Auto RTS: Why do we need it and how it works?

The Auto RTS feature of the modem is to support the communication protocols between a DTE (data terminal equipment, i.e. RTU) and a DCE (data communication equipment, i.e. modems) when the Request-To-Send (RTS) control signal is absent from RTU when operating in a multi-point polling environment.

In conventional multi-point polling networking as shown in figure 1 below, only the master modem and the designated slave modem will transmit and receive at the same time. All other slave modems will only be in receiving mode and must not be transmitting. No more than one slave modem can be transmitting, otherwise the transmitted carrier will collide with other modem signals and will corrupt the signal on the same cable, causing the master modem to be unable to receive correctly from its intended slave modem. To control proper communication protocol between the master and slave modem, the slave DTE will only turn on its Request-To-Send (RTS) signal to the modem when the master DTE issues a command to that specific slave DTE device. Upon receiving the RTS signal, the connected modem will turn on its transmitter and send out a modulated carrier to the master modem.

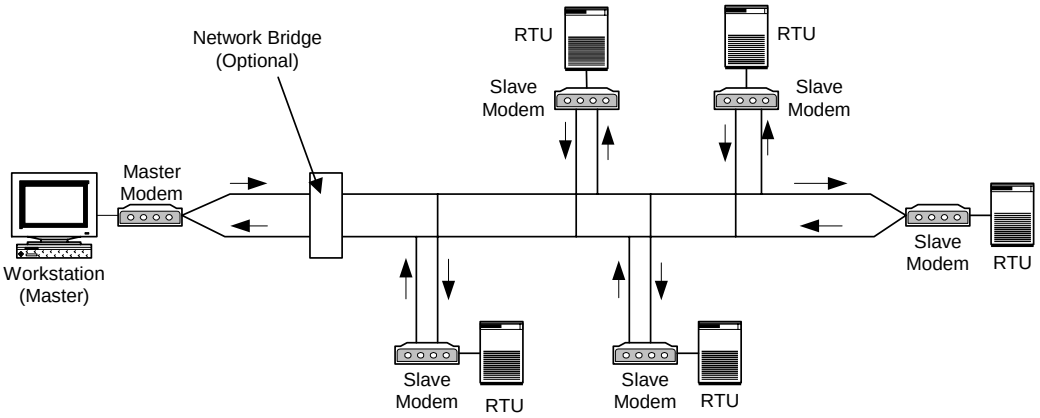

Fig. 1: Multi-point Lease Line Polling Network

In multi-point network configurations as shown above, RTS signal from the RTU to the modem is used to control the transmitted signal to the remote master modem. This is commonly referred to as switched carrier mode. However, since there are DTE's and RTU's that do not provide RTS signals to the modems, point to multi-point network communications will be impossible. The Auto-RTS feature provided by the Data Connect modems will overcome this problem and allow the RTUs, which only support TD, RD and SG, to work in multi-point polling communication networks.

The Auto-RTS feature in the modem is implemented by using the on-board microcontroller to monitor the transmitted data (TD) from the RTU's. When TD is detected at the modem, the modem will store the transmitted data in the on-board RAM buffer, turn on its internal RTS signal, and transmit a modulated carrier to the remote modem, all at the same time. Once the remote modem receives the carrier and is ready for the data, the local microcontroller will start to transmit the buffered TD to the remote modem. The modem will turn off the transmit signals as soon as the TD buffer is empty and the modem returns to stand-by mode, allowing other slave modems to communicate with the master modem.