

Cellular M2M Communications using The InvisiConnect System

From



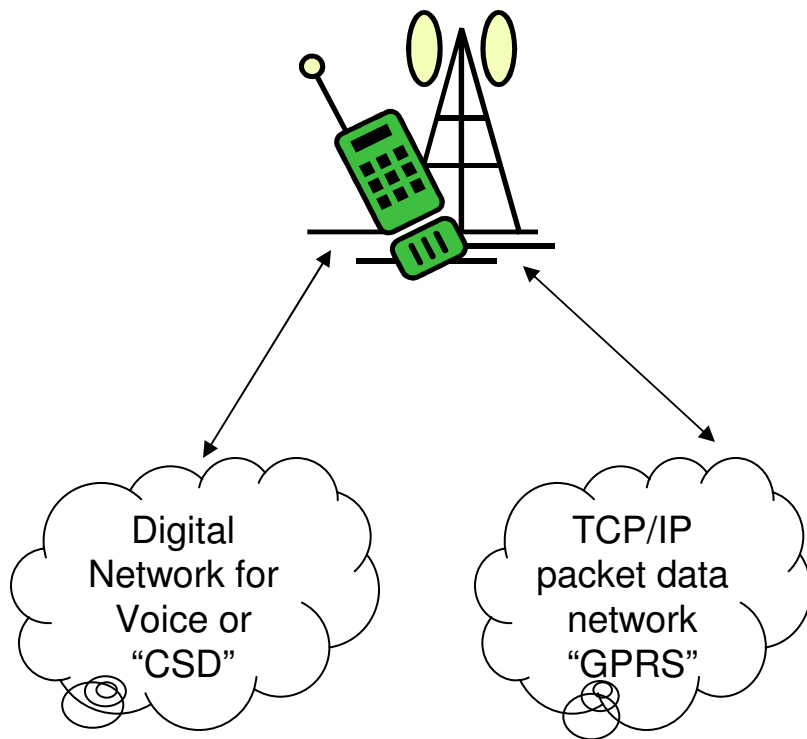
A Division of Mercury Instruments

A bit About Cellular Networks...

two technologies each with two paths...data or voice

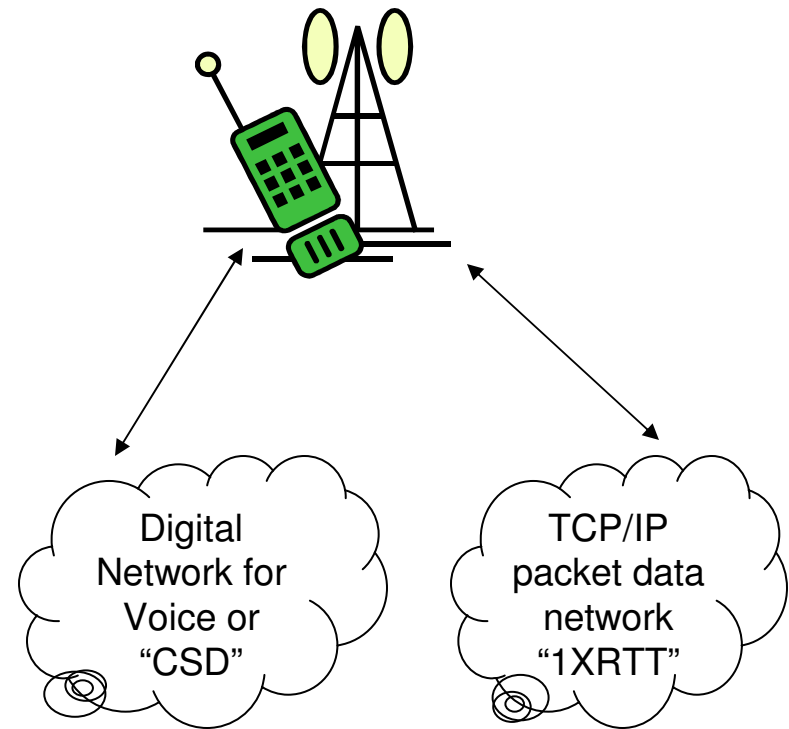
GSM Network

(AT&T/Tmobile)



CDMA Network

(Verizon/Sprint)



What does InvisiConnect do?

- InvisiConnect is a system that enables any data acquisition/telemetry system to use the wireless IP [packet data] service offered by Cellular Public Carriers.

What are the Components of InvisiConnect?

InvisiConnect Server Software
+ Cellular Client Hardware (CNI)

InvisiConnect End-to-End Solution

InvisiConnect Applications

Any remote data situated within range of Digital Cellular Service

- Oil and Gas Measurement Systems
- Electric Measurement Systems
- Water Measurement & Treatment Systems
- Metro traffic control systems
- Electronic Signs & Billboards
- Wide area SCADA
- Vending/ATM machine monitoring
- Any asset remote monitoring

Why InvisiConnect?

- **Security:** No server on field equipment. No static IP
- **Economy:** Supports 2 or more field devices w/ 1 client modem
- **Seamless, Universal Connectivity:** For any system
- **Enables Field Workforce:** For employees on the go
- **Provides remote on/off control functions**
- **Supports “report by exception”:** Alarms & Events

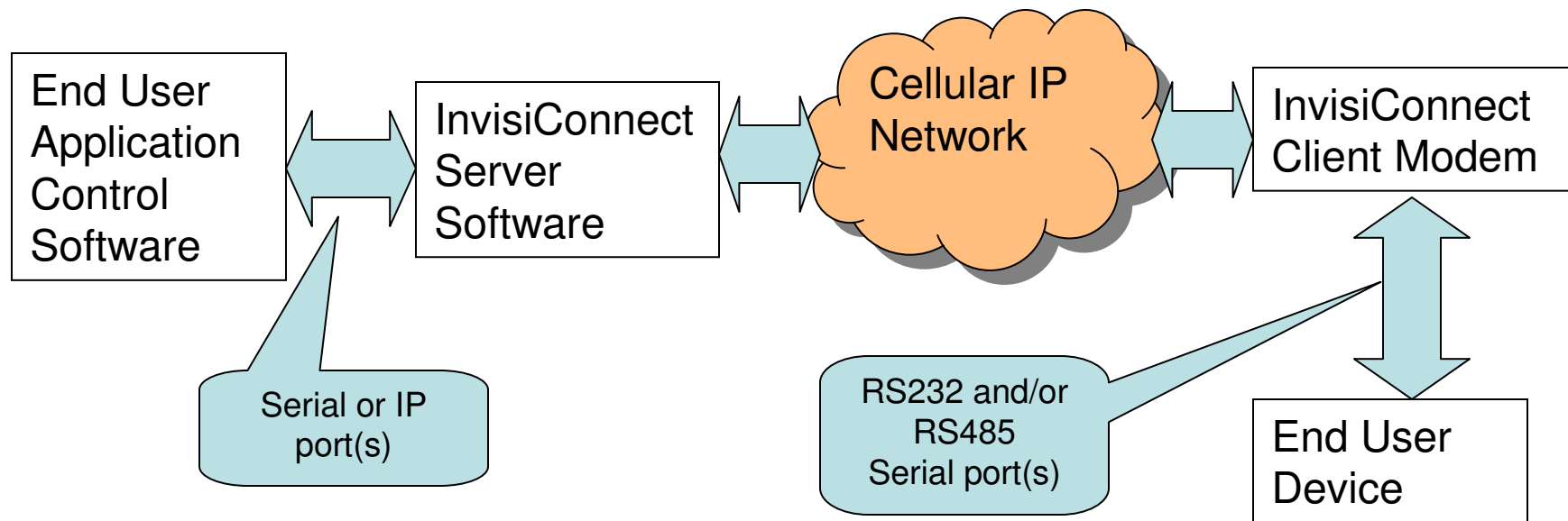
A Bit about Client Server

- **In** computer networks, an Application Server, typically called a Server, is a machine that maintains an open channel (the “socket” in IP networks) to provide on-demand access for other machines (the clients) that require the service... e.g. email, file or print service etc.
- Servers require static or pseudo-static addresses so they can be found. Clients do not.
- Servers listen for in-coming connection requests. Clients do not.
- Therefore, Servers are most susceptible to security breach.
- Any device that requires a static or pseudo-static address to function is then functioning as a server.

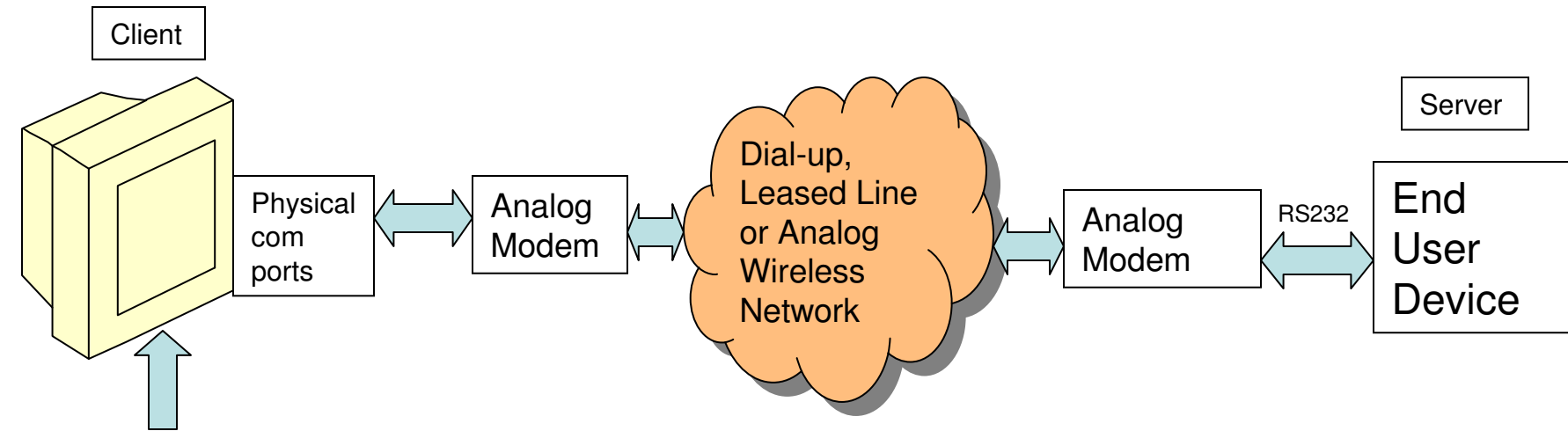
This matters because...

- InvisiConnect: one application server & unlimited remote clients.
- Other Solutions: one client application & unlimited remote servers.

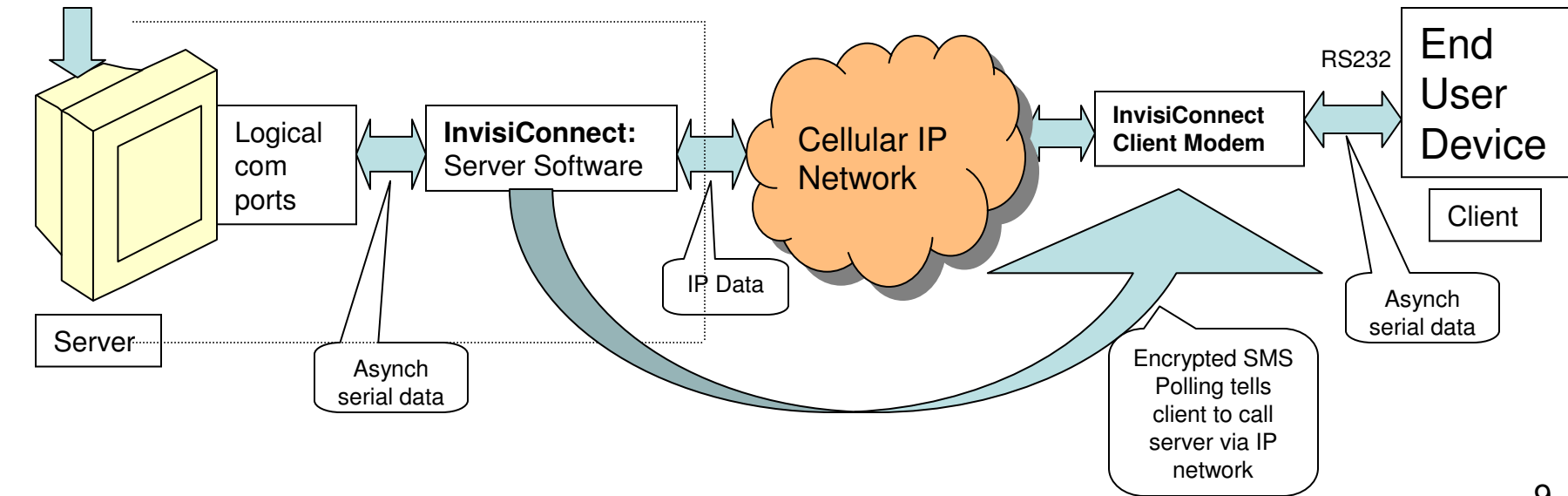
InvisiConnect Interfaces



Traditional Circuit Switched Remote Data Acquisition

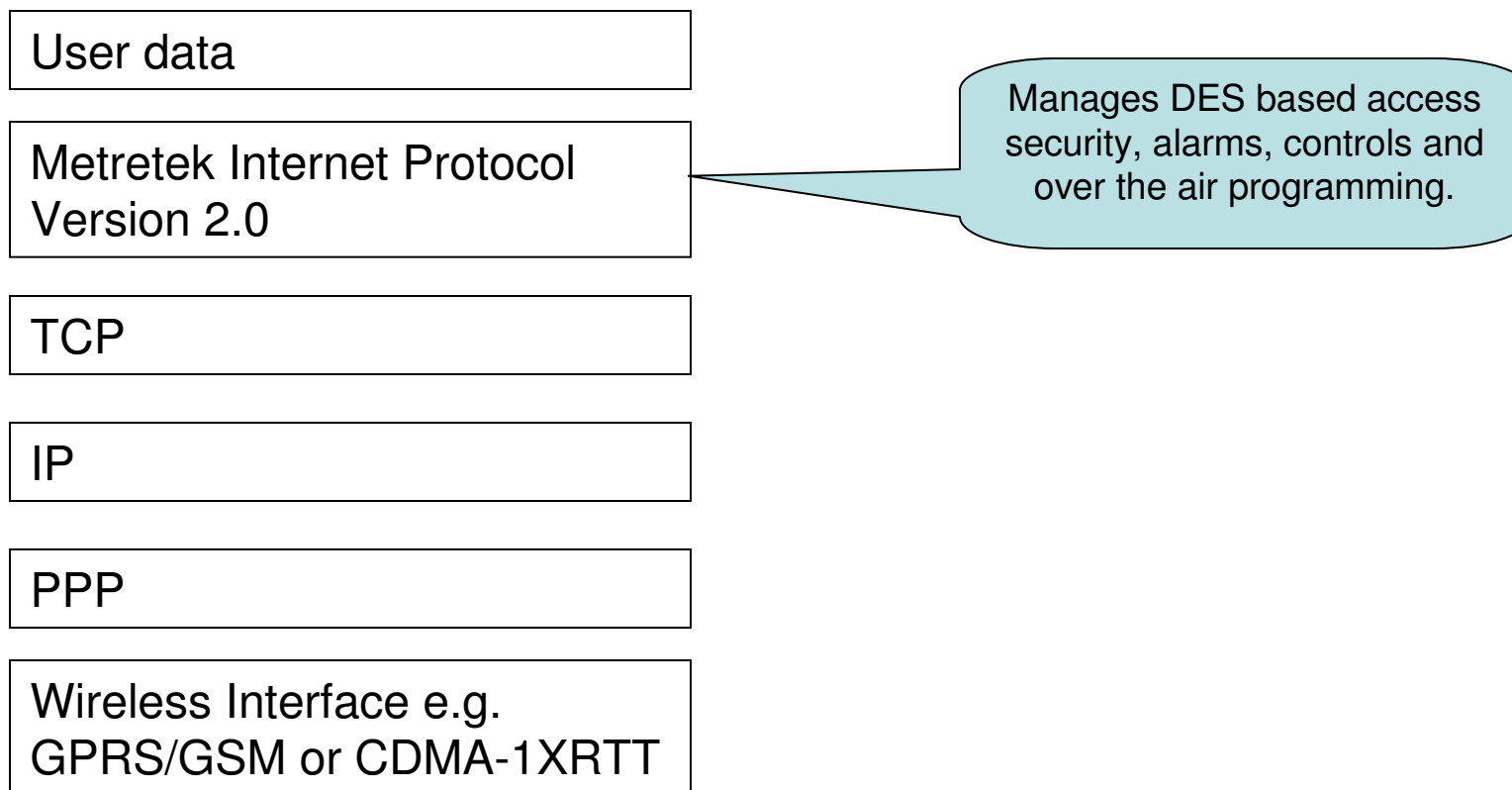


Secure, Packet Switched Data Acquisition with InvisiConnect

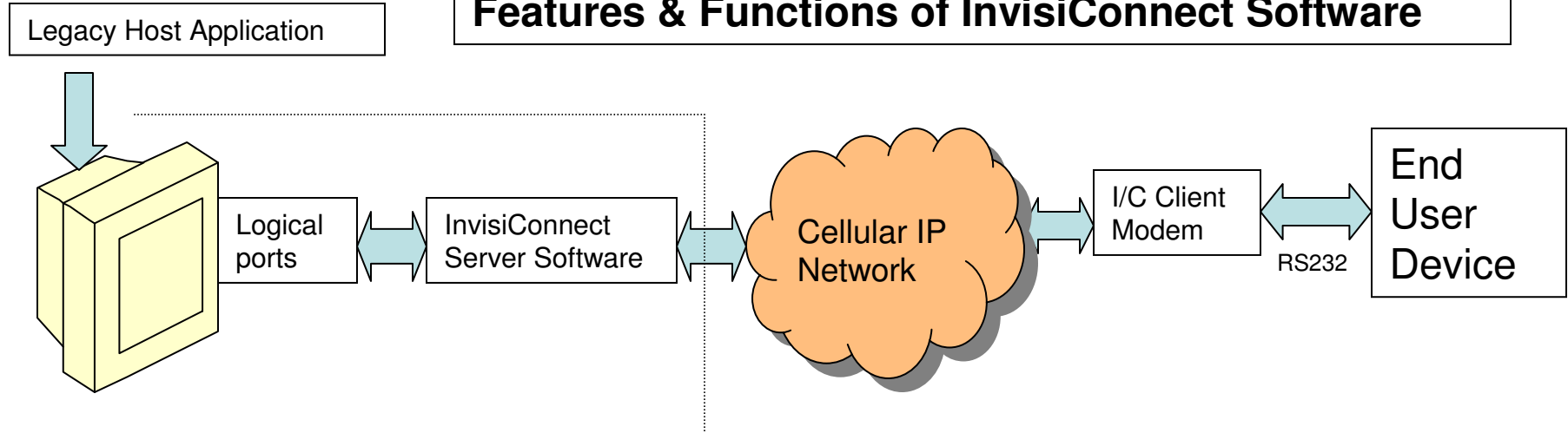


InvisiConnect Protocol Stack

Conforms with ISO OSI Layered Model Standard

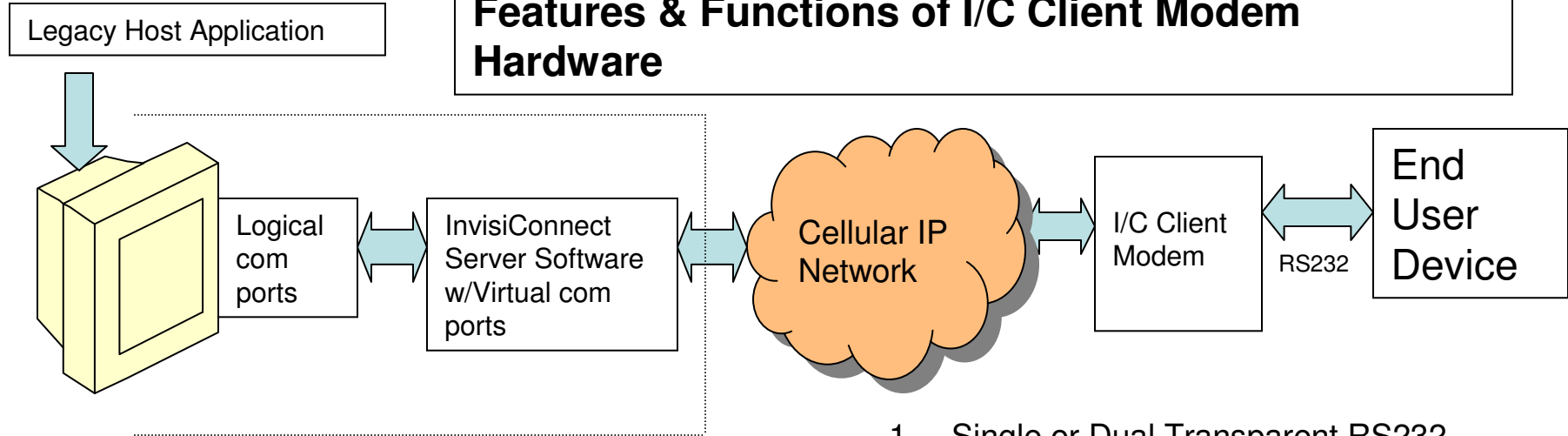


Features & Functions of InvisiConnect Software



1. Supports hundreds of TCP Server & COM ports in any combination. Supports Asynch. Serial or IP client applications.
2. Map any Server port to any one or range application ports.
3. 'AT' command (modem) emulation. Full flow control options for COM ports.
4. Stores I/C client modem alarms in csv file format. Alarm Forward by email or SMS.
5. SMS polling of I/C client modems for on-demand connection.
6. Single & Group 'over-the-air' programming of I/C client gateways.

Features & Functions of I/C Client Modem Hardware



1. Single or Dual Transparent RS232 interface with hardware or Xon/Xoff flow control. RS485 or RJ11 dial tone optional
2. 'AT command (modem) emulation
3. Distinct device ID. 5 alarm inputs and 2 control outputs.
4. Implements DES security encryption.
5. GSM or CDMA transceiver option.
6. Mains outage detection option.
7. Single & Group 'over-the-air' programming.
8. **Does NOT need Static IP address**

The bottom line is:

Anyone can put a radio in a box.....but for a total solution... there is only one InvisiConnect !