

# eLAN™ Technology White Paper

Providing T&D Data to the  
PI Historian





## Introduction

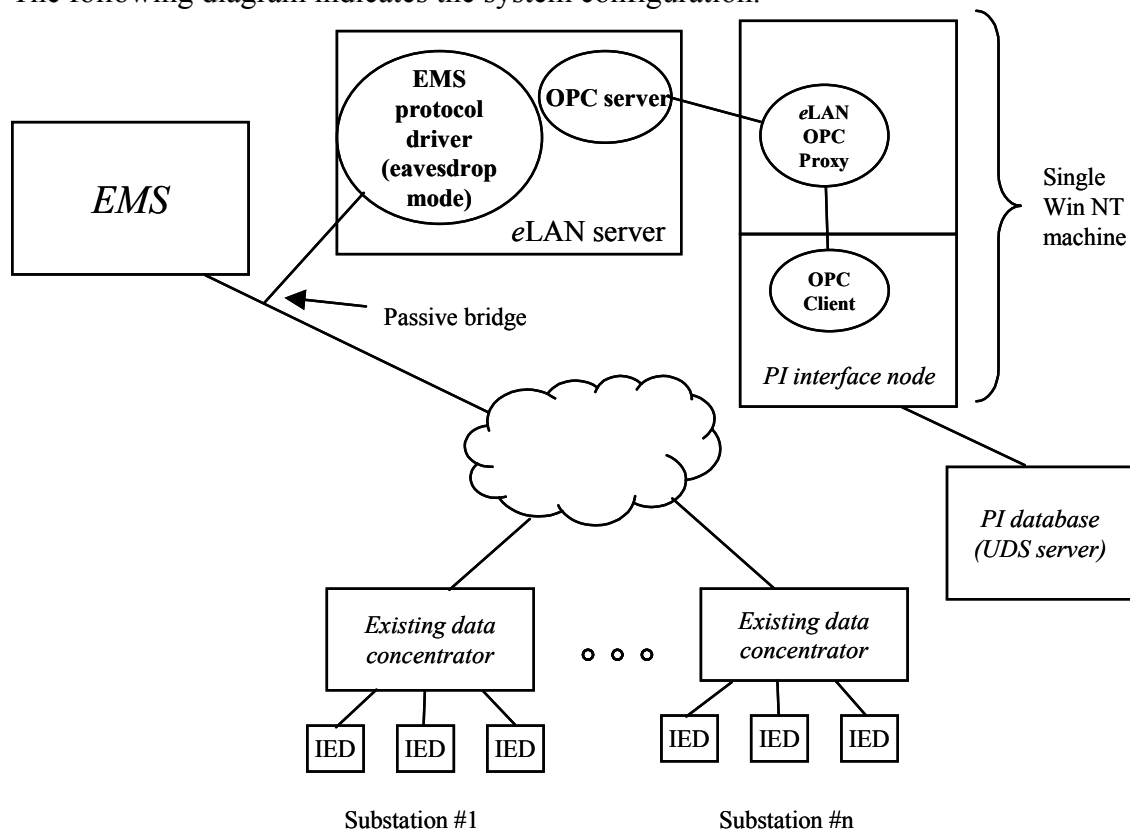
This white paper summarizes the ways in which Bow Networks' eLAN™ technology can be used to provide substation and feeder data to PI, or other enterprise OPC clients.

### Accessing existing EMS data using eavesdrop mode

Accessing T&D data from existing EMS systems has historically been a difficult thing to do. Most EMSs do not provide a convenient interface for exporting data in real time, and often the utility is faced with expensive, custom programming, and slow, batch oriented interfaces. Standard interfaces such as ICCP are an improvement, but can be difficult to configure. Furthermore, latency introduced by the EMS results in the PI database not being current.

The eLAN family includes a powerful eavesdropping technology, which allows the eLAN server to *passively* monitor communications traffic to and from the EMS, and extract all reported data values. The existing communication channel is undisturbed, except for the installation of a passive bridging connector. There are no latencies introduced, and data won't be stalled waiting for processing by the EMS under avalanche conditions. Because of the passive bridging used, reliability of communications to the EMS is not compromised. This technology has been successfully proven in the deployment of new EMS systems, where it allows an existing EMS to remain operational while the new EMS is commissioned.

The following diagram indicates the system configuration.



There are two required *e*LAN components. The Linux based *e*LAN server provides the required communications ports to monitor the EMS traffic, and the OPC server. From there, data is transferred to the Windows based interface node, where data is sent to the OPC server, via the *e*LAN OPC proxy. This proxy manages the interface to the OPC server, and ensures reliable communications with the server.

The data may now be accessed by the PI interface node software, using its OPC client. Configuration is simply a matter of browsing the available data from PI's OPC interface, and selecting which data is desired.

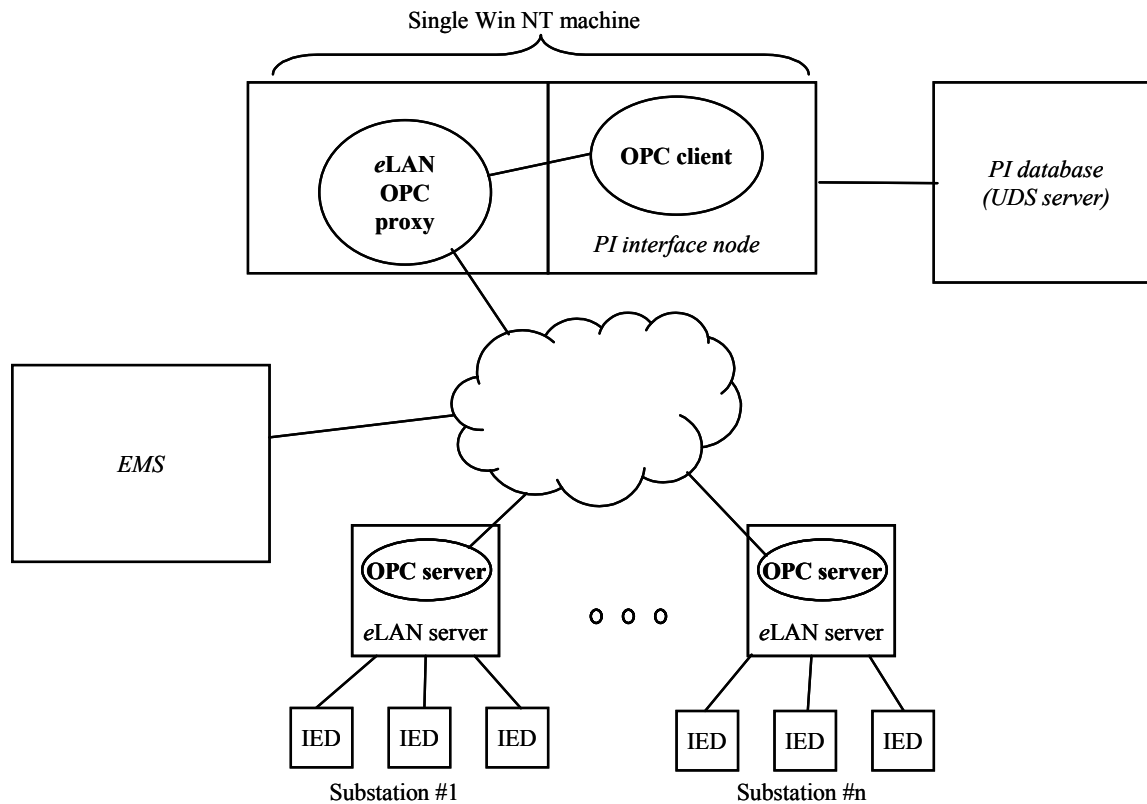
## **Accessing substation data with the *e*LAN™ Substation Server**

In many cases, the desired data is not being sent to the EMS. With the proliferation of IEDs in substations, there is a tremendous amount of valuable data available to the utility, such as:

- Relay targets
- detailed power quality data
- maintenance data, and
- fault records

The *e*LAN substation server was designed specifically to provide access to this data from across the enterprise, with a range of applications, including PI.

The following diagram illustrates the use of substation based *e*LAN servers to access data from a variety of IEDs.



In this scenario, the substation servers access the IEDs directly, and normalize the data to an internal format. This is then communicated across the network, and accessed via the eLAN OPC proxy on the Windows-based PI data collection node.

Note that the eLAN substation server may perform many other functions in addition to providing data for PI. These functions include:

- remote IED maintenance access using IED Anywhere,
- substation based Web Server,
- protocol conversion to one or more EMS/DMS hosts, and
- security

These applications are beyond the scope of this paper. Refer to the respective datasheets for additional information.

## The eLAN Advantage

- Performance. eLAN servers have been tested to data throughputs of >40,000 events/second.
- Open Software Environment. eLAN platform may be used to host a variety of 3<sup>rd</sup> party applications.

- Vendor independence. eLAN can support any vendor's IEDs. eLAN was architected around the unique requirements for accessing substation data, so new devices can be supported with a minimum of custom programming.

## About Bow Networks

Bow Networks has been creating and deploying mission critical communications solutions for utilities for since 1986. Our technology is currently deployed in over 70 electric utilities worldwide.

Bow Networks is a licensed data partner of OSI Software.



200, 550-71<sup>st</sup>. SE · Calgary · AB · T2H 0S6

Tel. 403.253.8433 · Fax 403.253.8979

Email: [sales@bownetworks.com](mailto:sales@bownetworks.com)

[www.bownetworks.com](http://www.bownetworks.com)