

# Microsoft Protocol Specifications What – Where – and *HELP!*

**Bryan S. Burgin**  
**Microsoft Corporation**



# Microsoft Protocol Specifications

What – Where – and *HELP!*



# What?

A focus on Microsoft's library of protocol specifications



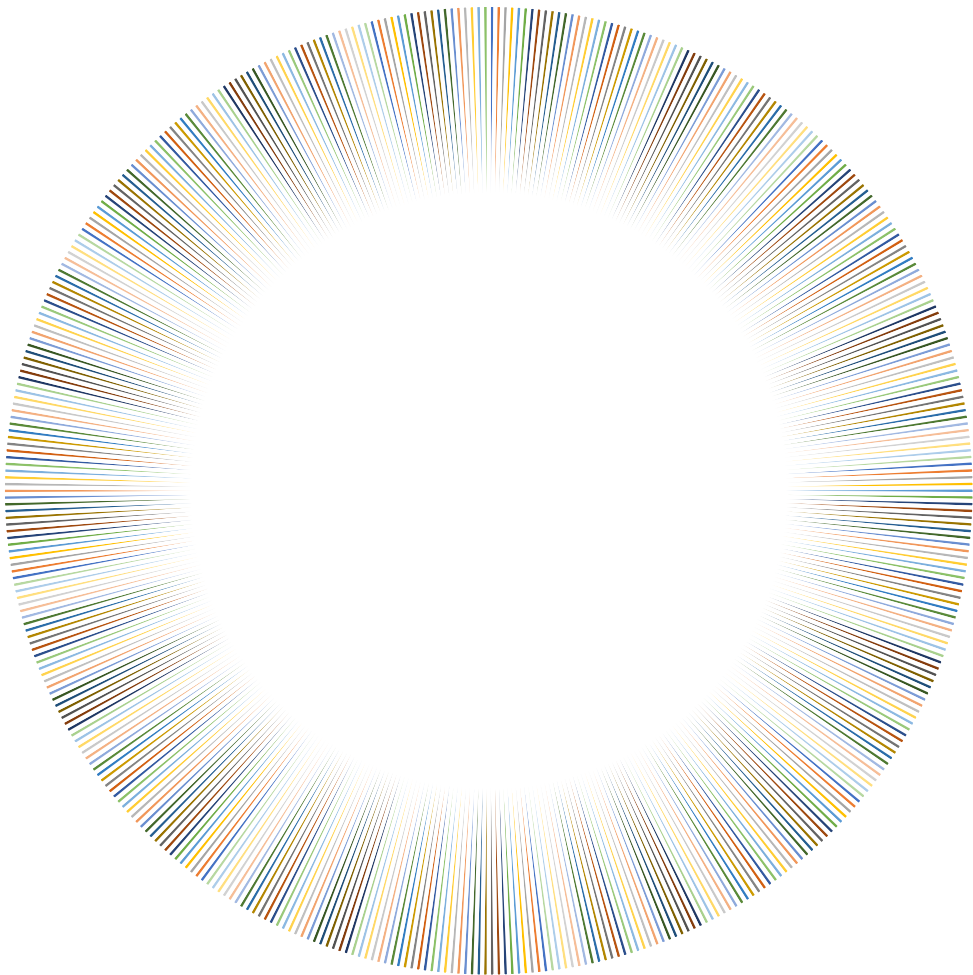
# Library of Microsoft Protocols

- Microsoft maintains over 860 technical specifications across:
  - Windows
  - Office
  - SQL
- Windows maintains over 450 documents in many subareas:
  - File, Fax, Print, and Scan Services (File Sharing)
  - Directory Services (AD)
  - Remote Connectivity (RDP)
  - Security and Identity
  - Others
- Each subarea is further sub-divided; we'll focus on File, Fax, Print, and Scan Services
- 10,000m to 1m view (drill-down to an individual File Services document)...

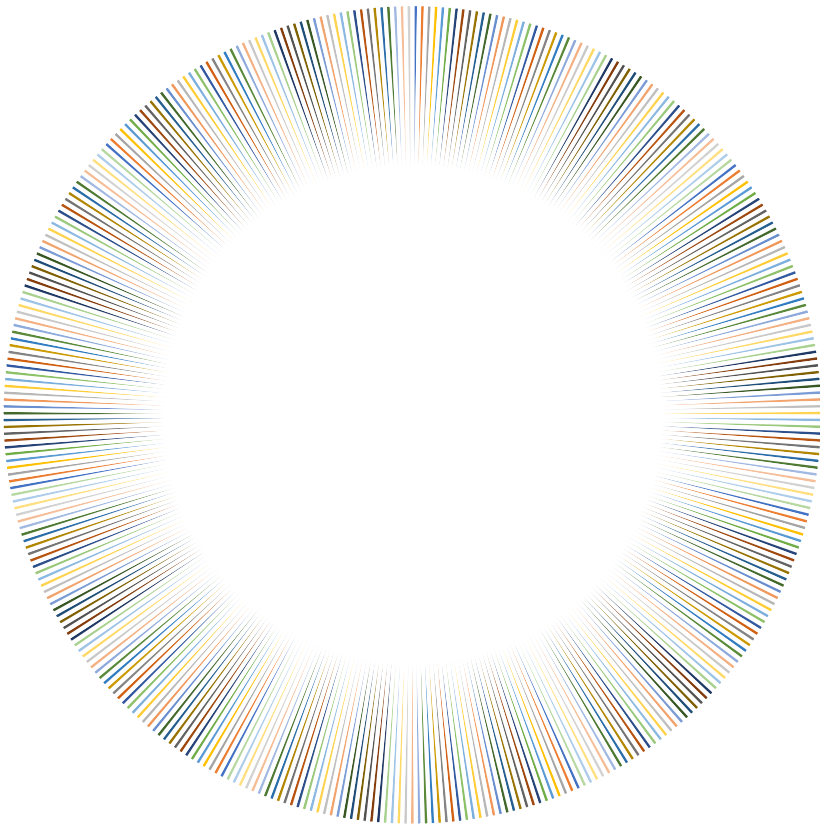


Microsoft’s Open Specification Library contains 860+ documents Across three major product lines

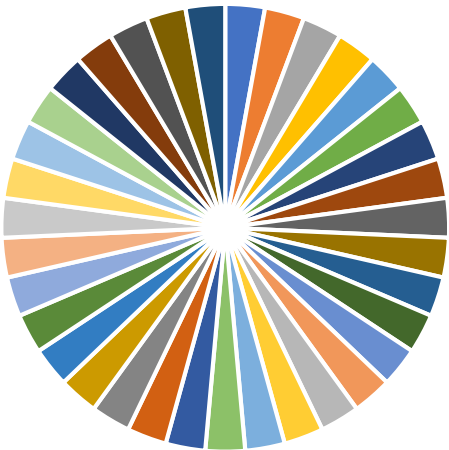
450+ Windows Protocols



375+ Office Specifications

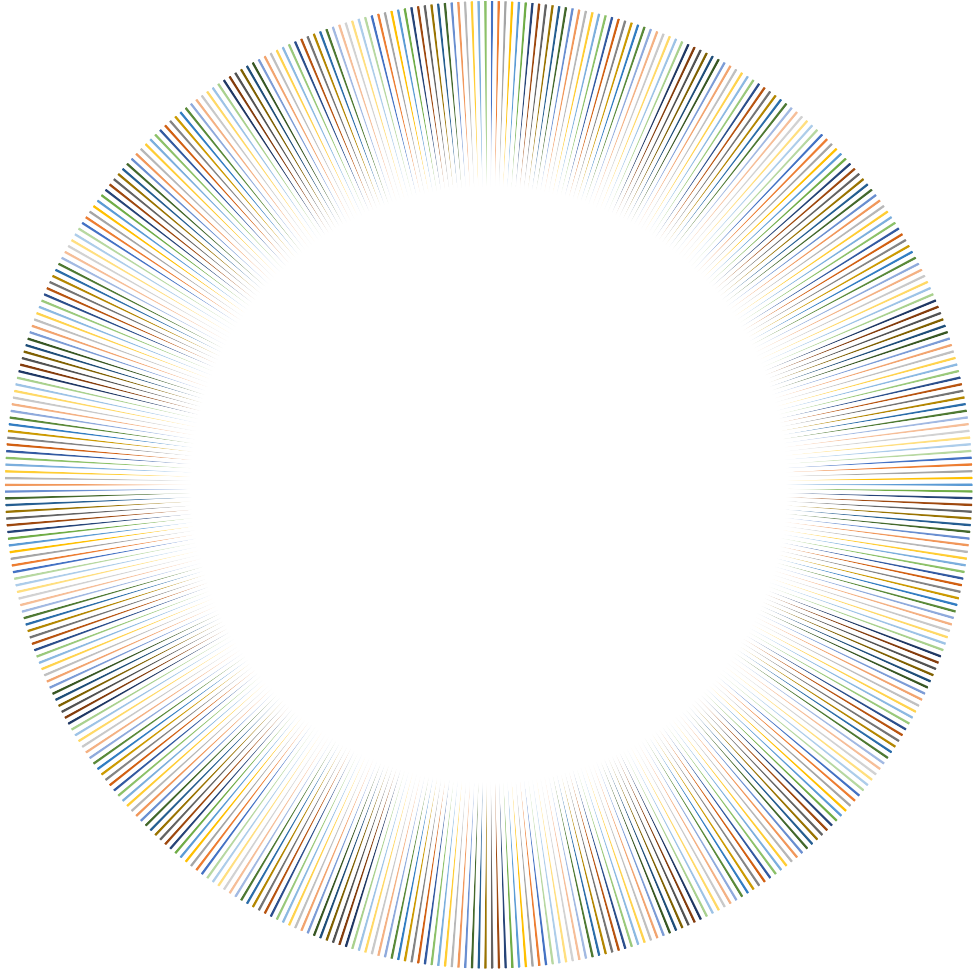


35+ SQL Specifications



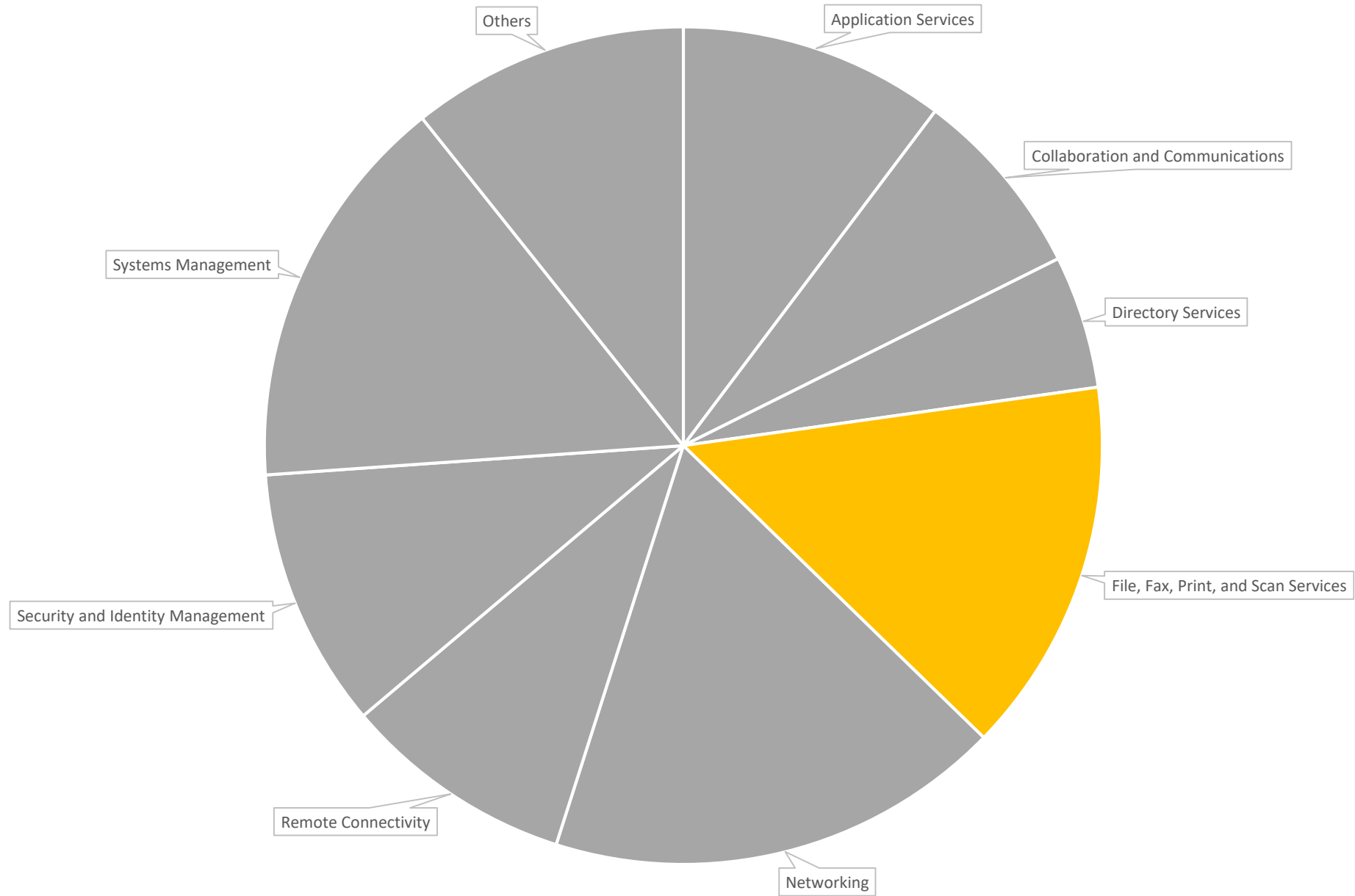
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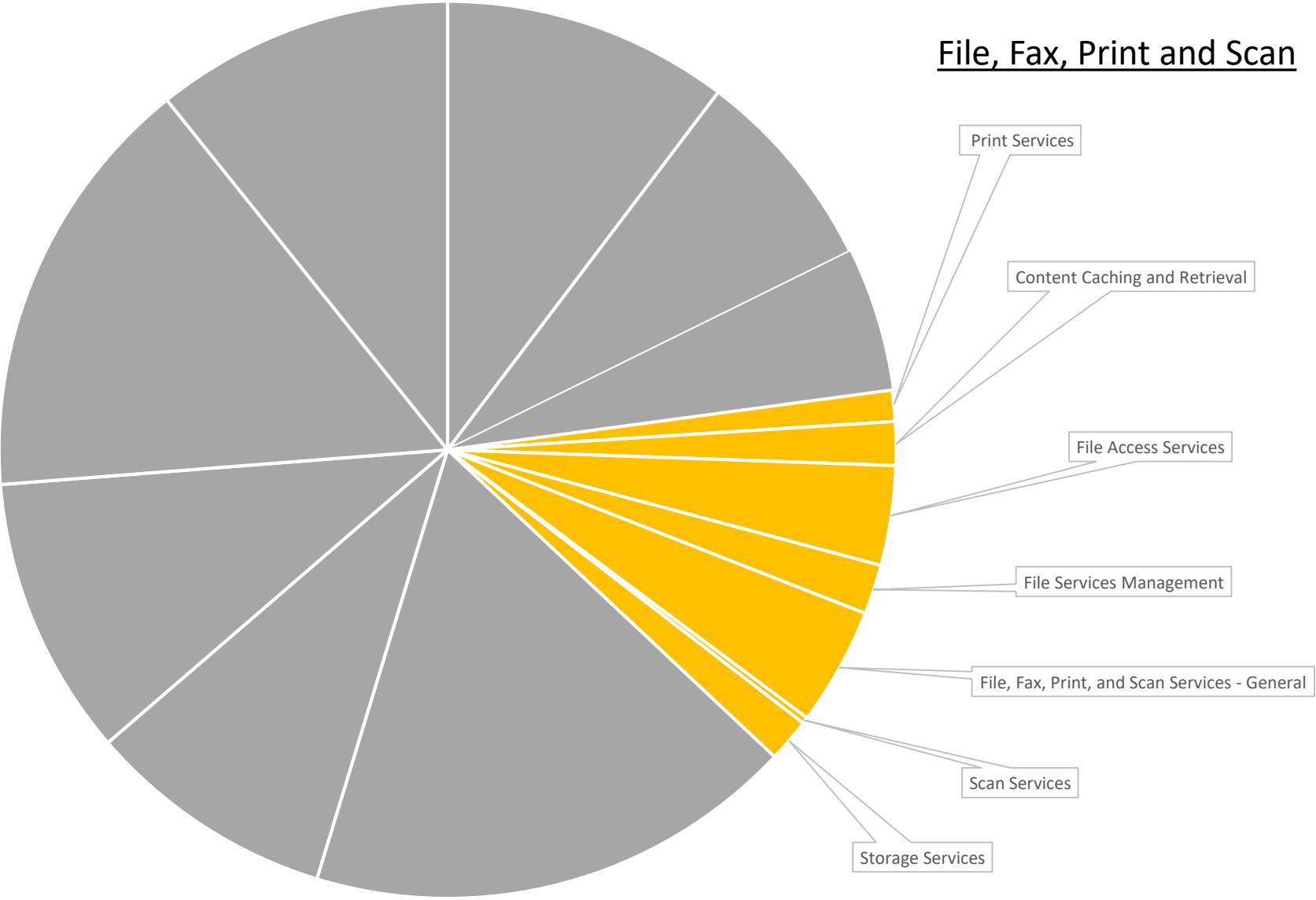
450+ Windows Protocols



Let's drill-down through  
the sublayers to a specific  
Windows Document ...

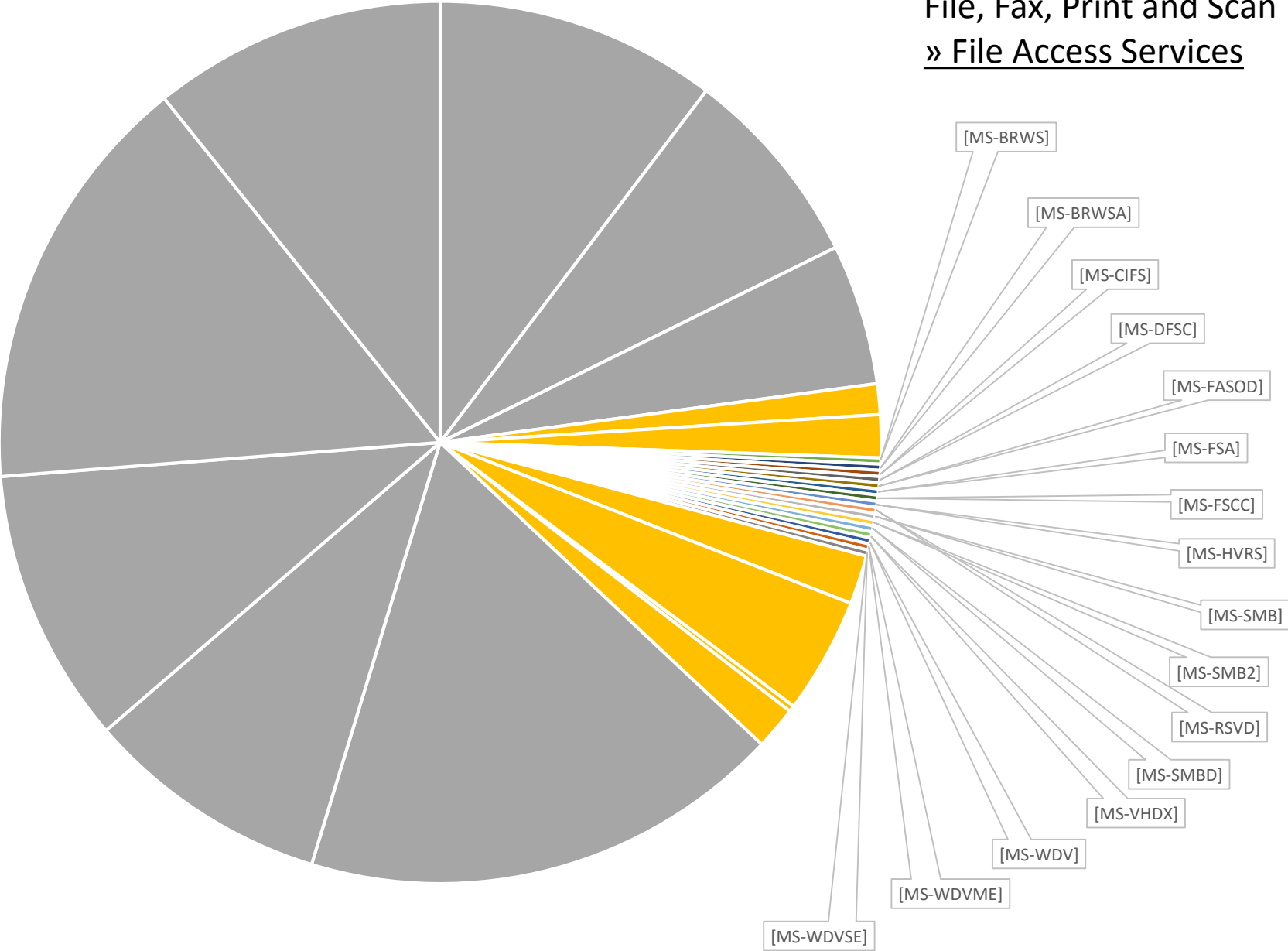
450+ Windows Protocols by Major Technology

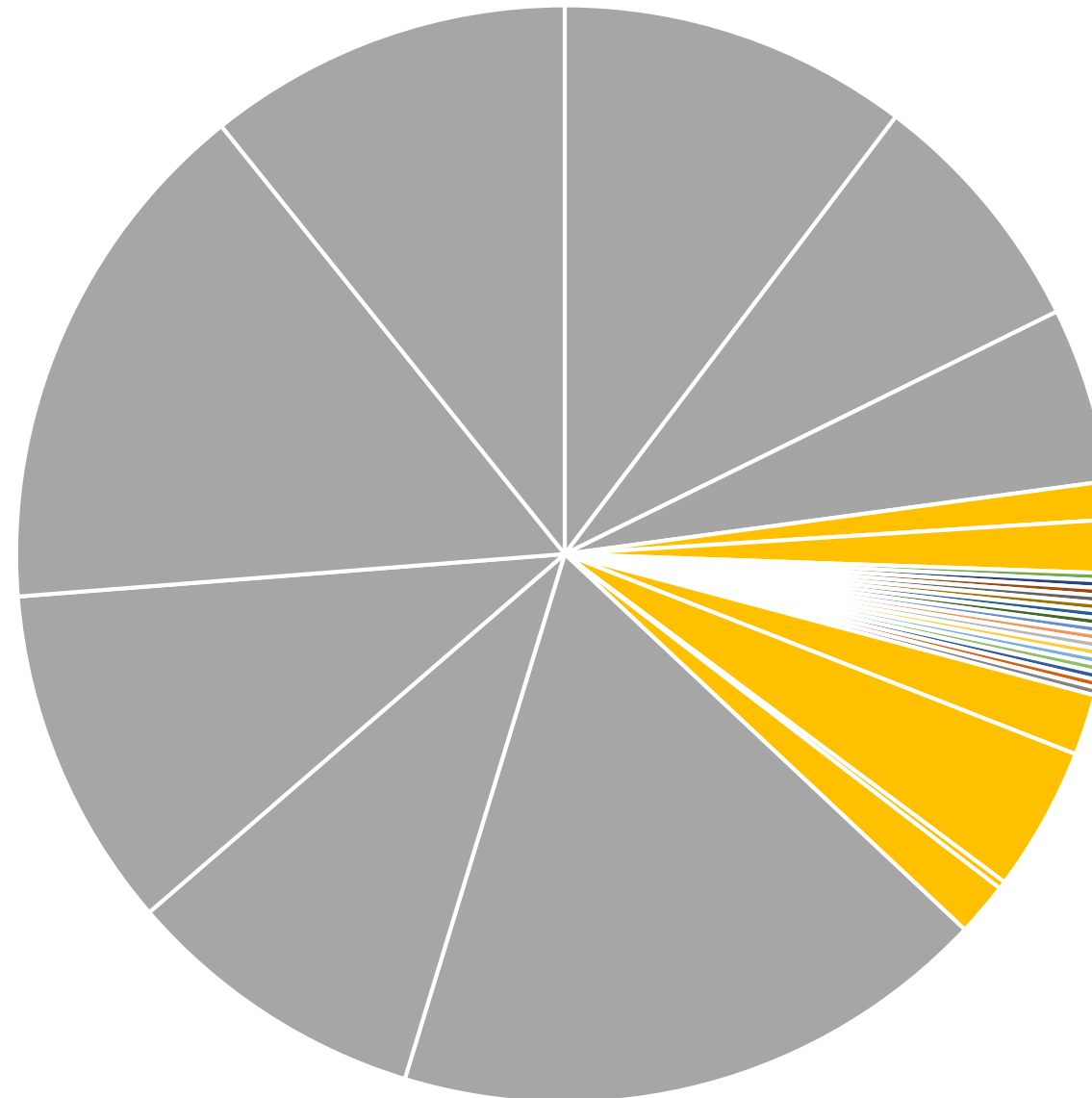






File, Fax, Print and Scan  
» File Access Services





File, Fax, Print and Scan  
» File Access Services  
»» Single [MS-xxxx] Document:

[MS-CIFS]

**Document Offerings:  
More than just .PDFs!**

- HTML
- Current .PDF
- Current Word document (.DOCS)
- Errata (updates not-yet-published)
- “Diff” docs (redlines between  
current and previous release)
- Archives



# Where?

How to find protocol specifications



# Document, Document: Where Art Thou?

- Finding the current document is important!
- It's more than just a web search and clicking on the top-listed .PDF:
  - This may result in stale information
- Each document's landing page ensures:
  - Viewing the most current version
  - Alternate formats (HTML, PDF, Word, Diffs, Errata and Archives)
- Example...

# WEB SEARCH: Don't just grab the top .PDF result (it may be stale). Go to "Landing Page"

[ms-smb2]

All Images Videos Maps News Shopping | My saves

Microsoft Sign in to see results from Microsoft >

43,100 Results Any time ▾

[MS-SMB2]: Server Message Block (SMB) Protocol Versions 2 ...  
<https://msdn.microsoft.com/en-us/library/cc246482.aspx>  
[MS-SMB2]: Server Message Block (SMB) Protocol Versions 2 and 3 ... Specifies the Server Message Block (SMB) Protocol Versions 2 and 3, which support the sharing of file and print resources between machines and extend the concepts from the Server Message Block Protocol. This page and associated content may be updated frequently

[PDF] MS-SMB2: Server Message Block (SMB) Protocol Versions 2 ...  
[https://winprotocoldoc.blob.core.windows.net/.../MS-SMB2/\[MS-SMB2\].pdf](https://winprotocoldoc.blob.core.windows.net/.../MS-SMB2/[MS-SMB2].pdf)  
1 / 446 [MS-SMB2] - v20180912 Server Message Block (SMB) Protocol Versions 2 and 3 Copyright © 2018 Microsoft Corporation Release: September 12, 2018

[MS-SMB2]: SMB2 CREATE Request - msdn.microsoft.com  
<https://msdn.microsoft.com/en-us/library/cc246502>  
22 rows - The SMB2 CREATE Request packet is sent by a client to request either creation of or ...

VALUE	MEANING
FILE_DIRECTORY_FILE 0x00000001	The file being created or opened is a directory file...
FILE_WRITE_THROUGH 0x00000002	The server performs file write-through; file data i...

Document LANDING Page  
(Always current with format options)

First-listed .PDF  
(May be stale)



# Per-Document LANDING Page (Formats)...

- MSDN Library
- Open Specifications
- Protocols
- Windows Protocols
- Technical Documents
  - **[MS-SMB2]: Server Message Block (SMB) Protocol Versions 2 and 3**
    - 1 Introduction
    - 2 Messages
    - 3 Protocol Details
    - 4 Protocol Examples
    - 5 Security
    - 6 Appendix A: Product Behavior
    - 7 Change Tracking
    - 8 Index

## [MS-SMB2]: Server Message Block (SMB) Protocol Versions 2 and 3

Specifies the Server Message Block (SMB) Protocol Versions 2 and 3, which support the sharing of file and print resources between machines and extend the concepts from the Server Message Block Protocol.

This page and associated content may be updated frequently. We recommend you subscribe to the [RSS feed](#) to receive update notifications.

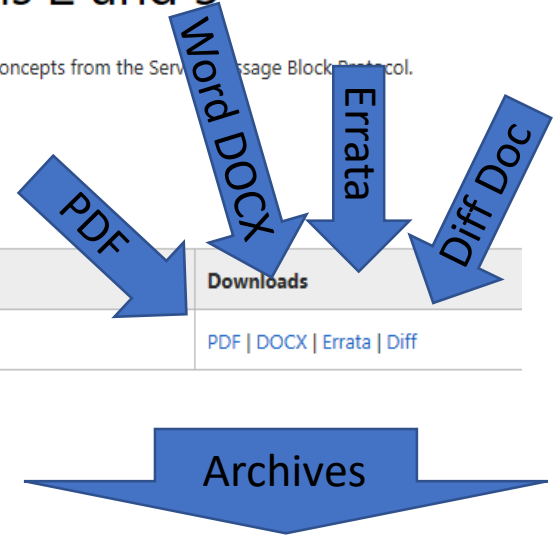
### Published Version

Date	Protocol Revision	Revision Class	Downloads
9/12/2018	56.0	Major	<a href="#">PDF</a>   <a href="#">DOCX</a>   <a href="#">Errata</a>   <a href="#">Diff</a>


[Click here to download a zip file of all PDF files for Windows Protocols.](#)

### Previous Versions

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3/16/2018	55.0	Major	<a href="#">PDF</a>   <a href="#">DOCX</a>   <a href="#">Errata</a>   <a href="#">Diff</a>
12/1/2017	54.0	Major	<a href="#">PDF</a>   <a href="#">DOCX</a>   <a href="#">Errata</a>   <a href="#">Diff</a>
9/15/2017	53.0	Major	<a href="#">PDF</a>   <a href="#">DOCX</a>   <a href="#">Errata</a>   <a href="#">Diff</a>
6/1/2017	52.0	Major	<a href="#">PDF</a>   <a href="#">DOCX</a>   <a href="#">Errata</a>   <a href="#">Diff</a>



# Per-Document LANDING Page (Services)...

 Developer Network

Downloads ▾ Programs ▾ Community ▾ Documentation ▾

- MSDN Library
- Open Specifications
- Protocols
- Windows Protocols
- Technical Documents
  - [MS-SMB2]: Server Message Block (SMB) Protocol Versions 2 and 3**
    - 1 Introduction
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RSS Updates

Download ALL .PDFs (zip)

“Diff” Docs:  
Shows  
differences  
(redline)  
between  
versions.

- Contains NEW protocol information and CORRECTIONS from previous versions.
- Useful at every document release to ensure your implementation didn't rely on corrected information.
- Sample from [MS-SMB2]:

Value	Meaning
FILE_WRITE_THROUGH 0x00000002	The server <del>MUST propagate writes to this open to persistent</del> performs file write-through; file data is written to the underlying storage before <del>returning success to completing the client</del> write operation on <del>write operations</del> this open.

# “Errata” show updates since last publication

- Documents are released on a standard cadence around product releases (may be six months or more)
- “Errata” pages contain fixes since last publication.
- “Errata” released as a running journal soon after fix.
- “Text changed from/to”, “Added text”, “Removed text”
- RSS and Atom feeds available
- Sample from [MS-SMB2]:

2018/12/10	<p>In Section 3.2.5.5, Receiving an SMB2 TREE_CONNECT Response, the following has been changed from:</p> <p>If Connection.Dialect is "3.1.1", the Status field in the SMB2 header of the response is STATUS_BAD_NETWORK_NAME, and the ErrorId in the SMB2 Error Context response is set to SMB2_ERROR_ID_SHARE_REDIRECT, the client MUST return the Share Redirect Error Context response to the calling application as specified in section 2.2.2.2.2.</p> <p>Changed to:</p> <p>If Connection.Dialect is "3.1.1", SMB2_TREE_CONNECT_FLAG_REDIRECT_TO_OWNER bit is set in the Flags field of the SMB2 TREE_CONNECT Request, the Status field in the SMB2 header of the response is STATUS_BAD_NETWORK_NAME, and the ErrorId in the SMB2 Error Context response is set to SMB2_ERROR_ID_SHARE_REDIRECT, the client MUST return the Share Redirect Error Context response to the calling application as specified in section 2.2.2.2.2.</p>
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# Via Open Specifications Dev Center

Pivot-point for Microsoft Interoperability effort. Includes links to:

- Programs
- Patents
- Documentation
- News
- Plugfests and Events
- Test Tools
- Support
- Case Studies

[msdn.microsoft.com/en-us/openspecifications](https://msdn.microsoft.com/en-us/openspecifications)

[www.microsoft.com/protocols](https://www.microsoft.com/protocols)



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Today: The go-to, 'official', supported depot of documents

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Future: Will be migrating to a new platform.

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Eventually: moved to DOCS.  
Preview available soon

[DOCS.microsoft.com/en-us/OPENSPECS](https://docs.microsoft.com/en-us/OPENSPECS)

[www.microsoft.com/protocols](https://www.microsoft.com/protocols)



## Open Specifications Dev Center

Through the Open Specifications program, Microsoft is helping developers open new opportunities by making technical documents related to interoperability for certain popular Microsoft products available to view and download from MSDN at no charge. This documentation includes protocols, computer languages, standards support, and data portability.

Although the technical documents are freely available, many of them include patented inventions. Some of these patents are available at no charge under the patent promises. The remaining patents are available through various programs. For more information, please see the Programs and Patents links.

You can learn about the Microsoft commitment to interoperability by watching our Open Specifications Plugfest videos, such as the [Interoperability Protocols Keynote](#). Find the videos and other support for Open Specifications implementations by using the Documentation, News, Plugfests and Events, Test Tools, Support, and Case Studies links.

### Programs

Programs, patent pledges, and interoperability principles



### Patents

Patent map, patent promises, and the Open Web Foundation Agreement



### Documentation

Technical documents for protocols, languages, standards support, and data portability



### News

Recent newsletters and highlights from the interoperability and Open Specifications blogs



### Plugfests and Events

Upcoming and past events, Open XML and ODF, Document Interoperability Initiative



### Test Tools

Message Analyzer, test suites, validators, interoperability labs, and more



### Support

Forums, blogs, Microsoft Support, knowledge base, partner programs, and more



### Case Studies

Companies have used the Open Specifications for innovative, interoperable solutions





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Programs, patent pledges, and interoperability principles



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Patent map, patent promises, and the Open Web Foundation Agreement



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Click



## ▷ MSDN Library

## ▸ Open Specifications




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Although the technical documents are freely available, many of them include patented inventions. Some of these patents are available at no charge under the [Open Specifications Promise](#) or the [Microsoft Community Promise](#). The remaining patents are available through various licensing programs. For more information, please visit the [Open Specifications Dev Center](#) website or send an email message to the [IP Licensing Team](#).

## Explore Open Specifications Documentation

	<a href="#">Protocols</a>  Microsoft publishes technical documents for protocols that are implemented in Windows client (including .NET Framework) and Windows Server (collectively Windows), Office, SharePoint Products and Technologies, Exchange Server, and Microsoft SQL Server and are used to communicate with other Microsoft software products.
	<a href="#">Computer Languages</a>  Microsoft publishes technical documents for the VBA programming language and Extensible Application Markup Language (XAML).
	<a href="#">Standards Support</a>

- ▷ MSDN Library
  - ▾ **Open Specifications**
    - Forums and Blogs
    - ▷ Document Programs
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Navigate from here...

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## Open Specifications

Also notice: Preview Documents

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	<b>Standards Support</b>

Short-lived, proposed, still-under-development and subject-to-change documents for preview.

New protocols or major updates to existing protocols (new features).

Disappear from "Preview Node" once officially released (moved to the main library).



*HELP!*

How to Reach-out to Microsoft



# Microsoft provides free protocol support

- 1:1 support via [dochelp@microsoft.com](mailto:dochelp@microsoft.com).
- MSDN Open Specifications **forums**:  
<https://social.msdn.microsoft.com/forums/en-us/home?category=openspecifications>
- Dochelp and forums are watched 7 days a week
- Acknowledgement of your question within 24 hours.
- Issues become support cases for trackability.





## The support team:

Dedicated team of developer support engineers.

Extensive and deep debugging experience.

- Windows, Office, SharePoint, Exchange, SQL Server.
- Kernel and usermode.

In-depth product knowledge with source and product group access

Goals:

- Unblock issues preventing interoperability with your solution
- Improve the technical documents (team has a process in place to drive changes to the documents)

# Help us help you – Asking good questions

Clear problem description.

Document short name (e.g., [MS-SMB2]).

Section (e.g., 2.2.28 “SMB2 ECHO Request”).

Doc version (e.g., 20190115).

Impact to your project:  
Blocking? Feedback?

Multiple issues: Provide priorities so we work first on what’s affecting you most.

Include sample files, traces, notes.

# Plugfests and Test Suites

Microsoft hosts/co-sponsors several “Plugfests” worldwide

Opportunities for partners:

- meet support engineers, test suite developers and the Product Group
- test protocol implementation against Microsoft protocol test suites
- work with support engineers and debug issues
- test against other implementations
- learn about future plans

Microsoft provides protocol test suites

- Synthetic endpoints to test against your implementation
- <https://github.com/Microsoft/WindowsProtocolTestSuites>
- Report issues/ask Test suite questions via “Issues” tab



In closing:

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- Pivot point for interoperability:  
<http://www.microsoft.com/protocols>
- Ask questions via mail [dochelp@microsoft.com](mailto:dochelp@microsoft.com)
- Or the Open Specifications forums  
<https://social.msdn.microsoft.com/forums/en-us/home?category=openspecifications>
- Test Suites:  
<https://github.com/Microsoft/WindowsProtocolTestSuites>



# Bio

- Bryan S. Burgin
- ([bburgin@microsoft.com](mailto:bburgin@microsoft.com))
- Sr Escalation Engineer
- At Microsoft since 2000
- Specialized in device driver development
  - Especially network (NDIS) drivers
- And Protocols (since 2010)
- Previous life:
  - DEC PDP 11, Apple ][+, IBM PC, TI 990, Wang VS