The New CityIQ
– City Information Query –

Redeveloping the GIS Viewer Application

CityIQ

with ArcGIS Server & Web Services
City of Bellingham, Washington, USA

Population: 75,000
Mapping area: 70 square miles
Employees: ~850
In the Beginning...
- Developed in 2000 – 2004
- Visual Basic 6 & Map Objects
- Intended for less than 20 installations

Now
- Used by over 250 city staff
- All city departments
- “Mission Critical Application”
CityIQ Existing Application

Collection of information systems linked to GIS

- Property owner (Assessor)
- City utilities - water, sewer and storm
- Utility billing
- Administrative – encumbrances & special zones
- Public Works projects and documents
- Subdivision documents
- Survey record documents
Why Upgrade?

- Not built for this many users
- Very slow to start up
- Doesn’t work in the field
- Map look of MapObjects
- Doesn’t take advantage or SDE or geodatabases
- Requires numerous update processes
- Is not available to the public
Requirements Gathering

Survey to users
- What they liked / didn’t like
- What they used
- What needed to be added
- What frustrated them

Survey Results
- To slow, especially at startup
- Cartographically challenged
- Want more info sources & map layers
- Easier searching
- Available in the field
- On the web site
Requirements...

- **First and foremost**
  
The new application must (eventually) do everything the exiting application does.
Things the Users Wanted

- The Google look...
  - Quick Map Buttons
  - Cartography
  - Expandable Map Window
Things the Users Wanted

Filter Results

1. Acer V173b 17-Inch LCD Monitor by Acer
   **Buy new:** $104.50
   **Used & new from $57.99**
   In stock. Processing takes an additional 1 to 4 days.
   Electronics: See all 9,530 items

2. Acer V233-WBD 22" Widescreen TFT LCD Monitor (Black) by Acer
   **Buy new:** $168.85
   **Used & new from $107.17**
   In Stock
   Electronics: See all 9,530 items

3. eMachines E17T6W 17" Widescreen LCD Monitor by eMachines
   **Buy new:** $229.99
   **Used & new from $129.99**
   Usually ships in 1 to 3 weeks
   Electronics: See all 9,538 items

4. Samsung SyncMaster 943BWX-TAA 19" LCD Monitor by Samsung
   **Buy new:** $120.99
   **Used & new from $129.99**
   In Stock
   Electronics: See all 9,538 items

5. AOC 919SW-1 19" Widescreen LCD Monitor by AOC/BPI
   **Buy new:** $142.90
   **Used & new from $147.90**
   In Stock
   Electronics: See all 9,538 items

6. Acer X193WB - LCD display - TFT - 19"- widescreen - 1440 x 900 / 75 Hz 0.284 mm - VGA - black by Acer
   **Buy new:** $119.99
   **Used & new from $119.99**
   In Stock
   Electronics: See all 9,530 items
Things the Users Wanted

- Smart Search
Expandable Map Window
Expandable Map Window
Quick Map Buttons
Quick Map Buttons
Quick Map Buttons
Filter Results

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Smart Search
General Development Plan

- Use web services
- Use map services
- Support OS and application upgrades
- Common development platform
- JavaScript Client
- C# for Web Services
- Modular in nature
- Flexible to develop and customize
- Easy to add modules or map services
Service Oriented Architecture
Map Services

- Data query/selection using REST
- All map services cached
- Cache is updated daily based on modified features
Web Services

- Data resides in enterprise system
- Views and stored procedures are built to standardize data
- Web Service built with C#
Module = Location + Data Service

- Module renders & queries data
  - Map Service
  - Data Service
- Map service defined through
  - Geocoding Services
  - Mapped features
- Data tied through
  - Unique ID
  - Spatial Relationship
Flexible modular design
Agile Development Team

- City/Consultant Team
- Consultant
  - Project manager
  - Two developers
- City
  - Project manger
  - Developer
  - GIS analyst
Agile Development Process

- Solid task/requirement definition
- Status update meetings twice weekly
- Collaborative development
- Pair programming
- Work Tracking System available to all project team members
- Continuous integration
Development Process

Beta testing team
- From multiple departments
- Weekly schedule
- New updates
- Weekly meeting
  - Review updates
  - Discuss/prioritize next steps
  - Brainstorm future functionality
Special Acknowledgements

City of Bellingham Team

- Don Burdick, Project Manager
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Thank You

Questions/Answers