



ENERGY & UTILITIES INDUSTRY FOCUS



POWER UTILITY – ERP, CUSTOMER CARE & BILLING, EMS, MOBILITY

Client Overview:

- Leading Power Utility grows through 3 mergers requiring integration of ERP, Customer Care & Billing, EMS, Mobility, Big Data/Analytics, Cyber Security, Quality Assurance, and Technology Resource Fulfillment

Challenges / Key Objectives:

- Energy Management System (EMS) - Allow for hardware to be refreshed to mitigate EMS failures. Provide agility to meet ever-changing NERC Reliability standards
- Advance Metering Infrastructure (AMI) – Upgrade to bi-directional Smart Meters
- Meter Data Management (MDM PH1 & PH2) - Maximize the benefits provided by Advanced Metering Infrastructure (AMI) installations
- Improve operational efficiency in various areas including billing, revenue protection, outage management and customer service
- Oracle BI Apps: Enable analytics on the PeopleSoft ERP for Financials Modules as well as SCM Modules
- BI Workforce Management System (WMS): Combining WMS data with financial data for analytical reporting

Solution / Project Engagement:

- Application Services – ERP, App Dev/Integration and legacy support/migration
- Info Management – BI, analytics, dashboards, MDM and ETL
- IT Infrastructure – DB Admin, Professional Services, App Support
- Process & Governance – CIP, Environment & Go-Live Management, Testing Automation and Change Management

Technical Environment:

- Oracle ERP & Utilities / PeopleSoft / SCM
- PowerBI/OBIEE
- EMS/AMI/MDM Mainframe/UNIX/Oracle (transformation)
- Service Now

Benefits / Value to Customer:

- Consolidated customer care & billing platform
- Improved customer services & experience
- Enabled streamlined business & IT processes
- Reduced business risk & operations cost

MULTI-STATE POWER UTILITY - CYBER SECURITY

Client Overview:

- One of the nation's leading competitive energy providers with the industry's largest portfolio of electricity generation capacity and nationwide reach operating in 47 states, the District of Columbia and Canada

Challenges / Key Objectives:

- OTSI was selected to assist in developing and establishing a Smart Grid Cyber Security (SGCS) Program to ensure the client systems environment was secure to avoid risks, vulnerability and threats on their network

Solution / Project Engagement:

- System Development - Design, Architecture, Implementation, Integration and Testing
- Application and Hardware Infrastructure - Design, Support, Monitoring, Analysis and Reporting
- Processes - Risk Management/Mitigation and Plan of Action Plans, Policies, Procedures, Governance, Auditing, Situational & Incident Response Reporting
- Documentation - Playbooks, Run Books, Job Aids, Work Breakdown Structure, Integrated Master Plans, Contact List, Escalation Plans, Recall Plans, GOSP Model, Engineering Drawings, Asset & Document Management
- Penetration Testing - Insider and Outside Threats e.g., (AMI – Advanced Metering Infrastructure filed network components, and Smart Grid Environment)

Technical Environment:

- SAS, Microsoft SQL Server, Hortonworks Data Platform

Benefits / Value to Customer:

- Best practices service delivery
- Risk-Reward SLA Models
- Transition Methodology
- Resources Re-badge
- Cost Savings and Value Management
- Global Locations – Resources Anywhere

PUBLIC GAS & LNP UTILITY – ADVANCED ANALYTICS

Client Overview:

- Leading Gas, LNP, and Renewable energy provider in India

Challenges / Key Objectives:

- Lack of optimization & forecasting tool
- Lack of a single unified solution for different business units
- Accessing data from different locations
- No optimal product mix and polymer margins – increasing production cost

Solution / Project Engagement:

- Deployments of Analytics & Optimization solutions for all business segments, initially covering 3 areas of Petrochemical business- Production, Margin, and Price Optimization
- Performed requirement assessment, solution architecture & blueprint documentation
- Installation and configuration of SAS software components for Analytics and Optimization
- Design & execute ETL for existing data sources from SAP modules, analytics, and data visualization

Technical Environment:

- SAS Data Management with Standard Data Surveyor for SAP
- SAS Visual Analytics(VA), SAS Enterprise Miner with SAS Analytics Pro
- SAS O/R, SAS Access, SAS ETS Add-On

Benefits / Value to Customer:

- Firm orders are met with minimum possible slippage and cost
- Overall operating cost associated with the grade changeover is minimized by optimizing the transition time and cost, inventory cost, and operating cost
- Plant operation related constraints are minimized

MUNICIPAL GOVERNMENT – SMART CITIES CONTROLS

Client Overview:

- Municipal government needs Smart Cities capability for timely switch on/off and maintenance of the street lights

Challenges / Key Objectives:

- Switch ON and OFF automatically
- Street light fault detection
- Minimize power consumption
- Street light durability and maintenance
- Street light performance

Solution / Project Engagement:

- Implemented a controller-based solution to automatically switch on/off all the lights at the prescribed time
- Detect and send the data packets of faulty lights for analysis and maintenance scheduling.
- Implemented a remote monitoring system to analyze and provide the performance of all controllers and their durability

Technical Environment:

- Data Collection and Management - Microservices, Spring Boot, PostgreSQL, Vert.x, ExtJS
- DLMS or Device Language Message Specification (originally Distribution Line Message Specification)

Benefits / Value to Customer:

- Helps in energy-saving and management
- Reduce manual effort

POWER UTILITY – UTILITY ANAYTICS & BI

Client Overview:

- Multi-state power utility

Challenges / Key Objectives:

- Provide dashboards/reports to multiple utility divisions to monitor data and achieve near real-time analytics from various data sources
- Retrieve data from the TeraByte platform(data warehouse/data marts) in a timely manner while performing calculations, aggregation, and roll-up on the fly

Solution / Project Engagement:

- Developed around 110 dashboards which include executive and detailed reports
- Near Real-Time Dashboards - POWERBI on cloud
- Publish Once – The server dynamically filters data based on who's viewing
- Embed views in other web apps including SharePoint

Technical Environment:

- PowerBI / Cloud
- Microsoft SharePoint

Benefits / Value to Customer:

- Integrated and cloud-based BI & reporting
- Near-real-time data presentation
- Improved value from the Microsoft application stack

MUNICIPAL GOVERNMENT – PREPAID ENERGY METERING

Client Overview:

- Municipal government-owned utility wishes to automate pre-paid billing, payment processing and build an effective power monitoring system

Challenges / Key Objectives:

- Automated Bill generating system
- Auto disconnection if customer bill remains unpaid
- Power transmission capacity calculation
- Meter tampering/intrusion alerts

Solution / Project Engagement:

- Implemented a Head-End System with the following features:
- Collect the energy data periodically from all installed Prepaid Energy Meters and present it for billing calculation
- Implemented a solution to send a notification packet from the energy meter to the server when anyone tampers the meter.
- After repeated payment reminders, a command will be sent to the meter to turn off the power until cleared.
- Implemented a remote monitoring system to analyze and provide the performance of all meters and their durability
- Implemented Consumer Mobile Application for recharging and viewing bill and payment history details

Technical Environment:

- Native app development - Objective-C, Swift for iOS, and Java for Android
- Data Collection and Management - Microservices, Spring Boot, PostgreSQL, Vert. x
- AWS Cloud – EC2, ELB, RDS, SQS
- DLMS or Device Language Message Specification (originally Distribution Line Message Specification)

Benefits / Value to Customer:

- Real time monitoring and push notifications
- Accurate billing with an integrated payment gateway
- Clearance of overdue bill payment & service restoration



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