

## High-Performance Remote Ethernet Bridge

The ACS 4100 is a high-performance communications system that connects geographically remote Local Area Networks (LANs) into a single, integrated network.

The ACS 4100 is a flexible hardware platform with features that ensure reliable, high-speed data transmission in a variety of network environments. ACC combines the ACS 4100 hardware base with appropriate networking software to create interconnect products tailored to requirements of specific applications.

ACC products based on the ACS

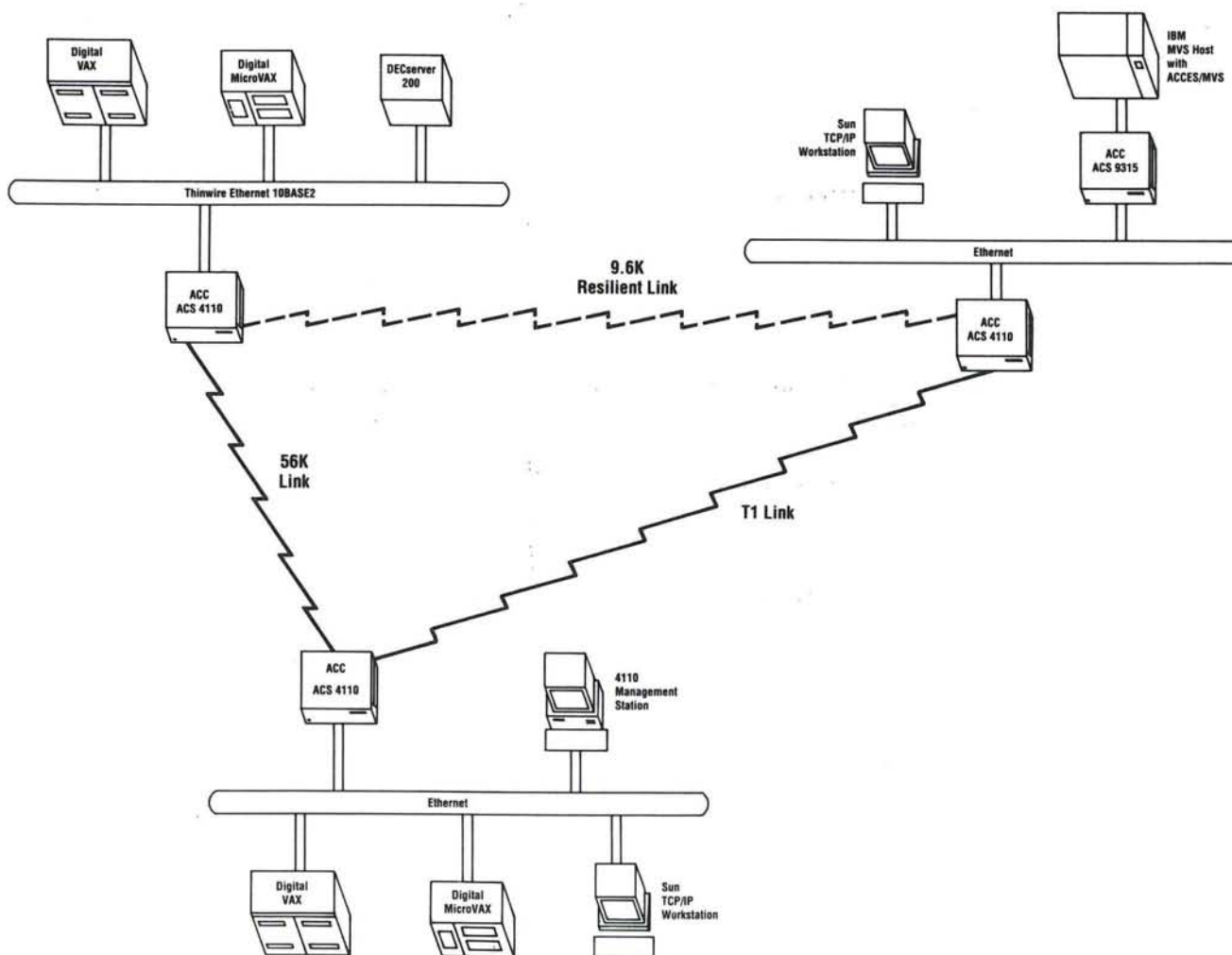
4100 hardware platform include the following features:

- multiple serial ports connect two or more Ethernets with a variety of connector interfaces
- provides T1 throughput over a single link
- unified network management system provides network topology information, performance figures, and troubleshooting statistics

### The ACS 4110 Remote Ethernet Bridge

The ACS 4110 remote Ethernet bridge is built on the 4100 hardware base. Bridging Ethernets with the ACS 4110 creates an extended LAN where remote communications is no different from local. Added ACS 4110 features include:

- automatic address learning
- local traffic filtering
- spanning tree protocol for multiple Ethernet connections
- protocol precedence to order packets by protocol type



# ACS 4110

## ACS 4100 Hardware Platform Features

The ACS 4100 is housed in a table top enclosure and is simple to install and configure. You can access system commands either locally or remotely to set operating parameters, display statistics, or manually configure addresses. Once connected to remote LANs, ACS 4100 uses HDLC-LAPB protocol to insure data integrity across serial links.

Major capabilities of the ACS 4100 hardware platform are as follows:

**Flexible Configuration.** The ACS 4100 connects to either standard (10BASE5) or thinwire (10BASE2) Ethernets and supports up to two synchronous serial connectors. Both serial ports can be V.35, RS-449, or RS-232 or a combination of two interface types.

With multiple serial ports, the ACS 4100 offers peak performance on both small and large extended LAN networks.

For simple configurations of only two Ethernets, connecting ACS 4100s with multiple lines provides redundant links for improved reliability and also automatically levels the traffic load for continuous high throughput.

On complex configurations of three or more Ethernets, serial ports can be split to provide resilient links in two directions. Bifurcating or splitting serial ports means that only a single ACS 4100 is needed for each Ethernet.

**High-Speed, High-performance Transmission.** The ACS 4100's multiple serial lines provide aggregate speeds up to 1.544 Mbits/sec. Serial lines from a single 4100 can transmit data at different speeds. For example, one link could provide T1 throughput while the other maintain speeds at 56 kbytes/sec.

The ACS 4100's 68000-based architecture maintains continuous throughput. It buffers and supports traffic bursts common on workstation LANs.

**Unified Network Management.** The ACS 4100 network management system provides the information you need to

- plan your extended network
- measure traffic load and system performance
- isolate and resolve network errors.

The network management system also maintains the extended network topology, dynamically adapting to changes or network failures to make sure data keeps flowing with no breaks in service.

## Simple Network Management Protocol.

The ACS 4100 supports the Simple Network Management Protocol (SNMP), an accepted networking standard. With SNMP, the performance of a group of 4100s spread across several remote sites can be monitored from a single location.

At your central site, you can access any remote 4100 from a host that supports SNMP to display systems statistics, troubleshoot system faults, or change configuration parameters.

For sites with no SNMP-compatible hosts, ACC offers a separately-priced network monitoring tool based on SNMP. This optional monitoring tool provides remote access of all standard 4100 network management statistics plus these features:

- periodic polling of network status
- graphical displays showing the extended network on a geographical map
- notification of an alarm condition which continues until acknowledgement or condition correction
- event logs which record active or inactive links, link or 4100 failures, and failure acknowledgement in a single location.





## **ACS 4110 Remote Ethernet Bridge Features**

The ACS 4110 functions independently of protocols above the data link level (ISO Layer 2). Data packets are routed according to Ethernet addresses. Protocol independence allows the 4110 to forward traffic quickly, without requiring complex routing protocols. Also, the 4110 can pass data between networks that run incompatible high-level protocols such as TCP/IP, XNS, ISO, or DECnet.

The ACS 4110 includes all the features and capabilities of its 4100 hardware base plus the following:

### **Automatic Address Learning.**

The ACS 4110 automatically builds an address table for routing packets and continually monitors the network, dynamically adding or deleting table entries in response to network changes.

**Local Filtering.** As it builds the address table, the ACS 4110 "learns" which Ethernet hosts are local and which are remote. Packets not bound for the remote LAN are filtered and ignored.

Custom filtering can also be set with the operator commands to prevent unauthorized access to internetwork resources.

### **Spanning Tree Protocol Support.**

Connecting multiple Ethernets creates a ring or loop topology. While this loop provides the redundant connections that insure reliability in case of failure, it complicates normal bridge operation. Implementing spanning tree protocol (STP) overcomes these complications.

To resolve looping problems, STP inactivates certain redundant links between Ethernets. STP transforms the loop topology into a spanning tree where packets can only travel along one route to reach their destination. If failures occur, STP can activate unused links to keep traffic flowing.

**Protocol Precedence.** As a data link layer bridge, the ACS 4110 normally operates independently of higher level protocols like TCP/IP or DECnet. With the protocol precedence option selected, the 4110 examines packets to identify their higher level protocol and then uses this information to prioritize packet order.

Protocol precedence is useful for networks where protocols like DECnet Local Area Transport (LAT) are in use. LAT is a highly time-sensitive protocol designed originally for local environments. Protocol precedence extends LAT usage to remote networks as well. The 4110 would give LAT packets high priority and transmit them ahead of other packets in its queue.

## **ACC Customer Service**

ACC is committed to providing customers with comprehensive support and service that will help them get the most from ACC's data communications products.

Our experienced support personnel are readily available to answer your questions long after the purchase is complete.

## **ACS 4110 Warranty**

The ACS 4110 software and hardware are warranted for 90 days. After the warranty period, ACS 4110 customers are encouraged to purchase Service One, ACC's extended warranty plan. Service One includes:

- telephone hotline - ACC's experienced technical specialists are available to answer your questions and discuss data communications problems by phone
- problem fixes and software enhancements
- updated software releases and corresponding documentation

ACS 4110 Service One customers have added benefits stemming from the capabilities of SNMP. Since ACC's systems also support SNMP, an ACC customer service technician can access your system to troubleshoot faults without leaving his desk.

# ACS 4110

## Specifications

<b>Power Requirements</b>	<b>AC Voltage:</b> 85 to 132 Vac, 179 to 264 Vac <b>Frequency:</b> 45-65 Hz <b>Power Consumption:</b> 50 Watt Maximum
<b>Operating Environment</b>	<b>Temperature:</b> 5 degrees to 40 degrees C (41 degrees to 104 degrees F) <b>Humidity:</b> 5% to 95% non-condensing
<b>Physical Dimensions</b>	<b>Size:</b> 3.5"h x 12.5"d x 17.5" w <b>Weight:</b> 10 lbs The ACS 4110 is designed for table top use
<b>Communications Interface Options</b>	V.35 34-pin male connectors RS-422/449 DC 36-pin male connectors RS-232C DB 25-pin male connectors
<b>Network Interface</b>	1 male RS-232 DTE configuration port 1 female RS-232C DCE maintenance port



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