

To Boldly Go..

**The effect of Microsoft's
protocol documents on the
appliance industry**

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(based on an original idea from

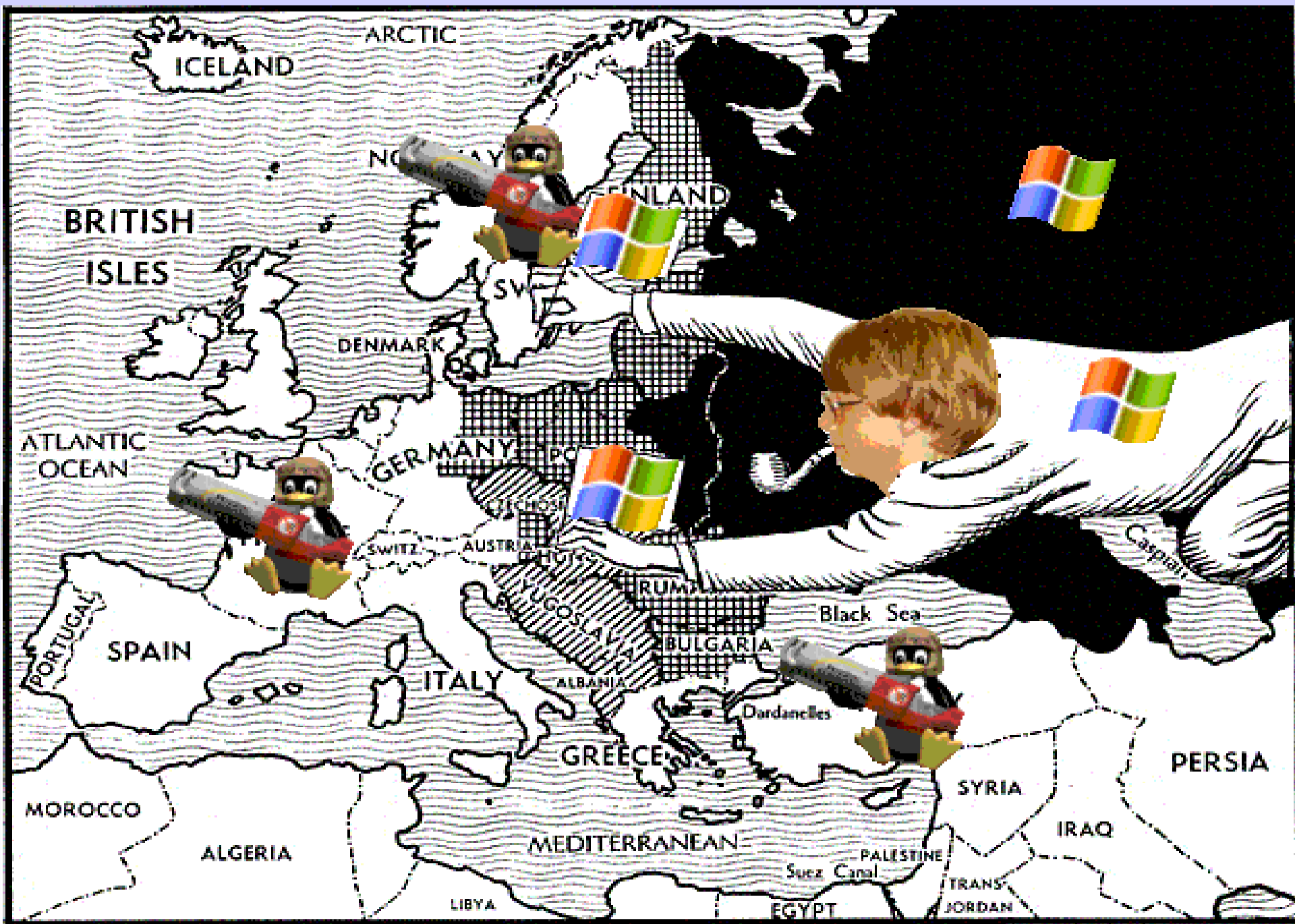
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Feb 21st 2008. The day everything changed

- A significant part of the storage industry was devoted to network protocol analysis, in order to interoperate with the dominant Windows client base.
 - Licenses were available from Microsoft for some internal protocol documents, but with restrictions that limited the applications that could be built with them.
- The release of the WSPP/MCPPP documentation was a landmark event.

The Cold War.. (as was)



The view on the other side..



WSPP/MCPP Documentation

- Intended to be full and complete specifications for all the common requirements for a network storage device.
 - Active Directory client side integration.
 - File and print serving, including encrypted file service, distributed file system and replication.
- Not yet complete, but possible to create functional implementations with much less effort than network analysis.

A work in progress

- Little description provided of the interactions between protocols.
 - Documents written and tested in isolation.
 - Missing features cannot be determined without network testing.
 - Some information split between multiple documents.
- Some protocols better described than others.
 - SMB/CIFS is a rehash of very old documents.
 - Newer protocols are better described.

But a positive step

- Microsoft response has been very thorough.
 - Microsoft employees pointing out source level bugs in Free Software implementations of protocols.
 - Older documents are being updated (CIFS).
- Demonstration of commitment to interoperability principles.
 - Microsoft participation and hosting of interop events.
 - Next step is accepting external changes to Windows protocols.

File Serving gets a boost

- Third party file serving appliances can now directly compete with Windows based devices for more advanced services.
- Back-end replication with Windows devices, serving encrypted file contents, independent SMB2 implementations are now possible.
- Multiple independent implementations will help give a boost to the Windows compatible file serving industry.

Only €9999.99 plus tax and shipping **But wait, there's more !**

- The MCPP and WSPP documentation includes much more than needed for simple file serving products.
- Much of the Microsoft networking ecosystem is now openly(*) documented.
 - * Some restrictions may apply in the fifty United States or other nations with software patents.
- This will allow more innovative appliances than simple file serving.

WAN accelerators

- Knowledge of WSPP and MCPP protocols are also essential for the correct implementation of WAN accelerators.
 - Current WAN accelerator implementations have had to restrict the protocols they can work with.
 - Given full knowledge of many more protocols, WAN devices can improve network usage more aggressively (i.e. they know they're safe).

Active Directory Domain Controller

- Replacing the whole thing is a huge task.
- Samba4 is the Free Software implementation of this.
 - Already provides a single domain solution.
 - Four years without docs, great progress made since documentation release.
 - First Free Software implementation, should allow creative use of AD serving within appliances.

Partial Active Directory implementations

- However, partial implementations may still be useful.
 - Bidirectional synchronization of passwords will allow federated directory services to be much more useful.
 - Caching authentication information will allow more efficient distributed authentication (based on security policy).
 - Many more (embedded) devices will be able to participate in the AD ecosystem.

Print appliances

- Full documentation of the print system allows print appliances to add value to the Windows print path.
 - Print appliances have been created before (HP's PSA).
 - Print spool raw data format (EMF) now available, allows new features and transforms that were previously impossible.
 - Stripped down, print only devices are now possible without a complete Windows footprint.

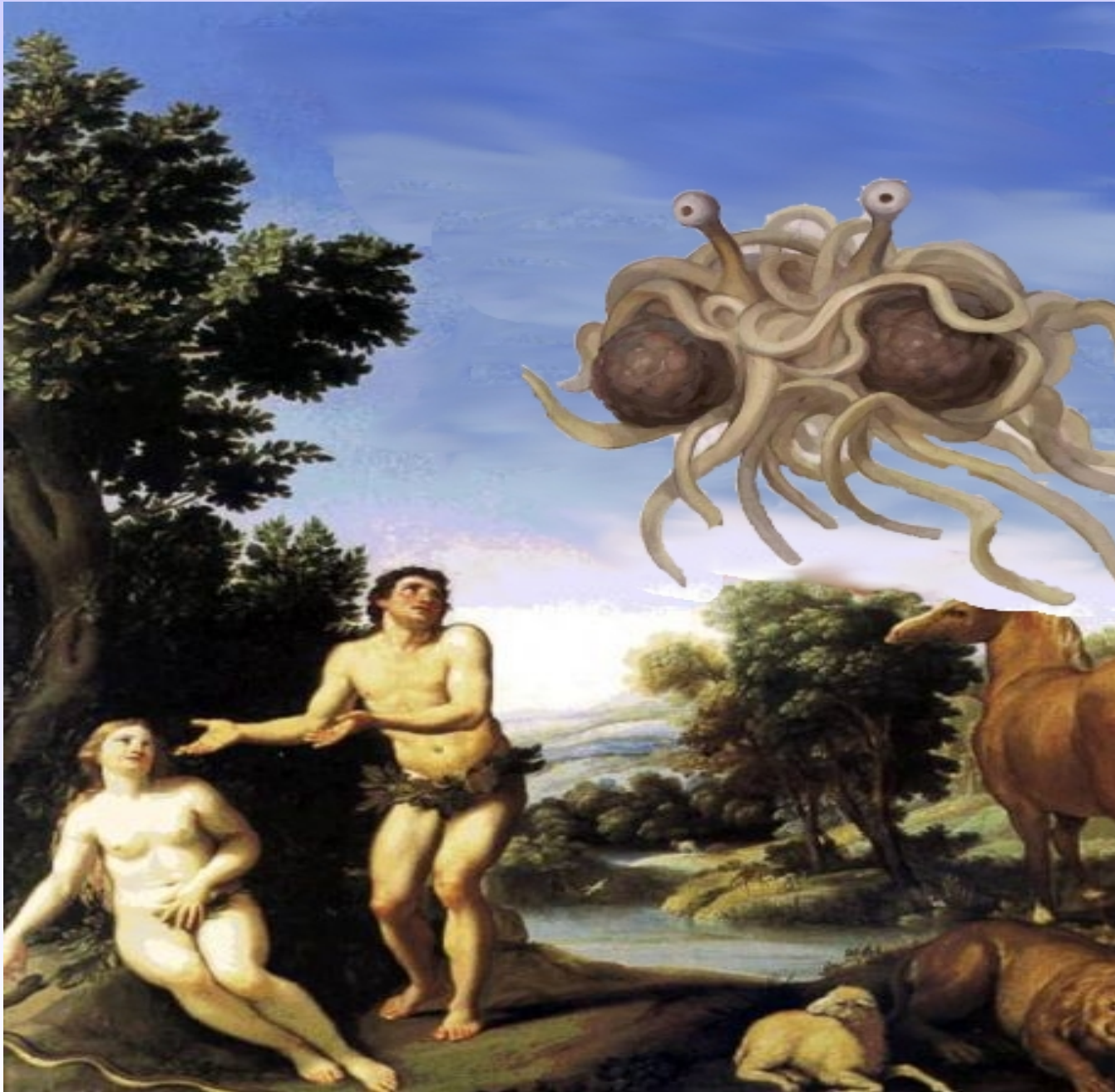
Exchange

- Email appliances are already widely deployed, but with documented protocols it becomes safer for vendors to adopt them as “native”.
 - Even if the protocols are changed, the enormous number of client Outlook implementations causes enough “drag” for vendors to survive.
 - Opening protocols will create more third party non-Windows clients which interoperate with Exchange servers.

Sharepoint Server

- A new product, not yet established as dominant in the market.
 - Full protocol information will help third-party products add value to the ecosystem around this server.
 - A full competing implementation will promote competition in this market but also promote wider use of the protocols and products built around it.
 - New territory for Microsoft, allowing competing products so early within a product lifecycle.

Trouble in paradise ?



Patent coverage of protocols

- Microsoft asserts that some of the documented protocols are covered by software patents, and lists royalty rates for use.
- Software patents with royalty payments are inherently incompatible with Free Software.
 - Note, this is not a problem for commercial companies if no Free Software used.
 - Few products are made without Free Software.
 - “Hobbyist” grant for Free Software developers is useless.

A bounded problem ?

- Microsoft makes a list available of patent numbers that it believes apply to the protocols.
- A useful map was created by Tom Kemp at Centrifly:
 - http://www.centrifly.com/blogs/tomkemp/mapping_patents_to_microsoft_protocols.asp
 - *“Of the 125 protocols posted on MSDN for Windows Server, 99 of the 125 protocols have no US patents associated with them, meaning 80% of the Windows server protocols do not have US patents associated with them.”*

The Protocol Freedom Information Foundation (PFIF)

- Samba helped create : <http://www.protocolfreedom.org/>
 - Originally allowed Free Software developers access to the (proprietary) information.
 - More importantly lists patents that Microsoft believes apply to the protocols.
 - The critical part of the agreement is that Microsoft promises to keep this list up to date, and not to assert patent infringement against developers **for any patent not on this list.**

Inside the PFIF: Dealing with patents

- For the patents on the list, it is often possible to implement products such that they do not infringe on the specific claims made in the patent.
 - Such analysis is a deeply technical subject, but shared information between the PFIF members makes such techniques more likely to succeed.
 - For well written patents it may not be possible to avoid infringement, so some features may have to be avoided.
 - No such patents have yet been found.

PFIF and Patents

- Anyone developing Free Software implementing these protocols is welcome to join the PFIF and gain protection from the agreement.
 - Another good reason to use Free Software.
- To date, Microsoft has made no aggressive moves against Free Software implementations based on patents.
 - In fact Microsoft resells (or is that “*distributes*” ?) them via the Novell agreement.

Conclusion

- It's probably safe for the Sand Hill Venture capitalists to fund products that compete with Microsoft again.
 - The Microsoft protocols may become more widely used even if Microsoft loses market share as third party implementations proliferate.
 - Microsoft may make even more money as the market grows.
 - Even if you avoid Free Software, there is now a known license fee structure for implementation, which mitigates risk.

Questions and Comments ?

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