TECHNICIAN SAFETY AND CUSTOMER ENGAGEMENT WITH MOBILE WORKFORCE

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MLGW Location
ONE OF THE LARGEST 3 SERVICE UTILITIES IN THE UNITED STATES

<table>
<thead>
<tr>
<th>Service</th>
<th>Residential</th>
<th>Commercial</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELECTRIC</td>
<td>372K</td>
<td>46K</td>
</tr>
<tr>
<td>GAS</td>
<td>309K</td>
<td>26K</td>
</tr>
<tr>
<td>WATER</td>
<td>243K</td>
<td>24K</td>
</tr>
</tbody>
</table>
MOBILE DISPATCH

- 300 trucks equipped with rugged Toughbooks
- Areas include:
  - Customer Service
  - Revenue Protection
  - Meter Shops
  - Facility Locators
  - Trouble Shooters
MDSI SYSTEM HISTORY AND LIMITATIONS

MDSI MOBILE DISPATCH

• Went live in 2000 from paper
• Solid Application
• Toughbooks mounted in trucks
• Vendor made changes to the mobile application
• Costly to have vendor modify

WHAT’S MISSING

• Adding additional Business Units
• Go Paperless
• ESRI Integration
• Mobile away from trucks
• Create / Modify mobile workflows in house
• Field management for Foreman
SMART METER INSTALLS

Electric
388,227

Gas
270,405

209,963
Went into this large project needing more out of our mobile dispatch system

- Better customer engagement
- Customer notification of appointments
- Capture before, during and after pictures for audit
- Capture GPS location
- Additional information needed on service order but unable to modify mobile app
SMART METER INSPECTORS

• Inspectors and Surveyors are able to use a iPad or iPhone to work their orders
• Using the ESRI Collector application setup by GIS
• The work is available on the map to work and does not need to be dispatched
• The color of the premise dots determine the status of the work
• Applications in production are SmarMeter Surveyors, Trace out Inspectors, Gas Lead Inspectors and Atmospheric Corrosion Inspectors.
This plan concentrates on those functional areas within MLGW that will be impacted by the implementation of the SmartMeter project.

- Truck rolls have been reduced ~75%
- Create new job descriptions that allow one truck roll to a premise for multiple meter operations
- Create better workflows in mobile to capture more information in the field
- Combine dispatch locations into one location for better communication and streamline operations

Expected Outcomes

- First call resolution
- Reduce vehicle accidents
- Lower transportation costs
- Overtime/Shift Savings
- Reduction in utility theft
- Position reductions
- Better customer experience and communication
NEW MLGW MOBILE NETWORK

The new project required higher bandwidth, security and reliability
AT&T FIRSTNET CELLULAR NETWORK

• All mobile applications will run on a cellular network

• MLGW is in the process of moving our AT&T solution to a new AT&T FirstNet solution

• FirstNet is a first responders network allows MGLW to have priority communication over the general public

• FirstNet will give MLGW priority bandwidth and reliability during storms and disasters
SELECTED NEW MOBILE DISPATCH VENDOR

• Selected Clevest for our mobile dispatch replacement

  Provides solutions for:
  • Customer engagement
  • Field management
  • MLGW managed applications
  • ESRI Integration
  • Mobile away from the truck
Field Safety Benefits

• Providing field crews with up to date information and maps
• Ability to report incorrect map information in the field
• Dispatchers will have location of crews and technicians on Workspace
• Dispatchers can also setup geofences for at-risk areas when workers are entering/exiting an area
• Dispatchers will have a weather layer to inform technicians of bad conditions
• Technicians will have a help button and timer on the workbook to signal back to dispatch is there is a problem
• Technicians will have a premise history of hazardous situations.
• Ability to perform a pre-check on a vehicle before starting the day.
CUSTOMER ENGAGEMENT

- Allowing the technicians to carry the Toughbooks out of the truck will provide better customer service allowing the technician to have all of the information with them as they talk with the customer.
- Notify Customer on arrival times of technicians.
- It will allow them to take pictures of theft, meter issues or 811 issues.
MLGW MOBILE DISPATCH SOLUTION

Utilizing MWFM application, Workspce, Genisis, & Jaspersoft Report
MLGW MOBILE DISPATCH WORKFLOW

Completion and/Or Host Inquiry Process

Work Orders Received (Enroute, & Onsite Process)

Mobile Dispatch Application (Workbook)

MLGW Host Systems

Clevest Host System

Dispatcher Application (Workspace)
MLGW MOBILE DESIGN SCREENS (GENESIS)

• MLGW uses Genesis application that provides graphical interface to create the mobile dispatch workflow.
• It allows the user to create, edit, build new interface screens that are used in the Workbook & Workspace applications.
• Set up workflow and set rules and validations
• Publish screen to enduser.
MLGW DISPATCHER APPLICATION (WORKSPACE)

- MLGW Creating and Receiving Orders in Host Systems
  - CIS (Revenue Protection, Customer Service, Meter shop, etc....)
  - Cares (Troubleshooters)
  - TN811 (Locates)

- Orders Received in Clevest Host System
  - Soap Web Services

- Dispatching and monitoring process
  - Auto Assigned
  - Manually Assigned

- Dispatcher to field workers communication

- Jasper Reports and Dashboard
MLGW DISPATCHER WORKFLOW (WORKSPACE)

- Dispatcher Workspace Log in
- Workspace Views
- Workorder Assign
- View Assigned, Completed, Onsite, Enroute, etc..
- View W.O History, Breadcrumbs, Geofencing
- View GIS Assets & Attachments
- Run Reports & Dashboard
MLGW TECHNICIAN WORKFLOW (WORKBOOK)

• MLGW Order Received
  • Revenue Protection- iPhone
  • Troubleshooter- CF33
  • Facility Locator- CF33

• MLGW Work and Complete of Orders

• Assets and Order Map View

• Turn by Turn Direction

• Back Office Message

• Host Inquiry

• Shift Registry
MLGW CF-33 TECHNICIAN MAPPING WORKFLOW

- Log in MWFM
- View Assigned Orders
- Locate Orders on Maps
- Select Routing
- View Turn by Turn Direction
- Search & Locate GIS assets
MLGW CF-33 TECHNICIAN WORKFLOW

- View Order Information
- Tech Enroute / Onsite
- Completion form
- Electric Meter Remove
- Field Image Capture
- Completion & Submission
MLGW MWFM – HOST INQUIRY

- Technician to send Host Inquiry message to Host System
  - Select Inquiry Type
  - Select Work Order and send to Host
- Host System to send response back to Technician
  - Tech to make decision based on response
  - View historical host response
  - Exit Host Inquiry and/or Complete Work Order
MLGW REPORTING AND DASHBOARD TOOLS

- TIBCO Jaspersoft Studio is used to design and share reports & dashboards.

- Reports & Dashboards are viewed via MLGW Jasper Server or Clevest Workspace (Dispatcher).
About Clevest

Mission/Focus

• To help utilities deliver safe, reliable and superior services through innovative field solutions
• To provide software for mobile workforce management and smart grid operations
• 100% utility focused and owned (EIP Company)

Company FAQ

• Privately-held, launched in 2006
• 130+ employees worldwide
• Head office in Richmond, BC

- 220+ utility customers
- 85M+ consumers served
- 12 countries
- 10,000+ mobile users
- 26M smart meters deployed
- 250+ interfaces & integrations
- 25M meters serviced each month
- 1000+ dispatchers

Software connecting the mobile workforce
Mobile Workforce Management
- Appt. Booking, Dispatch, Scheduling
- Service Orders
- Maintenance Work
- Line Patrol
- Long-cycle Construction Work
- Pole Inspections
- Locates
- Navigation and routing

Mobile GIS
- Map & GIS Layers
- Network Tracing
- Field Asset Edits
- Redlining

Meter Reading
- Walk-By & Drive-By
- Interrogation & Reprogramming

Location Solutions
- Vehicle/Worker Locations
- Driver / Vehicle Behavior
- Engine Diagnostics
- Vehicle Inspection

Smart Grid Deployment
- AMI and MDMS integrations
- Smart meter exchange
- Mobile inventory management

Software connecting the mobile workforce
Single Mobile Platform for All Types of Field Work

**Operations/Outages**
- Outage restoration
- Switch orders
- Damage assessment
- Mutual aid
- Vegetation management
- Complex / long cycle orders

**Meter Services**
- Connect, disconnect, reconnect
- Collections
- Meter exchange
- Meter investigates
- General service orders
- Revenue protection

**Network Assessment**
- Surveys
- Inspections
- Disconnects / relights

**Smart Network Deployment**
- Project planning and tracking
- Smart meter installation
- Smart thermostat installation
- Networked streetlight installation

Utility field worker
Deployment vendor
3rd party contractor

Software connecting the mobile workforce
Pre-Integrated Mobile GIS

- Basemaps
- GIS Layers
- Network Tracing
- Field Asset Edits
- Redlining
- Seamless online and offline support
Pre-Integrated AVL

- GPS Position Data
- GO9 Modem (Plug-and-Play)
- Digital Inputs
- OBD-II
- JBUS
- Engine Diagnostics
- Wireless Network

OR

Driver ID via WorkBook Shift Registry Login or NFC Tap
Extending the Platform to Contractors

- Utilities are increasingly bringing their contractors into the fold and deploying various contractor solutions
- Clevest offers several options for contractor enablement:

1. Worker location solutions
2. Partial MWFM enablement
3. Full MWFM enablement
MLGW FUTURE APPLICATIONS

The Clevest application will allow MLGW to create and modify processes as needed.

• Customer Metering
• Lead Pipe Inspections
• Street Lights
• Diversion
• Customer Communication
THANK YOU