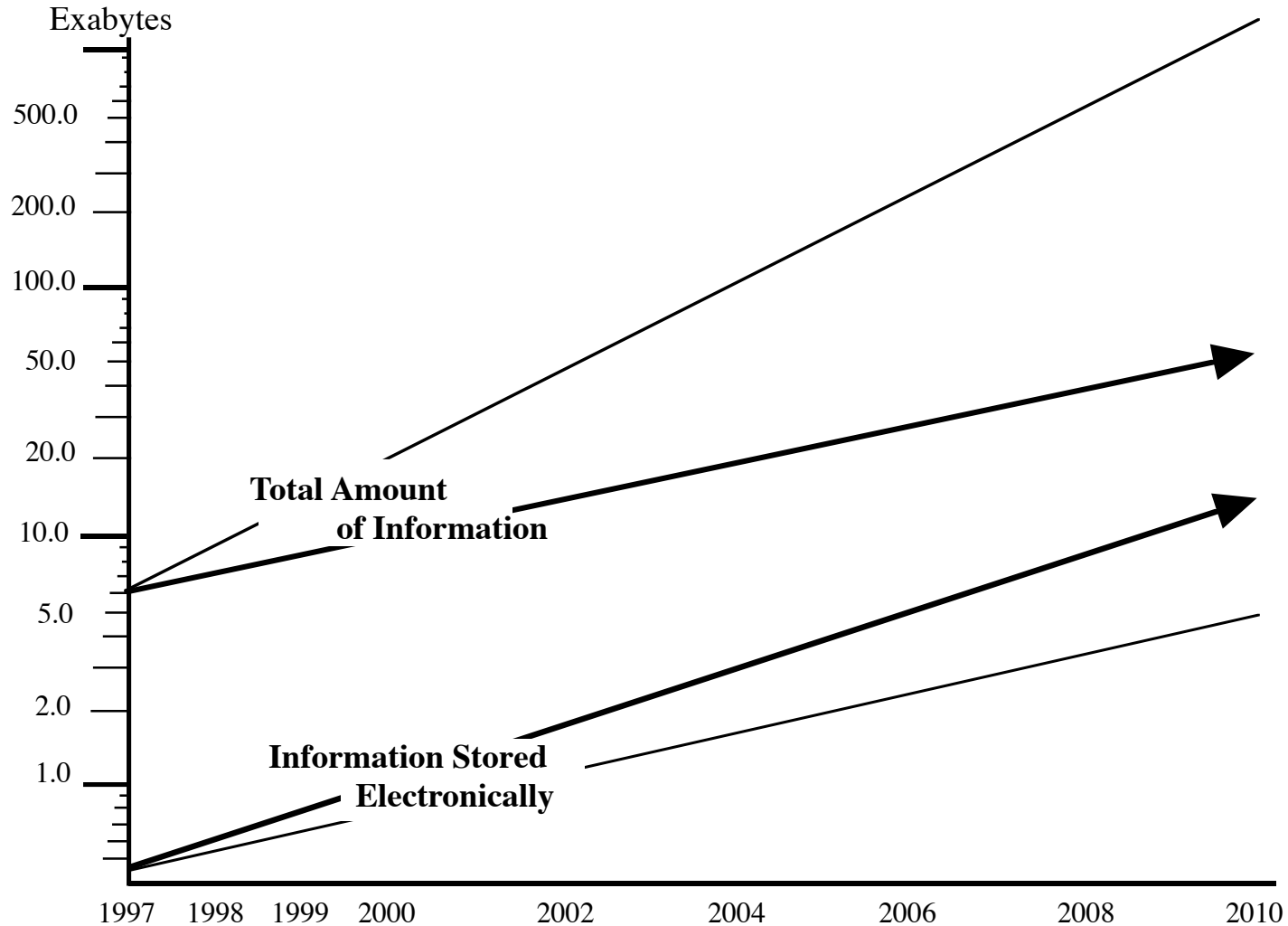


STORAGE TRENDS INTO THE 21ST CENTURY

MARK KEMPSTER

**STRATEGIC MANAGEMENT RESOURCES, LTD.
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INFORMATION AND ELECTRONIC STORAGE

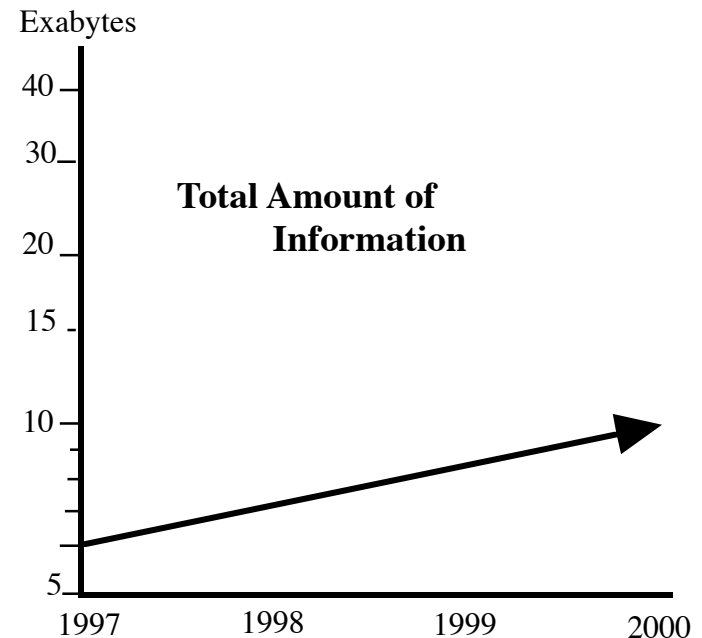


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INFORMATION STORAGE REQUIREMENTS

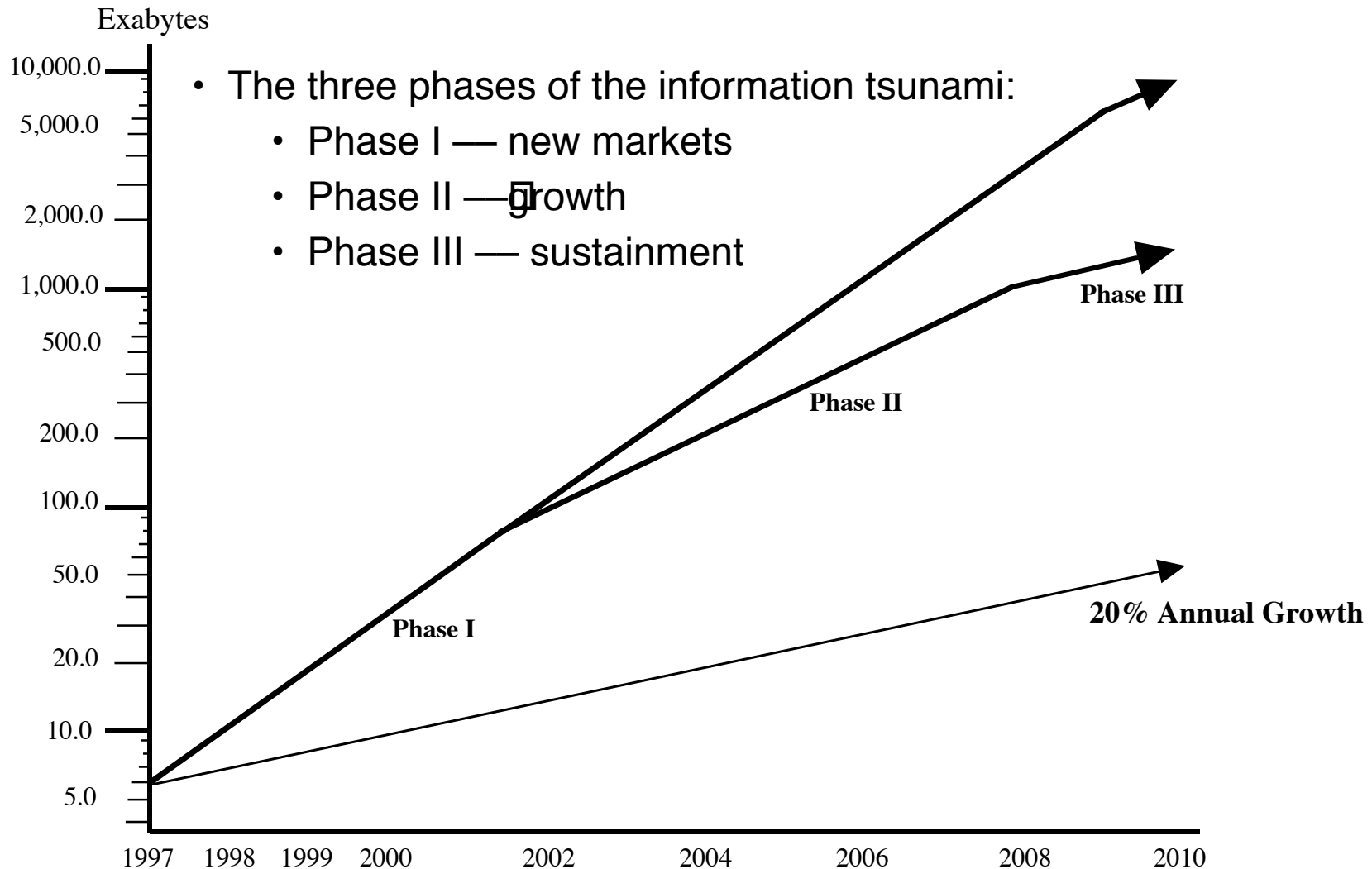
- Historically, electronic storage has grown 20-percent for the last several years.
- Requirements will increase as multimedia becomes more prevalent, and “data” expands to include “information.” Files will get larger.
 - color
 - audio and video
 - 2-, 3-, 4-dimensional, volumetric • •
 - science, banking, government, military, medicine, entertainment, WWW.
- 60 million PCs Internet-ready; 265 million by 2000. 35-percent of large businesses and 20-percent of midsized companies have websites. Internet traffic through five largest providers exceeds 250 TB per month. 50 million pages on 475,000 sites for 1 to 10 TB of information.



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THE INFORMATION TSUNAMI



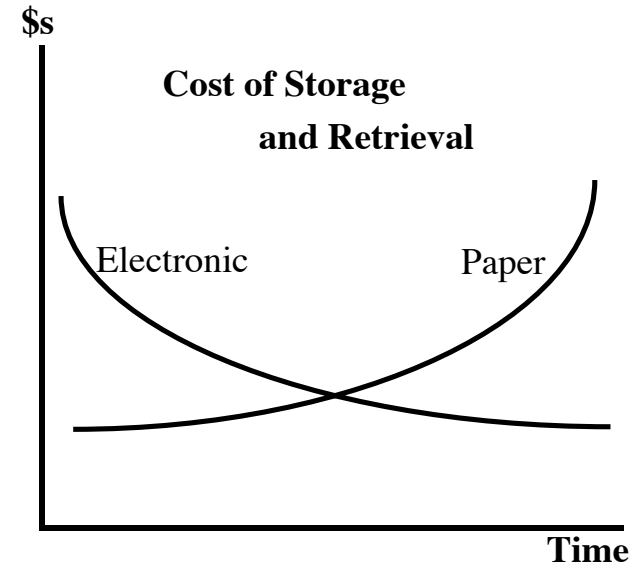
- The three phases of the information tsunami:
 - Phase I — new markets
 - Phase II — growth
 - Phase III — sustainment

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COSTS TO STORE AND RETRIEVE INFORMATION

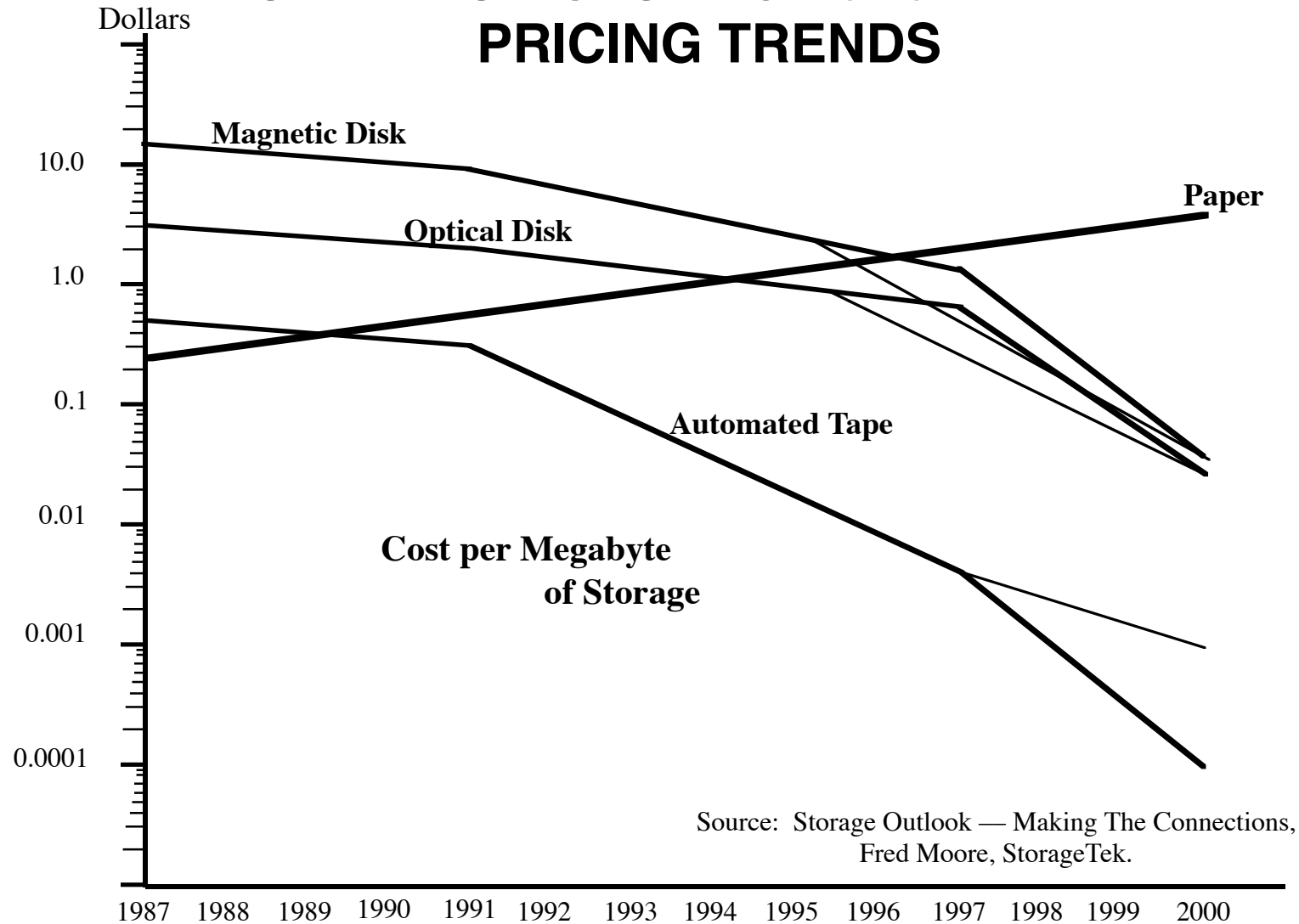
- In the last ten years the cost of electronic storage and retrieval has decreased.
 - Tape has decreased by 100.
 - Optical disk has decreased by 4.
 - Magnetic disk has decreased by 11.
- Over the same period of time, the cost to store and retrieve paper has increased.
 - facilities are more expensive
 - labor is more expensive and facing reductions
 - databases are becoming larger and more cumbersome
 - customer service expectations are increasing
- At some point in time paper files simply will not be cost effective.
- When the cost to store and retrieve paper files exceeds the cost of electronic storage — what was off-line paper will migrate to near-line electronic.



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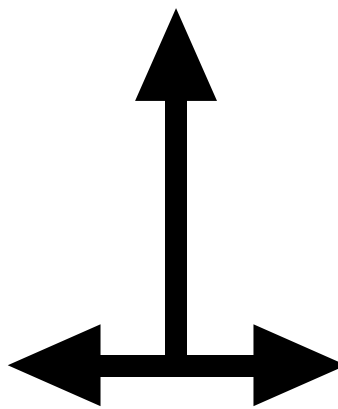
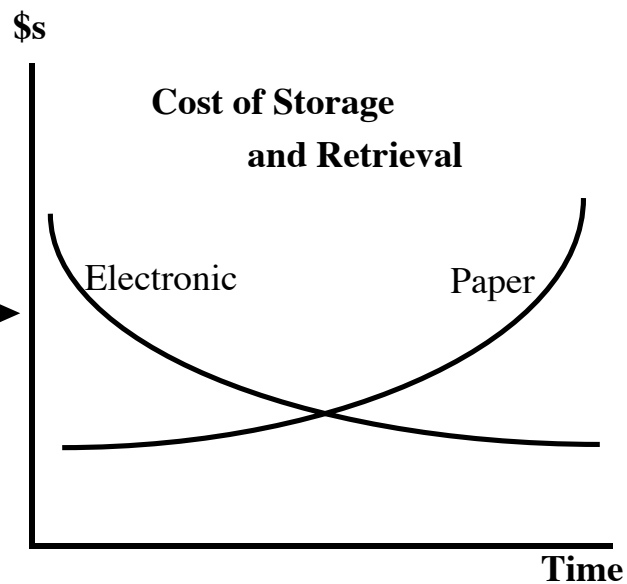
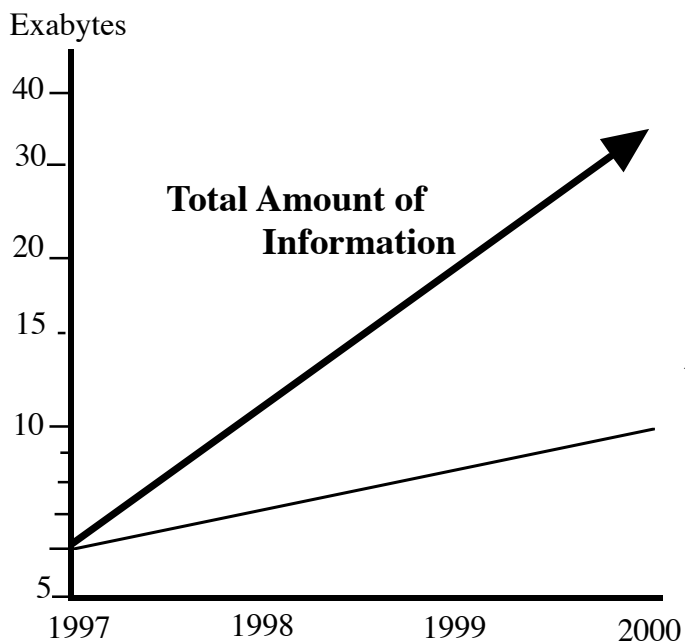
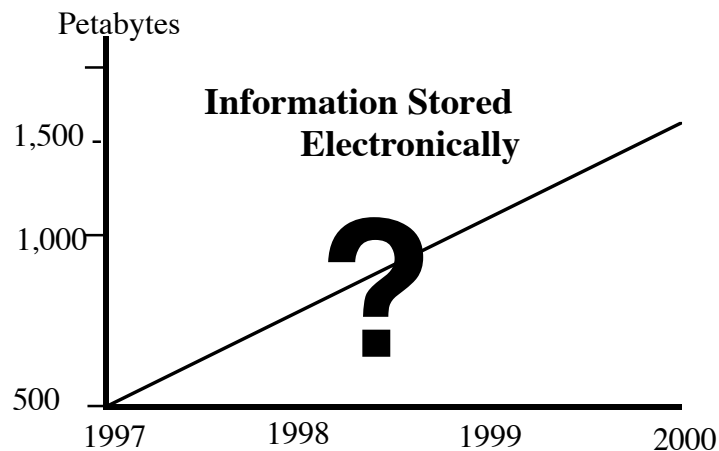
INFORMATION STORAGE and RETRIEVAL PRICING TRENDS



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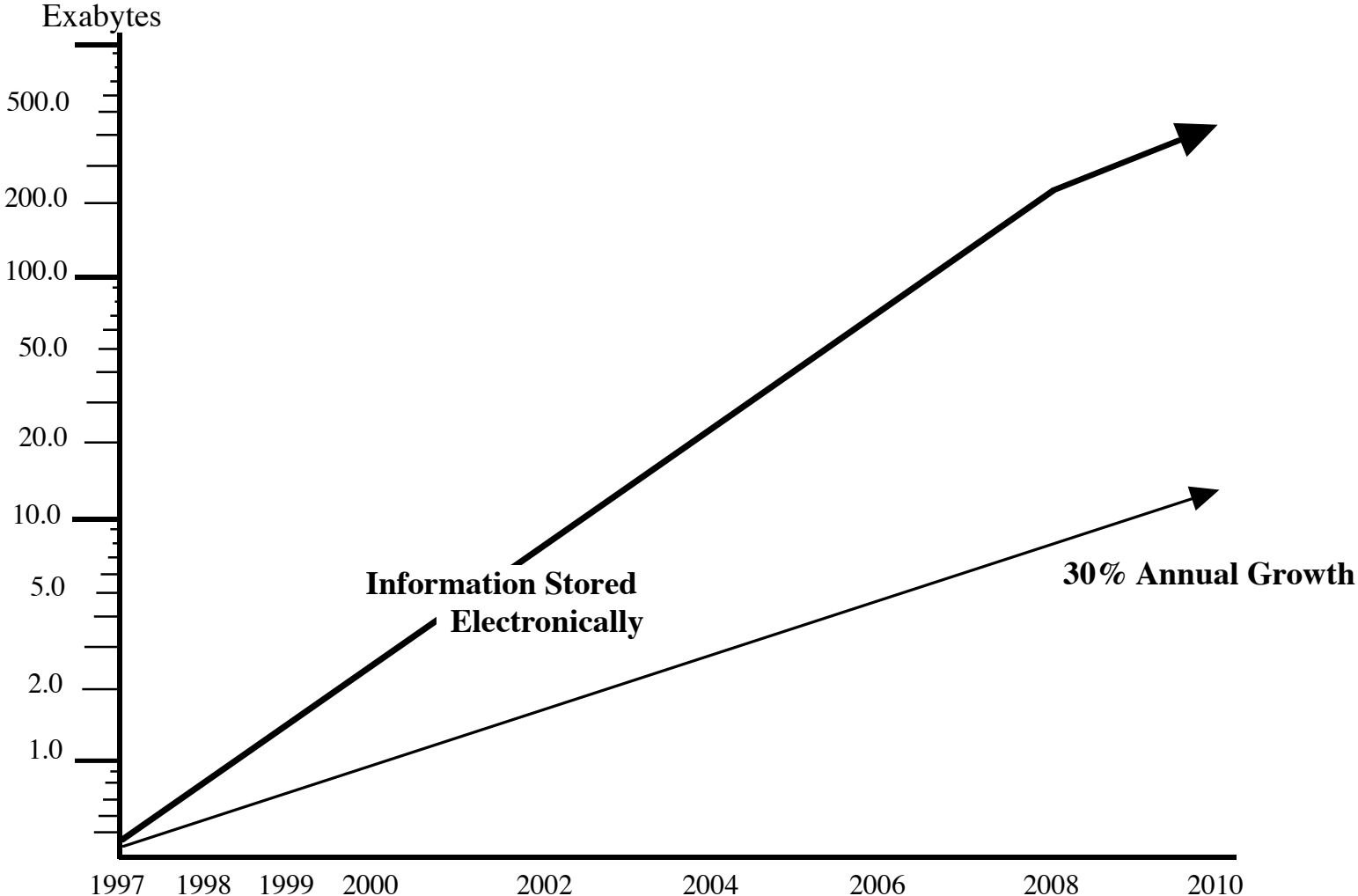
IMPACT



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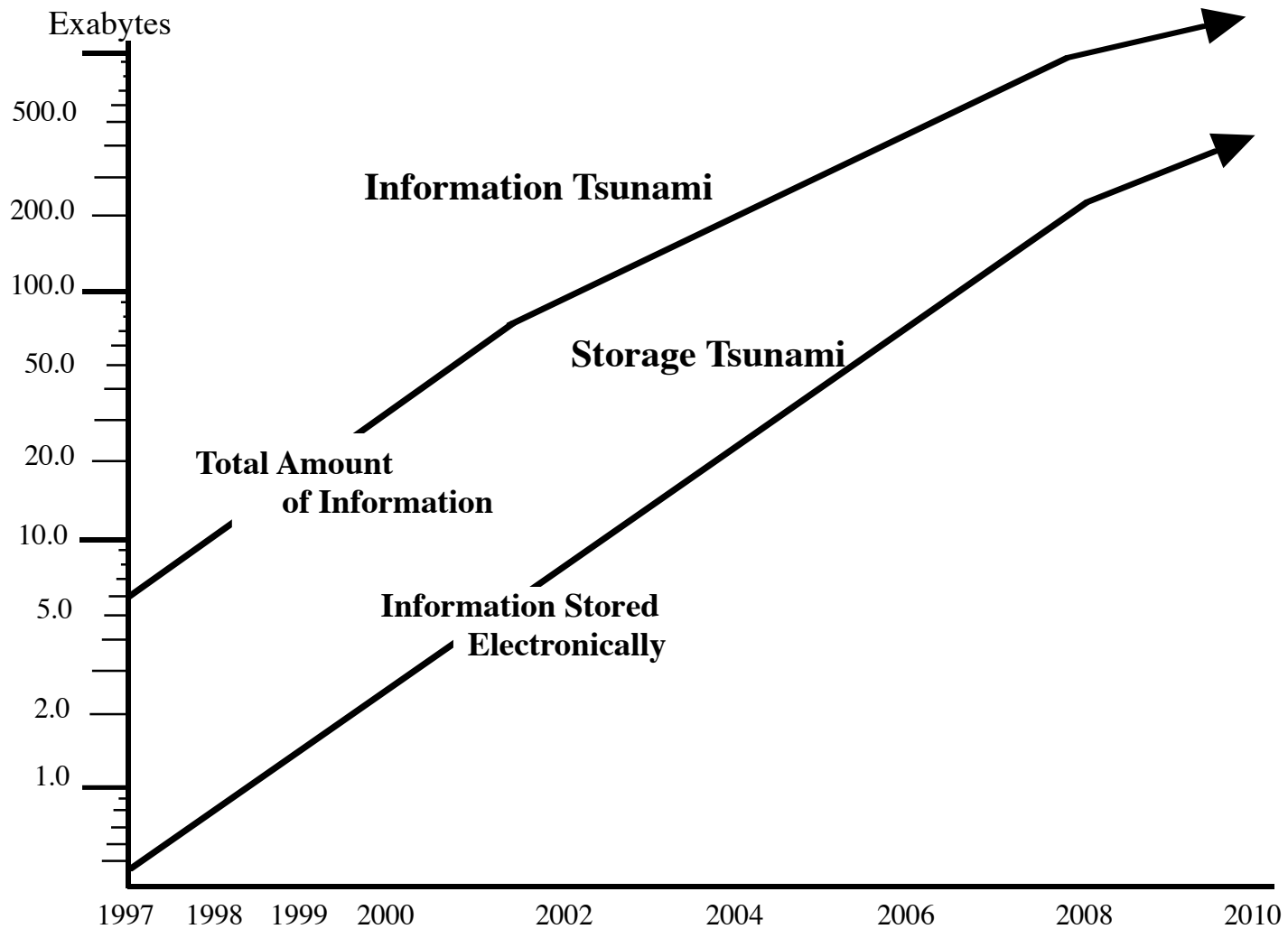
THE STORAGE TSUNAMI



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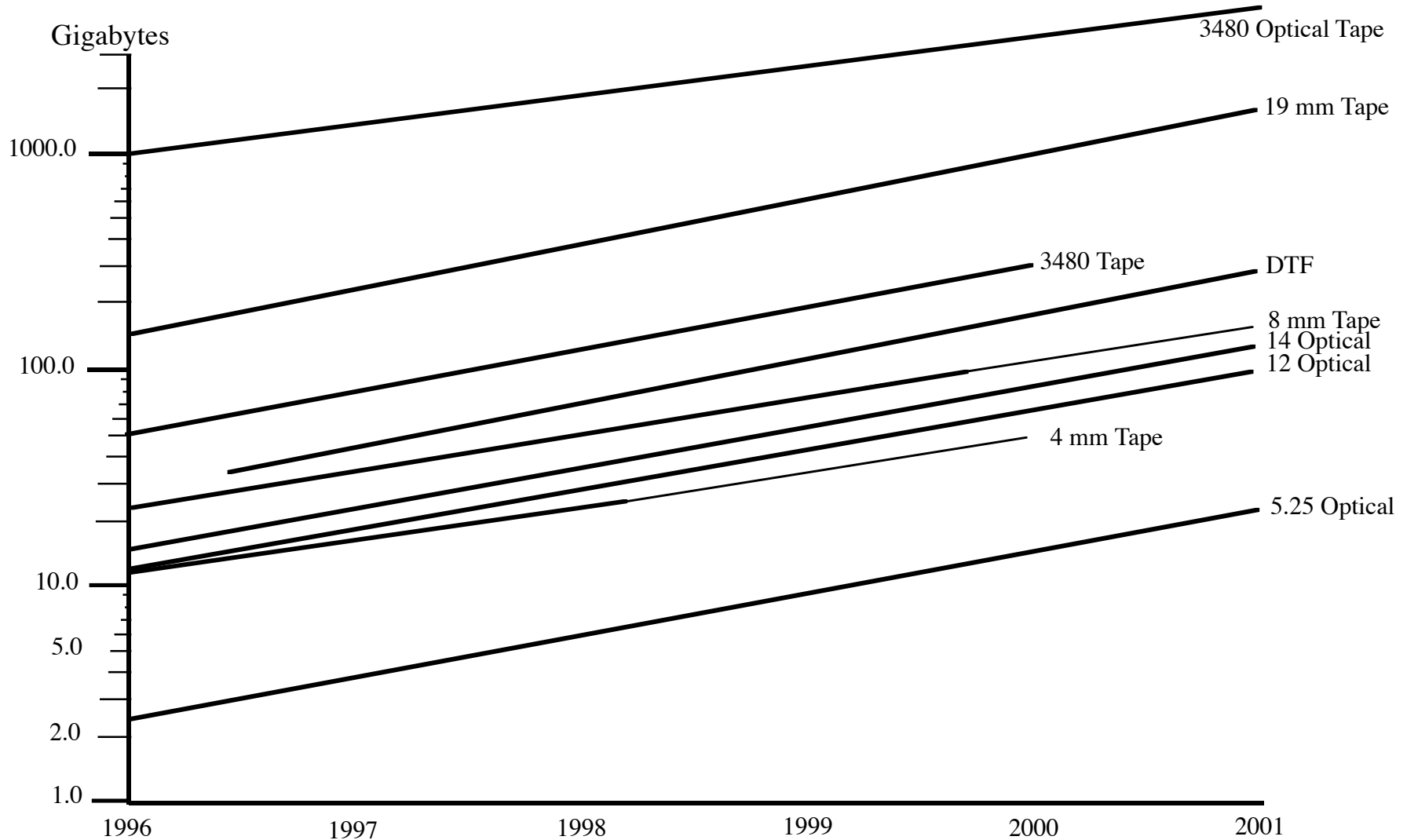
THE DIGITAL TSUNAMI



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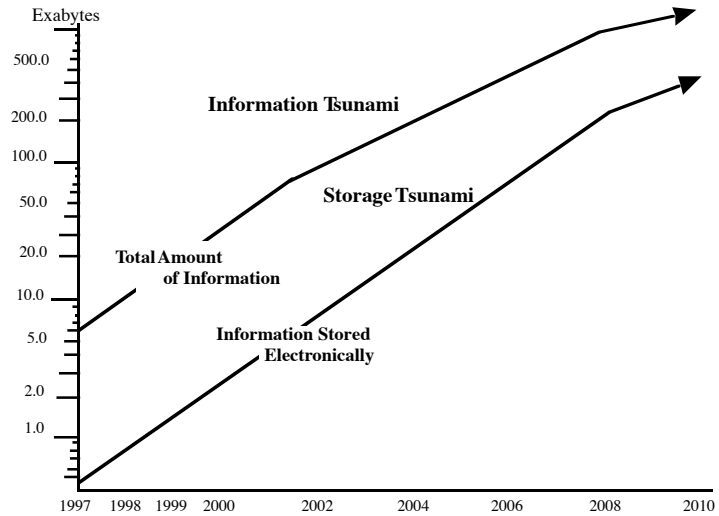
UNIT STORAGE CAPACITY



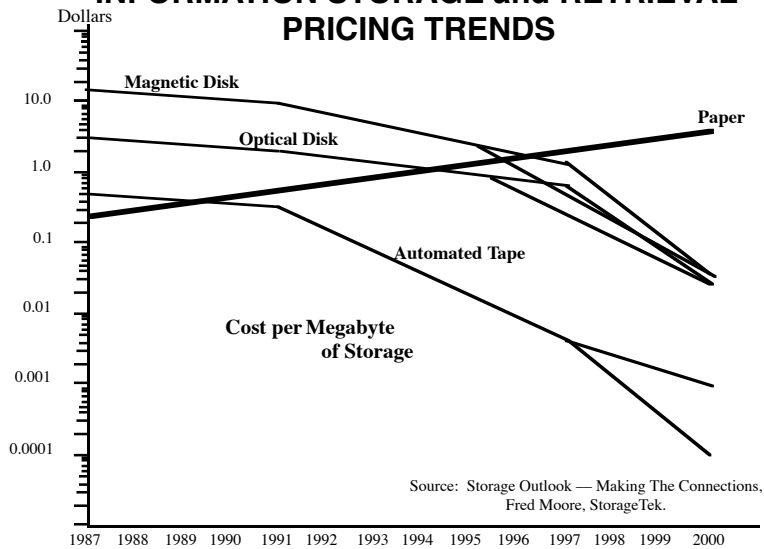
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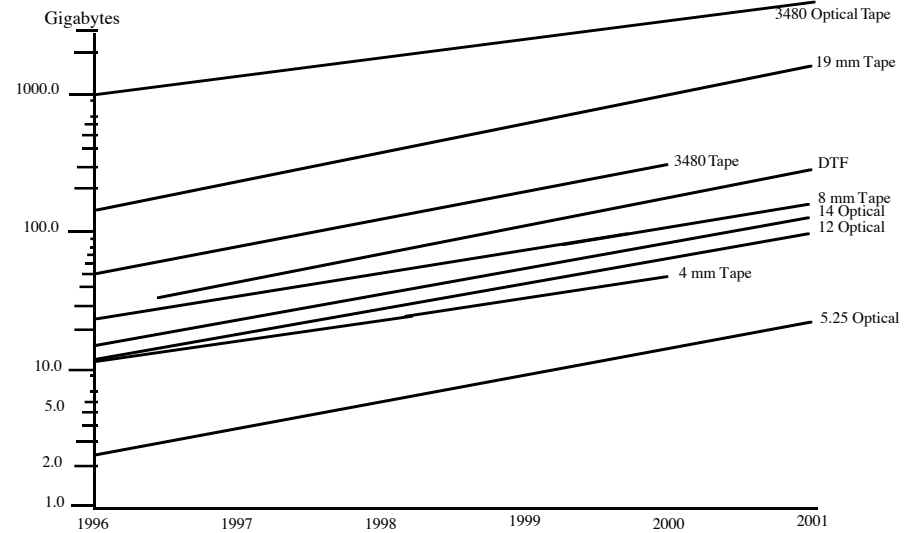
THE DIGITAL TSUNAMI



INFORMATION STORAGE and RETRIEVAL PRICING TRENDS



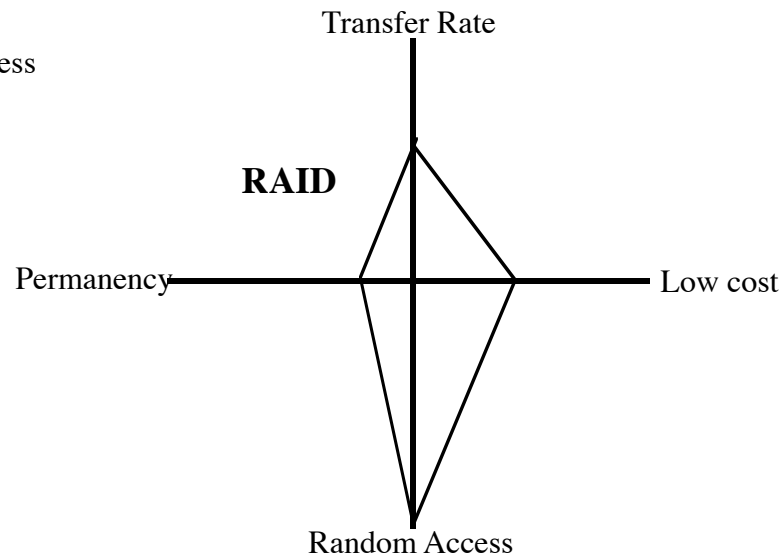
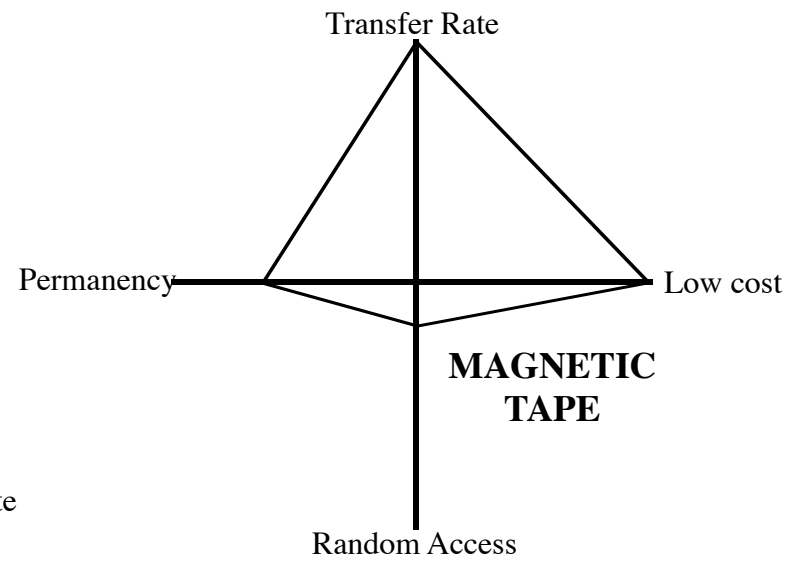
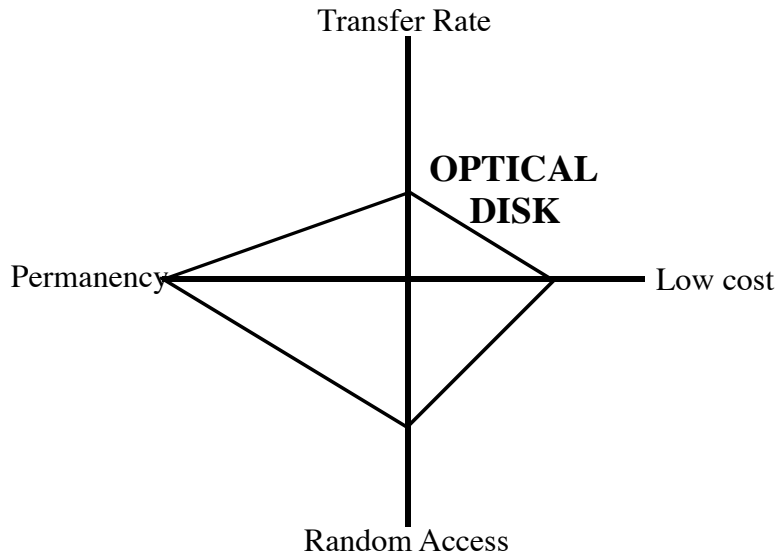
UNIT STORAGE CAPACITY



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COMPARATIVE ANALYSIS



Strategic Management Resources, Ltd.

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