

**Session
AF005**

***File Systems on WindowsNT,
OpenVMS, and MS-DOS –
A Structural Comparison***

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***Monday, November 3, 1996
3:00 pm – 3:50 pm
Room B5***

***Fall 1997 US DECUS Symposium
Anaheim Convention Center
Anaheim, California***

File Systems on WindowsNT, OpenVMS, and MS-DOS

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Introduction

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Traditional File Systems

- ***IBM pre-VTOC***
- ***IBM VTOC***
- ***Digital Files-11 Level 1***
- ***Digital Files-11 Level 2***
- ***Microsoft MS-DOS FAT***

Attributes –

- ***Blocks Allocated Staticly***
- ***Read optimized***
- ***Update in place***
- ***Files are arrays of bytes***
- ***Writes are expensive***

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New File Systems

- ***Microsoft WindowsNT NTFS***
- ***Digital OpenVMS TNFS (Dollar)***

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IBM VTOC

- ***Single Entry Bookkeeping***
- ***No Directories***
- ***Limited Extents***

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Digital Files-11 Level 1

- ***Double Entry Bookkeeping***
- ***Independent Directory Structure***
- ***Unlimited Extents***

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Digital Files-11 Level 2

- ***Successor to Files-11 Level 1***
- ***Increased Robustness***
- ***Volume Sets***
- ***Attribute Support defined/used***

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Microsoft MS-DOS FAT

- *Originally Floppy based*
- *Limited to 65K allocation units*
- *Pseudo-Redundancy*
- *Integral Directories*
- *No semantics*

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Microsoft WindowsNT NTFS

- *Logfile based recovery*
- *Attribute support*
- *Shutdown safe(?)*
- *Unicode naming*
- *cluster size ≤ 4096*

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Digital OpenVMS TNFS (Dollar)

- *Transaction log is the file*
- *Unicode naming*
- *Presumptive read caching*
- *Write optimized*
- *Large write emphasis*

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Significant Sea Change

- *File System as Backing Store*
- *Dynamic Model*
- *Cache Presumption*
- *Write/Update Optimized*

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Differences between Generations

- *Evolutionary pressure*
- *More dynamism*
- *File system as store*

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Questions?

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