



Windows 10 for Enterprise: Deployment



Windows 10

Achieve more and transform your business with the most secure Windows ever.



Safer and
more **secure**



More **productive**



More **personal**



Powerful,
modern devices

Agenda

Application Compatibility

Windows Deployment Methods

Windows as a Service

Additional Resources



App compatibility



Browser & Applications – Content Details

Overview

Approach

Prepare

Application compatibility



Overview



Supportability

Discovery

Rationalize



What's new



Prioritize

Application compatibility tools



Test

Web application
compatibility tools



Overview

Application compatibility

Supportability

What's new

Compatibility in Windows 10

- Compatibility of Windows 7, Windows 8 and Windows 10 desktop apps is a top Microsoft goal.
- Most existing Win32 and Win64 applications run reliably on Windows 10 without any changes.
- Strong compatibility and support for Web apps and devices.

Desktop apps

Organizations are observing compatibility rates above 99%

High compatibility achieved through:

- Minimal changes to Win32 APIs
- Insider feedback during development
- Telemetry

Web sites

Internet Explorer 11 included (unchanged) for backwards compatibility

New Microsoft Edge browser for modern HTML5-based web sites

Enterprise Mode features to ensure proper use

Modern apps

High compatibility achieved through:

- Validation of Windows Store apps
- Insider feedback during development
- Telemetry

Significant investments, enhancements in each release

Hardware

Windows 10 supports all devices capable of running Windows 7 and above

Identical hardware minimum requirements as Windows 7

Strong driver compatibility, with updates delivered as needed through Windows Update

Application Compatibility



Overview

Applications & web applications traditionally the largest blocker to move towards a new operating system

Challenges

How to approach discovery / rationalization / prioritization

- What applications are owned / used
- What applications can be tested

App testing

- Approach
- Integration with other applications
- Finding test contacts

Selecting the right tools and process to support application compatibility

Application Compatibility for OS Transformation Projects



	Win32 / UWP Applications	Web Applications
Discover	What applications does my company rely on?	What web applications does my company rely on?
Rationalize	What should I test	What should I test
Prioritize	When and how should I test	When and how should I test
Test	Validate application	Validate web application
Remediate	Determine remediation approach	Determine site/ browser configuration required for remediation
Deploy	Deploy application in production	Deploy site or browser configuration in production

Supportability



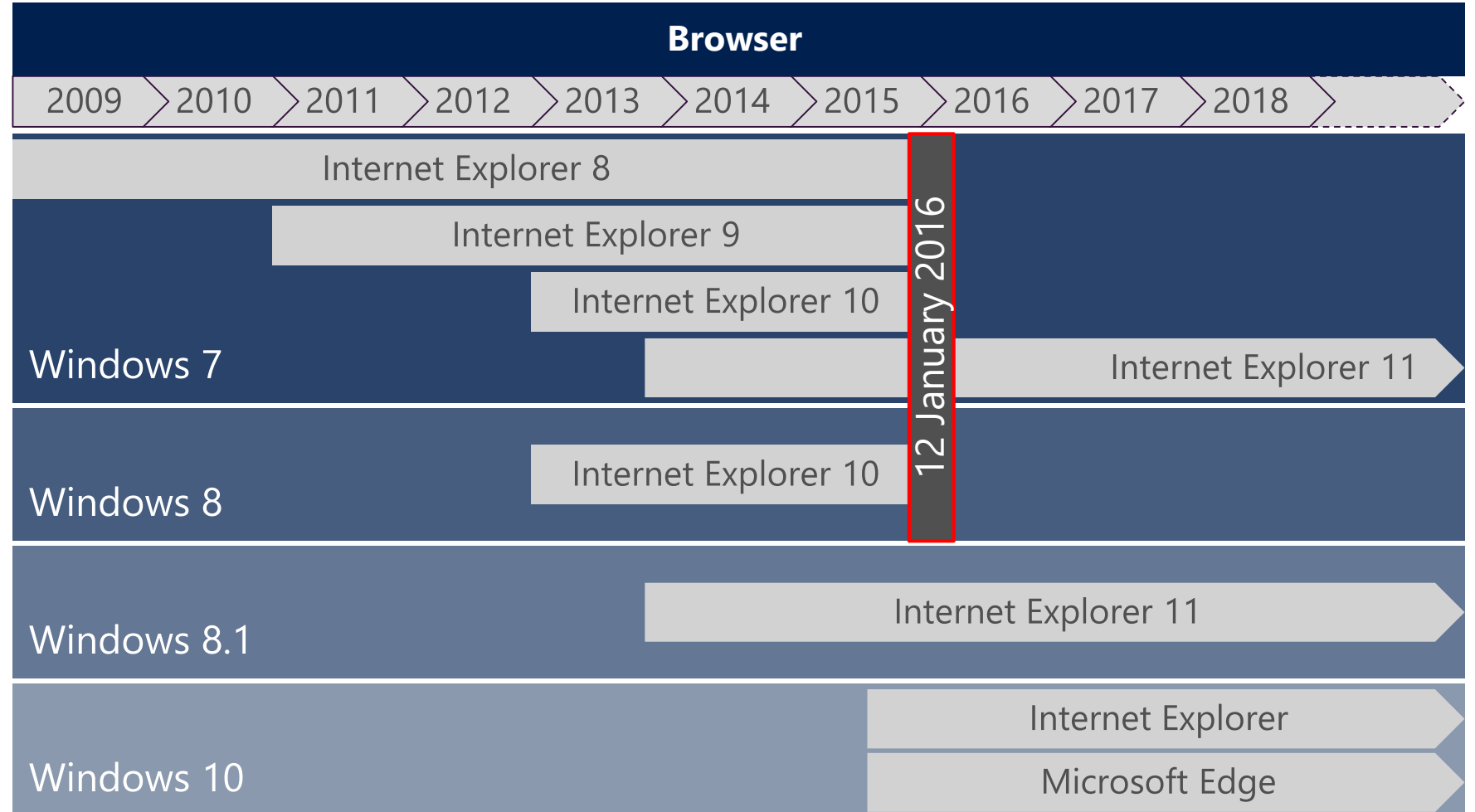
Applications

Windows 10 ISV application support

- Will vary by application
- May vary by branch
 - Current Branch
 - Current Branch for Business
 - Long Term Servicing Branch

LOB application support

- Consider UWP to extend application functionality on Windows 10



What's New

Microsoft Edge



Overview

- Support for the Modern Web
- Integrated with Cortana
- Ink directly on the web page
- Reading list and reading view
- Built in PDF viewer and Tab Preview
- Browser extensions
- Biometric support with Windows Hello

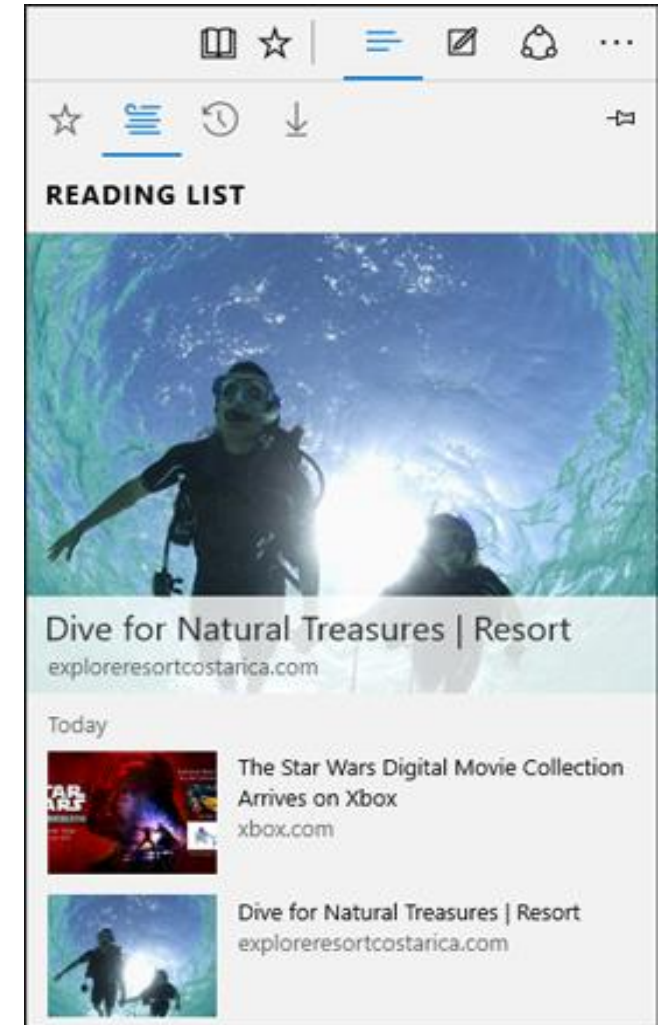
Making sure it's you

For security, Microsoft Edge needs to verify your identity.



Face

Hello Jatinder Mann! Select OK to continue.





Approach

Overview

Discovery

Rationalize

Prioritize

Test

Risk Based Application Compatibility



Overview

- Testing for application compatibility is a matter of balancing risks - not everything can be tested
- Not every application compatibility error can be identified in non-production environments
- A risk based approach for driving application compatibility is the most effective for OS changes

Pros

Focus available resources on what's critical for the business

Fits better with a faster rhythm of changes

Discover potential issues on critical applications earlier

Leverage application users to check application compatibility

Optimize overall Operating System update cost

Cons

Issues with non critical applications (larger set) are identified later

Dependent on application portfolio accuracy

May introduce changes in the organizational processes

Apply Risk Based Compatibility to Windows 10



Fit the OS servicing model

- Risk based App Compat fits with Windows 10 as updates will mainly extend OS capabilities
- Windows 10 OS will evolve through 'feature updates' more frequently than in the past
- OS updates will be available at various time (WIP, CB, CBB) giving choices to start App Compat (Critical Apps first) before broadly deploying the OS update

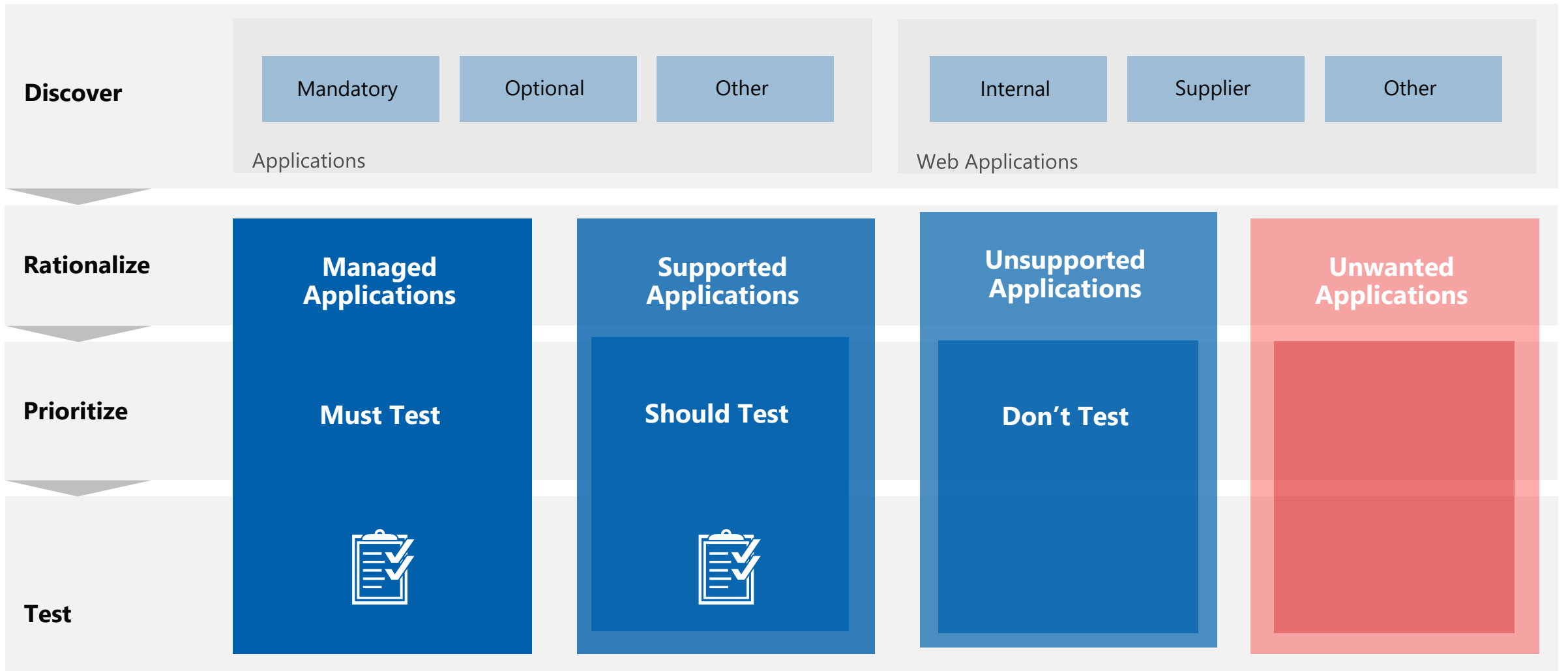
Focus on critical Applications

- Critical Applications identified in the App Portfolio need to be addressed earlier
- 'Nice to have' Applications could directly target End Users devices (when pilot prioritized Apps)
- Third party applications App Compat should leverage ISV input first (support required)

Gradually increase device updates

- Organize your target users/devices in rings in order to gradually update devices
- WaaS first rings focus on non-production and pilot devices up to last ring (broad deployment)
- Test environments need to take care of multiple OS releases when moving across rings until all devices are updated

Overview



Discovery – Traditional Approach



Legacy Approach

No/Incomplete Application Portfolio

- Limited to no visibility of the application landscape
- Application ownership and support may be unknown

Full Discovery

- Identify every application used by in the organization
- Discovery performed manually
- Decentralized strategy

Why Change?

Application Portfolio

- Cost implications due to no or limited application portfolio management
- Having no information on application ownership or support greatly adds to the complexity

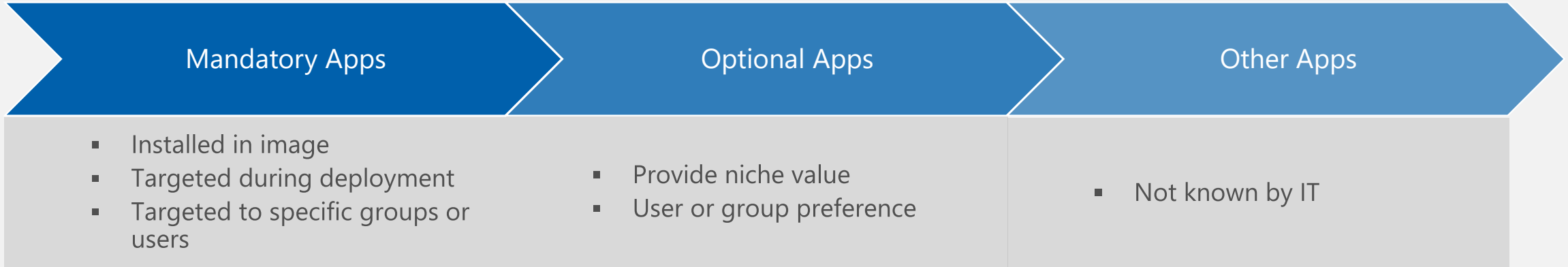
Full Discovery

- Requires a longer duration to be able to complete a full discovery
- Manually approaching each user is impractical

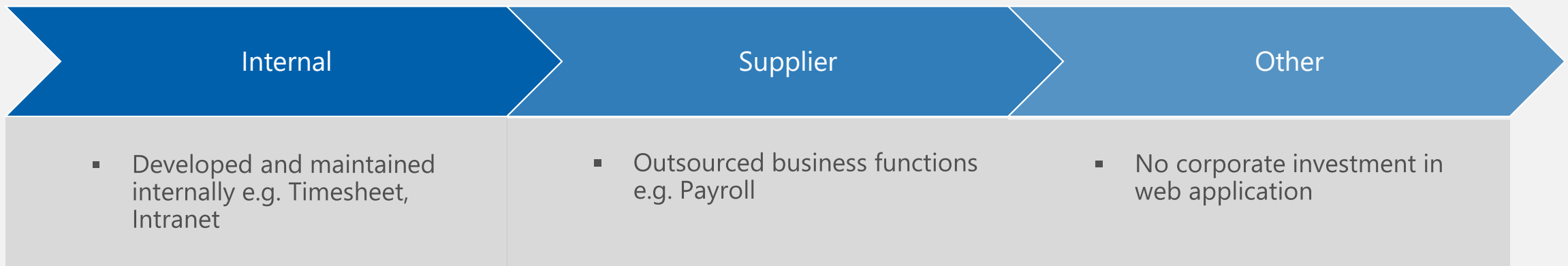
Discovery – Modern Approach



Desktop / Win32 / Universal Windows Platform Applications



Web Applications



Rationalize – Traditional Approach



Legacy Approach

IT Centric

- Limited collaboration with business groups or application owners
- Application assessment mostly done based on IT knowledge

Test before Rationalize

- All applications are considered business critical
- All applications are tested first before categorization
- No appropriate goals for the application portfolio

Why Change?

IT Centric

- Limited understanding of what the business needs and which applications have business value
- Lack of concrete information leads to higher project cost and complexity
- Absence of support and buy-in from the business makes the activity more challenging

Test before Rationalize

- Streamlined application management - Operations team will need to manage a significantly small app portfolio
- Save time and money from testing applications with no business value
- Optimize licensing costs and reduce the risk of running unlicensed software

Rationalize – Modern Approach



Overview

- Review install base and usage data (if available)

Managed Applications

- Financial or business impact if application does not work
- Critical to business operation

Supported Applications

- Application has business value
- Productivity impact if application does not work

Unsupported Applications

- Application superseded by new version or new application
- Application not introduced in environment by IT

Unwanted Applications

- Unlicensed application
- Applications banned by corporate policy

Prioritize



Overview

Determine the investment for each group of rationalized applications

Proactive Testing

Must Test (Managed Applications)

- Dedicated resources to test
- Test plan to confirm operation

Should Test (Supported Applications)

- Test when resources available
- Test as part of pilot group for OS update / upgrade

Reactive Testing

Don't Test (Unsupported Applications)

- Not included in pilot test group
- Test when service desk call raised
- If it breaks, it may not be fixed

Unwanted Applications

- Applications will not be tested (Remove application from device)
- Use AppLocker / management tool to ensure application cannot be re-installed or used

Test – Traditional Approach



Overview

Inefficient testing process

- Only runtime (functionality) tests performed
- Installation, launch and uninstallation not tested
- A documented test plan is manually performed
- Challenges with business group involvement
- Decentralized test environments

Remediate before deploy

- Platform deployment will not begin until all applications are remediated

Workaround as permanent fixes

- Workarounds such as virtualization or compatibility mode are considered compatibility solutions

Test – Reasons for Change



Inefficient testing process

- Support and buy-in from the business units provides a more holistic testing strategy
- The most important factor in determining that no bugs exist that affect user scenarios is the user
- Automated testing delivers more efficiency and time to test benefits
- Virtualization offers a faster and standard infrastructure provisioning for validation and testing

Remediate before deploy

- Development of a new approach for deployment and monitoring based on a staged or pilot roll-out will save on time and cost
- It will be more effective to quickly have a simple pilot so that issues can be discovered immediately in a controlled, but more realistic, environment

Workaround as permanent fix

- Having a workaround, in some cases, may be critical but having a plan for how to provide a proper fix is the right path
- Workarounds (shims or virtualization) are not future proof



Overview

Assign a proactive or reactive testing strategy based on application classification

Proactive Testing

- Select Windows 10 branches to test
- Align to update and upgrade release cadence

	Must Test	Should Test
Windows Insider Preview Branch	✓	✗
Current Branch	✓	✓
Current Branch for Business	✓	✓
Long Term Servicing Branch	✓	✗

Reactive Testing

- If multiple service requests for unsupported applications, review application classification
 - Move to managed, supported or banned app (if required)
- Determine a test approach and time limit / allowed resource effort for unsupported applications e.g.
 - Test on branch where app discovered
 - No more than 30 minutes investigation by second line technical support
 - Review with support forums / ISV's as a first step

Prepare

Overview

Application
Compatibility Tools

Web Application
Compatibility Tools



Getting to >400M Upgrades



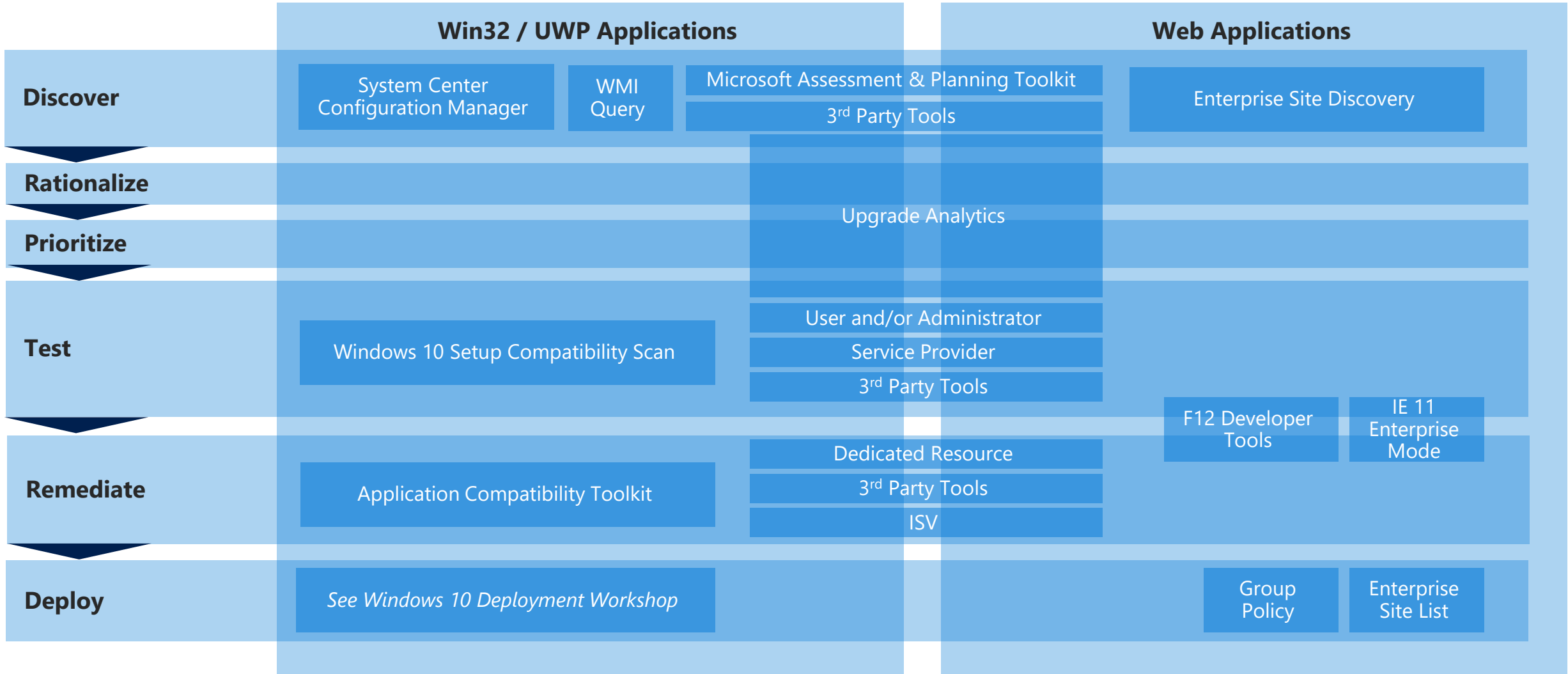
Increased OS compatibility

- Since Win7, focus has been to keep the OS highly backwards compatible
- Not compatible means no shipping the OS
- Close engagements with feature teams and ISV/IHV on code & design changes
- Raised the bar with in-place upgrade

Data-Driven Insights

- Developed new technologies to gather insights into the ecosystem
- Prioritize which apps to test and mitigate
- Prioritize ISV and IHV engagements for problematic apps and drivers
- Upgrade machines only when we know they will have a good experience

Overview



Application Compatibility Tools



Discover

Microsoft Assessment and Planning Toolkit

- Provide inventory, assessment, and reporting services to simplify the migration planning process to Windows 10

System Center Configuration Manager

- Leverage existing software inventory and asset intelligence capabilities for discovery information

Test

Setup Compat Scan

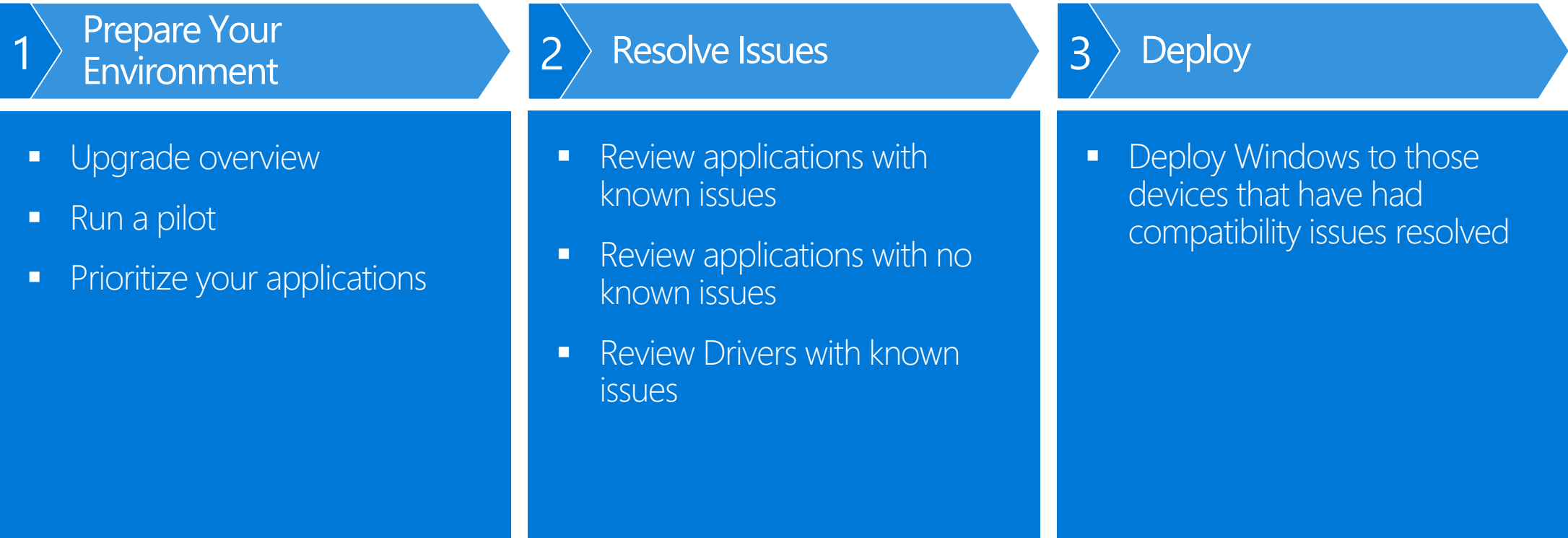
- Perform readiness assessment on existing Operating System
- Checks hardware, power requirements and compatibility for installed applications and devices
- Use SETUP.EXE /Auto Upgrade /Compat ScanOnly /Quiet
- Full media needs to be downloaded to device where the assessment is performed
- Check the return codes, XML files

Remediate

Microsoft Application Compatibility Toolkit

- Installed with the Windows Assessment & Deployment Kit
- Create custom short term compatibility fixes for applications
- Not recommended for long term compatibility fixes

Discover & Rationalize



Upgrade Analytics



Microsoft cloud service that allows enterprise IT to quickly identify and focus on the critical issues impeding upgrades; provides data driven tools to plan and manage the upgrade process end to end

Discover & Rationalize

- Leverages Windows telemetry for rapid data collection
- Applications, usage, device and device driver inventory
- Data-driven rationalization based on install base and usage

Resolve Issues & Assess Apps

- Integration with Microsoft compatibility data to determine compatibility
- As Microsoft publishes compatibility information based on investigations and ISV information, Upgrade Analytics has access to the data
- Issue resolution guidance where available

Deploy

- Identify computers eligible for deployment
- Report on overall deployment progress

Pre-Requisites



Cloud Service

- Azure Operations Management Suite (OMS) provides a reporting interface
- OMS account may be created using a Microsoft Account or Azure Active Directory account
- OMS dynamically generates a COMMERCIAL ID that is unique to your organization
- Data sent to Microsoft will be tagged with the commercial ID to present only your information in OMS

Client Configuration

- Reg key configuration to send data to Microsoft for analysis
 - Proxy/firewall configuration may be required to allow data to flow to Microsoft
 - Microsoft Privacy Statement - <https://privacy.microsoft.com/en-us/privacystatement>
- Management/GPO may be used to configure CEIP and set commercial ID on participating systems
- Install client compatibility analysis tools/KBs and restart

Required KBs

Operating System	Required KB
Windows 7 RTM	KB2977759
Windows 7 SP1	KB2952664
Windows 8 RTM	KB2976978
Windows 8.1	KB2976978

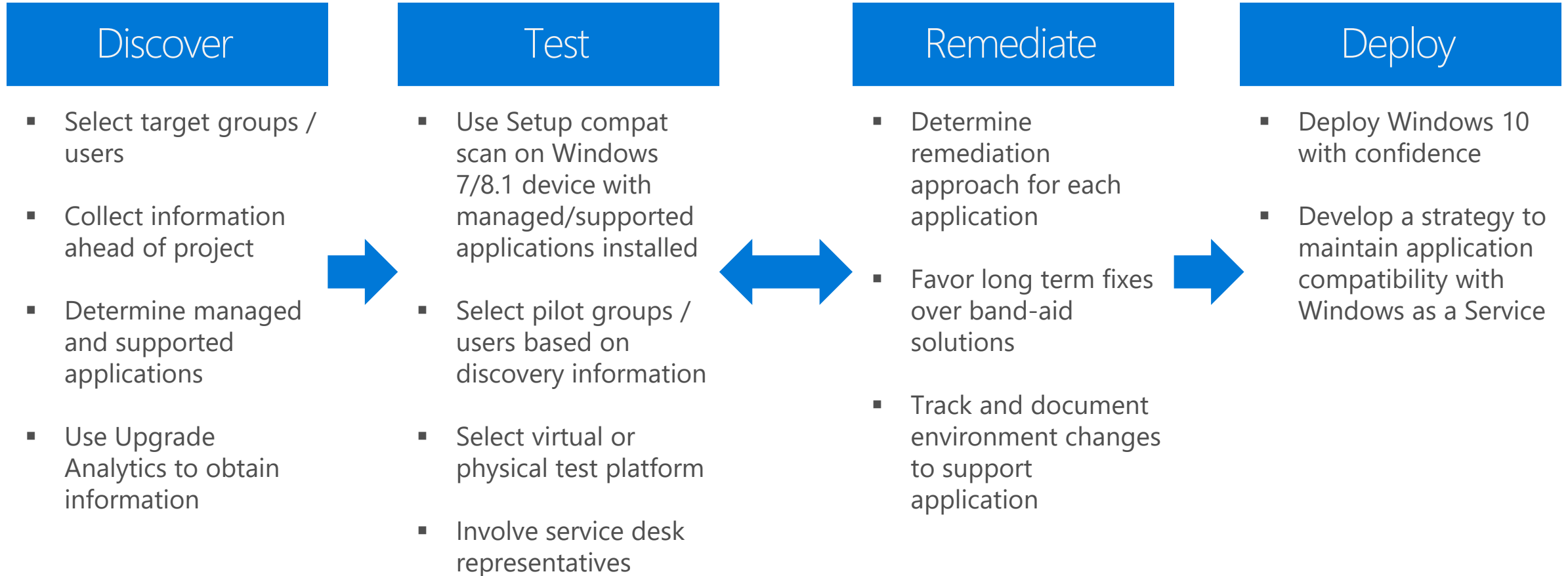


DEMO

Windows Upgrade Analytics Service

Application Test & Remediation Approach

Approach and Tooling



Web Application Compatibility Tools



Discover

Enterprise Site Discovery

- Use Internet Explorer to collect data on computers running Windows Internet Explorer 8 through Internet Explorer 11 on Windows 7/8.1/10

Remediate

F12 Developer Tools

- Debug websites to address compatibility problems

IE11 Enterprise Mode

- Compatibility mode that's designed to emulate either Windows Internet Explorer 7 or Windows Internet Explorer 8

Deploy

Enterprise Site List

- Enterprise Mode configuration settings to users to enable rendering of websites in compatibility mode

Group Policy

- Deploys the enterprise site list to specified computers

Enterprise Site Discovery



Overview

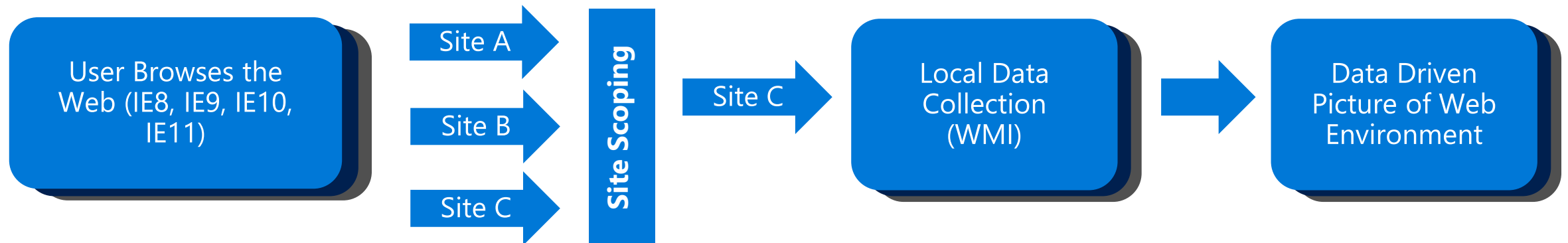
- Provides IT Pros with clearer picture about how IE is being used in their deployment based on actual user data.
- Works with Internet Explorer 8, 9, 10 and 11

Purpose

- Understand what web applications are being used and what websites are being accessed
- Determine the add-ons required for each web application and website

Requirements

- Works with Internet Explorer 8, 9, 10 and 11 on Windows 7 or Windows 8.1
- Installed via PowerShell
- Managed by PowerShell or Group Policy



Enterprise Mode



Overview

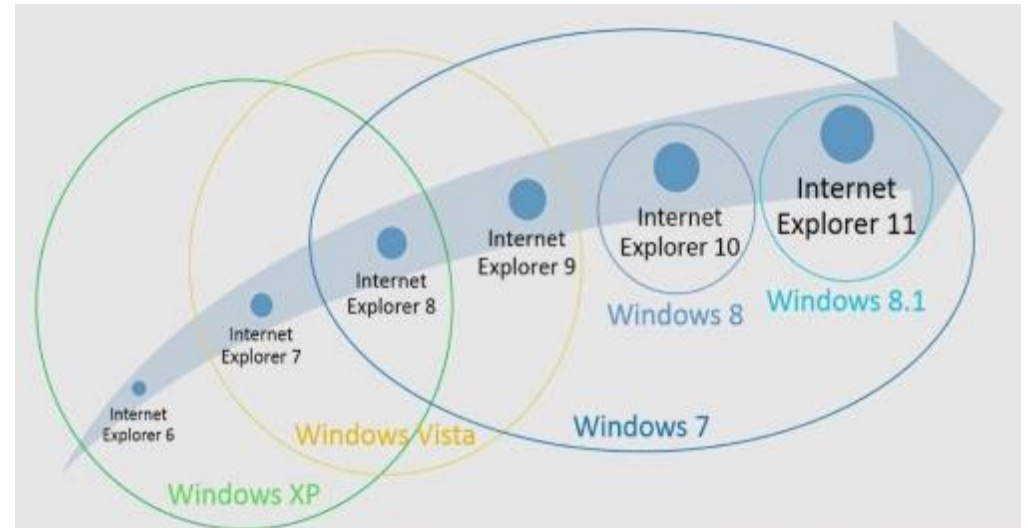
- Enterprise Mode is a compatibility mode in Internet Explorer 11 that can emulate Internet Explorer 7, Internet Explorer 8, and other Internet Explorer document modes.
- Enterprise Mode is designed to avoid the common compatibility problems associated with web apps written and tested on older versions of Internet Explorer.
- In Windows 10, Enterprise Mode Site List can be set to open sites in Internet Explorer 11 if attempted to be viewed in Microsoft Edge, allowing the modern browser to be left as the default choice.

Requirements

- Windows 10
- Windows 8.1
- Windows 7 Service Pack 1

Features

- Improved web app and website compatibility
- Tool-based management for website lists
- Centralized control
- Integrated browsing
- Data gathering
- Supported until Jan 14 2020



Browser Interoperability



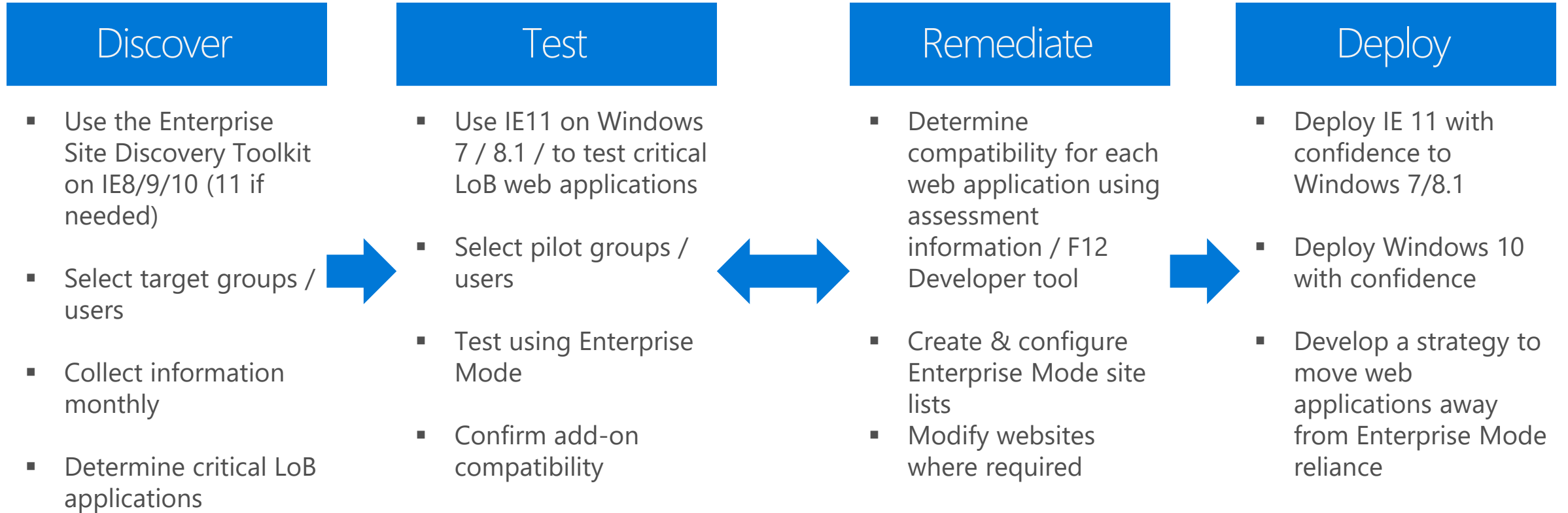
Overview

- Microsoft Edge and Internet Explorer 11 are designed to operate in conjunction to give the best experience for web browsing in Windows 10.
- Administrators can define interoperability between browsers for managed devices

Option	User Experience	Administrative Effort
<ul style="list-style-type: none">▪ All websites open in Microsoft Edge (Default)	<ul style="list-style-type: none">▪ Users needs to manually open Internet Explorer 11 if a site fails to operate correctly.	<ul style="list-style-type: none">▪ Nil – default configuration▪ Critical intranet sites to be tested on Microsoft Edge to confirm operability
<ul style="list-style-type: none">▪ Websites open in Microsoft Edge unless Internet Explorer 11 is defined by an administrator (Recommended) .	<ul style="list-style-type: none">▪ No user interaction required to switch to Internet Explorer 11 for sites with known issues▪ Interstitial page will be removed by default in Windows 10 1607	<ul style="list-style-type: none">▪ Moderate - List creation and management overhead▪ Users can provide feedback using Enterprise Site Discovery tool to reduce administrative effort
<ul style="list-style-type: none">▪ All websites open in Internet Explorer 11. (Not Recommended)	<ul style="list-style-type: none">▪ Single browser for all sites▪ Sites may not display correctly	<ul style="list-style-type: none">▪ Low – Setting implemented via Group Policy

Web Application Test & Remediation Approach

Technical Approach and Tooling



Controlled Approach – Windows 7 / 8.1 users on IE 8-11

Dynamic Approach – For Windows XP / Vista users & Windows 7 / 8.1 users on IE 8-11

Application Readiness Resources

Application Compatibility

Windows Insider Program

Join the [Windows Insiders Program](#) community to help shape the future of Windows, get early releases and more.

[Download](#) a preview build of the latest Windows SDK and Emulator to explore what's new in building apps. for Windows.

Windows 10 Cookbook



Leverage the [Application Compatibility Cookbook](#) for guidance in verifying compatibility of existing and planned apps. for Windows 10.

[Download](#) the Application Compatibility Cookbook for Windows 10.

Find Supported Apps

Windows Upgrade Analytics



identify critical issues impeding upgrades; data insights to plan and manage the upgrade process end to end

[Sign up](#) for Windows Upgrade Analytics and begin evaluating your environment.

Ready For Windows



Look for a list of compatible apps in Microsoft's global [Ready for Windows Directory](#) available for IT decision makers around the world.

[Submit](#) your compatible application to the Ready for Windows Directory.

Modernize

Desktop Bridge



Use the Desktop Bridge or build UWP to bring your existing desktop apps to the Universal Windows Platform

[Download Desktop Application Converter](#) to make your applications available in the Windows Store.

Servicing

WaaS Servicing



Adopt the new [Windows Servicing model](#) for app development and testing of internally developed custom apps.

[Implement](#) new practices in your organization and adopt best practices to optimize app development and management costs.

Getting Started with Upgrade Analytics



1 Network

- Device telemetry must be able to leave the system and the network
- Data is transmitted to Microsoft servers
- Telemetry is sent as Local System – ensure that proxy servers allow this method of internet access

2 OMS Setup

- Signup at: aka.ms/omsregister
- Microsoft Account or Azure AD Credentials may be used
- If required, create your own workspace

3 Solution Config

- From the Solutions Gallery, add the Upgrade Analytics solution to the workspace
- In Settings, select Connected Sources. Find the Windows Telemetry panel
- Generate a Commercial ID Key. This is the key that is used to identify all data from your organization





4 System Config

- MDM/GPO may be used to configure Windows client systems that will participate in telemetry
- Applies the Commercial ID Key to the registry
- Data sent by the system contains the commercial ID to allow your data to be accessible by the Upgrade Analytics Solution

Windows Deployment



Deployment – Content Details

Overview	Image	Wipe & load	In-place upgrade	Provisioning		
Choices	Architecture	Edition	Overview	Methods	Overview	Overview
Tools	Strategy		User state migration	Upgrade process	Upgrade vs refresh	Demo
	Branding	Platform configuration	Driver management	Recovery & troubleshooting		
Recommendations	Security		Recommendations	Considerations	Recommendations	



Overview

Choices

Tools

Recommendations

Deployment Choices

Wipe-and-Load

Traditional process

- Capture data and settings
- Deploy (custom) OS image
- Inject drivers
- Install apps
- Restore data and settings

Still an option for all scenarios

In-Place

Let Windows do the work

- Preserve all data, settings, apps, drivers
- Install (standard) OS image
- Restore everything

Recommended for existing devices (Windows 7/8/8.1)

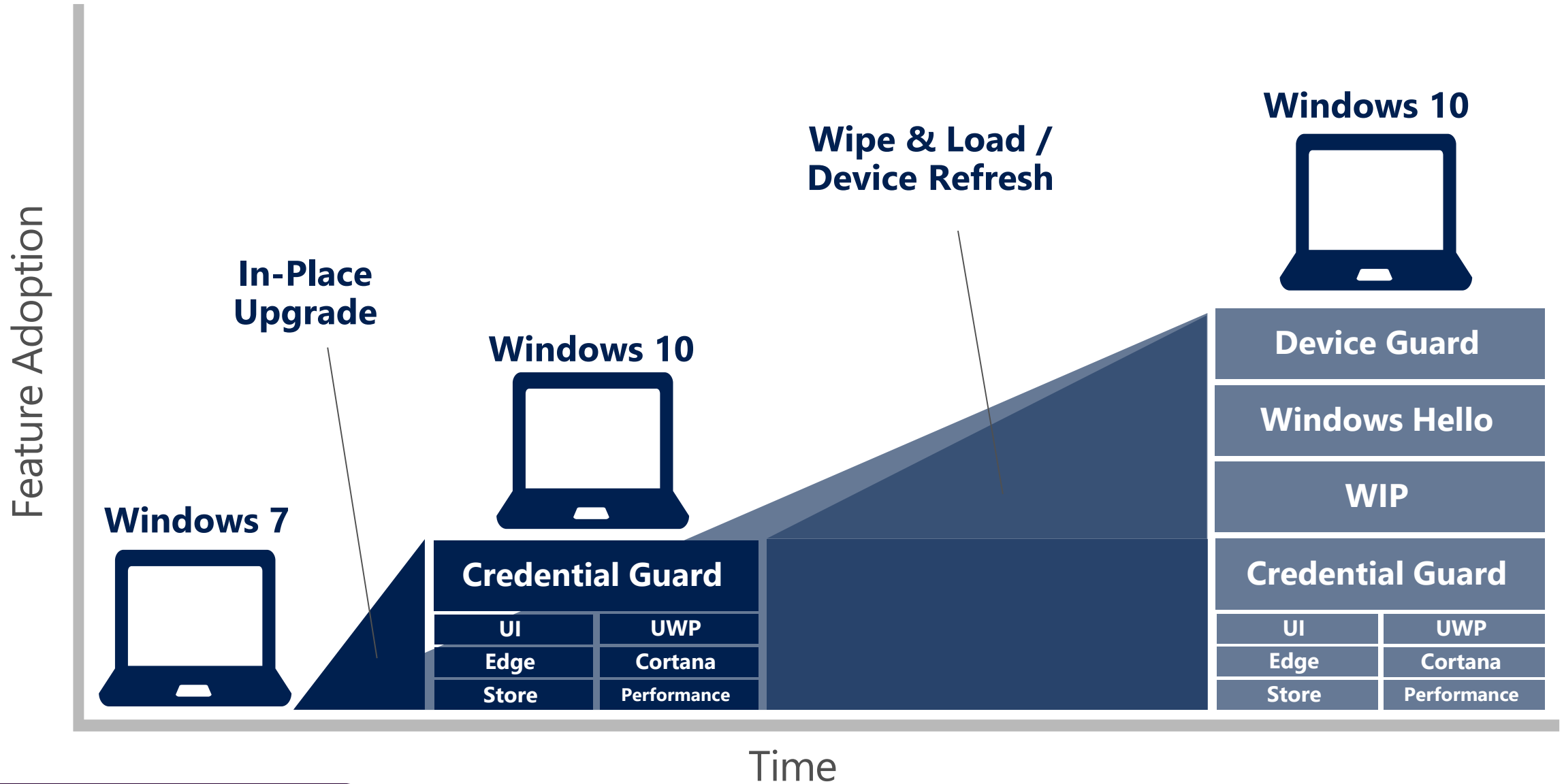
Provisioning

Configure new devices

- Transform into an Enterprise device
- Remove extra items, add organizational apps and config

New capability for new devices

Transformation Choices

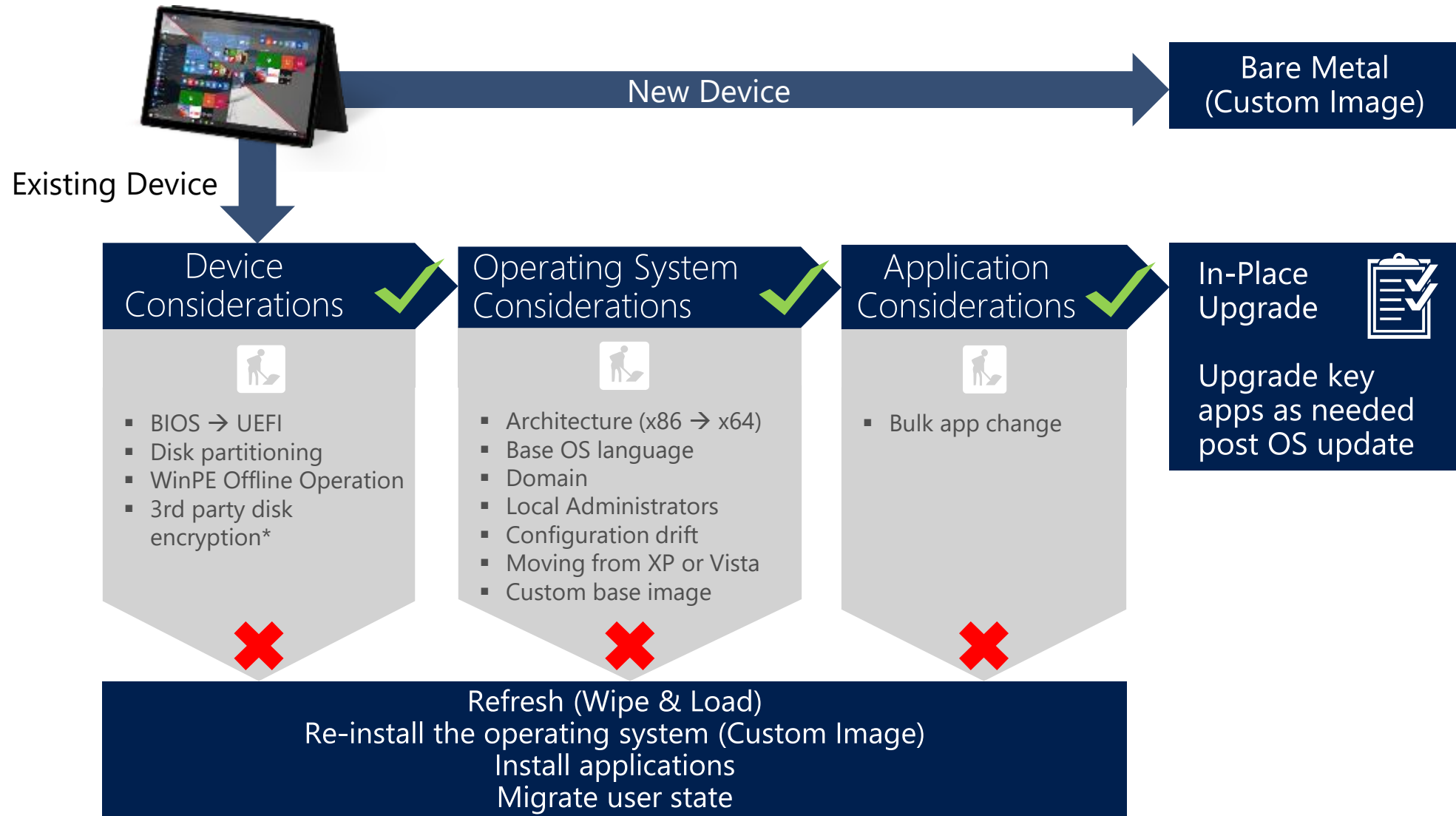


Transformation Effort



	Refresh	Replace	Upgrade
Pre-Reqs	<ul style="list-style-type: none"> Assessing systems requires time Extent of assessment depends on approach Upgrade required infrastructure to support Windows 10 		
Engineer	<ul style="list-style-type: none"> Image must be designed Finalized when compat information is known 	<ul style="list-style-type: none"> Image must be designed Finalized when compat information is known Remote data migration solution 	<ul style="list-style-type: none"> No image or data migration solution required
Deploy	<ul style="list-style-type: none"> Image is typically larger than Microsoft media 	<ul style="list-style-type: none"> Image is typically larger than Microsoft media 	<ul style="list-style-type: none"> Smallest media is from Microsoft
Post-Install	<ul style="list-style-type: none"> All app installers must be compatible with Windows 10 for re-install 	<ul style="list-style-type: none"> All app installers must be compatible with Windows 10 for re-install User data must be restored from remote repository 	<ul style="list-style-type: none"> Only apps determined to require re-installation must have compatible installers Compatible/non-blocking apps are migrated
Rollback	<ul style="list-style-type: none"> No rollback Re-deploy old OS and re-configure system 	<ul style="list-style-type: none"> Revert to old machine Data on old system becomes increasing stale 	<ul style="list-style-type: none"> Built-in rollback for ~ 1 month Data on old system becomes increasing stale
Duration	<ul style="list-style-type: none"> Fast 	<ul style="list-style-type: none"> Slow 	<ul style="list-style-type: none"> Faster

Deploying Windows 10



Windows Tooling & Deployment Capabilities



Overview

When choosing a Windows Client Platform delivery tool, System Center Configuration Manager and Microsoft Deployment Toolkit are options. See below for the feature comparison.

Capability	Microsoft Deployment Toolkit	System Center 2012 Configuration Manager (R2 SP1, SP2)	System Center Configuration Manager (Current Branch 1606)
Windows 10 Version Support	1507, 1511, 1607	1507, 1511	1507, 1511, 1607
Deploy UEFI/BIOS Platforms	X	X	X
Deploy applications during Task Sequence	X	X	X
Supports Image Creation	X	X	X
Lite Touch Deployment	X	X	X
Zero Touch Deployment		X	X
Manage a wide range of platforms		X	X
Increased Scalability (PXE, etc.)		X	X
Offline Image Servicing		X	X
Deploy Windows-to-Go		X	X
In-Place Upgrade		Task Sequence	Servicing



Image

Architecture

Edition

Strategy

Branding

Security

Architecture



Advantages

Disadvantages

64-bit Operating System (Recommended)

- Single image architecture support
- Fewer deployment objects to support
- Simple driver support
- Reduced engineering support due to single architecture policy

- No 16-Bit application support
- No x86 device support (e.g. legacy and tablet devices)
- Authentication applications (e.g. GINA, biometric) support

32-bit Operating System

- Legacy device drivers likely to function
- Allows for increased device compatibility
- Better support for machines with older hardware specifications
- Same Compatibility options as Previous OS's

- When multiple images are used, the Image Creation Service must support multiple image engineering, deployment and test scenarios
- Devices limited to 4GB RAM

Strategy



Image Strategy	Thin Image	Hybrid Image	Thick Image
Windows Updates	X	X	X
Windows Features	X	X	X
Common Frameworks	X	X	X
Common Productivity Apps		X	X
LOB used by Every Employee		X	X
Frequently Updated Frameworks			X
LOB Applications			X

Considerations

- Image revisions to support component and application updates
- Device deployment time
- Windows 10 1607 provides support for Sysprep via Windows as a Service, although image recreation is still the recommended approach

Security



Overview

- Group Policy Objects are commonly used to manage connected machines in a Active Directory Domain Services environment
- A similar object called a Local Group Policy object can be used to “stamp” the image with settings

Use Cases

Local Group Policy Objects should be used in the following scenarios:

- When a machine does not join an active directory domain
- When security settings are required by the business to be implemented ahead of a domain join

Disadvantages

The settings that are configured in Local Policy Objects will need to be countermanded in Group Policy should they need to be supersede. This can cause a complicated Administrative scenario, leading to unnecessary GPO's, and the possibility for misconfigured systems

Recommendation

Apply policies using group policy (where possible) to reduce the number of changes required to the core image



Wipe & Load

Overview

Methods

User State
Migration

Platform
Configuration

Driver
Management

Recommendations

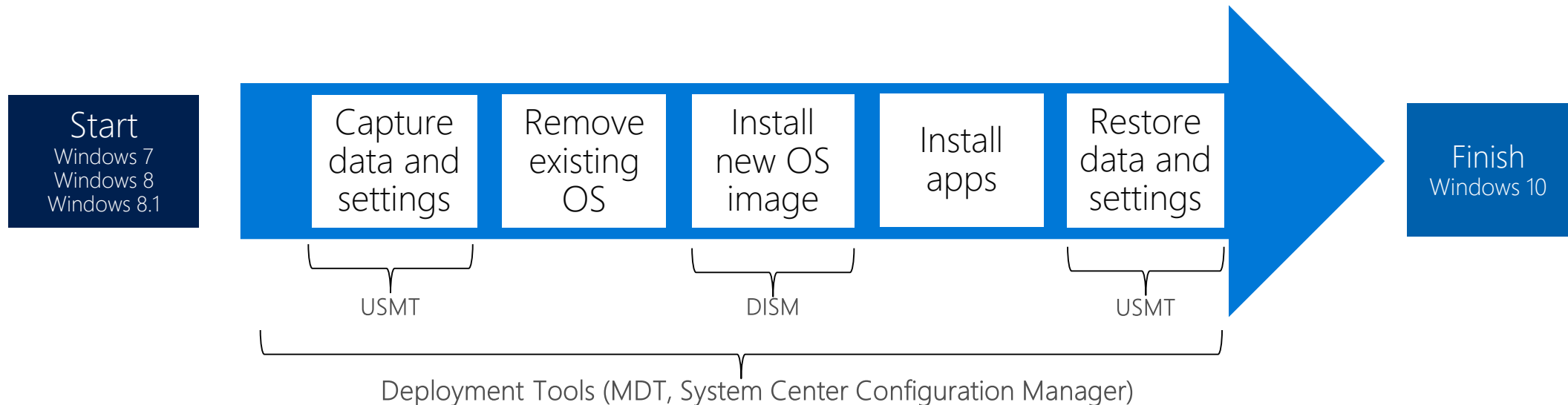
Wipe & Load Overview



Minimal changes to existing process

- Familiar with enterprises
- Out of the box support with Windows 7, Windows 8, and Windows 8.1
- Customized approach required to move from Windows XP/Vista to Windows 10
- Use System Center Configuration Manager or MDT for managing the process – requires update
- Administrator to configure preservation of existing apps, settings, and drivers

Wipe & Load (Refresh) Process



Deployment Methods



Deployment	Tools	Advantages	Scenarios
Offline Deployment	System Center Configuration Manager Microsoft Deployment Toolkit	<ul style="list-style-type: none"> No infrastructure required to deploy Support Challenges Challenging to maintain versioning 	<ul style="list-style-type: none"> Remote offices Limited network connectivity
Lite touch Deployment (LTI)		<ul style="list-style-type: none"> Less engineering time than ZTI Requires interaction to initiate the deployment process Varied levels of automation supported 	<ul style="list-style-type: none"> Windows 10 Pilot Interactive deployment capability
Zero Touch Deployment (ZTI)		<ul style="list-style-type: none"> Requires the most engineering time No user interaction required to initiate deployment 100% automation 	<ul style="list-style-type: none"> Organizations requiring high volume deployment capability

User State Migration



Overview

User state migration preserves user generated content, the user's customized experience of Windows, and application settings within the constraints of operating system and application compatibility

Supported Versions

Customers moving from earlier versions of Windows may choose to move to an intermediate Operating System version to allow full USMT support

	Windows Vista	Windows 7	Windows 8	Windows 8.1	Windows 10
Windows Vista	4.0	4.0, 5.0	5.0		
Windows 7		4.0, 5.0, 6.3	5.0, 6.3	6.3	Supported
Windows 8			5.0, 6.3	6.3	Supported
Windows 8.1				6.3	Supported
Windows 10				Supported	Supported

Platform Configuration



		Device Examples	
Firmware	BIOS	<ul style="list-style-type: none">▪ Flexible Deployment Media Support▪ All legacy deployment methods still apply▪ Maintain a single boot image	Devices purchased over 4 years ago
	UEFI (Recommended)	<ul style="list-style-type: none">▪ Allows firmware to implement security policy▪ Secure boot▪ Faster boot times▪ Latest UEFI Version required for compliance with Windows 10 Baseline and some features	Devices purchased within 4 years
Consideration		<p><i>Moving between UEFI and BIOS configurations is not currently supported through refresh scenario. The only supported way to move from UEFI to BIOS is through a BARE METAL (new device) deployment scenario, using PXE to boot into the device.</i></p>	

Driver Management



Option	Benefits	Limitations
Auto-Apply Drivers	<ul style="list-style-type: none">▪ Easy to setup and maintain.▪ Driver to client device matching 'just works'	<ul style="list-style-type: none">▪ Less control over drivers chosen – first driver wins.▪ If a problem occurs, troubleshooting is more difficult.
Apply Driver Packages (Recommended)	<ul style="list-style-type: none">▪ Administrator can specify the exact driver for a particular make and model of client device.▪ More control over each client device	<ul style="list-style-type: none">▪ Additional up-front configuration and maintenance required.

Recommendations

Consider wipe & load when...



Configuration Drift / Change

- Domain membership
- Local Administrators
- Bulk application swap

Fundamental Change

- Moving from Windows XP or Windows Vista
- Disk partitioning
- BIOS -> UEFI
- x86 -> x64
- Base OS language

Custom Requirements

- WinPE offline operation
- Custom base image
- 3rd party disk encryption



In-Place Upgrade

Overview

Upgrade Process

Upgrade vs Refresh

Recovery & Troubleshooting

Prepare

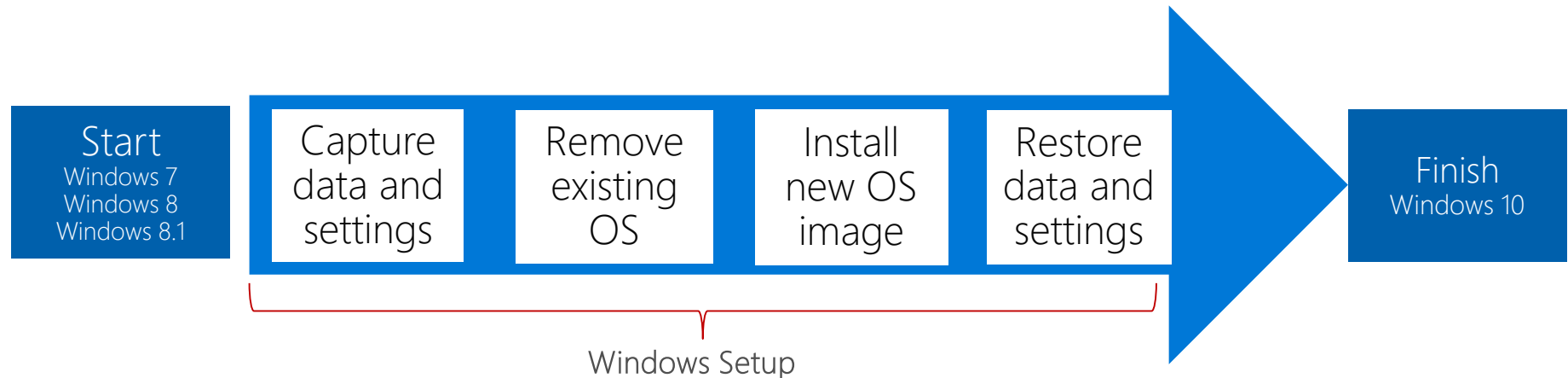
Overview



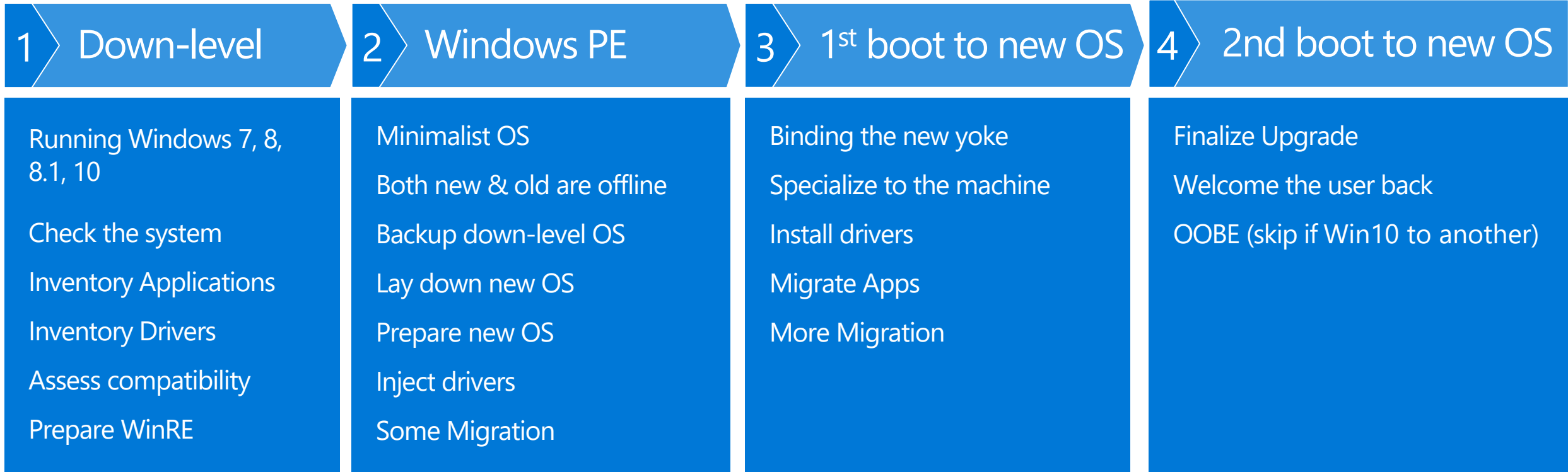
Preferred Option for Enterprises

- Supported with Windows 7, Windows 8, and Windows 8.1
- Supported to upgrade Windows 10 1507 to 1511 and beyond
- Consumers use Windows Update, but enterprises want more control
- Use System Center Configuration Manager or MDT for managing the process
- Uses the standard Windows 10 image
- Automatically preserves existing apps, settings, and drivers
- Proven process - popular for Windows 8 to Windows 8.1 upgrade

In-Place Upgrade Process



Upgrade process - The Four Primary Phases



Upgrade vs Refresh



Why Upgrade?

- **Preserve applications, drivers, user data and settings** - Reduce upfront testing and deployment preparation
- **Compared to refresh, upgrade is...**
 - Faster – 30 to 60 minutes, on average, to upgrade
 - Smaller – file size is just the default OS media, no applications
 - More robust – “bulletproof” rollback on failure to functional down level system
- **Zero ADK dependencies**
- **Use it to supplement existing deployment scenarios** - Refresh, replace, and bare metal

Considerations

- **Compatibility with 3rd Party Disk Encryption tools** (BitLocker supported) – *Improved support for 3rd Party Disk Encryption with Windows 10 1607*
- **Upgrade process can be tested with pre-validation checks**
 - Trial run can be performed with Windows 10 Media using “/Compat ScanOnly” switch

Prepare for In-Place Upgrade



Perform a Pre-Validation Check

Use Windows 10 media to assess system readiness

Disk Encryption Compatibility

Check disk encryption technology support (if required)

Understand 3rd party ISV plans to support In-Place Upgrade approach

Work with Microsoft to address blockers

Plan Pilot Approach

Define success criteria

- Critical LoB and Web apps tested
- User Experience
- Group Policy / management configuration updates required

Plan for Content Distribution

Windows 10 Upgrade package size approximately 3.8Gb

Plan for content delivery to large, medium and branch sites

Utilize content caching technologies where required

Provisioning

Provisioning

Recommendations



Provisioning

Overview

Take off-the-shelf hardware



Device is ready for use



Transform with little or
no user interaction

User led provisioning

For company owned devices

- Azure AD Join – during OOBE or after from settings panel

For BYOD

- “Add a work account” for device registration

Automatic MDM enrollment and policy push:

- Change Windows SKU, apply settings, install applications

IT led provisioning

Create provisioning packages with WICD and apply settings

- Change Windows SKU, apply settings, install applications, install and apply updates
- Enroll a device for ongoing management
- Deploy manually, add to images

Provisioning

Approach

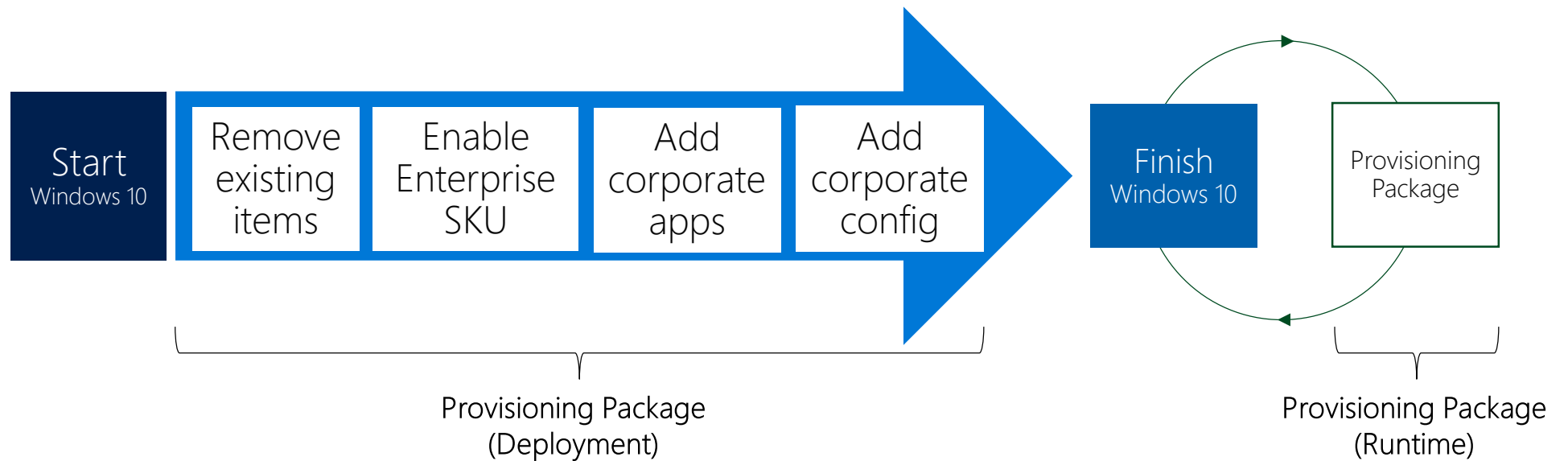
Flexible Methods

- Using media, USB tethering, or even e-mail for manual distribution
- Automatically triggered from the cloud or connection to a corporate network
- Leverage NFC or QR codes

Transform a Device

- Enable the Enterprise SKU
- Install apps and enterprise configuration
- Enroll the device to be managed via MDM

Provisioning Process



Windows ICD makes it easy to build and flash a Windows image, create provisioning packages, or set up devices to use within your organization. To get started, you can create a new project or open a Recent project.

Create

Simple provisioning



Configure common settings to connect devices to your work or school domain

Provision school devices



Configure common settings for educational devices

Advanced provisioning



View and configure all possible settings on provisioned devices

Windows image customization



Create and customize settings for a Windows image

Recent projects

Project_2



Advanced provisioning
All Windows desktop editions

Project_1



Advanced provisioning
All Windows desktop editions

Project_5



Advanced provisioning
All Windows desktop editions

IOT



Advanced provisioning
Windows 10 IoT Core

Settings Demonstration



Advanced provisioning
All Windows desktop editions

Open



WINDOWS
IN ACTION



Downloads

File Home Share View

Quick access > Downloads

Search Downloads

	Name	Date modified	Type	Size
Quick access				
Desktop	Enterprise.ppkg	2/18/2015 2:18 PM	RunTime Provisio...	29 KB
Downloads				
Documents				
Pictures				
Music				
Videos				
OneDrive				
This PC				
Network				
Homegroup				







1 item



Windows as a Service



Windows as a Service – Content Details

Overview	Branches	Operate	Integrate	Plan	
Why Windows as a Service (WaaS)?	Overview 	How it works	Deferring feature updates	Adoption	Overview
	Windows Insider Preview Branch	Updating reference images	Managing WaaS		
Introducing WaaS	Current Branch	Current Branch for Business	Moving branches	Modern service management for Windows 10	
	Long-Term Servicing Branch		Scenarios	Implementing	



Overview

Why Windows as a Service
(WaaS)?

Introducing WaaS

Becoming Agile with Microsoft



 Windows

 Office

 Windows Server

Microsoft Azure

Microsoft System Center

Delivering new value, features and capabilities on a faster cadence

Deeply integrating cloud services, both to add functionality and to simplify the process of staying current

Providing unmatched flexibility and control

Continually improving security, reliability, and performance

Simplifying deployment and management

Challenges with remaining current before Windows 10



Customer Complexity & Cost

- Individual servicing patches
- Expensive deployment & auditing

Ecosystem

- Platform fragmentation
- Inconsistent approach to patching

Reduced Quality

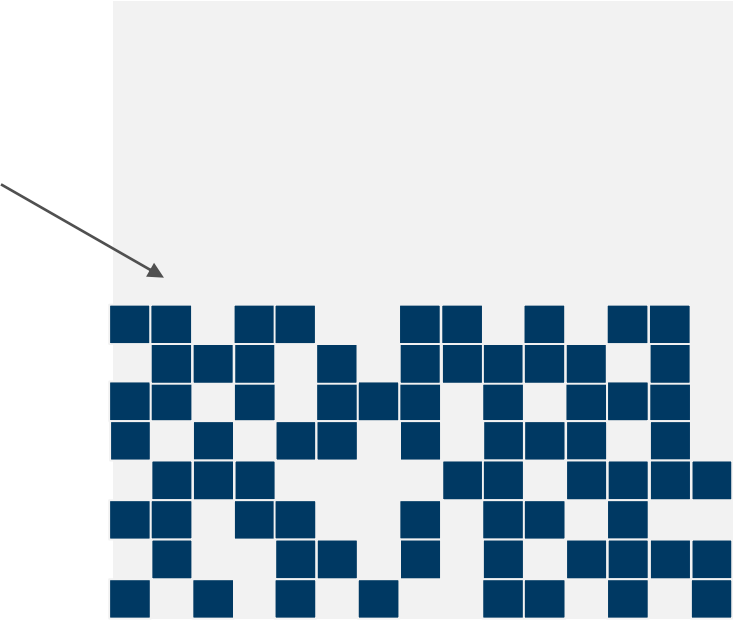
- Not running what Microsoft tested
- No consistency in the ecosystem



Traditional Enterprise Servicing of Windows

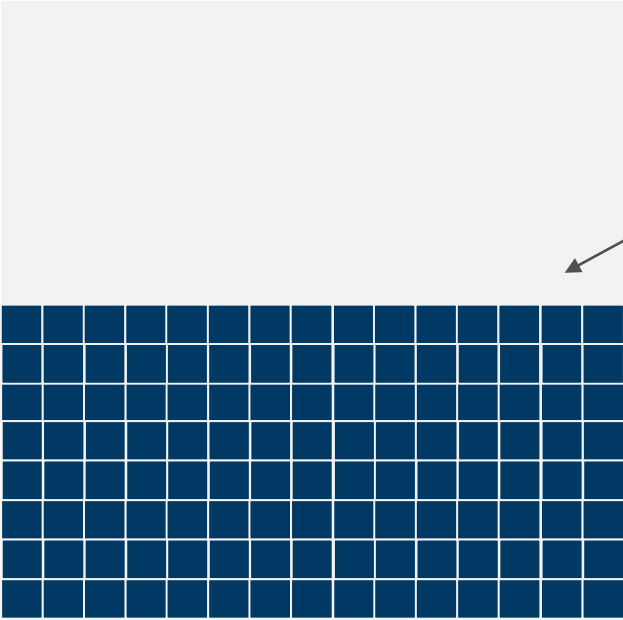


What customers
are running



**Typical Windows 7 PC:
Selectively Patched**

What Microsoft
is testing



**Windows 7 Test Lab PC:
Fully Patched**

Traditional Enterprise Servicing of Windows



Microsoft Update Release

- Monthly update release ("Patch Tuesday")
- Innovation delivered at Service Pack
- Long service pack release cycle
- Long vNext cycle

Corporate Deployment

- Selective deployment of updates
- Selectivity justified by AppCompat, bandwidth, others
- App remediation typically "shelved" and updates never applied

Update and Innovation Gap

- Accepted short-term risk increase
- Insidious long-term risk
- App portfolio ages
- Out-dated system baselines
- Costly to operate non-homogenous estate
- Hidden remediation cost - "remediate" before an upgrade

Introducing Windows as a Service



Consumer devices

Up to date with feature and security updates as they arrive



Business users

Faster access to new technology with time to test and deploy in a business environment



Specialized systems

Enterprise class support for your mission critical systems keeping you in control

Windows as a Service – Servicing Windows



Quality Updates

A single cumulative update each month
Security fixes, reliability fixes, bug fixes, etc.
Supersedes the previous month's update
No new features
Try them out with Security Update Validation Program (SUVP), other

Feature Updates

Very reliable, with built-in rollback capabilities
Simple deployment using in-place upgrade, driven by existing tools
Try them out with Insider Preview

Branches

Overview

Windows
Insider
Preview
Branch

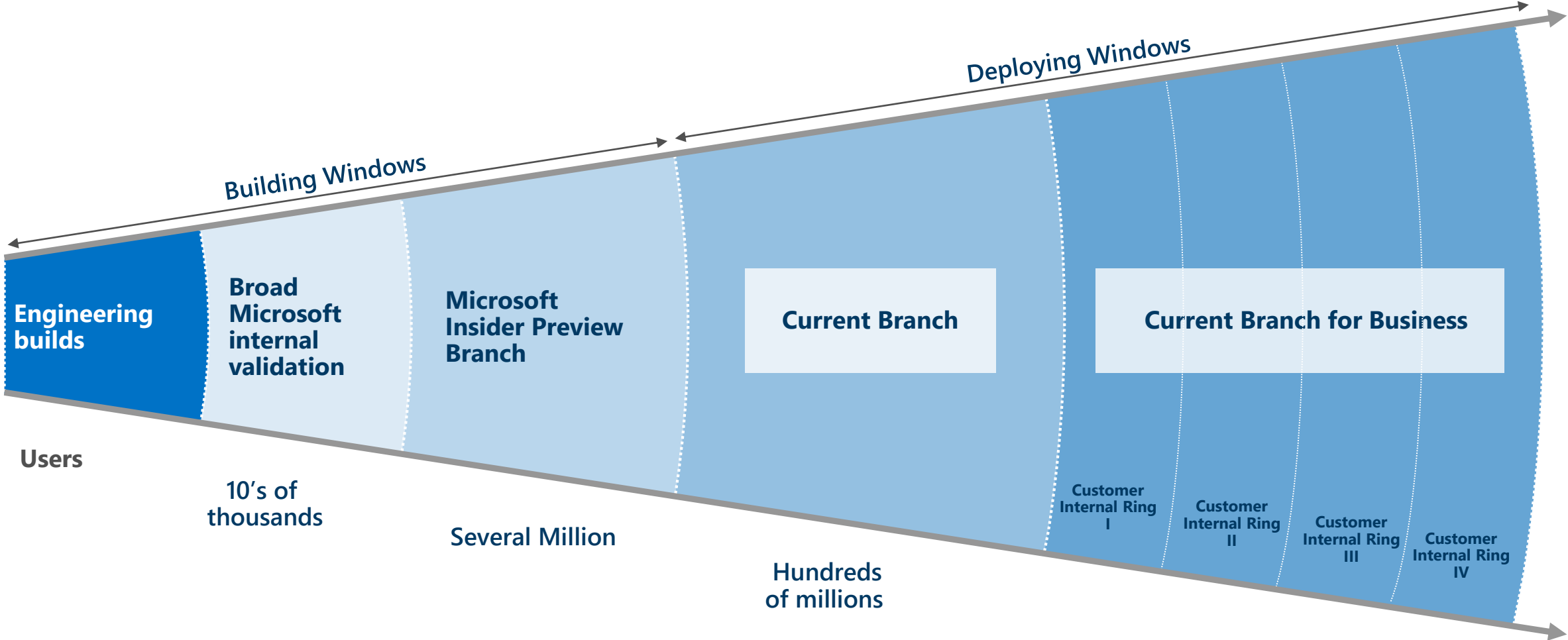
Current Branch

Current Branch for
Business

Long-Term Servicing Branch



Windows as a Service Branches



*Conceptual illustration only

Windows Insider Preview Branch



Overview

Pre-release Windows 10 builds and features

Requirements

- Deployment is managed by Microsoft through Windows Update
- Offers Slow or Fast adoption cadence:
 - Fast
 - Slow
 - Release Preview
- Available only through the Windows Insider Program.
- Individuals should use a Microsoft Account to enroll in the program
- Updated Preview ISOs will be released to coincide with the Slow release

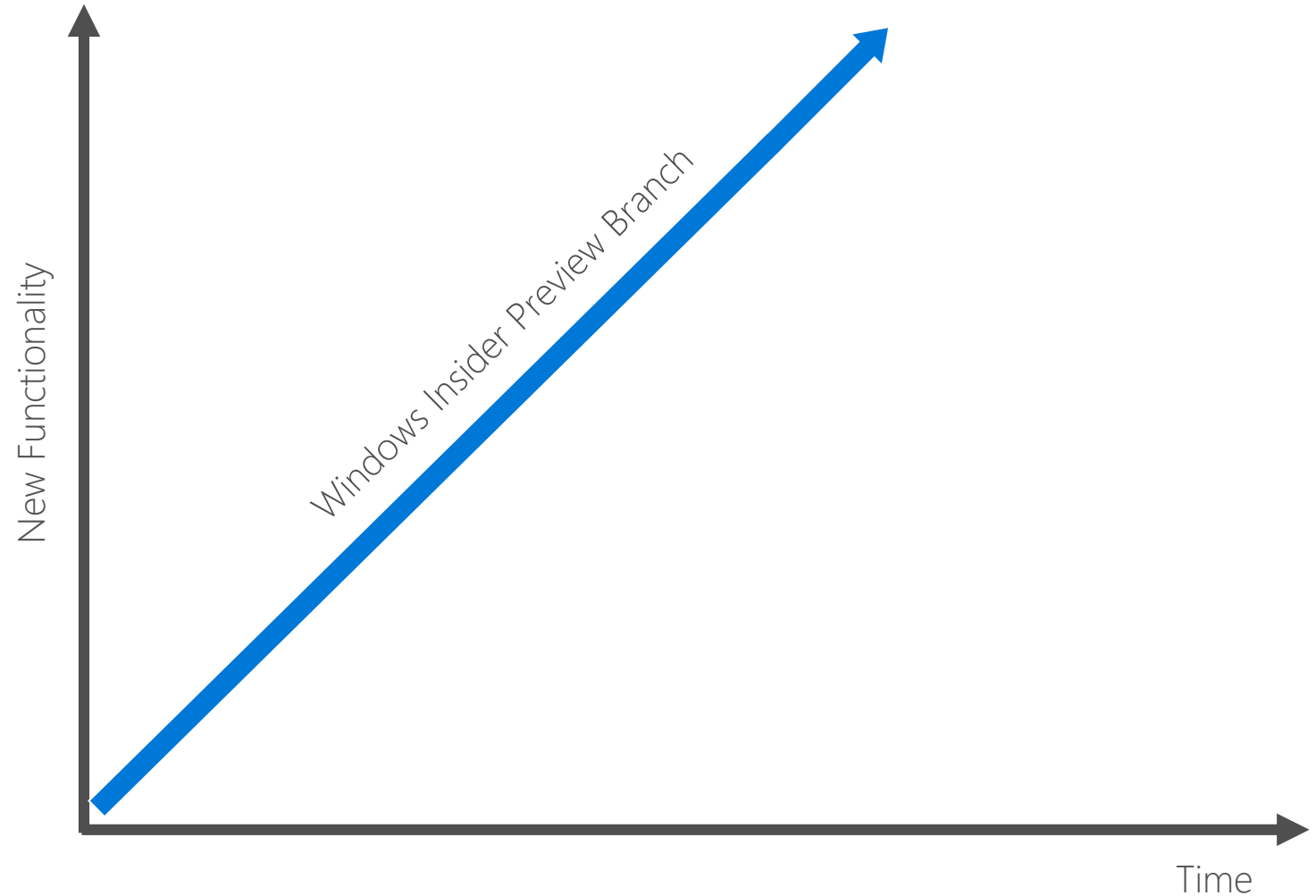
Benefits

- Early access to new releases
- Preview developer tools for applications
- Evaluate new features as they are being developed
- Incubate the future of Windows in your organization
- Help shape the future of Windows, participating in the Windows Insider community

Windows Insider Preview Branch

Customer Experience

- Windows Insiders stay up to date with preview features as they are released
- Opportunity for enterprise customers to preview upcoming features and influence product development
- Security updates and fixes are delivered regularly via Windows Update



*Conceptual illustration only

Windows Insider Preview Branch Adoption



Considerations

The benefits of the Windows Insider Preview Branch can be used to:

- Expedite and simplify rapid adoption of Windows innovation
- Create new technology opportunities
- Provide feedback to Microsoft

Recommended Usage

- Non-Production (lab) environment
- Second Device
- Technically adept users
- Test new features
- Performance testing
- Developer enhancements
- Developer tool enhancements
- Forward planning

Current Branch



Overview

- Public release of new features
- Release cadence is slower than the Preview Branch
- Validation by millions of Windows Insider Program users prior to release
- Feature set is considered ready by Microsoft for broad adoption

Requirements

- Existing Windows 10 systems on the Current Branch
- In-place upgrade supported for down-level Windows Operating Systems
- Release performs an upgrade of the existing Windows 10 installation

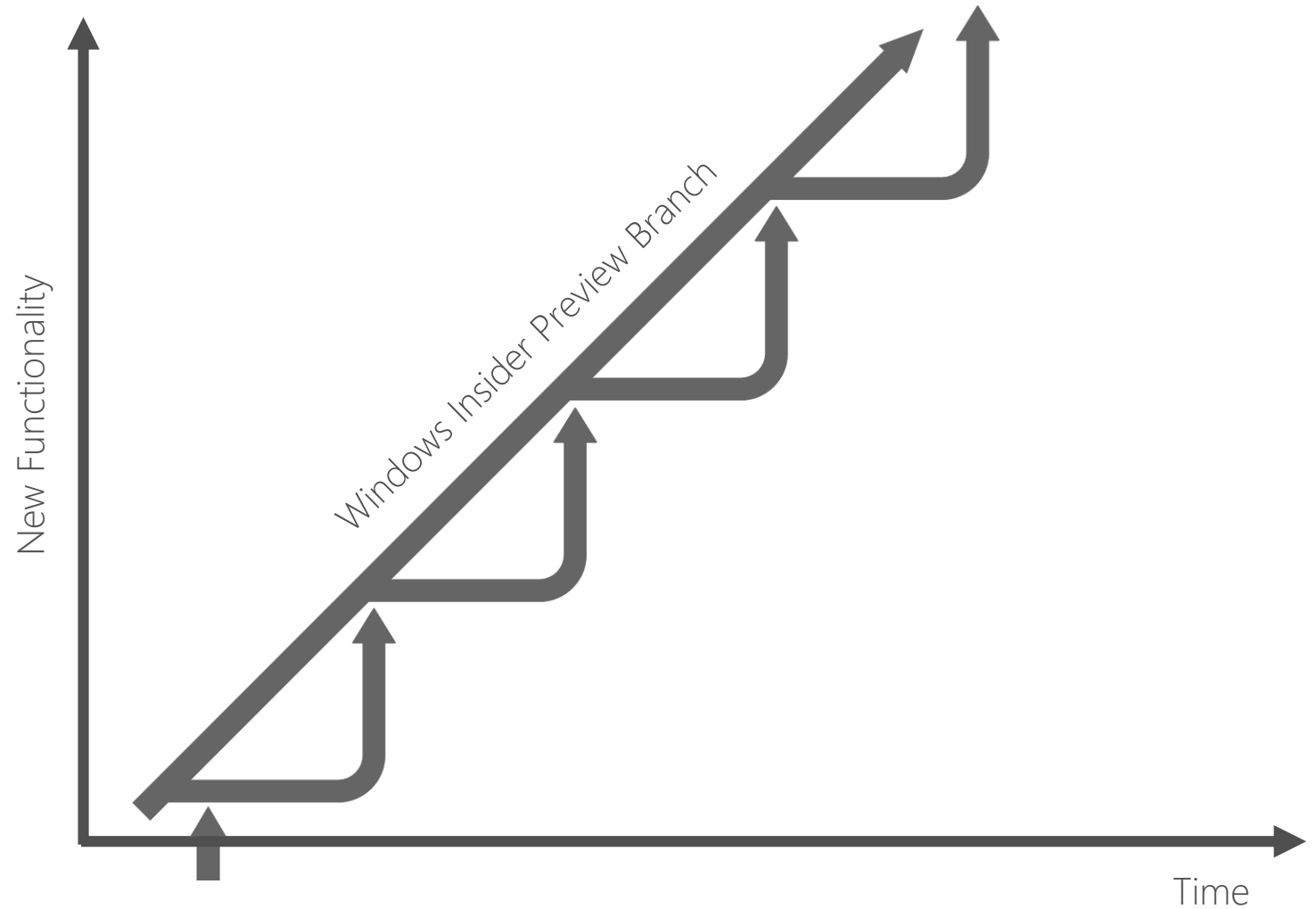
Benefits

- Latest innovation for Windows coming as feature updates
- Release cadence is expected to be 2 times per year
- Monthly updates will be released as cumulative packages

Current Branch

Customer Experience with Windows Update

- Features are released to broad market
- Customers are up to date with features as they are released after broad preview validation
- Opportunity for enterprises to test and validate new features
- Security updates and fixes are delivered regularly



Current Branch Adoption



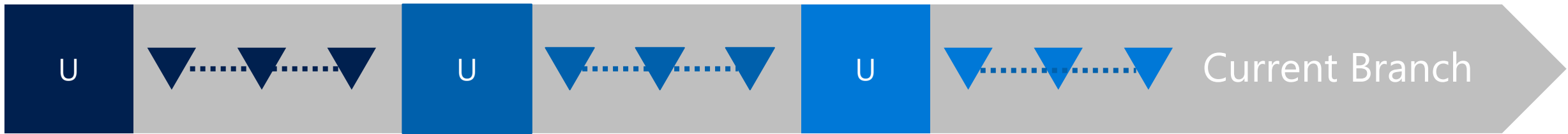
Considerations

- Microsoft will release the Current upgrade
- Select and deploy current branch upgrades to systems currently in service
- Deployment is managed using existing tools
- New ISO media release each new upgrade

Recommended Usage

- New devices & Consumer systems
- IT Pro – Primary system
- IT Developer – Primary system
- Systems used for application testing/validation
- Early adopters and change enablers
- Target groups should provide feedback to Corporate IT

Updates to the Current Branch



Cadence

- Urgent Security fixes will be released immediately, or on 2nd Tuesday of each month
- Non-security & non-urgent security fixes available in a Current Branch release
- Updates will apply to the last Current Branch release, and will be superseded by the next Current Branch release

Tools

- Windows Update
- Windows Update for Business
- Windows Server Update Services
- System Center Configuration Manager integrated with Windows Server Update Services
- Mobile Device Management such as Microsoft Intune

Considerations

- Reference system images
- Existing systems
- Applications

Urgent Security fixes

Current Branch for Business



Overview

- Deferred Current Branch
- Current Branch is validated by millions of users prior to update release
- Validation by selected business systems in your organization

Requirements

- Deferred Current Branch installation
- Deployment is managed by WU, WUB, WSUS, MDM or Configuration Manager
- WSUS or Configuration Manager updated to support feature update deployment

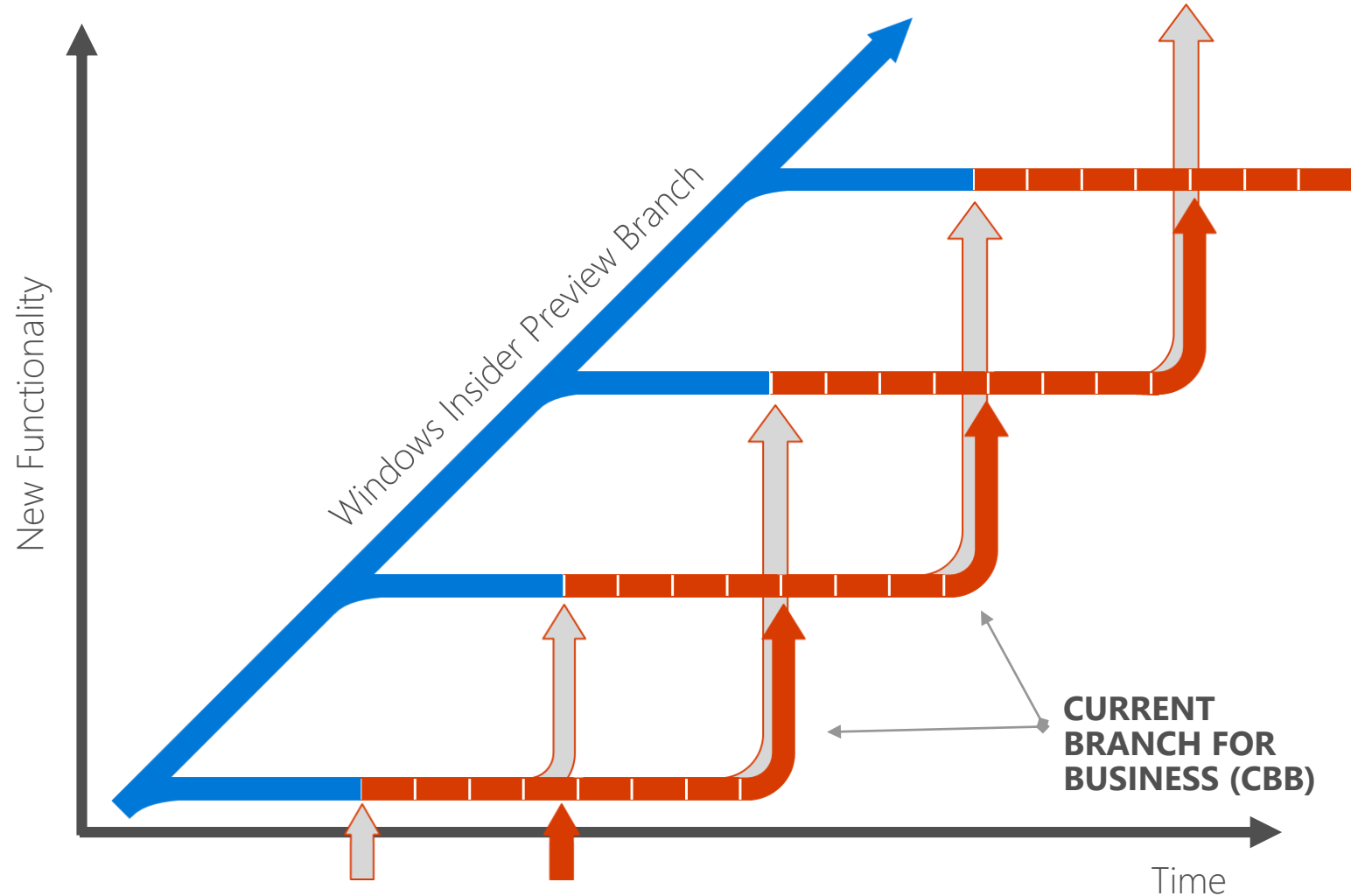
Benefits

- Ready for broad corporate adoption
- Businesses are able to stay up to date but at a slower pace to allow for internal validation
- Ability to stage internal deployment

Current Branch for Business

Customer Experience with Windows Update for Business*

- Business customers can start testing as soon as preview features are released via Windows Insider Program
- Business customers can wait to receive feature updates for an additional period of time, testing and validating in their environment before broad deployment
- Within the deferral period, you can flight these features and updates in your organization and provide feedback
- Security updates and fixes are delivered regularly



*Customers can also use WSUS for managing delivery updates

Current Branch for Business Adoption



Considerations

- Select and deploy current branch for business updates to systems currently in service
- Quality criteria
- Quality improvement and fixes
- Promotion Ring definition

Recommended Usage

- Configure systems to defer feature upgrades
- Systems configured to defer the installation will delay until the installation is mandatory
- Target groups should provide feedback to Corporate IT
- Microsoft will release updated media periodically

Long Term Servicing Branch



Overview

- There will be a specific media for Long-Term Servicing Branch
- First Long-Term Servicing Branch aligns with the release of Windows 10 build 1507 (RTM)
- Second Long-Term Servicing Branch follows the release of Windows 10 build 1607
- Approx. 3-6 month notification prior to releasing a Long-Term Servicing Branch

Requirements

- Only for Windows 10 Enterprise Edition
- Requires Enterprise and Software Assurance Agreements

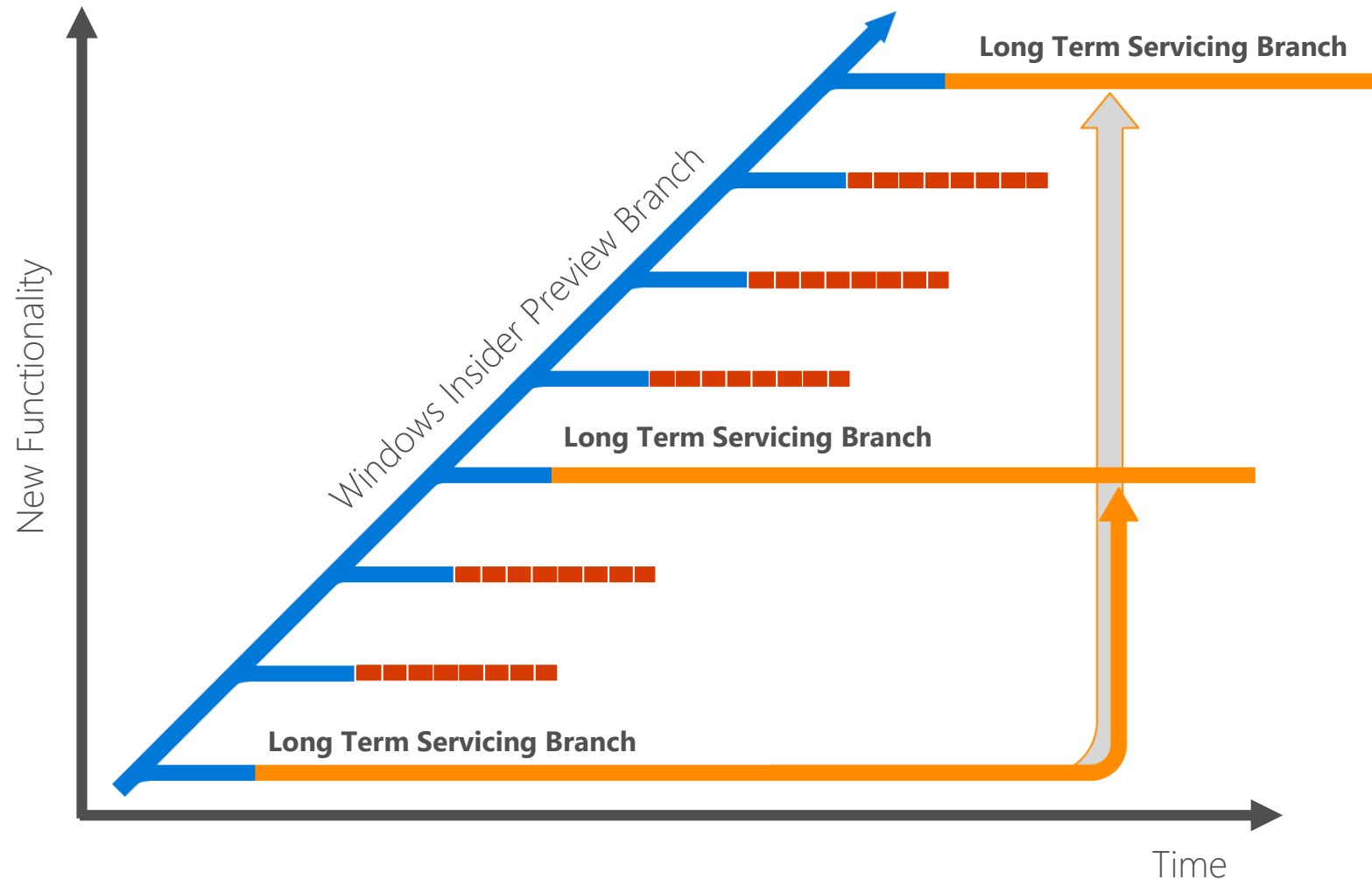
Benefits

- Release cadence is longer than Current Branch for Business
- Innovation delivered only at next Long-Term Servicing Branch release
- In place upgrade from one Long-Term Servicing Branch to another
- Ability to skip one Long-Term Servicing Branch release

Long Term Servicing Branch

Customer Experience with Windows Update for Business*

- Security updates and fixes are delivered regularly
- Customers on Long Term Servicing Branch receive security and critical fixes only for ten years
- Customers can move from one Long-Term Servicing Branch to the next one via in-place upgrade and can skip one Long-Term Servicing Branch as well
- Customers manage updates via WSUS



*Customers can also use WSUS for managing delivery updates

Long Term Servicing Branch Adoption



Considerations

- Updating a system from one Long-Term Servicing Branch to another is considered an upgrade process
- Mission-critical workloads demand rigorous app testing
- Device drivers for peripherals
- Release cadence 2-3 years
- Limited features and capabilities (ie Edge and Windows Store)

Recommendations

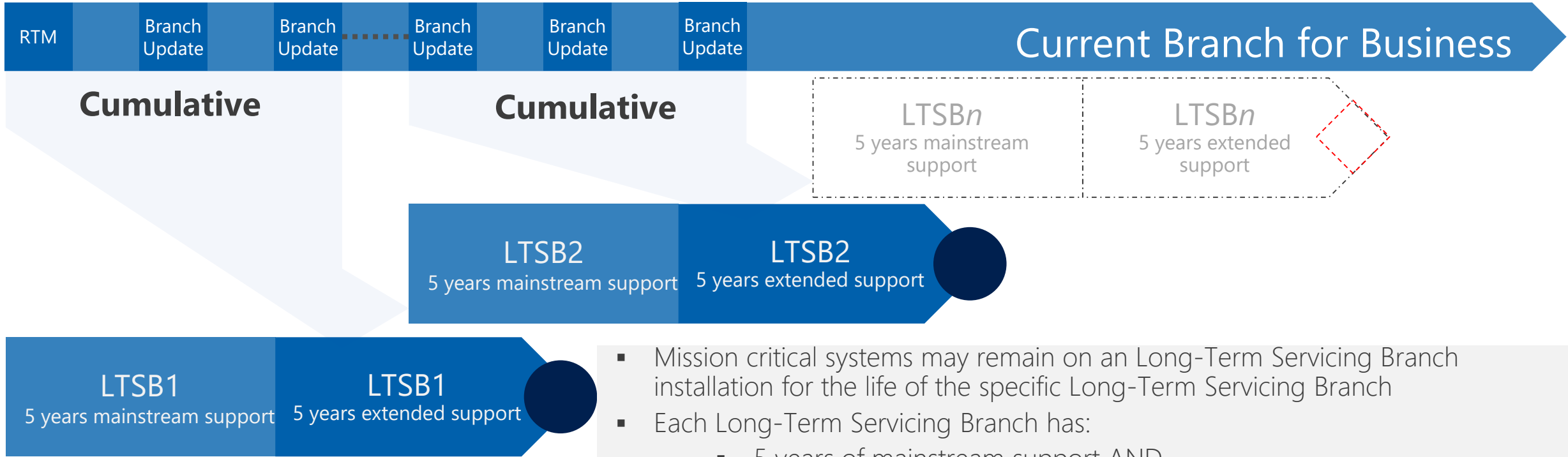
New systems

- Create a reference system image using the Long-Term Servicing Branch media
- Re-install the device

Existing systems

- In-place upgrade from supported operating systems
- Possible to skip 1 Long-Term Servicing Branch upgrade i.e. install alternate Long-Term Servicing Branch upgrades
- Deployed using WSUS or from updated media

Long Term Servicing Branch



- Mission critical systems may remain on an Long-Term Servicing Branch installation for the life of the specific Long-Term Servicing Branch
- Each Long-Term Servicing Branch has:
 - 5 years of mainstream support AND
 - 5 years of extended support
- After 10 years, the specific Long-Term Servicing Branch is no longer supported by Microsoft
- In-Place upgrade supported from one Long-Term Servicing Branch to the next
- Monthly security updates are available for the life of the specific Long-Term Servicing Branch
- Limited support for future chip sets

Operating with Windows as a Service

How it works

Deferring feature updates

Application
compatibility impact

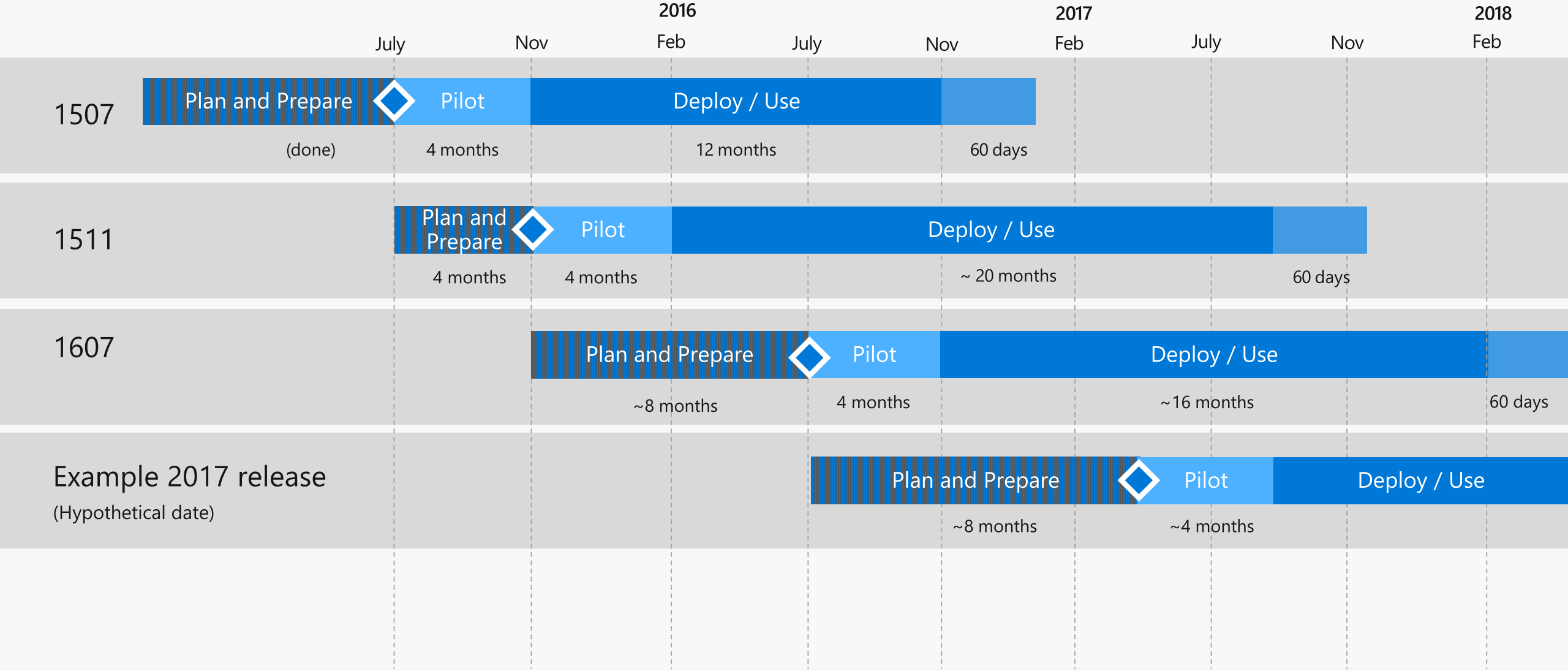
Moving branches

Scenarios



Windows as a service: establishing a rhythm

Two releases supported in market



Deferring Feature Updates



Overview

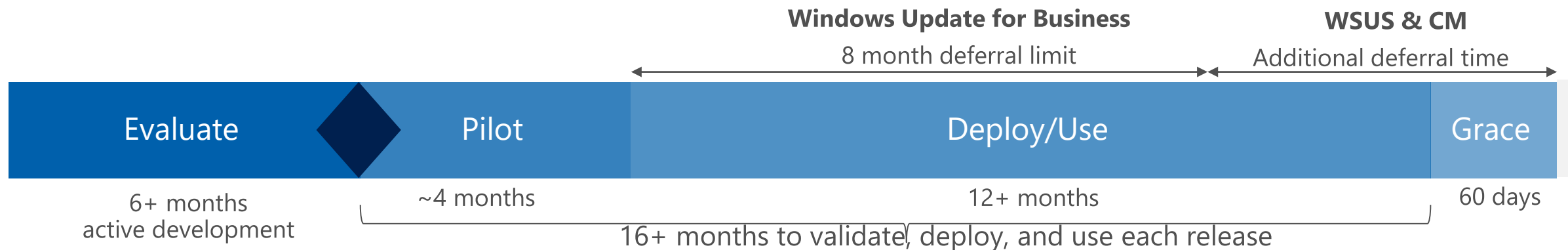
- Defer the installation of a feature update for up to 8 months with Windows Update for Business
- Defer the installation of a feature update for supported life of the release with WSUS and System Center Configuration Manager

Applies to

- Windows 10 Professional or Enterprise, Build 1511

How?

- Manually configured in the Windows 10 Settings application
- Centrally configured using Group Policy for domain-joined systems
- Centrally configured using OMA-DM for MDM-enrolled systems - OMA-URI for the CSP: `./Vendor/MSFT/Update/DeferUpgrade`
- Centrally managed for domain-joined systems with WSUS or System Center Configuration Manager



Scenario: Current Branch



Scenario

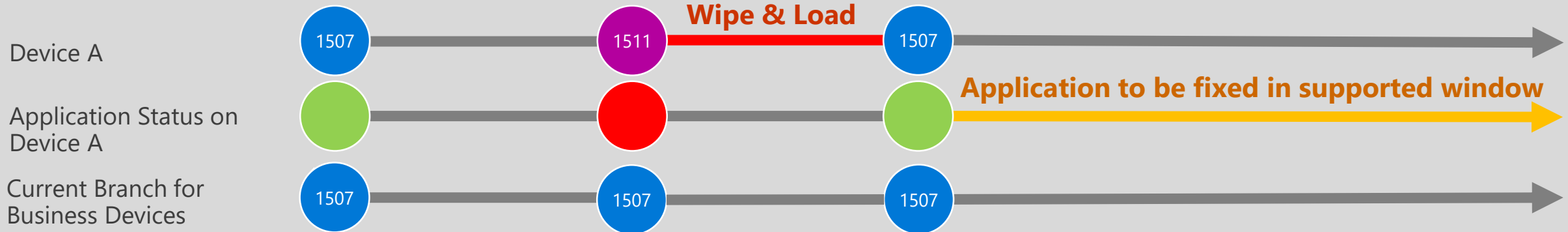
Windows 10 feature update stops a critical application from working on Current Branch device

Option 1 Stay on CB

- Device remains on Current Branch for testing
- Log problem with Microsoft / ISV
- Test app against future Windows 10 Current Branch updates
- Recommended when device can accommodate application downtime

Option 2 Move to CBB

- Device requires application to be functional asap / device incorrectly placed on Current Branch
- To move to current branch, device must be rebuilt – wipe & load
- Test app against future Windows 10 releases on specific test devices
- Recommended when device must return to operation to run application

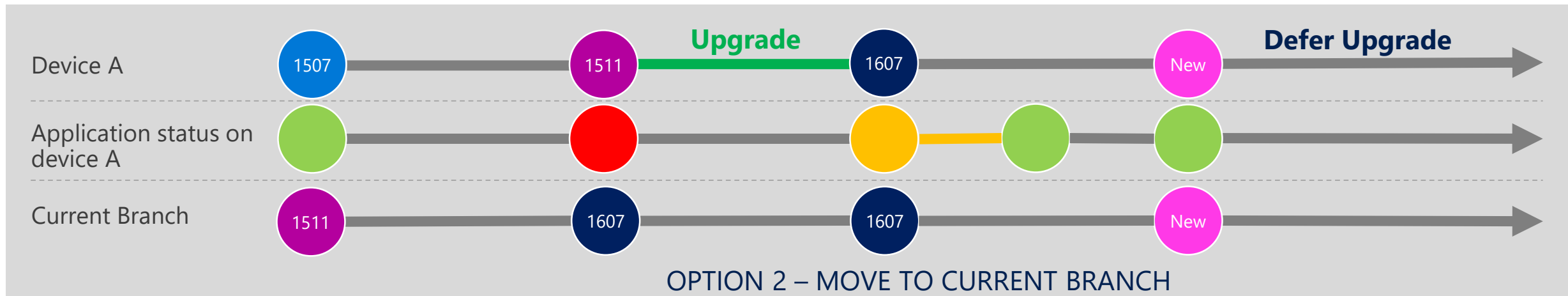


OPTION 2 – MOVE BACK TO CURRENT BRANCH FOR BUSINESS

Scenario: Current Branch for Business



Scenario	Windows 10 feature update stops a critical application from working on a Current Branch for Business device
Option 1 Revert to previous CBB	<ul style="list-style-type: none">Log problem with Microsoft / ISV firstConfirm application works with previous version of CBB and previous version of CBB in supportRequires wipe and load of device, but does enable device to run applicationReduced time to fix application problem before support windows ends
Option 2 Move to CB	<ul style="list-style-type: none">Log problem with Microsoft / ISV firstDevice is upgraded using in-place upgradeTest app against future Windows 10 releases on specific test devicesRecommended when device must return to operation to run application



Update Windows 10 Reference Image



Overview

System images require updating to ensure that systems are deployed with the latest updates

System Image Creation

- Monthly security updates can be added to an image using offline servicing
- Feature updates cannot be installed into a Windows 10 image using offline servicing
- For feature updates, a new system image must be created
- Obtain the latest volume license media and recreate the reference system image

Considerations

- New image can be created after new media is available
- Validation of branch update is performed prior to creating new image. [Quality-based release](#)
- Recommend new image created when Ring 2 release is ready
- Device driver updates may be required to leverage new features

Branch Update

Obtain
NEW FULL
CBB Media

Inject
monthly
updates into
WIM

"Image
Factory"

Update
Image
Store

Deploy New
Image

Moving Branches



Starting From	Going to		
	Insider Preview	CB/CBB	LTSB
Insider Preview	In-Place Upgrade as new builds are released	In-Place Upgrade to the final CB/CBB release	Not Supported Need to wipe & reload
CB/CBB	In-Place Upgrade after signing up	In-Place Upgrade to next CB/CBB release	Not Supported Need to wipe & reload
LTSB	Not Available for LTSB installs (wait for release)	In-place Upgrade to later CB/CBB release	In-place Upgrade to later LTSB release

Wipe and Load – Windows 10 deployment and solution to migrate data/settings



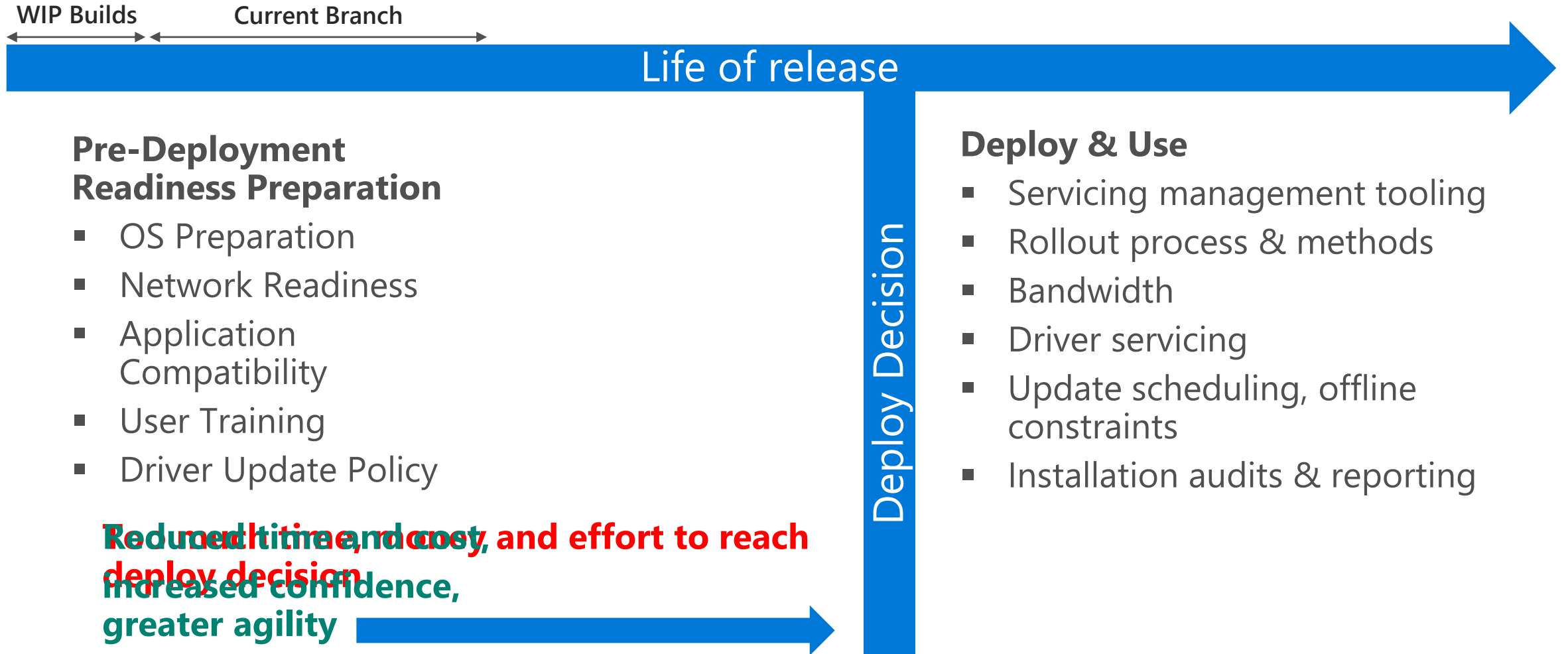
Integrating Windows as a Service into the Enterprise

Adoption

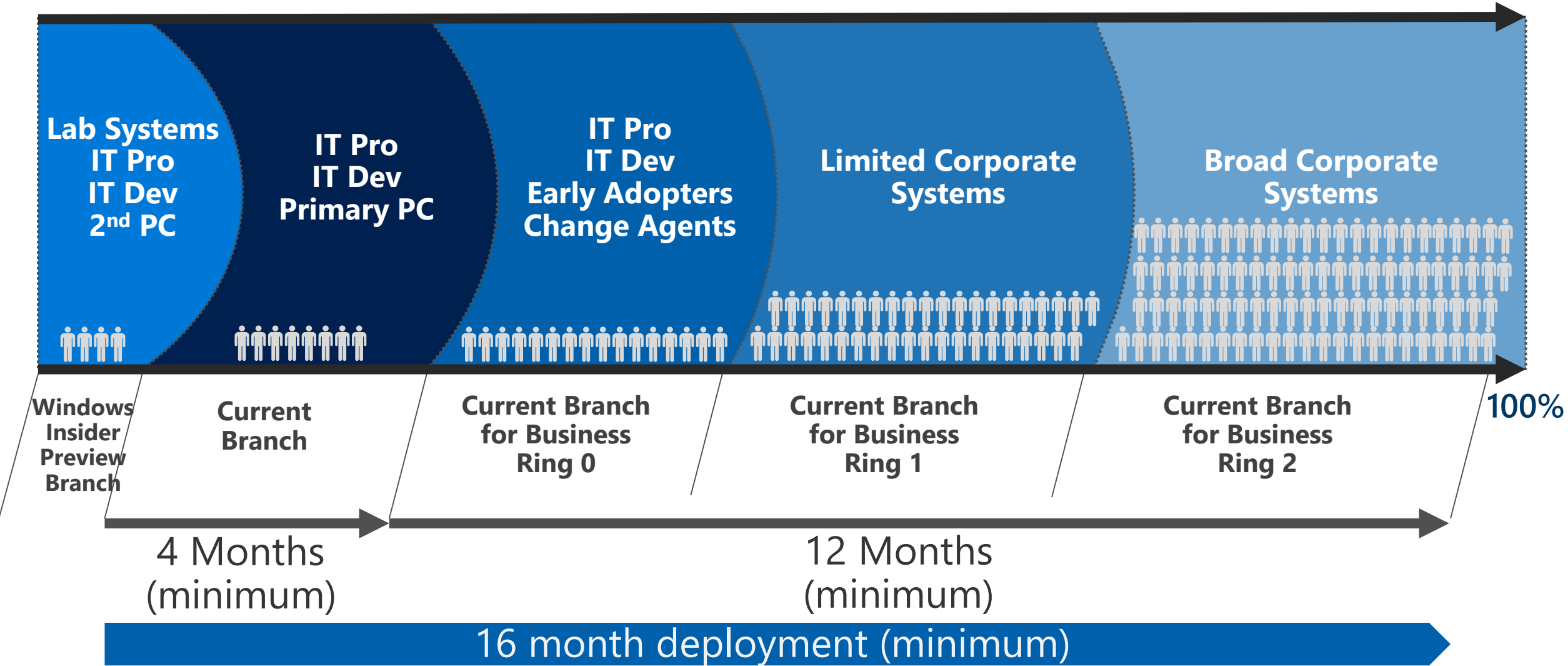
Managing WaaS

Implementing

Lifecycle Management



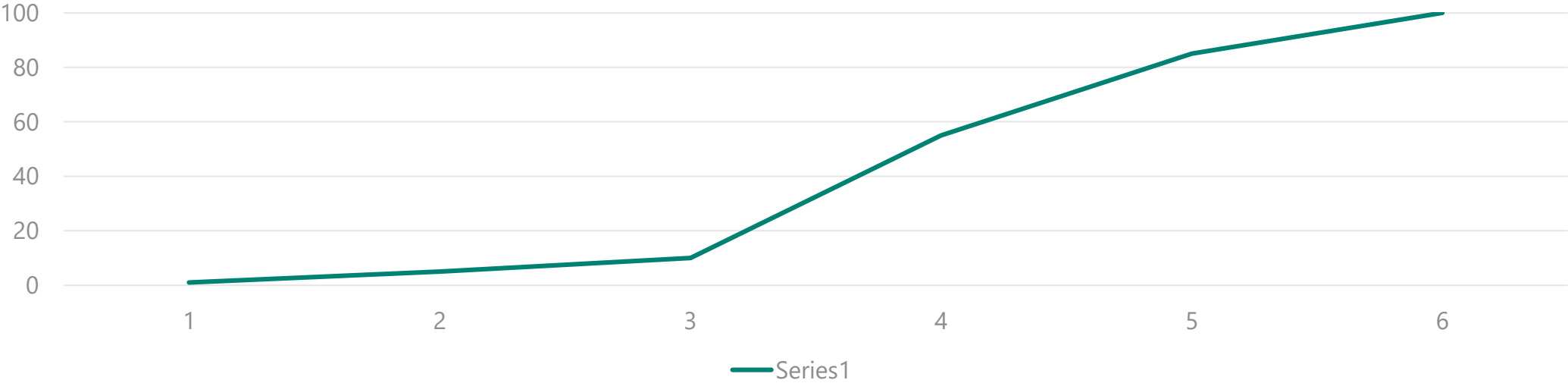
Adoption Planning



Windows as a Service Strategy Example



Branch	Ring	Onboarding	Opt Out	Deferral	% of devices
WIP	N/A	MSA	User	N/A	<1
CB	A	Domain Join MDM Enrollment	Admin	Move to CBB	4
	B				5
CBB	0			E.g. 2 months	45
	1	E.g. 6 months	30		
	2	E.g. 10 months	15		



Managing Windows as a Service



Method	Branch	Content	Content Source	Configuration Method
Cloud (Windows Update for Business)	<ul style="list-style-type: none"> Current Branch Current Branch for Business 	<ul style="list-style-type: none"> Quality Updates Feature Updates* 	<ul style="list-style-type: none"> Windows Update 	<ul style="list-style-type: none"> Group Policy, MDM or User
On-Premises	<ul style="list-style-type: none"> Current Branch Current Branch for Business Long Term Servicing Branch 	<ul style="list-style-type: none"> Quality Updates Feature Updates 	<ul style="list-style-type: none"> Windows Server Update Services (WSUS)** 	<ul style="list-style-type: none"> Group Policy WSUS Console
			<ul style="list-style-type: none"> Task Sequence <ul style="list-style-type: none"> File Share Distribution Point 	<ul style="list-style-type: none"> Microsoft Deployment Toolkit System Center 2012 Configuration Manager SP2 & above***
			<ul style="list-style-type: none"> Software Update Point 	<ul style="list-style-type: none"> System Center Configuration Manager***

Each option explored in upcoming slides

Windows Update for Business



Overview

Keep Windows 10-based devices always up to date by directly connecting devices to Microsoft's Windows Update service

Quality Updates

- Provides option to delay for 0-4 weeks using Group Policy or MDM
- 'Pause update and upgrade' option available if problems discovered during test or rollout

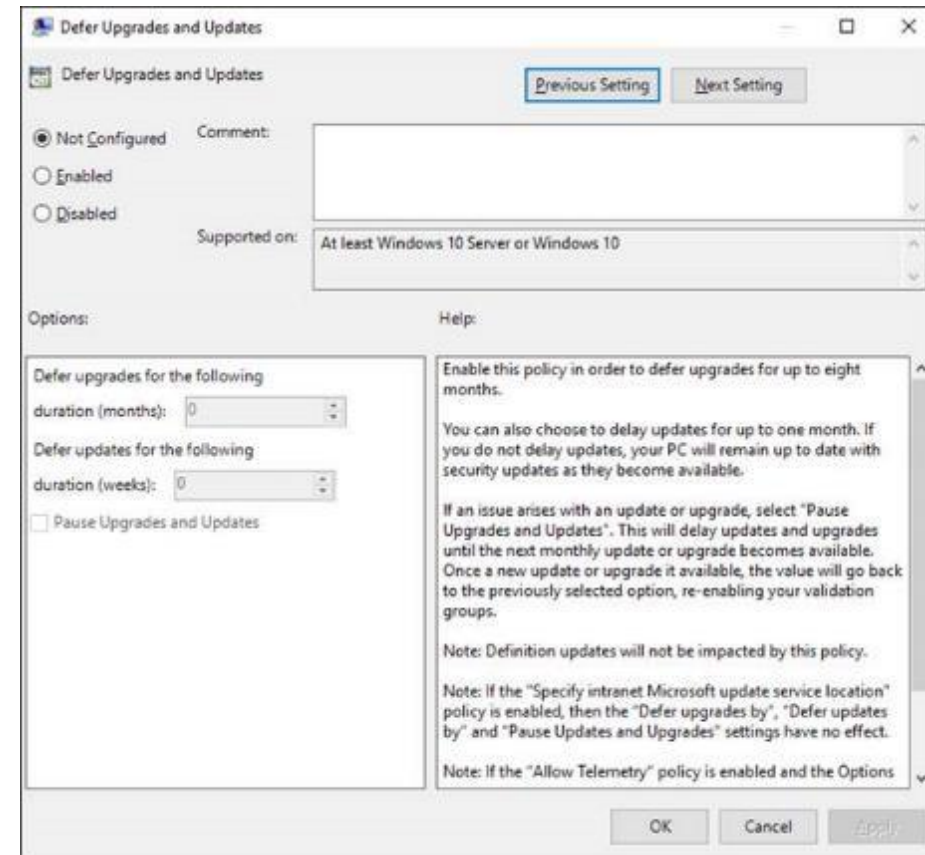
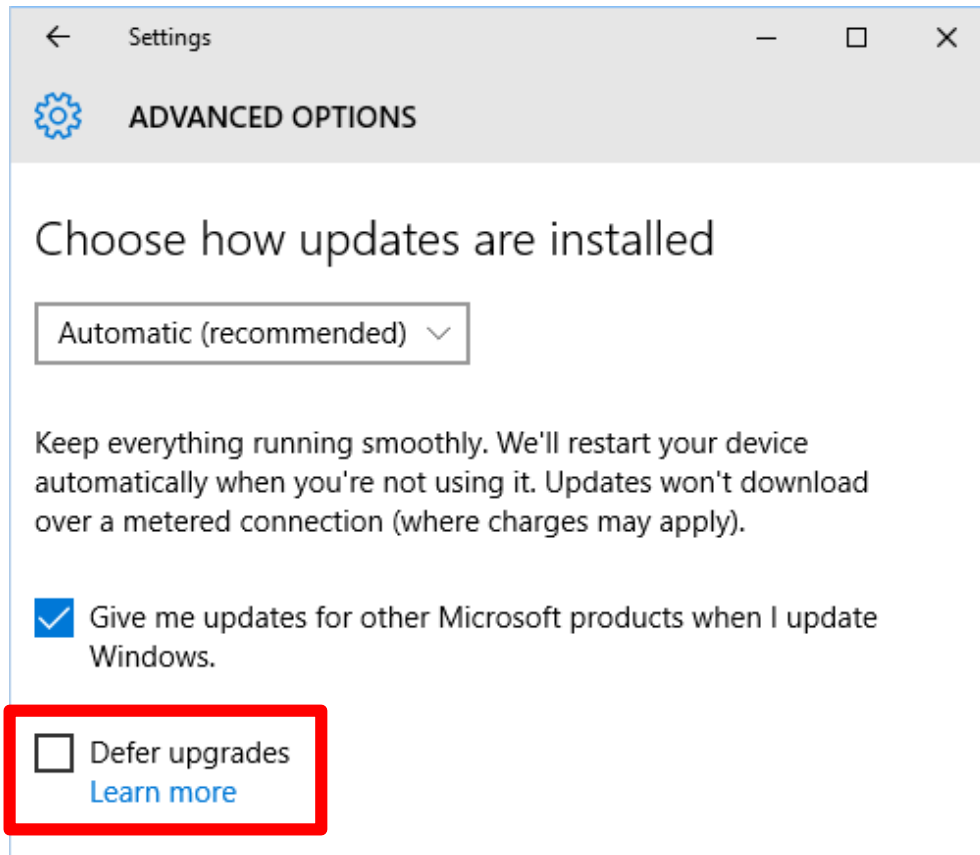
Feature Updates

- Provides option to defer feature updates (upgrades) from 0-8 months using Group Policy or Mobile Device Management
- MAK activated devices supported for feature update

Use When

- Feature update infrastructure does not exist or support Windows 10
- Devices can connect to Windows Update

Implement with Windows Update for Business



Computer Configuration -> Administrative Templates -> Windows Components -> Windows Update

This setting configures Windows Update. WSUS and Configuration Manager settings are not impacted.

Windows Server Update Services



Overview

Enables administrators to manage the distribution of Microsoft product quality and feature updates that are released through Microsoft Update

Quality Updates

- Process unchanged from previous operating systems
- Select Windows 10 product in administrative console to synchronize updates

Feature Updates

- Supported on Windows Server 2012 and Windows Server 2012 R2 Platform
- Requires a patch to WSUS to enable feature update
- MAK and KMS activated devices supported for feature update

Use When

- Domain Joined Device
- System Center Configuration Manager not available

Task Sequence (In-Place Upgrade)



Overview

Leverage in-place upgrade functionality with platform delivery tooling

Feature Updates

- Manually initiated with Microsoft Deployment Toolkit or provisioned with System Center Configuration Manager
- Provides more administrative options to configure the device before and after the in-place upgrade process
 - Apps
 - Drivers
 - Settings

Use When

- System Center Configuration Manager 2012 SP2 and above is available
- In-place upgrade requires custom pre-post installation steps

Software Update Point



Overview

System Center Configuration Manager capability to manage, deploy and monitor quality and feature updates

Quality Updates

- Process unchanged from previous operating systems
- Select Windows 10 product in administrative console to synchronize updates

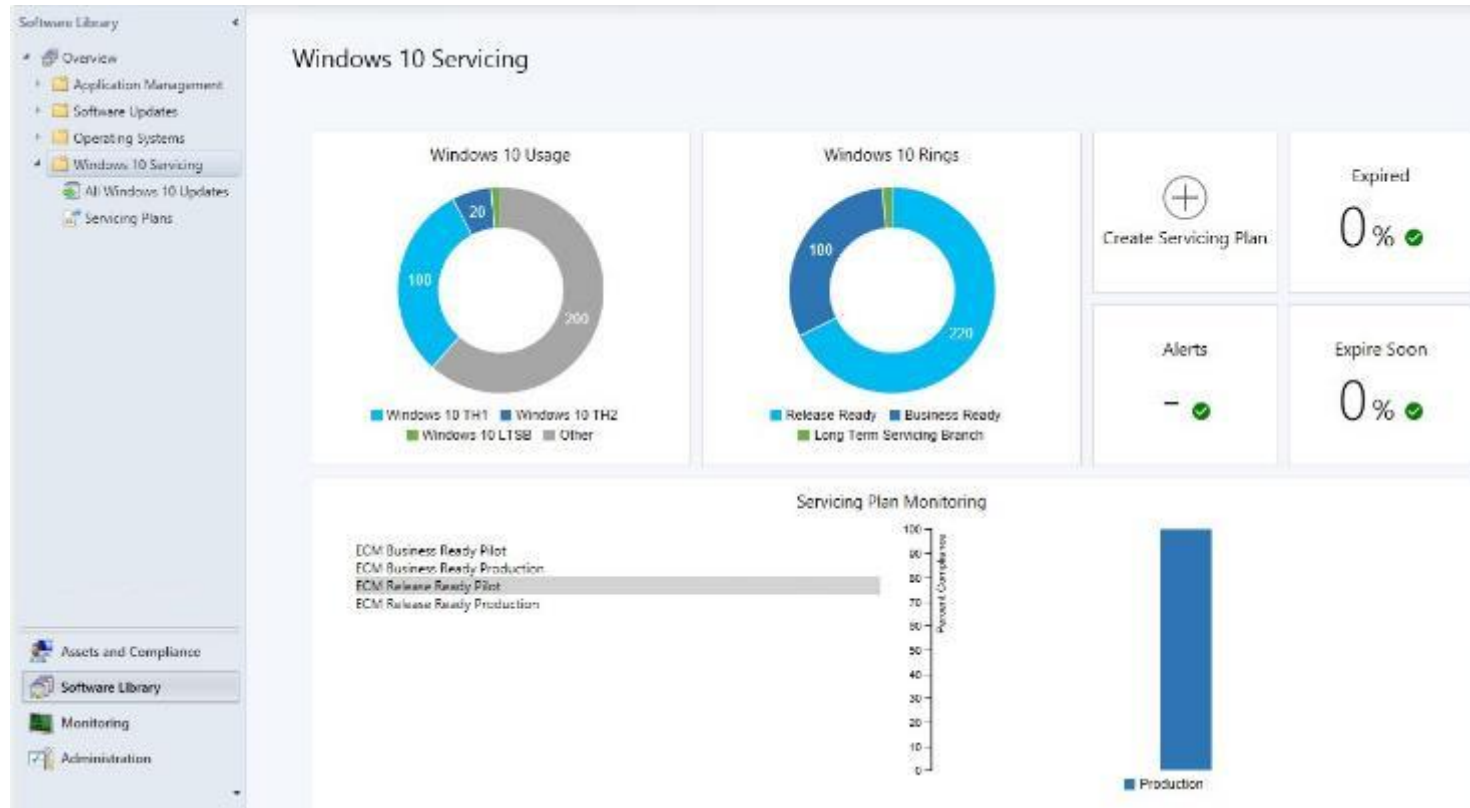
Feature Updates

- Windows 10 Servicing Node used to manage rings
- Leverages Software Update Point functionality

Use When

- System Center Configuration Manager is available

Implement with System Center Configuration Manager

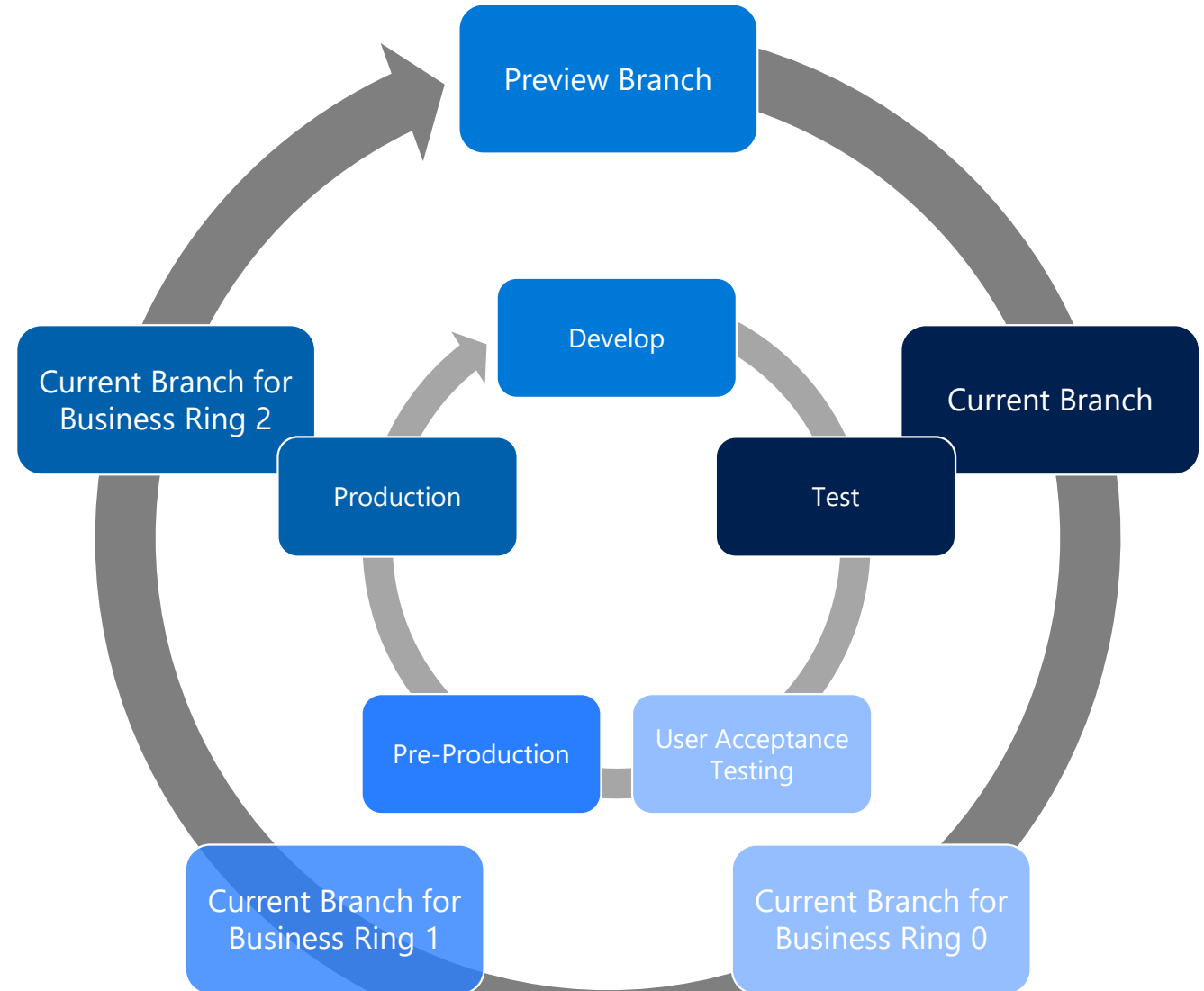


1. View the state of Windows 10 in the environment
2. Create a Windows 10 servicing plan
3. Deploy Windows 10 servicing content to devices

Integrate into Existing Release Management Processes



- Familiar process
- Quality-based release
- Measurable progress
- Clear signoff requirement
- Inherently open to future innovation



Planning Windows as a Service

Overview

Modern service management for Windows 10



Modern Service Management for Windows 10



- Modern Service Management approaches align and support Windows 10 release and patch patterns
- Traditional “process heavy”, manual IT Service Management operations and management models will hinder successful Windows 10 Deployment
- Plan for and formalize “Service Capabilities” rather than “Process Maturity”.
- Organizations already do many of these but not managed as integrated service.
- Microsoft has identified the following “underpinning services” that are enablers of Windows as a Service. Not all required as customer requirements may vary:

Windows as a Service

Windows
Deployment

Mobility
as a
Service

Mobile
Data As A
Service

Systems
Mgmt as a
Service

App Mgmt
/ Compat
Testing

Security as
A Service

Virtual
Desktop
Services

Overview

Branches

Operate

Integrate

Plan

Modern Service Management for Windows 10



Windows as a Service

- Governance and Management of Windows 10 "Service"
- Planning and Communication of Updates
- Update Management
- Manage and Respond to Requests and Approvals
- Inventory Management

Windows Deployment

- Deployment services for in-place upgrades from Windows 7 forward as well as bare metal Operating System Deployment

Mobility as a Service

- Windows and Non-Windows mobility
- Mobility Management Services across heterogeneous environments
- Device Inventory

Mobile Data As A Service

- Cloud based Storage
- Provisioning and Management of One Drive for Business or other Mobile Storage services to be

Systems Mgmt as a Service

- Management of Configuration, Deployment and Monitoring Tools
- Health and compliance monitoring
- Integration to Service Desk and Portal

App Mgmt / Compat Testing

- Efficiently streamlining application rationalization, testing and compatibility mitigation.
- Application Management Services

Security as A Service

- Security controls and requirements
- Creating an available and efficient client experience, maximizing security

Virtual Desktop Services

- Provision and Management of Virtual Desktop environment
- Application Virtualization Services

Next Steps



➤ **Continue your Learning:** aka.ms/ITInnovationResources

Access online training, demos & try Windows 10 Enterprise for free

➤ **Build on the Skills Learnt Today:** Aka.ms/winlabs

Access Virtual Labs on the key topics

➤ **Start your own POC:** Aka.ms/winpoc

Access Windows 10 Enterprise Self-Service POC

➤ **Connect with Microsoft Services/Premier on Services**

Customers can utilize DPS or Premier hours for these many services:

- ✓ Windows 10 Enterprise Pilot
- ✓ Windows 10 Mobility Pilot
- ✓ Security Assessment

Thank you!

Configuration of Management Tools

Business Store services

Services for Management tools enables synchronization of app purchases and updates
Metadata (App Details, Icons), App Packages (offline), and Licenses (offline) are sync'd
Both Store-managed (Online) and Organization-managed (Offline) licensed apps are supported

Configure Management Tools

Management tools must be an Azure AD application
Management tools must be configured in Store for Business and Azure AD
Azure AD required to authenticate to Business Store services

Additional resources on TechNet

General information <https://technet.microsoft.com/itpro/windows/manage/distribute-apps-with-management-tool>

Intune integration <https://docs.microsoft.com/en-us/intune/deploy-use/manage-apps-you-purchased-from-the-windows-store-for-business-with-microsoft-intune>

System Center Configuration Manager integration <https://technet.microsoft.com/en-us/library/mt740630.aspx>

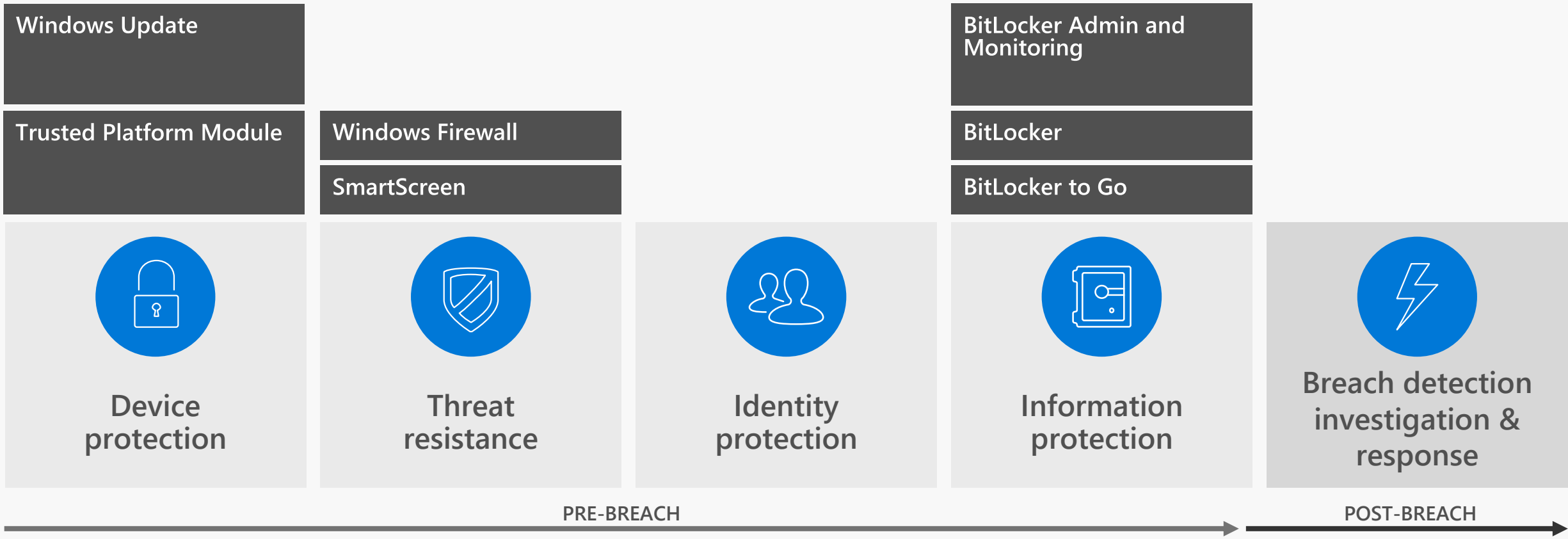
Additional Resources

- Microsoft Edge Developer Center
<https://developer.microsoft.com/en-us/microsoft-edge/>
- TechNet Browser TechCenter
<https://technet.microsoft.com/en-us/browser>
- Microsoft Edge Dev Blog
<https://blogs.windows.com/msedgedev/>
- Enabling Site Discovery in Upgrade Analytics
<https://technet.microsoft.com/en-us/itpro/windows/deploy/upgrade-analytics-review-site-discovery>

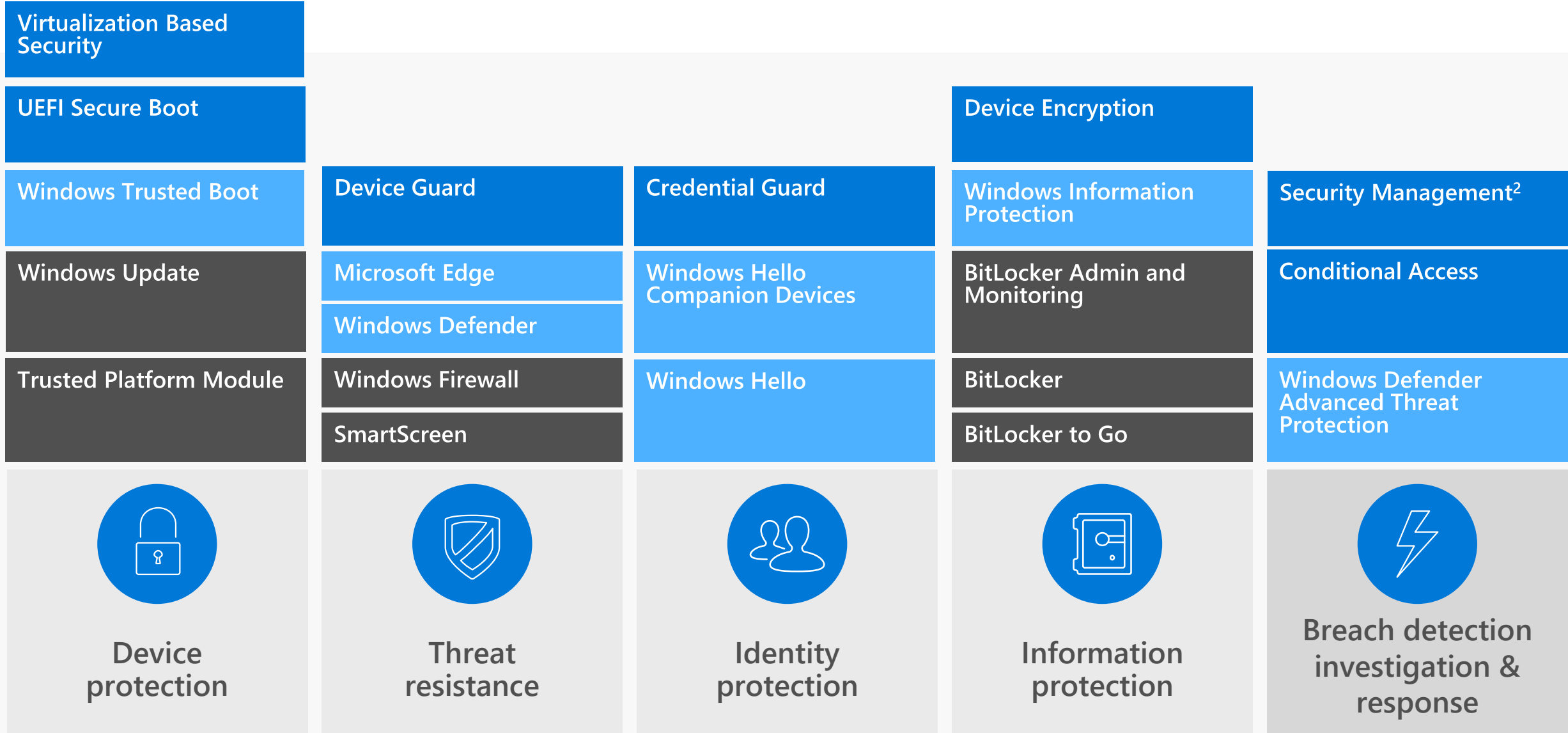
Appendix



Windows 7 Security features



Windows 10 Security on Modern Devices



PRE-BREACH

POST-BREACH

