Survey of Windows update formats: The Delta update

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Last time, we began our survey of Windows update formats. We'll continue with the Delta update.

The **Delta update** is a cut-down version of the Full update by including only files that changed since the previous version. Delta updates are typically around 300MB to 500MB in size, which is significantly less than the typical 1GB size of a Full update.

Delta updates send full files, not patches. The *Delta* is applied at the file level, not the byte level.

Update	Full file	Patch base				
		M0	M1	M2	M3	M4
M1	M1	M0 to M1				
M2	M2	M0 to M2	M1 to M2			
M3						
M4	M4	M0 to M4	M1 to M4	M2 to M4		
M5	M5	M0 to M5	M1 to M5	M2 to M5		M4 to M5

The breakdown of files for Delta updates is as follows:

Delta update	Contents
M1	M1
M2	M2
M3	(nothing)

M4	M4
M5	M5

Note that Delta update M3 contains nothing at all. That's because the file `F` didn't change between M2 and M3, so there was nothing to update.

Feature summary of Delta updates:

- Delta updates can successfully update only customers who are running the previous monthly cumulative update (possibly with hotfixes). It cannot update customers who are more than one version behind.
- Delta updates are a third to a half the size of a Full update.
- Delta updates require a little bit of negotiation with the server to determine whether the client system is eligible, but once that's determined, every eligible customer downloads the same update.
- Delta updates are cache-friendly, because every customer downloads the same update (if they download anything at all). Therefore, caching features like caching proxies, BranchCache, and peer-to-peer delivery are effective.
- Delta updates do not require significant server support. Once the package is negotiated, it is delivered in its entirety.

Next time, we'll look at the **Express update**, which despite its name is actually larger than Full updates, or at least they're larger on the server.

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