The SPERRY UNIVAC Distributed Communications Architecture

SPERRY UNIVAC

What an Architecture Can Do for You . . .

So many computer companies are announcing, comparing and promoting "architecture" that it's probably difficult now and then to tell whether you're being offered help, houses or hot air.

We'd like first to tell you, as plainly as possible, what a data communications architecture can do, should do, and *will* do once you adopt it.

First of all, a data communications architecture is a structured framework for total data communications network planning and design. It contains rigorous specifications for logical concepts and structures, a set of rules and guidelines and a choice of allowable network configurations.

There are many advantages to setting up your data communications system and network within an architecture:

- it eliminates haphazard, trial-and-error or make-do growth.
- it insures that all components within your system are compatible—and therefore that your network exactly meets your requirements.
- it makes your total system easy to design, easy to operate and easy to maintain, because you use *standard* components.
- it gives you, in fact, a "custom-built" network for an off-the-shelf variety of choice and price.

With "upward compatibility" as part of the reason for establishing an architecture, your communications system need never become obsolete. In fact, it will improve with the state of the art as enhancements and new products are announced within the architecture.

And with an architecture, you are assured of high standards throughout your network, with no weak links. Every component must conform to standard rules and guidelines—including those of advanced technology and proven reliability—because all these are defined by the architecture.

With an architecture, you get *certainty.* And with Sperry Univac, you get even more.

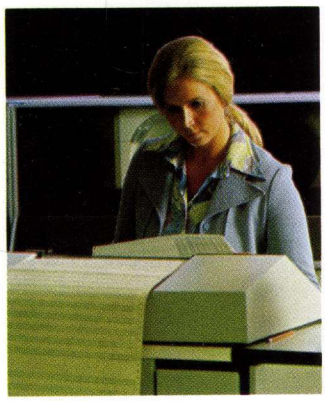
Why SPERRY UNIVAC Distributed Communications Architecture Can Do It Better . . .

Sperry Univac takes the basic benefits of "architecture" a significant step farther with its new and unique "distributed communications architecture."

"Distributed" is of course the key word. The Sperry Univac design takes those communications control burdens off your central processing system and puts them where they belong for maximum efficiency and effectiveness: *within the network.*

That means an *independent* network, one that will keep on working even if something in your central processor goes wrong.

Thus it also means a more *reliable* network.



And of course, it means a *resilient* network—not dependent on a host processor for growth or control functions.

It means a *flexible* and *versatile* network, as well—capable of handling and accommodating a wide variety of host processor and terminals—capable of a simple interface with standard software—capable of sharing its benefits with the most simple network or the most complex.

And those benefits are many: improved availability; improved response times; lines savings; and other performance and financial advantages.

The SPERRY UNIVAC Distributed Communications Architecture can support all types of applications—remote batch, interactive, time-sharing and simple message switching—for all types of organizations and uses.

With it, you get:

- network independence, and all its benefits.
- network compatibility, public or private.
- processor compatibility, mixed or foreign.
- terminal compatibility.
- distributed network control functions.
- evolutionary implementation, for easy growth.

The Evolutionary Architecture . . .

We're offering evolution, not revolution.

We know that organizations with advanced data communications systems have already made large investments in host processors, terminals and programmed support. So we help you protect that investment while you improve your system.

One of the most important features of the SPERRY UNIVAC Distributed Communications Architecture concept is its ability to encompass previous SPERRY UNIVAC systems and foreign host processors, terminals and networks. It is possible to advance into distributed communications architecture a step at a time, with minimum disruption to operations during the transition period.

For example, organizations with older terminals can use hardware compatible with distributed communications architecture to mix both old and new terminals—each using its own protocol. Concentrators, as part of the new network, will provide you with many of the advantages of advanced data communications—such as layered networks and bit-oriented protocols, without the need to discard older terminals.

In a similar fashion, pre-DCA host processors can be augmented by a DCA compatible communications processor—thus off-loading nearly all communications and network functions. Thus the burden on the pre-DCA host processor is removed—and many of the advanced functions and efficiencies of the new distributed communications architecture are added.

The Architecture That Gives You Network Independence . . .

Network independence?

It means the logical separation of your data communications network from all termination systems—be they host processors or terminals.

This independence—or separation—is the feature that allows you to implement distributed communications architecture in an investment-saving, evolutionary manner.

It also gives you other important benefits.

There's growth potential, for instance. Even a new system implemented with distributed communications architecture will have to grow and change with the times. Network independence allows you to add or change host processors or terminals as your requirements dictate. Even complete reconfigurations—as from a "star" network to a fully distributed network—can be made without major disruption.

Network resilience is also a result of independence. Even if a termination system fails, your network goes on operating. Re-routing and logical configuration can be either dynamic and automatic—performed by the network control functions themselves—or operator-controlled through a high-level interface.

Network independence also gives you a wide choice of hardware. Naturally, optimum performance is obtained from hosts and terminals which conform to the distributed communications architecture guidelines—but network independence allows you to set up criteria for termination equipment independently from the selection and implementation of the network. Foreign attachments can be made via an "adapt" function or by the implementation of distributed communications architecture procedures into the foreign attachments.

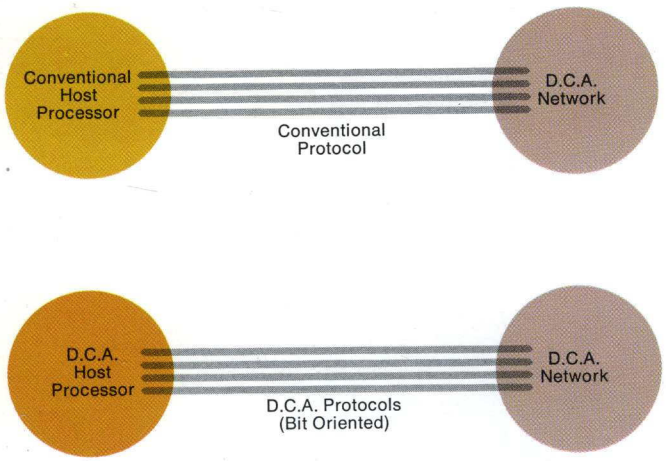


Figure 1: Network Independence

And Network Compatibility . . .

As lower priced, higher performance network facilities become available in either the private or public sector, you want to be prepared to take advantage of lower line costs and greater capabilities.

So we've provided for easy adaptation in our distributed communications architecture.

Public and private network facilities operate in the following technologies or combinations of them:

- packet-switching, whereby transmitted data is formatted and enclosed in standard "envelopes".
- and digital-switching, which provides a network designed specifically to carry digital data, rather than adapting the data for transmission over the analogue telephone network.

Distributed communications architecture designed by Sperry Univac makes it easy to use either type of private or public network by permitting a direct linkage for frequent or occasional traffic.

SPERRY UNIVAC Distributed Communications Architecture supports the major international communications procedures and interfaces such as:

- CCITT, Rec X20, X21, X25
- ISO High-Level Data-Link Control (HDLC).

It also supports major national variants of the above, such as ANSI Advanced Data Communications Control Procedure (ADCCP).

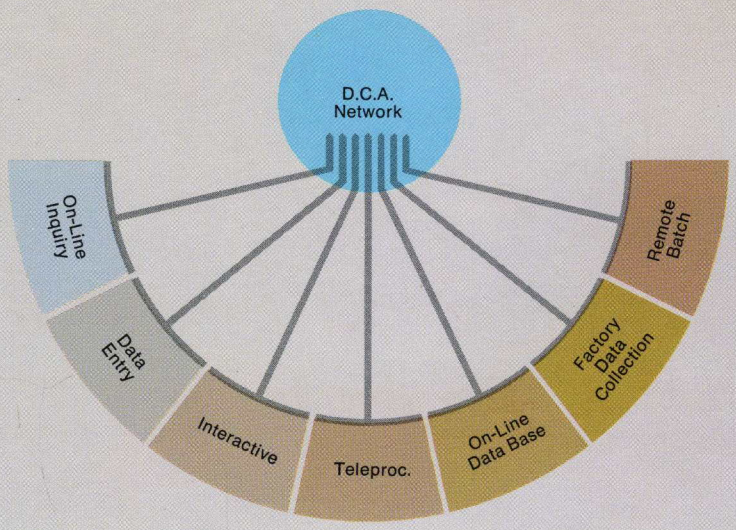


Figure 2: Network Applications

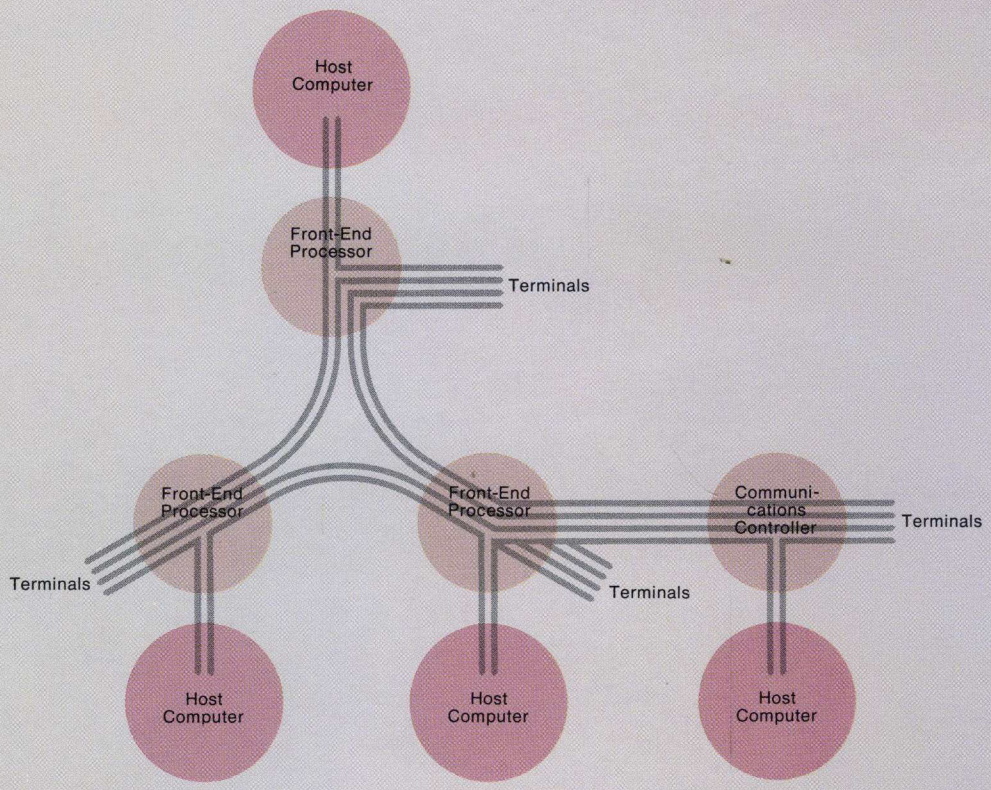


Figure 3: Future—Ring, Netted Distribution System

Your Network for All Applications . . .

The SPERRY UNIVAC Distributed Communications Architecture encompasses all types of networks—and produces networks that will accommodate all types of work.

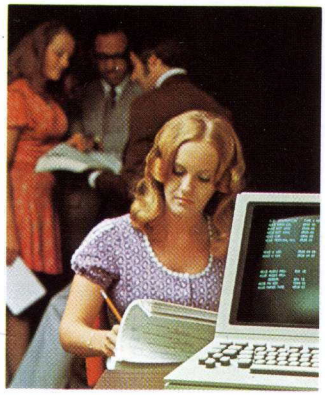
There are few restrictions on applications or methods of operation. Procedures within the Sperry Univac architecture are flexible and adaptable to hardware and network characteristics.

Our distributed communications architecture allows you to centralize control in a single node—or distribute it among several to minimize the possibility of failure.

Networks can even be designed to adapt dynamically to changing conditions, such as hardware failures, by moving control functions within the network according to requirements and circumstances.

Star, hierarchical and ring networks can all be accommodated within the SPERRY UNIVAC Distributed Communications Architecture, and networks based on it can easily reconfigure from one type to another.

All types of operations—remote batch, interactive, time-sharing and simple message switching—can be readily designed within the distributed communications architecture.



A Single Concept for Terminal Design . . .

Historically, terminals used in data communications networks have been designed primarily to fit the requirements of the communications industry—or are simply adaptations of standard typewriters.

But this is changing.

More and more, terminals are being designed to fill specific needs—such as those of banks, airline reservation systems and manufacturers who must collect production data on the shop floor.

The specialized demands of various industries often require communications at various levels—local, regional, central—in a variety of message types and formats.

To permit such terminals to operate together demands a system that encourages flexibility, within predetermined guidelines.

It would be impractical to design individual networks based on the needs of specific terminals and industries. So the Sperry Univac approach is to allow the creation of multi-functional networks that can incorporate a variety of terminals—whether general or specialized—and can also be controlled as a single entity.

The guidelines provided by the SPERRY UNIVAC Distributed Communications Architecture let the network designer make any adjustments required to accommodate one or more types of special-purpose terminal systems.

The Distributed Communications Architecture . . .

All in all, the SPERRY UNIVAC Distributed Communications Architecture:

- defines the logical structures which relate all components within the computer data communications complex.
- establishes a set of rules and guidelines which determine how logical concepts and structures are applied to the physical network of host processors, terminals and nodal processors.
- establishes protocols and interfaces needed for the control and interaction of the logical structure.
- establishes, as a standard physical protocol, a bit-serial line discipline (called Universal Data-Link Control) which encompasses three other procedures—Advanced Data Communications Control Procedure, High-Level Data-Link Control and Synchronous Data-Link Control.
- establishes a common access method for the logical interface to the communications systems, implemented by each SPERRY UNIVAC host and terminal system.
- establishes a common network control functionality for physically controlling the network—a functionality which is an integral and independent part of the network itself, separated from the host processor.

With the SPERRY UNIVAC Distributed Communications Architecture you get the benefits of greater reliability, greater flexibility, improved availability, faster response times, greater line savings and evolutionary growth.

It can handle all types of operations, for all types of applications, for all types of businesses.

It can give you a planned system concept, with designed-in integrity and usefulness that will grow with you as your organization grows.

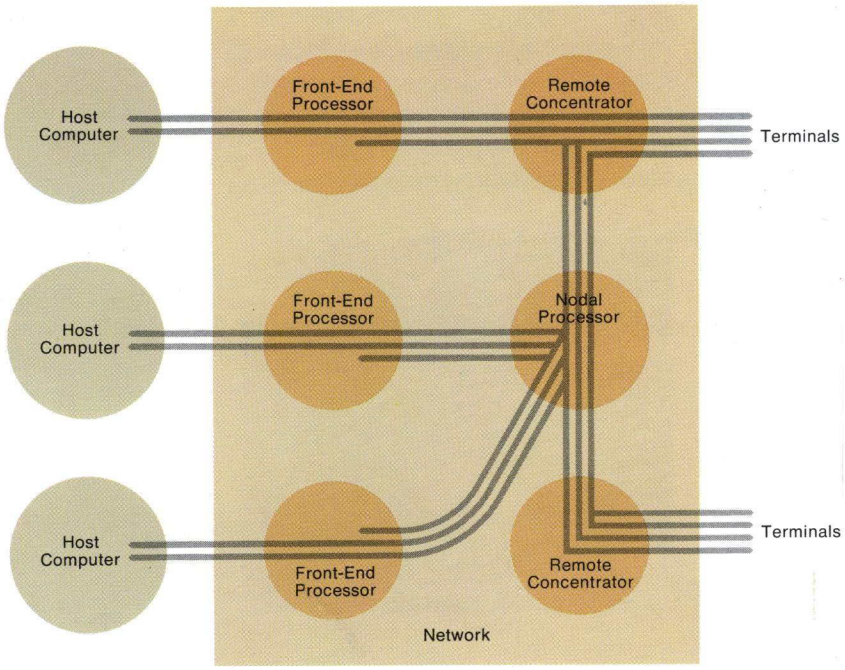


Figure 4: Trend—Network Systems


PRODUCT LINE
SMALL FASTENERS
1.MACHINE SCREWS PHILLIPS & SLOTTED
2.MACHINE SCREW NUTS- HEX AND SQUARE
3.SHEET METAL SCREWS- A & B PHIL & SLTD
4.THREAD CUTTING SCREWS- PHILLIPS & SLOTTED
5.SEM SCREWS AND WELD STUDS
6.WELD SCREWS AND WELD STUDS
7.DRIVE SCREWS TYPE U & WOOD
8.DRIVE BOLTS
9.WOOD SCREWS- PHILLIPS & SLOTTED
10.RIVETS
11.COTTER PINS
12.FLAT WASHERS
13.LOCK WASHERS
SET SCREWS
1.HEX & MULTI-SPLINE SOCKET SET SCREWS
2.SLOTTED HEADLESS SET SCREWS
3.SQUARE HEAD SET SCREWS
SOCKET SCREWS
1.HEX & MULTI-SPLINE SOCKET SET SCREWS
NUTS
1.HEX & SQ.MACHINE SCREW
2.FINISHED HEX
3.HEX JAM
4.HEAVY HEX
5.HEX CASTLE
LOCK NUTS
1.ONE PIECE
2.INSERT TYPE
3.AND OTHERS
C.N.E.
1.SPRING/SPIRAL PINS
2.SLIND NUTS
3.SPACERS
INDUSTRIAL RETAINING RINGS
1.EXTERNAL RETAINING RINGS
2.INTERNAL RETAINING RINGS
3.APPLICATORS
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