

Understanding and Leveraging Microsoft's Enterprise Mobility + Security Suite (EMS)



Nov. 12-15, 2017 • Washington, DC



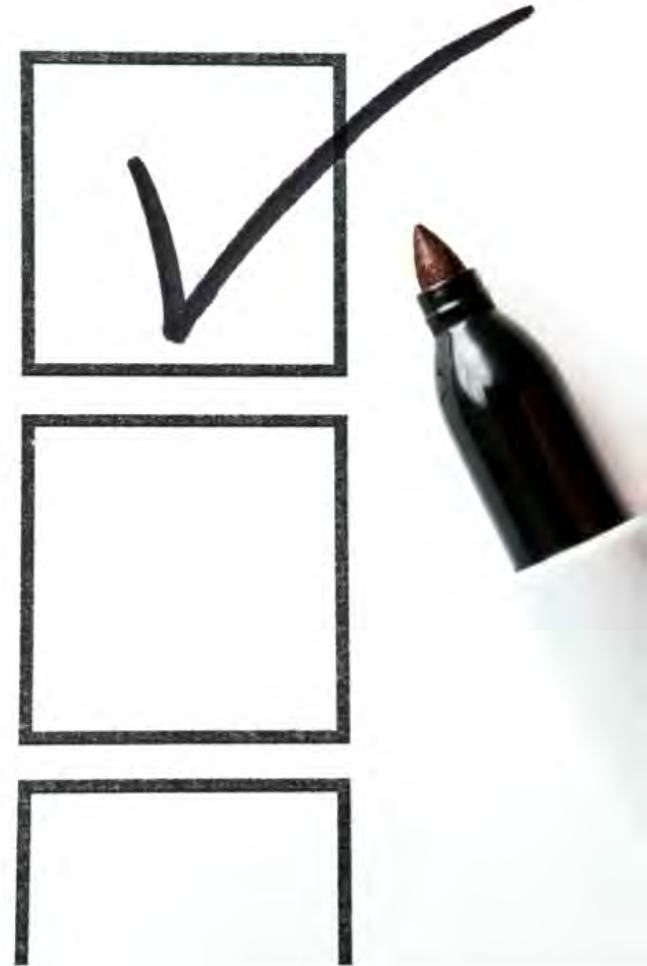
Sean P McDonough
Microsoft MVP (Office Servers and Services)
Chief Technology Officer and Owner
Bitstream Foundry LLC

*@spmcdonough
on Twitter (for
heckling purposes)*



Our Agenda

- Why I'm Doing This
- An Overview of EMS
- Individual EMS Workloads
- Putting Together Solutions
- Questions & Answers
- References



wwhy



Let's start with a simple question:

How many of you had heard of EMS prior to this session?

Okay, now how many of you really know what EMS is?



In your own words, what is EMS?

Really know what EMS is.



In my experience, plenty of people have heard of EMS.



**Microsoft has been
talking about it A LOT**

Very few people know exactly what it is or does, though.



A couple of things

what it is or does, though.



A couple of things
complicate the
discussion, as well

- There is significant overlap between how EMS is positioned next to Office 365
- The EMS feature set is a fast moving target; it's capabilities keep changing



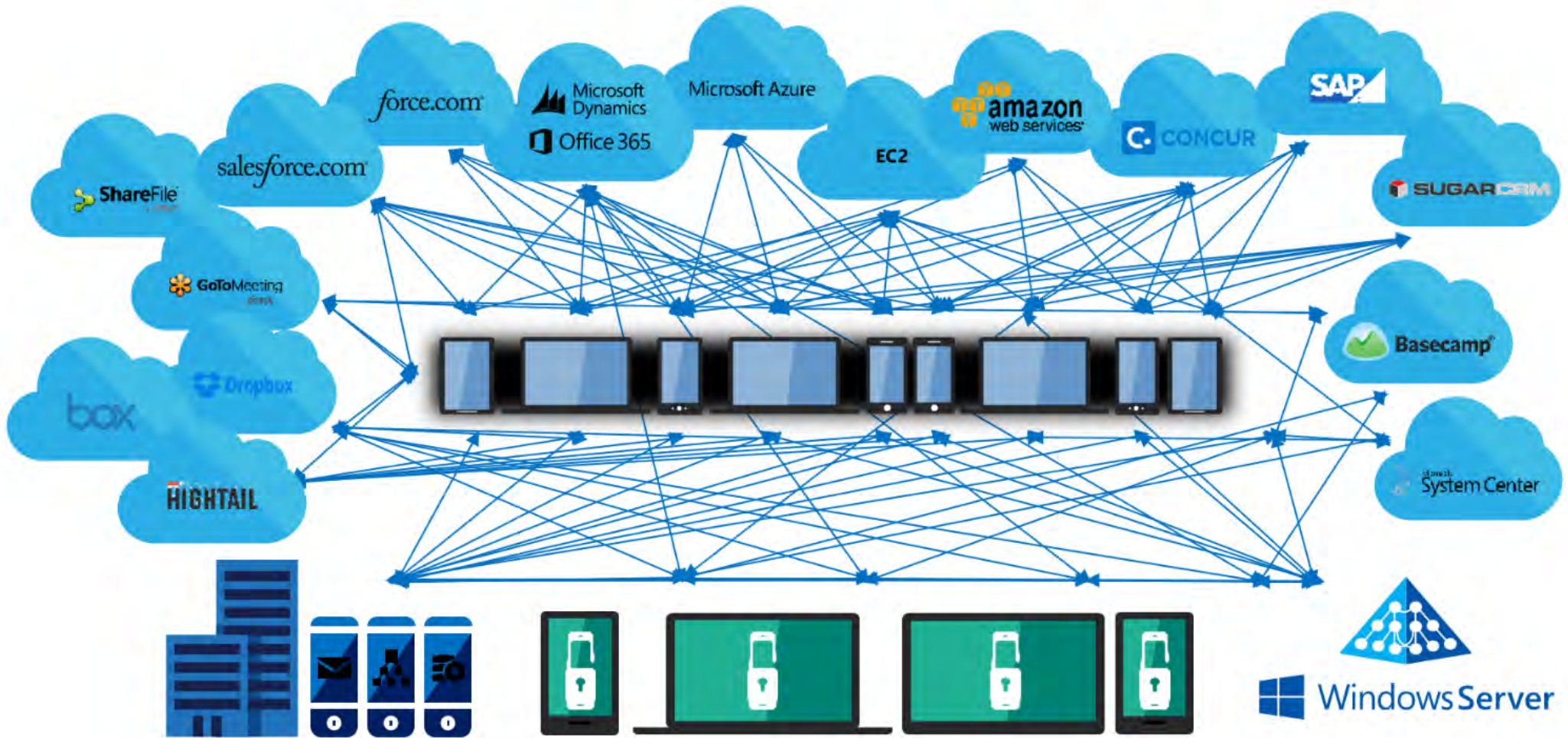
My Goal



To give you real, usable information on how to better leverage Office 365 (which you probably already have) and understand when and where you would need to step-up to EMS

Supply Chain Management

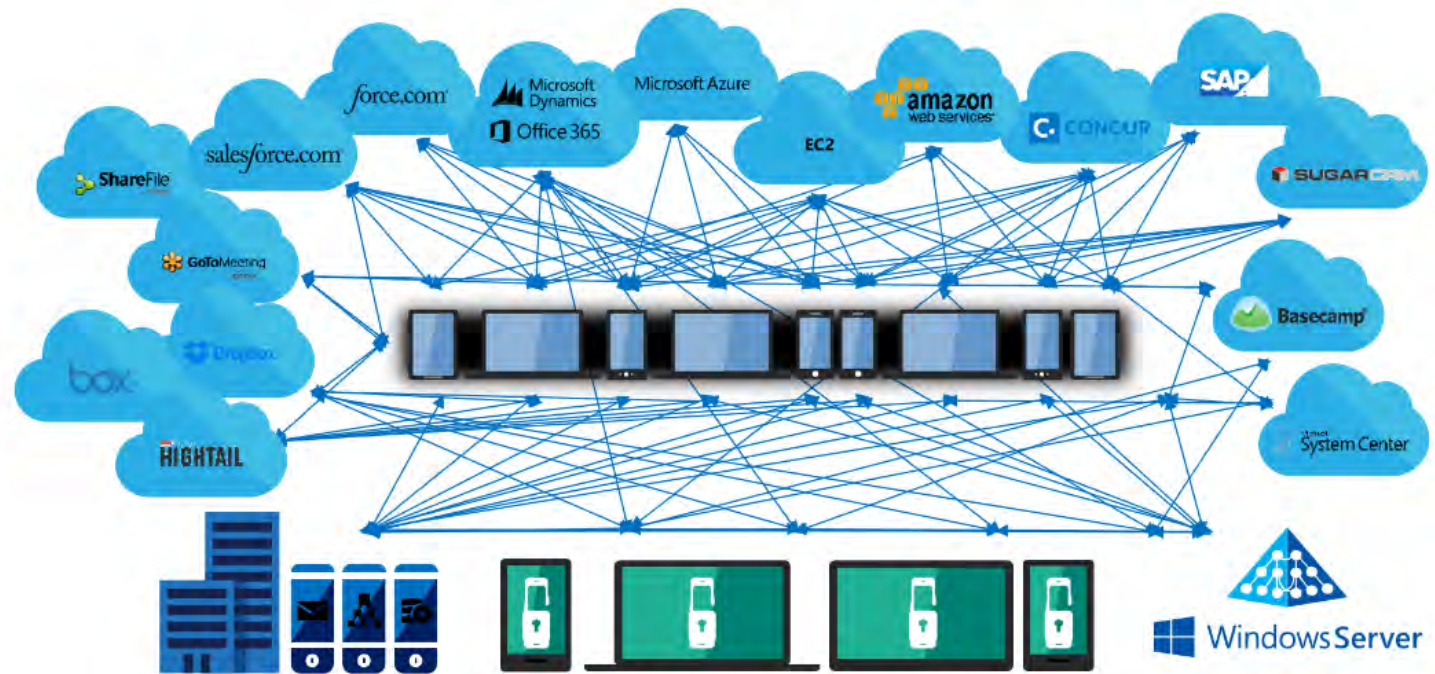
Our modern reality with devices, data, and services



highlighted by this diagram

Employees in Large En

Our modern reality with devices, data, and services

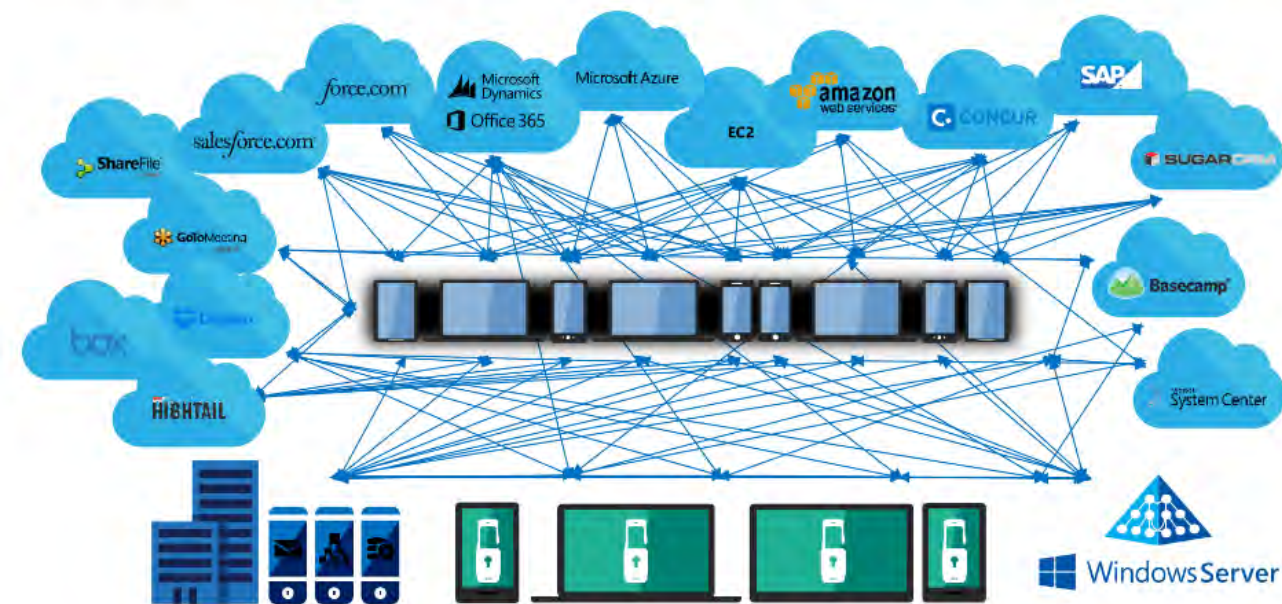


Two truths highlighted by this diagram

- These days, we are hyperconnected across a variety of devices and services
- If you're in IT, security in this type of environment can be an extreme challenge

According to a Gartner study of U.S. Employees in Large Enterprises

Our modern reality with devices, data, and services



- 40% use their personal devices for work purposes
- households average two or more devices
- online banking and purchasing are in the top three activities done on desktop or laptop

highlighted by this diagram

perconnected across a variety of devices and services

Combined with r

enterprises

- 40% use their personal devices for work purposes
- households average two or more devices
- online banking and purchasing are in the top three activities done on desktop or laptop



- 80% use non-approved SaaS applications in their jobs
- Nearly 35% of all SaaS applications used in enterprises are not approved
- On average, 15 percent of users have had security, access, or liability events while using SaaS apps

Combined with data from McAfee, the security and related implications are alarming.



Your employees are impacted

Combined with data from McAfee, the security and related implications are alarming.



Your employees are impacted
... but by extension, you are also impacted by



Your business partners



Your customers



Your customers



Bringing this
discussion
back to EMS

At it's core, EMS is about security

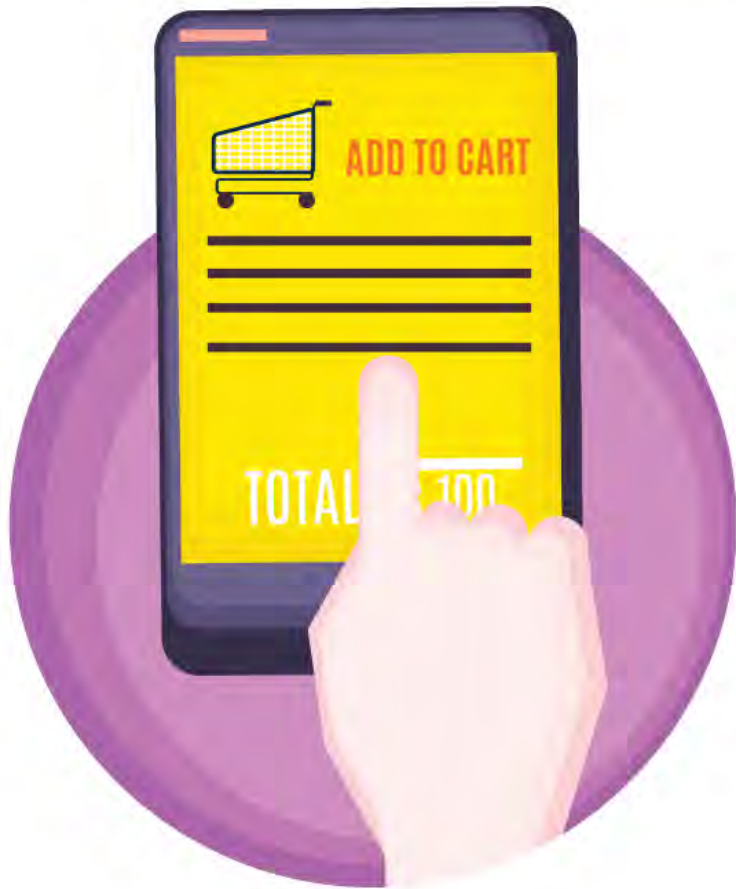
- Enhancing existing identity security
- Strengthening device security
- Protecting data, not just systems
- Extending security to on-premises systems



It's also about convenience

- Extending security to on-premises systems

It's also about convenience



- Can be used to simplify SSO to cloud-based and on-premises systems
- Maximum capability with minimum config
- Natural complement to Office 365

At the end of the day, though
the best part of EMS is this:



It simply works
and complements
Office 365 nicely

start by acknowledging that this is something of a trick que



So ...
what's in
EMS?

Let's start by acknowledging that this is something of a trick question.



So ...
what's in
EMS?

Azure
Active
Directory
Premium



Intune



Azure
Information
Protection







Advanced
Threat
Analytics



All EMS subscriptions include these four workloads. EMS E5 has some others.

Of course, too many of us were starting to understand the offering, so, Microsoft pulled a change-up

	Identity and access management 	Managed mobile productivity 	Information protection 	Identity-driven security 
EMS E5	Azure Active Directory Premium P2 Identity and access management with advanced protection for users and privileged identities <i>(includes all capabilities in P1)</i>		Azure Information Protection Premium P2 Intelligent classification and encryption for files shared inside and outside your organization <i>(includes all capabilities in P1)</i>	Microsoft Cloud App Security Enterprise-grade visibility, control, and protection for your cloud applications
EMS E3	Azure Active Directory Premium P1 Secure single sign-on to cloud and on-premises apps MFA, conditional access, and advanced security reporting	Microsoft Intune Mobile device and app management to protect corporate apps and data on any device	Azure Information Protection Premium P1 Encryption for all files and storage locations Cloud-based file tracking	Microsoft Advanced Threat Analytics Protection from advanced targeted attacks leveraging user and entity behavioral analytics

EMS became "Enterprise Mobility +

Of course, too many of us were starting to understand the offering, so, Microsoft pulled a change-up

	Identity and access management	Managed mobile productivity	Information protection	Identity-driven security
EMS E5	Azure Active Directory Premium P2 Identity and access management with advanced protection for users and privileged identities <i>(includes all capabilities in P1)</i>		Azure Information Protection Premium P2 Intelligent classification and encryption for files shared inside and outside your organization <i>(includes all capabilities in P1)</i>	Microsoft Cloud App Security Enterprise-grade visibility, control, and protection for your cloud applications
EMS E3	Azure Active Directory Premium P1 Secure single sign-on to cloud and on-premises apps MFA, conditional access, and advanced security reporting	Microsoft Intune Mobile device and app management to protect corporate apps and data on any device	Azure Information Protection Premium P1 Encryption for all files and storage locations Cloud-based file tracking	Microsoft Advanced Threat Analytics Protection from advanced targeted attacks leveraging user and entity behavioral analytics

Cliff Notes for the changes that rolled out towards EOY 2016

EMS became "Enterprise Mobility + Security" rather than "Enterprise Mobility Suite"

- existing EMS capabilities became the EMS E3

An EMS E5 was introduced with additional capabilities

- E5 includes Cloud App Security, AAD identity protections, and more

Azure
Active
Directory
Premium



Intune



Azure
Information
Protection



Advanced
Threat
Analytics



All EMS subscriptions include these four workloads. EMS E5 has some others.

Azure Active Directory: identity controls everything



- Password management
- Password reset
- Group Management

Windows Server Active Directory

Other Directories

AADConnect to synchronize users

Self-service capabilities

Single sign-on (SSO) to services



On-Premises



Azure Active Directory



Cloud Services & Systems

Connector

• All requests originate internally - no "drill in" from the outside

Application Proxy

• Microsoft takes care of keeping external entry points up-to-date with security

• Currently there is a gallery of over 2800 SaaS applications preconfigured for your use.
• Many common applications

AADConnect to synchronize users



Windows Server
Active Directory



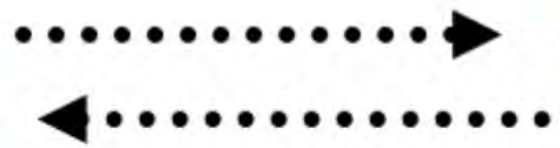
Other Directories



Single sign-on (SSO) to services

Username

.....



Connect to synchronize users



Self-service capabilities



Single sign- (SSO) to ser

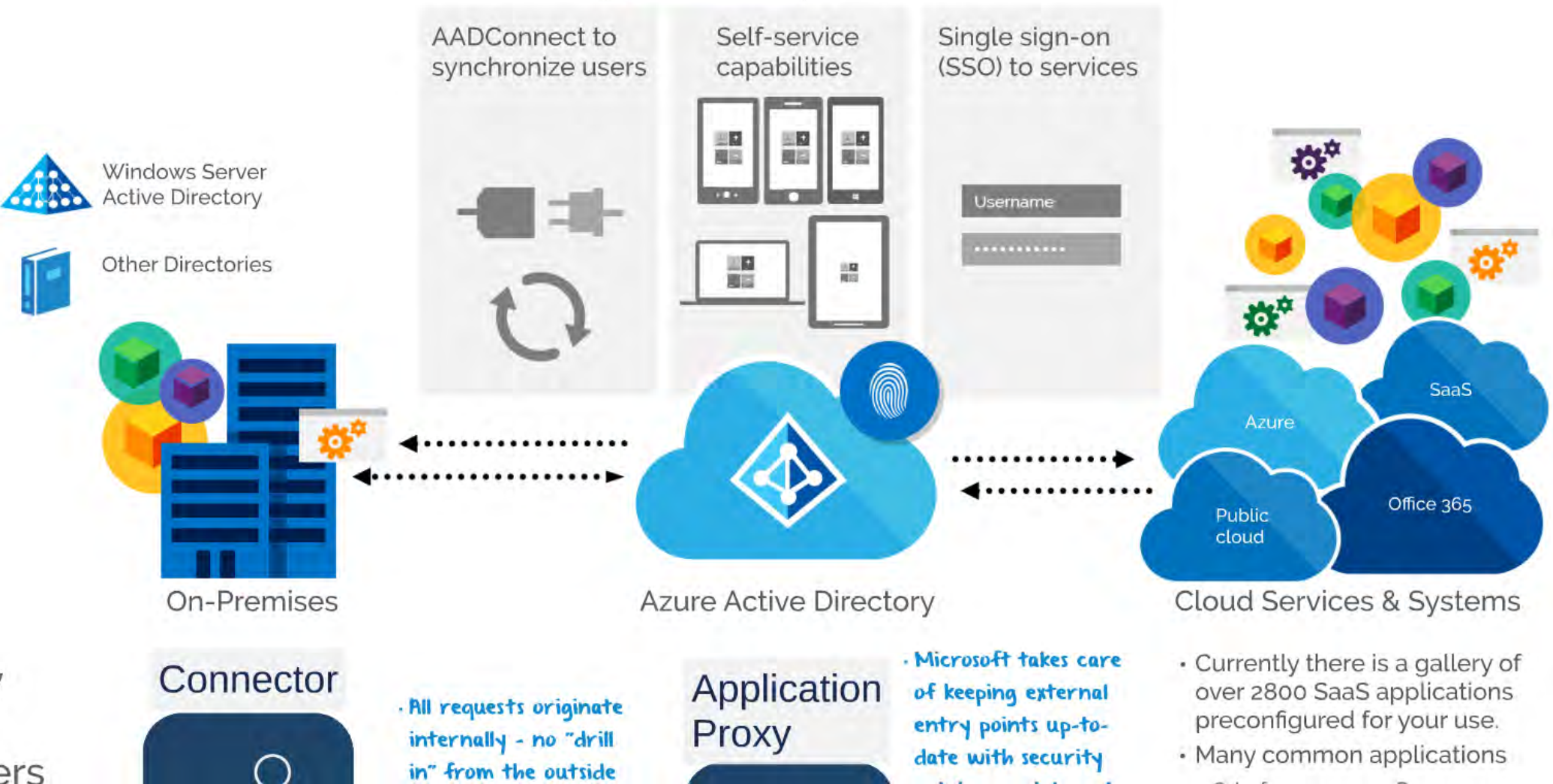
Username



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Cloud Services & Systems

- Currently there is a gallery of over 2800 SaaS applications preconfigured for your use.
- Many common applications
 - Salesforce
 - WorkDay
 - Dropbox
 - GoToMeeting
 - Box
 - AvePoint Online
 - Concur
 - Google Apps

SSO Application Support

APPLICATION GALLERY

Add an application for my organization to use

FEATURED APPLICATIONS (17)

- CUSTOM
- ALL (2841)
- BUSINESS MANAGEMENT (222)
- COLLABORATION (368)
- CONSTRUCTION (8)
- CONTENT MANAGEMENT (112)
- CRM (137)
- DATA SERVICES (132)
- DEVELOPER SERVICES (100)
- E-COMMERCE (69)
- EDUCATION (108)
- ERP (59)
- FINANCE (250)
- HEALTH (53)
- HUMAN RESOURCES (233)
- IT INFRASTRUCTURE (148)
- MAIL (31)
- MARKETING (700)

box Box

Citrix GoToMeeting

Concur

Docusign

Dropbox for Business

Google Apps

box

NAME Box

PUBLISHER Box

APPLICATION URL <https://www.box.com/>

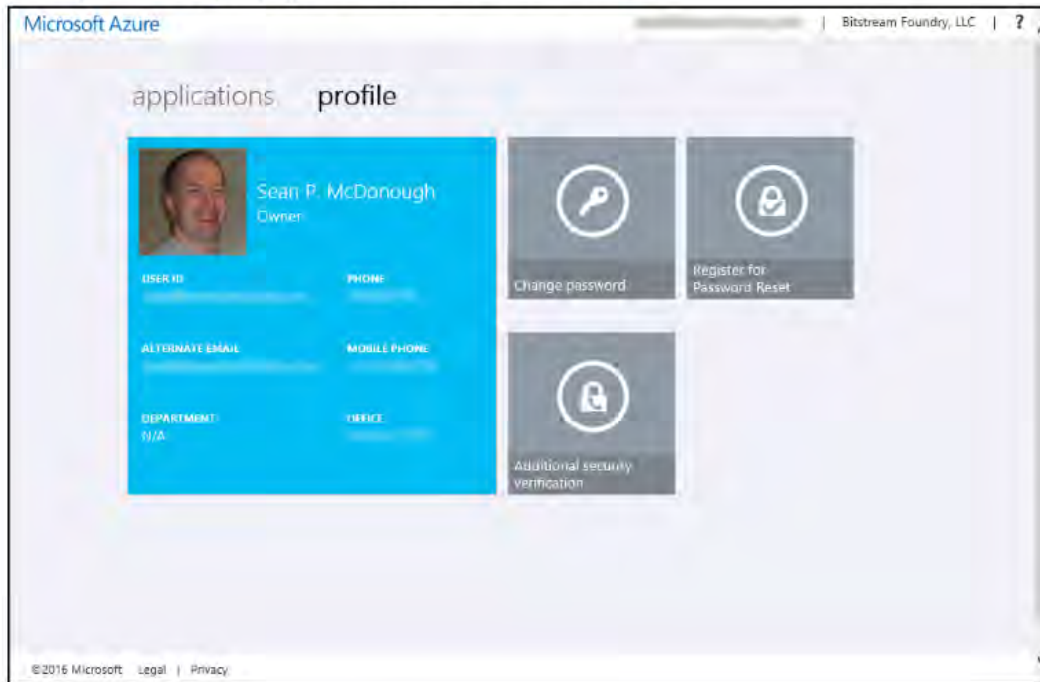
Use Microsoft Azure AD to manage user access, synchronize user accounts, and enable single sign-on with Box.

Requires an existing Box subscription.

DISPLAY NAME

Identity

<https://myapps.microsoft.com>



- Password management
- Password reset
- Group Management

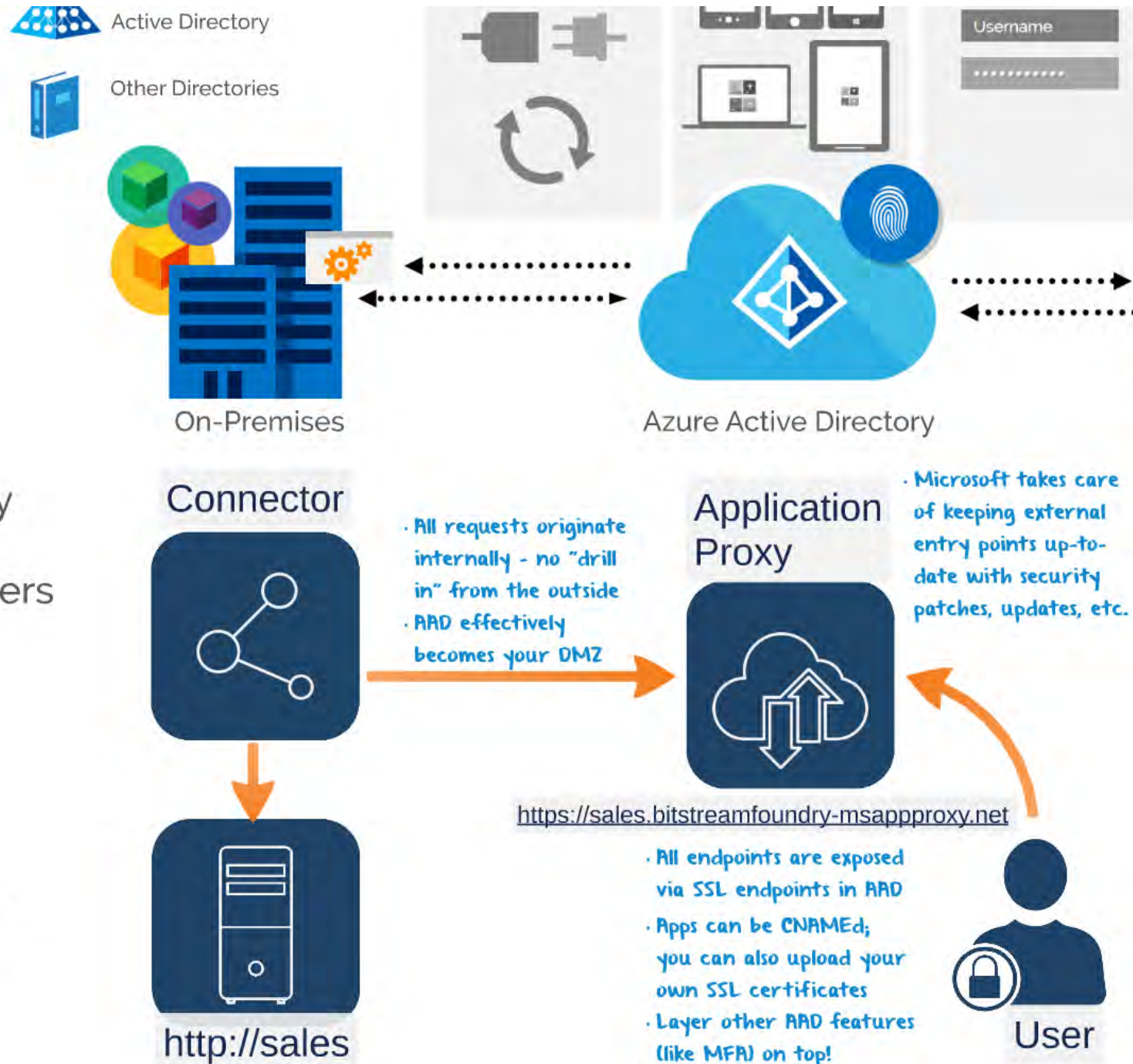
t to
users

Self-service
capabilities

Singl
(SSO)

Exposing on-premises applications (like SharePoint)

- Deploy Azure App Proxy Connector to an on-premises server or servers
- Connector initiates connection to AAD
- Applications are configured in AAD
- Users connect through AAD to get to internal web endpoints





On-Premises



Azure Active Directory

Connector



- All requests originate internally - no "drill in" from the outside
- AAD effectively becomes your DMZ



Application Proxy



- Microsoft of keep entry date w patches

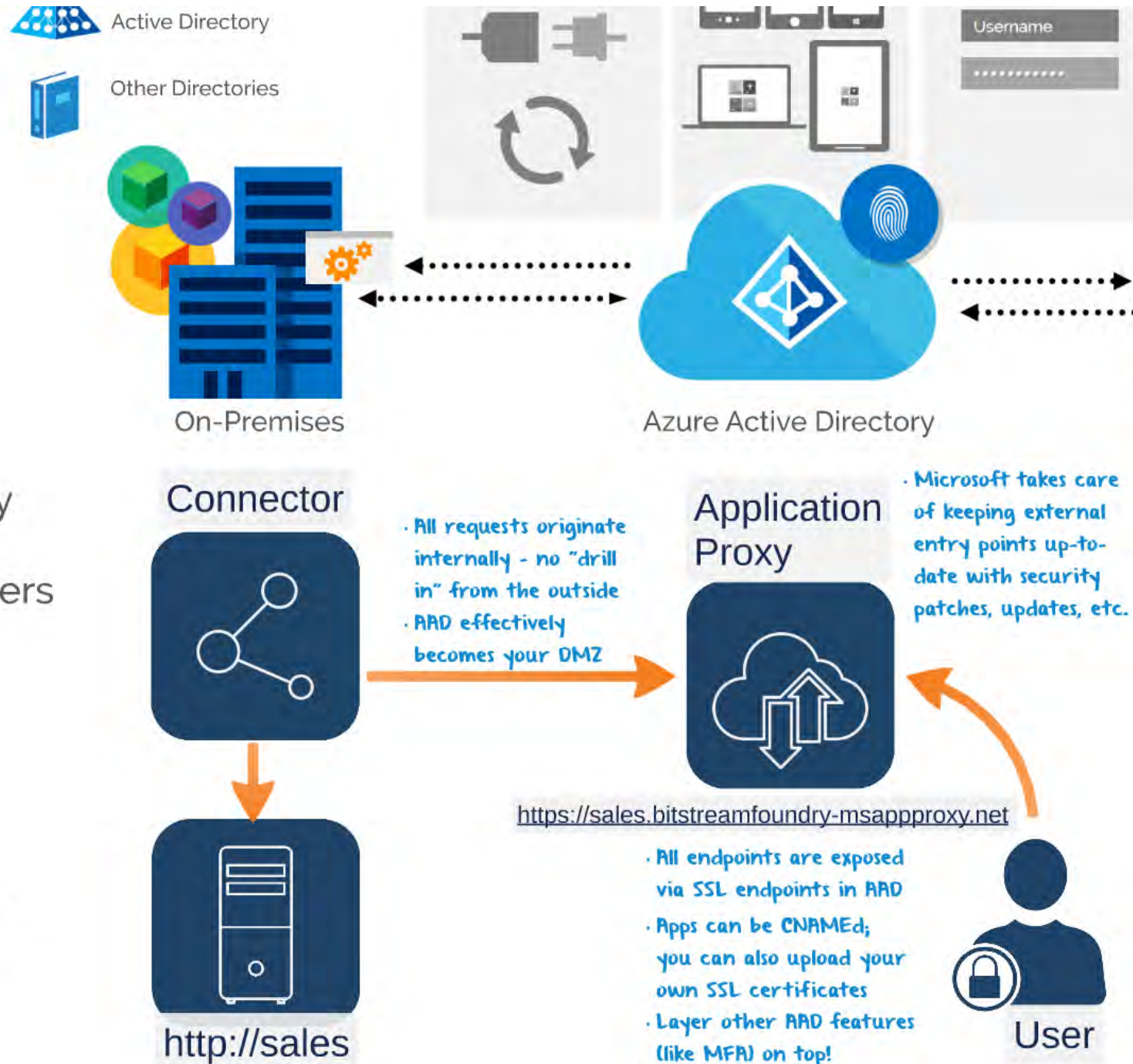


<https://sales.bitstreamfoundry-msapproxy.n>

- All endpoints are exposed via SSL endpoints in AAD
- Apps can be CNAMEd;

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Azure Active Directory

Application Proxy



- Microsoft takes care of keeping external entry points up-to-date with security patches, updates, etc.

[/sales.bitstreamfoundry-msappproxy.net](https://sales.bitstreamfoundry-msappproxy.net)

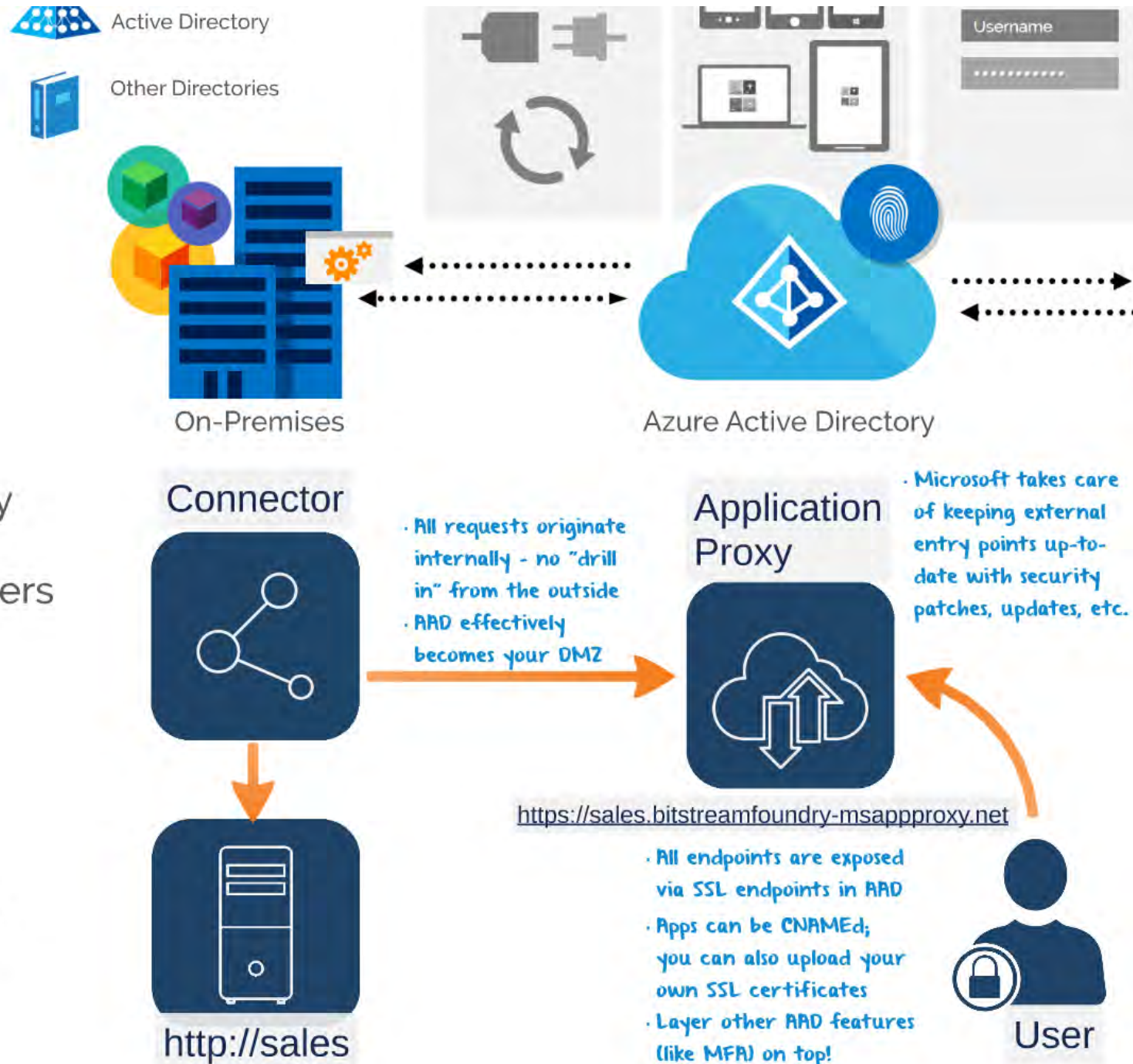
- All endpoints are exposed

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to your site



<https://sales.bitstreamfoundry-msappproxy.net>

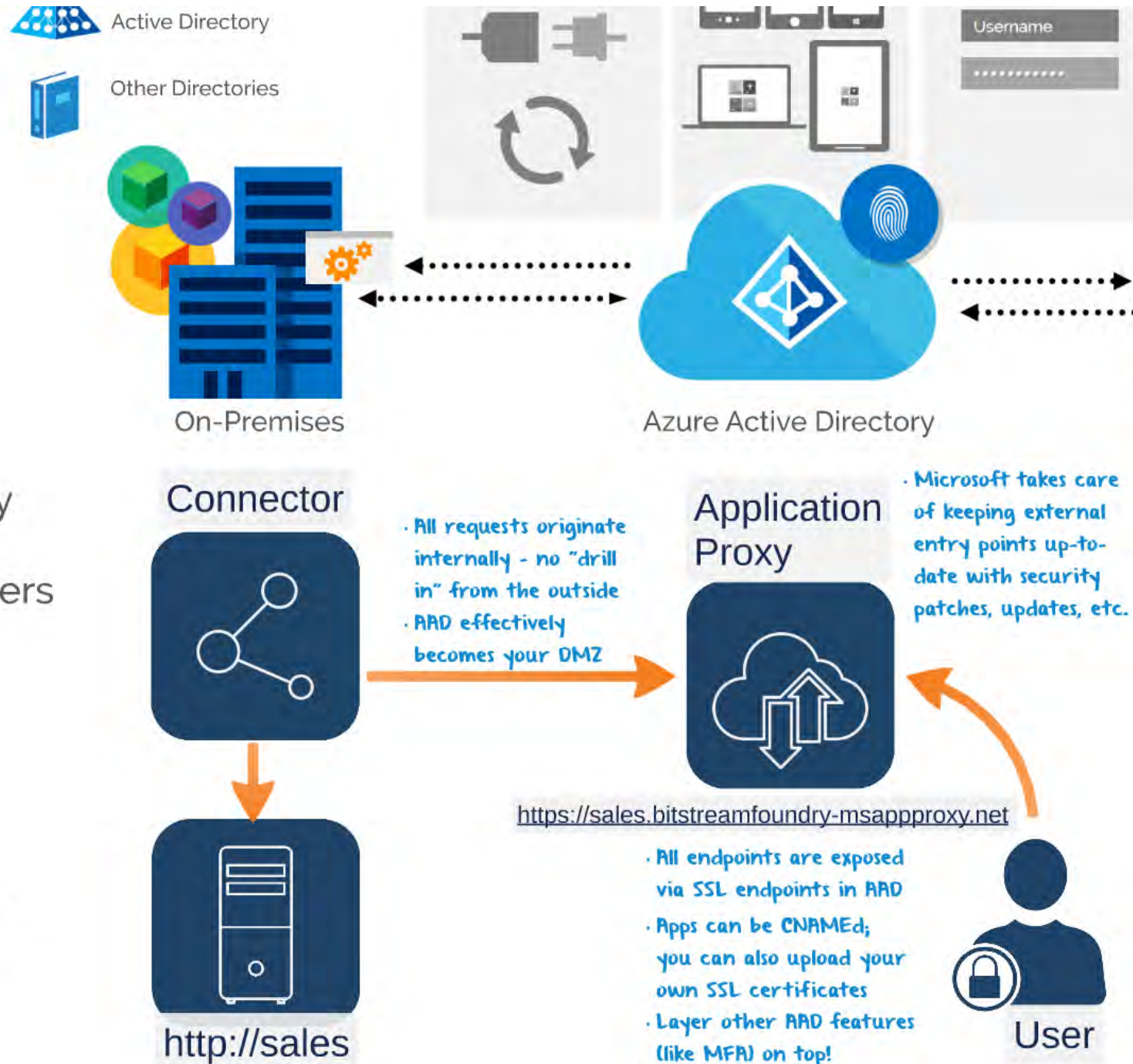
- All endpoints are exposed via SSL endpoints in AAD
- Apps can be CNAMEd; you can also upload your own SSL certificates
- Layer other AAD features (like MFA) on top!



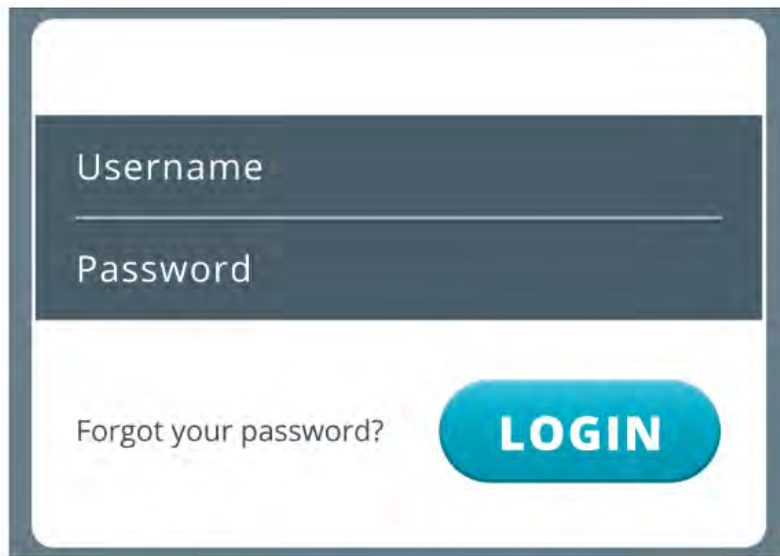
User

Exposing on-premises applications (like SharePoint)

- Deploy Azure App Proxy Connector to an on-premises server or servers
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Multi-Factor Authentication (MFA)

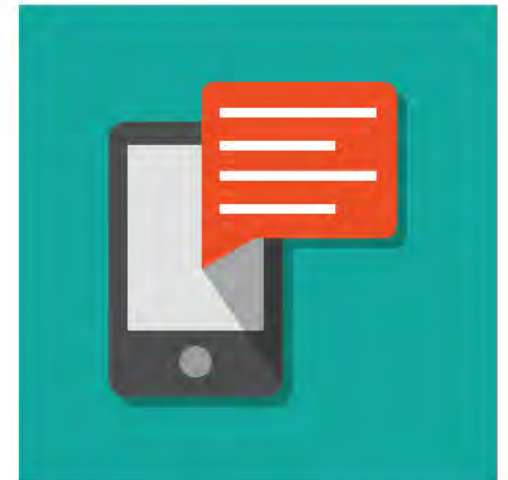


Username

Password

Forgot your password? **LOGIN**

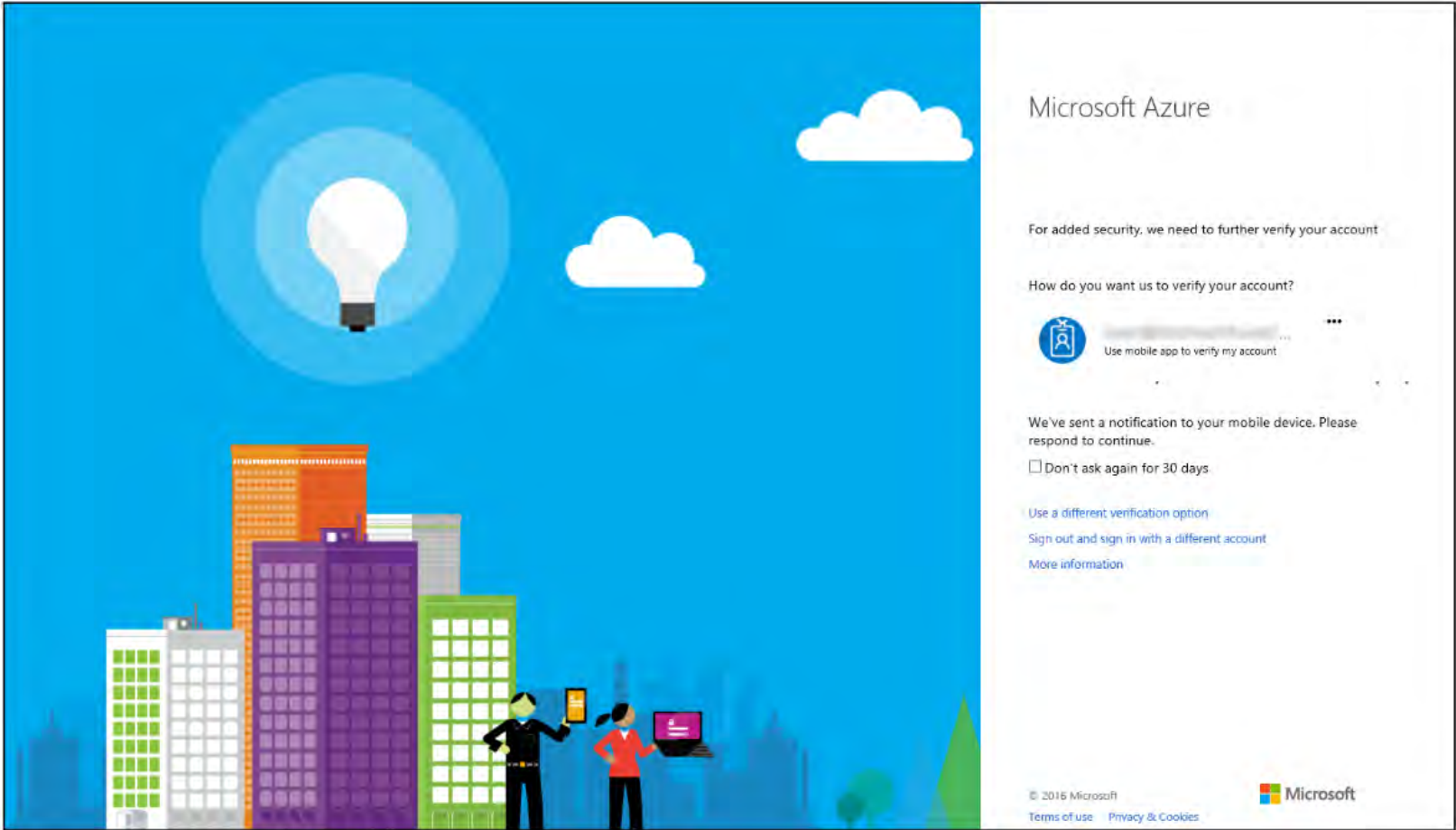
MFA is this ...



... plus something like a fingerprint, SMS message, etc.

When MFA is enabled, the sign-in experience changes a bit

When MFA is enabled, the sign-in experience changes a bit



Microsoft Azure

For added security, we need to further verify your account

How do you want us to verify your account?



Use mobile app to verify my account

We've sent a notification to your mobile device. Please respond to continue.

Don't ask again for 30 days

- [Use a different verification option](#)
- [Sign out and sign in with a different account](#)
- [More information](#)

I've signed in with my username and password, and now I'm being prompted for verification

Multi-factor authentication (all available features on Windows Azure and on-premises environments)		✓
Service-level agreement (SLA)		✓
Forefront Identity Manager CAL + Forefront Identity Manager Server		✓



Why should I care about MFA?

- **bottom line: if your username and password ever become compromised, your account will (probably) still be safe!**

Azure Active Directory Version Comparison

	Azure AD (O365)	Azure AD Premium
Directory as a service	☑ Up to 500,000 objects	☑ No limit
User and group management	☑	☑
Single sign-on for pre-integrated SaaS and custom applications	☑ 10 apps per user	☑ No limit
Microsoft Directory Synchronization Tool (Windows Server Active Directory extension)	☑	☑
User-based access management and provisioning	☑	☑
Group-based access management and provisioning		☑
Self-service group management for cloud users		☑
Self-service password change for cloud users	☑	☑
Self-service password reset for cloud users		☑
Security reports	☑	☑
Advanced security reporting (based on machine learning)		☑
Usage reporting		☑
Company branding (logon pages and Access Panel customization)		☑
Multi-factor authentication (all available features on Windows Azure and on-premises environments)		☑
Service-level agreement (SLA)		☑
Forefront Identity Manager CAL + Forefront Identity Manager Server		☑

Why should I care about MFA?



MFA: Office 365 versus EMS

	MFA for O365/Azure Administrators	Windows Azure Multi-Factor Authentication / EMS
Administrators can Enable/Enforce MFA to end-users	☑	☑
Use Mobile app (online and OTP) as second authentication factor	☑	☑
Use Phone call as second authentication factor	☑	☑
Use SMS as second authentication factor	☑	☑
Application passwords for non-browser clients (e.g. Outlook, Lync)	☑	☑
Default Microsoft greetings during authentication phone calls	☑	☑
Custom greetings during authentication phone calls		☑
Fraud alert		☑
MFA SDK		☑
Security Reports		☑
MFA for on-premises applications/ MFA Server.		☑
One-Time Bypass		☑
Block/Unblock Users		☑
Customizable caller ID for authentication phone calls		☑
Event Confirmation		☑

Azure
Active
Directory
Premium



Intune



Azure
Information
Protection



Advanced
Threat
Analytics



All EMS subscriptions include these four workloads. EMS E5 has some others.

Intune: Mobile Device Management (MDM)



MDM Comparison between Office 365 and FMS

QUESTION FREQUENTLY ASKED QUESTION

What is mobile device management?



- applying policies to require PINs, lock devices after a period of time, etc.

What is mobile device management?



- applying policies to require PINs, lock devices after a period of time, etc.
- deploying and controlling corporate applications for business use
- having the ability to completely or selectively wipe lost or stolen devices
- configuring specific settings for VPN, wi-fi, email, certificates, and more

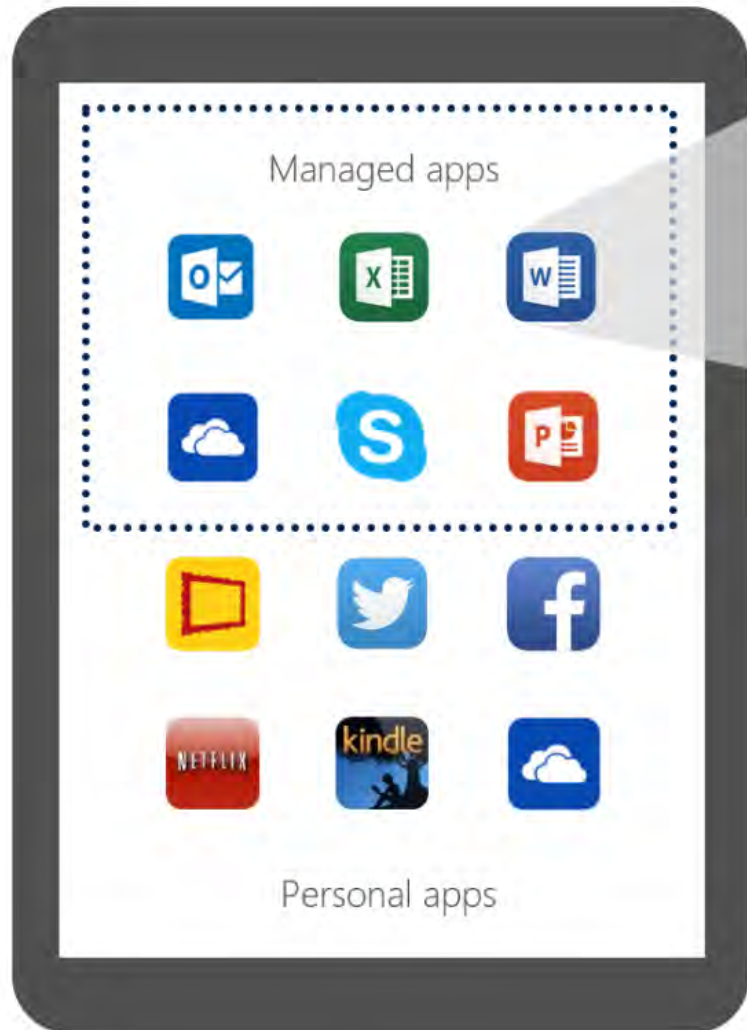
So, how does Intune "control" my device and protect corporate data?

- You begin by installing the Intune Company Portal from Google Play or the iTunes store.
- You sign into your cloud tenant from the Company Portal to link your device to your Intune configuration.
- Intune pulls down compliance policies, configuration polices, and other policy items.
- During this enrollment process, applications may also be installed. Apps can be installed later, as well. These are "managed apps."



Intune administrators control who

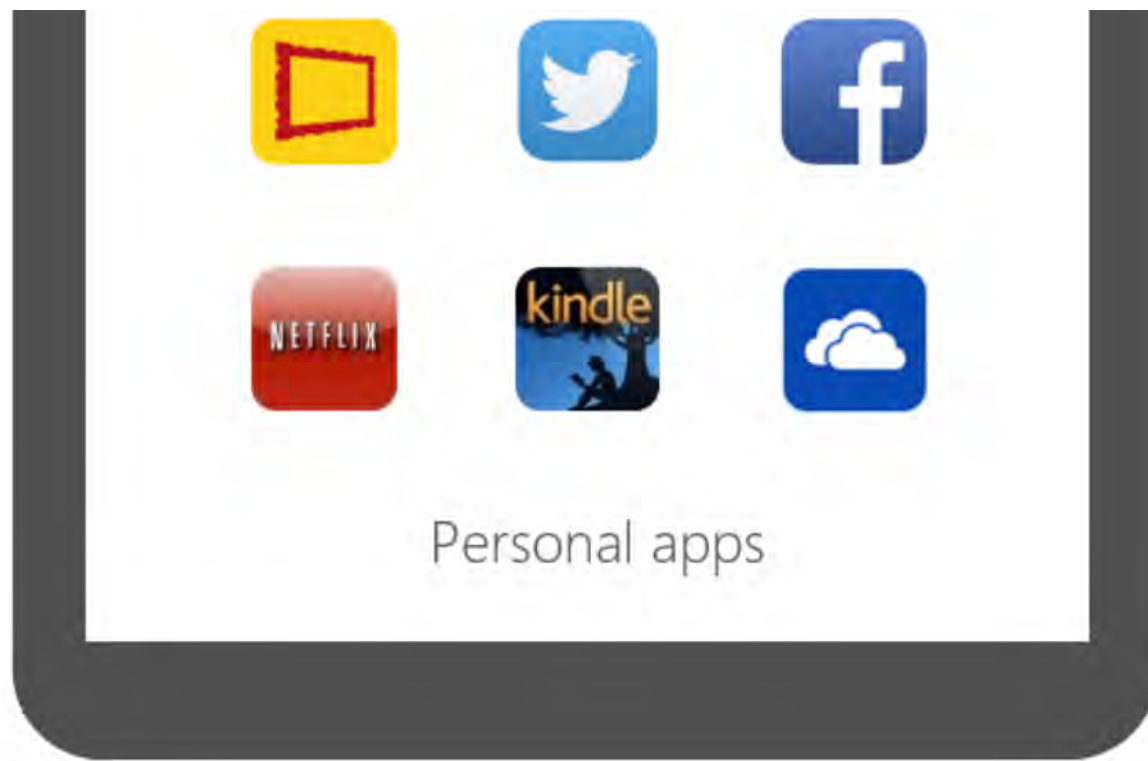
Apps that were written with Intune SDK integration can safely span the personal and managed data boundary



Dual-mode app with native Intune integration

- managed apps are special because they (and their data) live in a sandbox
- the sandbox is like a logical container for control of data flow and policy management

the enrollment will not "mess




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live i

- the s
cont
flow

Intune enrollment will not "mess with" personal apps and data

... but, if you don't want to enroll devices



Intune enrollment will not “mess with” personal apps and data

... but, if you don't want to enroll devices

MAMWE (or MAM Without Enrollment)

- wrap applications and manage their data without requiring device enrollment

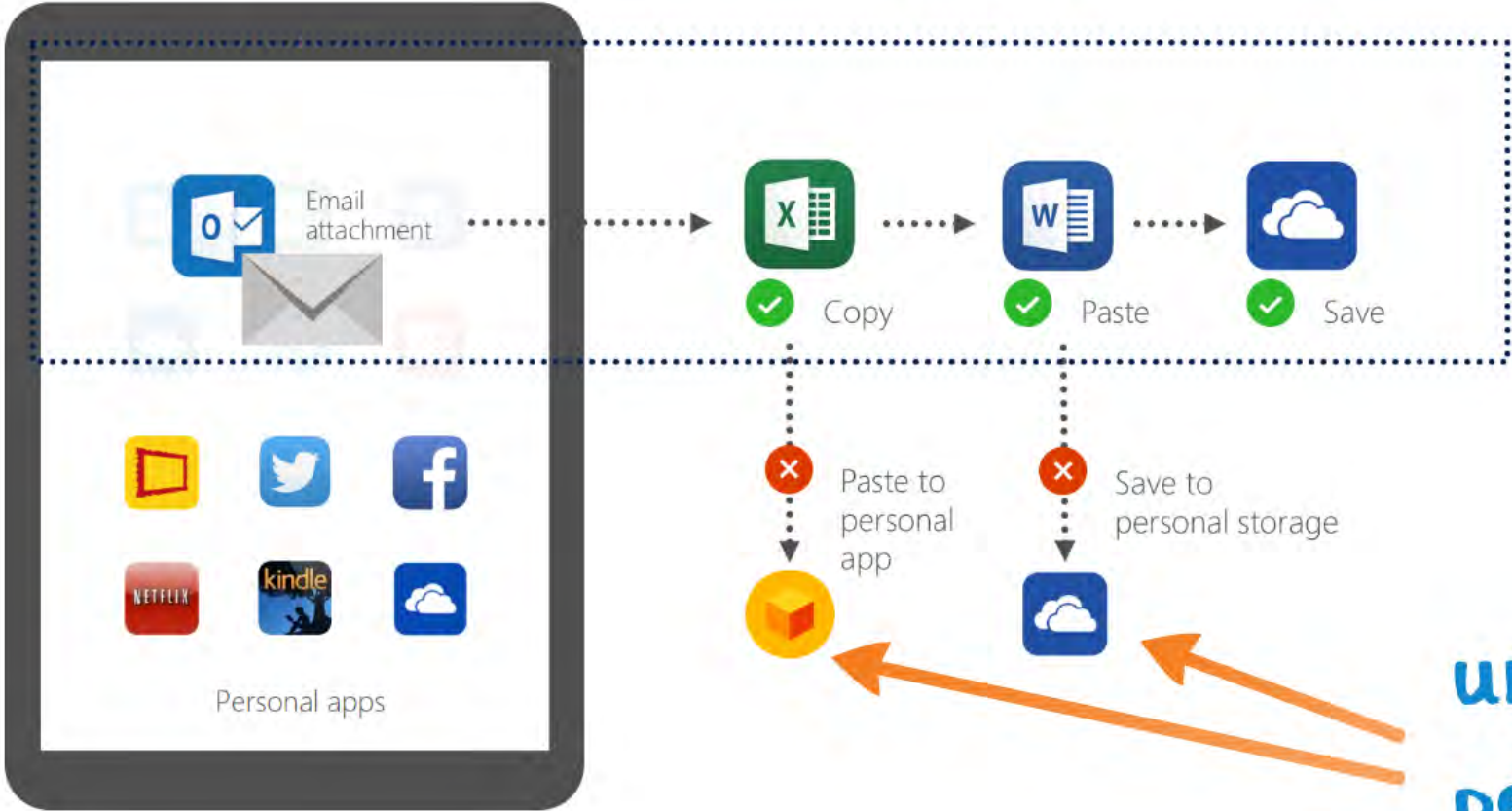
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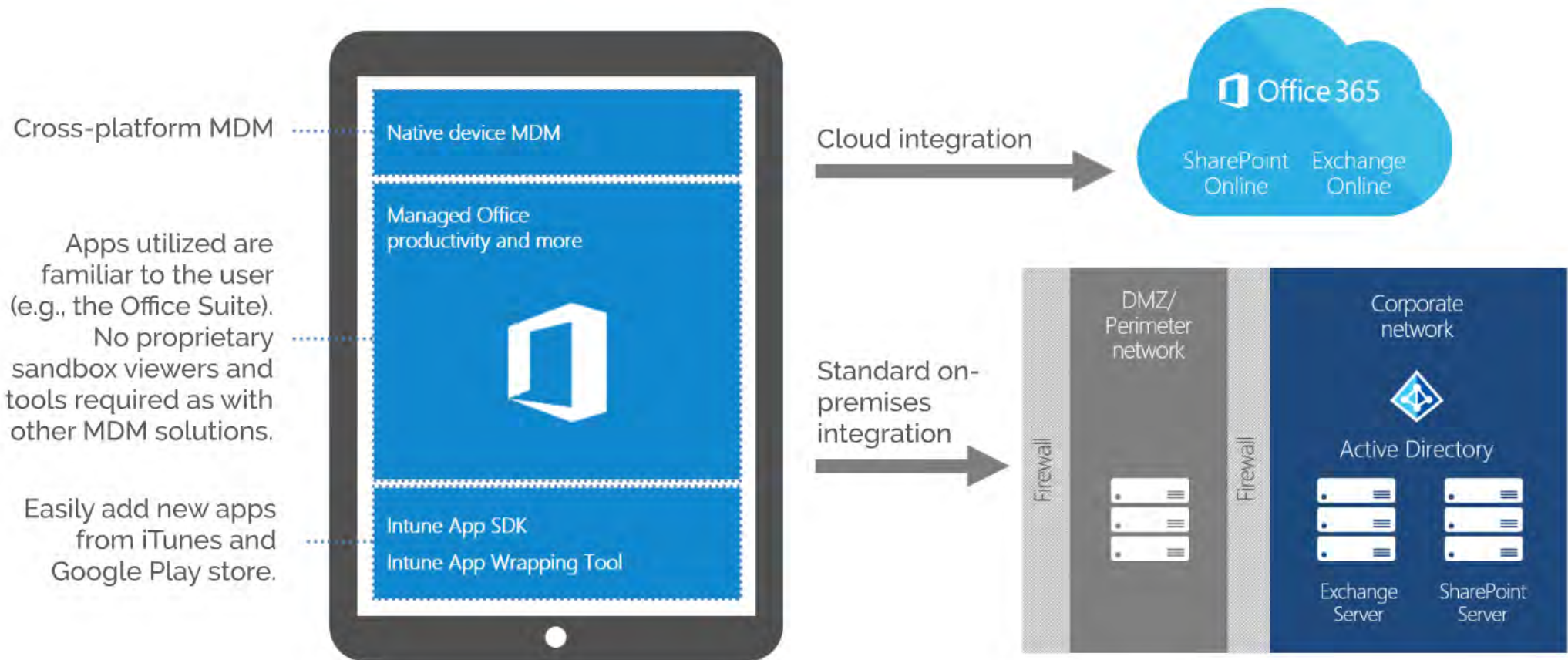
- managed apps are special

Intune administrators control whether or not data can flow across managed/personal boundaries



**unmanaged/
personal apps**

Intune: Under the Hood



Intune versus other MDM solutions

- I believe in honest assessments
- Intune is not the market leader; Airwatch is the king
- "Organizations that should consider Intune are those that want to extend the Office 365 services to mobile devices and ConfigMgr customers that value client management and EMM integration over best-of-breed EMM functionality."

Figure 1. Magic Quadrant for Enterprise Mobility Management Suites



Source: Gartner (June 2015)

MDM Comparison between Office 365 and EMS

Category	Feature	Exchange ActiveSync	MDM for Office 365	Microsoft Intune (cloud only)	Intune + ConfigMgr (hybrid)
Device configuration	Inventory mobile devices that access corporate applications	•	•	•	•
	Remote factory reset (full device wipe)	•	•	•	•
	Mobile device configuration settings (PIN length, PIN required, lock time, etc.)	•	•	•	•
	Self-service password reset (Office 365 cloud only users)	•	•	•	•
Office 365	Provides reporting on devices that do not meet IT policy		•	•	•
	Group-based policies and reporting (ability to use groups for targeted device configuration)		•	•	•
	Root and jailbreak detection		•	•	•
	Remove Office 365 app data from mobile devices while leaving personal data and apps intact (selective wipe)		•	•	•
	Prevent access to corporate email and documents based upon device enrollment and compliance policies		•	•	•
Premium mobile device & app management	Self-service Company Portal for users to enroll their own devices and install corporate apps			•	•
	App deployment (Windows Phone, iOS, Android)			•	•
	Deploy certificates, VPN profiles (including app-specific profiles), email profiles, and Wi-Fi profiles			•	•
	Prevent cut/copy/paste/save as of data from corporate apps to personal apps (mobile application management)			•	•
	Secure content viewing via Managed Browser, PDF Viewer, Image Viewer, and AV Player apps for Intune			•	•
	Remote device lock via self-service Company Portal and via admin console			•	•
PC management	Client PC management (e.g. Windows 8.1, inventory, antimalware, patch, policies, etc.)			•	•
	PC software management			•	•
	Comprehensive PC management (e.g. Group Policy, login scripts, BitLocker management, virtual desktop and power management, custom reporting, etc.)				•
	Windows Server/Linux/UNIX/Mac OS X support				•
	OS deployment and imaging				•

Figure 1. Magic

Intune versus other

Azure
Active
Directory
Premium



Intune



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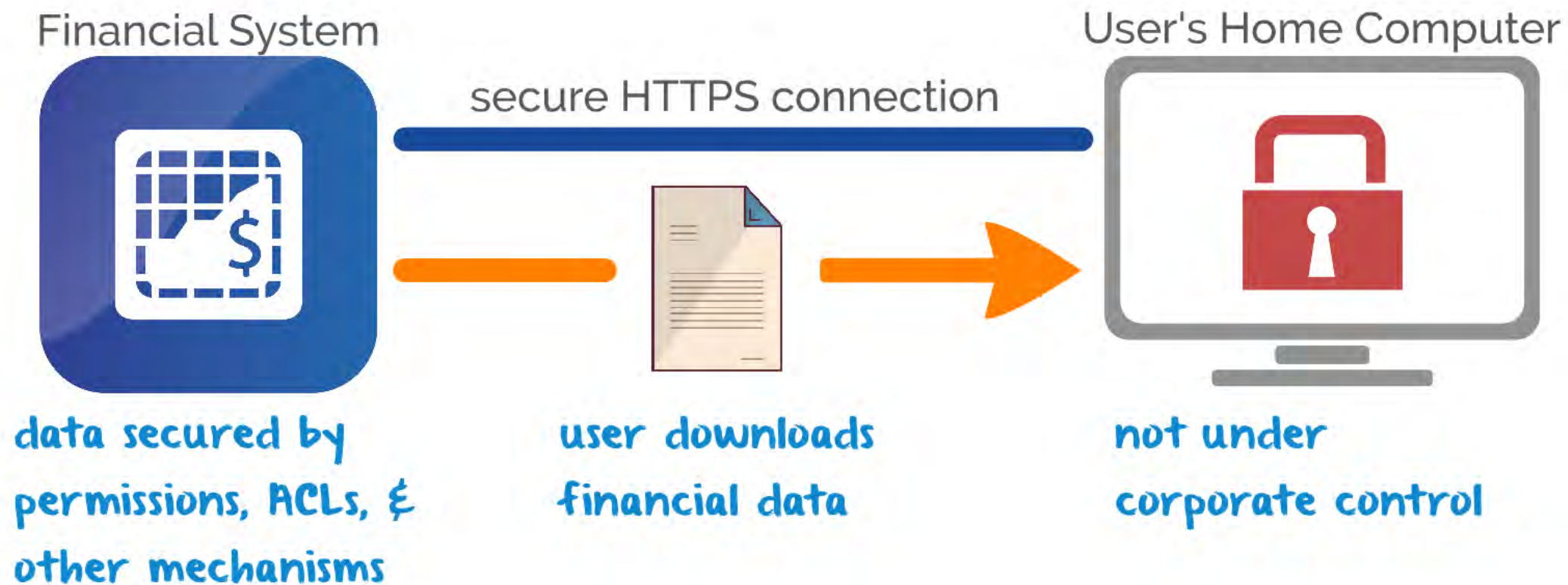
All EMS subscriptions include these four workloads. EMS E5 has some others.

Let's start
with a simple
question



What problem does Azure
Information Protection actually solve?

Consider the following example where a user is accessing a corporate financial application



Once the data is on the user's

em

User

secure HTTPS connection

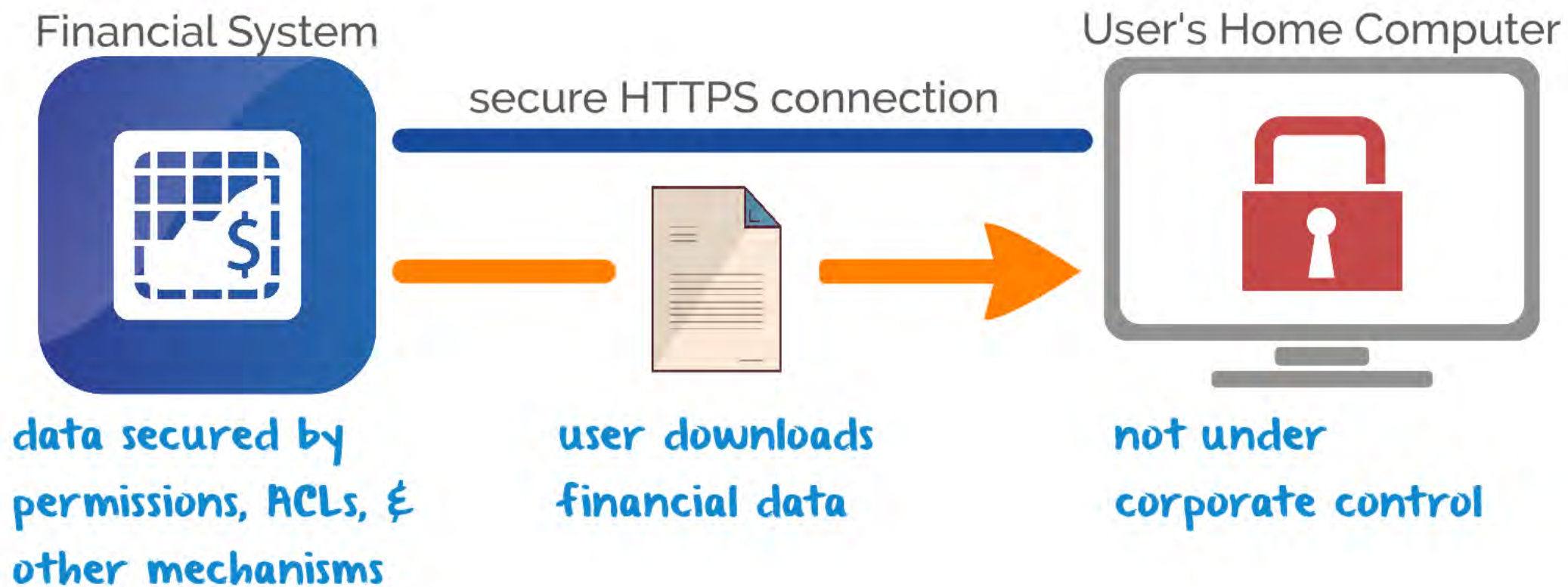


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user downloads
financial data

no
con

Consider the following example where a user is accessing a corporate financial application



Once the data is on the user's system, what is securing that data?

Working with AIP (in





If you answered "the user's adherence to corporate policies regarding data usage and system security," then you're trying to apply a protection strategy I call ...

This is where All

If you answered "the user's adherence to corporate policies regarding data usage and system security," then you're trying to apply a protection strategy I call ...



is where AID comes in



This usually doesn't cut it in the real world

Users will not protect data the way that they should (or that you want them to)

D comes in

This is where AIP comes in

- With AIP, documents are protected with encryption
- Regardless of where a document resides, it is safe
- Authors determine "who" can do "what" with a document



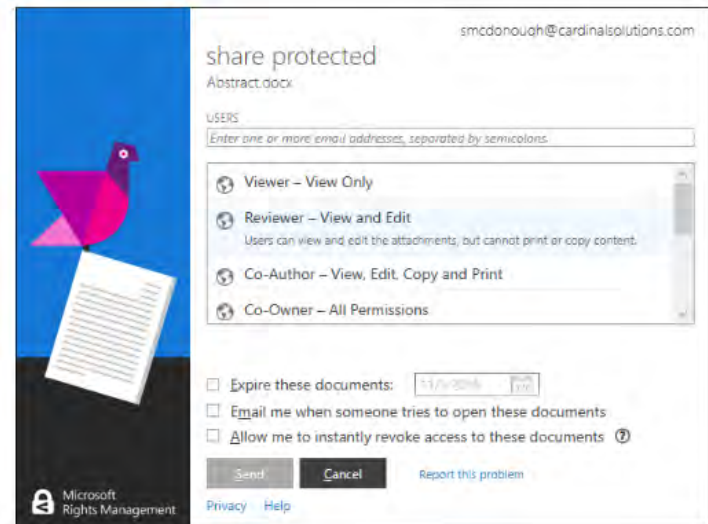
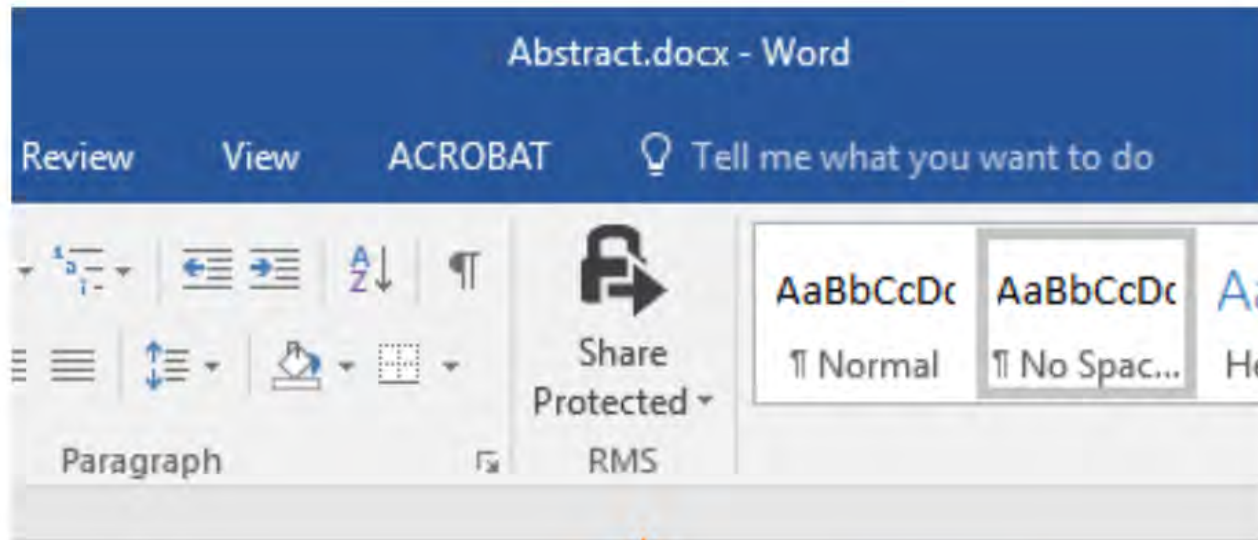
securing that data?

The screenshot shows the 'Info' tab in Microsoft Word. The 'Protect Document' button is highlighted, and its dropdown menu is open, showing five options: 'Mark as Final', 'Encrypt with Password', 'Restrict Editing', 'Restrict Access', and 'Add a Digital Signature'. The 'Restrict Editing' option is currently selected.

The screenshot shows the 'ACROBAT' tab in Microsoft Word. The 'Share Protected' button is highlighted, and the 'RMS' (Rights Management System) icon is visible next to it.

The screenshot shows the 'Share Protected' dialog box in Microsoft Word. It displays the document name 'Abstract.docx' and the user 'Sean McDonough'. The dialog box shows the current permissions: 'Viewer - View Only'. There are options to change permissions to 'Reviewer - View and Edit', 'Co-Author - View, Edit, Copy and Print', or 'Co-Owner - All Permissions'. There are also checkboxes for 'Expire these documents', 'Equal the when someone tries to open these documents', and 'Allow me to install/enable access to these documents'. The 'Expire these documents' checkbox is checked.

Protecting documents is easy




Protecting


share protected

Abstract.docx

USERS


Enter one or more email addresses, separated by semicolons.

 Viewer – View Only

 Reviewer – View and Edit

Users can view and edit the attachments, but cannot print or copy content.

 Co-Author – View, Edit, Copy and Print


 Co-Owner – All Permissions

Expire these documents:

11/3/2016

15

Email me when someone tries to open these documents

Allow me to instantly revoke access to these documents 

[Send](#)

[Cancel](#)

[Report this problem](#)

[Privacy](#) [Help](#)



system, what

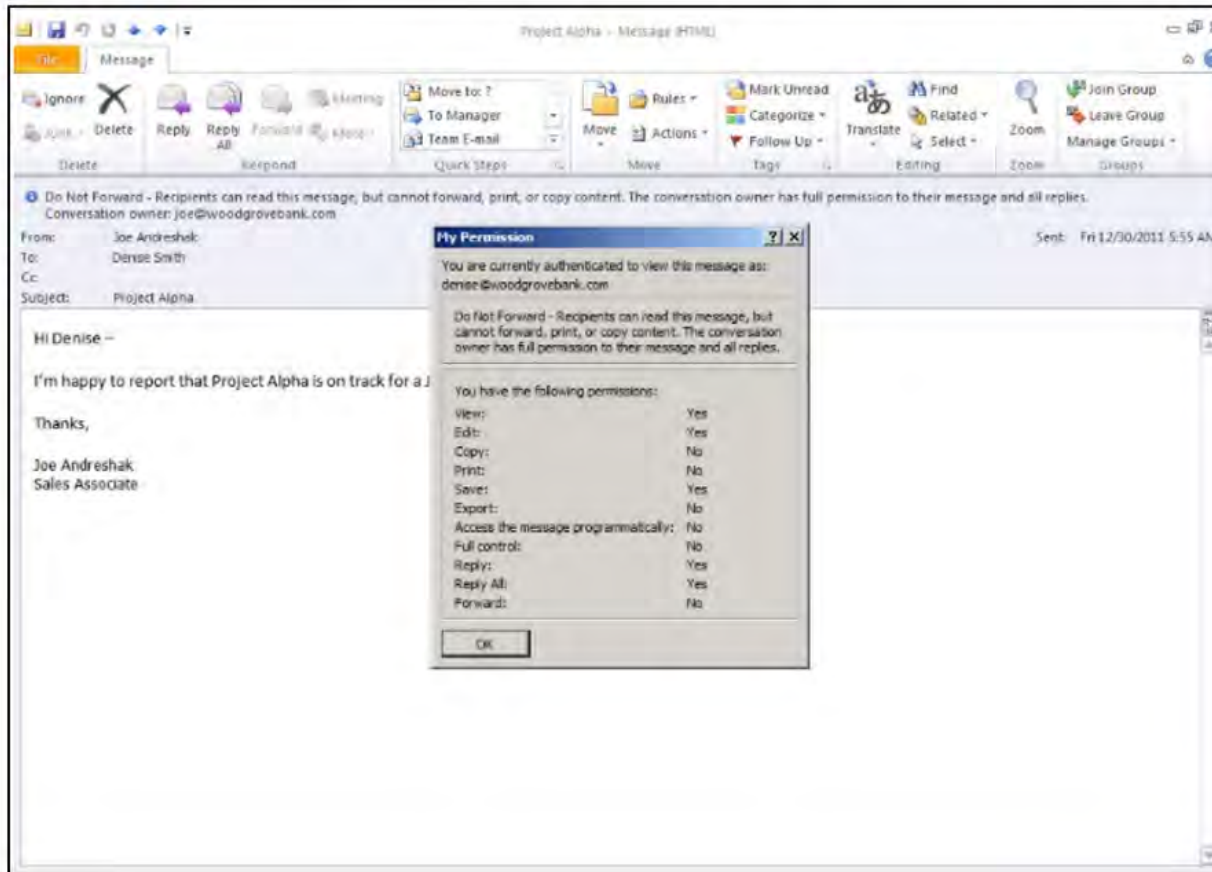
Behind the scenes, Office is working with AIP (in the cloud) to manage certificates and keys



Have any of you ever worked with PGP?

Managing public and private keys for asymmetric encryption is heavy lifting. AIP does this for you. You simply create and apply policies for document usage

Policies can also be auto-applied



- for example, automatically encrypt any email and/or attachments containing SSNs
- AIP is a natural complement to digital loss prevention (DLP) policies

One big AIP "add" with EMS E3

An on-premises connector that can be used to apply AIP to non-Office files (via Windows Server 2012 R2 File Classification Infrastructure)



	RMS for O365	Azure RMS (EMS)
Consume & Create RMS content with company ID	☑	☑
Protection for content stored in O365	☑	☑
Protection for content stored in on prem Office (Exchange, Sharepoint via RMS Connector)	☑	☑
Bring your own Key (Hybrid protection)	☑	☑
RMS protection for non office files	☑	☑
RMS SDK	☑	☑
RMS On Prem Connector for on-premises Windows Server file shares (via RMS FCI Connector)		☑

Azure
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Directory
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Intune



Azure
Information
Protection

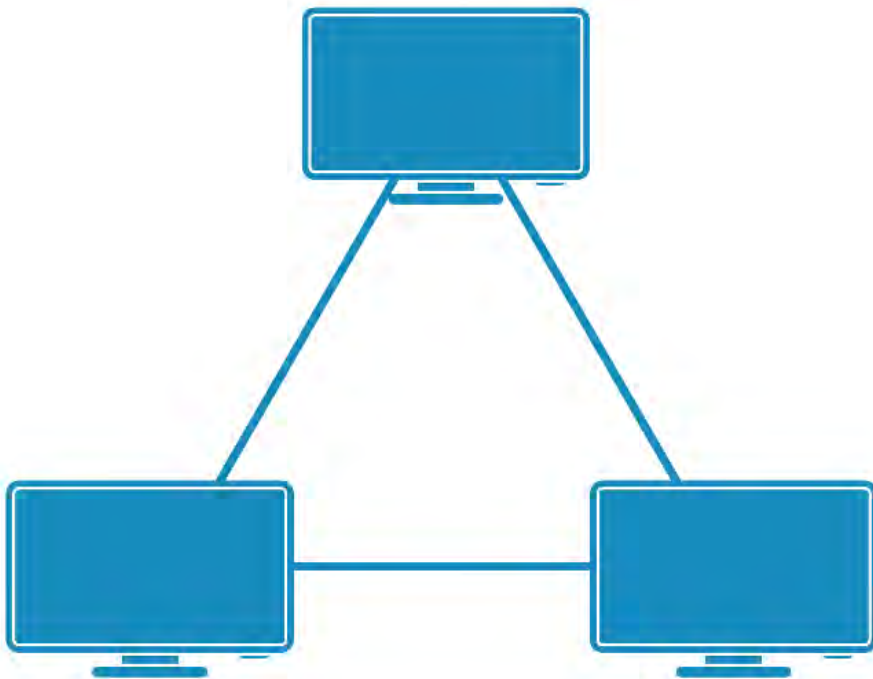


Advanced
Threat
Analytics



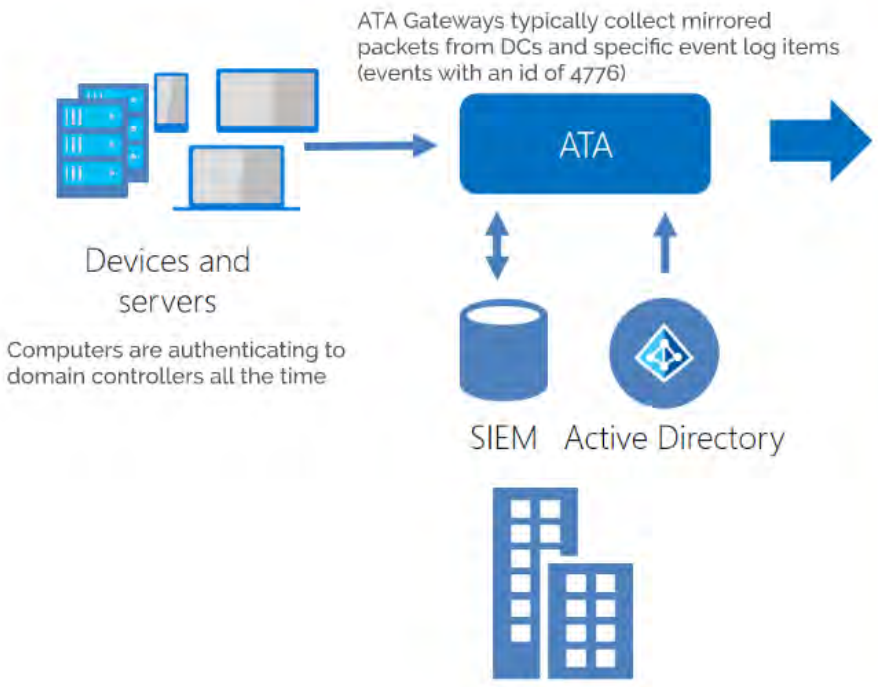
All EMS subscriptions include these four workloads. EMS E5 has some others.

What is Advanced Threat Analytics?



- ATA does analysis of your on-premises authentication traffic
- It looks for anomalies and "weird behavior" using machine learning
- When attacks or compromises are found, you are alerted by ATA

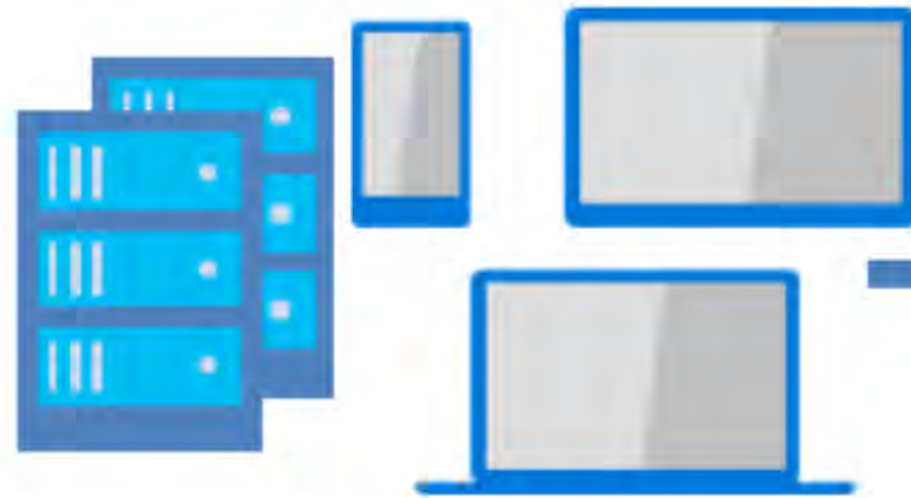
The ATA "Big Picture"



Packets and log information are sent to ATA Centers for analysis. Machine learning does the heavy lifting to find "needles in the haystack" that indicate potential security issues

Behavioral Analytics	Forensics for known attacks and issues	Advanced Threat Analytics
Profile normal entity behavior (normal vs. abnormal)	Search for known security attacks & issues	Detect suspicious user activities, known attacks and issues

The analysis section is a blue box containing three columns of information. Each column has a title, an icon, and a description. The columns are: 1. Behavioral Analytics: Icon of a computer monitor with a grid. Description: Profile normal entity behavior (normal vs. abnormal). 2. Forensics for known attacks and issues: Icon of a magnifying glass over a lightning bolt. Description: Search for known security attacks & issues. 3. Advanced Threat Analytics: Icon of a target symbol. Description: Detect suspicious user activities, known attacks and issues. Between the columns are mathematical symbols: a plus sign (+) between Behavioral and Forensics, an equals sign (=) between Forensics and Advanced Threat Analytics, and a plus sign (+) between Behavioral and Advanced Threat Analytics.



ATA Gateway
packets from
(events with

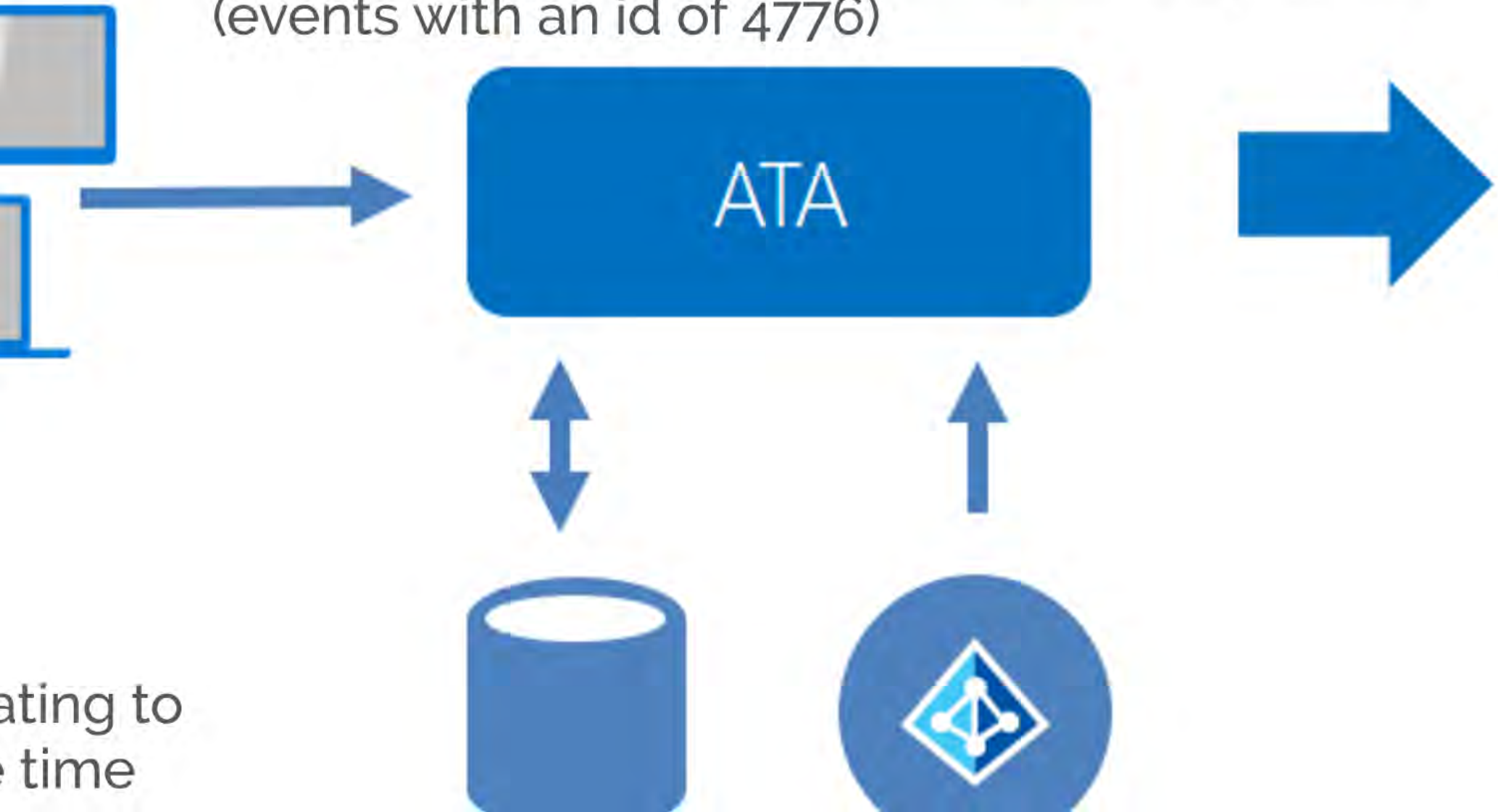
Devices and servers

Computers are authenticating to domain controllers all the time



S

ATA Gateways typically collect mirrored packets from DCs and specific event log items (events with an id of 4776)



ating to
e time

Packets and log information are sent to ATA Centers for analysis. Machine learning does the heavy lifting to find "needles in the haystack" that indicate potential security issues

Behavioral Analytics

Forensics for known attacks and issues

Advanced Threat Analytics



Profile normal entity behavior

Search for known security attacks &

Detect suspicious user activities

What can ATA detect?

As it turns out, ATA can detect quite a bit

Note: behavioral analytics are available once 30 days' of data is acquired



Malicious attacks

ATA detects known malicious attacks almost as instantly as they occur.

- Pass-the-Ticket (PtT)
- Pass-the-Hash (PtH)
- Overpass-the-Hash
- Forged PAC (MS14-068)
- Golden Ticket
- Malicious replications
- Reconnaissance
- Brute Force
- Remote execution



Abnormal behavior

Behavioral analytics leverage Machine Learning to uncover questionable activities and abnormal behavior.

- Anomalous logins
- Unknown threats
- Password sharing
- Lateral movement



Security issues and risks

ATA identifies known security issues using world-class security researchers' work.

- Broken trust
- Weak protocols
- Known protocol vulnerabilities

Azure
Active
Directory
Premium



Intune



Azure
Information
Protection



Advanced
Threat
Analytics









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To Sum It Up

- At its core, EMS is about enhancing security
- EMS complements Office 365's capabilities well, but EMS doesn't require Office 365
- If you have Office 365, it's worth seeing what you already have before jumping into EMS
- Microsoft is continuously adding to EMS

Office 365 versus EMS

	Identity and access management 	Managed mobile productivity 	Information protection 	Identity-driven security 
<p>Enterprise Mobility + Security</p> 	<p>Azure AD for O365+</p> <ul style="list-style-type: none"> • Advanced security reports • Single sign-on for all apps • Advanced MFA • Self-service group management & password reset & write back to on-premises, • Dynamic Groups, Group based licensing assignment 	<p>MDM for O365+</p> <ul style="list-style-type: none"> • PC management • Mobile app management (prevent cut/copy/paste/save as from corporate apps to personal apps) • Secure content viewers • Certificate provisioning • System Center integration 	<p>RMS for O365+</p> <ul style="list-style-type: none"> • Automated intelligent classification and labeling of data • Tracking and notifications for shared documents • Protection for on-premises Windows Server file shares 	<p>Cloud App Security</p> <ul style="list-style-type: none"> • Visibility and control for all cloud apps <p>Advanced Threat Analytics</p> <ul style="list-style-type: none"> • Identify advanced threats in on premises identities <p>Azure AD Premium P2</p> <ul style="list-style-type: none"> • Risk based conditional access
	<p> Office 365</p>	<p>Basic identity mgmt. via Azure AD for O365:</p> <ul style="list-style-type: none"> • Single sign-on for O365 • Basic multi-factor authentication (MFA) for O365 	<p>Basic mobile device management via MDM for O365</p> <ul style="list-style-type: none"> • Device settings management • Selective wipe • Built into O365 management console 	<p>RMS protection via RMS for O365</p> <ul style="list-style-type: none"> • Protection for content stored in Office (on-premises or O365) • Access to RMS SDK • Bring your own key

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