Case Study:
RS232 Splitting – Hot Standby – Fire System Monitoring

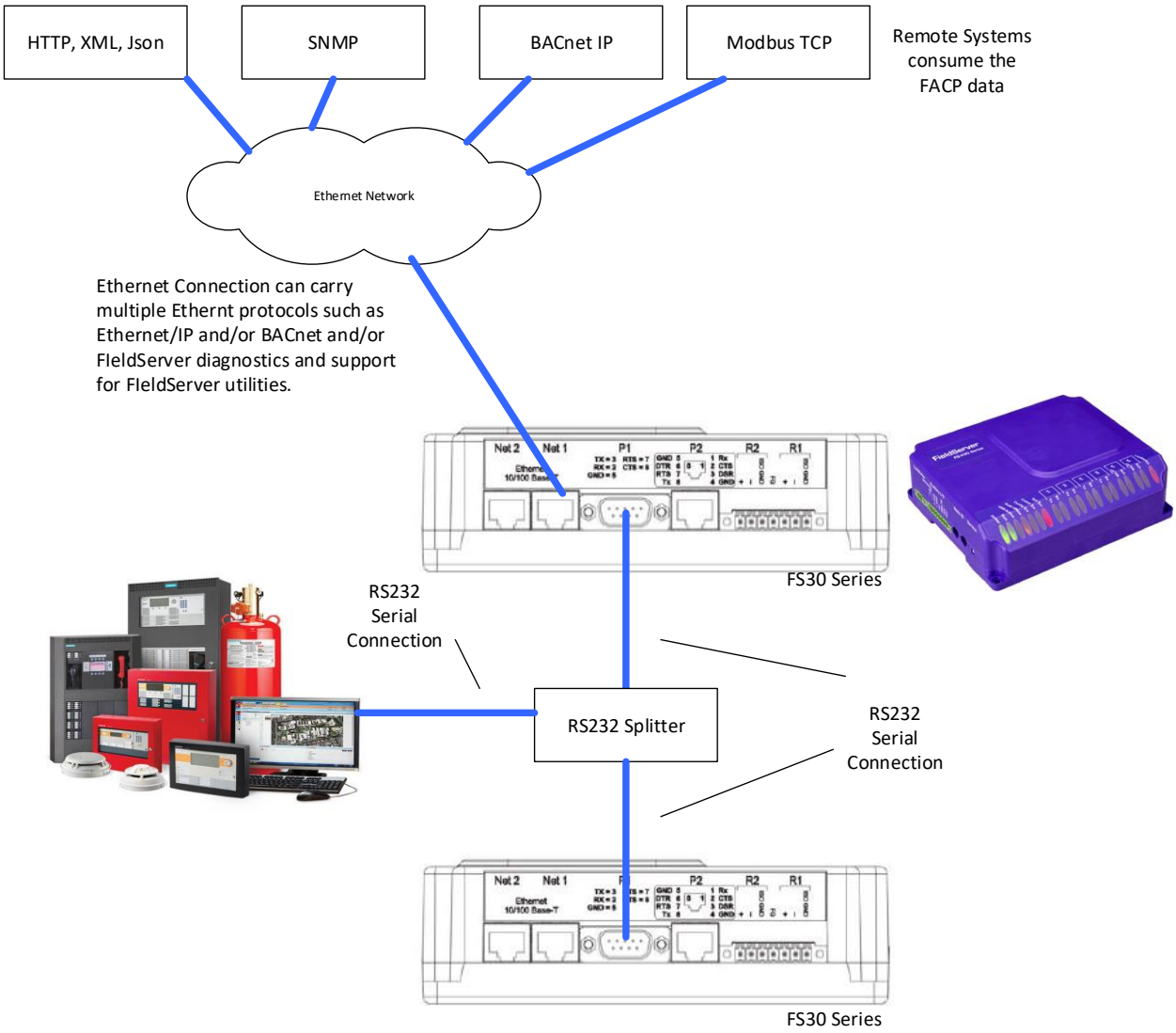
Application
Monitor Fire Alarm System events to the Building Automation System for remote monitoring and other applications. Customer requires hot standby system.

Problem
With Poll-Response protocols there can only be one master active at a time - the Hot Standby system need to support this feature. In addition, there is only one serial port on the FACP so the port needs to be shared by the multiple master devices.

Solution
Two gateways are configured and installed in Hot Standby Mode. In this mode one gateway is active and the other is passive. The passive gateway monitors the active one. If the secondary sees that the active unit is no longer responding to its health check then it changes its role from passive to active and takes over the job. If the 2nd unit recovers, its sees that the other unit is now the primary / active and it makes itself the secondary.

A Modem Splitter is used to split the RS232 lines so that both gateways can be connected at the same time. The Splitter has diodes to separate the signals and make sure each port doesn't interfere with the signals on the others ports.

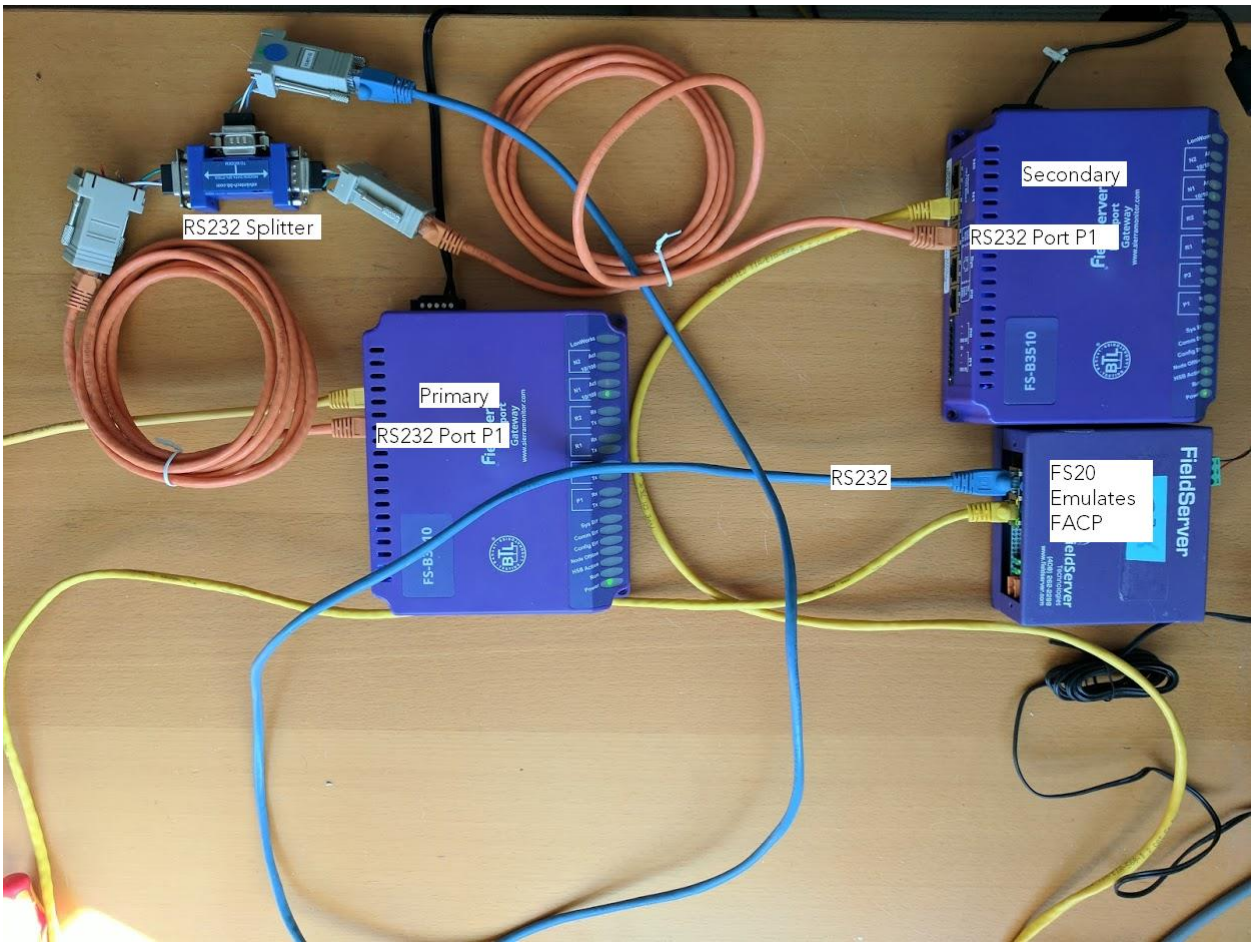
Solution Details



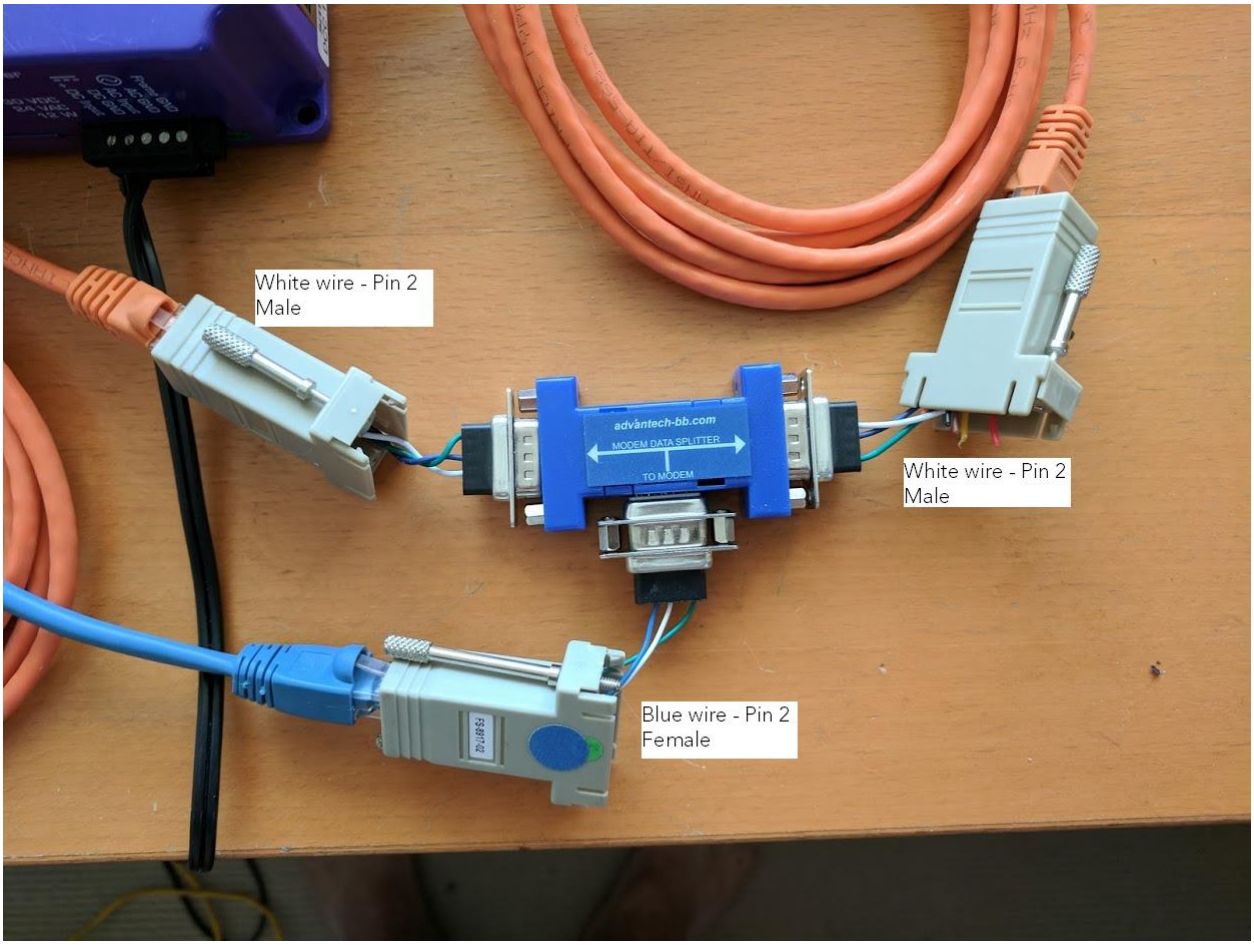
Emulation Testing and Proof of Concept

A FS20 Series Gateway was prepared to emulate a Siemens Cerberus FACP. It responds to polls with events which can be turned on/off by manipulating the data internal to the FS20 using its User Interface.

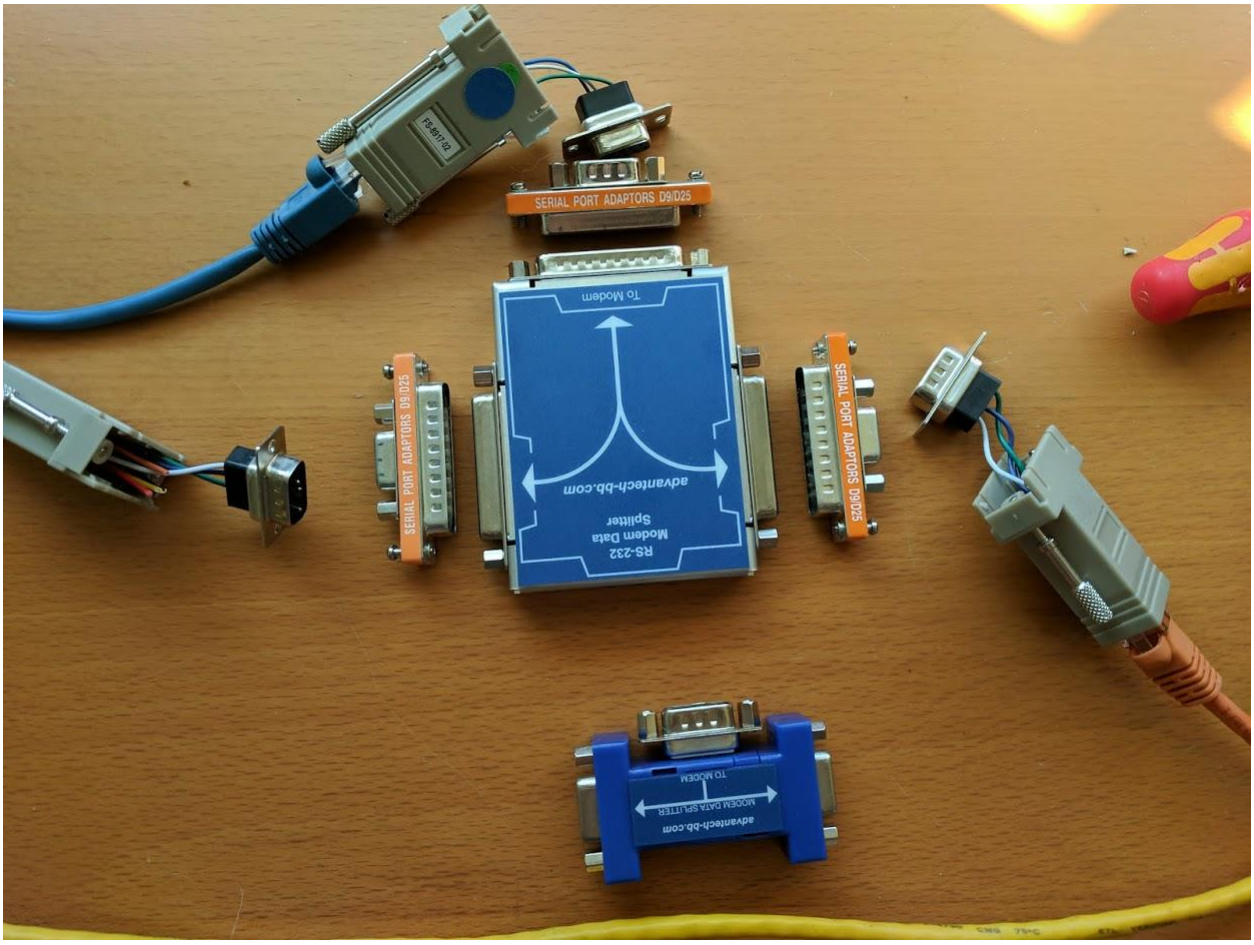
Two FS3510 Gateways were prepared with Firmware and configuration to monitor A Cerberus FACP using the RS232 interface. One gateway was allocated as the Primary and the other as the secondary in the Hot Standby Pair. The gateways were connected to a hub/switch so that the Hos Standby system on each one could monitor the health of the other gateway.



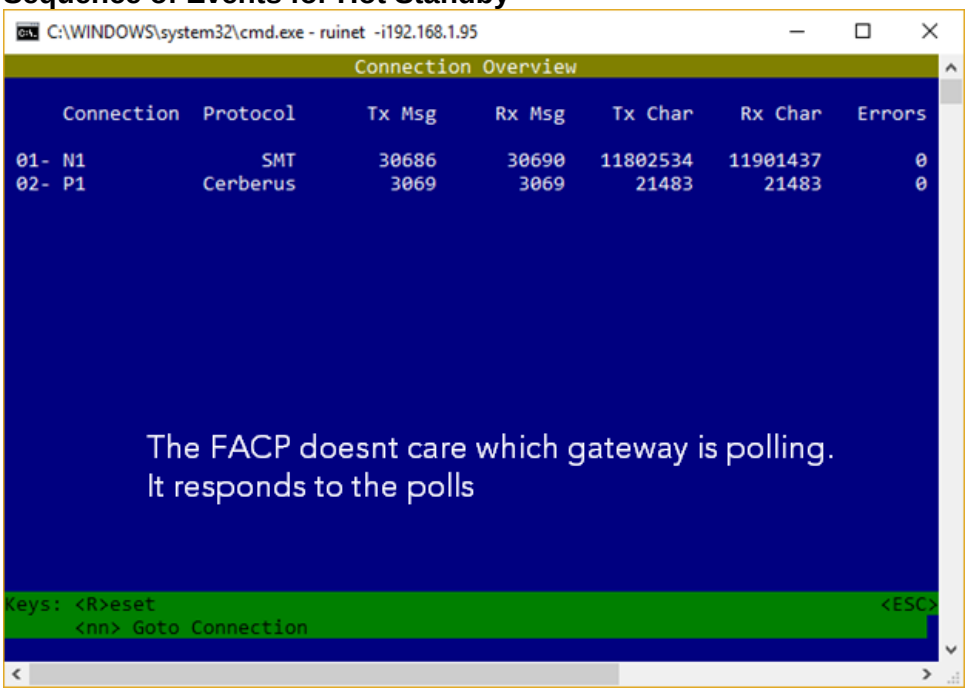
Details of the RS232 3wire connection

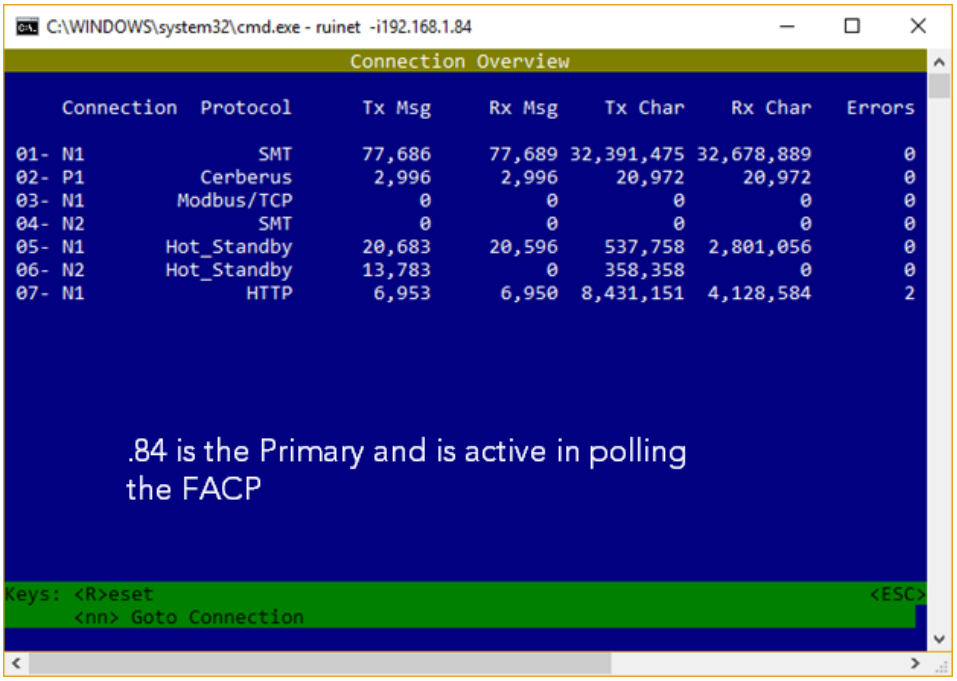


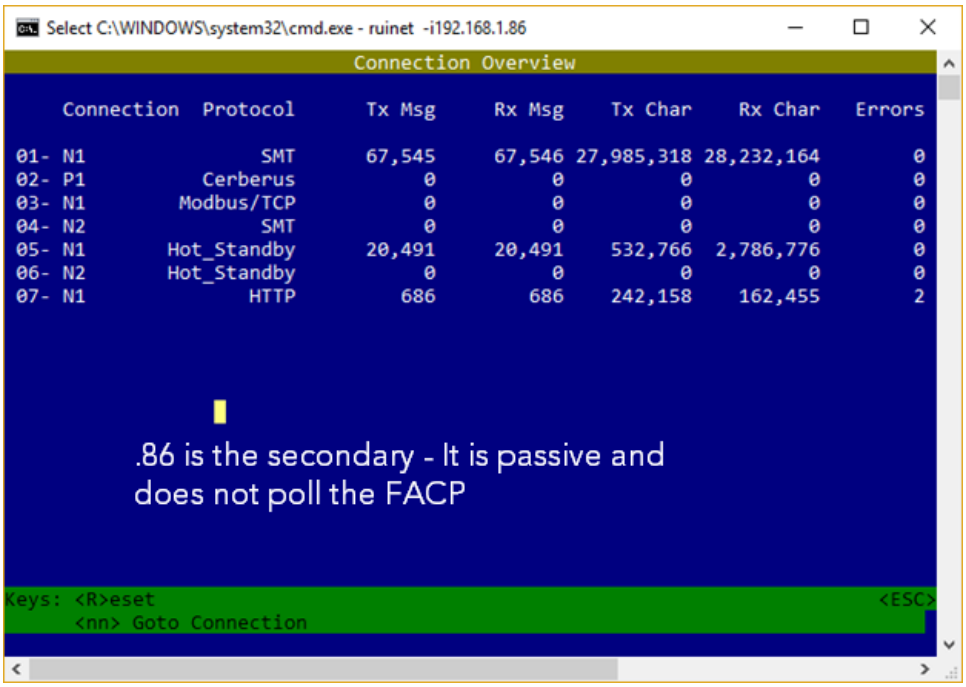
Alternate RS232 Splitter and connectors

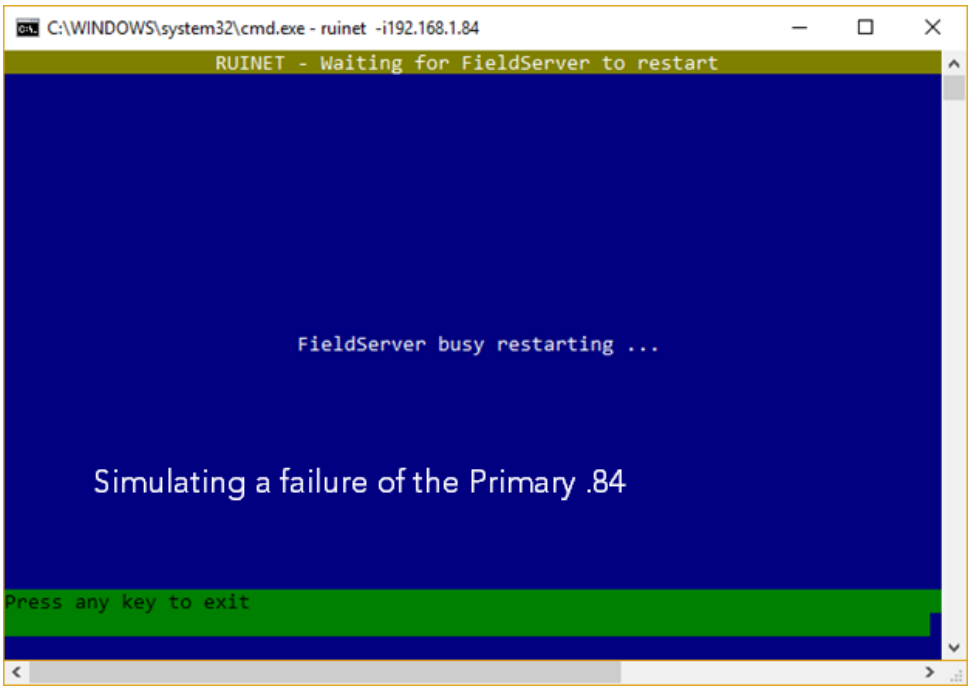


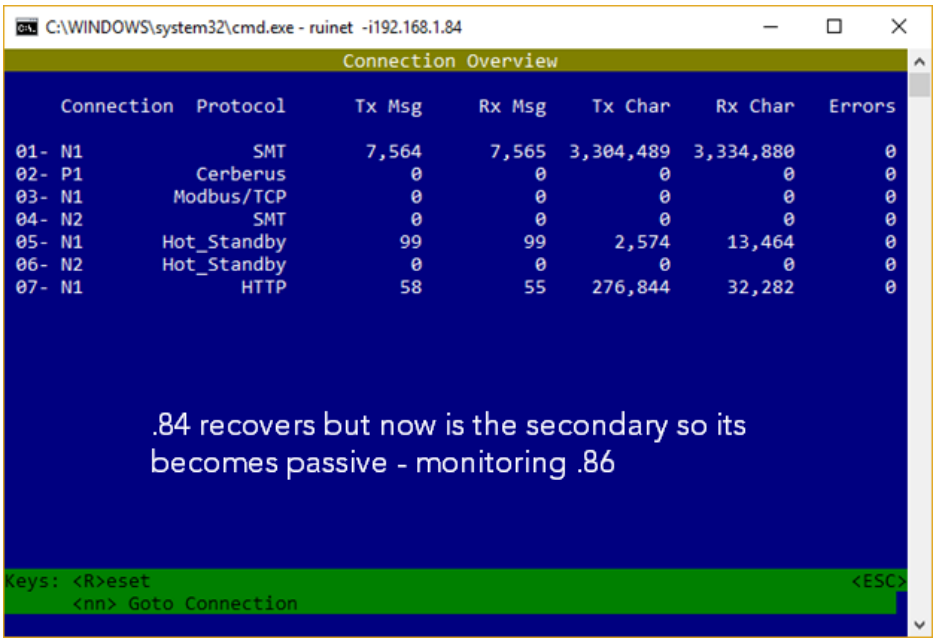
Sequence of Events for Hot Standby











Results

In this example we solved the problem of providing a hot standby system for monitoring a Fire Alarm Panel. We also worked with RS232 splitter devices to allow both gateways to connect to a single serial port. If the FACP had more than one port then the splitter would not have been required and each gateway could have had its own connection to the FACP.