250 million Smart Meters Rollout

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Sainath Bandhakavi

Sr. Solutions Architect – Utilities, Amazon Web Services

Functional areas in Smart metering rollout

Meter deployment planning, installation and activation

Billing using AMI reads for multiple tariff types

Automating connection changes using AMI reads

Potential fraud detection using alarms and events, and indirect analysis

Outage & PQ issues identification and filtering in near real-time

Device operations & maintenance (smart meters, Network devices)

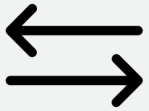
Advanced analytics use cases (near and non real-time) – alarms/ events, segmentation, fraud detection

Enable new services – prepayment, time-of-use, demand response

How does the complexity look like in functional areas

Tens of business processes undergoing change

Tens of business units involved



Change management within utility and for consumers

Changes that consumers will see (estimation methods, meter replacement etc.)

Transition management from conventional processes to new processes, asset ownership for new types of assets

Training needs across multiple utility functions,

Processes, devices and systems – connections, metering, billing, consumer care

Inventory handling across meter rollout and O&M processes

Smart meter testing procedures, Warehouse capacity, removed meters and new meters, forward planning

How does the complexity look like in tech areas

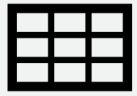
Tens of applications implemented and enhanced – new and existing

Tens of application integration interfaces and more than one integration method

Timelines management with dependencies between applications

Variable workloads and different performance levels for each application

Thousands to millions of near real-time meter alarms



Data Governance

New data sets and their ownership (meter images, accuracy data, location data etc.)

Terabytes of data collected – structured and unstructured

Increasing volume of smart meters installed, and with it the data volume

Collect and analyze huge amount of heterogeneous data`

Key technical considerations in Smart metering applications

Performance efficiency

Managing variable workloads and meeting performance requirements.

- Use serverless architectures
- Democratize advanced technologies and opt for managed services
- Use purpose built databases

Operational Excellence

Run workloads effectively with visibility into their operations, and improve supporting processes.

- Measure execution times of key AMI processes
- Make use of cloud native resource monitoring tools
- Use ‘pre-mortems’ to anticipate failures and create procedures to handle these

- Seconds/ minutes to execute a remote reconnection
- What if a reconnection command fails

Key technical considerations in Smart metering applications

Reliability

Ability of a work- load to perform its intended function correctly and consistently

- Use auto-scaling to cater to variable loads
- Define mechanisms to automatically recover from failure
- Scale horizontally to increase aggregate workload availability

- Higher processing load to run VEE in bulk
- Higher processing load to issue meter replacement work orders in bulk

Security

Protection of meter reads and associated data, and the resources managing data.

- Protect data in transit and at rest
- Apply security at multiple layers
- Enable traceability

Cost Optimization

Optimize cost of running AMI applications on cloud considering the trade-offs.

- Stop spending money on undifferentiated heavy lifting
- Adopt a consumption model

Thank you!