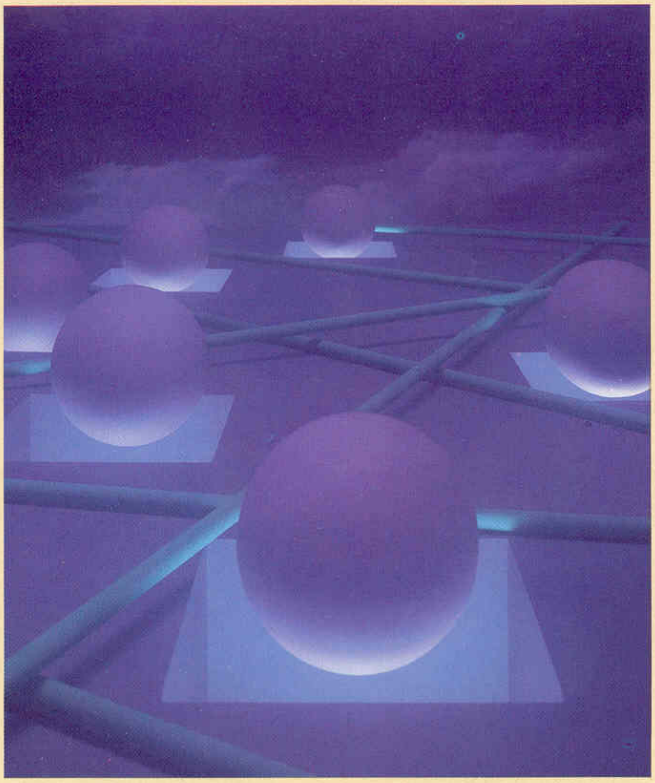
Data General

COMMUNICATIONS AND NETWORKING

A DIFFERENT VIEW



A BETTER ANSWER

DG/OSI COMMUNICATIONS ARCHITECTURE

FREEDOM FOR MULTIVENDOR INTEROPERABILITY

As the demand grew for multivendor systems that provided freedom from proprietary constraints, "connectivity and interoperability" became buzzwords to which many companies paid lip service. But with the passing of time, these features moved from "desirable" to "essential" for any business enterprise with the need to communicate.

Data General has recognized this need with a different view. *Our XODIAC™ products have been developed with an eye to the emerging industry standards. As the standards become formalized, our products are revised to adhere to them completely. And we continue to recognize* de facto *standards.*

As a result, Data General now provides *a better answer* through the Data General/OSI Communications Architecture (DG/OCA) product suite. DG/OCA augments our XODIAC networking architecture and is completely compliant with the Open Systems Interconnection (OSI) model—the worldwide communications standard developed by the International Standards Organization (ISO).

Its adherence to the OSI model provides not only multivendor connectivity and interoperability, but a wide range of real user advantages as well. Information is exchanged more easily, costs are reduced, and systems become easier to expand. All of these benefits result in a more secure information management future.

OSI is Data General's key connectivity strategy now and in the future, but we continue to provide a choice of *de facto* networking protocols: TCP/IP in the UNIX™ environment and the IBM Systems Network Architecture (SNA).

For those seeking an architecture that provides freedom in computing and communications with *a different view...a better answer,* the DG/OCA product suite is key.

A Complete Implementation For Interoperability

A complete seven-layer implementation of the OSI stack, the DG/OCA product suite provides freedom of choice and investment protection. Users are not forced into buying any one type of computer system or product from any one vendor.

DG/File Transfer, Access and Management (DG/FTAM) provides simple file transfer and management for multivendor environments. It is an implementation of the OSI standard file transfer, access and management protocol and operates over both local and wide area networks. For XODIAC users in both a Data General-to-Data General and multivendor environment, DG/FTAM provides a transparent interface to the XODIAC File Transfer Agent (FTA).

DG/OSI Transport Services (DG/OTS) provides routing and end system transport services over both LANs and WANs and serves as the common platform for OSI connectivity as well as Data General proprietary environments. It includes a programmatic interface at both the link and transport layers.

DG/OSI Applications Platform Interface (DG/OAPI) is an "OSI Developer's Toolkit," and includes the components necessary for sophisticated end users and value-added resellers (VARs) to write OSI applications.

DG/X.400 gives users the ability to send messages to multiple vendors on the X.400 network. It is integrated with the Data General CEO® office automation system and has been demonstrated publicly at computer industry trade shows many times in multivendor environments.

DG/OpenNMS provides network monitoring and control for DG/OCA, XODIAC, Data General Personal Computer*Integration (DG/PC*I), and user-developed network application environments. It is based on evolving OSI network management architectures for multivendor environments.

Evolving Toward Interoperability Communications Standards

Data General's commitment to standards is not new. We have a long history of leadership in standards support.

In 1979, Data General was the first vendor to adopt the ISO standard X.25 wide-area, packet-switching protocol as the basis for our XODIAC networking architecture. In 1986, we joined the Corporation for Open Systems (COS)—a consortium of vendors and users that provides OSI product certification services and facilities for vendor interoperability testing. And in 1987, we were one of the first to support the X.400 message and mail exchange protocol.

Our XODIAC networking architecture was structured in layers long before publication of the actual OSI model. As standards have become formalized, XODIAC "agents" have adhered to them—the post office agent has been converted to an X.400 mailing agent; the XODIAC File Transfer Agent has become DG/FTAM, and so on. The fact that the products are layered makes development easier and causes little disruption to the existing environment.

And as the OSI model evolves, DG/OCA and XODIAC products will continue to converge. Existing XODIAC users will not find themselves "out-in-the-cold"—rather, existing products will be revised to conform to OSI standards.

A Different View...A Better Answer to Multivendor Interoperability

Data General provides *a different view..a better answer* to multivendor connectivity and interoperability with the DG/OCA product suite.

Completely adherent to the seven-layer OSI model, DG/OCA provides all the benefits associated with standards adherence.

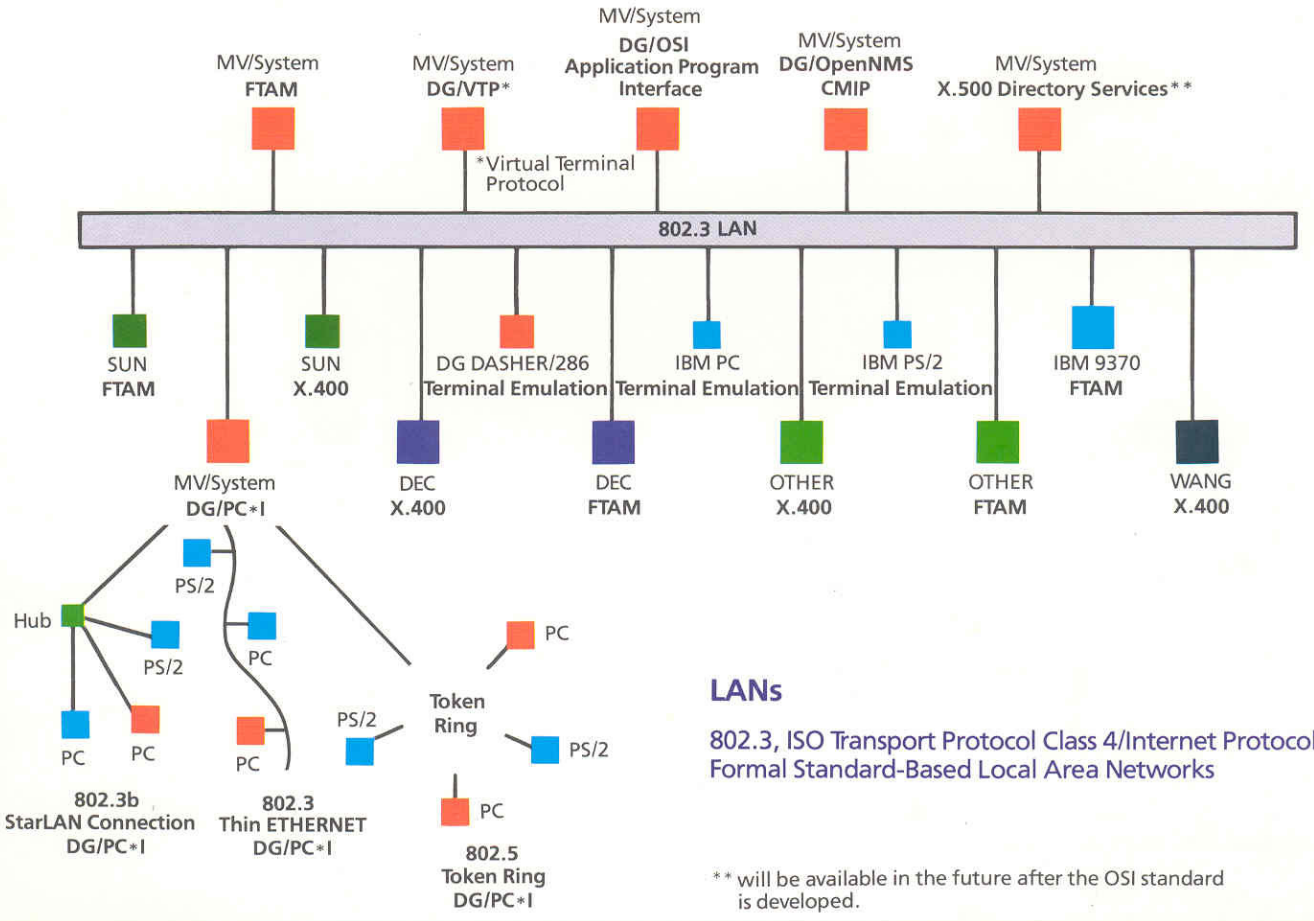
— Efficiency and productivity are increased because information is exchanged easily.

— Costs are reduced because investments in computer systems and products are protected.

— Systems become easier to expand because a solid foundation exists upon which to build future information networks.

Standards adherence ensures that today and tomorrow's communications needs are met. And with DG/OCA, Data General makes the difference in a successful, long-term information strategy.

MULTIVENDOR INTEROPERABILITY



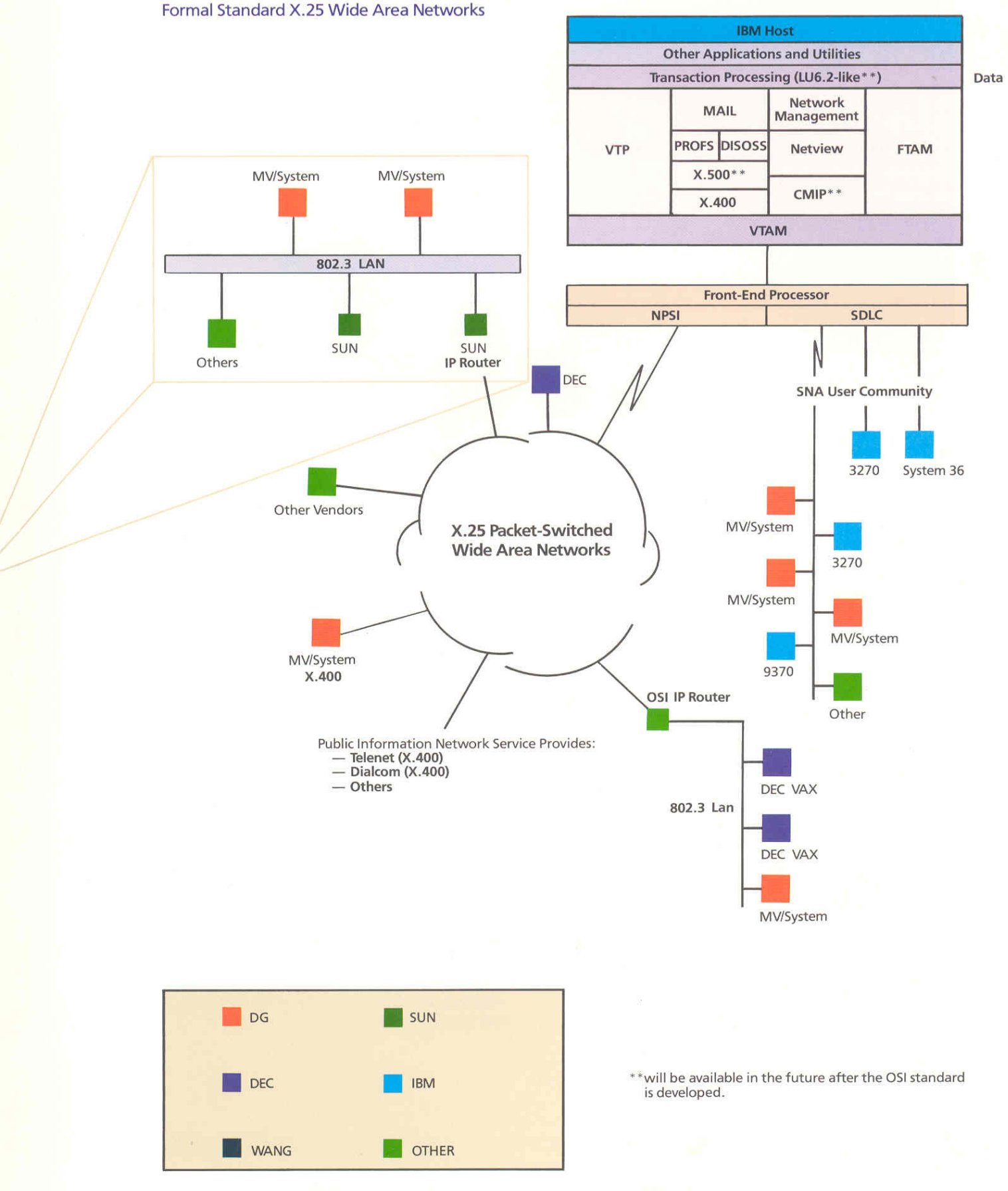
LANs

802.3, ISO Transport Protocol Class 4/Internet Protocol (TP/IP) Formal Standard-Based Local Area Networks

** will be available in the future after the OSI standard is developed.

WANs

Formal Standard X.25 Wide Area Networks



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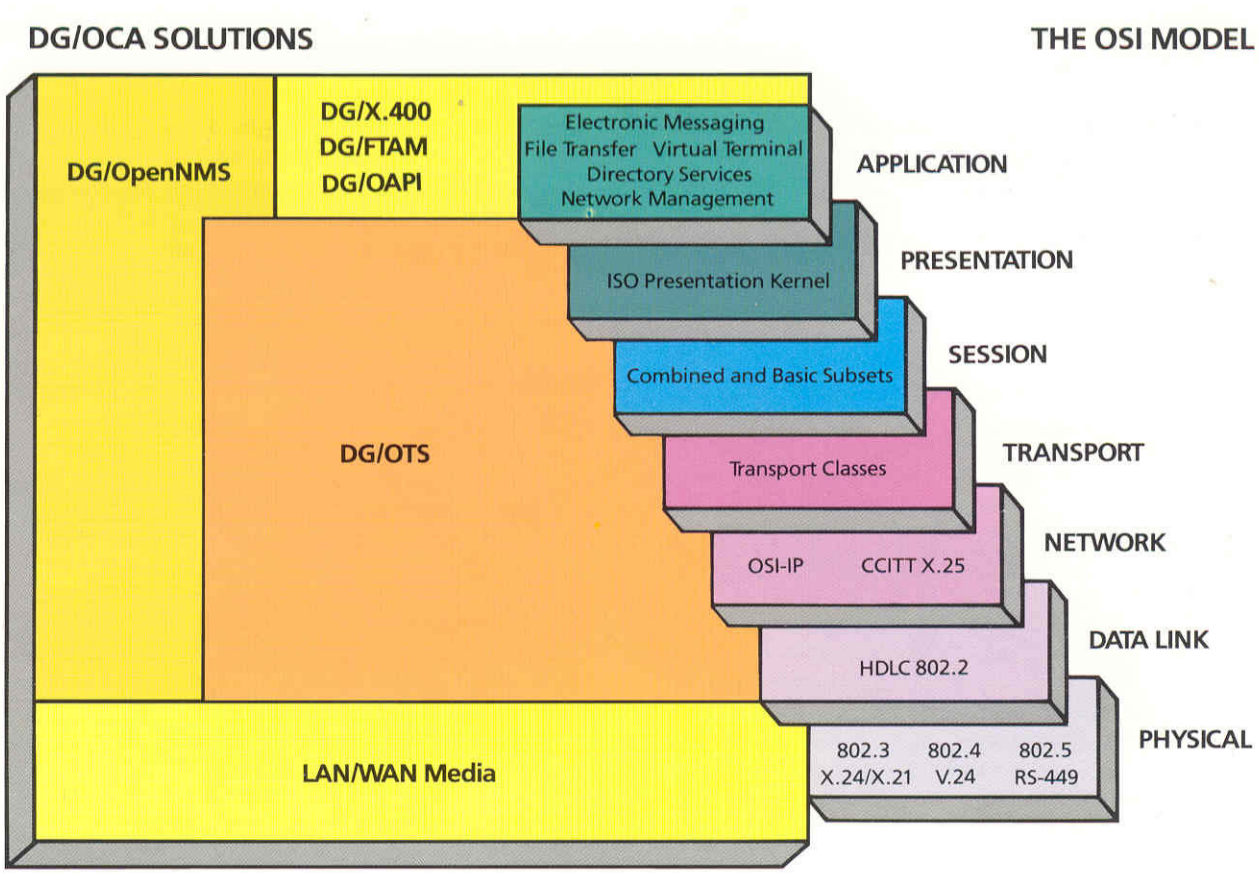

The OSI Model

The OSI model is a seven-layer architecture by which compliant multivendor computer systems can communicate with one another. The model describes the functional layers and protocols involved in passing data between computers.

ISO developed the OSI model as a result of the great need by computer users for a data interchange and networking standard in multivendor environments. Since its development in 1984, the OSI model has emerged as the most widely accepted set of data communications standards in the world.

Each of the seven layers in the OSI model performs a specific role—such as physical connectivity or transport of data—and each layer operates independently of the other layers.

With multiple protocol options available in each layer, a variety of configurations can be offered to users. This ability ultimately provides the primary benefit of the OSI model. Users have a vendor-independent choice of how to exchange data transparently.

Layers one through four—the lower layers—specify the means of interconnecting computer systems, and the upper layers—five through seven—specify the means of interconnecting applications on the systems.

Physical Layer 1 defines the channel over which the data is sent as well as the physical signaling involved.

Data Link Layer 2 provides synchronization and error control for the transfer of information over each leg of the transmission path. It ensures that data is intact along each stage of the path.

Network Layer 3 selects the path that the data will take by controlling routing and switching.

Transport Layer 4 provides end-to-end reliability and includes functions such as multiplexing and packaging data for efficient handling by the network.

Session Layer 5 controls and synchronizes dialog between applications processes.

Presentation Layer 6 encodes and decodes data and provides the conversion to a common language or character set for the communication.

Application Layer 7 consists of application-oriented facilities that are used by the end-user application.