2013-01-01

It appears the best way to implement WCF communication between desktop and Windows service is to have three projects:

1. A desktop app that acts as a WCF client
2. A Windows Service that handles the backend stuff
3. A WCF service library that is hosted inside the windows service

In this architecture, the Windows services manager (services.msc) will start/stop the backend service and the backend service will start/stop the WCF service library. The WCF service library is a DLL so it cannot be run on its own.

2013-05-29

Rudimentary testing indicates considerable space can be conserved by storing file paths in a tree structure similar to how they are actually stored on the filesystem. Preliminary results conclude about 1/3 of the space/memory is used when storing the filenames of brownie:/home/sysadm in a tree with references to parent directory rather than as a list of complete paths.

The most critical problem appears to be how to handle conflicts when we cannot be certain that the modification time of a file on two different systems is reliable. How can we know the clock on each of these systems is accurate and which system has the more recently modified file? The problem usually presents itself when the nodes attempt to synchronize after some period of being out of synchronization. Perhaps each node should track which files it knows has changed and have not been synchronized to each of the other nodes. This would incur a storage cost on the source node of approximately 4-6 additional bytes per changed file per unsynchronized remote node.

A technique needs to be architected for a destination node to indicate to a source node that the destination has successfully stored the modified file/file-part. Perhaps the tar format can be extended to include a file “label” for each entry and cumulative acknowledgements can be used by the destination to indicate multiple files have been stored. These labels need not be globally unique – they can be unique per node similar to MPLS or frame relay’s labels because the label will never be stored on the destination, it will only be echoed to the source after storage is complete.