Joomla!™
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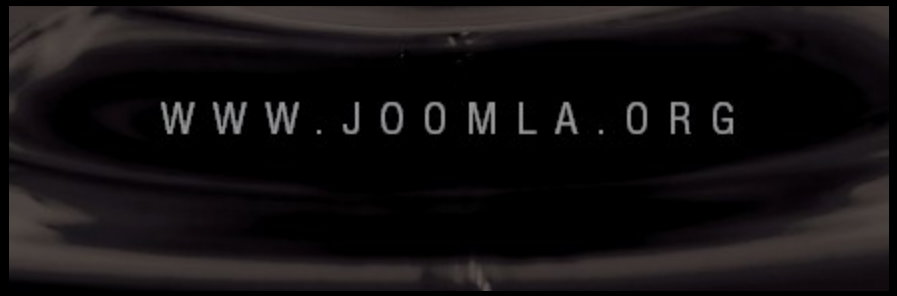
There and back again

A history of access control systems



Sam Moffatt

Malaysia Open Source Software Conference, 2010

About Me

Sam Moffatt

[pasamio]
Development Co-ordinator, Joomla!
Systems Co-ordinator, USQ
Master of Computing Student, USQ

@Joomla: Joomla! Installer and Update Systems
@USQ: ePrints, VUFind

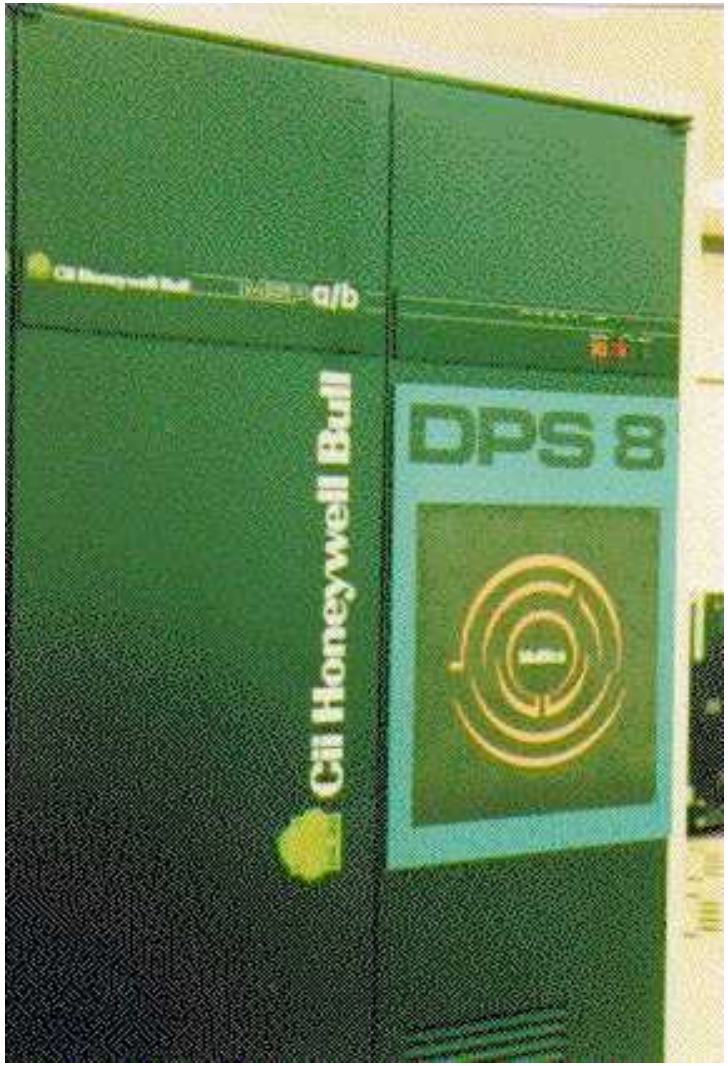
Master of Computing, topic:
→ Access control in semantic information systems

Access Control?

Access Control

What's a MULTICS?

MULTICS



MULTICS

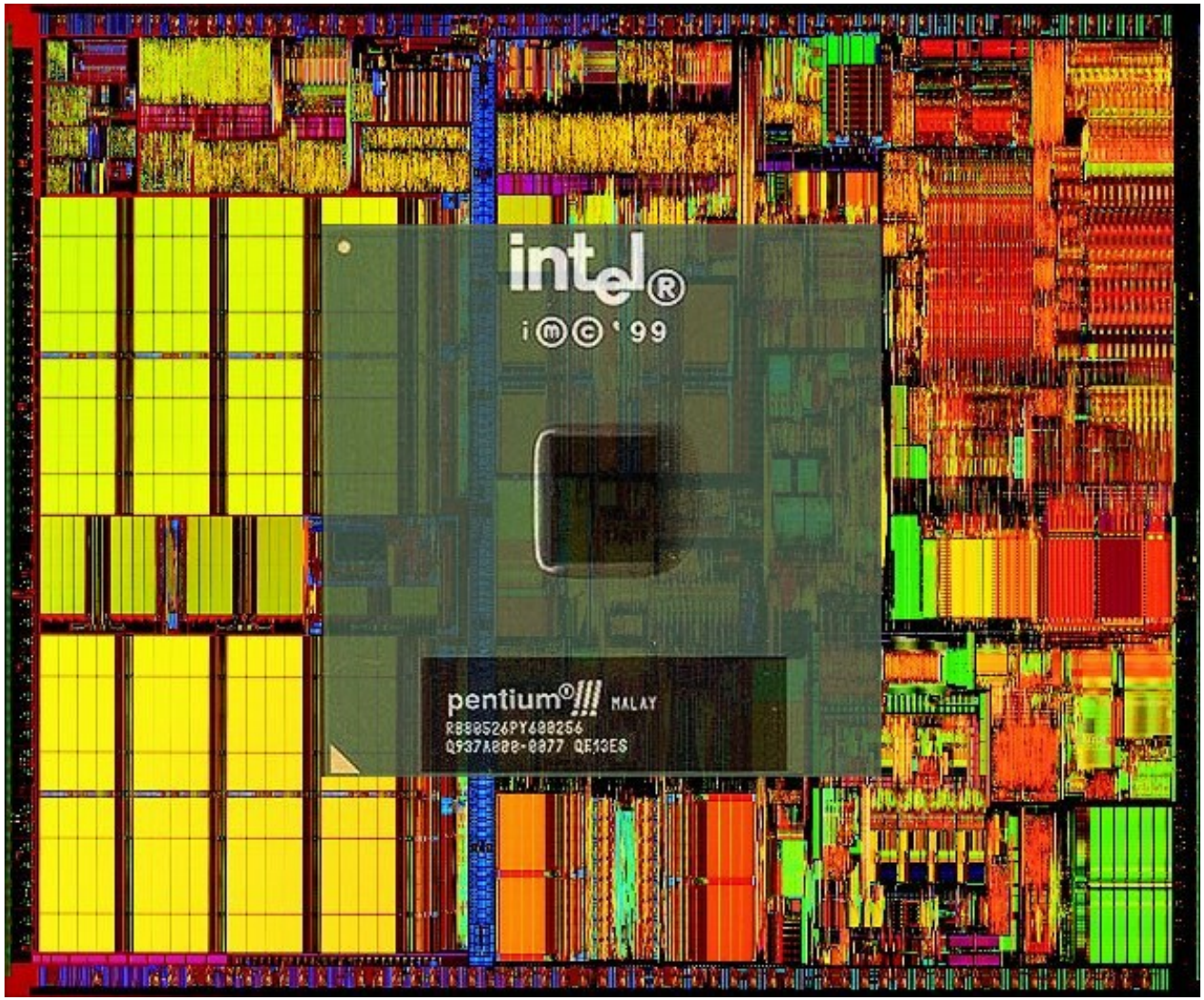
Hardware protection

AND

Software protection

MULTICS

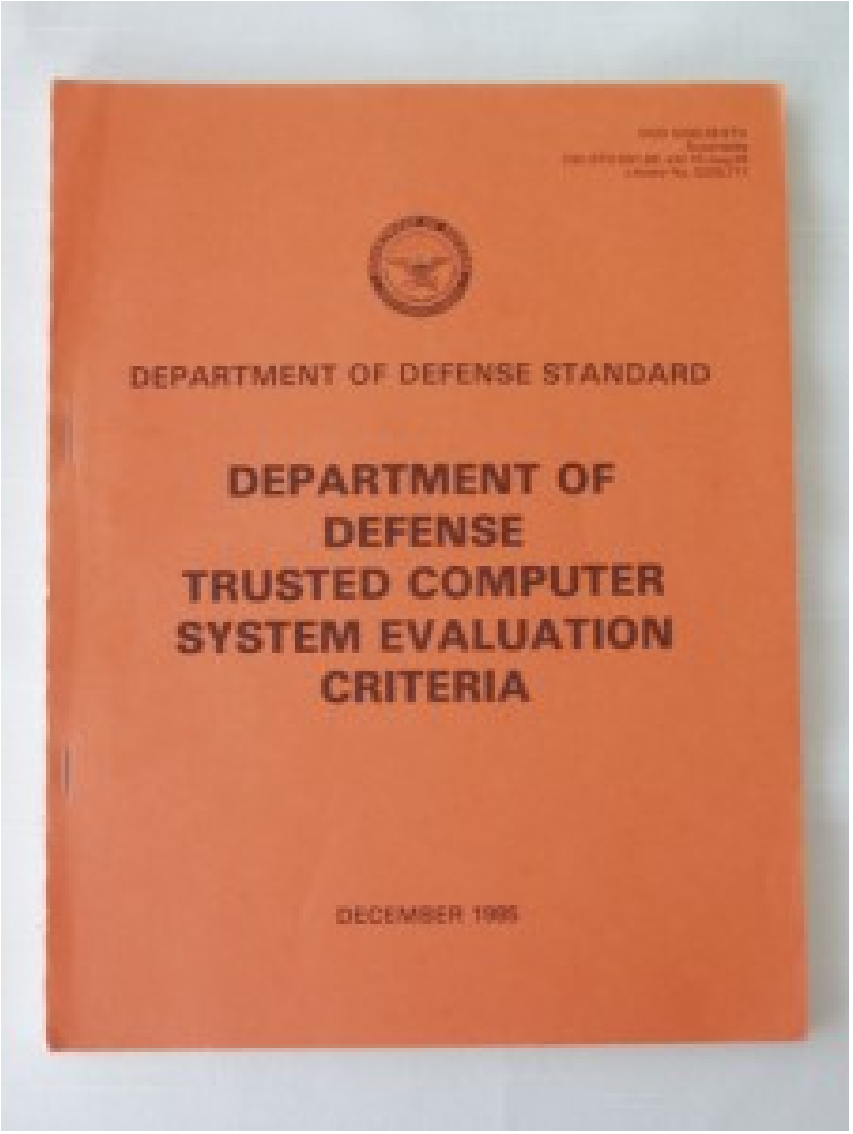
MULTICS Hardware Protection



UNIX Access Controls

Mandatory access control

DoD Orange Book



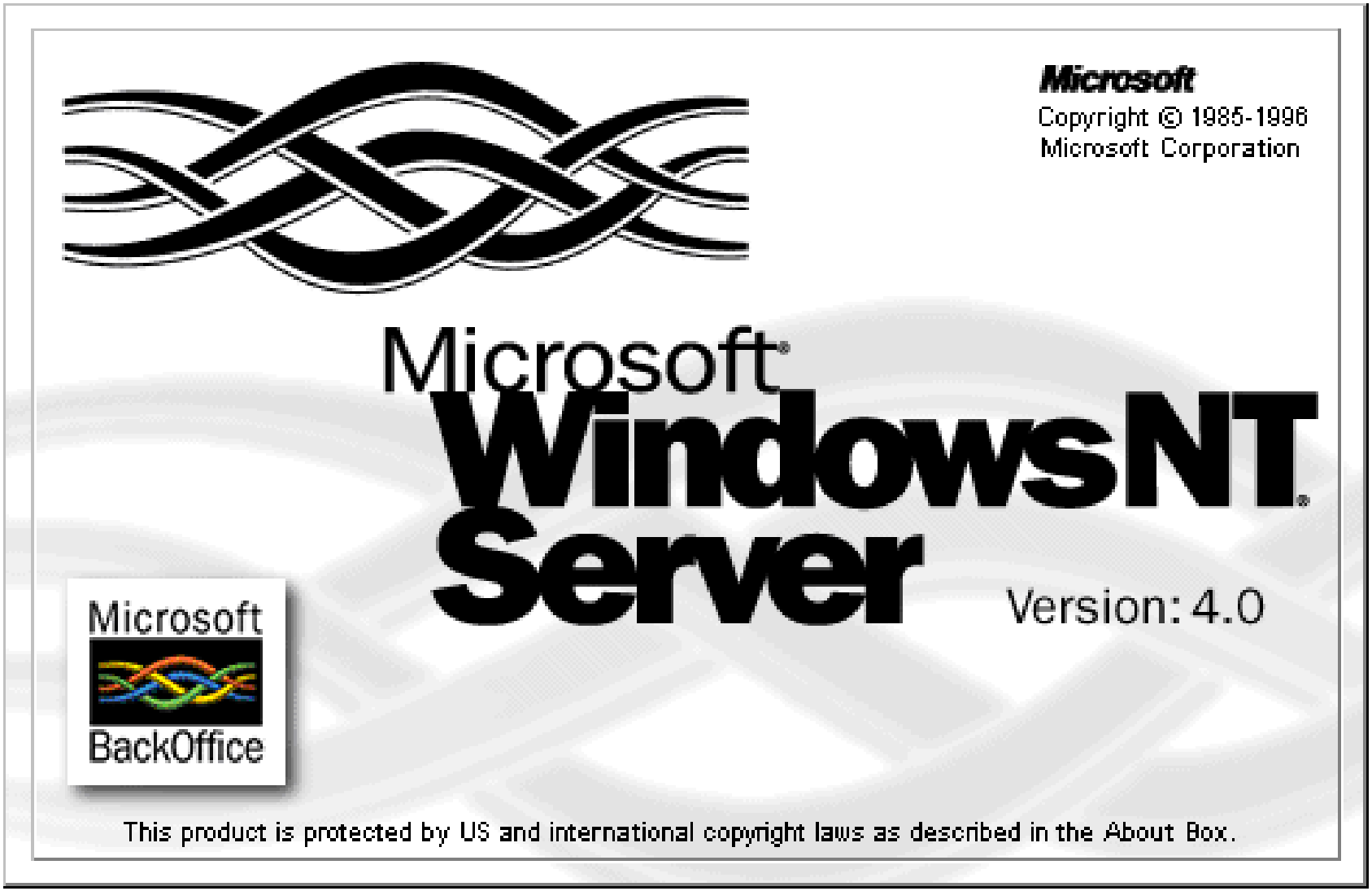
DoD Orange Book

- DoD Orange Book was the standard for system security
- Written by NCSC which was directed by a former MULTICS developer
- Orange Book had a distinct MULTICS feel to its design
- Classified computer security from D (minimal protection), C (discretionary protection), B (mandatory protection) and A (verified protection)

DoD Orange Book

- MULTICS was rated at B2
- Windows NT achieved C1

Windows NT


Microsoft
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Microsoft Corporation
Microsoft
Windows NT
Server
Version: 4.0
Microsoft
BackOffice
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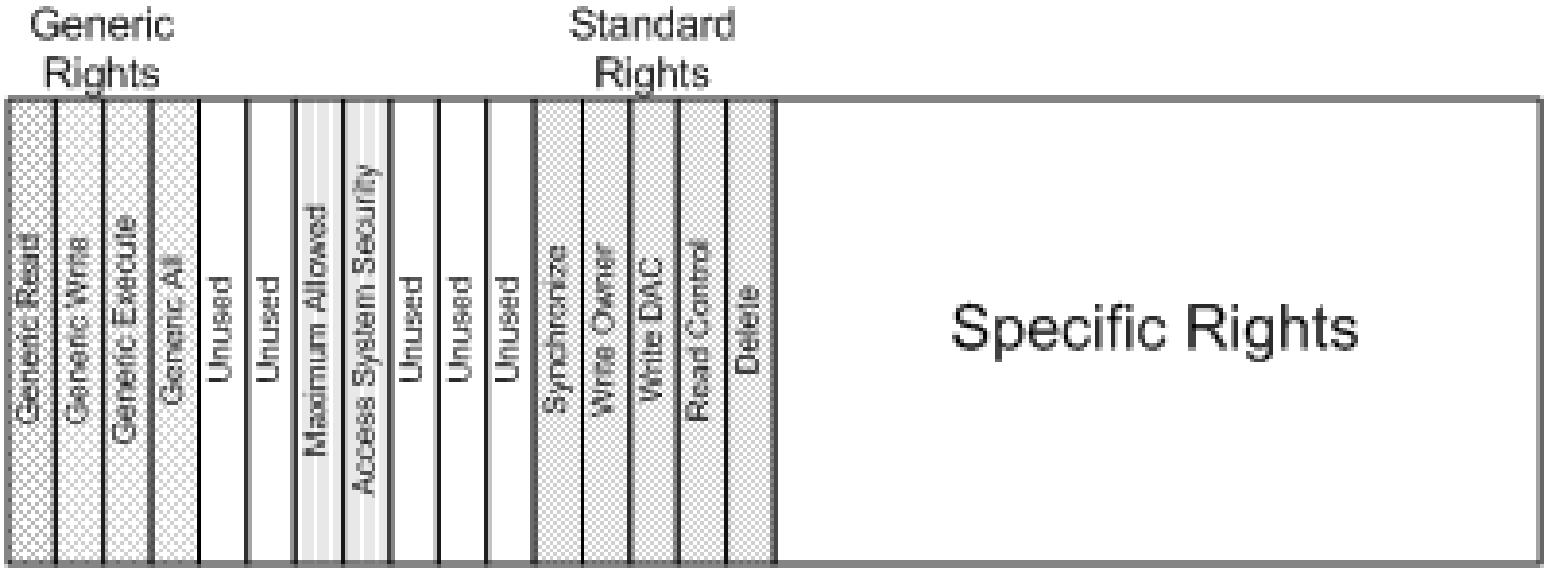
Windows NT

- Introduced discretionary access control to Windows:
  - The ability to grant access to files
  - Inheritance for permissions
  - Windows 2000 adds the ability to explicitly deny access

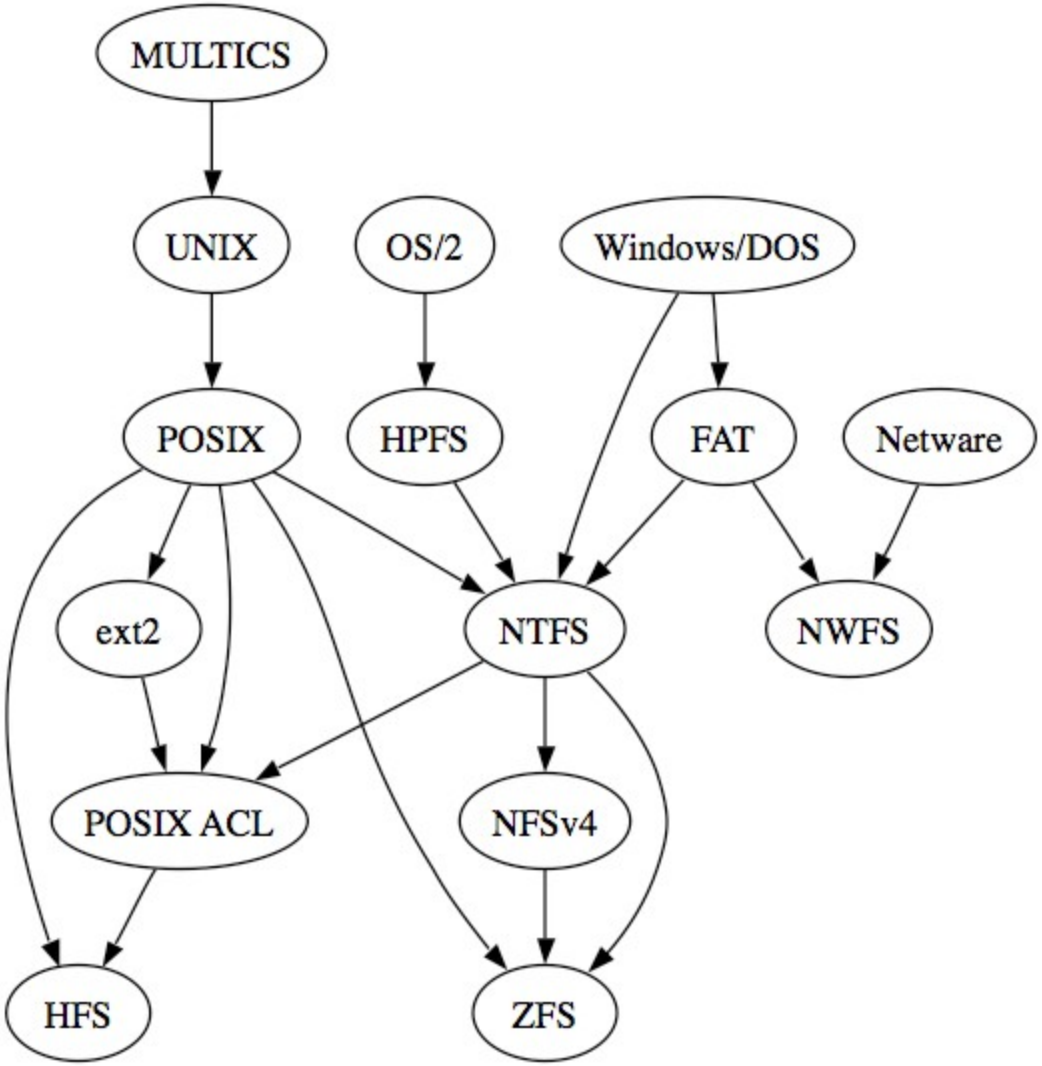
Windows NT

- Windows defined three classes of permissions:
  - General permissions
    - Read, Write, Execute
  - Standard Permissions
    - Synchronise, Write DAC, Write Owner, Read Control, Delete
  - Specific Permissions
    - Dependent on the individual type (e.g. file/folder)

Windows NT


Generic Rights
Standard Rights
Generic Read
Generic Write
Generic Execute
Generic All
Unused
Unused
Maximum Allowed
Access System Security
Unused
Unused
Unused
Synchronize
Write Owner
Write DAC
Read Control
Delete
Specific Rights

File system security family tree



Windows NT

- Windows' security model has heavily influenced:
  - POSIX ACL
  - NFSv4 ACL's
  - ZFS
  - HFS

Conclusion

Questions and Answers

- These slides available on conf.oss.my
- Also available on USQ ePrints:
  - http://eprints.usq.edu.au/8331
- My other papers/presentations:
  - http://eprints.usq.edu.au/profile/404