WINDOWS 10

Client Deployment Readiness Brief

1   Introduction

In enterprise IT environments, managing system and security updates, in addition to maintaining supportability and compatibility, can often over extend IT costs and generate employee frustration and loss of productivity. Providing users with the latest technology requires balance with manageability and cost control. In recent times, the typical enterprise performs large-scale upgrades to new releases of Windows, often in parallel with hardware upgrades, resulting in high costs and large multi-year projects.

Microsoft has developed Windows 10 intending to proceed with a rapid evolution of the platform for *device-like* updating experiences causing the need for businesses to reconsider upgrade strategies. This *Readiness Brief* strives to familiarize IT administrators with the new Windows as a Service paradigm in order to aid in navigating required decision points which must be addressed prior to deploying Windows 10 into a corporate environment.

2   Windows as a Service

With the release of Windows 10 Microsoft has shifted to a Windows as a Service paradigm. This streamlined Windows product engineering and release cycle enables Microsoft to deliver new features, experiences, and functionality much more quickly than prior releases. By providing new ways to deliver and install **Feature Upgrades** and **Servicing Updates,** with the goal of simplifying deployments and management, Microsoft intends to broaden the base of business employee devices that can be kept current with the latest Windows capabilities and experiences, and lower total cost of ownership.

For example, during the development of Windows 10, Microsoft:

- *Streamlined the Windows product engineering and release cycle so that Microsoft can deliver the features, experiences, and functionality customers want, more quickly than ever.*

- *Created new ways to deliver and install Feature Upgrades and Servicing Updates that simplify deployments and on-going management, broaden the base of employees who can be kept current with the latest Windows capabilities and experiences, and lower total cost of ownership.*

- *Implemented new servicing options – referred to as Current Branch (CB), Current Branch for Business (CBB), and Long-Term Servicing Branch (LTSB) – that provide pragmatic solutions to keep more devices more current in enterprise environments than was previously possible.*

These concepts and terms will be discussed in detail throughout the remainder of this document.

Microsoft believes there are good business reasons to keep a significant portion of your enterprise's devices current with the latest release of Windows. Part of this shift requires the **understanding that Windows 10 will be the *last* major Windows release for the foreseeable future**. As is evident by the development theme, their goal is to keep more devices more current with quicker update installation. Moving forward Microsoft will be releasing only **Feature Upgrades** and **Servicing Updates**. The following section will provide greater detail

defining each update type and how Windows as a Service will impact your maintenance plans after moving to Windows 10.

The first decision that an organization will face after upgrading to Windows 10 will be whether adopting this new strategy can be more cost effective and if the enterprise application landscape can withstand the increased risk for compatibility problems.

The figure below displays the *Extended Support End Dates* representing when security updates and other critical updates will stop being provided.
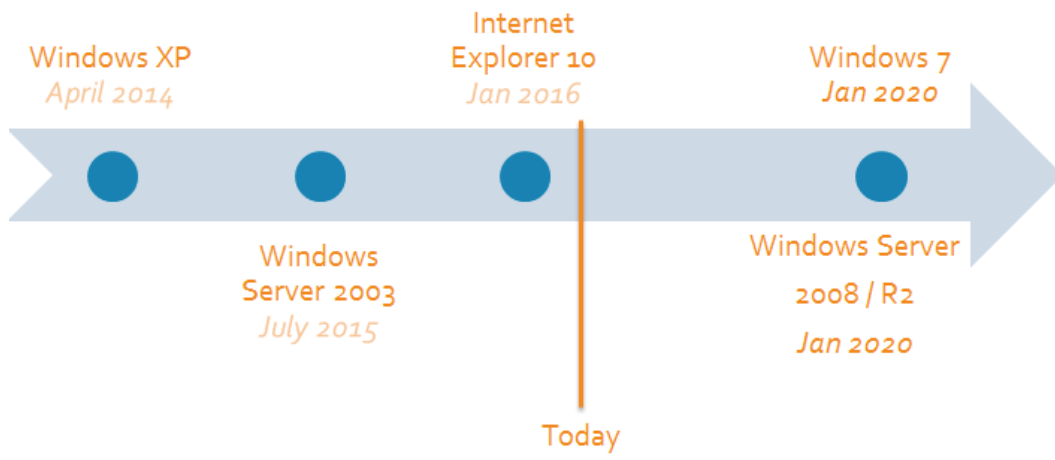
Figure 1: Extended Support End Dates

It is important to note that *Mainstream Support* has already ended for all products noted above. Microsoft is currently providing only security updates through the Extended Support End Dates.[1]

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[1] If you have any questions regarding support for a product, please contact your Microsoft representative. If you need technical support, visit the Contact Microsoft Web site. The information provided here is subject to the Microsoft Policy Disclaimer and Change Notice. Return to the below site periodically to review any such changes.
    https://support.microsoft.com/en-us/gp/lifeselect
    https://support.microsoft.com/en-us/lifecycle#gp/Microsoft-Internet-Explorer

3 Deployment Options

As with previous versions of Windows, deployment choices include a standard corporate reimaging or upgrading existing Windows 7/8.1 devices. In addition, Windows 10 also provides new Dynamic Provisioning functionality which can transform preinstalled Windows 10 systems, including OEM installed devices, into corporate images.

Microsoft has significantly improved the upgrade process since Windows 7 which, in addition to Dynamic Provisioning, may provide considerable cost savings when deploying Windows 10 into a corporate environment. Highlighted here are the three primary options for deploying Windows 10.

3.1 In-place Upgrade

Previously, this option has been less desirable by both businesses and Microsoft, as it could result in an amalgamation of old and new operating system configuration settings, left over application files and settings, bloated configuration databases and other anomalies remaining from the legacy system. In addition, as Windows was updated and improved, hardware requirements increases in order to support new Windows features.

Beginning with Windows 8.1 and now Windows 10, Microsoft has done extensive testing of the upgrade process. This includes the millions of consumer PCs upgraded with the Windows 10 for free program and an aggressive internal Microsoft upgrade pilot.

When upgrading your Windows 7 and Windows 8.1 devices, Windows 10 still preserves data and settings, as well as updating apps and drivers when possible, while installing a new, clean image of the operating system. This can significantly simplify deployment and provide a more efficient transition for corporate users.

3.2 Dynamic Provisioning

As new feature of Windows 10, Dynamic Provisioning provides capabilities to simplify how you configure your PCs and devices. For new computers acquired with Windows 10 preinstalled, or even baseline corporate images, you can leverage dynamic provisioning scenarios to transform the device from its initial state into a fully-configured organization PC.

Using the new Windows Imaging and Configuration Designer (ICD)[2], IT administrators can create provisioning packages, applying settings and applications conforming the device to organizational standards.

You can also utilize mobile device management (MDM) provisioning capabilities. An end user can initiate the provisioning process themselves simply by entering the Azure Active Directory

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[2] For more information, see Windows Imaging and Configuration Designer in the Resources appendix.

account and password, the MDM service can then transform the device into the fully-configured organization PC.[3]

Dynamic Provisioning packages:

- Quickly configure a new device without going through the process of installing a new image.
- Save time by configuring multiple devices using one provisioning package.
- Transform the edition (SKU) of Windows 10 that is in use.
- Apply configuration and settings to the device (for example, security settings, device restrictions, policies, Wi-Fi and VPN profiles, certificates, and so on).
- Install apps, language packs, and updates.
- A provisioning package can include management instructions and policies, installation of specific apps, customization of network connections and policies, and more.
- Ensures compliance and security before a device is enrolled in MDM.
- Enroll the device in a management solution (applicable for IT admin-driven scenarios, configuring the device just enough to allow the management tool to take over configuration and ongoing management).
- Quickly configure employee-owned devices in an organization without a mobile device management (MDM) infrastructure.
- Set up a device without the device having network connectivity. You can provide provisioning packages on a network shared folder that employees can access to configure their devices. Or you can put a provisioning package on a USB flash drive or SD card to hand out. You can even send the provisioning package to someone in email.
- Are simple for employees to install and can be removed, policies that the package applied to their device are removed in BYOD scenarios.

Typical use cases

- Set up a new off-the-shelf device for an employee
- Configure an off-the-shelf mobile device to be used as a point of sale or inventory terminal
- Help employees set up personally-owned devices to use for work
- Repurpose devices by returning the device to a specific state between users

3.3 Device Reimaging

Windows 10 continues to support traditional reimaging scenarios and solutions should it be determined that is the best option for the organization. Dynamic Provisioning can enable more efficient image management by allowing fewer base OS images combined with targeted packages for configuration and application installation.

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[3] For more information, see Azure Active Directory integration with MDM in the Resources appendix.

3.4 Upgrade Considerations

For existing PCs running Windows 7 or Windows 8.1, in-place upgrade "*is the Microsoft recommended method for Windows 10 deployment and should be used whenever possible.*" Although wipe-and-load (OS refresh) deployments are still fully supported and necessary in some scenarios, an in-place upgrade is simpler and faster, and enables a faster Windows 10 deployment overall.

Note upgrading from the original Windows 8 release was only supported until January 2016. Organizations that have Windows 8 in the environment will need to deploy Windows 8.1 if choosing to upgrade in-place from Windows 8 to Windows 10.

Note to take advantage of the limited-time **free** upgrade offer for PCs running Windows 7, Windows 8, or Windows 8.1, you **must leverage an in-place upgrade**, either from Windows Update or by using the upgrade media available from the Windows 10 software download page to acquire a new Windows 10 license from the Windows Store until July 29, 2016. For more information, refer to the Windows 10 FAQ in the Resources Appendix.

Note Windows 7/8.1 **Enterprise** Editions are **not** included in the **free** upgrade offer.

Note that Windows 10 Home users will receive updates from Windows Update automatically as they become available. Windows 10 Pro will have the ability to postpone updates, however the amount of time that Windows 10 Pro users can postpone updates is limited.

For organizations with Software Assurance for Windows, either in-place upgrade or wipe-and-load can be leveraged (with in-place upgrade being Microsoft's recommended method, as previously discussed).

For organizations that do not take advantage of the free upgrade offer and are not enrolled in Software Assurance for Windows, Windows 10 upgrade licenses are available for purchase through Volume License (VL) agreements.

Windows 10 Upgrade paths:

Windows 7	
From Edition	To Edition
Windows 7 Starter	Windows 10 Home
Windows 7 Home Basic	
Windows 7 Home Premium	
Windows 7 Professional	Windows 10 Pro
Windows 7 Ultimate	

Windows 8.1	
From Edition	To Edition
Windows 8.1	Windows 10 Home
Windows 8.1 Pro	Windows 10 Pro
Windows 8.1 Pro for Students	

4   Upgrades and Updates

As referenced above, according to Microsoft, Windows 10 is the final major release of the core Windows platform. New features and functionality will be provided with incremental upgrades called *Feature Upgrades*. Several of the largest investments in Windows 10 focus on enabling broader use of Windows Update within enterprises. "*Delivering innovations to businesses utilizing the proven ability of Windows Update to deploy releases quickly and seamlessly to consumers and small businesses*" is the goal of Microsoft. While this is providing users with the latest technologies as quickly as possible, it is understood that this needs to be balanced with manageability and cost control.

The practical application of Window as a Service is represented with the new release cycle of **Feature Upgrades** and **Servicing Updates**.

4.1   Feature Upgrades

Feature Upgrades provide new Features and Functionality to Windows. They are a full copy of Windows 10 and serve as Installation Source Media for both upgrades & new devices. Microsoft currently plans to release Feature Upgrades as many as 2-3 per year. These upgrades are *minor* versions of Windows 10 and are denoted with versioning numbers. Released as of March 2016 are Windows 10 *Version 1507* and Windows 10 *Version 1511*.

The table below shows the released Feature Upgrade versioning system reflecting the 2-digit year and month that the Feature Upgrade was provided to the general public.

Windows 10 Released Versions		
Version	**Build Number**	**Release Date**
1507[4]	10.0.10240	20[**15**] July-[**07**]
1511	10.0.10586	20[**15**] Nov-[**11**]

4.2   Servicing Updates

Servicing Updates will provide **Security** fixes and **other important** updates to the Windows 10 platform. These are analogous to what IT administrators have been managing to date with Windows 7 and prior versions. However, all new releases that Microsoft publishes for Windows 10 will be cumulative. This means new Feature Upgrades and Servicing Updates will contain all previous upgrades and updates respectively. Unlike earlier versions of Windows, you cannot install a subset of the contents of a Windows 10 Servicing Update. For example, if a Servicing Update contains fixes for three security vulnerabilities and one reliability issue, deploying the update will result in the installation of all four fixes.

Servicing Updates will continue to be published as necessary and released on the existing "Update (*Patch*) Tuesday" release schedule. Microsoft may publish additional Servicing Updates

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[4] Original Windows 10 public release

for Windows 10 outside the Update Tuesday process when required to address critical situations as they arise.

The below figure displays the original release of Windows 10 and the version 1511 release as denoted by the green "Feature Upgrade" boxes with Servicing Updates being released between the Feature Upgrades.
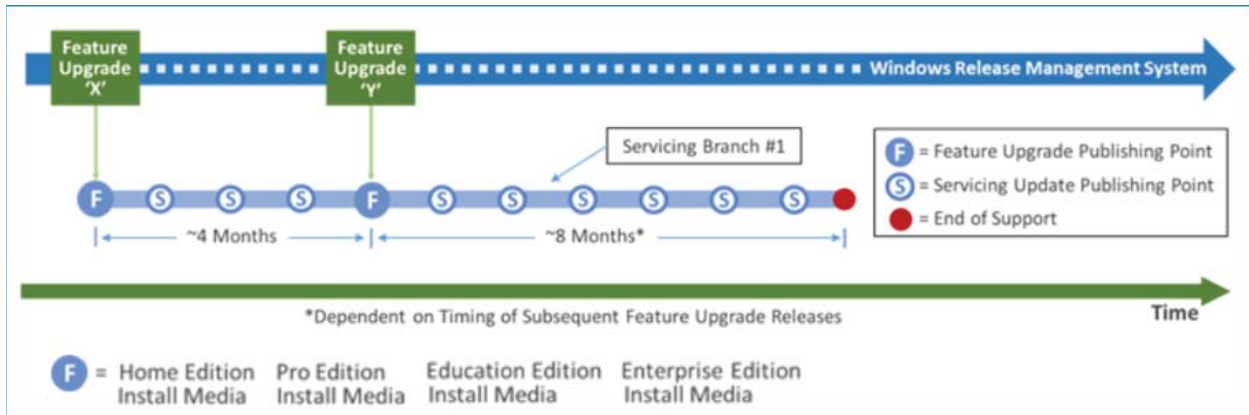
Figure 2: Feature Upgrades with Servicing Updates

4.3 Feature Upgrade Options

As Microsoft will be publishing new Feature Upgrades on a continual basis, update maintenance planning needs to include installing new Feature Upgrades as they become available. Considering this, the following three options are provided for the application of the Feature Upgrades.

- Receive Feature Upgrades immediately after Microsoft makes them available publicly - Current Branch (CB) servicing.
- Defer receiving Feature Upgrades for a period of approximately four months - Current Branch for Business (CBB) servicing.
- Receive *only* Servicing Updates for the duration of the Windows 10 deployment - Long-Term Servicing Branch (LTSB) servicing.

Details for each of these options are provided below.

4.3.1 Current Branch

The Current Branch (CB) servicing option is what most consumers will be utilizing by default and makes new features available to users as soon as they are released. Upgrades are available immediately after first published by Microsoft. For this branch, the following Windows editions are supported: Home, Pro, Education, Enterprise, and Mobile. Devices serviced using this approach and utilizing Windows Update will be kept as current as possible with respect to the latest Windows 10 Feature Upgrade releases.

It is important to note that devices serviced from CB servicing *must* install the two to three Feature Upgrades per year to remain current *and continue to receive Servicing Updates*. This requirement is detailed in the Readiness Planning section.

4.3.2   Current Branch for Business

Many businesses require IT administrators to test Feature Upgrades prior to deployment, and servicing devices from Current Branch for Business (CBB) is a pragmatic solution for businesses with testing constraints yet still remaining as current as possible. Windows 10 provides IT administrators with settings resulting in Windows Update deferring new Feature Upgrade installations, enabling additional time for testing before deployment.

Current Branch for Business (CBB) servicing provides this additional time to test new Feature Upgrades before deployment by making upgrades available approximately 4 months after first published. The Windows editions that support CBB are: Pro, Education, Enterprise and Mobile Enterprise. At the end of the deferred period, Microsoft executes a set of processes that creates new installation media for the Feature Upgrade. This combines the original installation media with all the Servicing Updates and previous Feature Upgrades published by Microsoft since the original release of Windows 10. Microsoft then republishes the new media to Windows Update with targeting instructions for this release to be applied to devices that are configured for deferred installation of new Feature Upgrades. Devices configured to defer installation utilizing Windows Update will begin receiving and installing the Feature Upgrade automatically.

Again, it is important to note that devices serviced from CBB servicing *must* eventually install the Feature Upgrades to remain current *and continue to receive Servicing Updates*. For additional details see the following Managing Updates and Readiness Planning sections.

4.3.3   Long Term Servicing Branch (LTSB)

For devices that require more stringent management of update cycles, Microsoft has provided the Long Term Servicing Branch (LTSB) Edition of Windows 10. It is important to note that *Windows 10 Enterprise LTSB Edition* is a separate edition requiring separate media for installation and is not published to Windows Update for deployment. Installations of the Enterprise LTSB Edition and its Feature Upgrades require additional IT management.

Long Term Servicing Branch (LTSB) enables long-term deployment of select Windows 10 Feature Upgrade releases in low-change environments. Each LTSB release is available immediately after published by Microsoft, however not all Feature Upgrades will have an LTSB release. As Microsoft has planned to release an LTSB edition every 2-3 years, this could result in businesses having to wait for new features that have already been provided to Current Branch and CBB releases.

The following figure depicts a comparison between the Current Branch release cycle and the LTSB release cycle. It is important to note that while Feature Upgrades are delayed and released at the discretion of Microsoft, Servicing Updates (security updates and other critical updates) are not delayed.
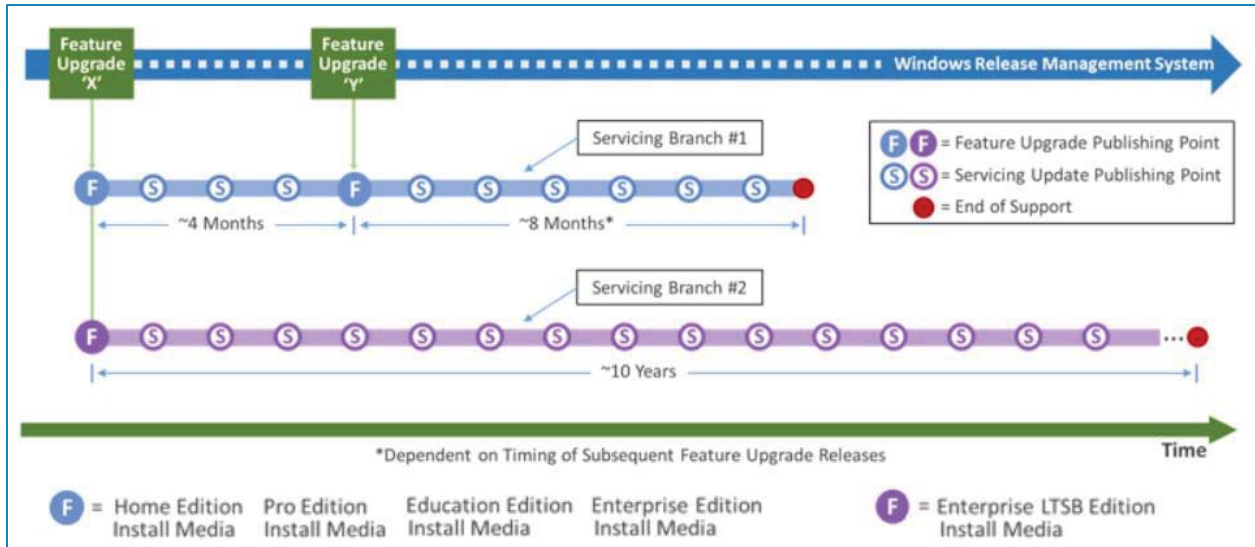
Figure 3: Feature Upgrade Comparison between Branches

To reiterate, for Windows 10 on the Current Branch or Current Branch for Business, new upgrades will periodically be deployed, approximately two to three times per year. These **Feature Upgrades will leverage an in-place upgrade process**. Unlike updates, which are relatively small, these upgrades will include a full operating system image (around 3 GB for 64-bit operating systems), which requires time (1-2 hours) and disk space (approximately 10 GB) to complete installation. Ensure the deployment method you use can support the required network bandwidth and/or disk space requirements.

4.3.4   Feature and Servicing Release Testing

The Windows Insider Program is a global program enabling enthusiasts and IT professionals to install and test beta versions of Windows including all Feature Upgrades. With over one million Insider subscribers, Microsoft believes that Feature Upgrade release quality will be far superior to past versions of Windows. There are far more systems being tested and they are real-world systems being used for productivity tasks every day.

The figure below depicts the testing "rings" for each upgrade before it is released to Windows Update to be installed by the general public.
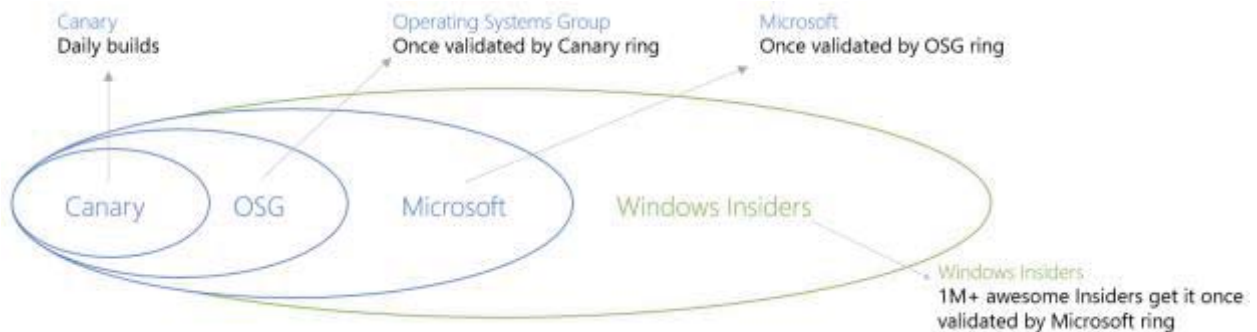

Figure 4: Release Testing Rings

5   Managing Updates

It is important to note, based on the information being provided by Microsoft, in our opinion, the perspective of Microsoft, and their underlying goal, is that as *capabilities for control* over installing updates and upgrades *increases, so does the cost to manage* that control. According to Microsoft, allowing Windows Update to manage updates for your organization both eases the administrative burden, *and* allows Microsoft to reduce the OS fragmentation that currently exists across their customer base. While reducing the range of different versions of Windows being used by the public and businesses has definite advantages, this must be balanced with the risk of more aggressive update schedules.

5.1   Windows Update Service

As stated above, several of the largest investments in Windows 10 focus on enabling broader use of Windows Update within enterprises. *"Delivering innovations to businesses utilizing the proven ability of Windows Update to deploy releases quickly and seamlessly to consumers and small businesses"* is the goal of Microsoft.

Windows Update enables Windows users to:

- Receive Feature Upgrades according to Microsoft branch release schedule (CB/CBB)
- Receive Service Updates as published (CB/CBB/LTSB)

If deciding to utilize the Windows Update service for managing updates, the largest impact to business devices will be choosing the correct servicing branch for the organization.

It should also be understood that while Windows 10 will be updated more frequently than past versions of Windows, the underlying architectural platform of Windows 10 will remain consistent, which *should* reduce the overall risk of upgrading to each subsequent Feature Release.

5.2   Windows Server Update Service

Utilizing the Windows Server Update Service (WSUS) provides administrators with a tier of control over the updates that are deployed to managed clients. By using WSUS, administrators can fully manage the distribution of updates that are released through Microsoft Update to computers in their network. WSUS receives updates according to Microsoft release schedule, and based on the branch that you have configured or installed, Administrators control approving for client deployment.

5.3   System Center Configuration Manager (or Third-party)

Microsoft System Center Configuration Manager (SCCM) or other third-party management tools will continue to work as they have in the past. However, considerations must still be thoroughly weighed before choosing the branch to configure or install.

SCCM receives updates according to Microsoft release schedule and then publishes to clients according to administrative configuration settings.

5.4 Windows Update for Business

Windows Update for Business offers access to security updates and to the latest innovations from Microsoft and can potentially help businesses reduce management costs by providing more control over update deployments than the standard Windows Update service.

Windows Update for Business features:

- Distribution rings, where administrators can specify which devices receive updates first and which be updated on deferred schedules.
- Maintenance windows specifying the critical timeframes when updates should and should not occur.
- Peer to peer delivery, enabling efficient delivery of updates to branch offices and remote sites with limited bandwidth.
- Integration with pre-existing tools such as System Center and the Enterprise Mobility Suite, keeping these tools as a single interface for all systems management.

Windows Update for Business is enabled by directly connecting systems to Microsoft's Windows Update service and using Group Policy applied settings. Windows Update for Business can be utilized to enable organizations and administrators to have control over how their Windows 10 based devices are updated.

6 Readiness Planning

As detailed above, with Windows as a Service there are important considerations that will determine how enterprises deploy and manage updates moving forward.

6.1 Update Management Considerations

The most critical decision is choosing a Servicing Branch from Current, Current Branch for Business and LTSB. The questions that must be answered before choosing a branch are:

- Can reducing costs by using Windows Update for patch management outweigh the possible risk of allowing patches to be installed as they become available?
- Are Windows Update for Business or Windows Server Update Services (WSUS) a viable lower TCO option while still maintaining a measure of patch management control?
- What should happen to the business devices when Microsoft publishes a new Feature Upgrade?
- Are the existing in-place patch/update management systems providing what the organization needs and provide the required level of control despite the cost?

Before these decisions can be reached however, it is important to understand how Microsoft is supporting each servicing branch with Servicing Updates (security and other critical patches/updates).

Not only does the servicing branch determine how quickly or even if you receive a Feature Upgrade, this choice also determines **for how long Servicing Updates will be provided** for the version (build) that a device is using.

Starting with Current Branch, *Feature Upgrades* must be installed to remain current and continue to receive Servicing Updates. Microsoft will not produce Servicing Updates for a Feature Upgrade after its corresponding branch reaches the end of its servicing lifetime. This is better explained with the following depiction. Note that once a Feature Upgrade has been released, the Servicing Updates for the previous Feature Upgrade build are no longer provided.
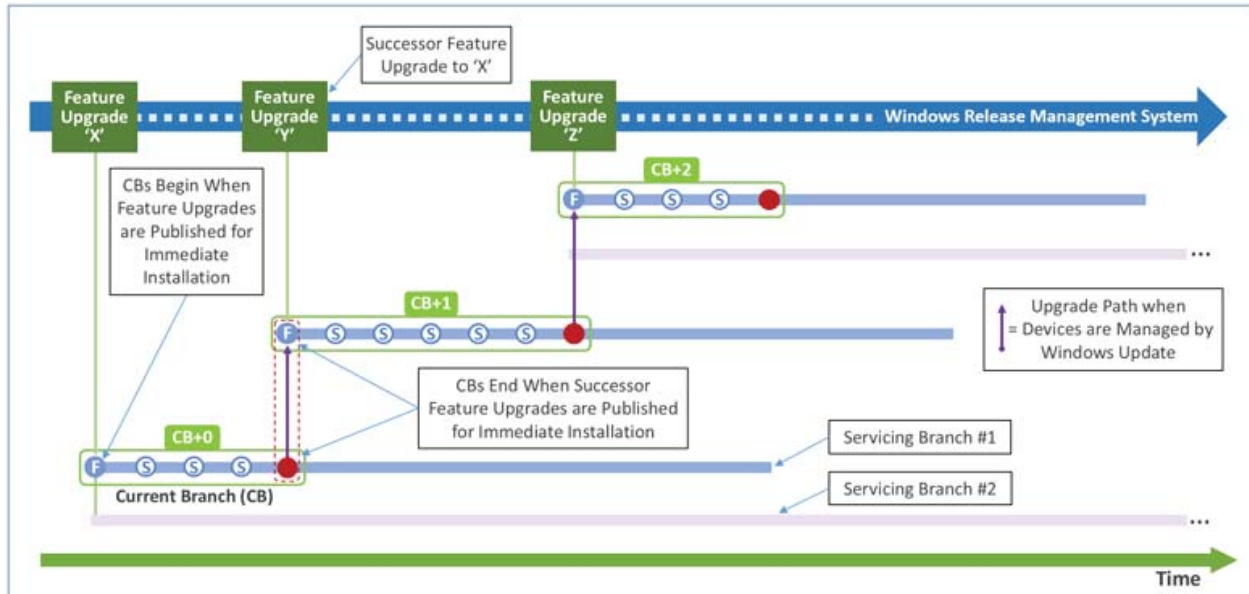
Figure 5: Current Branch Servicing Update Support

This means that if choosing Current Branch, Feature Upgrade deployments cannot be delayed indefinitely without increasing the risk of security holes and critical issues not being addressed.

Continuing with **Current Branch for Business** (CBB), the servicing lifetime policy for Windows 10 was designed so that CBB configured devices will receive Servicing Updates for twice the release cycles as CB devices. This enables two CBB builds to receive servicing support at the same time, which provides businesses with more flexibility when deploying new Feature Upgrades. Microsoft will stop producing Servicing Updates for a Feature Upgrade after its corresponding CBB reaches the end of its servicing lifetime. Again this means that Feature

cbfive.com

Upgrade deployments cannot be extended indefinitely and IT administrators should ensure that they deploy newer Feature Upgrades onto devices before CBB Servicing Update support ends.
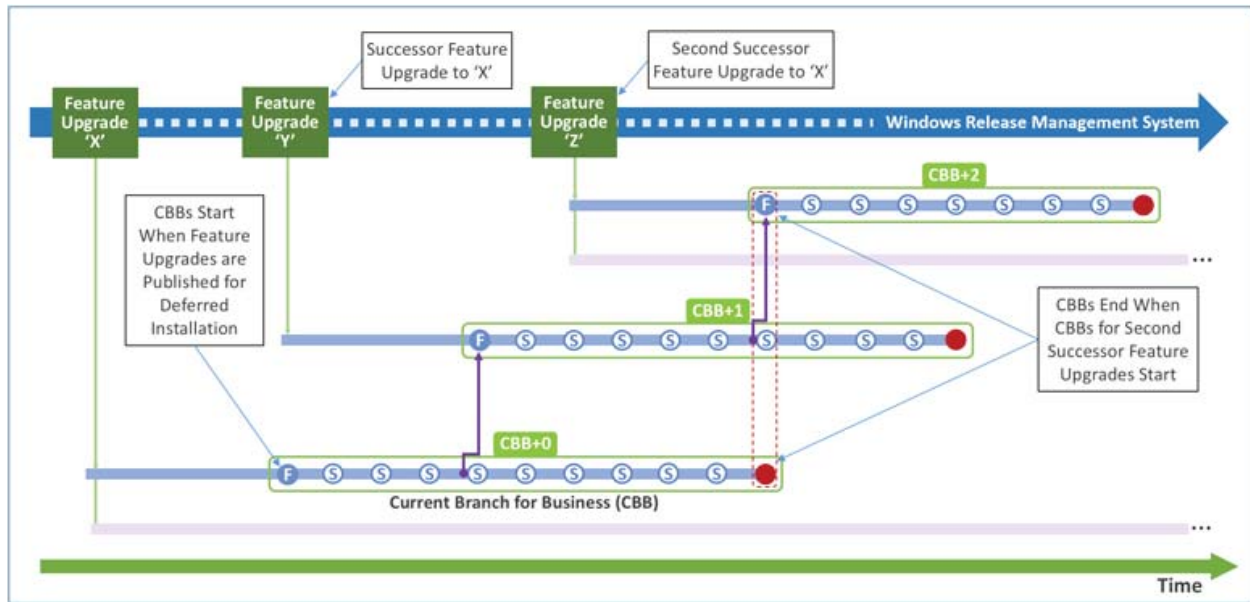

Figure 6: Current Branch for Business Servicing Update Support

Microsoft will provide Servicing Updates for only one Feature Upgrade "cycle" after the preceding branch reaches the end of its servicing lifetime. As shown in the figure, Current Branch for Business (CBB) Servicing support starts when Microsoft publishes a Feature Upgrade targeted for devices configured for deferred installation and ends when Microsoft publishes the **second** successive Feature Upgrade targeted for devices configured for deferred installation (CBB).

Current Branch for Business Servicing considerations:

- When IT administrators use **Windows Update** to manage deployments, devices will receive Servicing Updates as soon as they are published by Microsoft in the Windows Update service, and new Feature Upgrades targeted to devices configured for deferred Feature Upgrade installation on the deferred schedule. It is important to note that, even when devices are configured to defer installations, all Servicing Updates that are applicable to the Feature Upgrade that is running on a device will be installed immediately after being published by Microsoft in the Windows Update service.
- When devices are being managed through **Windows Server Update Services**, the same workflows are executed as with Windows Update except IT administrators must approve releases before installations begin.
- When using configuration management systems such as **Configuration Manager** to manage deployments, IT administrators can obtain media published for deferred installation from Microsoft and deploy new Feature Upgrades by using standard change control processes. When deferring Feature Upgrade installations, IT administrators

should still deploy all applicable Servicing Updates as soon as they become available from Microsoft.

Again, although Microsoft is providing one release cycle of continued updates, Feature Upgrades cannot be delayed indefinitely without increasing the risk of security holes and critical issues not being addressed.

The following figures display **Configuring Windows to receive Feature Upgrades via CBB.**
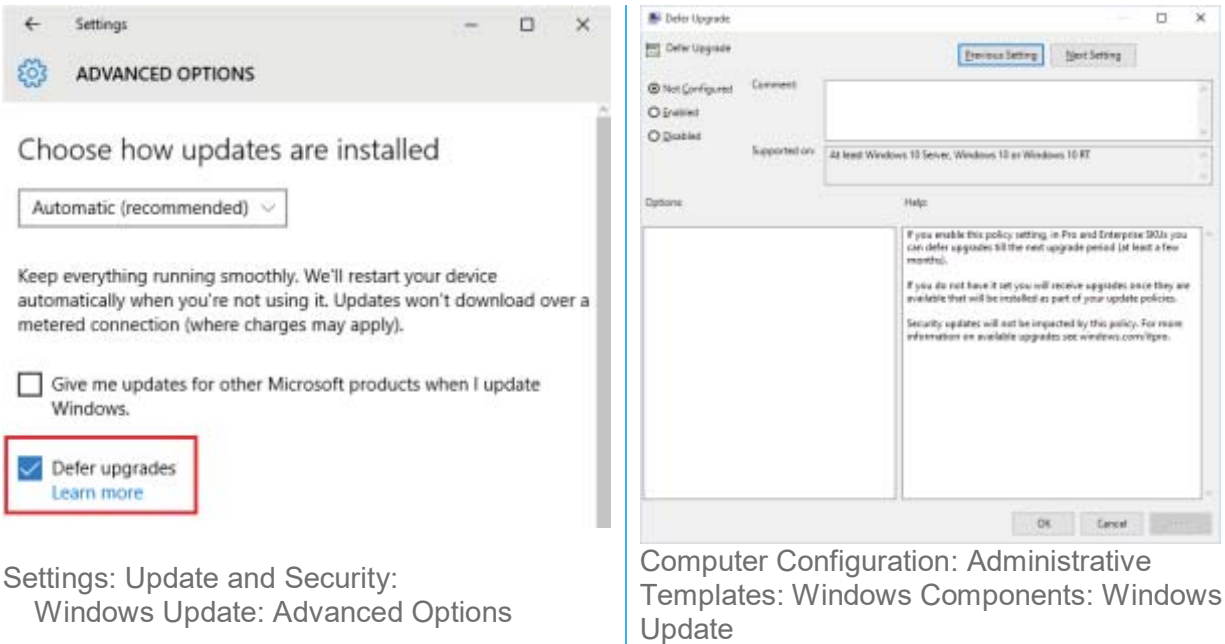
Settings: Update and Security: Windows Update: Advanced Options

Computer Configuration: Administrative Templates: Windows Components: Windows Update

Figure 7: Current Branch for Business Configuration

If you are using WSUS or SCCM, these settings will not apply as updates will be managed by those systems. These settings affect systems configured to use Windows Update.

For **Long Term Servicing Branch,** as a separate Enterprise Edition of Windows 10, it is managed in the more traditional manner of having a released version of Windows with only subsequent Servicing Updates (or hotfixes as traditionally referenced). Servicing Updates will be released for a period of 10 years from the release of that LTSB build. It is possible to upgrade to the next release of the LTSB edition, however it will need to be managed as a traditional upgrade would be deployed.
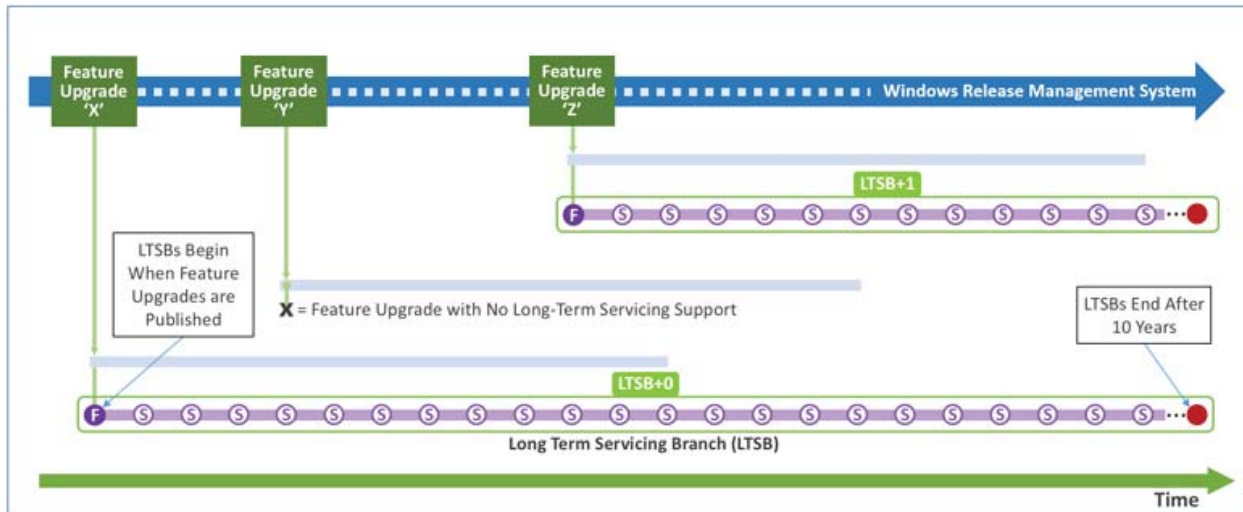

Figure 8: Long Term Servicing Branch Servicing Update Support

It is important to note the initial release of Windows 10, published in July 2015, has a Long-Term Servicing Branch and Microsoft expects to release one additional Feature Upgrade in the following12 months for long-term support (LTSB). After that, Microsoft expects to publish a single Feature Upgrade release for long-term servicing support approximately every two to three years.

Long-Term Servicing Branch Servicing considerations:

- Long-Term Servicing Branch (LTSB) servicing support begins when a Feature Upgrade with long-term support is published by Microsoft and ends after 10 years.
- Only the Windows 10 **Enterprise LTSB Edition** supports long-term servicing, and there are differences between this edition and other Windows 10 editions regarding upgradability and feature set.
- The role of the LTSB is to produce Servicing Updates for devices running Windows 10 configured to install Servicing Updates only. This servicing option is intended for scenarios where changes to software running on devices must be limited to essential updates (such as those for security vulnerabilities and other important issues) for the duration of deployments.
- Windows 10 Enterprise LTSB supports Servicing Update deployment by using Windows Update, Windows Server Update Services, Configuration Manager, and other configuration management systems:

- When IT administrators use Windows Update to manage deployments, Windows Update will install only Servicing Updates, and do so as soon as they are published by Microsoft in the Windows Update service. Windows Update **does not install Feature Upgrades** on devices configured for long-term servicing.
- When devices are being managed using Windows Server Update Services, the same workflows are executed as with Windows Update except IT administrators must approve releases before installations begin.
- When using configuration management systems such as System Center Configuration Manager to manage deployments, IT administrators can manage updates as they are currently being managed. Microsoft recommends making sure to obtain and deploy all Servicing Updates published by Microsoft as soon as possible.

Addition LTSB Considerations:

- Regarding edition changes, it is possible to reconfigure a device running Windows 10 Enterprise LTSB to run Windows 10 Enterprise while preserving the data and applications already on the device. Reconfiguring a device running Windows 10 Enterprise LTSB to run other editions of Windows 10 may require IT administrators to restore data and/or reinstall applications on the device after the other edition has been installed.
- Windows 10 Enterprise LTSB **does not include all the universal apps** that are included with other Windows 10 editions. This is because the universal apps included with Windows 10 will be continually upgraded by Microsoft, and new releases of in-box universal apps are unlikely to remain compatible with a Feature Upgrade of Windows 10 Enterprise LTSB for the duration of its servicing lifetime. Examples of apps that Windows 10 Enterprise LTSB does not include are Microsoft Edge, Windows Store Client, Cortana (limited search capabilities remain available), Outlook Mail, Outlook Calendar, OneNote (universal app version), Weather, News, Sports, Money, Photos, Camera, Music, and Clock.
- IT administrators can install universal apps on devices when apps are compatible with the Feature Upgrades running on the device. They should do so with care, however, as Servicing Updates targeted for devices running Windows 10 Enterprise LTSB will not include security or non-security fixes for universal apps. Additionally, Microsoft will not provide Servicing Updates for specific releases of apps on any Windows 10 edition after the Feature Upgrade of Windows 10 with which the apps were included reaches the end of its servicing lifetime.

6.2 Windows Maintenance Costs

The following information has been provided from Microsoft for update management consideration.

Data	Microsoft Proposition
Cost of keeping end user devices up to date and secure – $146- $188/device/year*	Reduce device management costs as you stay up to date with Windows as a Service

Support of Mobile devices is 17% of helpdesk costs*	Windows Update for Business, AADJ and MDM enrolment, The Store for Business and Private Catalog
Upgrade cost from Windows XP to Windows 7 is $1,930 per PC.*	In-place upgrade from Windows 7 to Windows 10; High app compat; Dynamic provisioning

*Gartner: Use TCO to Assess Choices in Devices, Support Policies and Management Approaches, November 4, 2014

**Ponemon Institute: 2014 Cost of Data Breach Study

6.3 New Windows Update Capabilities

The following information has been provided from Microsoft for update management consideration.

"In enterprise IT environments, the desire to provide users with the latest technologies needs to be balanced with the need for manageability and cost control. In the past, many enterprises managed their Windows deployments homogeneously and performed large-scale upgrades to new releases of Windows (often in parallel with large-scale hardware upgrades) about every three to six years.

To enable enterprises to manage more of their devices using Windows Update directly, Windows 10 provides IT administrators with a way to configure devices so that Windows Update will defer new Feature Upgrade installations until approximately four months after Microsoft first publishes them. As discussed above, this is the Current Branch for Business option. The additional time can be used to perform testing or enable releases to gain additional time in market prior to deployment.

At the end of each approximately four-month period, Microsoft executes a set of processes that require no action from enterprise IT administrators. First, Microsoft creates new installation media for the Feature Upgrade by combining the original installation media with all the Servicing Updates published by Microsoft since the original media's release. This reduces the time it can take to install a Feature Upgrade on a device. Second, Microsoft republishes the new media to Windows Update with targeting instructions that state (in effect) "install this media on devices that are configured for deferred installation of new Feature Upgrades." At this point, devices configured to defer installation will begin receiving and installing the Feature Upgrade automatically."

7   Windows 10 Features

Many of the new features provided with Windows 10 are highlighted below, this is not an all-inclusive list. Additionally, as new Feature Upgrades are released for Windows 10, new improvements and features will continue to be added.

7.1   Builds on Advancements of Windows 8

As many organizations have not upgraded beyond Windows 7, it is important to note many enterprise focused features were overlooked in Windows 8 and 8.1. A list of most of these features is included in the appendix.[5]

7.2   Microsoft Focus: Security Improvements [6]

- Better Integration with Hardware (TPM & UEFI)
- Virtualization-based Security (VBS) powered by Hypervisor technology
- Strong multifactor authentication capabilities
- Information Protection - Enterprise Data Protection
- SmartScreen Protection - Edge and Internet Explorer
- Substantially Improved Windows Defender
- Device Health Attestation and Conditional Access

As an example how the new Feature Upgrade cycle can benefit organizations:

- March 1, 2016 3:00 am - Announcing Windows Defender Advanced Threat Protection

https://blogs.windows.com/windowsexperience/2016/03/01/announcing-windows-defender-advanced-threat-protection/

7.3   Microsoft Focus: Reduced Management Costs

- In-place Upgrade with Roll-back – Reduced deployment complexities
- Dynamic Provisioning - Removes need for reimaging new PCs
- Windows Update for Business – Reduced overhead of update management
- Windows Store for Business – Control who receives which applications
- Hardware compatibility – Continued streamlined development extends hardware refresh intervals
- Return of Start Menu
- Windows Store for Business – The Windows Store for Business is a flexible way for an organization to find and use new apps – both public and line of business.
    o It can also manage licenses and integrate with your system's management solutions.
    o Organizations can make volume purchases of Windows apps.

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[5] See Appendix for list of Windows 8 business related feature improvements.
[6] Many of these features require one or more hardware features.

o   The Store for Business provides app purchases based on organizational identity, flexible distribution options, and the ability to reclaim or re-use licenses.

o   Organizations can also use the Store for Business to create a private store for their employees that includes apps from the Store, as well private Line-of-Business (LOB) apps.

7.4 Hardware compatibility

Windows 10 is designed to work on pre-existing devices. Waiting until the next hardware refresh to upgrade to Windows 10 may be unnecessary.

Minimum Hardware Requirements:

o   Processor: 1 GHz or faster or SoC
o   RAM: 1 GB (32-bit) or 2 GB (64-bit)
o   Free hard disk space: 16 GB (32-bit) or 20 GB (64-bit)
o   Graphics card: DirectX 9 or later with WDDM 1.0 driver
o   Display: 800x600

7.5 Windows 10 Editions

Windows 10 Editions for Business

*   Pro
*   Enterprise
*   Enterprise LTSB
*   Education

Enterprise Edition Features of Note

*   Direct Access
*   AppLocker
*   BranchCache

*   Credential Guard
*   Device Guard
*   Group Policy Start Screen Control

8   Appendix: Windows 8: New Enterprise Focused Features

Overshadowed by reactions to the User Interface changes were many Windows 8 features and new functionalities focused on the enterprise. Here are a number of enhancements that were provided with Windows 8/8.1 for customers to consider[7] when upgrading to Windows 10 from Windows 7.

- Built in Windows Defender
- Faster boot times
- Integrated mobile broadband support
- Airplane mode - Easy on/off power management
- Secure Boot
  - Protects the Windows boot configuration and components
- File Explorer
  - Performance improvements when copying and moving files. New, simplified conflict resolution interface
- Full Integrated client side Hyper-V
  - VHD and ISO shell integration
  - Integrates VHD and ISO disk image formats with the file system. Double-click support for either file type to mount with a drive letter.
- New Group Policies
  - Windows 8 and Windows Server 2012 add over 350 new group policy settings. Including new folder redirection and profile roaming functionality, Windows To Go. Over 150 policies related to Internet Explorer.
- BitLocker / BitLocker To Go Encryption Improvements
  - BitLocker provisioning
  - Windows 8 is now deployable to an encrypted state during installation prior to calling setup.
  - Used Disk Space Only encryption
  - BitLocker now offers two encryption methods, Used Disk Space Only and Full volume encryption. Used Disk Space Only allows for a much quicker encryption experience by only encrypting used blocks on the targeted volume.
  - Standard User PIN and password change
  - Allows a standard user to change the BitLocker PIN or password on operating system volumes and the BitLocker password on data volumes, reducing internal help desk call volume.
  - Network Unlock
  - Enables a BitLocker system on a wired network to automatically unlock the system volume during boot (on capable Windows Server 2012 networks), reducing internal help desk call volumes for lost PINs.
  - Support for Encrypted Hard Drives for Windows
  - Includes BitLocker support for the new Encrypted Hard Drives devices

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[7] This list is not all inclusive and has not been compared feature for feature with Windows 10 functionality, however most feature improvements have been carried forward.

- Improvements to Kerberos authentication protocol in Windows Server 2012 and Windows 8
- Improvements to smart card support
    - Virtual smart cards - uses the built in Trusted Platform Module (TPM) chip to emulate a smart card
    - Smart Card Service start and stop behavior - more efficient use of system resources
    - Changes to the smart card sign-in experience - improved detection of whether a smart card reader is installed and whether the smart card or a password was used to sign in or unlock the system the last time
    - Smart card support in Windows 8 applications
- NTFS Health and Chkdsk
    - Chkdsk in Windows 8 and Windows Server 2012 introduces a new approach that prioritizes volume availability and allows for the detection of corruption while the volume remains online with data available.
- Remote Desktop
    - All versions include Remote Desktop Connection software.
    - Windows 8 Pro and Enterprise include Remote Desktop Host (RDH).
- Windows To Go
    - Boot from a portable USB-connected external drive.

9 Appendix: Resources

Windows 10

https://technet.microsoft.com/en-us/windows/mt240567

Windows 10 Servicing Options for Updates and Upgrades

https://technet.microsoft.com/en-us/library/mt598226%28v=vs.85%29.aspx

Windows 10 Edition Comparison

https://www.microsoft.com/en-us/WindowsForBusiness/Compare

Preparing Your Enterprise for Windows 10 as a Service

https://mva.microsoft.com/en-US/training-courses/preparing-your-enterprise-for-windows-10-as-a-service-11813?l=ijb2BzvQB_6805094681

Windows 10 enterprise management with System Center Configuration Manager and Intune

https://blogs.technet.microsoft.com/configmgrteam/2014/09/30/windows-10-enterprise-management-with-system-center-configuration-manager-and-intune/

Microsoft Deployment Toolkit

https://technet.microsoft.com/en-us/windows/dn475741.aspx

Deploying Windows 10 at Microsoft as an in-place upgrade: Technical Case Study

https://www.microsoft.com/itshowcase/Article/Content/668

Windows 8.1 and Windows 8

https://technet.microsoft.com/en-us/library/hh832030.aspx

Configure devices without MDM

https://technet.microsoft.com/en-us/library/mt219046(v=vs.85).aspx

Provisioning packages (Windows 10 Dynamic Provisioning)

https://technet.microsoft.com/library/dn986866.aspx

Windows Update for Business

https://technet.microsoft.com/en-us/library/mt622730(v=vs.85).aspx

Windows Store for Business overview

https://technet.microsoft.com/library/mt606938(v=vs.85).aspx

cbfive.com

Windows Imaging and Configuration Designer

https://msdn.microsoft.com/en-us/library/windows/hardware/dn916113(v=vs.85).aspx

Azure Active Directory integration with MDM

https://msdn.microsoft.com/en-us/library/windows/hardware/mt158260(v=vs.85).aspx

Upgrade to Windows 10: FAQ

http://windows.microsoft.com/en-us/windows-10/upgrade-to-windows-10-faq

Designed to be the most secure Windows

https://www.microsoft.com/en-us/WindowsForBusiness/Windows-security

Microsoft Passport overview

https://technet.microsoft.com/library/dn985839.aspx

Manage identity verification using Microsoft Passport

https://technet.microsoft.com/en-us/library/mt219735(v=vs.85).aspx

Enterprise data protection (EDP) overview

https://technet.microsoft.com/library/dn985838.aspx

Device Guard overview

https://technet.microsoft.com/library/dn986865.aspx

Windows Defender in Windows 10

https://technet.microsoft.com/en-us/library/mt622091(v=vs.85).aspx

Control the health of Windows 10-based devices

This white paper details an end-to-end solution helping to protect high-value assets by enforcing, controlling, and reporting the health of devices running Windows 10.

https://www.microsoft.com/en-us/download/details.aspx?id=49121

Configure your systems to receive updates on CBB

https://technet.microsoft.com/en-us/library/mt622729(v=vs.85).aspx

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