



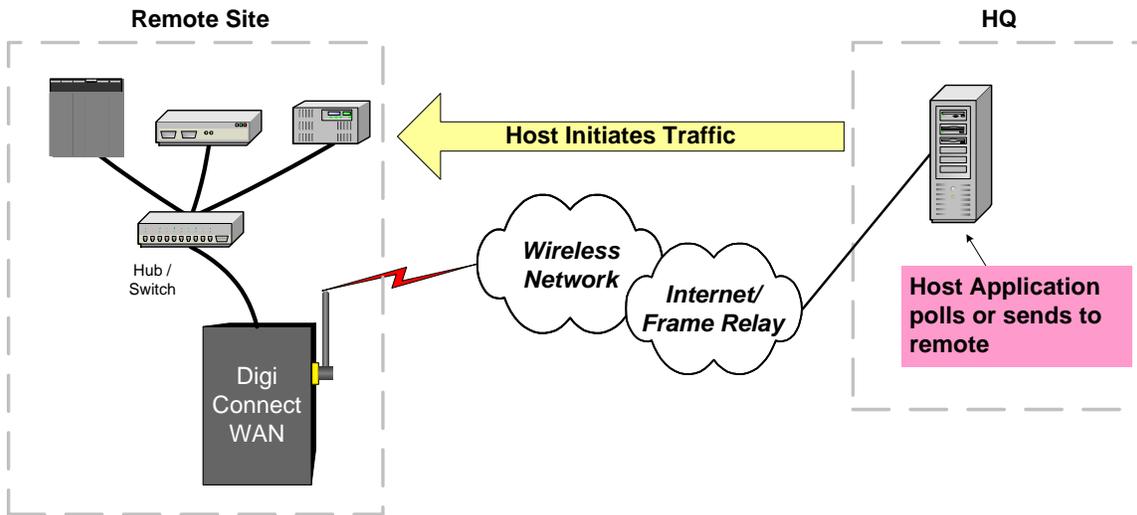
# Digi Connect® WAN GSM Application Guide

## Connecting Ethernet Devices via Mobile Terminated Connection

### Scenario

The Digi Connect WAN connects one or more remote devices to a GSM GPRS/EDGE wireless network. Communications is typically initiated from the host system but can also be initiated from the device(s).

### Sample Diagram:



### Theory of Operation

Communications applications such as SCADA polling, remote printing, or other host-initiated traffic can be sent over the cellular network to the remote device or devices via the Digi Connect WAN. The Digi Connect WAN forwards IP traffic destined for a specific port or port range on the cellular interface, to a private IP address on the Ethernet "side" of the Digi Connect WAN.

This process uses Network Address Translation (NAT) where only the mobile IP address is visible to the outside and TCP/UDP port forwarding. Port forwarding entries direct traffic from the Mobile IP address of the Digi Connect WAN to the appropriate device.

For example, a SCADA application on the host computer uses Modbus/TCP to poll remote devices. Modbus/TCP uses TCP Port 502 by default. If multiple Modbus devices are at the remote location, the application must allow the user to define a different Modbus/TCP port number for each device. Port forwarding entries on the Digi Connect WAN then direct the traffic to the appropriate device based on the source TCP port number.

This same concept can be used for almost any remote polling or host initiated/remote terminated communication application.

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### GSM GPRS/EDGE APN Type Needed<sup>1</sup>

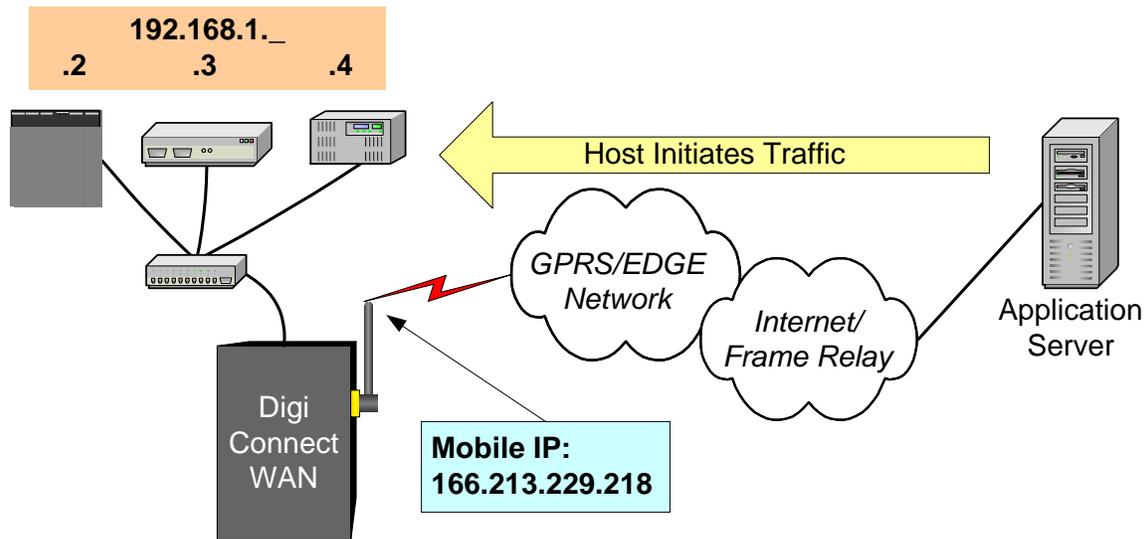
Typically an Internet APN is used for mobile terminated connections. Internet APNs use dynamic public IP addresses and support Dynamic DNS names (meaning a static DNS name). A Custom APN may be required if static (persistent) IP addresses are required and/or to provide advanced security. The connection from the cellular provider to the customer host site is typically either via frame relay or Internet as provided by the wireless carrier.

Internet and Custom APNs also allow outgoing (mobile initiated) connections.

#### Example Configuration:

Three devices are attached to the Ethernet port of the Digi Connect WAN (refer to the diagram). The devices' IP addresses are 192.168.0.2, 192.168.0.2.3, and 192.168.0.2.4. The Digi Connect WAN's Ethernet port is 192.168.0.1; its mobile IP address is 163.213.229.218. The Digi Connect WAN will be configured with a TCP port-forwarding table for Modbus/TCP such as:

Source TCP Port	Destination IP Address	Destination TCP Port
12001	192.168.0.2	502
12002	192.168.0.3	502
12003	192.168.0.4	502



Note the devices can still use their default Modbus/TCP port number of 502 since the Digi Connect WAN's port forwarding can use different source and destination port numbers.

Since the Modbus application must be then able to direct traffic to the Digi Connect WAN's mobile IP address and the appropriate port, the application would use the following ports:

<sup>1</sup> APN types are based on Cingular Blue. Check with your provider for IP addressing options.

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Remote Device	Destination IP Address	Destination TCP Port
One	163.213.229.218	12001
Two	163.213.229.218	12002
Three	163.213.229.218	12003

The Digi Connect WAN will now direct the Modbus polls to the appropriate destination.

Other applications and protocols, such as HTTP, FTP, printing, and others can be handled in similar fashion.

**Remote Device Default Gateway:** The remote devices' default gateway must point to the Ethernet port IP address of the Digi Connect WAN, which in this case is 192.168.0.1.

### Where to Get More Information

Further information and assistance is available at [www.digi.com](http://www.digi.com) or by calling Digi at 952-912-3444.