

PJM SGIWG Standardized Data Transfer Methodology

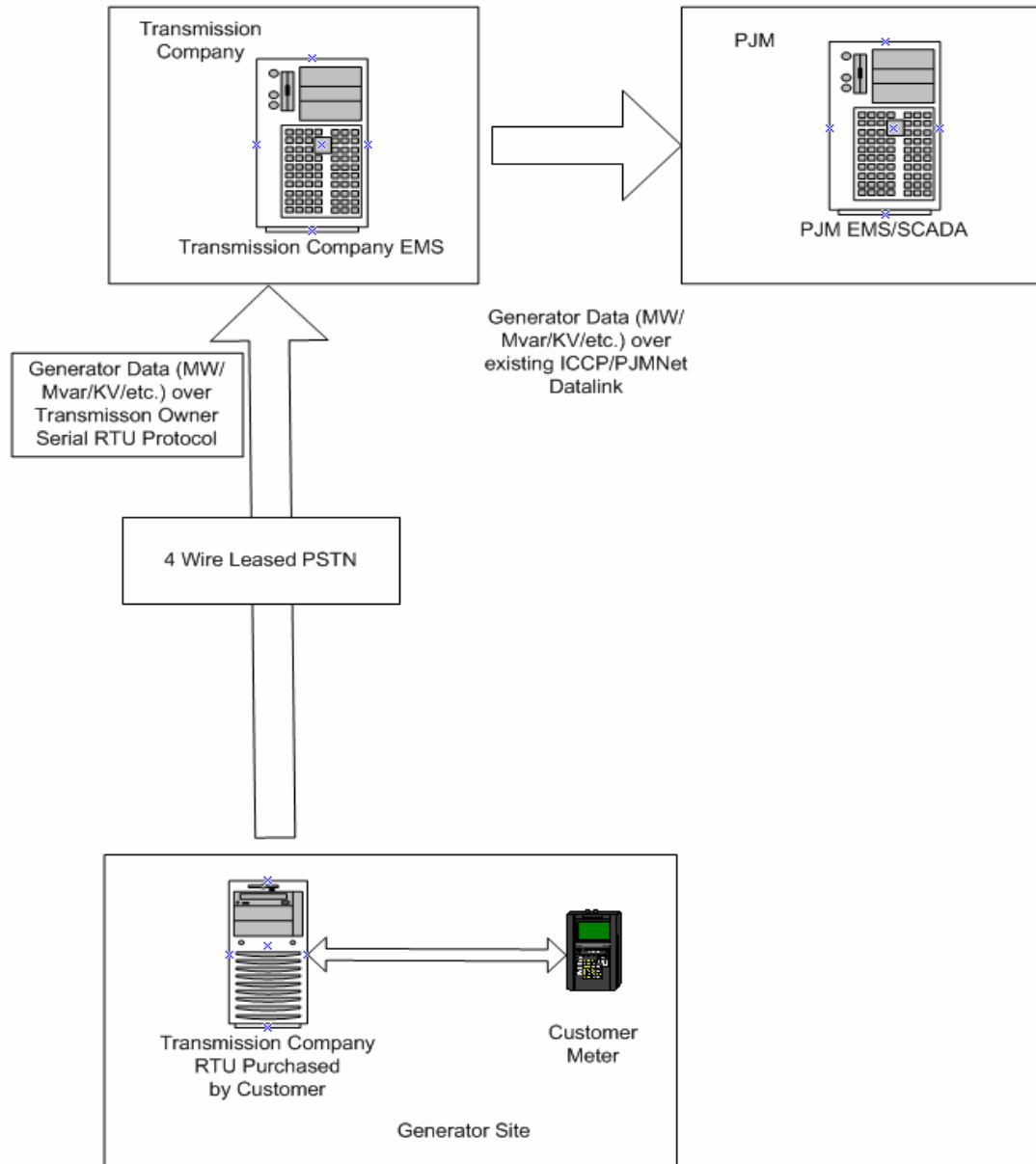
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Current Data Transfer Method

- Generator owner purchases and installs Transmission company RTU.
- Generator owner purchases and maintains 4 wire leased Telco Circuit to Transmission Company.
- Transmission Company scans Generator RTU for required telemetry.
- Transmission Company can supply data to PJM – usually for a fee.
- AGC not usually supported.

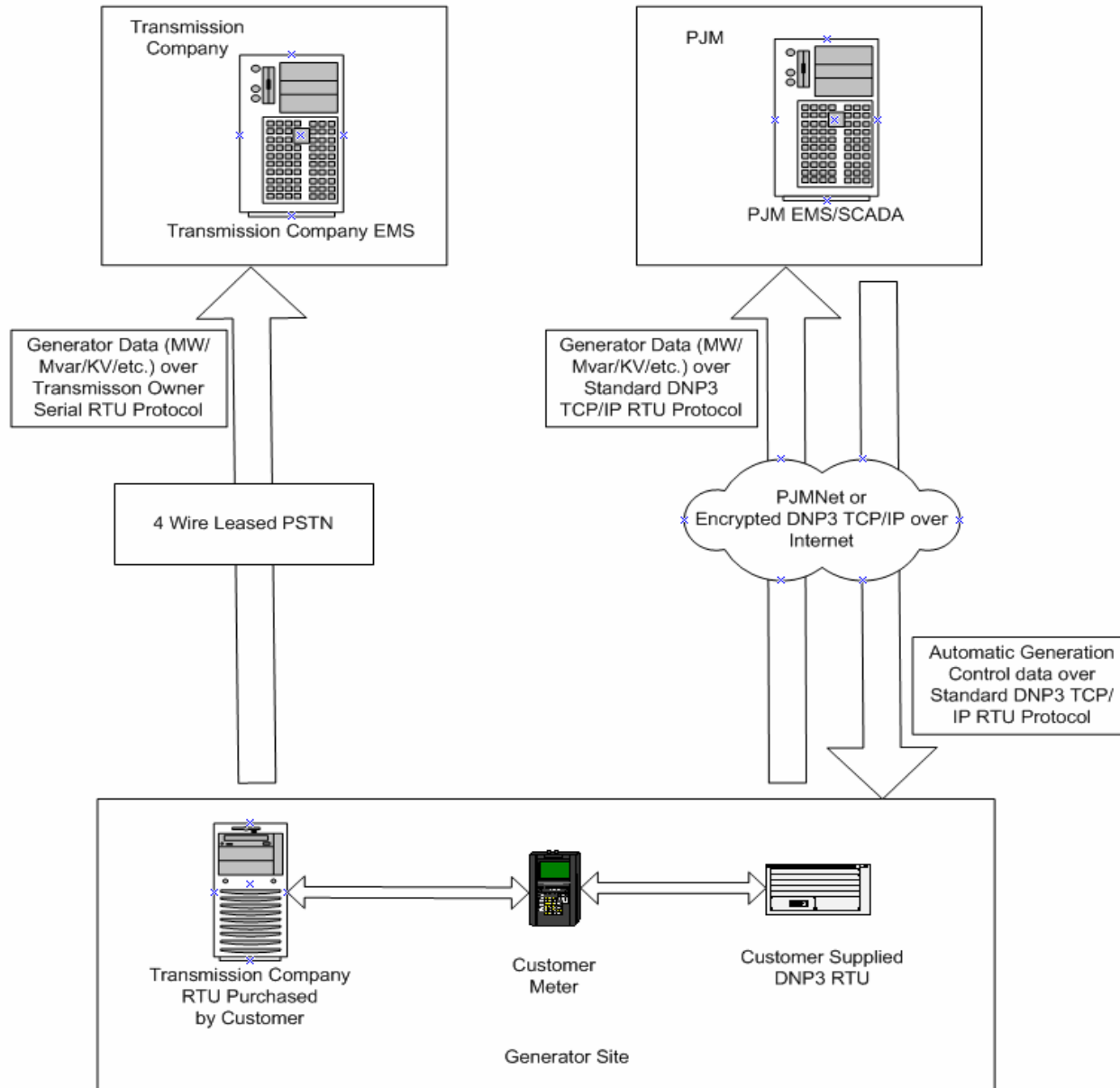
Current Data Transfer Method



Current Data Transfer Method with PJM AGC

- Generator owner purchases and installs RTU that supports DNP3 protocol.
- PJM installs PJMNet or Generator owner purchases and maintains high speed Internet connection.
- PJM scans Generator RTU for required telemetry.
- AGC supported.

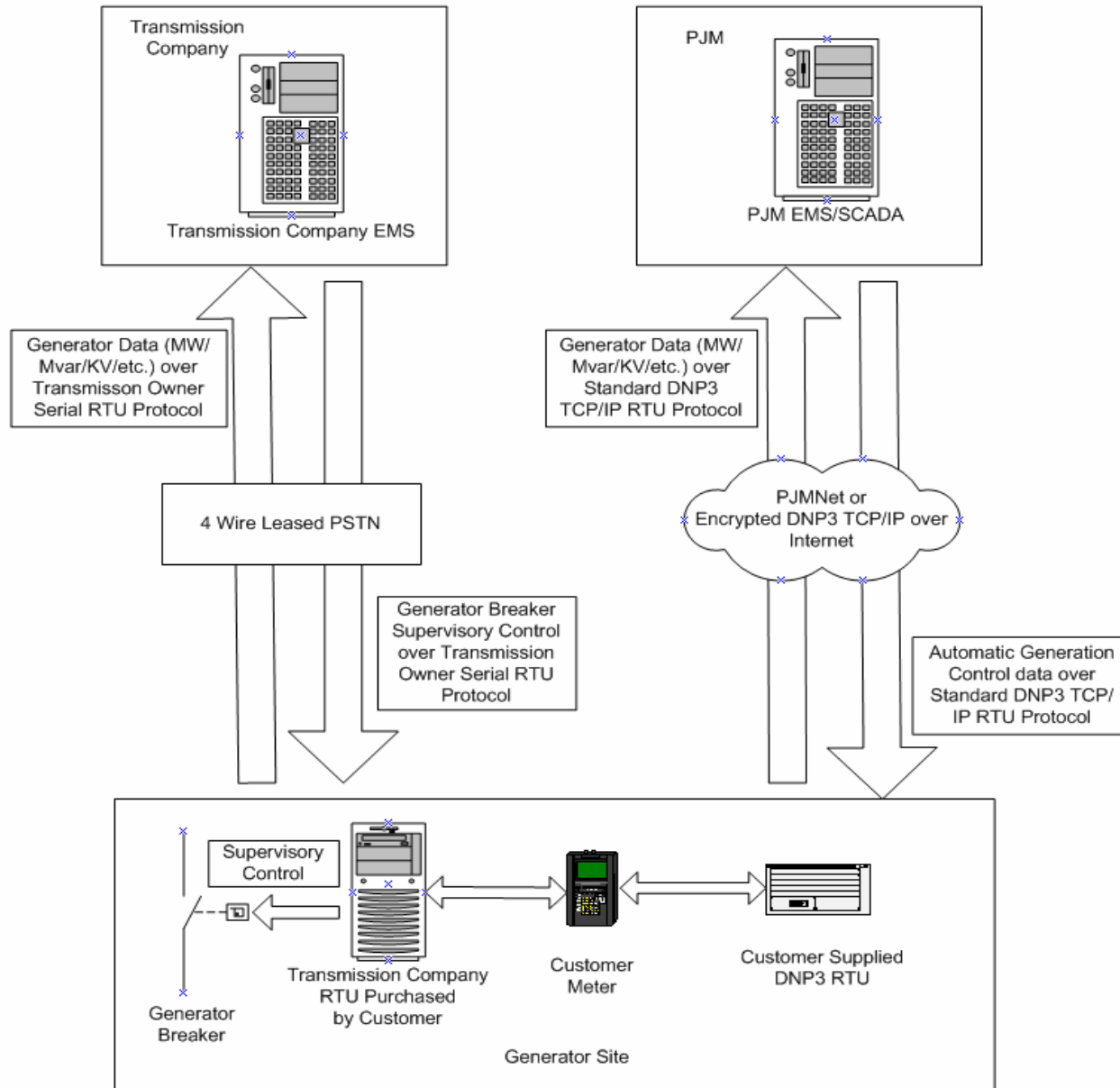
Current Data Transfer Method With PJM Automatic Generation Control



Generator Circuit Breaker Control

- Required by some Transmission Companies.
- Very in-frequently used or in some cases never used.
- Only necessary if Generator Breaker fails to trip during system problems, or Transfer Trip fails to operate.

Current Data Transfer Method With Generator Circuit Breaker Control



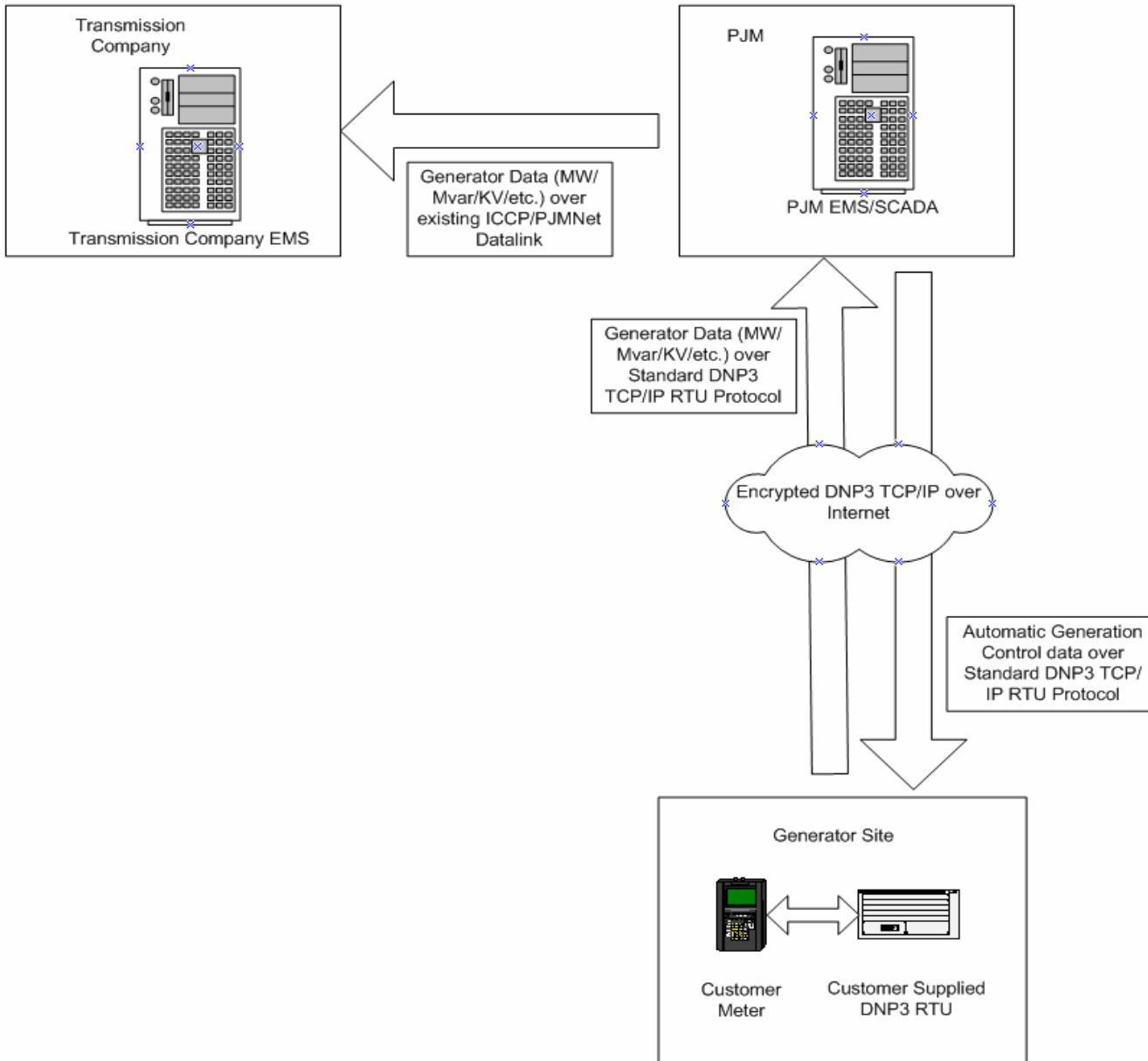
Current Data Transfer Method

- Not standardized across PJM.
- Requires Generator owner to purchase and install proprietary Transmission company RTU.
- Requires Generator owner to purchase expensive 4 wire leased Telco Circuit.
- Automatic Generation Control Signals from PJM not usually supported.
- Generator owner may have to purchase second RTU to support AGC.

PJM Encrypted Internet DNP3 Data Transfer Method

- Generator owner purchases and installs RTU that supports DNP3 protocol.
- Generator owner purchases and maintains high speed Internet connection.
- PJM scans ALL data required and makes that data available to Transmission Company over existing EMS ICCP link.

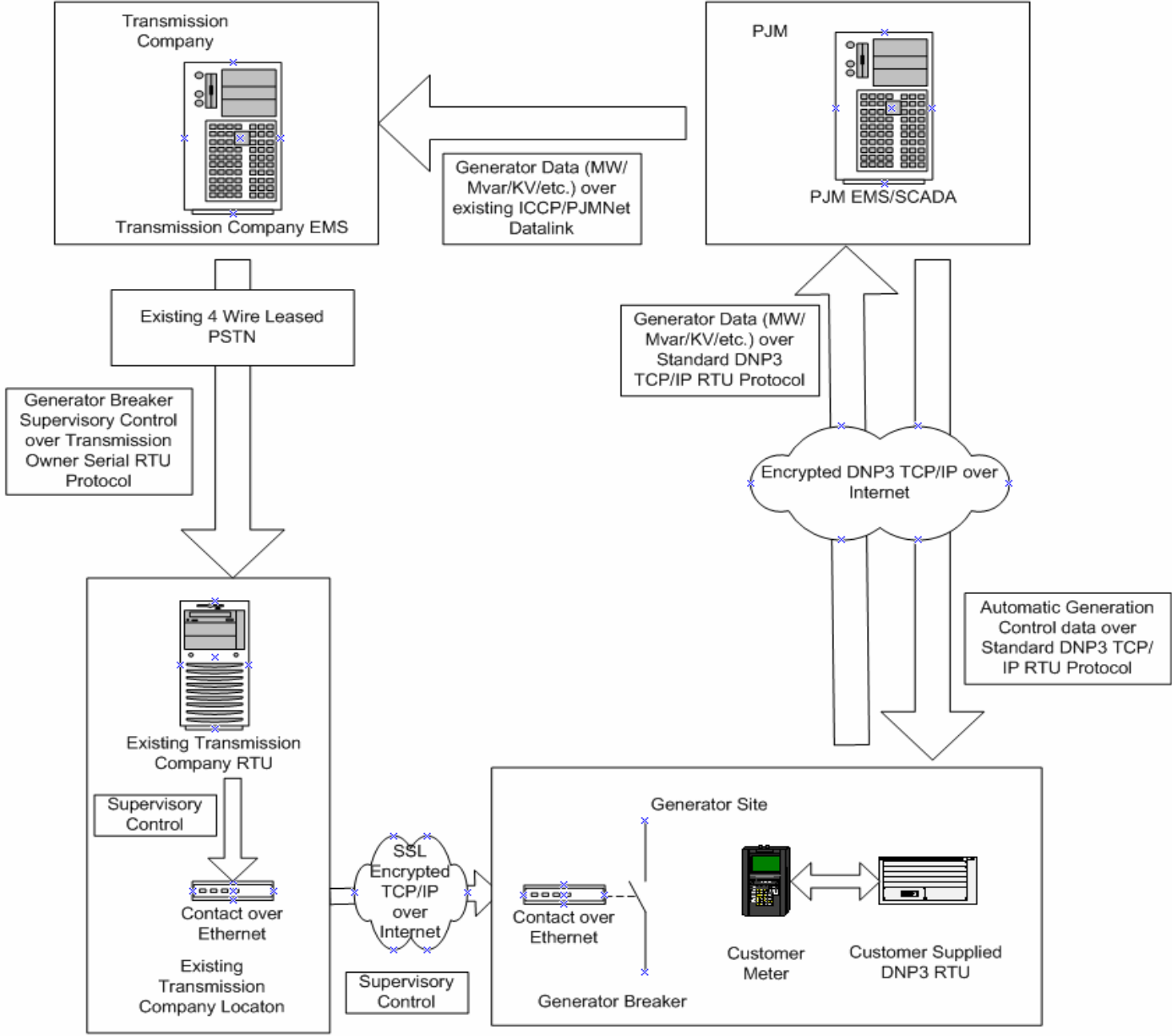
New PJM SGIWG Standard Data Transfer Method



PJM Encrypted Internet DNP3 Data Transfer Method with Control

- Generator owner purchases hardware that supports SSL encrypted contact over Ethernet communications to forward control to Generator location.
- Contact over Ethernet hardware installed at Transmission Company and Generator owner sites.
- Generator owner purchases and maintains business class Internet interface at Generation site.

New PJM SGIWG Standard Data Transfer Method With Generator Circuit Breaker Control



PJM Encrypted Internet DNP3 Data Transfer Method

- PJM Collects ALL data required and makes that data available to Transmission Company over existing EMS ICCP link.
- Standardizes interconnection data requirements.
- Uses non-proprietary data transfer protocols allowing procurement of inexpensive hardware solutions.
- Uses inexpensive but secure Internet communications.
- Allows for rapid deployment due to non-proprietary nature and instant on communications.
- Supports real-time and revenue data objects.
- Supports AGC.

PJM Encrypted Internet DNP3 Data Transfer Method with Control

- Control signal initiated using Transmission Companies existing systems and procedures.
- Uses generic approach to forward control signal from existing Transmission Company RTU.
- Uses inexpensive Internet communications to forward control to Generator location.
- Verification of control action supplied by status of digital device in normal real-time data transfer from PJM.
- Verification of control hardware supplied by health status of SSL Contact over Ethernet equipment in normal real-time data transfer from PJM.

Current Efforts for SGIWG

- PJM has added “Communicaitons_Status” data point from ALL SCADA scanned Substations – available to TOs over ICCP.
- PJM has enhanced the method the EMS uses to alert the Dispatchers of failed SCADA Substation communications
- PJM working with Vendors to add features and additional security for device control.

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