Adanto Develops HA cluster for the Gas Pipeline Telemetry System

Adanto provides easy automated communications process by which measurements and other data are collected at remote or inaccessible points and transmitted to receiving equipment for monitoring.

The strategic goal for our client was safe, reliable and environmentally friendly delivery of natural gas transportation services. To meet this goal our client required a **highly available data cluster for the billing system** and a **highly available, high density data sampling cluster for real-time monitoring of natural gas flow characteristic**.

The Environment:

Our gas and oil pipeline client had a physical location of a pipeline in a very challenging terrain with inaccessible stations. Consequently, they needed a technical solution that would remotely and in real-time monitor and measure the flow of natural gas through the pipeline.

The Challenges:

- Highly Available Data Cluster for gas company's Billing System
- Highly Available Data Cluster for the real-time gas flowing in a pipeline
- Minimum maintenance with auto-healing feature (system's auto updates)
- Highly reliable, safe and environmentally friendly system
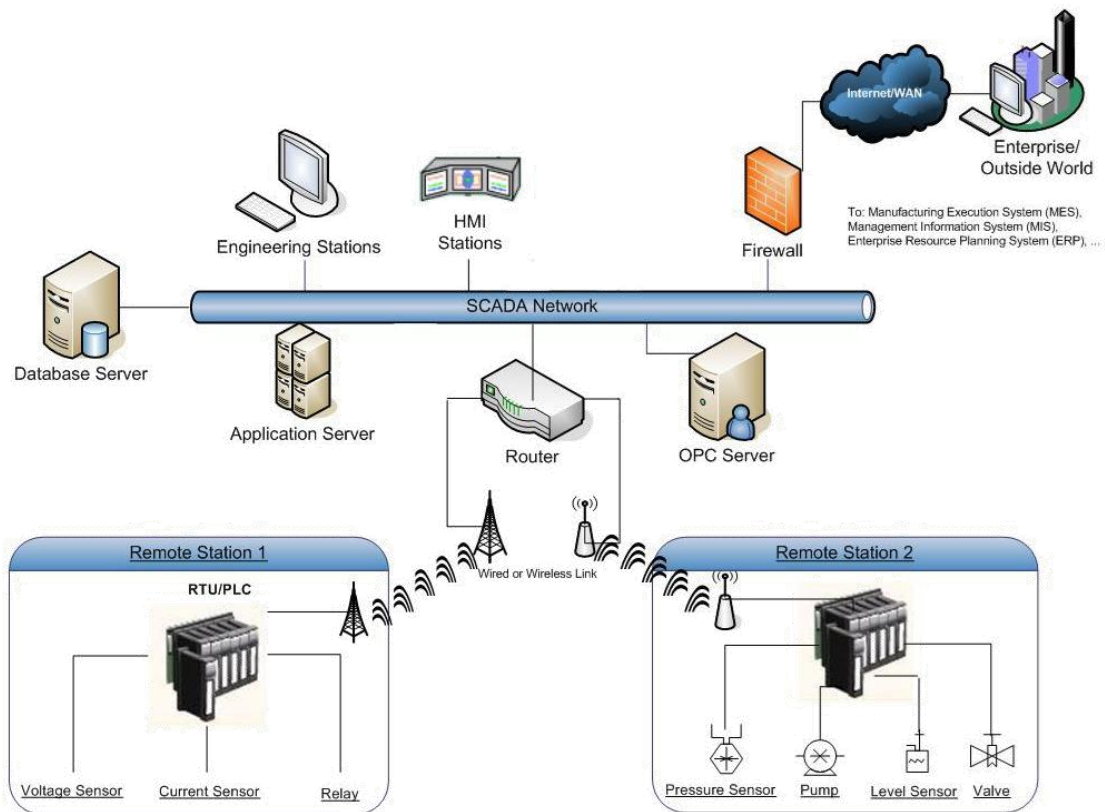
The Objectives:

- **99.9% system availability & 500ms data sampling** density
- **Full redundancy** of hardware and software components
- **6 months data retention** for raw data
- **3-year data retention** for reporting data
- **RTO < 8h & RPO < 48h**
- **Bare metal recovery**
- **>3TB** of telemetry data
- **>1000 data samples read per second**
- **Max 40ms** recovery time after network topology change
- **Tape library with 2 drives and 48 LTO 3 tapes.**

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The Solution:

- IBM Power 6 servers running IBM AIX operating system
- Power VM for load separation
- Power HA for Telemetry System HA
- Oracle RAC for database HA
- Moxa Industrial Ethernet switches
- CISCO Catalyst switches and routers
- Brocade SAN switches
- IBM Disk Storage
- IBM Tape Storage
- Tivoli Storage Manager

The Result:

Adanto designed and developed HA clusters that have been continuously operational for last eight years. The clusters' design required minimum maintenance, for its auto healing feature flawlessly performed all necessary system's firmware upgrades, OS level upgrades, and software patches for the application.

OpenControl SCADA Network Architecture

Adanto Professional Services

"We help our clients - from start-ups to large enterprises - deliver **web-based, mobile & cloud-based** apps, accelerating time-to-market & improving the quality, usability and agility of their digital IT."

Michael Kinalski
CEO, Adanto Software LLC

Adanto Professional Services help organizations create sophisticated, enterprise-class software solutions and harness full potential of emerging technology trends to:

- **Improve delivery quality** across the application portfolio, from mobile to cloud to Web to packaged software, through standardized architectures and tools.

- **Increase predictability** through standardized confirmation and transition points, deliverable templates and workflows.

- **Optimize delivery cost** through an optimal mix of resources.

- **Enhance User Experience** with very latest mobile and web technologies.

Adanto Professional Services address unique challenges that every business or IT department is faced with today. It provides a full lifecycle of custom software development on the Java, .Net or Open Source platform, including broad Web and application development solutions and those enabling portal and content management.

Adanto Professional Services include overall project management, planning, requirements analysis, technical architecture, design, build, test, deployment post launch free support, and fee-based extended service.

We offer Java, Javascript, .Net/C#, C/C++, R, PHP, Python, Ruby, Perl, Pig, Hive, HBase, Spark, and other languages pervasively used in a wide range of technology-based solutions especially: BigData, mobile, UX/CX, cloud and Web.

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About Adanto

Adanto is an emerging global software services and solutions company, incorporated in Delaware, serving clients in the EU and the USA from its five global locations.

Combining vast experience with comprehensive capabilities across many technologies, industries and business functions, Adanto collaborates with clients to **accelerate their innovation** and help them become **high-performance digital businesses**.

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