

GAS TURBINE TEST SYSTEM

A MEDIUM SCALE SCADA SYSTEM

Client

Dresser-Rand, Olean, NY.

Problem Scope

For this application, Dresser-Rand needed an extensible system capable of monitoring numerous signals interfaced to a large gas turbine. Well over a thousand signals needed to be collected from an extremely varied set of data acquisition devices and instruments. The configuration of this system and viewing of data needed to be available from any of a number of computers connected to the data acquisition network. Also, data needed to be available for additional processing on other connected networks.

Dresser-Rand required that all of the components that were necessary to run a test, such as the server, database, acquisition, configuration, and viewing, were able to be run on one computer or distributed over several computers.

Viewpoint's Solution

This system utilizes Client-Server architecture to acquire signals from a variety of devices and logs the data to a central SQL Server database. The data is then processed and viewed on remote terminals. It is modularly designed to facilitate changes in acquisition hardware as well as viewing and processing software.

There are three important components to this application: a SQL Server data management system, TCP/IP packet based messages for configuration and data, and a flexible, application-independent driver model.

National Instrument's LabVIEW was used for the bulk of this project. C, Visual Basic, and Fortran were also used to develop analysis routines and interface with various pieces of hardware.

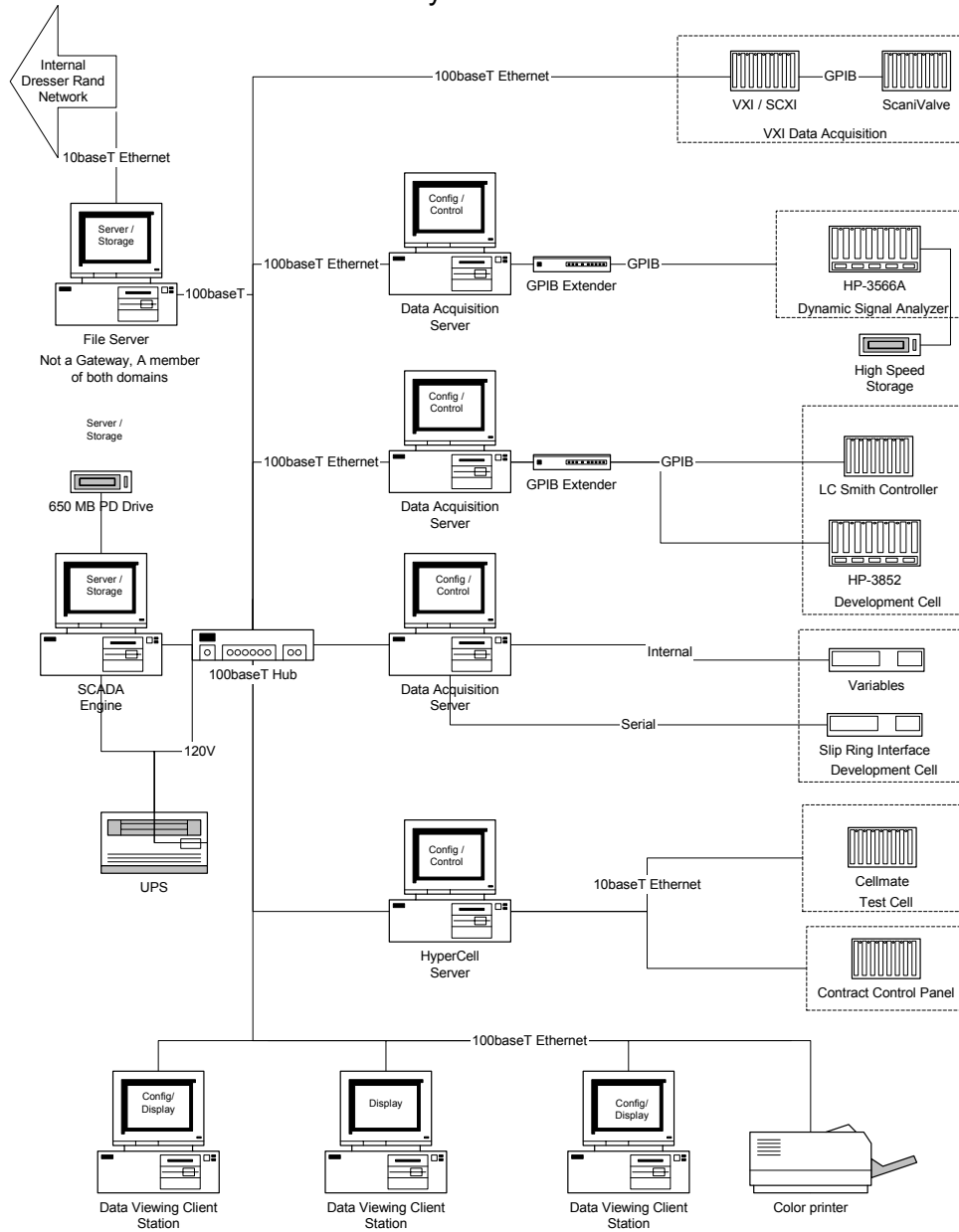
Technical Highlights

- Client-Server technology
- TCP/IP packet based messages for communication of data and commands
- 100base-T local network with bridge to other company/worldwide networks
- Remote configuration and viewing
- SQL Server database
- High channel count (1000+ signals)
- Flexible data acquisition system
 - Diverse data acquisition devices: DAQ, GPIB, VXI, RS-232, PLC
 - Common driver model - drop in drivers, self-aware configuration
 - Common calculation model - drop in calculations, self-aware configuration
- Flexible GUIs with drop in screens

Several software technologies used for various aspects of the project: LabVIEW 4.0, Microsoft SQL Server, Microsoft PowerStation Fortran, Microsoft Visual Basic, Microsoft C, Microsoft Access

SCADA System Components

Dresser-Rand PTC-22 System Overview



SCADA System Software Architecture

