Open Systems

Outlook and Opportunity

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Open Systems Topics

- Definition
- Barriers
- Vendor Status
- Outlook

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What Is An "Open System"?

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Open Systems: Definition

Technology Based
or
Function Based

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Open Systems User Agreement

Definition	Ranking
Products based on independent standards	3.9
Vendor-independent operating system	3.8
Public interface standards	3.8

1=Low, 5=High

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Open Systems User Agreement

Definition	Ranking
Competitively available processor architecture	3.8
Single-vendor operating system supported by multiple vendors	3.5

1=Low, 5=High

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Open Systems User Disagreement

Definition	Ranking
Code generator for multiple platforms	3.2
UNIX	3.2
Operating System accepts guest OSs	2.9
Operating System with variety of applications software	2.8

1=Low, 5=High

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Open Systems Are Not

- Technology based
  - MVS
  - UNIX
  - Code generators
- Access to applications software

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Open Systems Are

- Supported by standards
- Supported by de facto standards
  - MS/DOS or Windows
  - 386 processor
- Function oriented
  - Portable, interoperable
- Vendor independent

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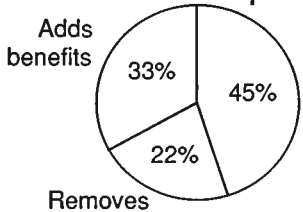
Impact of Competing Standards on Open Systems



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Portability—Definition

Data bases and applications can be moved from one operating environment to another with little or no modification.

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Interoperability—Definition

Related to portability - applications and data that can be moved from one environment to another can also interact with each other

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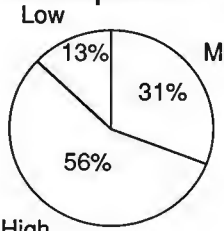
Interoperability Benefits from Multiplatform DBMS



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Problems with Interoperability

Problem	Ranking
User responsible for multivendor installation	3.6
Price competition = poorer service	3.3
Low-cost hardware vendors survive	3.1
Hardware maintenance more complex	2.8

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Barriers to Open Systems Acceptance

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Significant Barriers

Barrier	Ranking
Conflicting standards	4.2
Lack of standards	3.7
Non-standard implementations	3.6
Lack of in-house skills	3.5

1=Low, 5=High

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Less Significant Barriers

Barrier	Ranking
Lack of package applications	3.3
UNIX applications suitability	3.2
Lack of development tools	2.8
Lack of consultants	2.7
Lack of systems software	2.7

1=Low, 5=High

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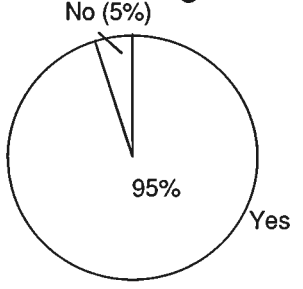
Benefits Outweigh Problems?



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Interoperability Implications

- Commodity pricing
- Multivendor installations
- Proprietary add-ons
- Maintenance opportunities

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Vendor Independence

Portability and interoperability is across multivendor environments

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Open Systems User Definition

Ease of Change at Lower Cost

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Open Systems Vendor Positions

- IBM
- Digital Equipment
- NCR
- Other systems manufacturers

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Open Systems and IBM

- Multiple approaches
  - SAA—proprietary openness
  - OS/2—control of the user interface
  - AD/Cycle—cross-environment foundation
  - RS/6000—UNIX-based success

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Open Systems and IBM

- SAA—proprietary openness
  - Internally focused—hide historic problems
  - Late
  - AD/Cycle dependent
  - Customers—low expectations

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Open Systems and IBM

- OS/2—control of the user interface
  - Overshadowed by Windows
  - OS/2 1.3 missed the target
  - OS/2 2.0 changes the game
    - Performance exceeds Windows
    - Reliability targeted very high
  - Position not clear versus UNIX

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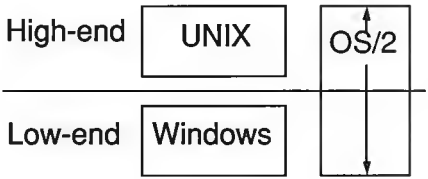
Open Systems and IBM OS/2 Positioning



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Open Systems and IBM

- AD/Cycle—cross-environment foundation
  - Could provide common repository
    - MVS, OS/2
    - AS/400, RS/6000—AIX
  - Would support portability

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Open Systems and IBM

- RS/6000—UNIX-based success
  - Success from price/performance
  - In tradition of competitive non-compatible environments

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Open Systems and Digital Equipment

- Current
  - VMS with UNIX coexistence
  - Interchange standards
  - Protect installed base

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Open Systems and Digital Equipment

- Future
  - Native UNIX support
  - UNIX with VMS coexistence
  - UNIX plus proprietary added value

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Open Systems and NCR

- Emerging environment
  - Processor—Intel based at all levels
  - Operating systems—UNIX linked to MS-DOS (etc.)
  - Applications support—multiple third-party DBMSs, etc.
  - Business—UNIX targeted

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Open Systems and Other Systems Manufacturers

- UNIX = survival strategy
- Proprietary operating systems coexist
- Data interchange standards emphasized
- Hardware becomes low cost competitive

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Examples of Openness

Environment	Portable	Interoperable	Vendor Indep.
COBOL	Partial	Limited	Partial
SQL Multiplatform	Partial	Yes	No
DBMS	Yes	Yes (same DBMS)	Yes

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Examples of Openness

Environment	Portable	Interoperable	Vendor Indep.
386	No	Yes	Limited
MS-DOS	Yes	Yes	Yes
UNIX	Partial	Yes	Partial

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Key User Needs versus Operating Environments

User Need	Standard UNIX	Enhanced UNIX	OS/2	MVS
Hardware price/ performance	B	A	B(?)	C
Second source hardware	A	C	B	C

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Key User Needs versus Operating Environments

User Need	Standard UNIX	Enhanced UNIX	OS/2	MVS
High perf. Oper. environ.	C	A	?	B
Reliable/secure Oper environ.	C	B+	B	B+

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Key User Needs versus Operating Environments

User Need	Standard UNIX	Enhanced UNIX	OS/2	MVS
Compatibility-other oper. environments	B	C	A-	C
Software avail.	B-	C	A	A

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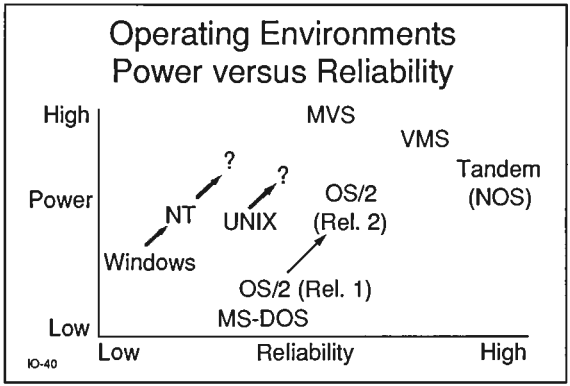

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Conclusions

- "Open Systems" ≠ UNIX
- UNIX and OS/2 are undermined by sponsor conflicts
- Intel chips/MS-DOS = happy medium

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Conclusions

- UNIX value has been hardware based
- CASE and DBMS technology can lock in user
- Optimized environment not really open

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Conclusions

- Balance between open and value-added
- Users may not want true open systems
- Some vendors will go out of business
- Alliances will be a large factor

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Open Systems

Address Level by Level

- Chip Set
- Processor
- Operating environment and networking
- Data base management
- Applications interface/GUI
- Business applications

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Open Systems

- Removes shield of proprietary technology
- Strengthens networking capabilities
- Removes price protection
- Changes the competitive rules

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Open systems
are
a target,
not a reality

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