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My name is Bryan Kennedy, I am Vice President Client Services for CON-X Corporation and I have been employed by the company since January 2, 1994.

CON-X Corporation is a Alabama corporation formed for the sole purpose of providing a cost effective reliable automated cross connect system for the telecommunications industry.

The MACS (Metallic Automated Cross Connect System) is a remotely controlled robotic cross connect device that is mounted in a standard 23ō equipment relay rack. The MACS system is powered using ū48VDC battery and uses standard 50 pin AMP type connectors for interfacing to the network. This equipment is ideal for remotely connecting a link to a port. This product can be used for virtual co-location as well as physical co-location where cross connect functions are required.

The MACS system utilizes a very cost effective robot mechanism that moves in a X,Y,Z fashion. This device then places a pin into a matrix panel made up of a stack of printed circuit boards to make the connection. The pin is designed with 2 each gold plated contacts that when inserted into the matrix panel connects the tips and rings together for the circuits requiring connection. The robot mechanism moves over this matrix panel and can remove or place these connections under control of the Administrative workstation. The workstation is normally located in a central operations center and accesses the individual sites via modem dial up. The MACS systems design supports the same robot with different matrix panels to suit various applications. The product can be used in the Outside plant environment as an automated cross box, or can be used inside the Central office to automate main frame activities. A typical CLEC system installation would have the inputs and outputs cabled from the rear of the robot to the POT bay, or to the main distribution frame (MDF) depending on the office arrangement. The CLEC then has the ability to access the robot via a modem dial up connection to command the robot to make the connection between the specified link and port. This would be a single pin connection and would only require about 30 to 40 seconds to complete. The matrix panel is equipped with a test bus that would allow circuit testing even in the event a CLEC placed their own dial tone on the subscriber link.

The capacity of the MACS system for this CLEC configuration would be 1400 circuits per robot. This equates to 1400 subscriber pairs (Links), 1400 ILEC inputs (Ports), 1400 CLEC inputs. This matrix panel is known as an A/B switch panel. This offers a great deal of flexibility for the CLEC. In a standard cross connect arrangement of a link to port UNE, the CLEC would only need 2 of the 3 inputs on the matrix. Example: ILEC circuit (Port) 2 cross connected to Subscriber (Link) 2. This would leave the CLEC input 2 available. If at some point in time the CLEC wanted to supply its own dial tone, this third input could be used for this purpose. Simply connecting the CLEC switch port to this input and then commanding the system to move the cross connect pin from the ILEC to CLEC position,

would now place the subscriber (Link) connected to the CLEC dial tone. The system can be expanded by simply installing additional cross connect robots.

The administrative software typically is only used by a single client administering remote sites.

It is possible, however, to have smaller individual databases administering a single site that would allow multiple CLECs to access the same cross connect system. This would require a database coordination effort, but is feasible. In this arrangement each CLEC would be assigned a portion of the cross connect robot or system. Each CLECs database would reflect only the portion of the system assigned to them.

The MACS M-400 robot (unit selected for this CLEC application) is NEBS level 3 compliant. This product has completed all compliance testing required by a RBOC for deployment. The system has completed the NEBS level 3 per SR 3580, GR 63 and GR 1089. It has also passed RBOC designated sections of GR 2834 generic outside plant equipment requirements. The system is also NRTL certified to be UL compliant per UL 1950 3rd edition and UL 1863.

The matrix panel exhibits no degradation in quality of service. The system is capable of handling POTS, ISDN, T1, XDSL. The matrix panel has been tested and is transparent to the network.
There are no limitations or shortcomings related to the use of the MACS system when connecting links and ports. In fact there is a benefit to using this technology, each MACS system offers a test bus. This bus can be used to connect any type of test equipment to any pair in the system. This enables the ILEC to maintain MLT capability even when the CLEC has taken the customer away.

Under current methods of doing business (Without MACS) the testing of the link and port is difficult if the CLEC purchases access just to the link and uses its own dial tone. With MACS the ILEC can test the link easily.

The price of the M-400/1400 robot is $20,000. This equates to a $14.28 per pair cost. This pricing is equipment only pricing. Cables and installation material are extra.