its effect on the system. This includes a loopback function within each layer, and access to the major state variables of each layer.

Since problem correction generally involves repairing or replacing hardware, it is primarily a manual function. Some problems, however, can be corrected by reinitializing some system component. For these problems, network management provides a function to stop and reinitialize each layer.

Planning. The *planning* functional category supplies the network administrator with statistical information about network use to help him plan wisely for future growth. The investigation of network component use divides into two categories:

(1) Is some resource usage nearing saturation; that is, is it or will it soon be so heavily used that performance will be unacceptable? This indicates when a particular resource is likely to become loaded to the point that it will cause performance problems.

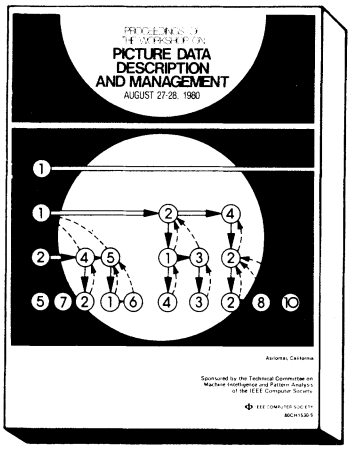
(2) What is the utilization efficiency? Is the load evenly or unevenly spread out through time? The most effective network growth strategy is different under those two situations. With a uniform, heavy load it is reasonable to buy new equipment; with sporadic peak loads a more cost-effective solution might be to spread the peak loads into more lightly loaded times.

The network management layer provides access to several planning statistics. The most visible of these is the loading of the Ethernet coax itself. This is a moving average of the percentage of the total bandwidth which is actively being used. By observing this statistic the network administrator can determine how well the network as a whole is working. On a more localized level, a typical statistic is how many transport control connections a server has open. This gives an indication of how close that server is to being saturated.

Data flow within the Intel Local Network Architecture

To clarify the operation of iLNA as a whole, we present an example of the data flow through the layers. Consider the case of two processes, A and B, residing on two different nodes.

Application process A's request to communicate with process B on some remote node requires the cooperation and effective interaction of each communication layer on both nodes. The source node's session control would determine that process B resides at socket "*n*"; recall that this pinpoints process B to a specific node on a specific network at a specific port (via the port-ID). Next, session control attempts to create a virtual circuit between the source port and the destination port via the transport interface. Assuming no conflicts and a desire of the remote process at the port to communicate, the virtual circuit is established after the two transport modules exchange connection information segments.



The Proceedings cover description and compression of pictorial information for efficient classification, storage and retrieval; organization of picture data bases and archives; and the exploration of new technologies for image transduction and storage. 305pp.

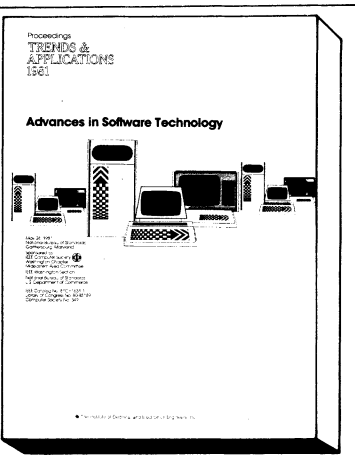
Order#316

Proceedings—1980 Workshop on Picture Data Description and Management

August, 1980

Members—$18.75
Nonmembers—$25.00

Use order form on p. 99



Twenty papers are presented in these proceedings of the conference sponsored by the IEEE Computer Society, Washington Chapter, Mideastern Area Committee, the IEEE Washington Section, and the National Bureau of Standards, US Department of Commerce. Topics include evaluating new trends, software quality, trends, data bases, applications and procedures to cover life cycle processes. 183pp.

Order#349

Proceedings—TRENDS & APPLICATIONS 1981: Advances in Software Technology
May 28, 1981

Members—$12.00
Nonmembers—$16.00

Use order form on p. 99