WINDOWS
ACTIVATION

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SUMMARY

The activation process for "Windows.." has changed dramatically from "Windows XP" to "Windows 10". Here is a comparison of the activation processes for the various versions of "Windows.."
TOPICS

• "Digital Rights Management" Processes
• "Genuine Windows" For Versions "Windows.." Involved Generating and Storing A "Hash Tag" Consisting of 12 Parameters
• "Windows 10" has "Digital License" and "Product Key" Activation
"DIGITAL RIGHTS MANAGEMENT" PROCESSES

• "DRM" protects the intellectual property rights of the creators of something which in this case is an operating system
"DIGITAL RIGHTS MANAGEMENT" PROCESSES (continued)

- **Linux:**
  for most "distros" of Linux there is no DRM: please copy and distribute them!

- **Mac OS X:**
  no activation required but Apple severely limits the availability and compatibility of installation media
"DIGITAL RIGHTS MANAGEMENT" PROCESSES (continued)

• "Windows XP" and "Windows Vista" have "Windows Genuine Advantage" for an activation process

• "Windows 7" has "Windows Activation Technologies"
"DIGITAL RIGHTS MANAGEMENT" PROCESSES (continued)

• "Windows 10" has "Product Key Activation" which results in a "Digital License"
"DIGITAL RIGHTS MANAGEMENT" PROCESSES (continued)

• The activation process for most of Microsoft's software products including "Windows.." depends on their server farms:
"DIGITAL RIGHTS MANAGEMENT" PROCESSES (continued)

• 1+ million servers for Microsoft services such as "OneDrive", "Bing", "Outlook.com", "Skype", "Xbox", according to Steve Ballmer. See http://www.extremetech.com/extreme/161772-microsoft-now-has-one-million-servers-less-than-google-but-more-than-amazon-says-ballmer
DIGITAL RIGHTS MANAGEMENT

PROCESSES (continued)

• $23 billion spent to build server farms worldwide according to https://storageservers.wordpress.com/2013/07/17/facts-and-stats-of-worlds-largest-data-centers/
DIGITAL RIGHTS MANAGEMENT

PROCESSES (continued)

• Server farms located in
  Santa Clara, California
  Chicago (Northlake), Illinois
  West Des Moines, Iowa (x3)
  San Antonio, Texas
  Boydton, Virginia
  Ashburn, Virginia
  Quincy, Washington
  Dublin, Ireland
FY10 MS Online Data Centers and Markets

- Data Center location will be based on ship-to address during the purchase process
- Data will reside in 2 Data Centers to provide redundancy

Virginia with backup in Washington+
1. United States
2. Canada
3. Mexico
4. Puerto Rico
5. Brazil+
6. Chile+
7. Colombia

Dublin with backup in Amsterdam
1. Austria
2. Belgium
3. Czech Republic
4. Denmark
5. Finland
6. France
7. Germany
8. Greece
9. Hungary
10. Ireland
11. Italy
12. Italy
13. Israel
14. Netherlands
15. Norway
16. Poland
17. Portugal
18. Romania
19. Spain
20. Sweden
21. Switzerland
22. UK

Singapore with backup in Hong Kong++
1. Australia
2. Hong Kong
3. India (sales in Nov ‘09)
4. Japan
5. Malaysia
6. New Zealand
7. Singapore (sales in Nov ‘09)
8. South Korea (sales July ‘10)
9. Taiwan (sales July ‘10)

++ Hong Kong will go-live in Oct 2009. APAC data will be backed up in the US until then

+ In FY11 we will launch a co-lo in Brazil that will serve Brazil, Chile, and some other LATAM countries. Until then Brazil and Chile will use Virginia which has acceptable latency rates.
An aerial view of the Microsoft data center in Quincy, Washington

After years of operating in third-party facilities, Microsoft began building its own data centers in 2007 as it ramped up its battle with Google in the online services arena. Its first in-house project was a huge data center in the small Washington town of Quincy, where Microsoft invested $550 million in building a 470,000 square foot data center supported by hydro-electric power from nearby dams on the Columbia River. A year later it unveiled a
An aerial view of the 470,000 square foot Microsoft data center in San Antonio.
6. MICROSOFT DATA CENTER, DUBLIN, 550,000 SF
5. MICROSOFT CHICAGO DATA CENTER, Chicago 700,000 SF
Server Farms Operated by Microsoft contain:
- Activation Servers
- "OneDrive" Servers
- Web Servers
- Email Servers
"GENUINE WINDOWS" FOR VERSIONS OF "WINDOWS.." PRIOR TO "WINDOWS 10"

• Activation is based on "Genuine Windows" for versions of "Windows.." prior to "Windows 10.."
"GENUINE WINDOWS" FOR VERSIONS OF "WINDOWS.." PRIOR TO "WINDOWS 10" (continued)

- The "Genuine Windows" process means that the various information is stored both on the internal hard drive of your computer AND at Microsoft's activation servers:
"GENUINE WINDOWS" FOR VERSIONS OF "WINDOWS.." PRIOR TO "WINDOWS 10" (continued)

• "Windows XP" and "Windows Vista" have "Windows Genuine Advantage"

• "Windows 7" has "Windows Activation Technologies"

• "Windows 10" has "Digital License"
"GENUINE WINDOWS" FOR VERSIONS OF "WINDOWS.." PRIOR TO "WINDOWS 10" (continued)

• Computer make and model

• Version information for the operating system and software

• Region and language settings

• A unique number assigned to your computer by the tools (Globally Unique Identifier or GUID)
"GENUINE WINDOWS" FOR VERSIONS OF "WINDOWS.." PRIOR TO "WINDOWS 10" (continued)

- Product Key (hashed) and Product ID
- BIOS name, revision number, and revision date
- Hard drive volume serial number (hashed)
"GENUINE WINDOWS" FOR VERSIONS OF "WINDOWS.." PRIOR TO "WINDOWS 10" (continued)

- Product Key (hashed) and Product ID
- BIOS name, revision number, and revision date
- Hard drive volume serial number (hashed)
"GENUINE WINDOWS" FOR VERSIONS OF "WINDOWS.." PRIOR TO "WINDOWS 10" (continued)

• Whether the installation was successful if one was performed

• The result of the validation check, including error codes and information about any activation exploits and any related malicious or unauthorized software found or disabled
"GENUINE WINDOWS" FOR VERSIONS OF "WINDOWS.." PRIOR TO "WINDOWS 10" (continued)

• and

"GENUINE WINDOWS" FOR VERSIONS OF "WINDOWS.." PRIOR TO "WINDOWS 10" (continued)

- and
  http://windows.microsoft.com/en-us/windows/activate-windows#1TC=windows-7
"GENUINE WINDOWS" FOR VERSIONS OF "WINDOWS.." PRIOR TO "WINDOWS 10" (continued)

• and

http://windows.microsoft.com/en-us/windows/windows activate-windows#1TC=windows-7
"GENUINE WINDOWS" FOR VERSIONS OF "WINDOWS.." PRIOR TO "WINDOWS 10" (continued)

• and

http://mobile.osnews.com/comment.php?news_id=26661
"GENUINE WINDOWS" FOR VERSIONS OF "WINDOWS.." PRIOR TO "WINDOWS 10" (continued)

• and

http://www.wilderssecurity.com/threads/windows-7-validation-up-and-running-now.265585/
"GENUINE WINDOWS" FOR VERSIONS OF "WINDOWS.." PRIOR TO "WINDOWS 10" (continued)

- In other words, for "Windows.." prior to "Window 10..", Microsoft does not store the UUID of the motherboard of your computer in it's activation servers
"GENUINE WINDOWS" FOR VERSIONS OF "WINDOWS.." PRIOR TO "WINDOWS 10" (continued)

• For details about this, see http://www.zdnet.com/article/windows-activation-technologies-an-unauthorized-inside-look/
ACTIVATION IN "WINDOWS 10"

• For details about activation in "Windows 10..", see http://aztcs.org/meeting_notes/winhard sig/win10/activation/win10-activation.pdf