



INTEL® VPRO™ PLATFORM UPDATE

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JANUARY 2018

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- This device has not been authorized as required by the rules of the Federal Communications Commission.
- This device is not, and may not be, offered for sale or lease, or sold or leased, until authorization is obtained.

* Other names & brands may be claimed as the property of others.



Intel® vPro™ Platform 10+ YEARS OF INTEL VPRO



2006



Enterprise Remote Management w/Intel® Active Management Technology

Processor Virtualization HW Support (VT-x)

2007



+ Wireless Remote Management

+ Hardware-strength security

+ I/O Devices Virtualization HW Support (VT-d)

2008



+ Reach & Manage Beyond Firewall



Retail Vending Point of Sale

2010-2011



+ HW-KVM Remote Control

+ Host-based Configuration

+ KVM Resolution Enhancements (1920x1200)

+ Intel® Identity Protection Technology with OTP



Digital Signage

2012



+ KVM Enhancements (3 displays)

+ Intel® Identity Protection Technology with PKI



Workstations

2013



+ KVM Resolution Enhancements (2560x1600)

+ Graceful OS Shutdown



2015



+ Remote provisioning for wireless platforms

+ Remote Screen Blank

+ Microsoft InstantGo* support



Soda Machines

2016



+ KVM Resolution Enhancements (4096*2160@8bpp)

+ Intel® Remote Secure Erase with Intel® SSD Pro

+ USB-R Storage Redirection



ATMs

2017



+ Intel® Manageability Commander

+ Intel® AMT Location for Intel® Authenticate

+ Support for KVM headless devices

+ Web app hosting in Intel® AMT firmware

+ Intel® Data Guard

+ FIPS 140/2 L1 Cert for PKI

INTEL VPRO : SECURE, FLEXIBLE AND MANAGEABLE RETAIL SOLUTION

Manageability

Intel®
Active Management Technology (AMT)

Flexibility

Intel®
Virtualization Technology (VT)

Security

Intel®
Trusted Execution Technology (TXT)

Processor



Intel® Core™ processors



Chipset



Intel® Express Chipset



Network



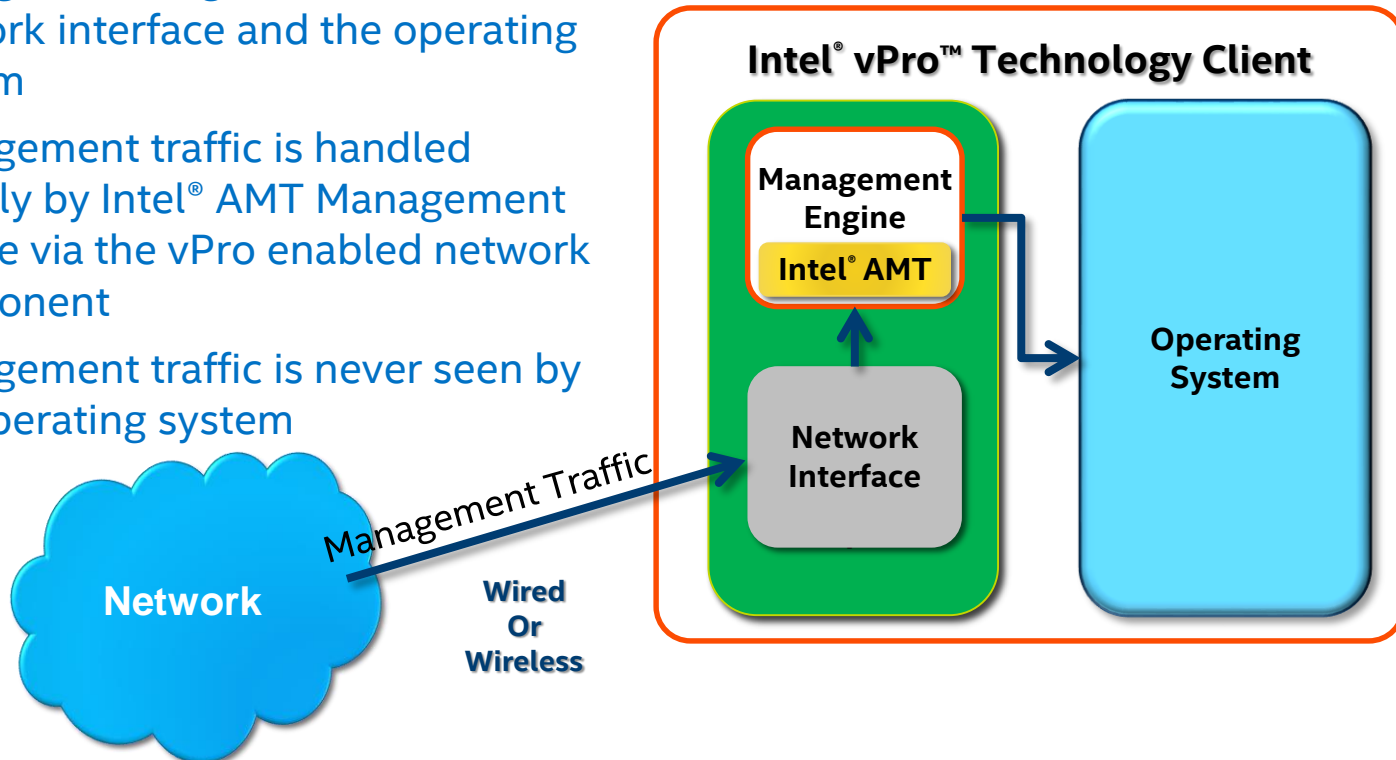
Intel® LAN/WLAN controller

An Intel® vPro™ Platform is the sum of hardware, BIOS extensions and applications that deliver solutions for a robust and reliable retail applications

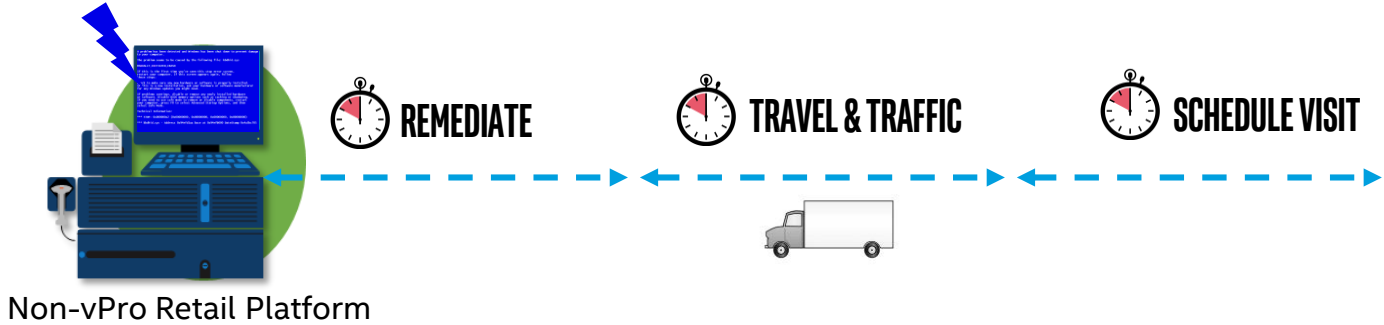


INTEL® AMT MANAGEMENT PACKET ROUTING

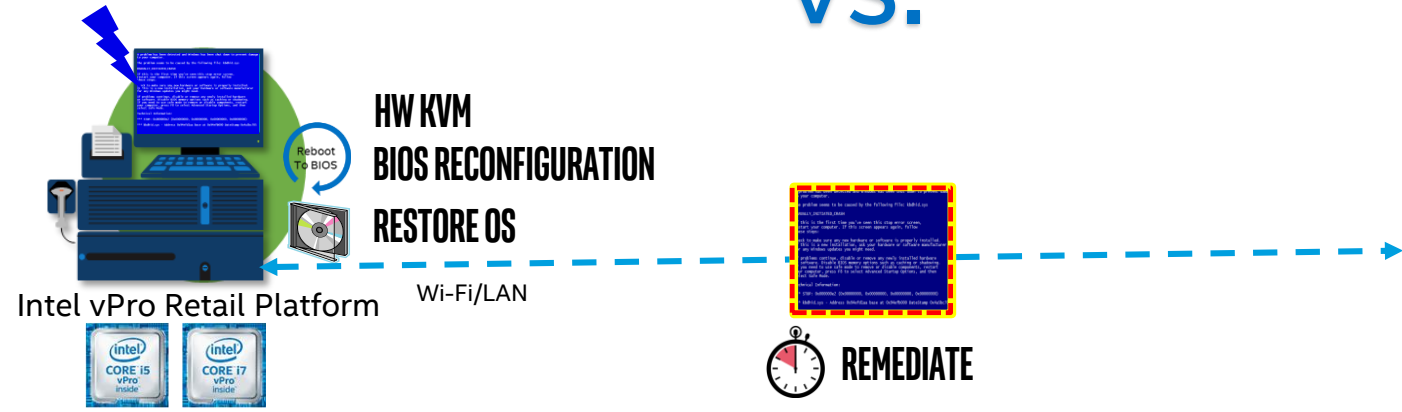
- Management Engine sits between the network interface and the operating system
- Management traffic is handled directly by Intel® AMT Management Engine via the vPro enabled network component
- Management traffic is never seen by the operating system



MONITOR, REMEDIATE REMOTELY AND REDUCE DOWNTIME



VS.

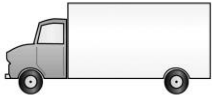


IN-BAND VS ONSITE (DISPATCH TECHNICIAN) – TODAY’S MODEL

IN-BAND



ONSITE VISIT



IN-BAND VS ONSITE (DISPATCH TECHNICIAN) - WITH INTEL® AMT

IN-BAND



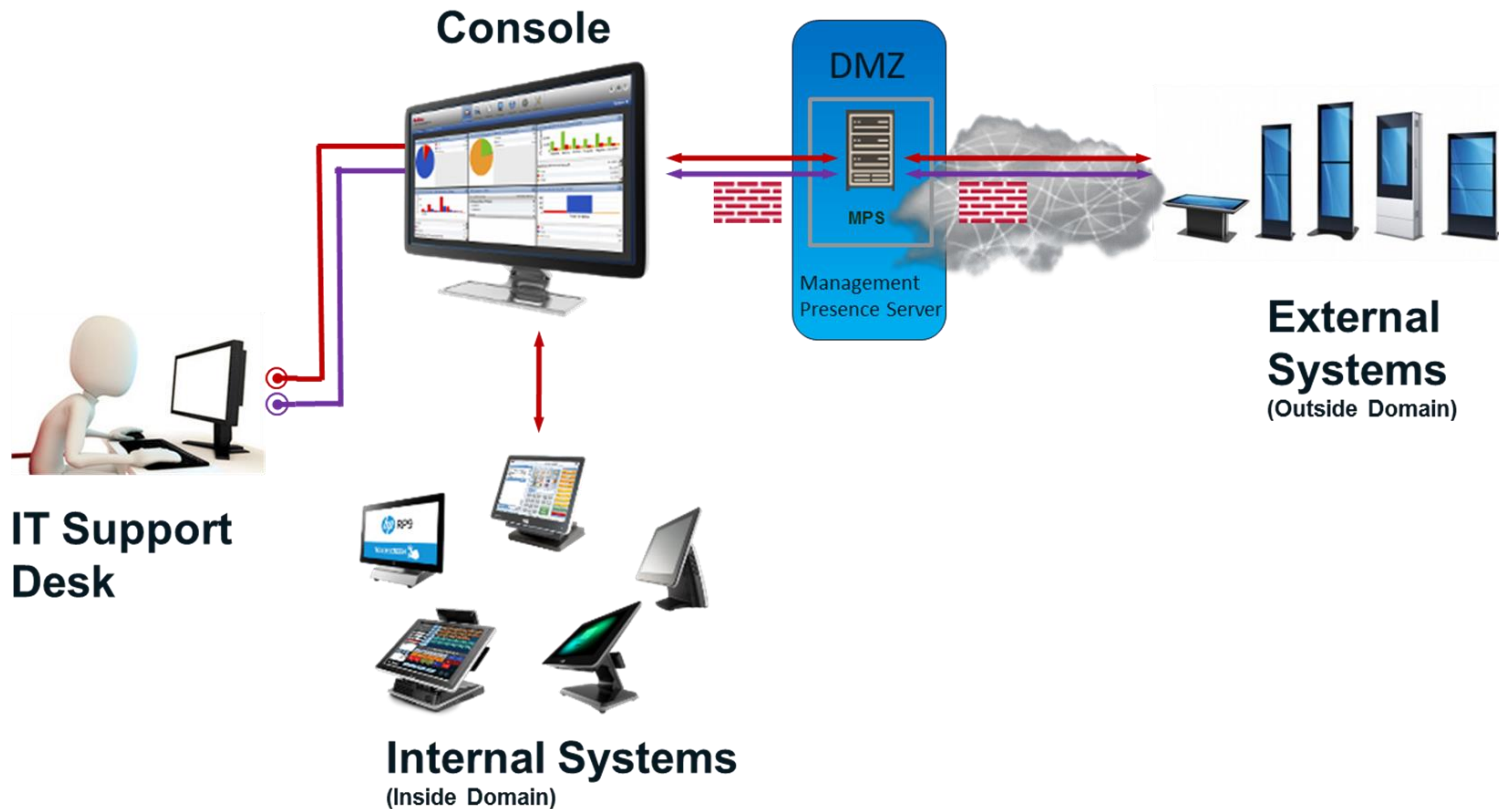
INTEL® AMT
OOB (Out Of Band)



ONSITE VISIT

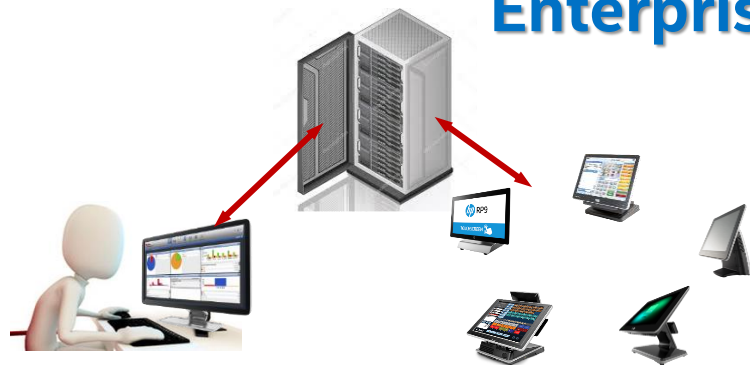


INTEL® VPRO™ “TOPOLOGY” AND ENVIRONMENT OVERVIEW



VPRO ENVIRONMENTS COME IN TWO FORMS

Enterprise VS Cloud



IT Support Desk

Internal Systems
(Inside Domain)



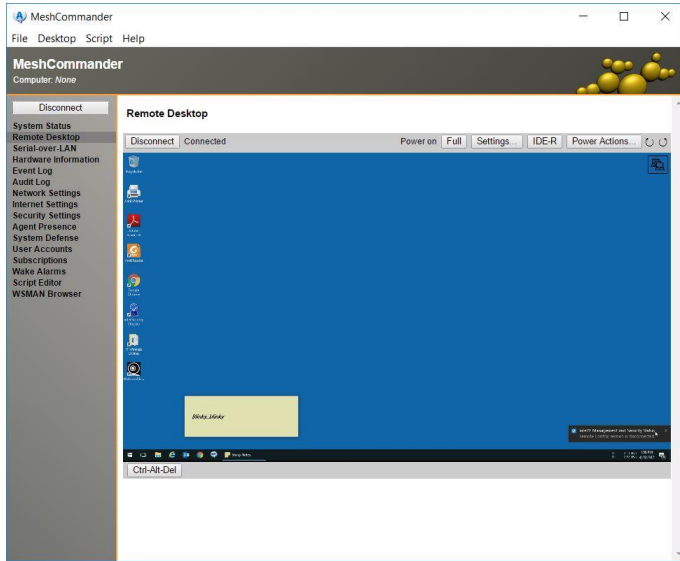
Enterprise Domain – Corporate – Secured – 8021.x



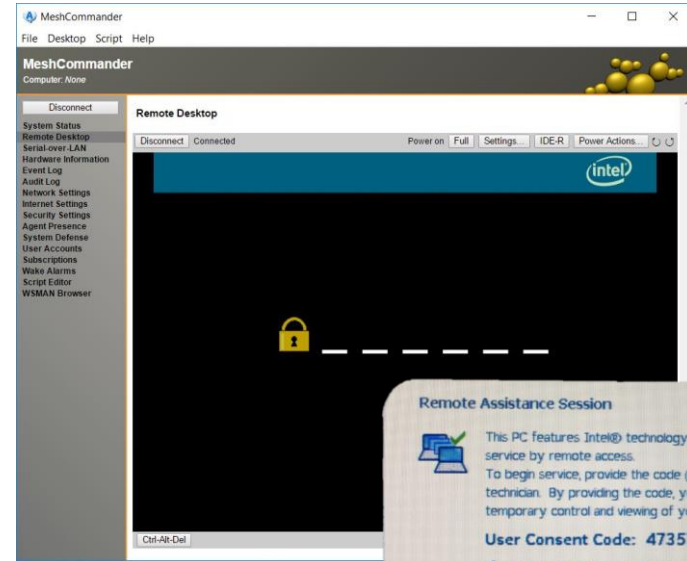
External Systems
(Outside Domain)

Public Domain – Home like Internet Connections

TWO “MODES” OF VPRO ACTIVATIONS



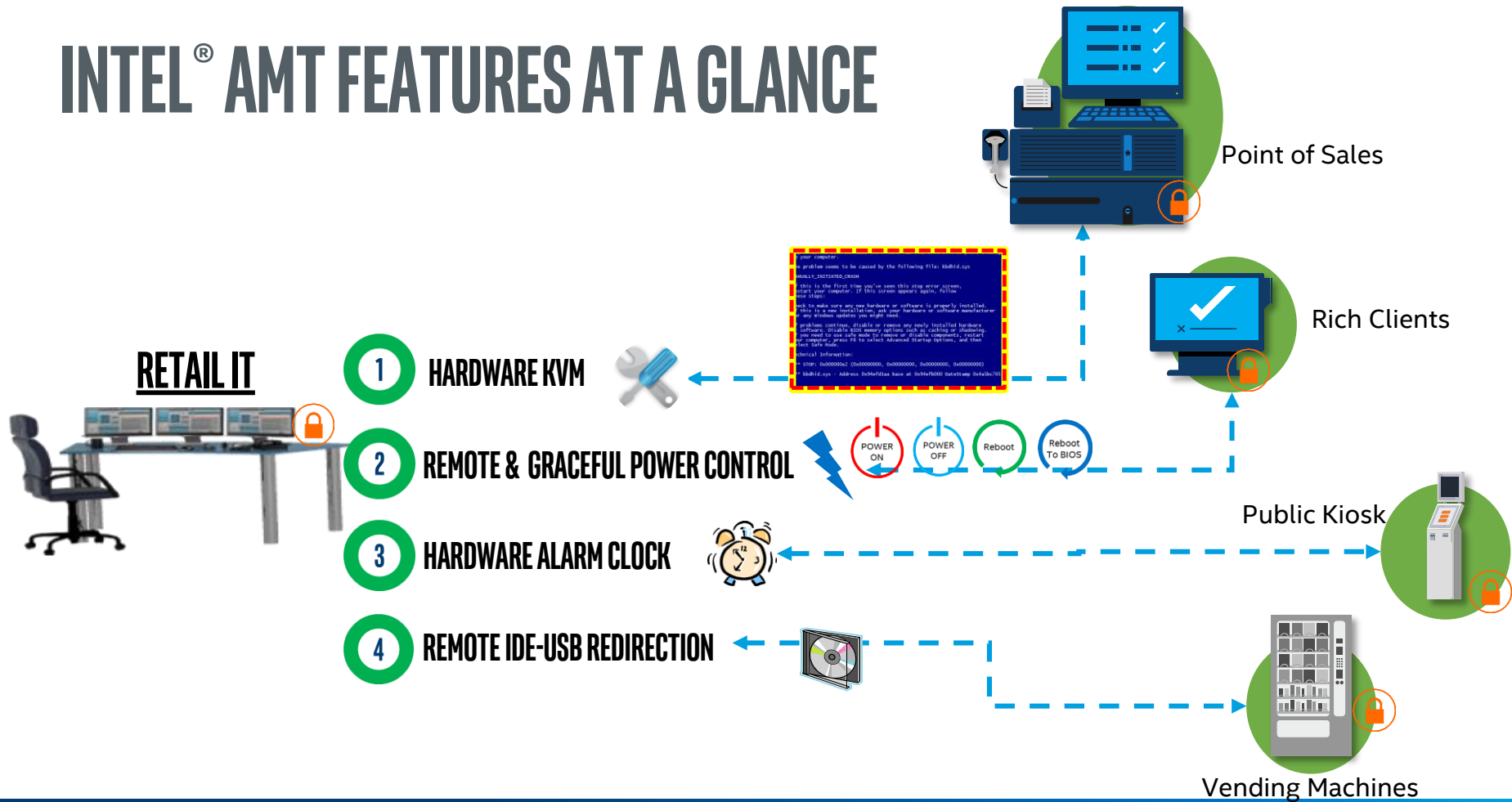
VS



Admin-mode – No User Consent
(ACM)

Client-mode – User Consent Required
(CCM)

INTEL® AMT FEATURES AT A GLANCE



INTEL® AMT PROVISIONING – ENTERPRISE/DOMAIN (TRADITIONAL ISV CONSOLES)

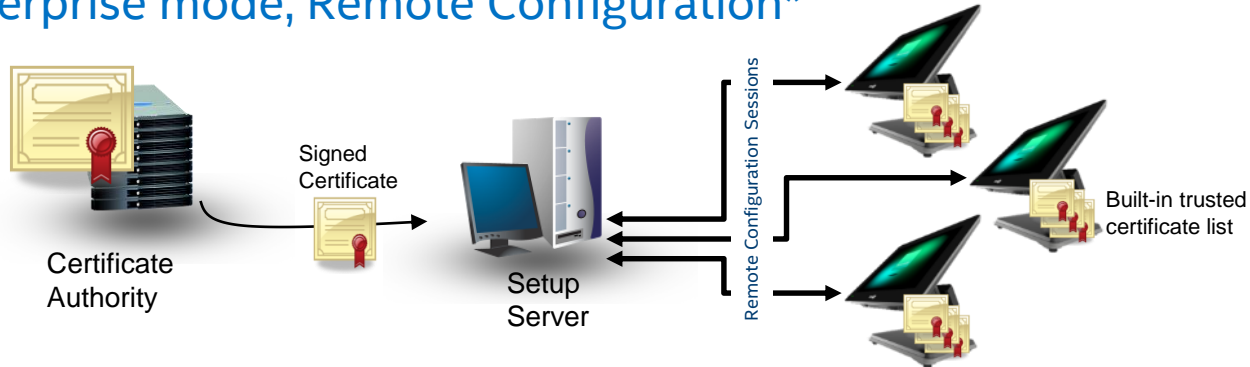
Enterprise mode with USB key

(Takes place of MEBx - <CTRL+P>)



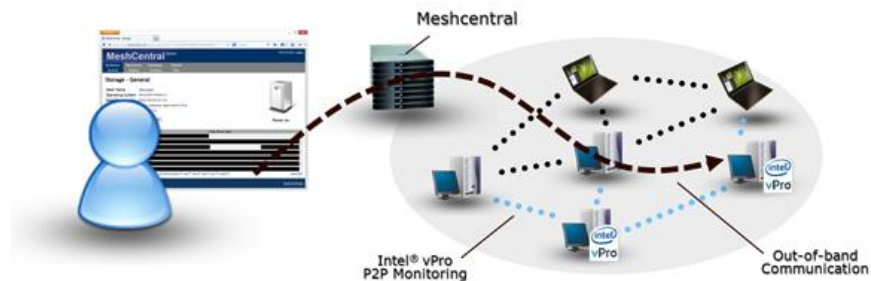
Intel® SCS: Create Provisioning USB Stick

Enterprise mode, Remote Configuration*



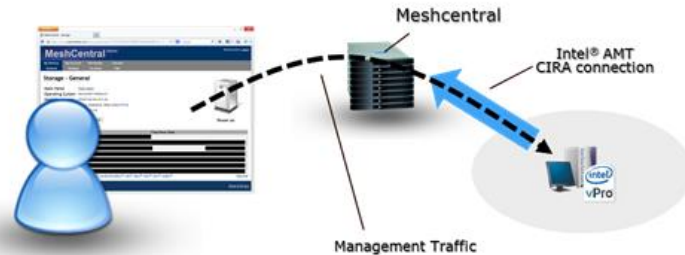
* Remote Configuration – AMT 2.2, 2.6 and up.

INTEL® AMT PROVISIONING - CLOUD (MESH ARCHITECTURE)



In-band agent: Mesh Agent
Out-of-band: AMT CIRA (Client Initiated Remote Access)

AMT CIRA will be used when vPro is activated.
Support Mesh vPro activation.*



“LIVE” VPRO DEMOS



INTEL CONFIDENTIAL

PORTS USED BY VPRO - OVERVIEW

A large majority of customer use Microsoft SCCM* which utilizes Active Directory (AD).

MANAGEMENT

TCP: 16992 (AMT Non-TLS) (WS-MAN)

TCP: 16993 (AMT TLS) (WS-MAN)

TCP: 16994 (Non-TLS Redirection)

TCP: 16995 (TLS Redirection)

TCP: 5985 (Non-TLS WS-MAN / PowerShell)

TCP: 5986 (TLS WS-MAN / PowerShell)

TCP: 5900 (VNC)

REMOTE CONFIGURATION

TCP: 135 WMI ports - used by ACUConfig for initial communication to the RCS

TCP: 16992 (AMT Non-TLS) (WS-MAN)

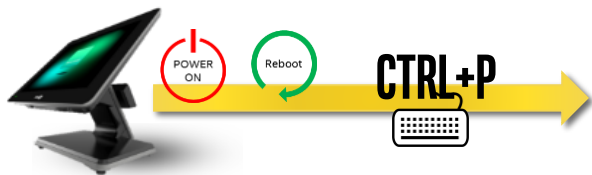
TCP: 16993 (AMT TLS) (WS-MAN)

TCP: 623, 664 – used typically for discovery of AMT versions and capabilities and finding un-configured AMT computers.

WMI – windows management instrumentation

INTEL® AMT PROVISIONING

Manually Configure AMT



When entering MEBx change the following:

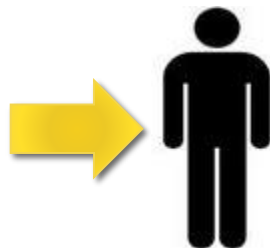
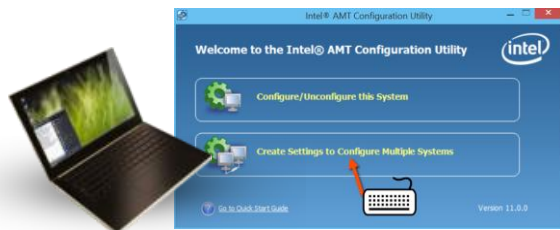
1st time login password : “admin” without “” → *change to desired password*

Set User Consent Option from “KVM” to “NONE”

Activate “Network Access” – this enables vPro!

NOTE: *Keep MEBx password in Safe place – If lost, must remove CMOS battery to clear or reflash BIOS*

Enterprise mode : Setup with USB key



Thumb Drive
(setup.bin)

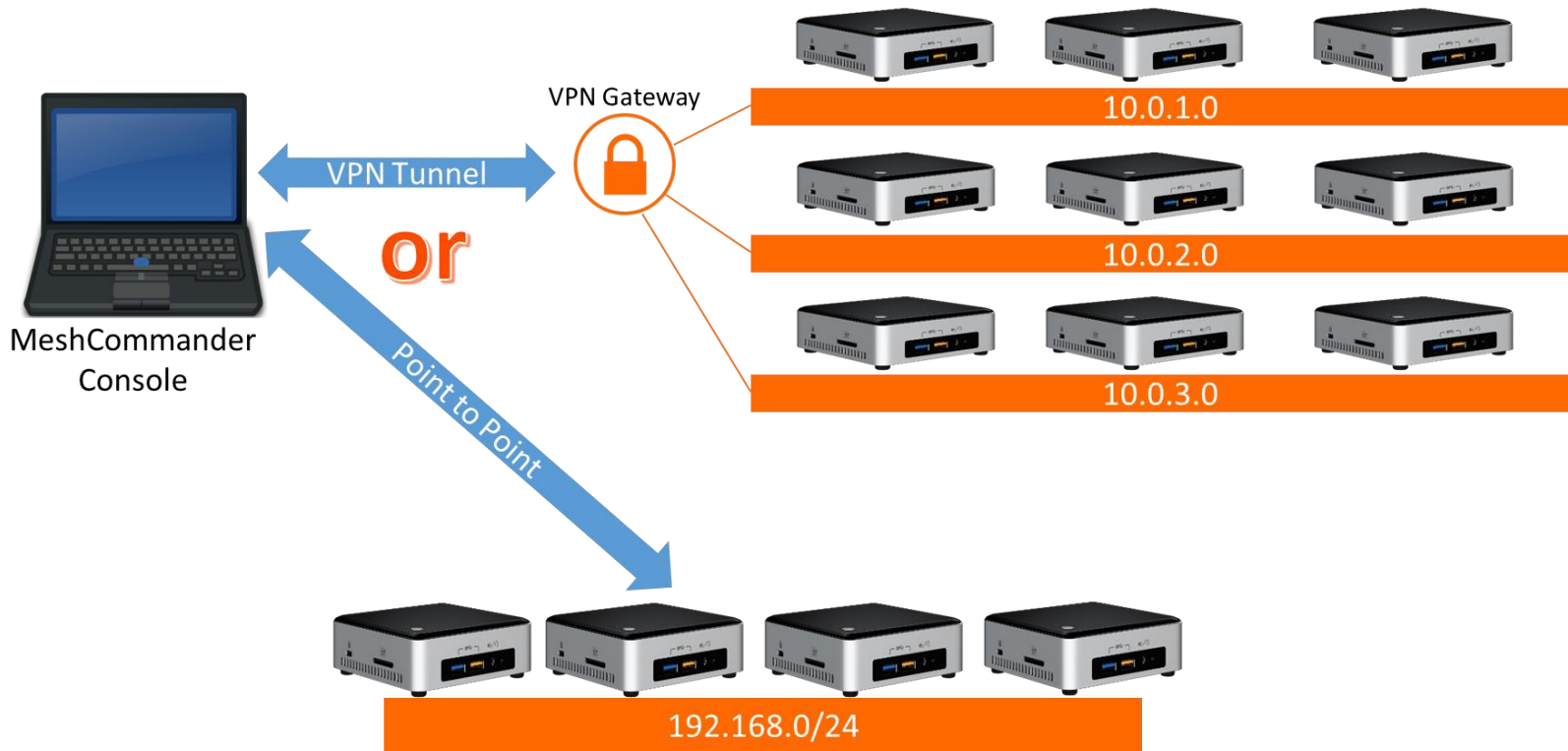


Do you want to provision with USB Setup ?

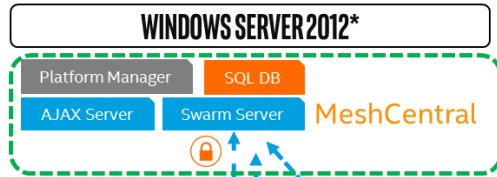
“Y” = YES 

Intel® SCS: Create Provisioning USB Stick

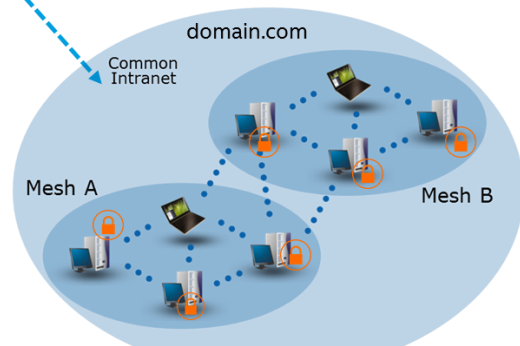
POINT TO POINT MANAGEABILITY WITH MESHCOMMANDER



MESHCENTRAL ARCHITECTURE



External Systems



VPRO ENVIRONMENTS – WEB-UI

The screenshot displays the Intel Active Management Technology web interface. The browser address bar shows the URL `http://localhost:16992/index.htm`. The page title is "Intel® Active Management Technology". Below the header, there is a "Log On" button and a message: "Log on to Intel® Active Management Technology on this computer." A "Log On..." button is also present.

The main content area is titled "Intel® Active Management Technology" and "Computer:". On the left, there is a navigation menu with the following items:

- System Status
- Hardware Information
 - System
 - Processor
 - Memory
 - Disk
 - Battery
- Event Log
- Power Policies
- Network Settings
 - IPv6 Network Settings
 - System Name Settings
 - User Accounts

The "System Status" section is expanded, showing the following information:

System Status	
Power	On
IP address	0.0.0.0
IPv6 address	Disabled
System ID	6dfed87f-3d46-11e3-b404-0f8dbf0cf0ff
Date	4/21/2017
Time	3:46 pm

Below the table is a "Refresh" button.

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SUPPLEMENTARY AMT COLLATERALS

Name	Purpose	Link / Source
MeshCommander Basics	Simple Manageability Guide with MeshCommander Console	Hand Out / USB Stick
MeshCentral Deployment Guide	Guide to Deploy MeshCentral Manageability Web Suite	Hand Out / USB Stick
Port Forwarding Document	The Intel® AMT port forwarding (APF) protocol provides TCP and UDP connection multiplexing over a single reliable transport session, typically a TLS session.	AMT Port Forwarding Document
SCS Deployment Guide	Step by step guide to enable discovery, configuration and integration of Intel Active Management Technology.	http://www.intel.com/content/dam/www/public/us/en/documents/guides/scs-deployment-guide.pdf
AMT SDK	Intel® AMT High-Level API SDK	https://software.intel.com/en-us/amt-sdk/download
Microsoft* PowerShell	Module for Windows* based systems – 100% Intel® AMT/vPro support	Intel® vPro™ Technology module for Windows* PowerShell Version 3.2.5
Microsoft* PowerShell	Graphical User Interface (GUI) Tool – Can include company logo – Great for specifying buttons for support staff	The Intel® vPro™ Technology Module for Powershell GUI Editor Too

IDENTIFYING VPRO SYSTEMS

WAYS TO IDENTIFY AN AMT CAPABLE SYSTEM

1 CONTACT SYSTEM OR HARDWARE SUPPLIER OR LOOK FOR THE VPRO BADGE



2 REBOOT SYSTEM AND HIT (CTRL+ P) TO SEE IF SYSTEM ENTERS MEBX (ME BIOS) , THE INTEL AMT FIRMWARE VERSION WILL BE DISPLAYED IN THE BIOS IN SOME SYSTEMS

3 THE [INTEL SCS SYSTEM DISCOVERY TOOL](#) COLLECTS INFORMATION ABOUT THE INTEL ME (THE INTEL MANAGEMENT ENGINE RUNS THE INTEL AMT FIRMWARE AND OTHER FIRMWARE)

4 VISIT [HTTP://MSP.INTEL.COM](http://MSP.INTEL.COM) TO SEE WHICH RETAIL POS DEVICES SUPPORT INTEL® VPRO & INTEL® AMT