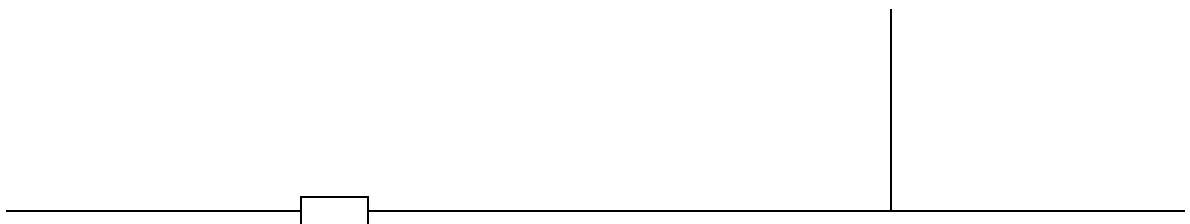


eLAN™ Technology White Paper

Automated IED File Management



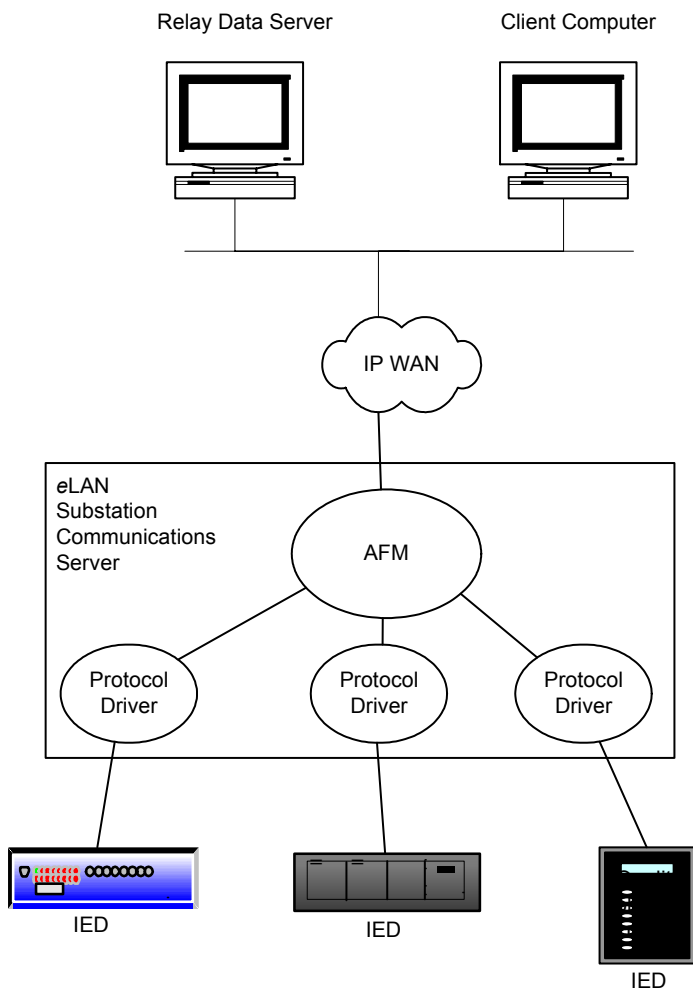
Introduction

Retrieval of fault files from substation IEDs has traditionally been a manual process, either physically traveling to the devices in question, or by accessing the devices using a dial-up or networks connection. In both cases, the files are stored on an individual user's computer, and distribution to other users is also a manual process.

Bow Networks' eLAN platform offers a cost-effective, automated process for the retrieval of files from all IEDs, centralized storage, and notification of interested users.

System architecture

The following drawing shows the main components of the eLAN system for retrieving IED files.



eLAN Substation Communications Server (SCS)

The eLAN SCS resides in the substation, and directly connects to the IEDs (either serially, or over a substation LAN). As a minimum, it contains protocol drivers for each IED, and the eLAN AFM (Automatic File Manager) application.

The protocol drivers continuously monitor the IEDs, to determine if a new file has been created. If so, it automatically transfers it to the eLAN SCS, and notifies the AFM application.

AFM is responsible for moving the file to the designated target machine, and notifying the user list.

Relay Data Server

The Relay Data Server is a file server on the corporate network, where the relay files are stored. It may be general purpose server (Windows, Linux, or Unix), which is shared with other users and file types, or a specific server dedicated to relay file data. The Bow Networks OpenHouse™ Relay Data Server (RDS) may be used.

File Transfer Mechanisms

The eLAN AFM application supports the following file transfer methods:

- FTP
- SFTP
- Linux Copy
- Linux Mount
- Samba Mount
- Email attachment
- eLAN Transfer Tunnel (see below)

eLAN Transfer Tunnel

The eLAN Transfer Tunnel was developed in response to the industry's increasing concern with security. The Transfer Tunnel allows files to be transferred between an eLAN system, and a Transfer Tunnel client installed on a destination Windows system, without requiring any intervening firewalls to be opened up for FTP or other generic file transfer mechanisms. The eLAN transfer tunnel also allows file data to be encrypted using SSL.

User Notification

The eLAN AFM application allows a list of users to be notified whenever an event occurs which generated new files. Email notification is supported today, with other mechanisms slated for future development (ie pager, SMS).

Benefits

The automated retrieval and management of relay files offers the following benefits:

- Reduced effort (& cost) of gather data from relays after a fault occurs.
- Central location for files allows for easy access by any interested user.

- Pushing data out of the substation to a central server allows for inexpensive, reliable (ie backed-up) storage of data.
- Immediate retrieval of files eliminates chances of overwriting files in an IED.
- Replacement of dial-up connections to relays eliminates a significant security concern.

Part of an overall substation integration system

In addition to the functions previously described, the *e*LAN SCS may also perform the following functions:

- SCADA interface to IEDs
- Retrieval and storage of all non-operation IED data
- Remote, interactive IED access, from IED maintenance software
- Soft PLC
- Open access to IED data, using OPC or ODBC/SQL
- Protocol conversion/data concentration
- RTU functionality

About Bow Networks

Bow Networks has been creating and deploying communications solutions for electric utilities since 1986. In serving many of the world's leading utilities and vendors, Bow has built a strong organization extending from product development through field commissioning and training. Bow has invested heavily in what is now the industry's most advanced platform for substation communication and data management, *e*LAN.



#200, 550 71st Ave SE

Calgary, Alberta, T2H 0S6

(403) 253-8433

www.bownetworks.com