

## Industry

Software company providing residential smart meter networks for enhanced consumer use and utility reporting

## Solutions Addressed

- Massive data ingest and scalability
- Low latency processing
- Real-time data analysis
- Massive scalability for OLTP
- Right-now dynamic data personalization
- Interactive content delivery
- Large-scale audience content delivery
- Data visualization
- Data optimization

## Results

- Real-time monitoring of millions of sensor devices
- Sub-second decisions and action on data
- Power grid optimization
- Real-time consumer insight

## Using XPRESSmp™ for Smart Grid Sensor Monitoring and Control

### Business Requirements

- Continuously ingest and monitor electrical consumption data from residential “smart device” sensors (specifically associated with household HVAC systems, pool pumps, water heaters, and more)
- Trigger alerts and actionable events to automatically adjust device settings to conserve energy and lower costs based on this analysis
- Socket-based communication (sensor to system) via the utility company's wireless network

### The Story

The software company's challenge was to enable a large Texas utility company to offer customers an automated, energy-saving service that would monitor and adjust electrical consumption of common household devices like air conditioning systems and pool filtration pumps. This would give the utility an always-on view of the grid for resource optimization and adjustments. The company had been using an SQL server for database management, but the performance limitations of SQL constrained the required capabilities of real-time data ingest, analytics, and PUSH notifications for action. They were looking for a solution that would provide real-time sensor data ingest; perform sub-second processing and analysis; push specified/selected information back to the devices with instructions to self-regulate energy consumption; and send data to a data warehouse for business intelligence purposes.

XPRESSmp enables the company to receive data from all its device sensors at the required ingest speed. Super low-latency processing ensures that the utility company can monitor blocks (aggregated groups) of energy usage and receive alerts when usage associated with specific devices becomes unsustainably high. Alerts can be sent to selected groups to conserve energy (e.g.: stop the pool pump for a specified length of time).

Within one second of receiving the data, XPRESSmp processes, analyzes, and issues the appropriate alerts to the right recipients, including the utility's policy control application and the devices themselves. XPRESSmp also powers the company's real-time dashboards for visualization of the entire network by both end users and the utility company. Additionally, XPRESSmp keeps individual daily power consumption calculations current for post-processing analysis and business intelligence.

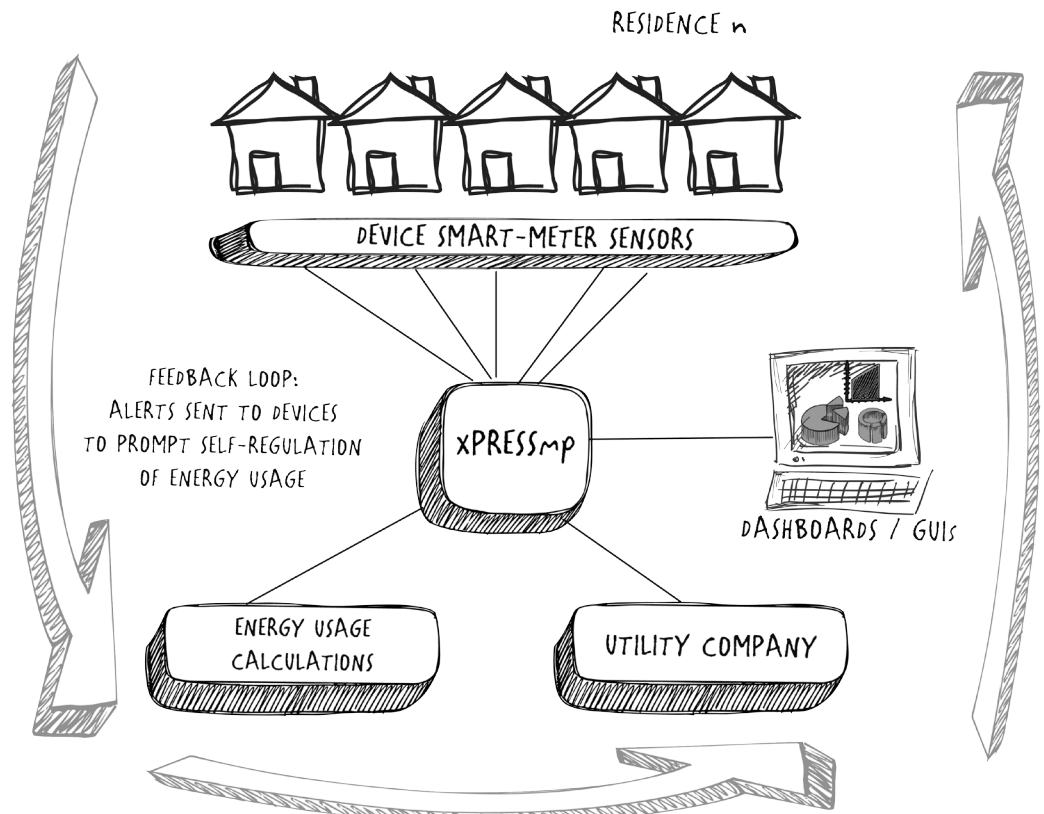
### XPRESSmp Use

- Horizontal scaling for millions of devices with real-time inbound data
- Real-time, automated transaction processing; sub-second alert/action response time
- Business analytics and reporting

## Xpressmp™ Capabilities

- + Accelerate.
- + Time-Critical.
- + Dynamic Data.

- Ability to ingest large volumes of data over a socket
- Data stream PUSH through SELECT-FUTURE continuous queries



## Results

- Real-time inbound monitoring of millions of sensor devices
- Sub-second decision making and automated action on incoming data
- Resource optimization across the electrical grid
- Analysis on aggregated or individual power consumption for real-time and historical insight

**uCIRRUS**

**uCIRRUS Corporation**

1510 Fashion Island Blvd., #380  
San Mateo, CA 94404

800.695.6021

[www.ucirrus.com](http://www.ucirrus.com)

**Xpressmp™: In-Memory Processing for Time-Critical Big Data. Only from uCIRRUS.**