WHITE PAPER

Improving Productivity with Cloud Automation

A new technology interface to make digital workplace features available at the Service Management level

Intel® Active Management Technology (Intel® AMT) with Intel® Endpoint Management Assistant (Intel® EMA), Atos* Beatbox, and ServiceNow* deliver employee productivity, reduced IT costs, increased customer satisfaction, and improved business continuity.

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A greater variety of end devices are moving to the Internet of Things (IoT), which is making it more versatile. One way to address the rising challenges associated with digitization at the service management level is Intel® Active Management Technology (Intel® AMT) for Remote PC Management.

A power supply, an active network, and an Intel® AMT-capable chipset are the only requirements to use Intel® AMT features on end devices. Through a collection of REST-APIs, Intel® EMA makes it possible to manage end devices “out of band,” even if the operating system is down.

To build a proof of concept that would demonstrate increased employee productivity, reduced IT costs, increased customer satisfaction, and improved business continuity, Atos and Intel partnered to introduce Intel® AMT via Atos automation tools Beatbox and ServiceNow within the environment of two large enterprises.

The History of Automated Service Management

In the early 1980s, the IT industry was taking shape, and terminology and processes were unstructured and misleading at times. Since then, Service Management processes have continued to develop and mature, becoming what’s known as the **ITIL Standard**.

After that, **TSM Tools and TSM Technologies** (Ticketing, Workflows, Monitoring or Reporting) became more powerful.

The next step was **Enterprise SM**. ITSM platforms like ServiceNow emerged, which aligned IT processes more closely to the actual business of an enterprise.

Today, **Automated Service Management** enhances user experience with Robotic Process Automation and Artificial Intelligence. And this technology continues to evolve.

Using ASM has many advantages including: automatic alerts, more user-friendly self-service tools, increased CMDB through automated discovery, and a more effective approach to knowledge management. Workflows are also able to execute tasks automatically, eliminating the need for manual service request management, while automated reporting supports cost-effective regulatory compliance.

Cost reduction scenarios described are intended as examples of how a given product, in the specified circumstances and configurations, may affect future costs and provide cost savings. Circumstances will vary. Intel does not guarantee any costs or cost reduction.

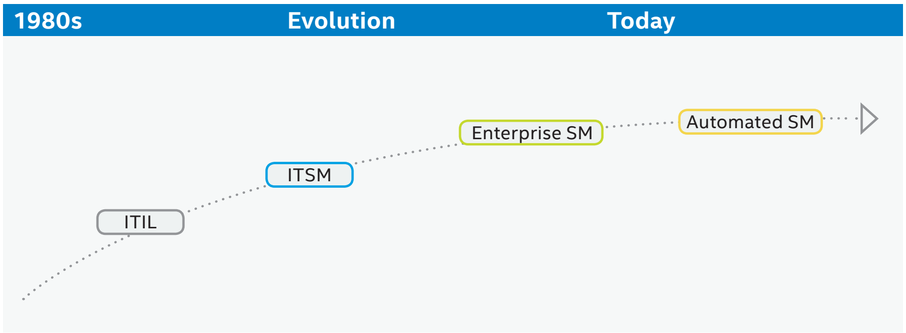

Figure 1. Evolution of Service Management

System & Service Management

The rise of automation in IT has increased demand for cloud services, with more than 90% of enterprises using multiple cloud services by 2020.[1] Cloud automation refers to processes and tools that help reduce manual management and provisioning of cloud computing workloads, which can contribute to the reduction of usage-based costs. Common and more complex tasks, including scripts with embedded logic and custom applications, will see improvements, thanks to the ServiceNow technology interface, which makes AMT features accessible and usable at the service management level.

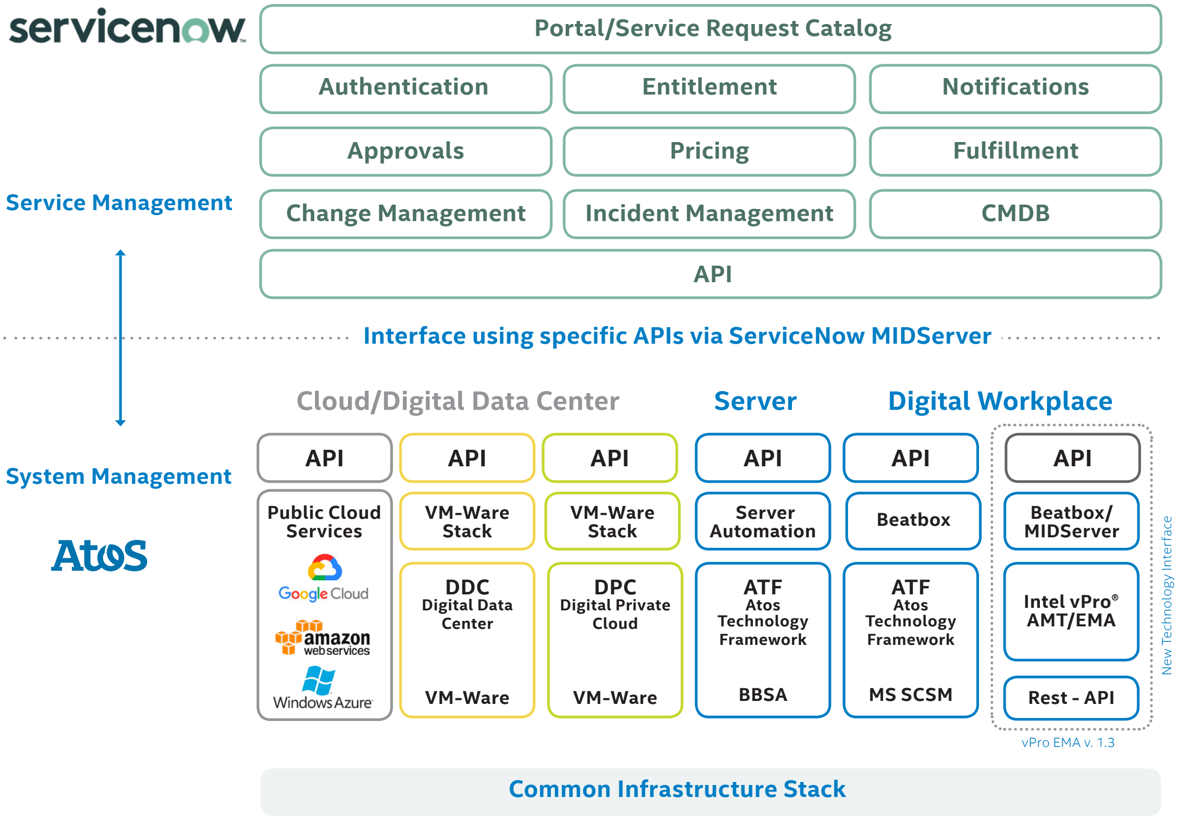

Figure 2. New Technology Interfaces for Digital Workplaces

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IT Service Management Toolkit

Atos Technology Framework (ATF) is Atos's central global Service Management Platform. ATF is based on ServiceNow. ATF/ServiceNow support processes according to Atos's ITIL-Compliant Service Management Model (ASMM). It consistently manages interactions between all service management components, involved third parties, and any customer systems based on a secure, shared, and flexible IT architecture. ServiceNow enables users to easily submit tickets via Service Requests on a web interface and processes these requests until fulfillment.

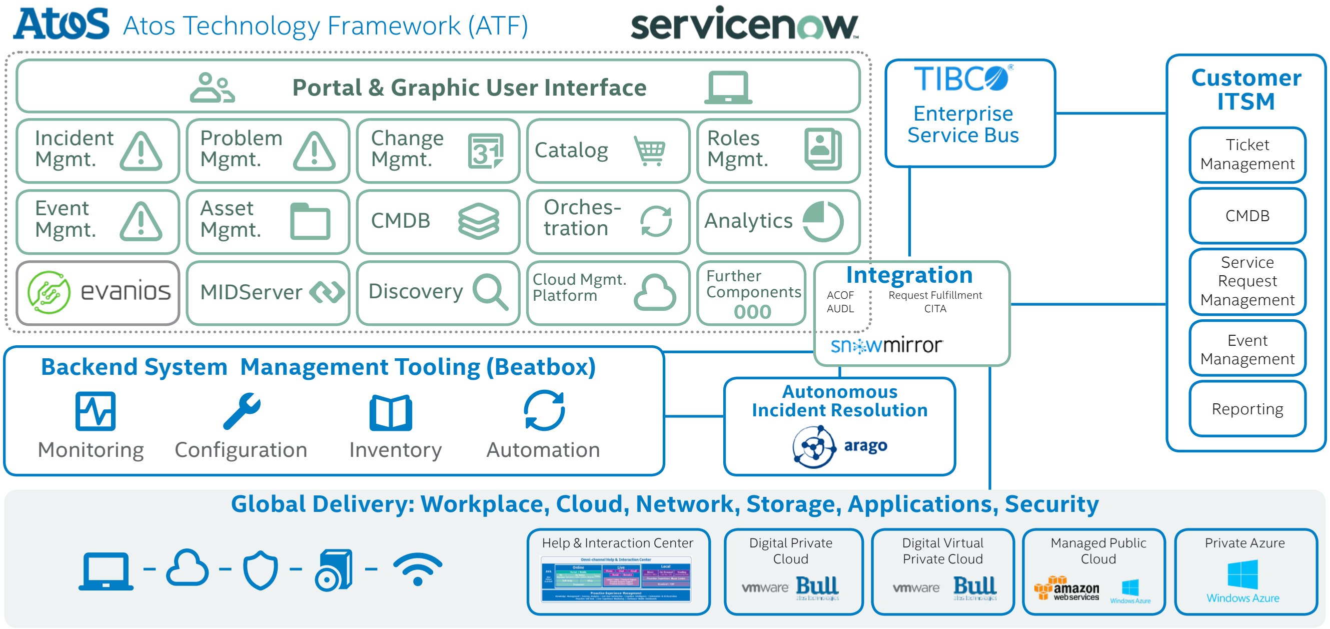


Figure 3. ATF2/ServiceNow

Automation in Digital Workplace Services

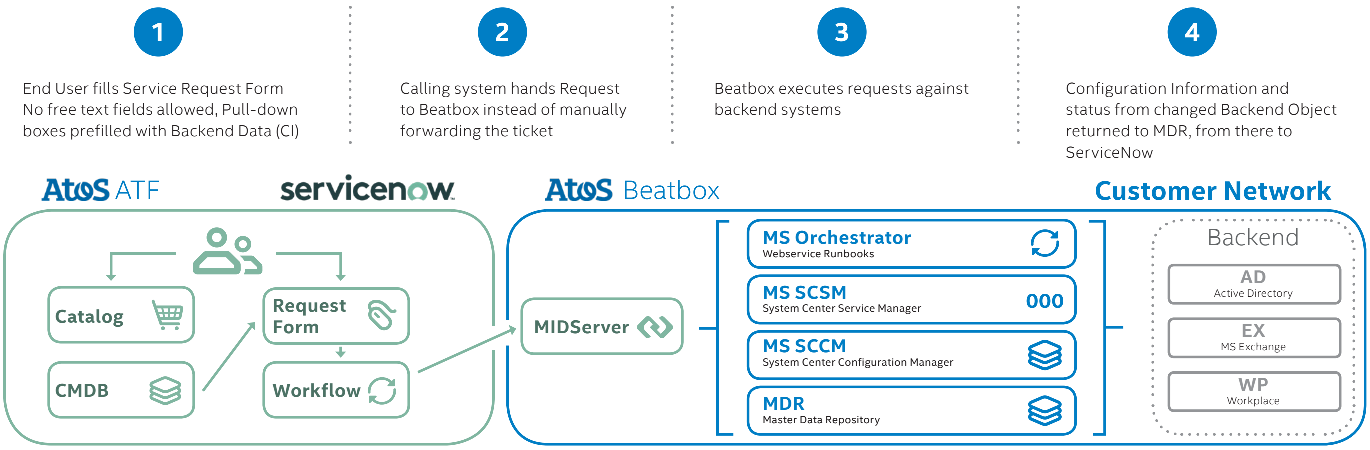
Atos is well-positioned in the market to meet the business challenges of automation in digital workplace services, including more seamless and customer-centric service, improved end-user experience, optimized service desk interactions, and remote incident resolution. Atos's technology partnerships have been invaluable in developing and implementing innovative offerings, like its Digital Workplace Portfolio, which is well-known for transforming and managing large-scale infrastructures.

ServiceNow & Atos Beatbox

Beatbox (Back End Automation Tool in a Box) is Atos's toolbox for Automation of Standard Service Requests for backend systems including Active Directory, Exchange, Office 365, Skype for Business, and User Application Management.

Beatbox's main components include MS SCSM, MS SCCM, MS Orchestrator, and a Master Data Repository. In most cases, the Beatbox Server automates service requests from its location within the customer's infrastructure.

A new Beatbox interface, which uses the Intel® EMA server to address end devices via Intel® AMT, offers promising opportunities.



1 End User fills Service Request Form No free text fields allowed, Pull-down boxes prefilled with Backend Data (CI)

2 Calling system hands Request to Beatbox instead of manually forwarding the ticket

3 Beatbox executes requests against backend systems

4 Configuration Information and status from changed Backend Object returned to MDR, from there to ServiceNow

Service Request Catalog

- Continual Improvement of Workflows/Runbooks
- Development of Standard Service Requests (SSR) for ServiceNow Service Request Catalog
- Selection of Catalog Items (SSR) to customer requirements

MS Orchestration / Automation

- Beatbox located in Customer Network
- Use of Atos Standard Runbooks
- Reporting of Service Requests
- Develop new Runbooks for recurring Requests

Available Runbooks

- Digital Workplace
- Applications
- File Services (Create/Delete Folder, Access etc.)
- Microsoft Exchange
- MS Active Directory (AD)

Figure 4. ATF2/ServiceNow & Atos Beatbox

Intel® Active Management Technology

At a global level, the Intel vPro® platform is the foundation of PC and notebook chipsets. The Intel vPro platform is a Built for Business[2] device platform that delivers premium performance, hardware-enhanced security features, modern manageability, and improved stability. Within the Intel vPro® platform-based CPUs resides the Intel® Active Management Technology (Intel® AMT), which offers enhanced remote management.

Intel® AMT runs on the Intel® Management Engine (Intel® ME) — an embedded firmware and microcontroller that powers a lightweight microkernel operating system which provides a variety of features and services for Intel® processor-based computer systems. This allows Intel® AMT to monitor, maintain, update, upgrade, and repair end user devices.

Intel® AMT is also part of the Intel® Stable Image Platform Program (Intel® SIPP), which helps ensure compatibility with drivers and system software for the five quarters following the rollout of a new version.

With Intel® AMT, IT organizations have the tools they need to better discover, repair, and protect their networked computing assets.

Intel® Endpoint Management Assistant

Intel® Endpoint Management Assistant (Intel® EMA) is a software suite designed to simplify endpoint manageability and enable cloud endpoint management for Intel® AMT. This software can operate in a cloud-based or on-premise customer environment.

The Intel® EMA interface facilitates the integration of Intel® AMT capabilities within large organizations, delivering a framework to address Intel® AMT configurations and activate future features. It also controls access rights to end devices equipped with Intel® AMT through the use of RADIUS-Protocol.

Through its web service, Intel® EMA enables integration of Intel® AMT management capabilities for the large quantities of end devices in the Internet of Things (IoT). Around 160 REST (Representational State Transfer) endpoints reside on the Intel® EMA server and can control the Intel® AMT features on end devices using https calls, after authorization by the server. By calling Intel® EMA's REST-APIs, PowerShell scripts can integrate Intel® AMT features.

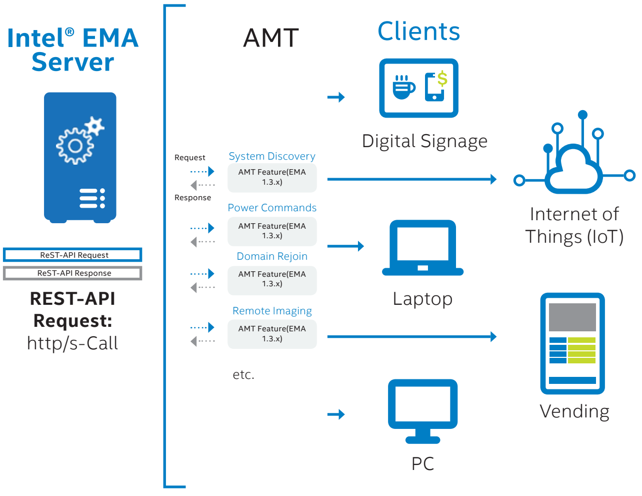
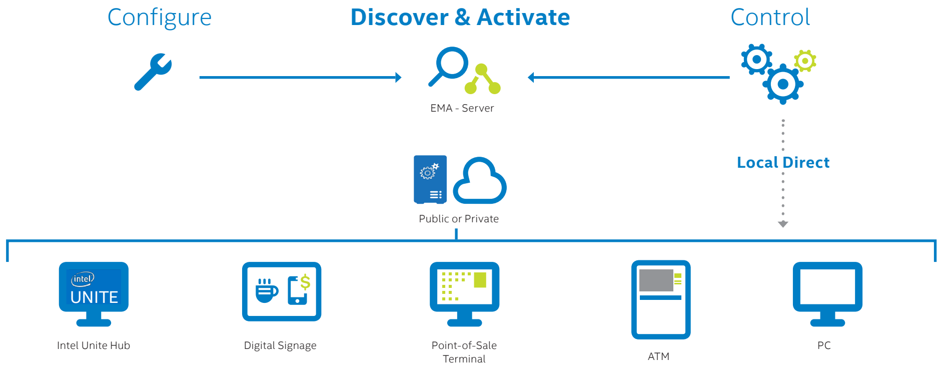


Figure 5. Intel® EMA Server and Intel® AMT Devices



Component	Description
Swarm Server	Discovery and routing of requests
Manageability Server	Intel® AMT Activation & command execution
Admin UI (User Interface)	Manage Intel® EMA Instance including configuration, logs, reports & collections
Intel® AMT Use Case UI	Used to execute all Intel® AMT commands
Repository	Stores drivers & other client software
Intel® EMA Data Store	Stores inventory, metadata, profiles, policies, logs and telemetry information
Intel® EMA Client	Application (Agent) installed on each PC

Figure 6. Intel® Endpoint Management Assistant (vPro EMA 1.3.x)

Service Management Related Use Cases

A joint team made up of Atos, Intel, and two large enterprises configured five full installations of Intel® EMA v1.3 and tested 16 scenarios in their labs under real-world conditions. Installations followed Intel's specifications.

The team reviewed four of these scenarios with special regard to their utilization in typical service management situations, then analyzed the underlying capabilities of the Intel® AMT features to determine how to best integrate them into the automated workflows of ServiceNow and Beatbox.

Baseline:

- Intel® AMT: Solid base to develop automations
- Use advantages of ServiceNow
- REST-APIs: Starting points for better endpoint access and further integration
- PowerShell scripts across different systems: ServiceNow, Beatbox & Intel® EMA
- Integration and use of new technologies:
    - EUCA (End Use Computing Analytics): Nexthink
    - RPA (Robotic Process Automation): Atos Syntel SyntBots

The following use cases are feasible:

Title	Scenario
System Discovery	Get a list of hardware details of one or many endpoints (Platform Brand, CPU, configuration and component details).
Power Command	Remotely power on, power off, power cycle (reset) a single endpoint that is plugged into power and connected to the corporate network.
Domain Rejoin	Intel® AMT provides a method for remotely rejoining an endpoint/PC to its domain using KVM access (Graphical User Interface) via local admin accounts.
Remote Imaging (via USB Redirect)	Configure Intel® AMT PC to boot an image capable to connect with SCCM (or another image repository) and remotely reimage and configure the PC.

System Discovery

Collecting configuration parameters via Intel® EMA and Intel® AMT is more effective than conventional methods, like SCCM and MSINFO32, because Intel® AMT can retrieve more data. Results from discovery queries can be used to update the CMDB. This will facilitate root cause analyses if device failure occurs.

- Initial Inventory: ServiceNow Discovery searches and discovers unknown devices to enter them as CIs into its CMDB. Validation by AMT Discovery.
- In-Band / Out-of-Band connectivity: In some cases, it is useful to determine which end devices are available in-band and out-of-band on a network.
- Capacity: Collecting parameters like Installed Physical Memory (RAM), HD Capacity & Percent Free Disk Space for capacity management and planning.
- Vulnerability: Identifying outdated OS versions, firmware, BIOS, or utilities.
- Hardware Compliance: Due to on/off changes (like planned upgrades or new OS versions), customers want to know how many of the existing devices comply with a defined ruleset (e.g., free HD capacity, RAM installed, etc.).
- System Check: Can run a quick check on a workstation that was in storage or offline for a long time to get information on the actual AMT configuration.

Power Commands

Information about devices that are powered on or off is useful for reporting purposes. Switching off multiple devices helps to save energy, and in hazardous situations like virus contamination, it may be necessary to switch off multiple systems as quickly as possible.

- Power Up: Power up from sleep- or off-state ensures that one or several clients are turned on for patching or other reasons.
- Power Down: Power-down or restart can be forced for restart, to save energy or to avoid attacks (security).
- Power Cycle (Soft Restart): A soft reboot can be used in case an installation has failed or a process-instance can't be terminated.
- Hard Reset: Imitates the physical reset button without controlled shutdown. Can be used in emergencies to avoid approaching disasters or further contamination in case of security attacks.
- Troubleshooting: If a machine gets stuck during booting while remote troubleshooting, this is an easy way to have the machine reset and connect to it again once the OS is up.

Domain Rejoin

The Domain Rejoin feature helps return dropped-out PCs and other end devices back into their AD domain. Automation that uses Robotic Process Automation, like SyntBots, can reduce the remaining elements of manual interaction still using the KVM Graphical User Interface.

- Incident Management: Simplified and accelerated incident resolution
- Asset & Configuration Management: Registration/ inventory of AMT Computer Object and allocation to the right Active Directory Object

Remote USB Redirect

Reimaging is a last-resort repair. Traditionally, reimaging requires a service technician and the affected PC to be in the same location: Either the technician had to visit the client, or the client had brought their device to a service desk. Both scenarios are expensive and time-consuming.

- Incident Management: Simplified and accelerated incident resolution.
- IT Security Management: If a device is suspected of a security breach, it can be completely reimaged to the latest secure recovery point.
- IT Service Continuity: Accelerated reimaging time offers the potential to reduce RPO/RTO times.
- Large Volume Reimaging: Remote USB Redirect makes it possible to help out with bigger loads of reimaging requests. In such cases, overworked technicians can be supported by remote technicians using the SCCM Imaging Wizard.

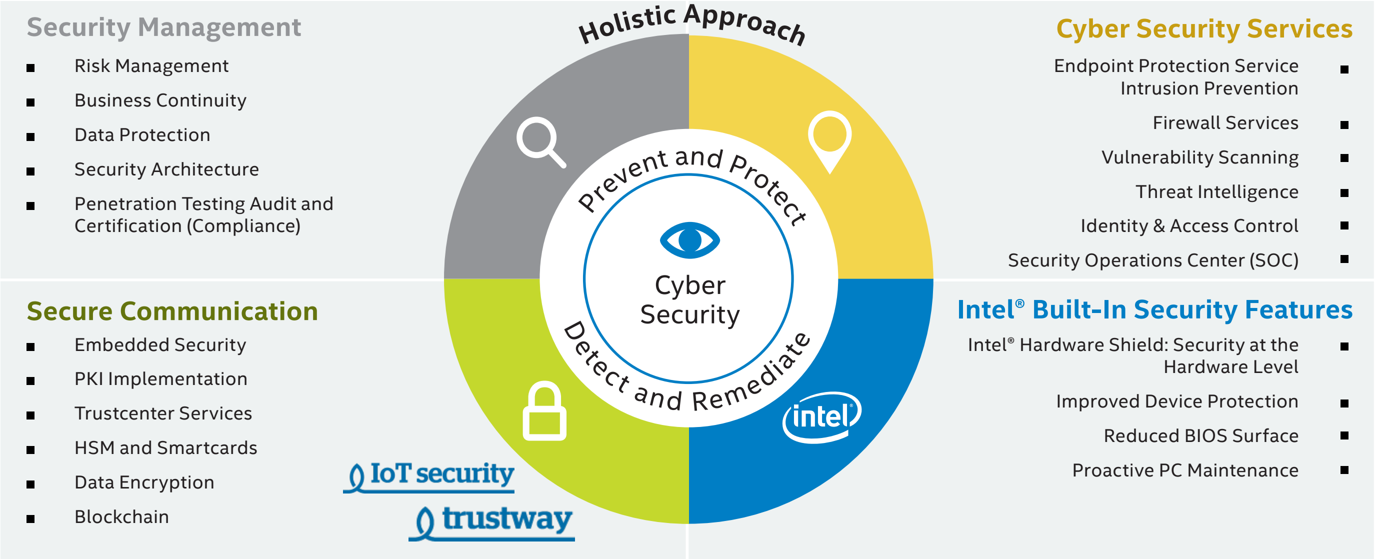
Outlook

Based on the use cases, the following elements should be developed for further integration with Service Management: Entry Form and Service Request Catalog (ServiceNow), Standard Service Request (SSR), and Workflows/Runbooks (Beatbox).

Security Features

Complexity and performance of technologies like Intel® AMT increase the risk of attack, which means security is becoming more important to the market.

Atos's holistic approach to security manages risks with Security Management and mitigates them with Cyber Security Services. Hardware Security Modules (HSM), Trustway Encryption, and IoT security (including Critical Data Protection, Advance Analytics, and Certified Technologies) ensure secure communication. And Intel added a new level of hardware-enhanced security features by controlling access to the Intel® AMT end devices through the Intel® EMA server.



Security Management

- Risk Management
- Business Continuity
- Data Protection
- Security Architecture
- Penetration Testing Audit and Certification (Compliance)

Cyber Security Services

- Endpoint Protection Service Intrusion Prevention
- Firewall Services
- Vulnerability Scanning
- Threat Intelligence
- Identity & Access Control
- Security Operations Center (SOC)

Secure Communication

- Embedded Security
- PKI Implementation
- Trustcenter Services
- HSM and Smartcards
- Data Encryption
- Blockchain

Intel® Built-In Security Features

- Intel® Hardware Shield: Security at the Hardware Level
- Improved Device Protection
- Reduced BIOS Surface
- Proactive PC Maintenance

Figure 7. Atos' Holistic Approach to Security

Benefits of Automation in Service Management

As of now, 10 scenarios have been tested by customers with six more scenarios scheduled to be tested.

Customer feedback thus far includes positive commentary on the new console's look and the speed at which it works; that AD integration is easy to use and works well; and that Intel® AMT and Intel® EMA out-of-band features are unmatched by competing technologies and are worthy of continued development to improve performance and reliability.

Based on this feedback, Atos and Intel will continue to refine this technology to deliver increased quality, improved service levels, help reduced costs of ownership, improved ROI, and greater customer satisfaction. This partnership will focus on the ability to run PowerShell scripts across different systems (MS SCCM, MS Orchestrator, MID-Server and KVM) to facilitate further automation of typical Service Management Activities (Service Requests, Incident Resolution) and the exploration of the high potential of integration of new technologies, such as End Use Computing Analytics and Robotic Process Automation.

The findings of the scenario-tests encourage Atos to integrate Intel® EMA and Intel® AMT with ServiceNow's main Building Blocks (Request Fulfillment, Incident Management, Asset & Configuration Management etc.) using Atos's Beatbox (MS SCSM & MS Orchestrator).

Learn More

For more information, visit intel.com/daas and atos.net

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[1] Based on IDC FutureScape: “Worldwide Cloud 2018 Predictions”

https://www.idc.com/research/viewtoc.jsp?containerId=US42014717

[2] Built-for-business: Based on a comparison (as of September 11, 2019) of features in the following categories: Manageability, security, stability, and processor performance, between Intel vPro® platform enabled platforms and other selected x86 architecture based platforms marketed for use in business PCs. Selection of manageability, security, stability, and processor performance features are based on a 2018 web-based survey, conducted by Intel of more than 500 IT decision-makers to assess desired features when purchasing PC for business use.

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Software and workloads used in performance tests may have been optimized for performance only on Intel microprocessors.

Intel technologies’ features and benefits depend on system configuration and may require enabled hardware, software, or service activation. Performance varies depending on system configuration.

No product or component can be absolutely secure. Check with your system manufacturer or retailer, or learn more at intel.com.