ReactOS & File Systems

17 Feb 2011 – Pierre Schweitzer - ISIMA

File System?

- Storing data on disc

- Storing meta data on disc

- Handling rights
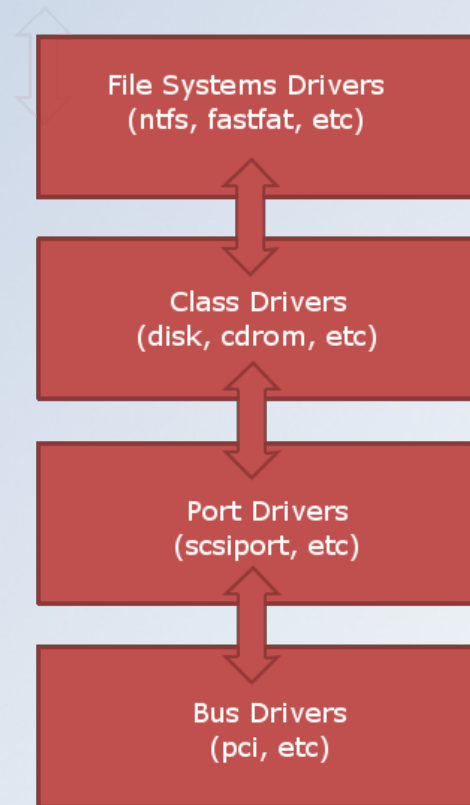
- Handled by a FSD

Windows FSDs?

- On disk:
  - NTFS
  - FAT
  - CDFS
  - UDFS

- Network:
  - CIFS / SMB

Storage Stack

- Several drivers

- No indirect communication

- Precise task

File Systems Drivers
(ntfs, fastfat, etc)

Class Drivers
(disk, cdrom, etc)

Port Drivers
(scsiport, etc)

Bus Drivers
(pci, etc)

Kernel mode

- ntoskrnl
  - FsRtl
  - Cc
  - Io

Cc	Cm	Ex	FsRtl	Fstub	Io	Mm	Ob	Ps

ntoskrnl

FsRtl

- File Systems Runtime Library

- Helpers for FS tasks
  - Names
  - MCBs
  - Cache
  - ...

Cc

- Cache controler

- Lazy-write, read-ahead

- Caching data/metadata

Io

- Input/Output

- Responsible for drivers call

- Responsible for communication between drivers

ReactOS status

- Io:
  - Nearly complete

- FsRtl:
  - Many unimplemented. Tunnels, MCB & Notifications under progress

- Cc:
  - Third rewrite

Is that all?

- FastFAT driver:
  - Bad quality
  - Rewrite with FullFAT

- NTFS driver:
  - Stub

- Ext2/3 driver:
  - Matt Wu's driver

Sources

- <u>Windows NT File Systems Internals</u>, R. Nagar, OSR Press

- <u>Windows® Internals, 4th edition</u>, M. Russinovich & D. Solomon, Microsoft Press

- Microsoft Developer Network, http://msdn.microsoft.com

Thanks

- ISIMA's administratives

- ReactOS Foundation

- Koncept

- All those who took part in

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![ReactOS]

Thanks for your time!

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