ReDocumenting Historic CIFS

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Introductions

Who am I?

Why am I here?

Where are we going?
Introductions

...and what am I doing in this handbasket?
Introductions

Who am I?

This geek here.
Introductions

Who am I?

Samba Team (12± years)
jCIFS Co-Founder
Started with SMB/CIFS circa 1990 (DEC Pathworks)
Introductions

Who am I?

- I have founded a new company
- We do SAN and NAS consulting
- We are a *team* of geeks
Introductions

Why am I Here?

- To tell you about the exciting new documentation...
Introductions

Why am I Here?

- To tell you about the exciting new documentation...

- ...that covers CIFS circa 1996.
Introductions

Why am I Here?

- To tell you about the exciting new documentation...

- ...that covers CIFS circa 1996.

  Yes, really.

  Hang on... I’ll explain why this is a good thing.
Why am I Here?

- To tell you about the exciting new Microsoft documentation...
- ...that covers CIFS circa 1996.

Part of the MCPP/WSPP documentation set.

On-line, downloadable, and available to the public.
Introductions

Why am I Here?

*Microsoft* asked a member of the *Samba Team* to document SMB/CIFS.
Introductions

Why am I Here?

*Microsoft* asked a member of the *Samba Team* to document SMB/CIFS!

“If you’re surprised, you’re not paying attention.”
—Sam Ramji
Introductions

Where are we going?

- History: *Why it matters.*
- Scope: *What is(n't) covered, & why.*
- Process: *How we are going about it.*
- Results: *The benefit to you.*
History
SMB is the COBOL of Network File Systems.
History

In the early days, *SMB was documented*:

- **1984**: IBM Personal Computer Seminar Proceedings, Volume 2, Number 8
- **1986**: OpenNET/Microsoft Networks FILE SHARING PROTOCOL EXTENSIONS, Version 1.9, Microsoft and Intel (XENIX extensions)
- **1988**: Microsoft Networks/OpenNet, Document Version 2, Microsoft and Intel (Core)
Then things started thinning out.

**1992:** X/Open CAE Specification, Protocols for X/Open PC Interworking: SMB, Version 2, X/Open Company, Ltd. (Core through LAN Manager 2.0)

**1996:** Microsoft Networks SMB File Sharing Protocol, Document Version 6.0p, Microsoft (Unfinished draft of NT LAN Manager 0.12 documentation.)

**1997:** A Common Internet File System (CIFS/1.0) Protocol, IETF INTERNET-DRAFT, Paul J. Leach, Dilip C. Naik (Unfinished draft v2 of NT LAN Manager 0.12 specification.)

**2002:** Common Internet File System (CIFS) Technical Reference, Revision: 1.0, Storage Networking Industry Association (SNIA)

**2003:** Implementing CIFS, yours truly, Prentice Hall PTR
Never ascribe to malice that which is adequately explained by incompetence. — attributed to Napoleon Bonaparte, among others
This situation made people unhappy.
History

The Misinterpretation:
- “You guys want our source code!”

The Real Problem:
- No clear, documented standard for interoperability.

The Proposal:
- “Write it!”

Those who cannot learn from history are doomed to repeat it. — Santayana
History

Terms and Conditions
Scope
CIFS: A Common Internet File System

What does the term “CIFS” mean this week?

- Only the NT LM 0.12 dialect
- Not DOS or OS/2 LAN Manager
- Certainly not the Xenix or Core dialects
- The NT LM 0.12 dialect as of:
  - Windows NT3.51 & NT4 Server
  - Windows NT4 & 98 client

“CIFS” is now a Snapshot in Time
Very Limited Scope.
Scope

Related docs are being updated to match [MS-CIFS] content.
Must fit within the **TEMPLATE**

- Not a developer's dream
  - There are unusual rules
  - The format is a mix of ISO and IETF Standards styles
  - It was put together by non-techies

- We are committed to making the best of it.

  (Just as we are all committed to making the best of SMB/CIFS, eh?)
Process

- Gozinta
- Gerbilizer
- Comparator Cuff
- Comzouta
- Torque Defibrillator
- Speed Tongue
- Sharpe Thang
- Naughty Bits
Information Gathering

The ancient texts:

- A phenomenal source of... questions.
- Oddities in the old IBM docs
- Hold-overs from the Xenix docs
- A lot to learn from the LANMAN docs
- There are forgotten docs too
- Who here has noticed the references to a SID field in the SMB header in Leach/Naik?
Where the bodies are buried

What I can say about the NT code is that it is pretty much what we expected:

- Relatively thin
- Exposes Windows OS behaviors
- Undead commands (Move/Copy)
- It is very old code now
All writing is done in a Wiki, maintained within Microsoft.

- It's a scratch pad
- A communication medium
- Provides opportunities to review/rewrite
- Available for MS to monitor
- We add questions and comments to the command write-ups as we proceed.

(Implementing CIFS was written in public.)
Testing and Code Spelunking

Testing

- SMB Torture and jCIFS
  - Kludgey modifications to the above
- Plus a little code of our own

Code Digging

- Resolve questions
- Discover nuances
- Raise new questions
Cart/horse placement issues...
Results

Those that respect the law and love sausage should watch neither being made. — Mark Twain
Results

Pretty much what we expected

- Studying CIFS raises as many questions as it answers
- We have to "document out" OS behaviors
- The new doc will be
  - more complete
  - more correct
  - more detailed than any previous CIFS doc
- It's still a CIFS doc
Advantages this time 'round:
- Two very different perspectives
- "Are you sure that's how that works?"
- [MS-CIFS] handed off to Microsoft

A preview is available!
- We do want feedback

Results

What's next?

- Rewriting [MS-SMB] to conform to [MS-CIFS].
- Review of related docs
  - We have been working in these docs for months
  - Have already started submitting bug reports
Results

[MS-SMB] Update

[MS-SMB] is a “delta”
- Originally a supplement to Leach/Naik ([CIFS])
- Being overhauled to conform to [MS-CIFS]
In Summary

[MS-CIFS] replaces Leach/Naik and the SNIA CIFS TR as the new baseline SMB/CIFS reference.

It fills a void in Microsoft's MCPP/WSPP documentation set.

[MS-CIFS] provides a sturdy foundation for the other MCPP/WSPP documentation.

Protocol extensions since NT are in [MS-SMB].
Definitions (real world):

**SMB: Server Message Block**
A stateful network file system protocol originally created by IBM in the early 1980s for use with the PC-DOS operating system.

**CIFS: Common Internet File System**
A name given to the suite of protocols that include SMB and related supporting protocols. This name was created in the mid 1990's.

**SMB2: Server Message Block v2**
A network file system protocol created by Microsoft for Windows Vista. SMB2 is a redesign of SMB, focusing on improved network efficiency and wide-area-network (WAN) performance.
Definitions (legal and regulatory world):

**CIFS:** The Server Message Block file sharing protocol as implemented in Windows NT 3.51, NT 4, and Windows 9x clients.

**SMB:** The Server Message Block file sharing protocol as implemented in Windows starting with Windows 2000, up to and including current versions of Windows.

**SMB2:** The Server Message Block protocol, v2 as defined above.

Unfortunately, the terminology changes depending upon who you talk to, when you talk with them, and the context of the conversation.
The End
Any Questions?