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Using ‘Workflow Modeling’ for Purpose Built Web GIS Solutions

Scott Stafford-Veale

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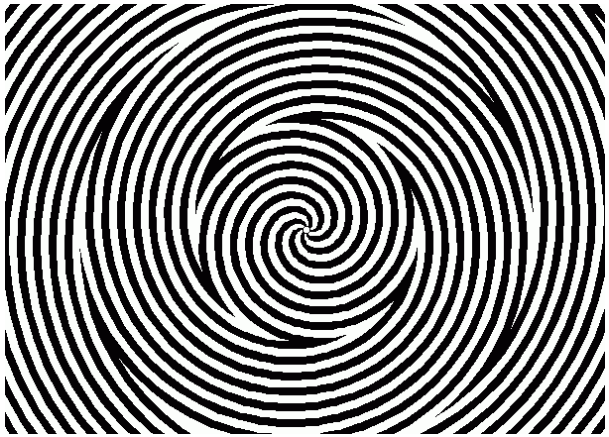
Latitude Geographics®

Let’s go back in time……



An short historical view of Web-GIS

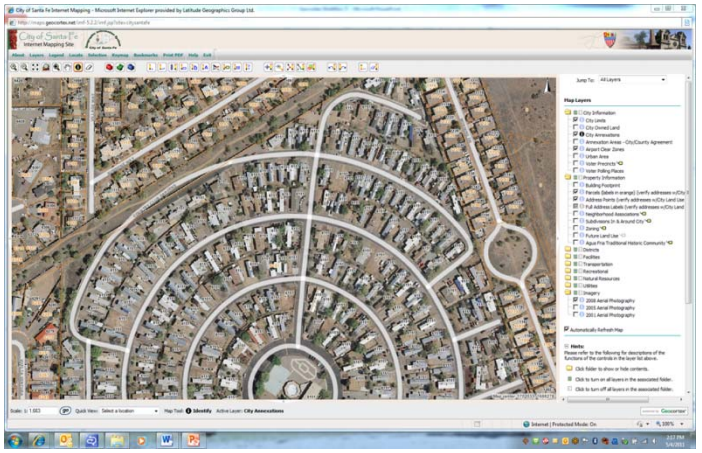
“Web-GIS” Approach

- Early 2000s, Map Servers arrive…..
  - Esri’s ArcIMS (anybody remember ArcView IMS or MapObjects IMS?)
  - MapGuide, GeoMedia
  - UMM Mapserver
  - etc.

“Let’s put desktop GIS apps to the web!”

… *Same geocentric paradigm just a different delivery architecture*

“Web-GIS” Approach



‘ArcView on the Web’…..
Not that there’s anything wrong with that

The GIS-centric Model for Deploying Web-GIS

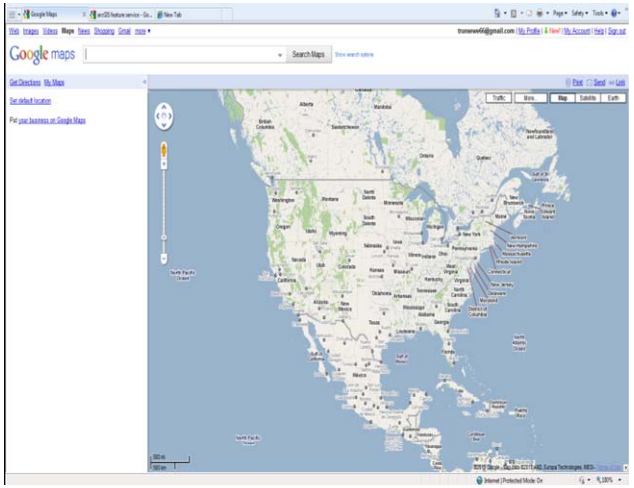
- Esri's HTML Viewer
- Geocortex IMF (ArcIMS based)
- Web ADF (ArcGIS Server)

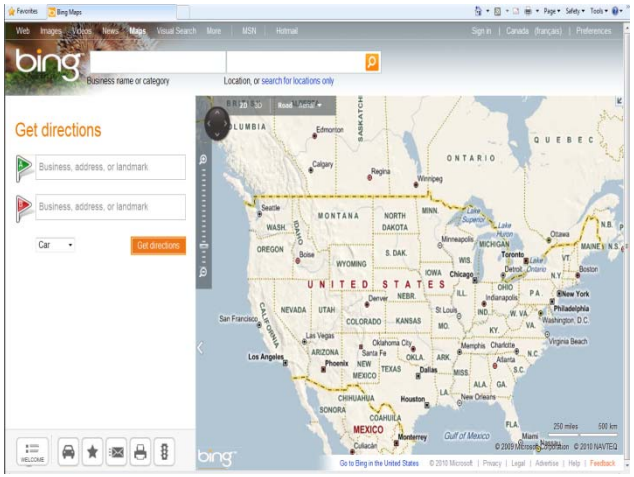
Nobody wanted to skimp on…..
"APPLICATION FLAIR"!

Loads of functionality…
Layers everywhere… nested, visible, invisible, active and Buttons, tools and icons galore….

Web 2.0 Arrives – Consumer Maps

- Google & Bing





- End user experience improves
- User expectations change
- Simple, Faster!
- Intuitive tools and features
- Users start to expect the same experience in a web-GIS

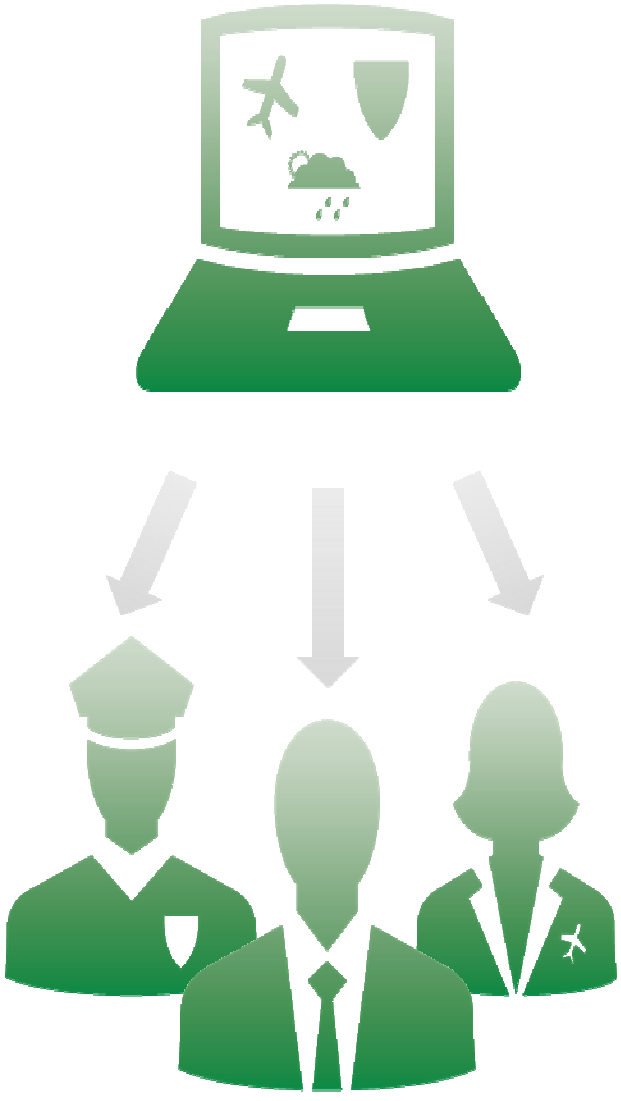
Web 2.0 Arrives – Consumer Maps

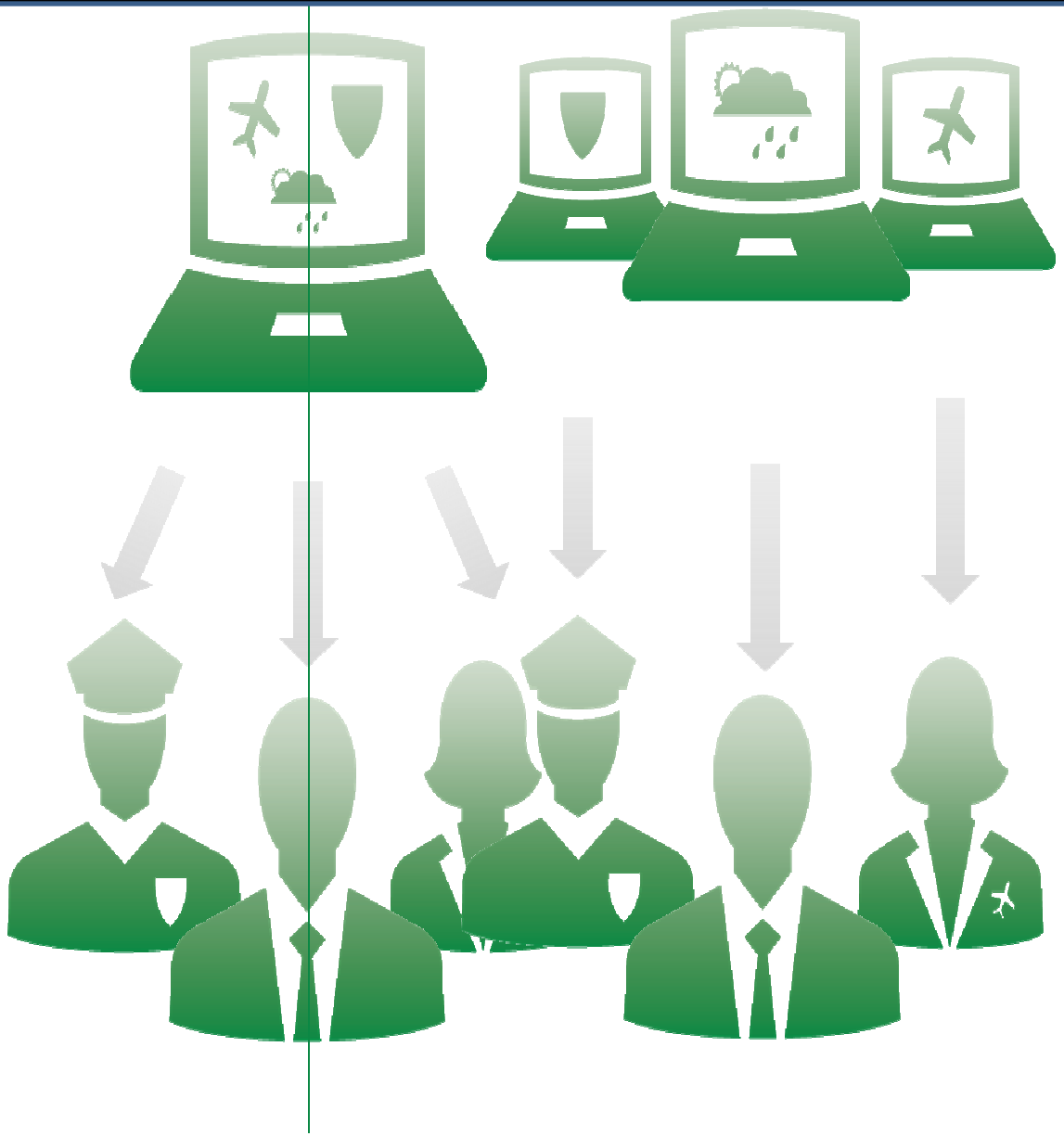
A revolution occurred at Web 2.0…..

But your users still need more

How do we continue to evolve the web-GIS deployment model?

Should we do things the same way we did them with ArcIMS?





Deploying web-based Spatial Applications

- Rich Web GIS Viewers
  - Implemented using configurable .NET, Flex or Silverlight based template viewers

    (primarily internal users?)

AND / OR

- Purpose-specific, simple apps
  - Using lightweight Silverlight, Flex or JavaScript APIs and **Workflow Modeling**

    (internal and external users)

Workflow Modeling can fundamentally change the way administrators and developers design, deploy, and manage spatial applications and how we interact with spatial data.

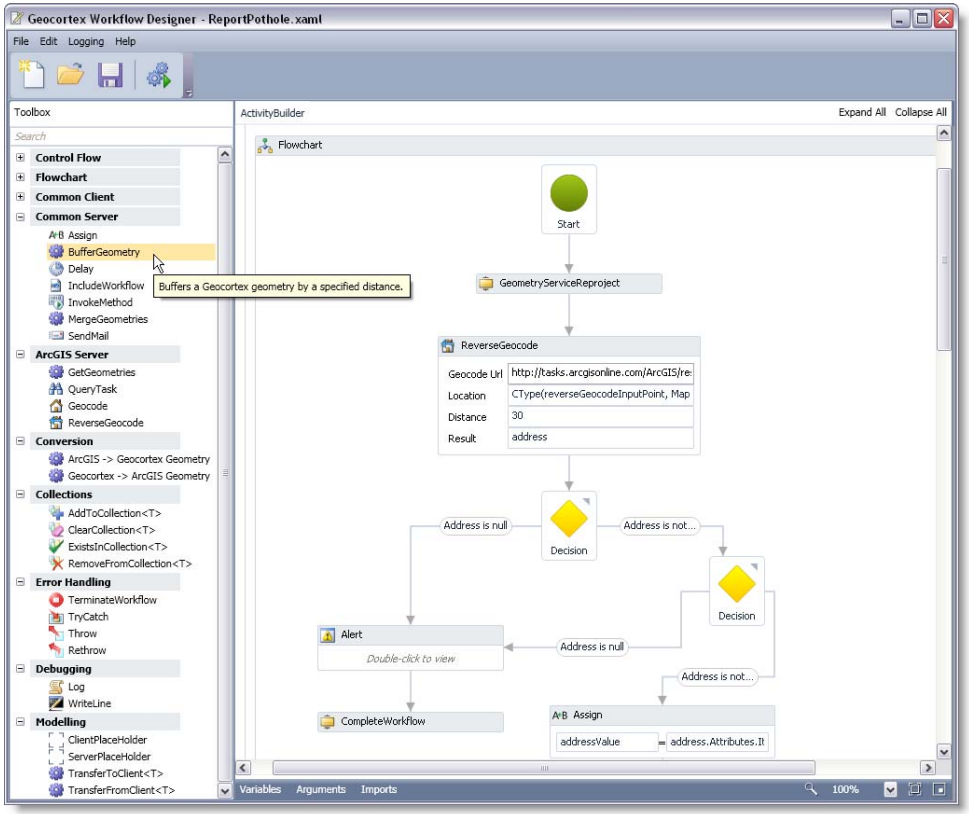
What is a Workflow?

- An automated, interactive process
- A series of “activities” chained together to accomplish a goal
- Includes:
  - Client activities which interact with the user
  - Server activities which automate tasks
  - Plumbing between client and server activities

Geocortex Workflow Designer

Using the desktop **Workflow Designer**, administrators can chain together sets of activities (small units of work) which comprise a workflow.

- Reads/Writes Workflow files
- Drag and drop
- Powerful toolbox
- Simulator to trial and test workflows
- Supports custom activities
- Build forms on the fly



Why Workflow? Why Now?

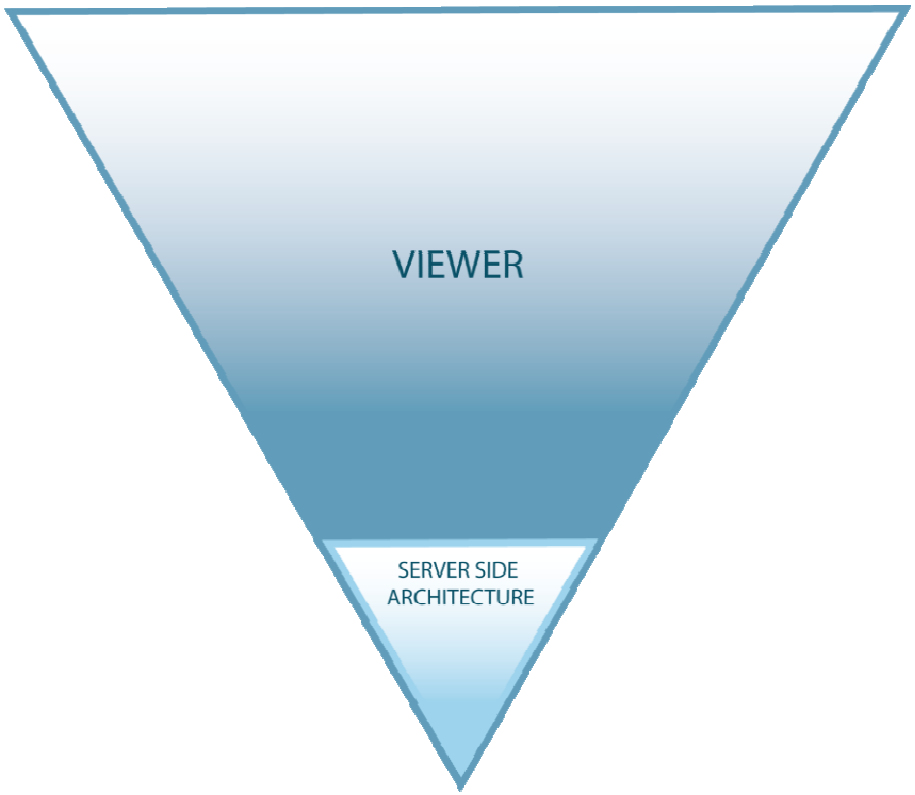
- **Maturing technology**
- **Maturing users and use cases**
- **GIS pushed deeper into the organization**
- **Routine Integration with other Systems**

… GIS apps used by non-GIS users

What does a modern web-GIS App Look Like?

ANSWER #1

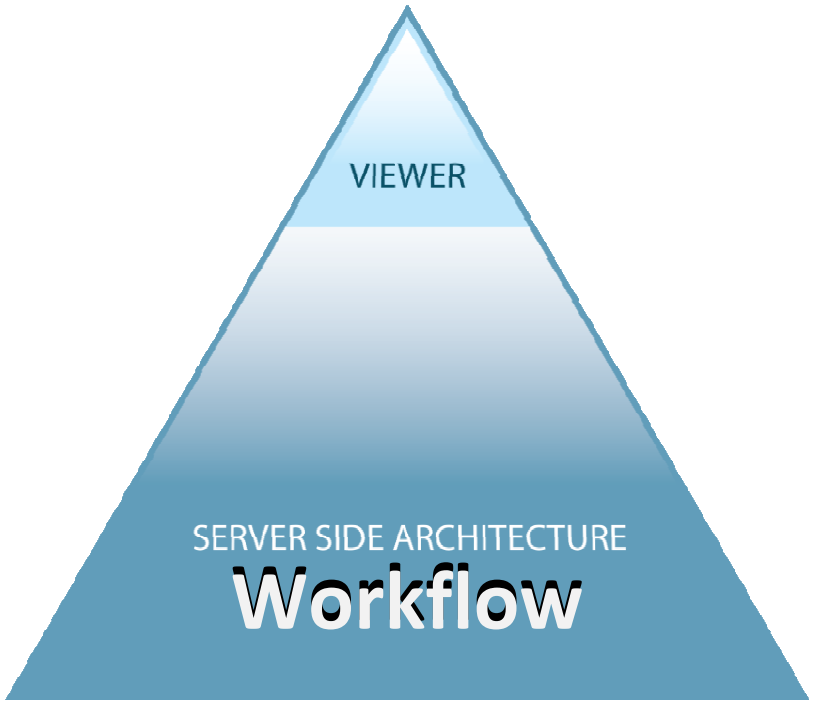
A Rich, ‘Thick’ VIEWER with impressive browser based functionality.



What does a modern web-GIS App Look Like?

ANSWER #2

A nimble, lightweight purpose specific applications that automates spatial and non-spatial business processes – through Workflow.



Geocortex Workflow

The majority of business processes involving GIS operations can be modeled, streamlined and automated via workflows.

Does the business process…….

•Require tasks which are done routinely by an individual multiple times per day?

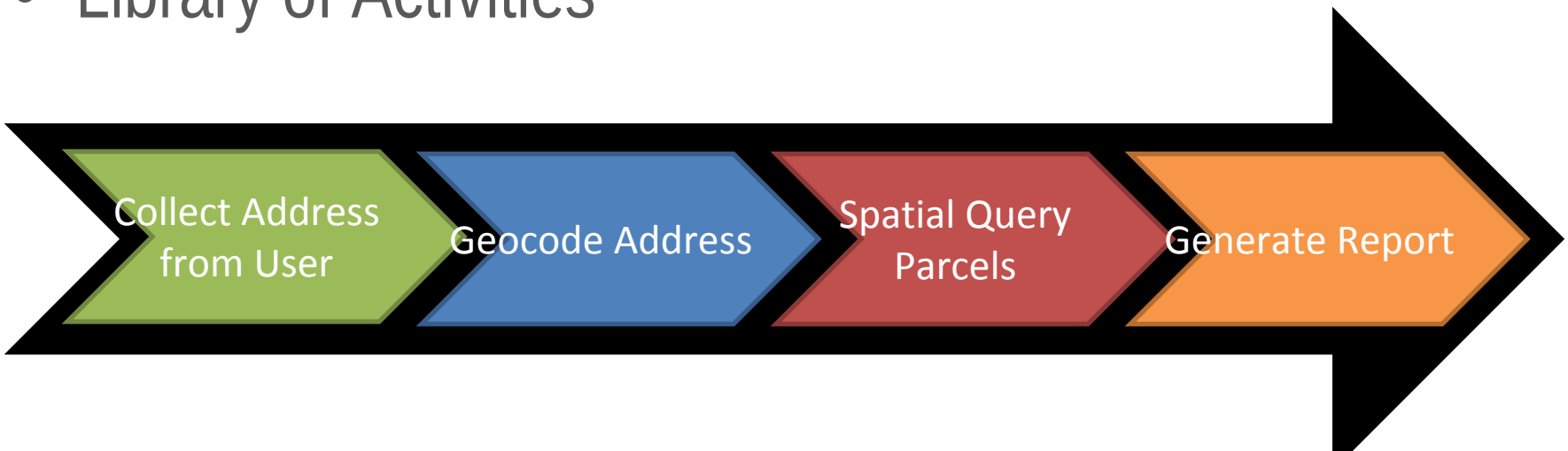
•Span multiple days, involving many individuals or departments?

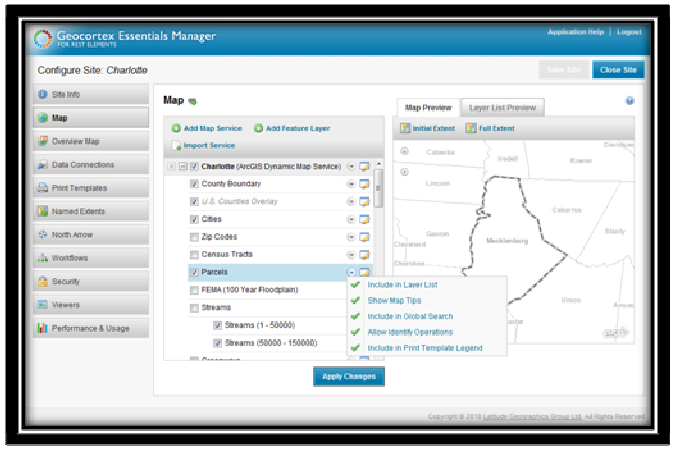
•Involve some interaction with a map, and/or some GIS analysis or processing?

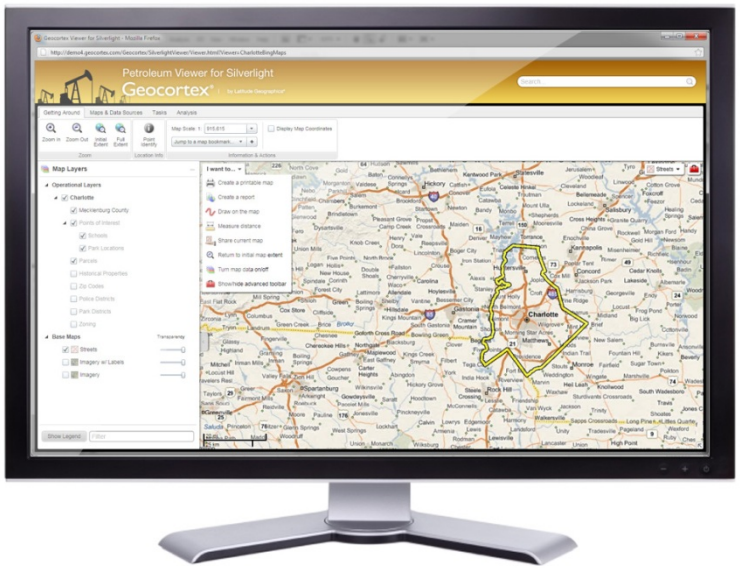
Define a collection of smaller tasks which, when chained together, create the process

Workflow in Essentials

- Works through REST
- Allows user interaction at any step
  - Human decision points
- Extensible
- Library of Activities





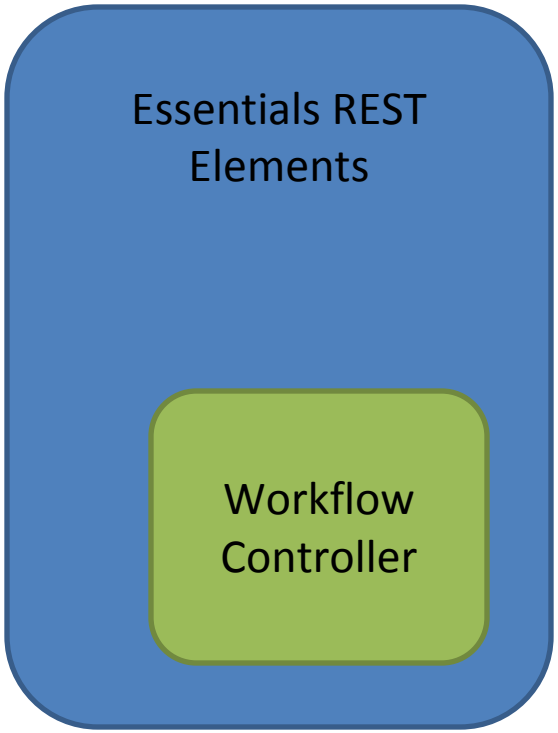


Web (e.g, Silverlight, Flex, HTML5)

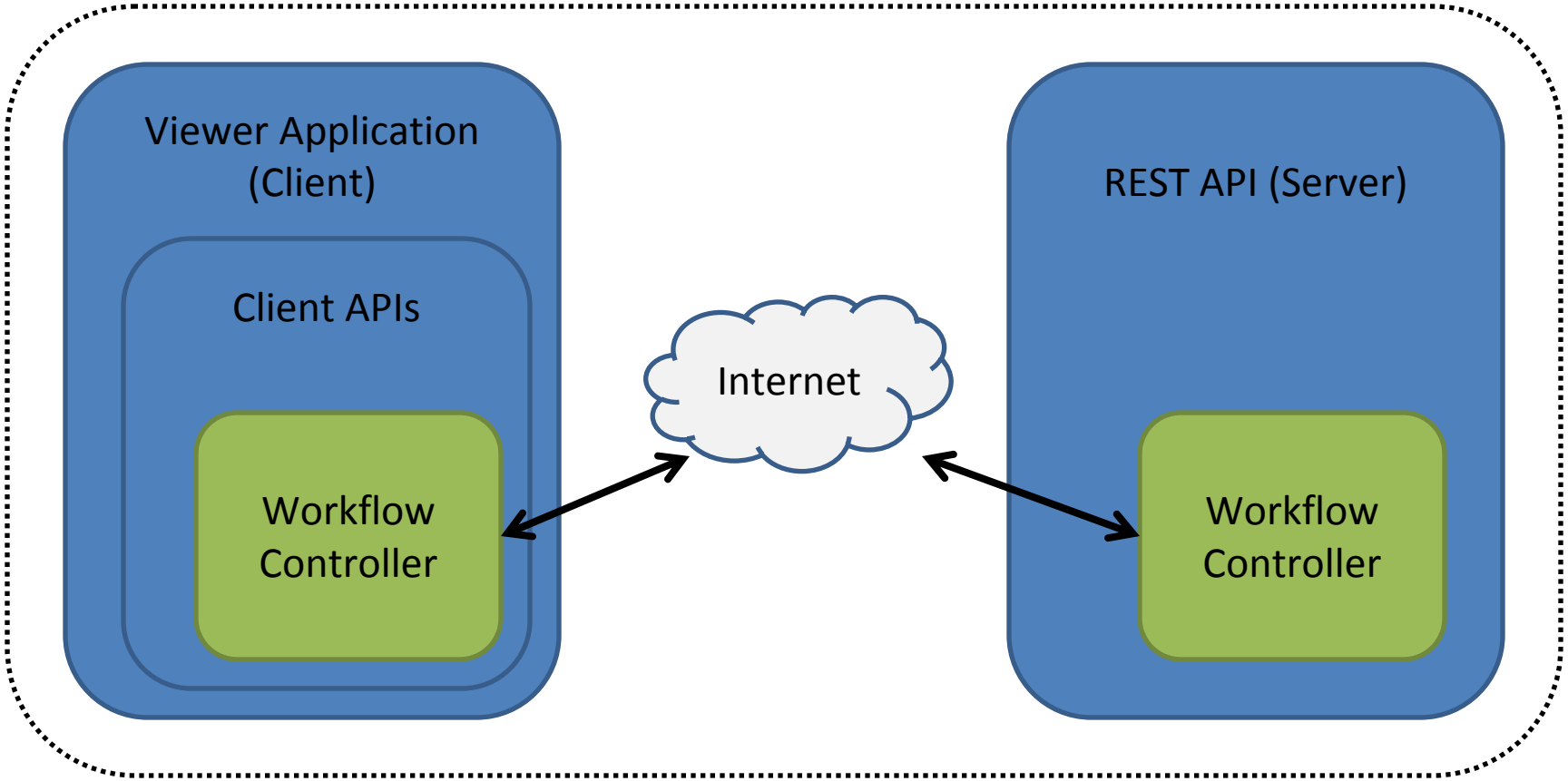
Smartphones / Tablets (e.g., iPad)

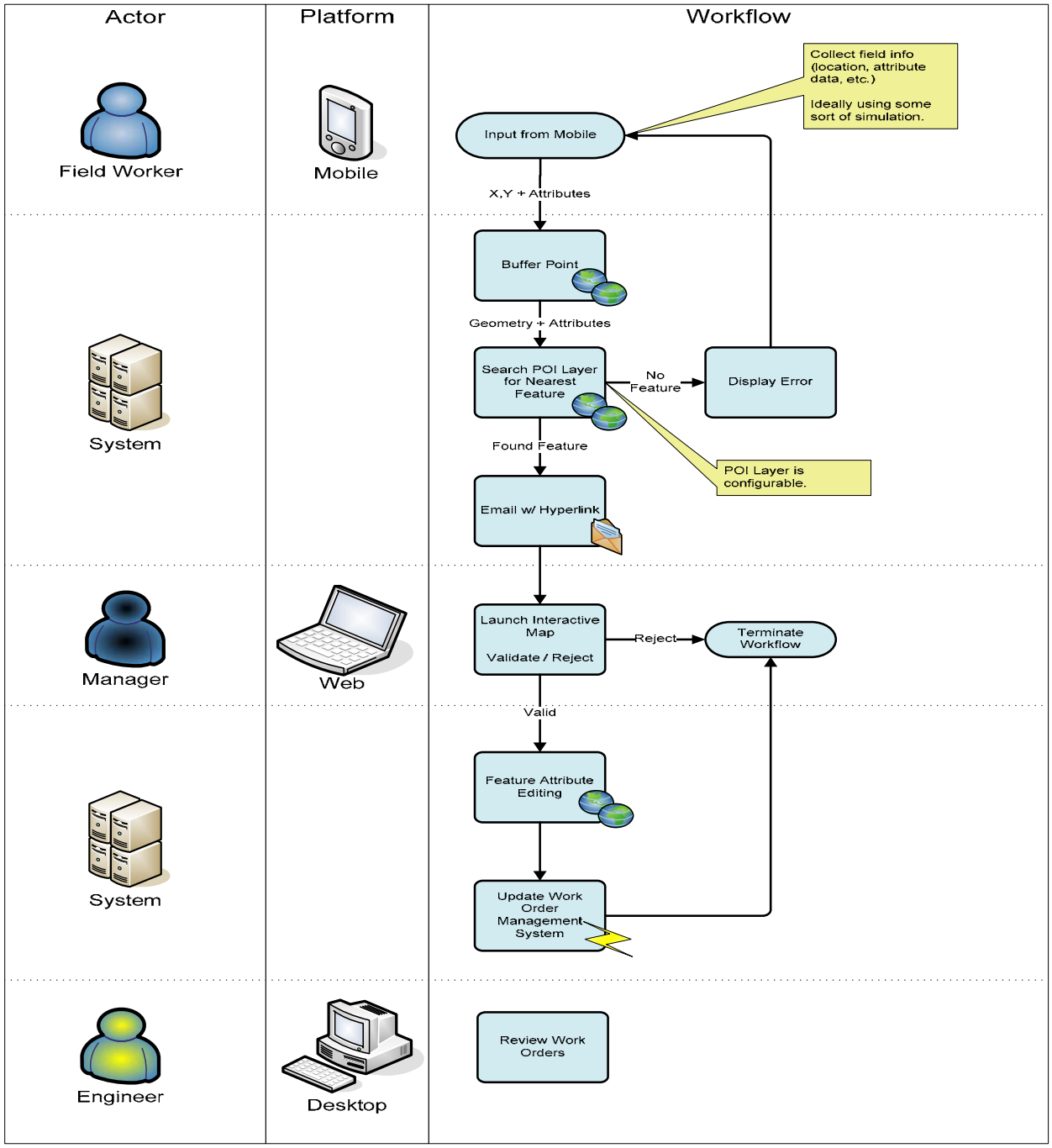
Workflow Engine

- WF4
- Out of the box activities
  - Microsoft Activities
  - Generic Activities
  - Essentials Activities
  - Esri Activities
  - GIS Activities
- Client – Server communication



Workflow in Essentials




Actor
Platform
Workflow
Field Worker
Mobile
Collect field info (location, attribute data, etc.)
Ideally using some sort of simulation.
Input from Mobile
X,Y + Attributes
Buffer Point
Geometry + Attributes
System
Search POI Layer for Nearest Feature
No Feature
Display Error
Found Feature
POI Layer is configurable.
Email w/ Hyperlink
Manager
Web
Launch Interactive Map
Validate / Reject
Reject
Terminate Workflow
Valid
Feature Attribute Editing
System
Update Work Order Management System
Engineer
Desktop
Review Work Orders

Geocortex Workflow

Benefits

Improved Efficiency – eliminate manual steps for users
– shortens development time for new functionality

Better process control

Enable sophisticated functionality in simple applications

Business Process Improvement

Share / Reuse workflows in other applications

Easily updated

Cross Platform - Silverlight, Flex, Mobile, Future Technology (HTML5)

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Demonstration

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www.geocortex.com

Latitude Geographics®

Summary

- Web GIS applications are evolving
- Think about your organization's apps:

  - Can your organization benefit from the efficiency that Workflow brings?

  - Are there ways to make users (internal and external) more productive?

  - Can you serve your users more efficiently

- Workflow avoids 'Button Wars'

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Thank You!

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Workflows

- Enable sophisticated GIS functionality
- Target the needs of your users exactly

- Are EASY TO USE

Case Study: Mailing Label Report

- Situation: A rezoning application has been submitted at a particular address. Notify the neighbours so that they may submit feedback.
- Task:
  - Search for an address (Geocode)
  - Find all parcels which are within 1000ft (Buffer, Spatial Intersection)
  - Generate a Mailing Label Report for the discovered parcels (Reporting)

Benefits

- Automating processes with Workflows saves time (e.g., 3 days VS 3 weeks)
- Workflows can be shared and reused in other applications
- Self-Documenting
- Workflows can be easily updated to accommodate changing requirements (without redeploying applications)
- Pre-built activities reduce QA and testing

Workflows Are Cross-Platform

- Build a workflow once
  - Use it in your internal web maps
  - Run it in your mobile applications
  - Reuse it in a future technology

We Can Build Entire Applications Based on Workflows

1. Capture (document) the requirements of your users
2. Break down their interactions into a series of steps
3. Provide a workflows (2, 3, 10) that accommodate their business needs
4. Refine the workflows to match changing requirements
5. Repeat Steps 1-4 as necessary