Intel Active Management Technology (iAMT) White paper

What is iAMT?

Intel Active Management Technology, or iAMT, is a hardware based technology that is used for monitoring, securing, and supporting desktop and laptop PC's that use Intel® vPro™ processor technology. iAMT was introduced in 2005, and started to emerge in the Industrial Market in 2010 with version 6.0. A full comparison table of the iAMT firmware along side the first generation vPro™ iCore processors can be found at the end of this paper

Please note that unlike other technologies that offer this kind of remote interaction (IPMI for example), iAMT is not standardised at present (correct at time of print 2012) as it is an Intel® propriety technology and as such will not function on any non Intel® vPro™ based systems.

V6.0 introduced a VNC server embedded into the on board firmware enabling full KVM functionality when using third party viewers such as RealVNC+ e. This was a vast improvement which expanded on the Out-of-Band (OOB) support that could be offered to internal and external clients.

Where can it be used?

iAMT is very flexible and can be implemented on a local network (LAN) or via a wide area network (WAN), wired or wireless (as of V7.0). The required and optional components are shown below for corporate integration:
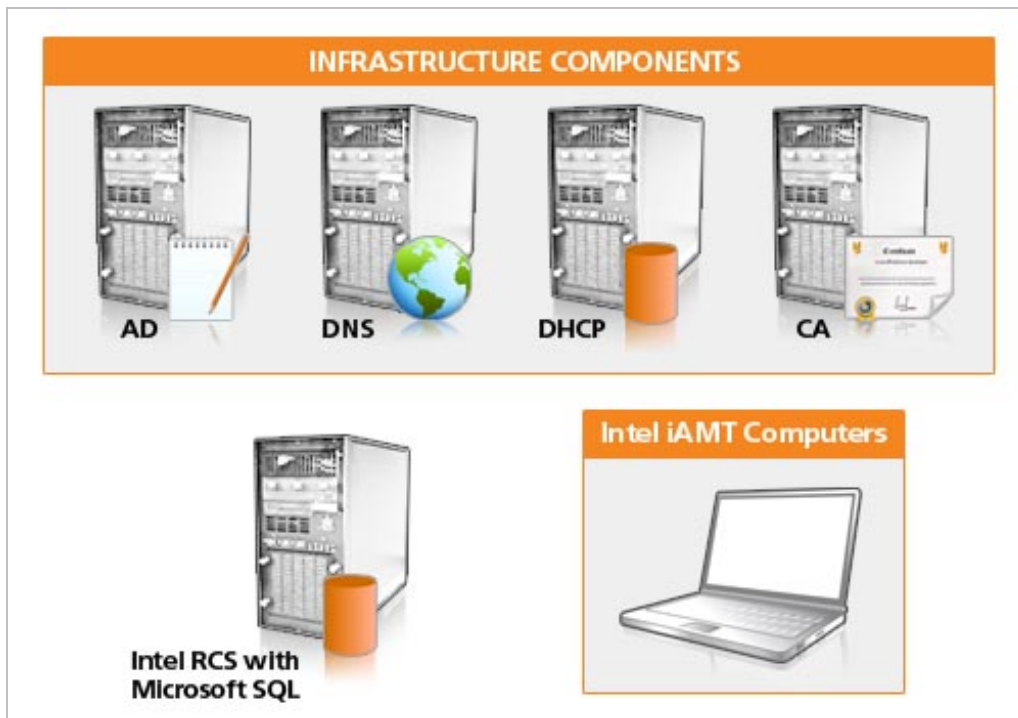

Figure 1: Required and Optional Component Characteristics

Infrastructure Components

- Active Directory (AD) – Required only if AD integration is used in the Intel AMT configuration.

- Domain Name Server (DNS) – Recommended for correct IP resolution.

- Dynamic Host Configuration Protocol (DHCP) – Required if DHCP addressing will be used by client PCs.

- Microsoft Certificate Authority (CA) Server –If TLS will be used in the Intel AMT configuration.

Intel RCS (Remote Configuration Service)

- Required for Remote Configuration, Configuration Maintenance, and Delta Configuration operations.

- If only Host-Based or Manual/SMB configuration will be used; only the Intel SCS Console is required.

- Microsoft SQL database is optional for small environments or simple demonstration environments.

Intel AMT Computers

All connecting client systems must support Intel AMT. LAN set up is the simplest as there is no additional configuration required once the Intel® ME™ (Management Engine) BIOS has been setup with the following information:
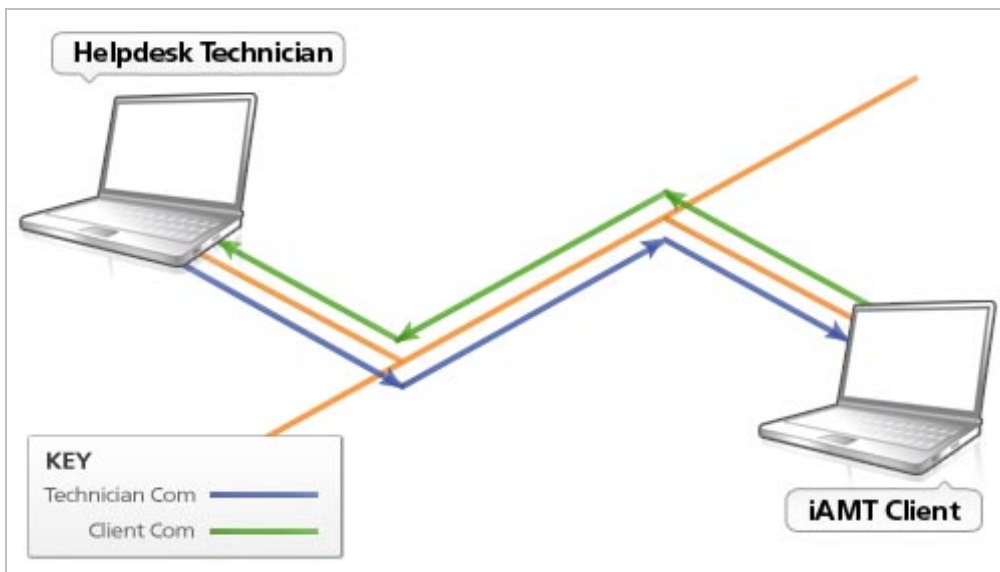
Password configuration

Network settings (IP, Subnet, Gateway)

SOL/IDER
*SOL = Serial Over LAN
*IDER = IDE-Redirection (used for streaming ISO images)

KVM redirect

Figure 2: Simple iAMT setup - For more information on ways to configure iAMT please visit Intel® website (SCS Guide).

Advantages

The iAMT based solution enables internal IT departments to monitor and maintain, either via LAN, or WAN depending on the implementation and using various revisions of the firmware, the following remotely:

Remote software/ hardware inventory and asset tracking capabilities

When using 3rd party software for internal inventory, this can be accomplished via the iAMT functionality once configured. Intel suggests the following software providers to achieve this task, LANDesk, BMC Software, Computer Associates, and Symantec.

Out-of-Band (OOB) system management

This will reduce system downtime and the cost of maintaining the system. Regardless of the power state of a system, iAMT can be used to power cycle and troubleshoot a suspected faulty unit. OOB removes the cost of sending an engineer to site for troubleshooting. Once a fault is located, Operating Systems, and software patches for example can be streamed via the SOL*/IDER* function to effect the repair. If hardware is at fault this can easily be diagnosed and an engineer can be sent to site to replace the hardware in question.

SOL = Serial Over LAN
IDER = IDE-Redirection (used for streaming ISO images)

On top of these functions, iAMT can be integrated in to Active Directory for large networks.

Limitations

As previously mentioned in this article, the main limitation is the lack of non Intel® processor support. But with other immerging technologies this should not pose a problem for cross processor infrastructure.

Conclusion

Whilst this is a very handy tool, with ranging complexity of installation, the time scale of implementation would vary drastically depending on the configuration used during the initial build of the infrastructure.

During the improvements of iAMT through revision modifications, we can see that deployment models have improved to enable "zero" setup, which requires some configuration on a 'discovery server'. Although iAMT/ME can still be configured manually the time involved in doing so could be a significant cost for large network sites, and comparable to the cost of a 'discovery server'.

Table of comparison of iAMT versions

iAMT Revision	Description
Intel AMT 8.0	Intel 7 Series chipset (Panther Point).
Intel AMT 7.0	Intel Q67 Express (Sugar Bay: Cougar Point) chipset, mobile QM67 and QS67 (Calpella: Cougar Point) chipset.
Intel AMT 6.0	Intel Core i5/7 vPro desktop platforms based on the Q57 (Piketon: Ibex Peak) chipset, Core i5/7 vPro mobile platforms based on the QM57 and QS57 (Calpella: Ibex Peak) chipset, and Xeon 3400 series/Core i5 vPro entry workstation platforms based on the 3450 chipset.
Intel AMT 5.0	Intel Core 2 vPro desktop platforms (launched September 22, 2008) based on the Intel Q45 (McCreary: Eaglelake-Q, ICH10) chipsets.
Intel AMT 4.1	Intel AMT 4.0 + Intel Anti-Theft Technology. Supported on same mobile platforms as Intel AMT 4.0, and based on the GM45 (Montevina, ICH9M) chipset.
Intel AMT 4.0	Mobile platforms with Intel Centrino 2 with vPro based on the GM45 or 47/PM45 (Montevina: Cantiga, ICH9M) chipsets.
Intel AMT 3.2	Intel AMT 3.0 + extra DASH 1.0 (simplified configuration) support and bug fixes (supported on same desktop platforms as Intel AMT 3.1 and Intel AMT 3.0).
Intel AMT 3.1	Intel AMT 3.0 + Linux (Red Hat and SUSE) support (supported on same desktop platforms as Intel AMT 3.0; uses same firmware).
Intel AMT 3.0	Intel vPro desktop platforms based on the Intel Q35 (Weybridge: Bearlake-Q, ICH9) chipsets.
Intel AMT 2.6	Intel AMT 2.5 + Remote Configuration and bug fixes (supported on same platforms as Intel AMT 2.5).
Intel AMT 2.5	Intel Centrino Pro mobile platforms based on the GM965/PM965 (Santa Rosa: Crestline, ICH8M) chipsets.
Intel AMT 2.2	Intel AMT 2.1 + Remote Configuration and bug fixes (supported on same platforms as Intel AMT 2.1 and Intel AMT 2.0).
Intel AMT 2.1	Intel AMT 2.0 + AMT Power Savings (Intel Management Engine Wake on LAN) and bug fixes (supported on same platforms as Intel AMT 2.0).
Intel AMT 2.0	Intel vPro desktop platforms based on the Intel Q963/Q965 (Broadwater-Q, ICH8) chipsets.
Intel AMT 1.0	Intel platforms based on the Intel 82573E (Tekoa; usually 945, ICH7) Gigabit Ethernet Controller, e.g., the Intel D975XBX2 motherboard. This version provides basic NVRAM, hardware asset, event log and other basic features. It does not provide Intel System Defence network filters.