Old Dominion University
Cyse 280 Windows Systems Management and Security

The Evolution and History of Microsoft Windows Servers Over the Years

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Introduction:

Windows was created by Microsoft in 1985, making Windows 38 years old this year. Throughout those 38 years, Windows as an operating system has left perhaps the largest impact of any operating system in history, being by far the most popular and recognizable computer operating system in the world. Windows has been a major part of the success of Microsoft as a business, which has flourished into one of the largest software companies in the world, competing with the likes of Apple and Alphabet for the top spot. Throughout the years, Microsoft has routinely updated Windows, creating many new versions of the famous operating system, with many new features and protections being put into place to keep Windows on top of the competition, but Windows as a computer operating system is not the only thing Windows is used for.

Windows has not only been a major player in computer operating systems, but also in server operating systems, which much like the computer operating systems have had many different versions throughout the years. These server operating systems share many commonalities with the standard Windows operating servers, however Windows server is used for the running and management of servers, not for use as a common operating system. This is crucial as servers are what allow for programs and applications to work in the first place, and the control and management of these servers is crucial to ensuring that everything runs smoothly and securely. Microsoft has had a myriad of different versions of Windows server throughout the years, but the most important of these servers are Windows server 2000, 2003, 2008, 2012, 2016 and 2019, as the previous versions were mostly focused on building up a solid foundation for these future versions. In this report, those versions of the Windows server operating system will be explained, focusing on the additions over previous editions, any issues they faced, the reception that each received, and how the various editions were updated and maintained.

Windows Server 2000:

The first Windows server version that will be discussed is Windows server 2000. Windows server 2000 was a version of Windows server that was fully released on September 26 2000. It was following the previous version, being Windows server NT 4.0 which had come out 4 years prior. Windows server 2000 was originally named after its previous version, with the original name of the version being Windows server NT 5.0, however it was renamed to Windows server 2000, a naming convention that they have stuck to for all following releases ever since. Some of the major changes over its predecessor were the implementation of the Microsoft Management Console (MMC), a service which allows for the creation and saving of administration tools and settings, and Active Server Pages (ASP), which allowed for the creation of dynamic web pages on the server side. The most important implementation though was certainly the active directory, which is a service that allows for administrators to manage user permissions and access to the network.

Windows Server 2000 was received positively and was a major success for Microsoft, with Microsoft reporting that one million copies had been sold in just the first month. Despite claims from Microsoft that this server edition was the most secure they had ever made, it did have many issues. One notable attack on this server was Code Red, a worm that used a buffer overflow to hack into a server, where it would then spread, deface the website and launch denial of service attacks. Windows server 2000 also had an incident where the source code was leaked in 2004, something that is never good for the security of a server and which resulted in numerous exploits. Extended support for Windows server 2000 ended in 2010, but this edition was a great success that set the foundation for all following server versions, a fact that can easily be seen through the continued use of many functions first introduced in this Windows server edition.

Windows Server 2003:

Windows server 2000 was a great success for Microsoft, but many improved versions were to follow, with the first improvement being Windows server 2003. Windows server 2003 was fully released to all potential users on April 21st 2003. This version included a bunch of improved security features as well as multiple features which improved productivity. Some of these new features include the implementation of server roles, which allowed for the designation of roles to the server which aided the server in fulfilling different roles, and the use of the .NET environment, which helped improve security. This server also kept and improved upon many aspects of Windows server 2000 such as improving the active directory. An updated version was also released in Windows server 2003 R2, which further improved this version of Windows server.

Windows server 2003 was a massive success, with Microsoft reporting on how much efficiency had been improved among users of the new Windows server version. Windows server 2003 also suffered from a leak of source code, although this leak was in 2020 which meant that the leak was much less of a problem than the leak that occurred with Windows server 2000 as windows server 2003 was long outdated by the time the leak occurred. Extended support for this version of Windows server ended on July 14 2015, but that wasn't the last time it was updated. This server version was susceptible to the Wannacry ransomware attack alongside other versions, leading Microsoft to release a patch long after the extended support date was up in order to prevent the attack from working on servers still running this version. The legacy of this version lives on in the continued relevance and improvement of functions introduced with this version such as server roles.

Windows Server 2008:

Windows server 2008 was a version of Windows server that was released following the successful release of Windows server 2003 R2 and was intended to further improve usability and efficiency. This version of Windows fully came out on February 27th 2008, being available

to manufacturers prior to the public, similar to all releases of Windows server. This version was intended to improve upon the usability of the server and to further improve aspects of the Windows server introduced in the previous versions. Hyper-V was introduced in this Windows server version, a program that is used to create, manage and visualize virtual machines. This version also updated the active directory, although they renamed this feature to the Active Directory Domain Service, or ADDS. They improved the active directory in a myriad of ways, further improving the usability and utility of this very important part of the server version, as well as adding important administration tools like Event Viewer. Similar to the previous version, an updated version of this server called Windows server 2008 R2 was released in 2009, which interestingly was based in Windows 7, an interesting case as the original version was based in Windows Vista.

Windows server 2008 was unfortunately created based on the failed Windows Vista, which is why the updated version was changed to be based on the much more popular Windows 7. Unlike the previous versions of Windows server, the source code has yet to leak, a fact that Microsoft surely wishes to keep that way. On release, Windows server 2008 was not even close to as popular as the previous version, in fact it did not surpass Windows server 2003 in usage until 2012. This trend tends to continue, as can be seen in the server released after Windows server 2008, which didn't surpass its predecessor until 2017. Windows server 2008 was a massive success for Microsoft overall, as even in 2019, Microsoft reported nearly 40% of servers running windows server were still using 2008. Extended support ended on January 14 2020.

Windows Server 2012:

Windows server 2012 was the next version of Windows server to be released. This version was released to the public on September 12th 2012 and was very focused on the cloud, so much so that this version of Windows server was promoted as the 'Cloud OS'. the cloud is a

very useful feature so it is only natural that Microsoft would want to capitalize on the cloud as much as possible. They also updated Hyper-v by updating the storage system of Hyper-V, introducing the Hyper-V virtual switch which allows machines in Hyper-V to interact with other computers, and the introduction of Hyper-V replica, which allows for replicas of virtual machines to be transferred between Hyper-V host servers. This windows server also had an updated version in the form of Windows Server 2012 R2 which was released in 2013 which added various improvements to systems introduced in the initial version.

This version of windows server did see success, and the public reception was good, but worse than some previous versions had received, specifically complaining about the new metro interface. This is also the oldest version of Windows server to still be receiving extended support from Microsoft, which will last until October 10th 2023. This version introduced many functions that deal with the cloud, however those functions also came with many bugs that could be exploited to hack into the system, bugs that Microsoft did patch over time. The cloud components added with this version of Windows server would continue to be improved upon and perfected in future versions, making the introduction of these functions in this server very important.

Windows Server 2016:

Windows server 2016 was the successor to Windows server 2012. This server was released to the general public on October 12th 2016 and generally was focused on one thing. The focus of this Windows server edition was security, and it is because of this focus that this server was far more secure than past versions. One very important feature that they added to this edition of Windows server was Windows Defender, an antivirus software that protects against malware, and the encryption of Hyper-V through the Hyper-V shielded VM. This server was also different in that it featured the release of the nano server, which is a server which has fewer points of attack than a standard server, thus further improving security.

The focus on security that Microsoft had in this version of Windows server led it to being the most secure Windows server version yet. Even though this version is far more secure than past versions, it is not the most popular version. Before the release of this edition, some reviewers found the improvements annoying to use and decided that they would simply disable them, but of course many just decided to keep their current server version, an issue which is compounded by very slow update speeds which further adds to the annoyance of this Server. This server version was revolutionary for security, and still will be in extended support by Microsoft until January 12 2027. Maybe as time goes on more people will switch to this version as Windows server 2012 loses extended support later this year, though I assume many will choose to use the newer versions of Windows server over this one.

Windows Server 2019

Windows server 2019 is the latest version of Windows server that will be discussed and currently is the only server of these that is still enjoying mainstream support by Microsoft, not just extended support. Windows server 2019 came out to the general public on October 2nd 2018 despite the name being 2019. This server features an increase in efficiency and performance through the implementation of various new and improved features. Some of these features include the addition of the Windows Admin Center, a browser based app which allows for the management of the Windows server and PCs that run Windows 10, as well as the Windows subsystem for Linux, which allows for linux to be used with Windows including all linux commands and tools, although strangely it did not support Microsoft's browser, Edge, on release. These new features allow for this Windows server version to be better than all that had come before it, being more efficient as well as more flexible.

This version of Windows server is more stable and efficient than any previous version of Windows server and truly is the culmination of the evolution the Windows Servers have gone through throughout the previous versions. This led to many companies deciding to update to

this version when it came out, leading this version of Windows server to great success, although many who had already made the switch to Windows Server 2016 decided to stay with that version. The systems and functions that have been added in this version simply make it better than all other versions that have come before it. This server will continue to receive support until January 9th 2029, making it viable as a server operating system for years to come.

Version:	Windows Server 2000	Windows Server 2003	Windows Server 2008	Windows Server 2012	Windows Server 2016	Windows Server 2019
Release Date:	September 26 2000	April 24 2003	February 27 2008	September 12 2012	October 12 2016	October 2 2018
Date That Extended Support Ends:	July 13 2010 (Ended)	July 14 2015 (Ended)	January 14 2020 (Ended)	October 10 2023 (Still Supported)	January 12 2027 (Still Supported)	January 9 2029 (Still Supported)

Conclusion:

All versions of Windows Server have added major improvements over those that have come before. Windows Server continues to hold the highest amount of market share when it comes to server operating systems, a fact that has remained true for many years and looks to continue. Every version of Windows Server has seen success, albeit with some having better success than others, but each was necessary for the advancement of the following versions, making each vital to the success of Windows Server as a whole. Windows Server will undoubtedly continue to improve and thrive with further releases and newer features which will continue to define how a server operating system can be leveraged for security, efficiency and overall quality.

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