AquaWeb: Puerto Rico’s Aqueduct and Sewer Authority Portal for Business Intelligence

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Our Story

- PRASA’s Profile & Vision
- AquaWeb 1 & 2
- Telemetry Integration
- AquaWeb Personalization
- AquaWeb Tools
- Lessons Learned
- Where do we go from here
The Puerto Rico Aqueduct and Sewer Authority

- PRASA is the sole provider of water and waste water services for the island of Puerto Rico
- 5 autonomous operating regions with 1.2 million customers.
PRASA’s “Patients”

- PRASA’s “Patients” are its Facilities
  - Lack of coordination across Op Areas
  - Lack of visualization tool
  - Different Systems in different regions

- AquaWeb heals the Illness
  - Analyze & troubleshoot daily operations
  - Regional and island-wide scale.
  - Proactive monitoring of systems
  - Improved response time
History
Technology Integration Program

• Robust web-based application
• Sound geographical information systems
• Telemetry integration
• Facilitate daily decision making.
History
AquaWeb

- Phase 1 (April – June 2009)
  - GIS proof of concept
- Phase 2 (July 2009 – June 2011)
  - Formed Hydraulic Modeling and GIS teams
  - (AquaWeb v.1 Development)
- Phase 3 (July 2011 – June 2012)
  - GIS Training/Data Maintenance, SDE Server
  - Systems Integration, AquaWeb 1
- Phase 4 (July 2012 – June 2013)
  - Program Outreach, Communications, GIS Data Enhancement, AquaWeb 2
- Phase 5 (June 2013-June 2014)
  - Application Development and Telemetry Integration, GIS Data Maintenance, ArcGIS Server Upgrade Hosting Server Upgrade, User and Technical Documentation
AquaWeb 1.0 (2012)

- Proof of concept Development
- Visualization of GIS Data
- Integration of Telemetry Data
- ArcGIS Server 10.0
- ArcGIS Flex API
### Challenges Turned into Actions

<table>
<thead>
<tr>
<th>Challenges</th>
<th>Actions</th>
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<tbody>
<tr>
<td>• Limited communication with PRASA IT Dept.</td>
<td>• Frequent communication and recurrent meetings</td>
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<td>• Acceptance of AquaWeb by users to achieve project continuity</td>
<td>• Visiting the users and making requests into reality</td>
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<td>• Learning from the bruises</td>
<td>• Changes in our development team/ Challenging– use of FogBugz</td>
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<td>• Integrating data, consultants</td>
<td>• Integrating disparate data into the system</td>
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*AquaWeb Portal*
AquaWeb 2.0 (2013)

- Full System Upgrade Visualization Tool for PRASA
  - Hardware
  - Software
    - ArcGIS for Server 10.2
    - Javascript API 3.8
- Redesign UI
- Multiplatform compatibility and functionality
- Visualization Tool for PRASA
- Miscellaneous tools for data analysis
  - Find Coordinates and Addresses and Data
  - High Quality Printing (Multiple Sizes and Options)
  - Integration with other Platforms
    - Telemetry Reporting
Telemetry Integration

PRASA GIS

PRASA Users

AquaWeb

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AquaWeb Portal
AquaWeb 2.0 Telemetry
AquaWeb 2.0 Personalization

• Carrying MXD functionality into the web
• Default configuration for all personalization features

Users can save:
• Maps - Layer configurations
• Places - Areas of Interest
• Telemetry - Assets, Data Filters, Alarms, Telemetry Ticker
• Advanced Queries – SQL performed in the Advanced Query Tool.
AquaWeb 2.0 Personalization
AquaWeb Mobile v.1

- Friendly User Interface
- Decision Making in the field
- AquaWeb Mobile v.2 (Fall 2014)
  - Telemetry Integration
  - Personalization
Where we are & Where we are headed

Where we are:

- Web-based UI
  - On/Off site monitoring
  - No need be in domain or VPN
- Integration of Separate Systems
  - GIS
  - Telemetry
  - Document Management

Where we are headed:

- AquaWeb Mobile V2
  - Telemetry Integration
  - Personalization
- AquaWeb Enhancements:
  - Document Upload Tool
  - UI Improvements for Telemetry
  - New Data Filters
  - New Telemetry Assets
Muchas Gracias!

Néstor M. Berríos Hernández, P.E., M.E.C.E.
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