Networking at JSC

presentation to
"Networking as a Strategic Tool"
Conference

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Presentation Outline

- JSC Network Perspectives
- IRM Approach at JSC
- The Information Systems Directorate
- Approach to JSC Networking Growth and Consolidation
NASA IRM Budget by Center

Goddard 13%
JPL 12%
Marshall 8%
Stennis 1%
Ames 9%
Headquarters 8%
Kennedy 13%
Johnson 28%

Source: GSA Report based on FY89 ITSP

JSC Campus Networks

Thousands of Physical Devices

TOTAL
Other
DEC
Xerox
Unisys
IBM-comp

Year
'80 '82 '84 '86 '88 '90

Thousands
Networks Evolution at JSC


MCC → MCC → CIN
DVL → SPF → MOD → FM
SDL → JES → GUI

Consoles
Terminals
WP's PC's

Evolution

Networking Evolution


Hosts and "Cards"
Hosts and Terminals
"Batch" "Interactive"
"Batch" "Interactive"

Micros and Networks
Networks as the Utility
"Shared" "Distributed"

Strategic Tools
Networking as a Strategic Tool

- Since the 1960's, computing power has been shifting from centralized hosts to distributed environments.
- Networks are a strategic tool for distributed computing platforms.
- Strategic planning is necessary to insert the technology, and increase reliability and availability of networks.

I/S Environment - "Mission" Perspective

The "Larger" Information System

- Flight
- Operations
- Operations Support
- Engineering and Analysis
- Management, Project, and Finance
**JSC ADP vs. Civil Service Staffing**

*(FY91)*

![Graph showing the comparison between JSC Civil Service Staffing and other programs.*](image)

- **JSC Civil Service Staffing**
- **Lunar/Mars**
- **Space Station**
- **SS Ops Facil.**
- **Shuttle Operations (STSOC)**
- **Institutional**

Timeline:

- **1960's**
- **1970's**
- **1980's**
- **1990's**
- **2000's**

**I/S Quality Approach - Efficiency**

#1

*Reduce Unique Resources*

![Diagram showing the reduction of unique resources.](image)
I/S Quality Approach - Focus

#2
Focus on the Primary Business

I/S Quality Approach - Commonality
I/S Management/Contract Evolution

"Outsourcing"

Platform Services

ISD "Return-on-Investment"

Note: FY91 statistics are projections
Information Systems Directorate "Charter"

"ISD is established to lead and support the IRM Council in the establishment of Centerwide standards and policies for information services and to consolidate, in time, all institutional information services under a single JSC organizational structure".

Aaron Cohen
Director, Johnson Space Center
JSC Announcement 90-062
March 30, 1990

General IRM Approach for JSC

Inter-Organizational
Consensus-driven, Controlling

Quality
Information Services

Central Services
Single Source, not-Controlling
JSC Networking Challenges

- Proliferation and Autonomy
- Rapid and continuing growth
- Acquisition Risks in Standards
- ADP security
  - unknown vulnerabilities
  - no ranked services
- Budget

JSC Network Requirements

Functions

- Distributed Processing
- Growth
- Heterogeneous
- Security
- Management
JSC Network Requirements
Results

- A full range of network services on an institutional platform
- Open (authorized) access
- Focal point for outside interfaces
- Consolidation and integration of resources at JSC
CONCLUSION

- Networks have evolved and proliferated rapidly in the industry
- JSC is undergoing fundamental changes (Multi-programs in particular)
- Networkings is the foundation of the next major evolution in I/T strategies (Consolidation via distributed processing)
- Network Technology isn’t up to the task yet! (standards, products, speed)
The End

of the briefing......