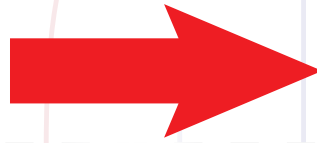


ANALOG to CELLULAR

Making a Remote Management Transition Plan



USR3453C
Courier® 56K Business Modem



USR3510
Courier® M2M 3G Cellular Gateway

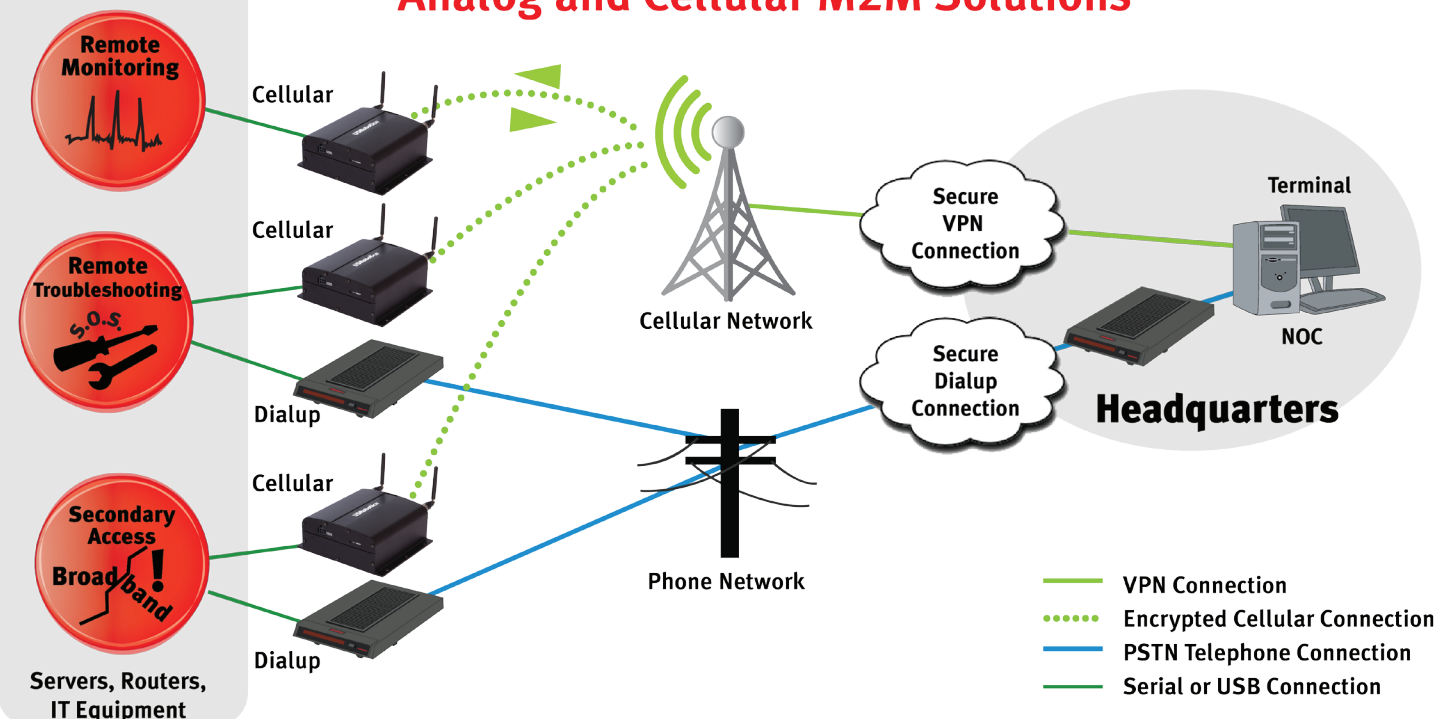
Many M2M customers are considering making the transition from analog to cellular but may not be sure what that entails. This document provides a high level overview of an analog to cellular conversion specifically for a Remote IT Management system that uses analog modems and the public switched telephone network (PSTN).

Original Remote IT Management System - Assumptions

- A centrally-located network operations center (NOC) that contacts dispersed remote networking equipment for the purpose of maintenance and troubleshooting, usually as a back-up to in-band communication.
- Contact is initiated by a human operator at the NOC using a terminal emulation application on a computer workstation.
- The connection is made to the RS232 management port (a.k.a. console port) provided by each piece of remote IT equipment.
- The connection must be immediately available so malfunctioning networks can be remedied in the shortest possible time.

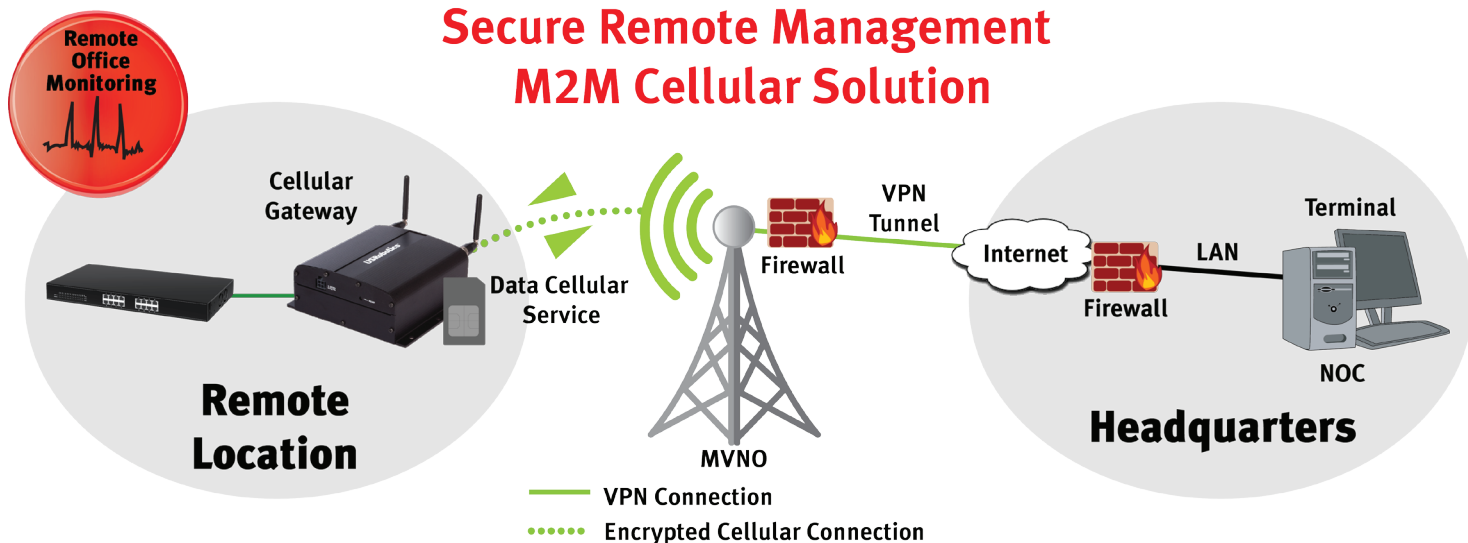
Remote Locations

Analog and Cellular M2M Solutions





Transitioning From ANALOG to CELLULAR Remote Management


Secure Remote Management M2M Cellular Solution





Step by Step Transition Process


- 1**  Obtain a Cellular Gateway


USR recommends the USR3510 Courier M2M 3G Cellular Gateway due to the ease of setting up persistent connectivity and the reliability it provides.
- 2**  Find an MVNO


USR can recommend a Mobile Virtual Network Operator (MVNO) to provision the cellular service. MVNOs offer specific services such as private static IP addresses, L2TP or VPN tunnels, and can verify sufficient wireless coverage.
- 3**  Provision a SIM or MEID


The MVNO will provide the SIM and additional required information for its use on the GSM network. For CDMA a MEID is required.
- 4**  Obtain Smart Terminal Emulation Software

Verify that the preferred terminal emulation software can make TCP/IP connections; legacy software may only provide access to a COM port.
- 5**  Verify LAN Access

Consult your Network Administrator to ensure that your LAN will allow the workstation to route to the MVNO tunnel.
- 6**  Obtain MVNO Data Services

Subscribe to a cellular data plan that includes private static IP addresses, L2TP/VPN tunnel, and an appropriate monthly data plan (adjust later based on actual data usage)
- 7**  Configure the USR3510 for Remote Management

Using a web browser, login to the GUI, disable LAN to WAN traffic, select your cellular network, enter the APN (GSM only), enable remote access, and enable the serial port using the settings required by your IT equipment.
- 8**  Connect the Gateway to Remote Equipment

Connect the USR3510 to your IT equipment, the serial port will now continuously pass data between the TCP/IP socket and serial port and is ready for data transfer.
- 9**  Access the Remote Equipment via the Gateway

Use the terminal emulation application to enter the static IP of the SIM, enter the TCP/IP socket and access is now bidirectional to the equipment.

NOTE: It is strongly suggested to first build a proof-of-concept breadboard.

Component Comparison

	Analog	Cellular
One or more local computer workstation(s) at a single NOC location.	X	X
Software requirements for each workstation	Terminal emulation software - textual interface to a COM port	Terminal emulation software - textual interface via a TCP/IP protocol stack to an Ethernet port
NOC Hardware requirements (per workstation)	modem connected to COM port	A Hardware tunnel (Provided by the MVNO) is needed for more than 1 workstation
NOC Services	telephone line	TCP/IP local area network (LAN) at a single NOC location
Remote IT Equipment Interface	RS232 Console Port (Optional Console Port Server for consolidation of phone lines and modems)	RS232 Console Port (Optional Console Port Server for consolidation of phone lines and modems/gateways)
Remote IT Equipment Hardware	One modem at each site connected to console port (or port server)	One modem/gateway at each site connected to console port (or port server)
Remote IT Equipment Services	One phone line at each site connected to the analog modem	GSM/CDMA Mobile Network Operator Subscription to packet cellular data services from MVNO L2TP or VPN Tunnel Service from MVNO

Interested in Using both Analog and Cellular?



**USR3516-EMU
Courier® Modemulator™
Expansion Card**

Exclusive USR Courier Modemulator is a 3G cellular gateway customized with exclusive USR hardware and software that emulates analog modem connections. When used with specially-provisioned cellular service, it creates a simple solution for migrating legacy data communications systems from dialup landlines to cellular connectivity.

- Emulate dialup modem AT command set without changing/adding software on host computer
- Emulate PSTN circuit-switched network over a packet-switched network
- Automatically select either cellular IP network or dialup modem/PSTN for every connection
 - » Mixed network support (Dialup, CDMA, GSM)
 - » Migrate to cellular on an ad hoc basis
- Dial up to 7200 Modemulator peers via lookup table or unlimited using direct IP dialing

Modemulator M2M Analog & Cellular Out of Band Solution

