Establishing an Information Architecture Integration with an Open Systems Environment

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Establishing an Information Architecture

Integration with an Open Systems Environment

Overview

- Context
- Data Architecture
- An Approach to Data Architecture
- Open Systems
- A Technology Map: Indiana University
- An Approach to Open Systems
- Next Critical Events

Organizational context

- Eight-campus university
- Merged academic/administrative computing
- Computing Services mission

Context: Strategic Initiatives

- High-speed data network
- Workstation-centered computing
- Relational database management systems
- Access to data

Macro-level analysis of data

- General nature of data
- Intended uses of data
- Standards for information synthesis
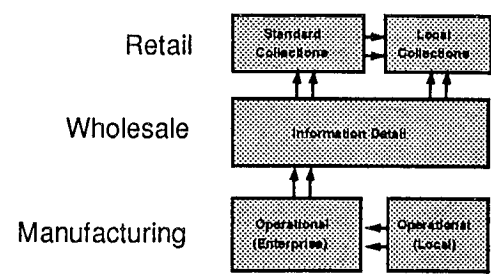- Recommended technologies for data deployment

Industry reference points

- VITAL - Apple Computer, Inc.
- Information Warehouse - IBM Corp.
- EDA/SQL - Information Builders, Inc.
- "Data Warehouse" - Bill Inmon

Data architecture

Data architecture
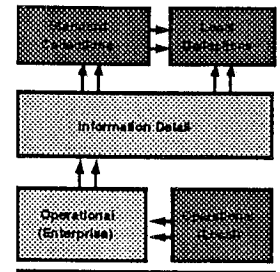
Retail

Wholesale

Manufacturing
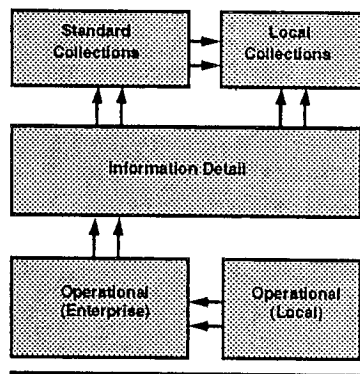
IU's Data Architecture

- Separate operational and information detail
- Refine information detail
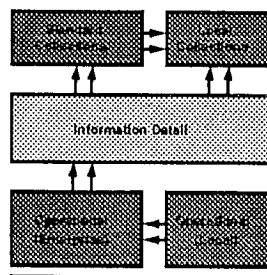- Develop standard collections
- Integrate with local data

Step 1: Separate Operational and Information Detail

- Match performance to use
- Match structure to performance
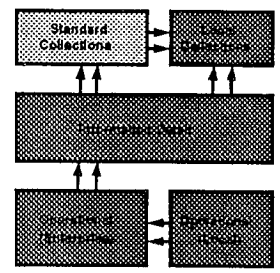- Provide stable data values

Step 2: Refine Information Detail

- University E-R data model
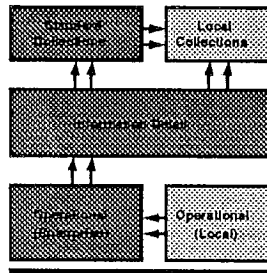- Establish authoritative sources
- Migrate to relational

Step 3: Develop Standard Collections

- Data views
- Summary, aggregate databases
- Standard definitions
- Repetitive summarization, aggregation
- "Snapshot" points-in-time

Step 4: Integrate with Local Data

- Front-end: source for enterprise systems
- Back-end: local definitions, selections...

Technology Map to "Open Systems"

- Standards based
- Workstation oriented
- Supports a multi-vendor environment
- Available technologies
- Sustainable technologies

Examples of Open System Choices

- TCP/IP
- DB2
- Novell

Open Systems and Indiana University

- Strategy for the early 1990s
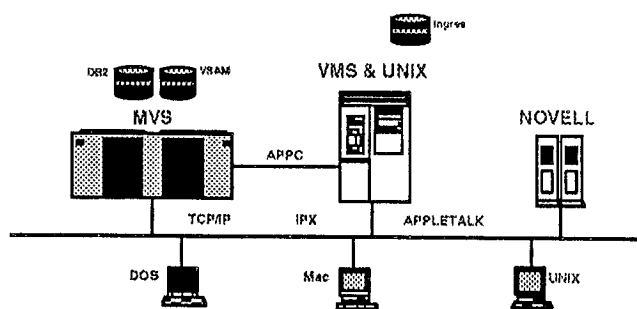- Three other open systems strategies

"Technology Coexistence" — Strategy for the early 1990s

- Cornerstone: one network, many services
- User view: single workstation, many functions
- Data migration to SQL RDBMS
- Gateway between proprietary and "open" server environments
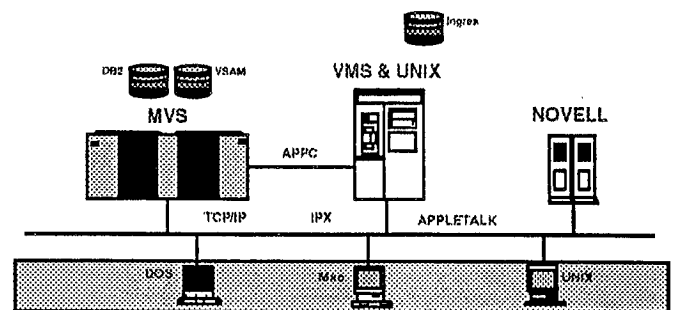- Mix of proprietary and "open" solutions

Three other "open systems" strategies

- "Freeze and rebuild"
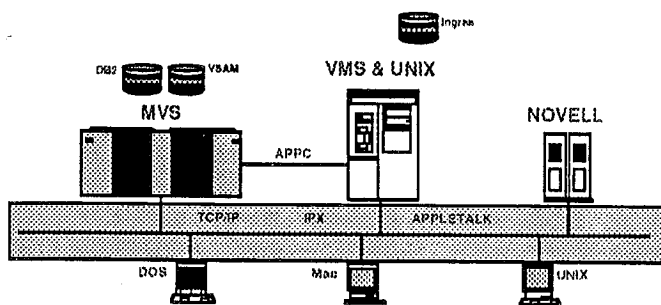- "Clearcut and reseed"
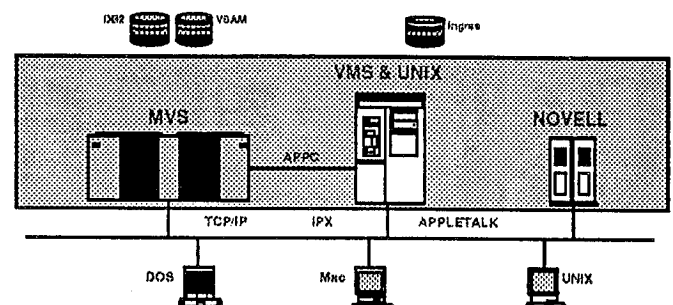- "Wait and see"

Technology Map of Indiana University
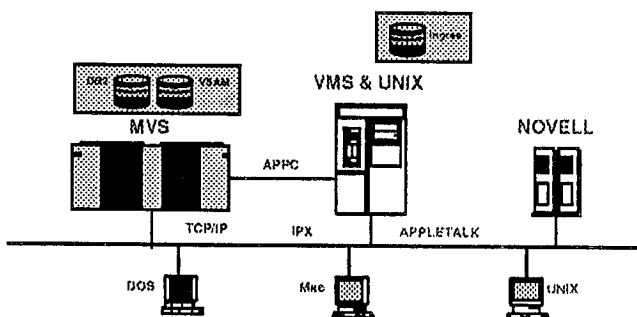

Technology map — workstation

Technology map — network

Ingres

DB2   VSAM   VMS & UNIX

MVS   NOVELL

APPC

TCP/IP   IPX   APPLETALK

DOS   Mac   UNIX

Technology map — central servers

DB2   VSAM   Ingres

VMS & UNIX

MVS   NOVELL

APPC

TCP/IP   IPX   APPLETALK

DOS   Mac   UNIX

Technology map — DBMS

Ingres

DB2   VSAM

VMS & UNIX

MVS   NOVELL

APPC

TCP/IP   IPX   APPLETALK

DOS   Mac   UNIX

Technologies and Architecture

- Select a technology suite
- Map technology to architecture
- Specify technology for each application

Criteria: Select and map technology

- Open Systems
  - Standards-based
  - Workstation-oriented
  - Multi-vendor
  - Available
  - Sustainable
- Resources
  - Performance/cost
  - Established expertise
  - Integration
  - User funtionality
  - User preference

Data Architecture/Technology Map
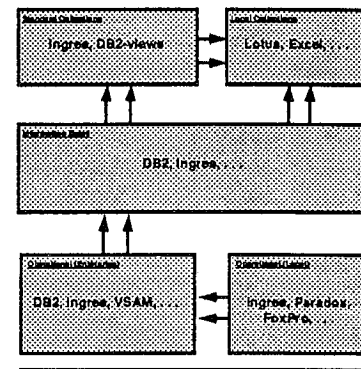
Next Critical Events

- Architected Data Environment
- Open Systems Environment

Critical events: data architecture

- Migrate data to RDBMS
- Methodology for "standard collections"
- Decision-rules used to select technologies
- Move access to the desktop
- Move preferred access to data collections

Critical events: open systems

- Novell/SQL database
- Gateways to/from MVS
- Security in client/server environment
- Integration of DCE functions