

Assignment 1

Describe the mechanism of Windows10 update function.

Windows 10 automatically downloads and installs updates to make sure your device is secure and up to date. This means you receive the latest fixes and security updates, helping your device run efficiently and stay protected. In most cases, restarting your device.

Windows 10 is the newest operation system released by Microsoft company. With its release, together comes with a new concept of "**Windows as a service**", which suggests that Windows 10 users will be provided and will receive updates much more regularly.

While previous Windows systems only receive major revisions, service packs and monthly updates that was not even "monthly", Windows 10 devices have their updates divided into "**feature update**", "**quality update**" and other updates. And there are channels for users with different requirement: **Windows Insider Program**, **Semi-Annual Channel** and **Long Term Servicing Channel**.

All updates on Windows 10 are demanded to be installed, except for users enrolled in the Long Term Servicing Channel.

1. Scanning Update

When a Windows 10 device check for updates, it initiates the **Windows Update Orchestrator** to start the update job. The Windows Update Orchestrator here will work as a coordinator for the update job. Then the Windows Update Orchestrator will sends a update request to the Windows Update Server, which stores the index of all released updates in it. After receives the update request from the user's device, the Server will respond with the list of all available updates. After that, the Orchestrator will search for updates that have been added since the last time updates were searched, including software and hardware drivers that can be updated through Windows Update. And it will verify these updates with using guidelines and policies to check if the update is appropriate for the device.

2. Downloading Update

After the scanning process, the Orchestrator will initiate the downloads. As the first phase, the **Windows Update**, a.k.a. **WU**, will download the **manifest files** from the Windows Update Server. Then the manifest files will be sent to the **Arbiter**, which will evaluate the manifest files and then tells WU to download this update files from **Windows Update File Server**. Also, as a method to improve speed and efficiency, update files can also be achieved from other Windows 10 devices that occupy these files, using a P2P connection.

3. Installing Update

When the downloads are done, the Orchestrator will initiate installation by calling the Arbiter. The Arbiter will gather information about the device and compare them with the update information, and finally generate an "**action list**", which describes all the update files needed from WU. Using this action list, corresponding installer can execute the installation job.

4. Committing Update

After installation, normally there are requirement to restart the device for updates to be effective. In this case, the Windows Update Orchestrator will initiate the reboot and the Arbiter will finalize its job before the reboot.

Reference

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