



**WINNER**

## **1995 R&D 100 Awards Winner** **HIPPI-SONET Gateway**

### **Features:**

- Transmits computer data cross-country at 800 million bits per second.
- Provides wide-area networking via commercial telecommunications carriers.
- Tailors bandwidth to user need through a system of multiple fiber-optic links.
- Uses special features of its multilink system to avoid failed networks and to correct single-bit data errors.

### **Applications:**

- Connecting widely separated high-performance computing centers, such as the national laboratories, the national supercomputing centers, and many university campuses.
- Providing high-speed wide-area networking for commercial users who have computing sites at more than one location.
- Combining low-rate data streams from multiple sources for simultaneous, high-speed transmission.

### **Benefits:**

By connecting widely separated supercomputing centers, the HIPPI-SONET Gateway allows researchers to perform combined computations, matching different parts of a problem to the computers best able to run specific parts of the code. Through this approach the strengths of separate supercomputing centers can be pooled to address world-class problems too complex for any single facility. The same possibilities will be available to commercial users who need to connect their own geographically separated computing centers for data sharing and problem solving. Additionally, through its ability to simultaneously carry data streams from many different sources, the Gateway will support the growing number of users for the nation's information superhighway (the Internet and the World Wide Web, for example) and will accommodate those users' increasingly high bandwidth requirements.