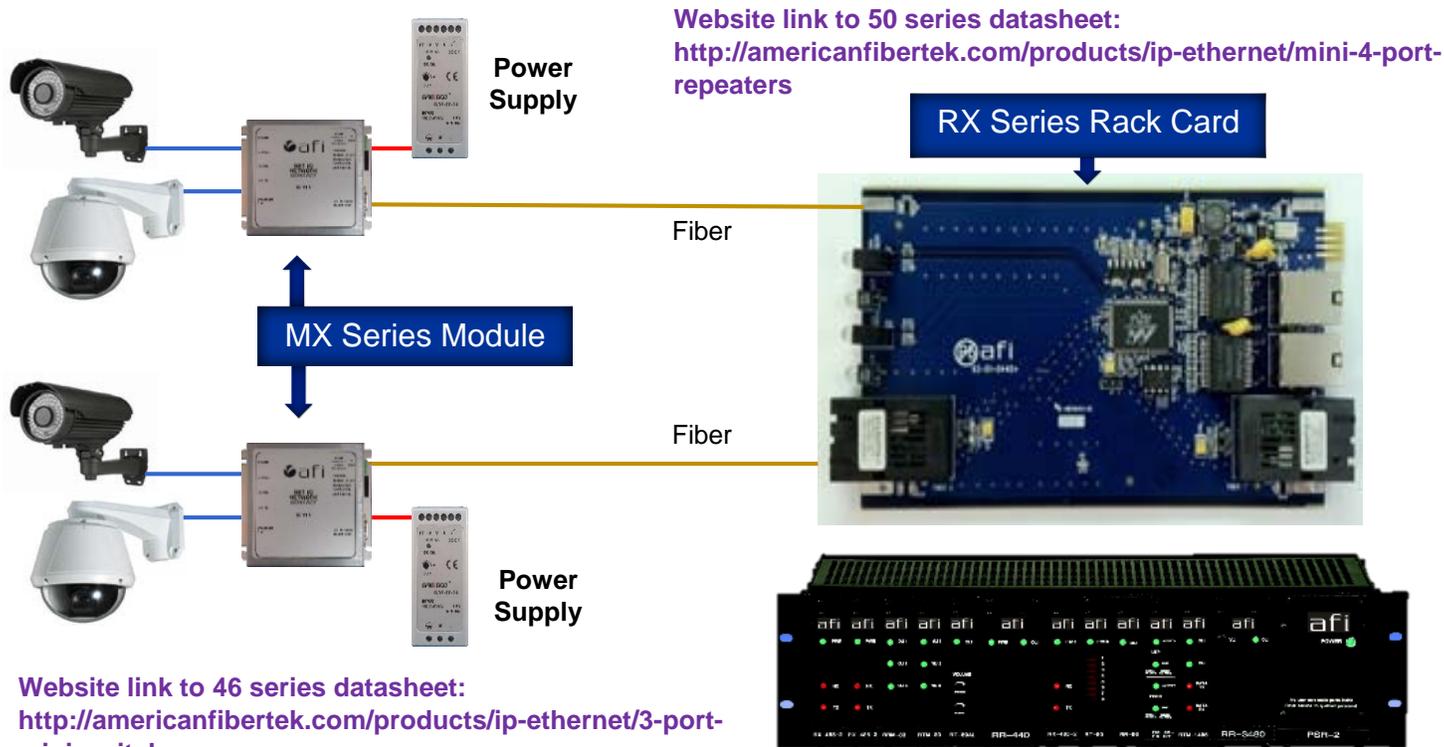


Implementation of a Virtual Network Switch Using MX/RX Series Mini-Switches

Overview

This document demonstrates the concept of how a network can be constructed to distribute IP video using MX-46-FX and “daisy chained” RX-50-FX units acting as a virtual switch. The MX-46-FX units are 3 port mini-switches which will accommodate 2 camera connections along with the optical port. The RX-50-FX is a 4 port mini-switch with 2 optical ports and 2 copper ports. Each RX-50-FX optical port may be connected to an MX-46-FX. Thus, up to 4 camera connections are supported with 1 RX-50-FX rack card.



Additionally, the RX-50-FX rack cards have two 10/100/1000Base-X ports which enables “daisy chaining” between the RX-50-FX rack cards. Up to 14 RRX-50-FX rack cards are accommodated with the AFI SR-20/2 subrack. Thus, up to 56 camera connections (4 per rack card x 14 rack cards per subrack) may be concentrated into a single network connection which ultimately connects to a network’s 1000Base-T port.

The diagram on the following page illustrates an example of how the MX-50-FX modules and RX-50-RX rack cards are connected and daisy chained together. A 1000Mb/s backbone is formed by “daisy chaining” the RRX-50-FX units to each other via the 1000Mb/s ports on the rear panel. Each of the IP video streams are typically set to a data rate of approximately 1 to 3 M/bs.

The first and last RRX-50-FX in the “daisy chain” may then be connected to a 1000Mb/s network switch which ultimately routes the combined IP video signals to a switch/server. The two 1000Mb/s connections provide redundancy, maintaining the links in the event that one of the individual cards in the daisy chain fails. When using a dual connection to a switch, spanning tree protocol (STP or RSTP) or some other form of loop prevention must be implemented.

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Virtual Switch Setup:

Following is an illustration of a test which AFI performed to prove the virtual switch concept. Each of the camera segments branch off to a remote MX-46-FX via a 100BaseFX link. In this test, 11 remote segments are each supporting 2 IP cameras. One of the remote segments is connected to a video network which carried several cameras and clients.

