



**N I C  
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**Jeremy Allison  
Samba Team  
The Death of  
CIFS ?**





# The Death of CIFS ?



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“The CIFS Protocol, dead at 18. I'm sure everyone in the CIFS community will miss it - even if you didn't enjoy working on it, there's no denying it's contributions to popular culture. Truly an American icon.”



# Why would Microsoft want to kill CIFS ?

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# Why would Microsoft want to kill CIFS ?

- ◆ Microsoft has lost control of the server side of CIFS.
- ◆ The Open Source Samba implementation has prevented leveraging the client monopoly effectively onto file servers.
  - Proprietary CIFS implementations from NetApp and EMC can be controlled, GPL code cannot.
- ◆ Linux plus Samba is an effective block to Microsoft's file server expansion.

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# More reasons for hitting CIFS with a blunt instrument.

- ◆ **CIFS is too complex and costly to support and maintain.**
  - Recent service packs have managed to break some basic interoperability.
  - CIFS semantics are so unclear in detail that it is easy to make implementation mistakes.
- ◆ **To regain control and lock out Open Source code, incompatible protocol changes are needed.**
- ◆ **Open implementations mean it is too easy for competition to exist.**

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# Who is allowed to exist and compete ?

- ◆ **Competitors at the file system block level – SAN vendors of Fibre Channel and iSCSI are safe.....for now.**
  - NTFS can be run on top of block level protocols.
  - Value can be added below the Microsoft stack, for the moment....
- ◆ **The existence of NAS, other than vendors shipping SAK based product, is an irritation to Microsoft.**
  - EMC appears to have been chosen as the “Dell” of NAS vendors.

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# **How will Microsoft try to kill CIFS ?**



# How will Microsoft try to kill CIFS ?



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# How will Microsoft try to kill CIFS ?

- ◆ WinFS in the “Longhorn” Windows release will be positioned as the logical successor to CIFS.
  - Little is known about WinFS, the “SQLServer” based file system
  - Originally touted as a new file system, the latest news is that it will be implemented as a service on top of NTFS.
- ◆ My best guess is this new protocol will be encrypted as standard, and protected by software patents.
  - Microsoft won't make the same mistake twice.

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# How to deliver the death blow ?

- ◆ Customers will be “encouraged” to migrate to WinFS by :
  - tying new Microsoft Office features to store and search features only available on WinFS.
  - Server products will detect and refuse to work with CIFS.
- ◆ Backwards compatibility will be maintained, but interop bugs with old clients will be deemphasized
  - Security alerts will recommend just “turning off CIFS”. Witness the latest Windows NT 4.x “fix”.

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# Arm twisting customers

- ◆ With a 95% client monopoly, adoption of a new proprietary protocol and migration of file servers to Windows depends on client “upgrade cycles”.
- ◆ In my opinion CIFS has at least a 3 - 5 year life ahead of it once Longhorn ships.
  - Microsoft's job is to minimize this time.
- ◆ NAS vendors must realize every dollar spent on Microsoft products is a dollar being re-invested in putting them out of business.

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# **What can CIFS Vendors do about this ?**

# What can CIFS Vendors do about this ?

- ◆ **One option is to license the WinFS protocol from Microsoft.**
  - If this is available. At what cost ?
  - Almost certainly won't be available to implement in GPL or Open Source licensed code. The intent of this will be to exclude Linux.
  - A few “preferred vendors” will be able to survive in this world by offering features and services Microsoft doesn't find currently attractive.
  - Microsoft thinking is that it returns value to developers by buying them out!

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# What can CIFS Vendors do about this ?

- ◆ **A longer term strategy is to reduce the power of Windows as a client.**
  - The Linux / Mac OS X strategy.
  - Requires vendors to encourage and assist their customers in migrating from Windows desktops to an alternative.
- ◆ **Allows NAS vendors to continue to ship NFS v3/v4 and any other UNIX based remote storage protocol.**
  - NetApp are funding a Linux NFSv4 client.
- ◆ **This requires broader application support on non-Microsoft platforms.**

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# What can CIFS Vendors do about this ?

- ◆ **NAS vendors can also help themselves by testing their servers against non-Microsoft server implementations.**
  - CIFS interop lab is a vital part of this.
- ◆ **Provide added value when operating with a non-Microsoft server infrastructure.**
  - Supporting non-Microsoft LDAP servers (Novell NDS, OpenLDAP, etc. ).
  - Supporting non-Microsoft enhancements such as the UNIX extensions to CIFS.

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# What makes an alternative client possible now ?

- ◆ **Previous client alternatives to Windows have failed (OS/2, BeOS).**
  - Linux and Mac OS X desktops may finally represent a common enough platform that application vendors see a viable alternative market.
- ◆ **Code not owned or controlled by any one company (the GPL in action) has finally attracted a critical mass of server vendors.**
  - Will the same happen on the client ?

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# Hedging our bets – an Open Source CIFS Client.

- ◆ IBM has funded a GPL Linux CIFS client – running in the 2.4 and 2.5 (unstable) Linux kernel.
- ◆ Using the IFS kit and the above code it may be possible to create a Windows CIFS client.
  - This would allow the NAS/CIFS vendors to take control of both sides of their business.
  - Funding for this is more important (IMHO) than NFS clients for Linux.

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# Hedging our bets – an Open Source CIFS Client.

- ◆ This is a much harder task than creating a CIFS server or Linux CIFS Client.
  - It is not clear that this will be sustainable, but is worth attempting as part of a two-part strategy to stay in business.
- ◆ This has been attempted before, but only by implementing a “foreign” protocol.
  - PC-NFS was an attempt on these lines.
  - Windows NFS clients fail due to their inability to match the Windows semantics.



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# Can we succeed in sustaining non-SAK NAS ?

- ◆ **The history of NAS vendor cooperation has not been good.**
  - Most vendors have appeased Microsoft in the hope someone else will fall victim first.
  - This is short-term thinking. As Churchill once said : “Each one hopes that if he feeds the crocodile enough, that the crocodile will eat him last.”
- ◆ **The only way to sustain our part of the industry is to cooperate on an Open Storage protocol.**

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# Is CIFS dead ?

- ◆ **CIFS, imperfect as it is, seems to be the only currently widely deployed, interoperable, client side protocol.**
- ◆ **We need CIFS – more than Microsoft does.**
  - But Microsoft knows this.
- ◆ **The DoJ didn't help us, we can't expect the EU to help either.**
  - We can only help ourselves.
  - “We must indeed all hang together, or most assuredly we will all hang separately.” : Benjamin Franklin.

# The death of CIFS ?



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Or can we try and keep it alive.... ?



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# **Questions and Comments**