



CUSTOMER SUCCESS STORY

Aircraft Repair Machine Connectivity - United Airlines

Challenge

United Airlines' aircraft repair facility in San Francisco needed a more efficient way to manage the machines in their machine shop. Originally, the machine shop, with mill, lathe, grinding and tooling areas, consisted of stand-alone CNC machines used for parts fabrication and repair that required new programs to be loaded manually at each machine. This configuration led to many problems with managing how new programs were loaded and inspired United to look for a new, more efficient solution.

Background

United had previously used a system to program their CNC machines that involved walking to each and manually loading new programs from a floppy disk. Brendan Luna, an Engineering Staff Specialist and CNC programmer at United was responsible for implementing a better solution and explained the limitations of this method, "We had to place programs on floppy disks and take them downstairs to the machines. This led to several problems. First, disks would always seem to go bad on the weekend when people were working overtime. Second, people could also change programs on the disk, and if it had the wrong program or an incorrect change, it could scrap parts." The shortcomings of this procedure could also be extremely costly as Luna commented, "One of the problems here is that the parts that we run are pretty expensive. It's not like a lot of job shops. We don't run a million one-dollar parts, we run two million-dollar parts."

The potential for human error, for costly parts to be scrapped, and the overall inefficiency of the "sneaker net" method of manually loading programs onto CNC machines led United Airlines and Luna to investigate converting the CNC machines in their shop to a DNC system that would allow for centralized control and management. They found their solution in the Control RocketPort card. By using RocketPort multiport serial cards the United shop was able to reduce mistakes caused from loading the wrong disks, and generally eliminate much of the potential for user error. By placing a server in each area of the shop and attaching the machines through RS-232 serial connections via the RocketPort cards, they were able to convert to a Direct Numeric Control or DNC system whereby programs could now be loaded directly to the machines from the servers. This was a better solution that centralized administration but still had the drawback of placing several servers in the shop that were vulnerable to the hazards of the shop floor and the possibility of being accidentally turned off.

While this solution worked well for the most part, the prospect of removing the servers entirely from the shop floor appealed to Luna and prompted him to investigate a solution that would utilize existing Ethernet wiring and place the host server in a more secure environment. He contacted John Hosmon, of Refresh Your Memory, a Control reseller whom he had worked with previously when the shop converted to RocketPort serial cards. When presented with the new requirements, Hosmon recognized them as a perfect fit for the new Control RocketPort Serial Hub.

Technology Solution

The RocketPort Serial Hub turned out to be exactly the solution Luna had envisioned. The eight-port Hub still provided the serial ports needed for communicating with the DNC machines just like the internal serial cards had, but it communicated to the host Windows NT server through an Ethernet connection. Furthermore, one server could be used to communicate with multiple RocketPort Serial Hubs over Ethernet, which allowed United to utilize their preexisting network infrastructure for communicating with the machines while removing multiple servers from the shop floor and consolidating control at one server located in the office.

Continued on back

The flexibility of the Serial Hub solution also facilitated future expansion, as additional hubs could be plugged into the network and configured without the requirement of adding additional servers or hassling with complicated setup routines.

Installation

The RocketPort Serial Hub installs on any 10base-T Ethernet network and communicates with a host Windows NT computer via the Media Access Control network layer. The benefit of this to users is the flexibility to install the device on their network regardless of which Windows NT network protocol they might be running. Since the Serial Hub communicates at a level below the common network protocols, it is not dependent on one specific protocol for communication and can be as easily configured on networks running TCP/IP as those running NetBEUI or IPX/SPX. Once the Serial Hub is attached to the network, the RocketPort Serial Hub driver can be loaded on the host NT computer. It installs almost identically to a network adapter card or multiport serial card and anyone familiar with installing either of these devices under Windows NT can complete the Serial Hub installation in just minutes. Recounted Brendan Luna of the RocketPort Serial Hubs installed by Refresh Your Memory at United Airlines, "They just basically plugged them in, got the MAC address, plugged that into the DNC server, and they were talking away. So in a matter of maybe five minutes they had it set up and going."

When the need arises for more serial ports, adding new RocketPort Serial Hubs to the network could not be easier. After initial setup is complete, the driver will automatically detect the MAC address of any new Serial Hub on the network. The only configuration that is needed is to highlight the MAC address of the new unit from a drop-down list in the driver setup program. The ports will then be available to the operating system and new peripherals can be connected.

About the RocketPort Serial Hub

The new RocketPort Serial Hub, as the name implies, brings standard RS-232 serial port connections to any location on a Windows NT network. The Serial Hub comes in both four and eight port models and communicates with a host Windows NT computer over networks running the TCP/IP, NetBEUI, or IPX/SPX protocols.

RocketPort Serial Hub Features and Benefits

- The ability to install serial ports virtually anywhere on the network via the Serial Hub's 10BaseT Ethernet connection
- Installs on any network running TCP/IP, IPX/SPX, or NetBEUI, no specific protocols or IP addresses required
- Serial ports function just like native COM ports on the Windows NT host computer
- Compatible with Windows NT Server and NT Workstation
- Flexibility of Ethernet connection and remote placement makes the Serial Hub perfect for industrial automation and point-of-sale (POS) applications
- Simple installation process allows the RocketPort Serial Hub to be installed and fully operational in just minutes
- Scalable design allows multiple Serial Hubs to be controlled by a single computer and subsequent Serial Hubs to be added without rebooting



PRODUCT SUPPORT & SERVICE INFORMATION

Warranty Information

Comtrol offers a 30-day satisfaction guarantee and 5-year limited warranty.

Sales Support

+1.763.957.6000
sales@comtrol.com

Technical Support

+1.763.957.6000
www.comtrol.com/support

Email, FTP, and Web Support

info@comtrol.com
ftp.comtrol.com
www.comtrol.com