mappingcenter.esri.com
Poll Maps: Intro

Jim Herries
The Plan

• Intro
• Super Bowl FanMap
• Basketball FanMap
• Earth Day PollMap
• Configuring the PollMap Template

Super Bowl  Basketball  Earth Day
8 Weeks  2 Weeks  1 Week
Reviews

“This [infographic] created by the mapping team at ESRI, is pretty great…” Cliff Kuang, Co.Design

“OK, officially obsessed with this map: http://bit.ly/ginFke; reminds me of the Dooley/Muehlenhaus UFO sighting symbolization from NACIS 2010” @rothzilla Robert Roth

“Thank you for creating an online map that has some fun in it.”

“This is really neat technology. Is this available for commercial use? I could see many applications for business.” Bill Warneke, Malnove Holding Company

“Will be a very nice lead-in for students and the general public to start thinking about the power of maps and GIS, even after the game is over (and the Cheese Floweth).”

“As a promotional device the fan map is a great idea. Strategically, would that they had launched it a little earlier.” Paul Pfeffer, YourPublicMedia.org
Hallway Conversations

- How do people represent their opinions?

- Often opinions are represented on the map at a scale and aggregation level convenient to the database.

- Can the map itself encourage participation through better representation?
The FanMap/PollMap Project

• Long term goal: a template that allows people to put their opinions on the map

• Short term goal: build something for a specific event

• What kind of map and application would encourage people to vote on a topic?

• Can it be something they would pass along to others?
Keeping it Simple

- simple
- compelling content
- few moving parts
- deadlines
- realistic scope
- thrash the requirements
- deliverables
- ease of use
- software options
- hardware options
Stated Objectives

- Limited time (schedule driven)
- Find the breaking point of the servers, and adjust
- Full cartographic freedom – no holds barred.
FanMap: Super Bowl Edition

Alex Yule, Mamata Akella
Building a Team

Photo credit: americanistadeciapas @ flickr
Building a Team

- Customer (Charlie Frye)
- Lead Developer (Alex Yule)
- Project Manager/Data Guru (Jim Herries)
- Cartographer/Designer (Mamata Akella)
- Sysadmin (Kenny Ling)
- Friends for testing, UI advice, moral support (Mapping Center Team & Co.)
Conceptual Planning

- Audience: General Public (sports fans)
- Functionality:
  - Vote submission
  - Vote display
  - Vote reporting
  - Geolocation
- Look and feel: Dark, minimalist slate basemap with slick UI

Superbowl App

Features

- Reporting on Superbowl-related spending, the US
  - Food
  - Electronics
  - Alcohol
- VSIs by Zip (w/ geolocation)
- Survey
  - Who's going to win?
  - Other VSIs (sex, beer, pets, etc.)
- Cookie
- Analysis
  - Clusters
  - Recalculate at intervals

"Representing 92374 for Pittsburgh, claim yours!"
"I just claimed 92374 for Pittsburgh. We're up to 62%, claim yours now!"
- Twitter tracking
Super Bowl FanMap: Conceptual Planning

- Audience: General Public (sports fans)
- Functionality:
  - Vote submission
  - Vote display
  - Vote reporting
  - Geolocation
- Look and feel: Dark, minimalist slate basemap with slick UI
- Platform: Flex
- User load: Low with slight potential for virality
- Deployment target: Single rack server
Super Bowl FanMap: Production
Super Bowl FanMap: Aesthetics

Mamata Akella
Super Bowl FanMap: Basemap Design

- Less is more
  - Features
  - Labels
  - Color
- Supports better visualization of thematic content
Super Bowl FanMap: “Map Sandwich”

• How it works
  - The ‘basemap’ is split into two map services:
    - Reference (top)
    - Base (bottom)
  - Combined with thematic content (middle)
    - Client-side Votes layer
Super Bowl FanMap: Special Effects

- Label hierarchy
  - Cities with participating teams highest

Participating city
Large city
Medium city
Small city
Super Bowl FanMap: Special Effects

- Projection
  - Winkel-Tripel
  - Modified central meridian
Super Bowl FanMap Production: Web Client
FanMap: **SUPER BOWL** Edition

**Welcome!**
You are in Packers Territory!
Out of 12387 votes in the current map view there are 4943 votes for the Steelers and 9044 votes for the Packers.
Super Bowl FanMap: Architecture

Web/Map Server

- Basemap
- Application
- Feature Service
- SDE
- GDB

Client

- Voting Logic
- Vote Symbolization
- Summarization
Super Bowl FanMap: Vote Symbology

• Symbolized in the client
• Color
  - Classed, based on team colors
  - Transparent!
• Size
  - Number of total votes
• Outline
  - Better visibility for overlapping symbols
Super Bowl FanMap: Tech Vocab

- **SDE**
  - Spatially-enables an RDBMS such as Microsoft SQL Server and enables access from ArcGIS clients
  - Required for publishing editing-enabled services

- **FeatureService**
  - Type of data service that allows client to access and edit features
  - Allows editing if used with a FeatureLayer and ArcSDE
VIRAL: A nice problem to have

Sports Illustrated:
Super Bowl FanMap: Architectural Issues

- High Server Load
  - Slow response time for app, maps
- High Client Load
  - High number of features result in slow drawing, panning
  - UI lockup during vote summarization
Super Bowl FanMap Production: Vote Collisions

Photo credit: viriyincy @ flickr
Basketball FanMap: Demo

Alex Yule, Mamata Akella, Kenny Ling
Conceptual Planning

- **Audience:** General Public (sports fans)
- **Functionality:**
  - Same as Super Bowl app
  - Configurability
- **Look and feel:** Dark, minimalist slate basemap with slick UI
- **Existing codebase:** Super Bowl FanMap
- **Platform:** Javascript
- **User load:** Moderate with potential for large viral spikes
  - 10 concurrent users
- **Deployment target:** 4-tier Amazon cloud
Basketball FanMap

- Architecture
- Production
  - Prototyping
  - Building
  - Designing
- Deployment
Basketball FanMap: Architecture

- Client
  - Web/Map Server
    - Basemap
    - App
    - Feature Service
    - SDE
    - GDB
  - Voting
  - Vote Symbolization
  - Summarization
- Load Balancer
- Web/Map Servers
  - Maps
  - App
- GP Server
  - Summarization
  - Voting
Basketball FanMap: Architecture

- Multi-tier architecture

- SDE GDB
- Web/Map Servers
  - Maps
  - App
- Load Balancer
- GP Server
  - Summarization
  - Voting
## Basketball FanMap: Production – Server-side!

<table>
<thead>
<tr>
<th></th>
<th>Super Bowl</th>
<th>Basketball</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vote Symbology</td>
<td>FeatureLayer</td>
<td>Dynamic Map Service</td>
</tr>
<tr>
<td>Voting</td>
<td>FeatureService</td>
<td>Geoprocessing</td>
</tr>
<tr>
<td>Summarization</td>
<td>Client</td>
<td>Geoprocessing</td>
</tr>
</tbody>
</table>

Server / Client
FanMap Production: Prototyping the UI
FanMap Production: Prototyping the UI
Basketball FanMap Prototyping: Voting

- Start with the highest risk functionality (voting)
  - Get that working, then move on
1. Mock out steps for vote service
Basketball FanMap Prototyping: Voting Service

Insert Cursor (Votes)

Insert new row with all vote data:
User ID, DateTime, Location, Votes

Update Cursor (Places)

where locationfield == Location
for vote in Votes: votefield += 1

SDE GDB

Votes
Places
Basketball FanMap Prototyping: Voting

- Start with the highest risk functionality (voting)
  - Get that working, then move on
1. Mock out steps for vote service
2. Test each step in ArcMap
3. Put steps together into script
4. Test in ArcMap as script tool
5. Publish and test as GP service
6. Integrate into App
Basketball FanMap Prototyping: Summarization

Inputs

- **Extent**
  - Select Features
    - Select all features in Extent with at least some votes for these teams

- **Fields (Teams)**
  - Construct Stats String
    - Construct summary_stats String so we get SUM for each field

- **Summary Stats**
  - Get SUM of each field in Selected Features

- **Output Table**
  - Stats

Summary Stats

Output Table

Stats

2951 votes in this area

Enter postal code or city  Find
Basketball FanMap Aesthetics

Mamata Akella
Basketball FanMap: “Map Sandwich”

- How it works
  - The ‘basemap’ is split into two map services:
    - Reference (top)
    - Base (bottom)
  - Combined with thematic content
    - Votes (middle)
Basketball FanMap: Vote Symbology Basics

- **Color**
  - Based on each university’s team colors
  - Gray = tied

- **Size**
  - Total number of votes

- **Outline**
  - Better visibility for overlapping symbols
Basketball FanMap: Vote Symbology Basics

- Quantities > Graduated Symbols
Basketball FanMap: Vote Symbology Specifics
Basketball FanMap: Vote Symbology Specifics
Basketball FanMap: Vote Symbology Specifics

- Minimum Symbol Size
  - Non integer
  - Better rendering
Basketball FanMap: Vote Symbology Specifics

- Vote symbology
  - Multi-scale
  - Varied by time period
ITERATE!
ITERATE!
Basketball FanMap Deployment

Kenny Ling
FanMap – Deployment/Architecture

- **Why use it?**
  - Amazon Machine Images (AMIs)
    - No need for new hardware requests or software installation
    - Start up new machines or backup
  - Data portability+reliability
    - Volumes
    - Snapshots
  - Deployment
    - Higher configuration machines
    - Machine replicas
FanMap – Deployment/Architecture

• Replicating your servers
  - Updating services
  - Load balancing
  - Failsafe in case Amazon servers in one region goes down

• Monitoring your services
  - Set up Performance Monitor logs
  - Track performance in Task Manager
FanMap – Deployment/Architecture

- Things to be aware of:
  - Instances are inaccessible whilst creating images
  - Transferring your cache to the cloud may take a long time
    - Option: Cache in the cloud
  - Plan security settings/groups in advance
    - Security groups cannot be changed once instance is started
FanMap – Deployment/Architecture

Security Group

Web/Map Servers
- Maps
- App

GP Server
- Summarization
- Voting

Load Balancer

SDE GDB
Part II: Using the PollMap Template

Jim Herries
FanMap → PollMap: Birth of a Template

PollMap Application Template for ArcGIS 10

What’s Included

- Application source code
- Geoprocessing source code
- Map service MXDs
- Data for postal codes in the U.S. and Canada
- URLs to basemaps you can use during development
- Simple documentation

Earth Day PollMap: the FanMap Goes Green!

Super Bowl | Basketball | Earth Day
---|---|---
8 Weeks | 2 Weeks | 1 Week
Download the PollMap Template

Search Results

3 results for 'pollmap'

PollMap Application Template for ArcGIS 10
This PollMap Application allows you to capture and map public opinion on any issue or topic you configure. It encourages participation through a user experience that focuses on rich visualizations.

Earth Day PollMap
Users are asked to invest $100 among seven environmental issues. Results are displayed cumulatively on a world map.

The 2011 NCAA College Basketball Championship Series
Who do you want to win?

Related Searches
Find items published by Esri related to “pollmap”
Find groups related to “pollmap”
Download the PollMap Template

- Download .ZIP file
- Unzip to a convenient folder
- Read the “Getting Started” document
Copy Application folder contents

- Open the Application folder
- Copy PollMap folder over to c:/inetpub/wwwroot (or equivalent)
Set up your question first in VoteWindow.html

- Getting the question right takes iteration
- This template is best for multiple A vs. B types of questions
Set up choices in the config.js file

- Simple choices
Set up maps and services in the config.js file

- Follow the Getting Started document

```javascript
var config = {
    ... // Code from the config.js file
```

Sample from Ireland

Good example of someone taking the template, then customizing it further.
Sample from Ireland
Wrap-up

• Fun project
• Tapped into something
• Touched on many things:
  - Cartography
  - User experience
  - Intelligent maps
  - Social media interaction
  - Geoprocessing services
  - Cloud
  - Flex and JavaScript

• A team to pull it together, under deadline
Thank You!

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