

MV-90 xi TCP/IP Communication

MSP Users Group
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- IESO currently interrogates over 3500 meters daily.
- 4 MV-COMM stations (64 lines) dialing through direct lines.
- Many different modem types
- Large majority of meters use POTS, few cellular (analog), few satellite, and TCP/IP.

- Business Case was submitted requesting the implementation of the TCP/IP package to MV-90
- Hydro One Networks Inc. was the only participant with whom we ran the project with.
- Today we interrogate 147 meters using the MV-90 TCP/IP package.

TCP/IP		
Retry 00	136	93%
Retry 01	3	2%
Retry 02	1	1%
Retry 03	1	1%
Retry 04	1	1%
Failures	5	2%
Total	147	100%

POTS		
Retry 00	2850	86%
Retry 01	325	10%
Retry 02	34	0.5%
Retry 03	18	0.5%
Retry 04	2	0.5%
Failures	90	2.5%
Total	3319	100%

- Wholesale Metering Group (WMG) met with Horizon Utilities Corp. to expand the pilot project.
- IESO will connect to Horizon meters via a VPN tunnel.
- Pilot project is closed.
- Others have approached the IESO and also wish to establish connectivity.

- IESO would like to offer the TCP/IP connectivity to all participants.
- WMG met with IT&I to discuss various options available.
- WMG and IT&I wrote a framework manual to be used as a guide when considering switching meters from POTS to TCP/IP.

- The IESO is preparing a framework document outlining the necessary requirements for us to be able to communicate with meters via TCP/IP.
- Framework has many parts:
 - How to apply for VPN connectivity
 - Metering standards and communication ports
 - Site to site VPN requirements
 - Responsibilities

- Contact the Wholesale Metering group or your Customer Relations Account Representative.
- Information required:
 - Metering contact name(s) and coordinates
 - IT contact name(s) and coordinates
 - Number of meters to connect
 - Approximate date for connection
- IESO IT staff will work with participant's IT staff to establish connectivity.

- Meters must be on the Conforming Meter List (<http://www.ieso.ca/imoweb/metering/meterlist.asp>)
- Meters must be equipped with an internal Ethernet board.
- The following diagram outlines which options are acceptable and which are not.
 - Figures 1 and 2 are acceptable
 - Figures 3 and 4 are **not** acceptable
- Advantages
 - Flexible Call Management
 - Connectivity (less retries, up to 4 concurrent connections)
 - Higher speed and reliability
 - Simpler design

[Figures](#)

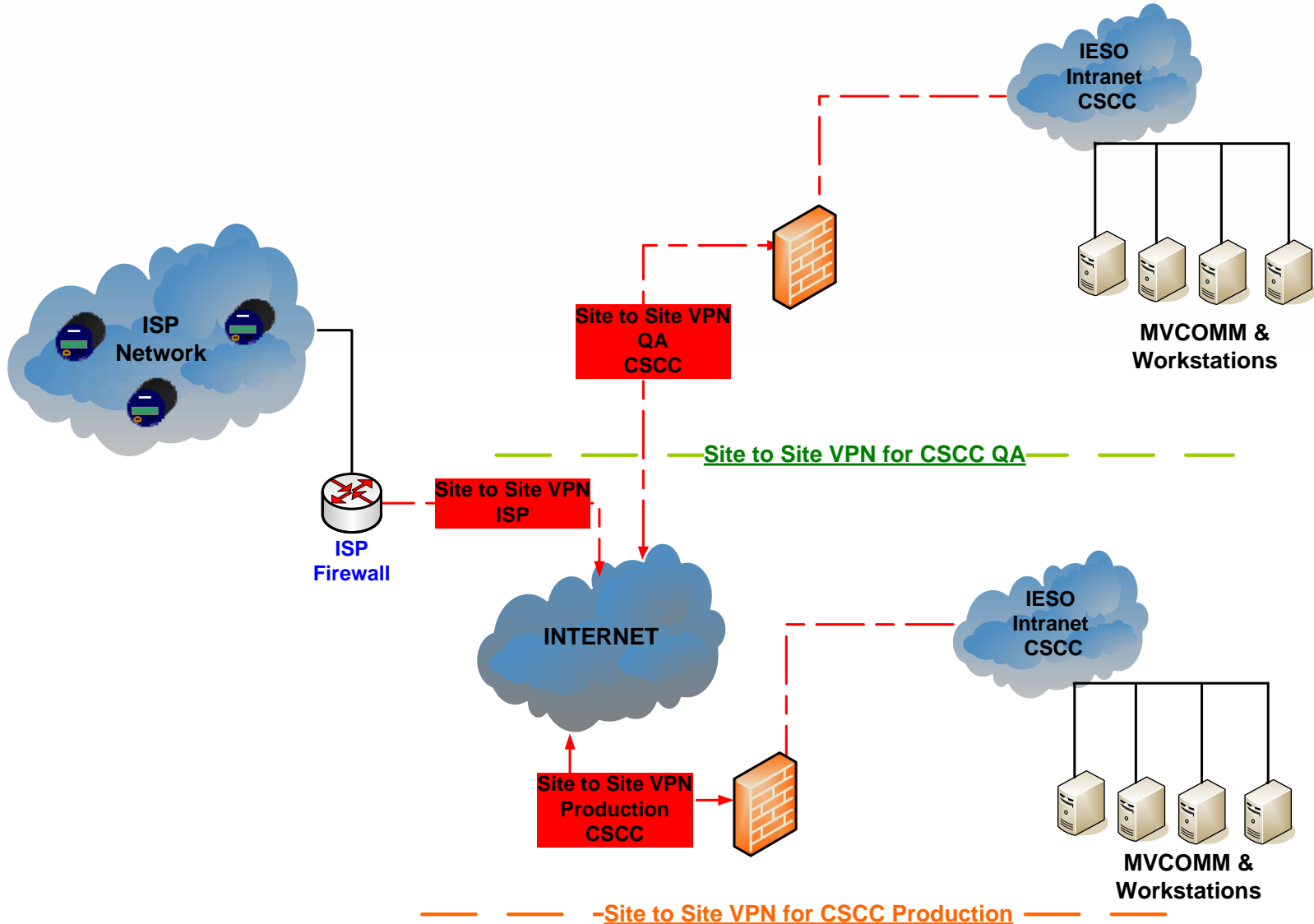
- Ethernet communication with MV-90 requires an IP address and a port to connect to.
- The IESO will have a process in place to ensure no IP address is repeated amongst different MMP.
- Only a limited number of port numbers will be acceptable for communication (~12).

Meter Manufacturer	Meter Model	Ethernet Port
Schneider Electric/PML	ION 8600/8500/8400/8300	7700
Itron, Inc	SENTINEL	10001
AMETEK	JEMStar	2001

- Router and wireless modem manufacturers have identified that port number assignment for communication is entirely programmable via software.

- Site to site VPN with major Internet Service Providers will be supported.
- Site to site VPN with *metered market participants* will also be considered.
- Meters with a public IP address will not be considered.
 - Password and data not encrypted when communicating with MV-90.
- Two active tunnels are needed for site to site VPN connections.

Network: Site to Site VPN



- Chapter 6, section 3.1.4
 - Each *metered market participant* shall bear all costs and expenses associated with...the transfer of such *metering data* to the communication interface of the *metering database*.
- Where does responsibility start and end?
 - IESO is responsible for its own equipment.
 - MMP is responsible VPN connection.
 - MMP is responsible for all traffic incurred.

- To consider...
- Third party access:
 - MMP₁
 - MMP₂
 - IESO
 - MSP
 - Transmitter
 - MMP₁ Settlement agency
 - MMP₂ Settlement agency

- Does RMSC agree with the framework?
 - Site to site VPN connectivity
 - Hardware Standard for TCP/IP meters
 - Priority of implementation
 - Responsibilities

