the features of administration and background service. The server requires the support from the database.
- **Intel® Platform Administrator Client** is a client version application, which includes the features of disk protection and background monitoring.
- **Intel® Platform Administrator** firmware component is a software application built on top of BIOS. It communicates with the server and provides core functions including network management and image deployment.

Major technology includes:

◇ EFI / Intel Innovation Framework for EFI: Developed using an advanced computer language and is somewhere between the hardware components and advanced operating systems such as windows, Linux, etc. It also provides a standardized framework for initializing the operation system and running programs before initialization. Furthermore, Intel has also developed a software framework that is used before computer starts to replace the BIOS. This framework is called Intel Platform Innovation Framework for EFI. More information about EFI / Intel Innovation Framework for EFI can be found at **http://www.intel.com/technology/efi/**.

✧ ASF（Alert Standard Format）is a recognized industry standard and is mainly used to describe alert information formats. ASF can function regardless of the system status: normal OS operation, standby OS operation, temporarily stopped OS operation, OS crash, BIOS crash, BIOS initializing, etc. ASF doesn't depend on the status of the operating system or the microprocessor. ASF provides two features that support abnormal operation warnings and remote client control:

- Abnormal operation warnings:
  1. Security：Non-secure alerts including chassis intrusion, client connection lost, etc.
  2. Operating Condition: Abnormal operating conditions including abnormal processor temperature, shortage of hard-disk capacity, damage to computer fan, etc.
  3. Operations：Abnormal operations including temporarily stopped OS operation, BSOD, etc.
- Remote control: The server can control the clients remotely through the network. The server can set up the initialization path, and can power on/shut down/restart all clients remotely.

More information about ASF can be found at **http://www.dmtf.org/standards/asf**。

System Configuration

Hardware Requirements

Table2. Hardware Configuration Requirements

Hardware	Recommended Server Specifications	Minimum Server Specifications	Recommended Client Specifications	
CPU	Intel® Pentium$^{®}$ 4 processor, 2.8GHz	Intel® Pentium® 4 processor,2.4GHz	Intel® Celeron® D processor, 2.4GHz	Intel® Pentium® 4 processor, 2.8GHz
Memory	1GB	512MB	512MB	
Hard Disk	160GB IDE	120GB IDE	80GB IDE	
CD-ROM	CD-ROM 16x	CD-ROM 16x		
NIC	1000Mbps	100Mbps	Built-in 100Mbps Network Interface Card	
Mother Board	Any Intel certified server motherboard	Any Intel certified server motherboard	Intel® Desktop Board D865PCK	Intel® Desktop Board D915PDT

Software Requirements

Server Requirements

Applicable Operating System
- Windows 2000 Server* (SP4)
- Windows 2000 Advanced Server* (SP4)
- Windows Server 2003 Standard Edition *
- Windows Server 2003 Enterprise Edition*
- Windows XP Professional* (SP2)

Windows Components
- Simple Network Management Protocol (SNMP) component
- Internet Information Services component (IIS), Version 5.0 or above
- Dynamic Host Configuration Protocol (DHCP) component（Optional）

3rd-Party Software Requirements
- Microsoft SQL Server 2000 Desktop Engine* (MSDE 2000) SP3 or Microsoft SQL Server 2000 (SP3)*
- Internet Explorer 6.0* (or above)
- Windows ASP. NET*
- Microsoft .NET Framework 1.1.4322* (default installed in Windows Server 2003*, need to install manually in Windows 2000 Advanced Server*)

Client Requirements

Applicable Operating System
- Windows 2000 Professional Edition* (SP4)
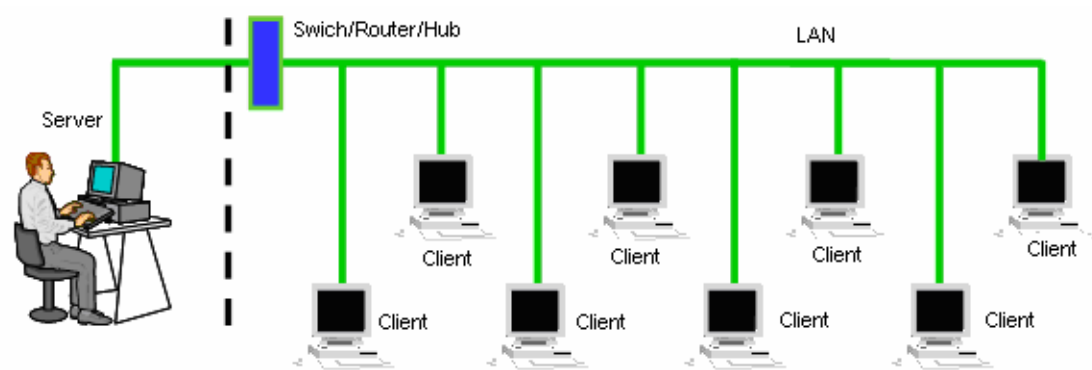- Windows XP Professional Edition* (SP1/2)

System Component and Services
- DHCP Client（Optional）
- Network Connection
- Windows Management Instrumentation

* Third party brand and names may be claimed as the property of owners.

Installation Steps

Figure2. System Network Diagram

1. Install applications at server side then configure the server

2. Pickup a PC and install client version applications

3. Set the chosen client as a "golden machine" and create a disk image file

4．Multicast the image file to all clients simultaneously

> **[Remind]**
> Please refer to "**Intel® Platform Administrator User Manual"** for the detailed installation steps if needed.

Conclusion

Intel® Platform Administration technology has been developed based on Intel's leading chipset technology.   **Intel® Platform Administration technology** has four key features: Out-of-box PC setup, asset management and remote control, software update through image deployment, and system recovery and hard-disk protection.   For property owners such as i-café owners, **Intel® Platform Administration technology** improves PC utilization efficiency and reduces operation costs, which provides a foundation for future business expansion and increased profits.

Intel® Platform Administration technology also can relieve IT managers from troublesome daily PC management work through fast PC installation/image deployment and software upgrade.   And the remote asset management and monitoring features can greatly improve the working efficiency of IT managers.   Furthermore, the comprehensive support from Intel and Intel channel OEMs will improve the competitive advantage of IT managers as well from a career development perspective.

Intel® Platform Administration technology can reduce the entry barrier of network operations and management and attract more investments for network channels. Meanwhile, **Intel® Platform Administration technology** provides an open application interface，which can be used by channels to easily develop **Intel® Platform Administration technology**-based management software solutions.

Finally, **Intel® Platform Administration technology** provides end-users with steady platform.   End-users can enjoy an exciting network experience resulting from the most up-to-date software upgrades and a seamless integration between software and hardware.

Appendix

Table3. Frequently Used Terms

API	Application Interface	应用程序接口
ASF	Alert Standard Format	警告标准格式
BIOS	Basic Input/Output System	基本输入/输出系统
EFI	Extensible Firmware Interface	可扩展固件接口

Declaration

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