CLOUD BASED SCADA

Removing Implementation and Deployment Barriers

Liam Kearns – Open Systems International, Inc.
SCADA

Traditional definition and application.
Supervisory Control And Data Acquisition (SCADA) systems are used to monitor and control field devices geographically dispersed over a large area. Devices include Remote Telemetry Units (RTUs), Intelligent Electronic Devices (IEDs), and Programmable Logic Controllers (PLCs), used to gather and manipulate field equipment such as switches and pumps. Information gathered can be used in analytics to find trends, anticipate maintenance, and provide operational insight.
SCADA TRADITIONAL SYSTEM

FIELD DEVICES

FIREWALL

SERVERS

WORKSTATIONS

DATA ACQUISITION

SYSTEM NETWORK
SCADA TRADITIONAL USERS

**SCADA ADMIN**
System administrator, designer, database manager, security analyst, etc.

**OPERATORS**
Controllers, maintenance, field crews, technicians, etc.

**CORPORATE**
Management, accounting, billing, planning, etc.
SCADA IMPLEMENTATION PRICING

- SCADA System Licensing Costs: 46%
- Implementation Services: 31%
- Hardware and 3rd Party Costs: 12%
- First year support costs: 11%

*Based on typical contracts for RECs*
CHALLENGES

Traditional deployment challenges.
CHALLENGES DIRECT COSTS

- Year One
- Year Two
- Year Three
- Year Four
- Year Five
- Year Six
- Year Seven

Yearly Cost
Accumulated Cost

$290K TOTAL

* Chart is not adjusted for inflation
CHALLENGES INDIRECT COSTS

PERSONNEL
SCADA Administrator/Engineer
$71K

EXPANSION
Platform migration
Additional functionality
Systems Integration

TRAINING
1st Party Software Training
3rd Party Software Training
Hardware Refreshes

Source: payscale.com

TRADITIONAL SCADA
CHALLENGES TOTAL COSTS

- Yearly Costs
- Accumulated Cost
- Indirect Costs

* Chart is not adjusted for inflation

$873K TOTAL

TRADITIONAL SCADA
CHALLENGES IMPLEMENTATION

**DEPLOYMENT TIME**
- 3-6 Months from start

**COMPLEXITY**
- Required system information
  - New technology

**STAFFING**
- New staff
  - Reorganize existing staff
CHALLENGES SECURITY

Customer Responsibilities

Server-side Security

Communication Security

System Patching

3rd Party Vulnerabilities

Antivirus Updates

Technical Service Bulletins

System stability

User Access

Password Management

File Security

System hardening

Integration security
CLOUDS
Defining the terms and fundamental ideas.
Cloud computing is a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction. (SP 800-145)
CLOUD COMPUTING TYPES

IaaS
Infrastructure as a Service

PaaS
Platform as a Service

SaaS
Software as a Service
01. PUBLIC
Open use, general public access, offsite, owned by a provider.

02. PRIVATE
Closed use, exclusive access, local or offsite.

03. HYBRID
Combination of system models.
CLOUD COMPUTING SCADA

FIELD DEVICES

DATA ACQUISITION

CLOUD

CLOUD CONNECTION

FIREWALL

SYSTEM NETWORK

WORKSTATIONS
CLOUD COMPUTING PRICING

- SCADA System Licensing Costs: 0%
- Implementation Services: 65%
- Hardware and 3rd Party Costs: 0%
- Subscription Costs: 35%

*Based on typical contracts for RECs*
SOLUTIONS
Leveraging the cloud to solve our problems.
SOLUTIONS INDIRECT COSTS

PERSONNEL
No additional staffing

EXPANSION
Handled by the provider

TRAINING
Provider responsibility
SOLUTIONS DIRECT COSTS

- Yearly Cost
- Accumulated Cost
- Indirect Costs

* Chart is not adjusted for inflation

$252K TOTAL
SOLUTIONS DIRECT COSTS

CLOUD SCADA vs TRADITIONAL SCADA

- Cloud
- Traditional

* Chart is not adjusted for inflation

$873K TOTAL

$252K TOTAL
CHALLENGES IMPLEMENTATION

DEPLOYMENT TIME
1-3 Months from start

COMPLEXITY
System configuration by provider

STAFFING
No new staffing or reorganization
CHALLENGES SECURITY

Provider Responsibilities

Server-side Security
Communication Security
System Patching
3rd Party Vulnerabilities
Antivirus Updates
Technical Service Bulletins
System stability
User Access
Password Management
File Security
System hardening
Integration security
SUMMARY

Bringing it all home.
CLOUD COMPUTING SUMMARY

FASTER

EASIER

CHEAPER
THANKS!