



N F S
I N D U S T R Y
C O N F E R E N C E

September 22-24

Jeremy Allison
Samba Team

The Death of CIFS ?





**N
F
S** **I
N
D
U
S
T
R
Y** **C
O
N
F
E
R
E
N
C
E**

September 22-24

The Death of CIFS ?



"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."



**N
F
S**
**I
N
D
U
S
T
R
Y**
**C
O
N
F
E
R
E
N
C
E**

September 22-24

Why would Microsoft want to kill CIFS ?



**N I C
F N O
S D U
T R E
Y R E
N C
E**

September 22-24

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.**



**N I C
F N O
S D N
U S F
T R E
R Y N
C E**

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.**



**N
F
S** **I
N
D
U
S
T
R
Y** **C
O
N
F
E
R
E
N
C
E**

September 22-24

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.



**N
F
S**
**I
N
D
U
S
T
R
Y**
**C
O
N
F
E
R
E
N
C
E**

September 22-24

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



**N
F
S** **I
N
D
U
S
T
R
Y** **C
O
N
F
E
R
E
N
C
E**

September 22-24

How will Microsoft try to kill CIFS ?





**N I C
F N O
S D N
I U F
N S E
T R E
R Y N
C E**

September 22-24

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.



**N
F
S** **I
N
D
U
S
T
R
Y** **C
O
N
F
E
R
E
N
C
E**

September 22-24

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”.



**N
F
S** **I
N
D
U
S
T
R
Y** **C
O
N
F
E
R
E
N
C
E**

September 22-24

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.**



**N I C
F N D
S U S
T R F
R Y R
E
N
C
E**

September 22-24

What can CIFS Vendors do about this ?



**N I C
F N O
S D N
U F
S E
T R
R E
Y N
C
E**

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!



**N I C
F N O
S D N
U S F
S T E
T R E
R Y N
C E**

September 22-24

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.**



**N I C
F N O
S D N
U S F
T R E
R Y N
C E**

September 22-24

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.



**N I C
F N O
S D N
U S F
T R E
R Y E
N C
E**

September 22-24

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 ?



**N I C
F N O
S D N
U S F
T R E
R Y N
C E**

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.**



**N I C
F N O
S D N
U F
S E
T R E
Y N
C E**

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.



**N I C
F N O
S D N
U F
S E
T R
Y E
N C
E**

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.**



**N I C
F N D
S U S
T R E
R Y N
C E**

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.



**N
F
S** **I
N
D
U
S
T
R
Y** **C
O
N
F
E
R
E
N
C
E**

September 22-24

The death of CIFS ?



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



**N
F
S** **I
N
D
U
S
T
R
Y** **C
O
N
F
E
R
E
N
C
E**

September 22-24

Questions and Comments