

Library and Information Service in Academia Sinica

The Rationale for Strategic Planning

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1. The Phenomena

1.1 Data Phenomena

- 300 GigaBytes of Text information on the WWW, 100 TeraBytes/Month WWW traffic between 12 Million hosts.
 - The fluidity and loss of data
- According to IDC, 60 % of people's time working with documents, 80% of those documents are store on local disks.
 - Information Storage and Management

1.2 Storage Requirement

- 1 page text: 3KB
- 1 page graphics: 20KB
- 1 page B/W scanned text: 50KB (compressed)
- 1 page colour image: 5 MB (compressed)
- 1 medical X-ray: 10 MB (compressed)
- 1 minute audio clip: 10 MB CD quality
- 1 minute video clip: 30 MB MPEG2 compression
 - What is your storage requirement?

1.3 Information Presentation

- Digitised technology is beginning to be able to faithfully represent the original artworks.
- Nonlinear presentation: Hyperlink/Markup, Hypermedia
- The popular use of Object-oriented methodolgy on common desktop applications.

1.4 Network Phenomena

- Tree/Star Topology→Mesh Topology
- IP Address Inadequacy
 - IETF address Lifetime Estimation: yr. 2004
- Routing Table Explosion
 - 1990: 2,190 routes
 - 1995: 29,000 routes
 - 1996: 500,000 routes
- 5 M routing table updates per day now

1.5 Network Phenomena (Cont.)

- Route Stability Behaviour Has Degraded With Growth
- Traffic Congestion
- Lack of Resource Reservation Scheme

- In many cases, routing is instrumental for the network performance problem.

2. Strategy

2.1 Fundamental Principles

- Open system requirement in the UNIX way
- Portability
- Interoperability/Distributed Computing
- Scalability/Parallel Computing

2.2 Infrastructure

- High-performance Network
- High-performance Distributed/Parallel Servers
- Mass Storage
- Connectivity: Dial-up, ISDN, Global Connectivity

2.3 Application Systems

- Digital Library/Museum: A system that enables the collection, organisation, management and distribution of multimedia objects.
 - However, DL/M, for the moment, should focus on the preservation of culture and building necessary infrastructure. (Paperless library is yet to come.)
- Bio-Informatics
- Scientific Computing
- Intranet/Groupware for MIS

2.4 Core Technology

- Full-text retrieval technology
- Distributed object management system
- JAVA/WEB programming
- PC Farm, LINUX/FreeBSD/Solaris 86

3. Current Status

(See "A Profile of Computing Centre, 96" for more details)

4. Conclusion

4.1 Possible Items for PNC Collaboration

- PNC members Pacific rim connectivity pass
- Joint projects based on open architecture
- Simplification of network routing, PNC Cache
- Mbone tunnel among major PNC member sites
- CSCW environment for certain PNC projects
- Document delivery system *DL/M joint venture
- etc.
- Perhaps, PNC Information Infrastructure (PNII)!!

4.2 An Analogy

- The Internet phenomena is like co-operative phenomena happened in a physical system with many constituent elements where some co-operative long-range order is developed without external force only the right environment is required.
- This co-operative phenomena should not be stopped or diverted since it could be a foundation stone for the well-being of the Pacific Neighbourhood Community.