

Geocortex

MSGIC Quarterly Winter Meeting

Craig Robinson



Latitude Geographics®



Our Business Model





Esri continues to build
outstanding technology

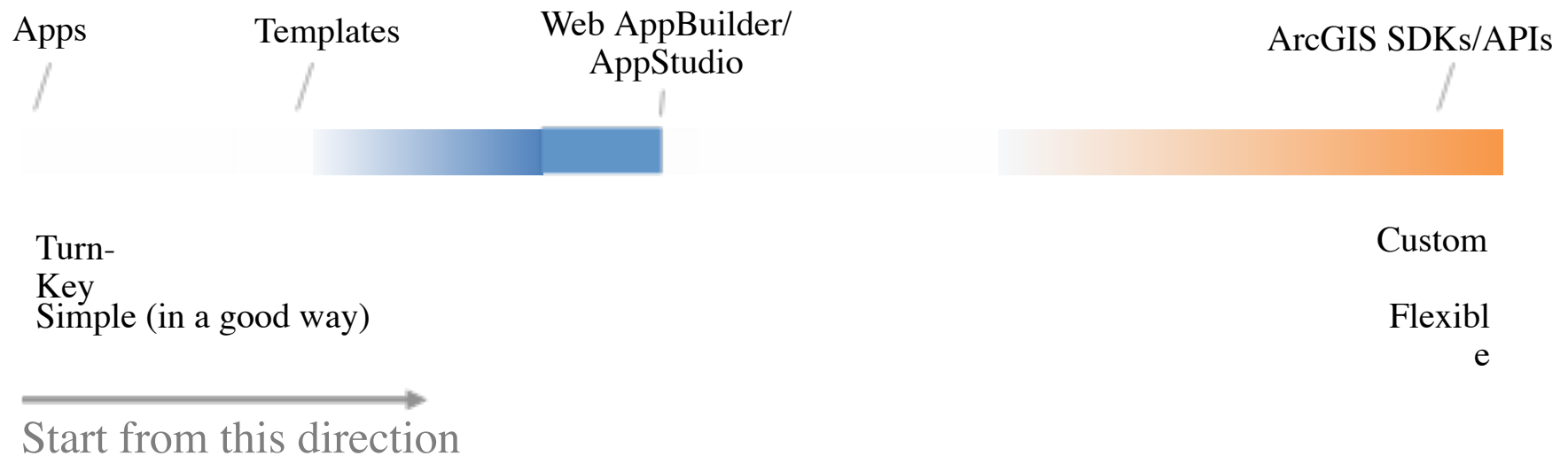


Getting even more done with Esri mapping technology

We create products to do work that is often otherwise
approached as inefficient custom development.

Spectrum of Application Development

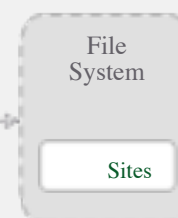
Geocortex Essentials



Clients can deploy a combination of these offerings in parallel.

Client

Geocortex Viewers



ArcSDE

Online

Server

HTTP

HTTP(S)

HTTP(S)

HTTP

HTTP

HTTP(S)

HTTP(S)

HTTP(S)

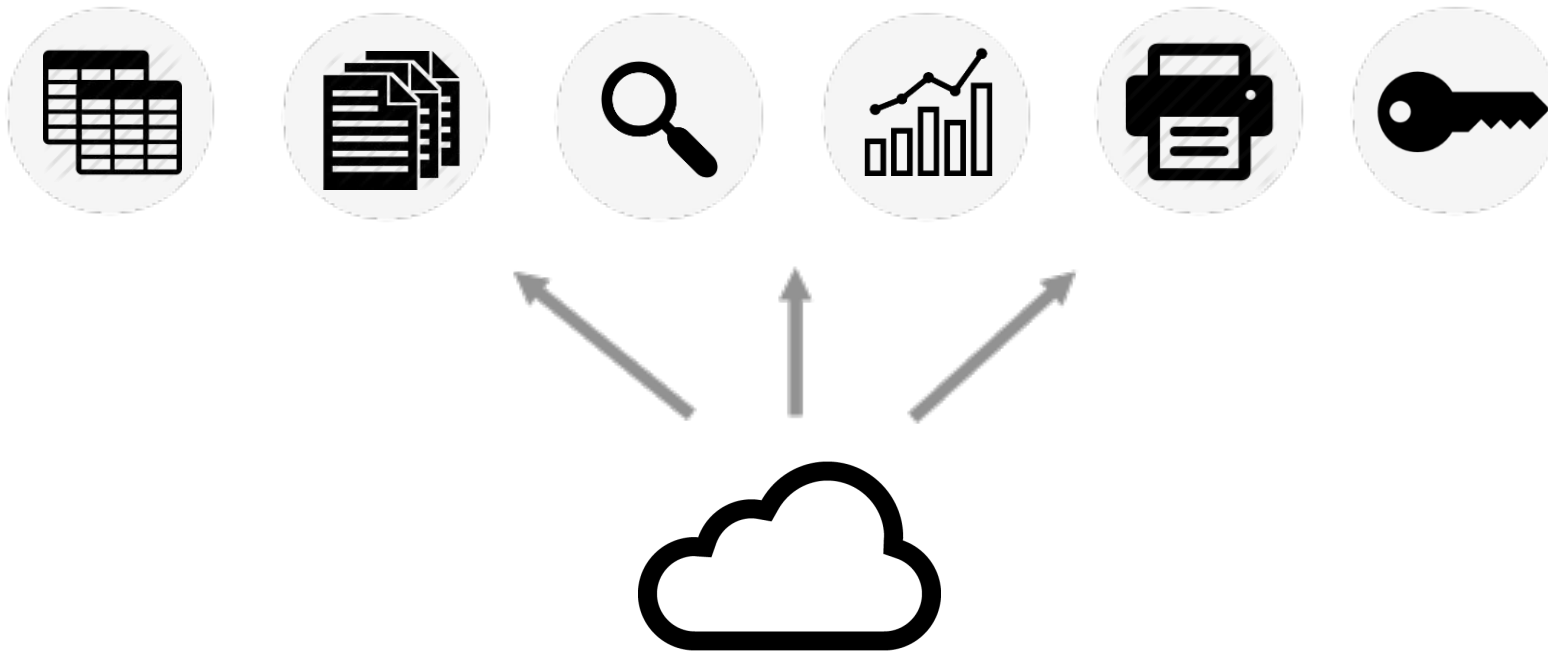
HTTP (WCF)

File IO

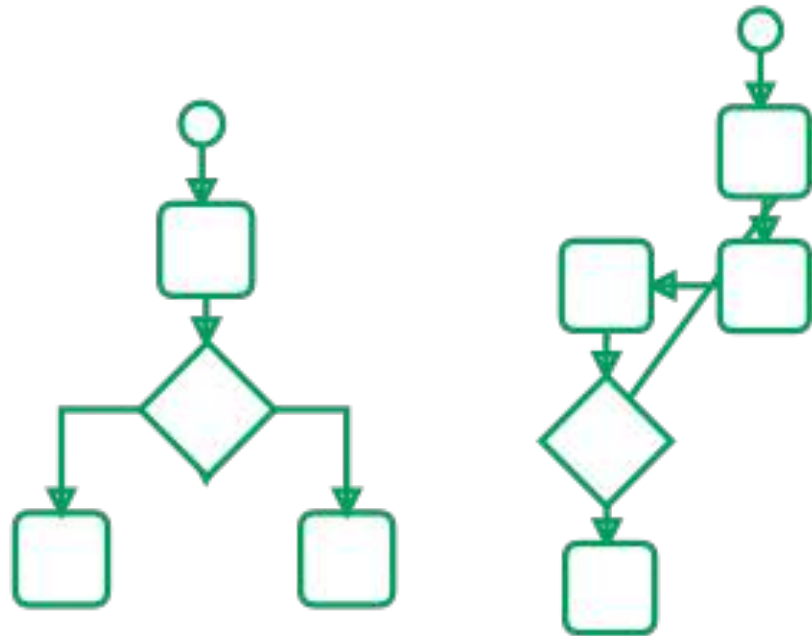
Geocortex Essentials



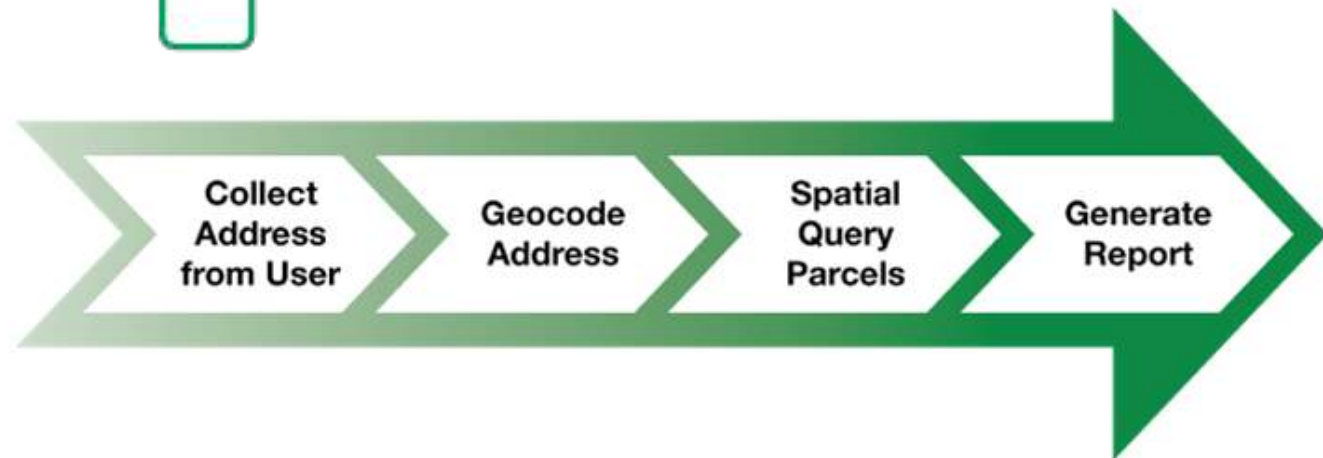
Powerful Capabilities

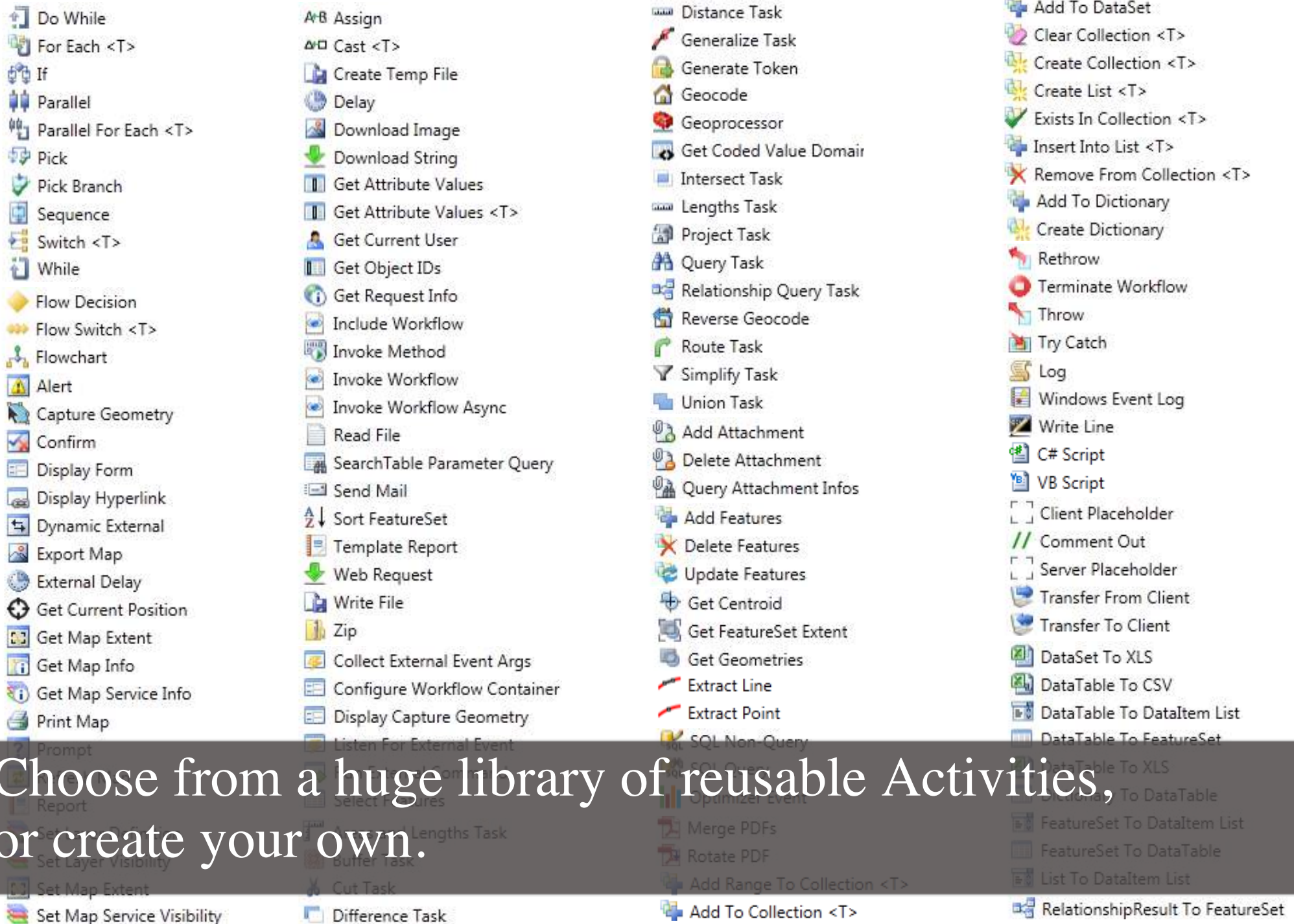


Workflow Technology

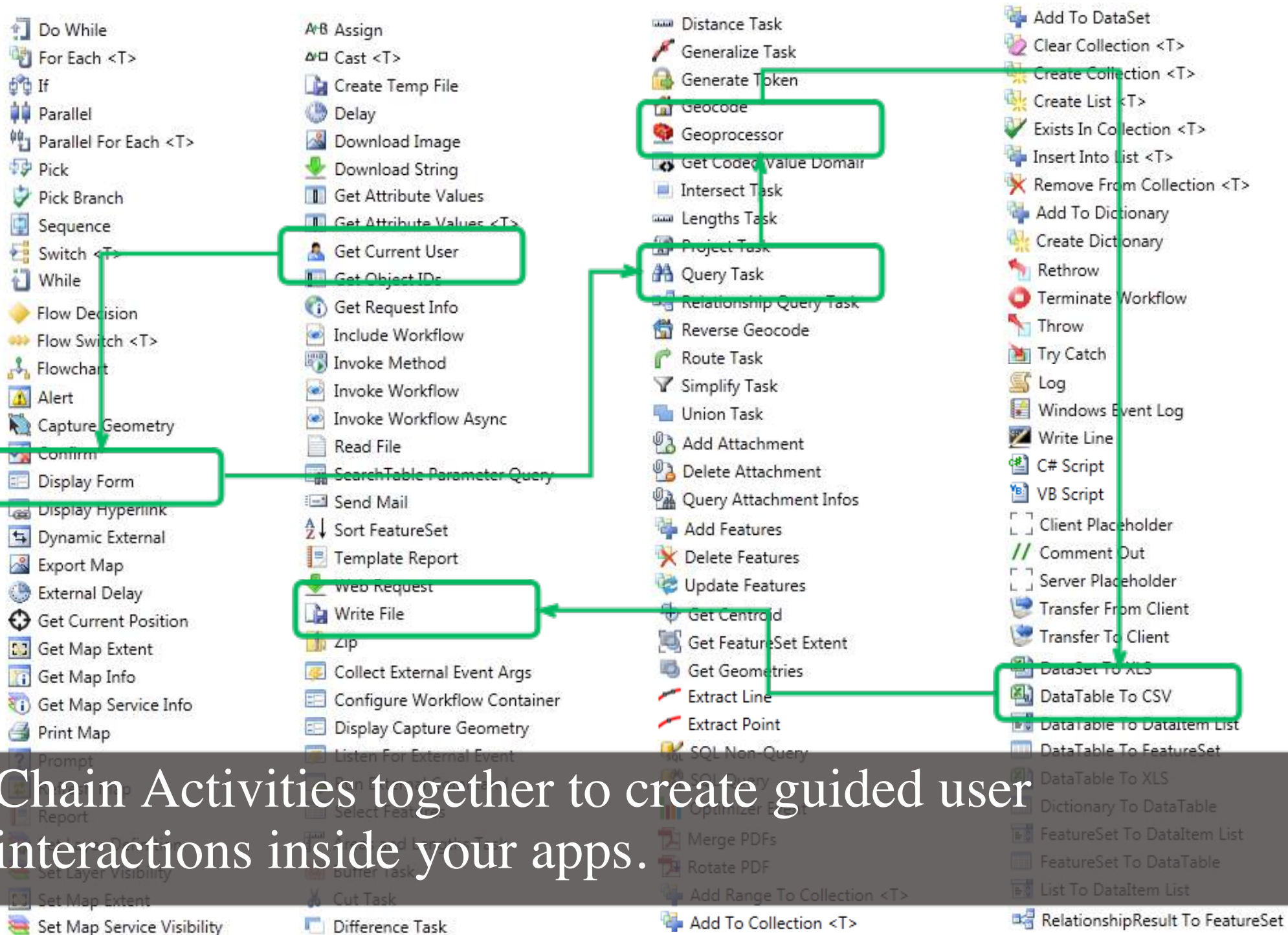


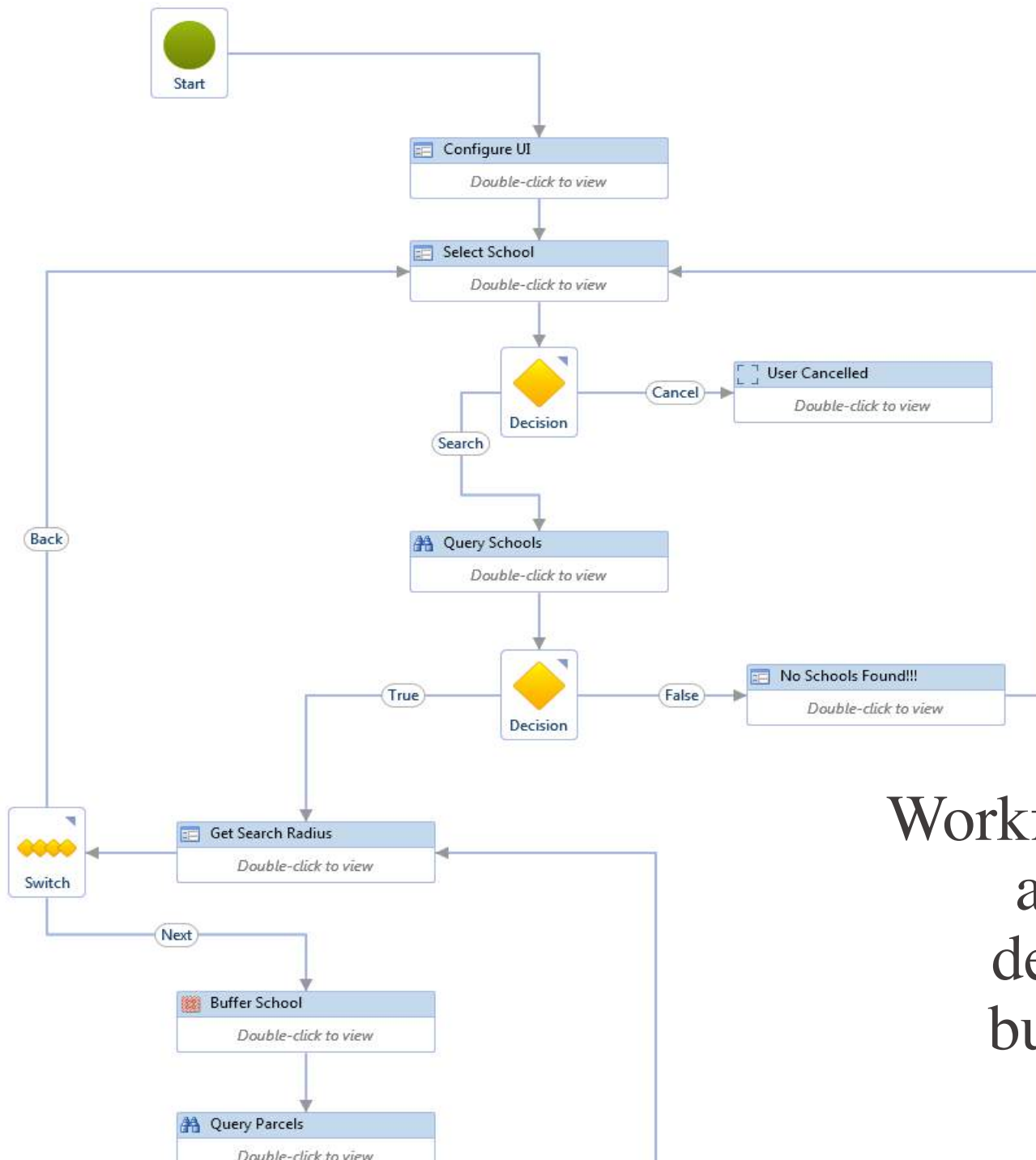
Easily build simple, guided interactions for your users, without programming.





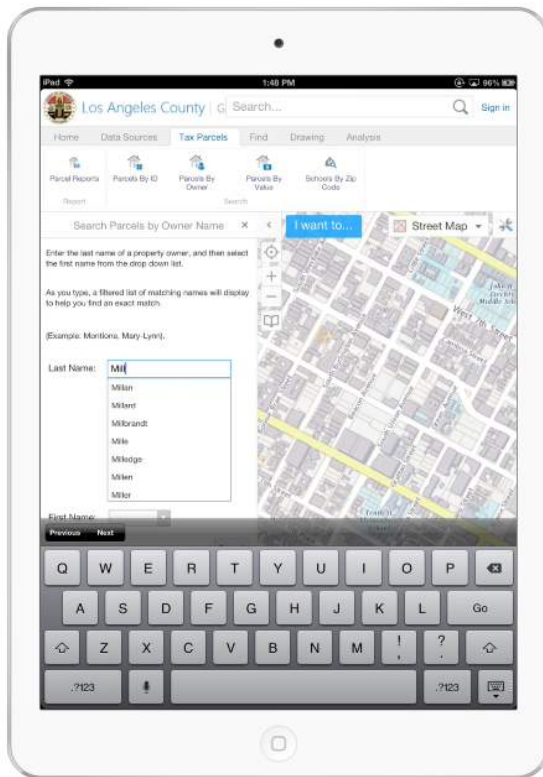
Choose from a huge library of reusable Activities,
or create your own.





Workflows are a functional and highly visual description of your business processes.

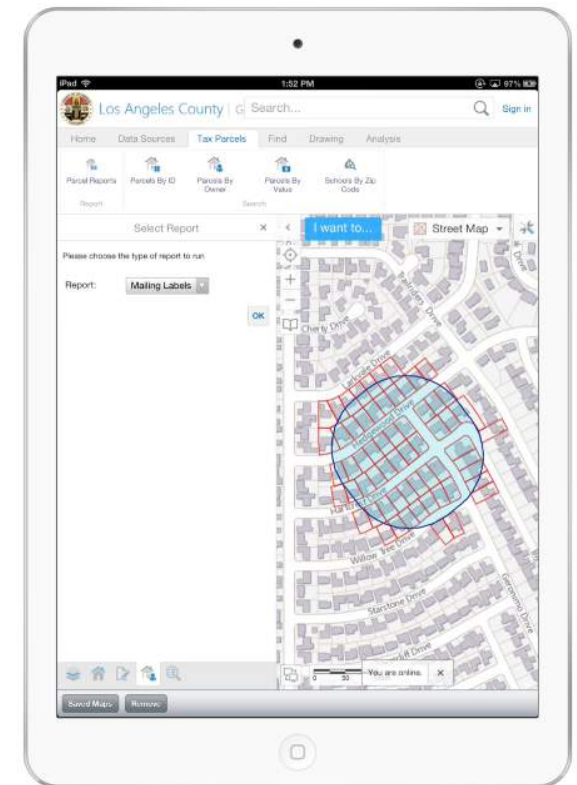
Intuitive, Guided Interactions



Step 1
Collect form data



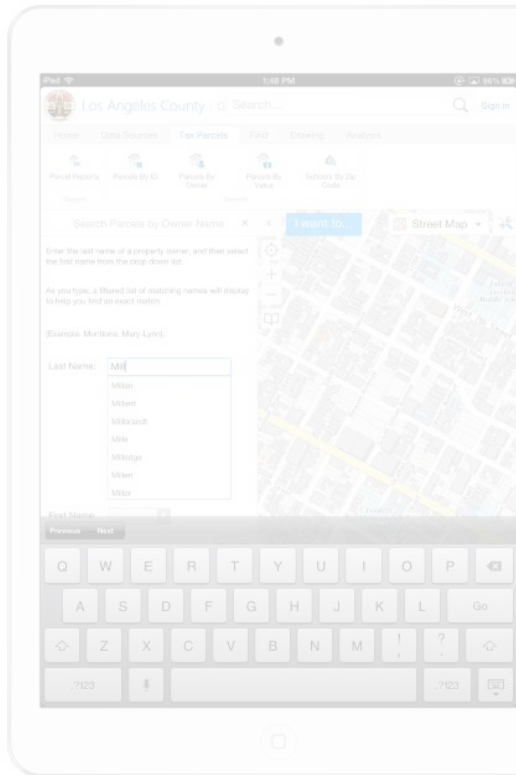
Step 2
Capture geometry



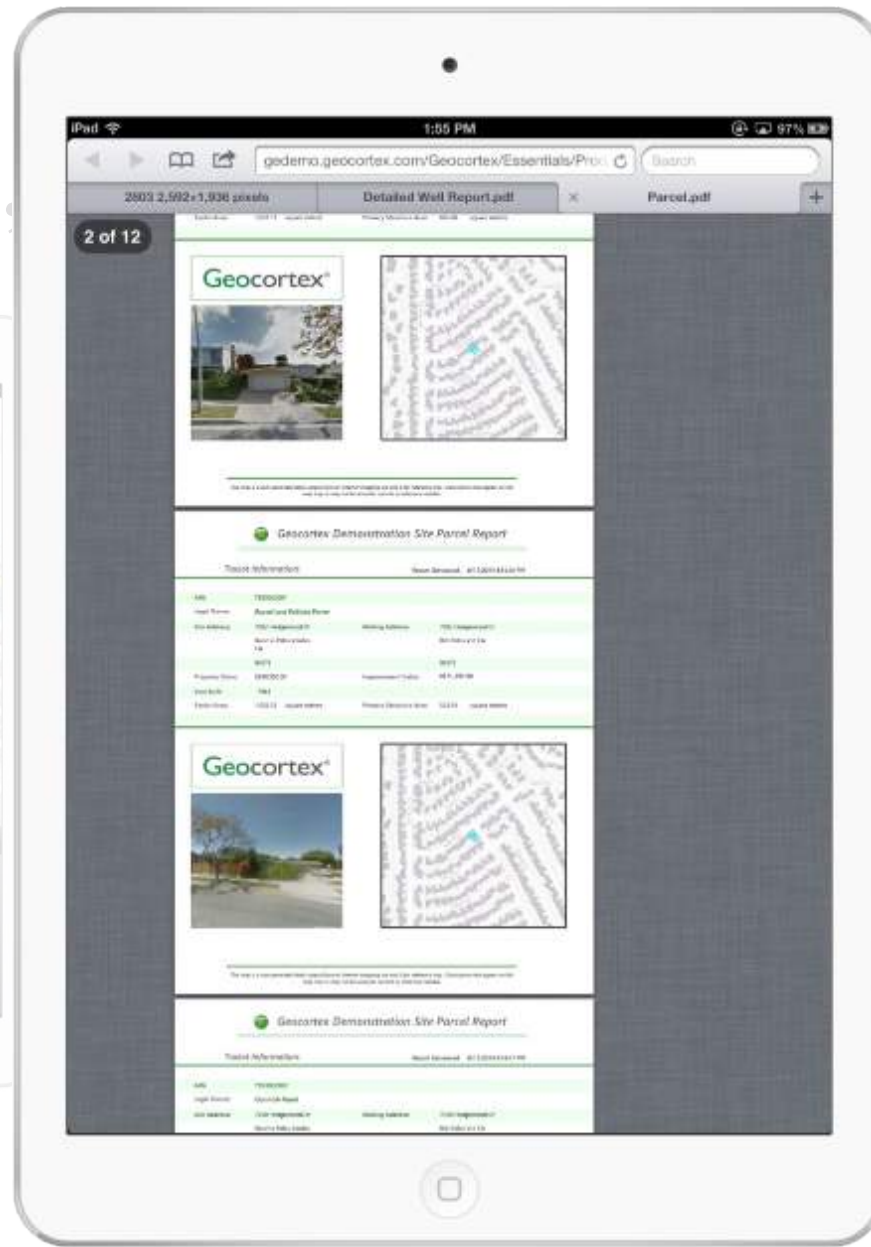
Step 3
Map automation

Intuitive.

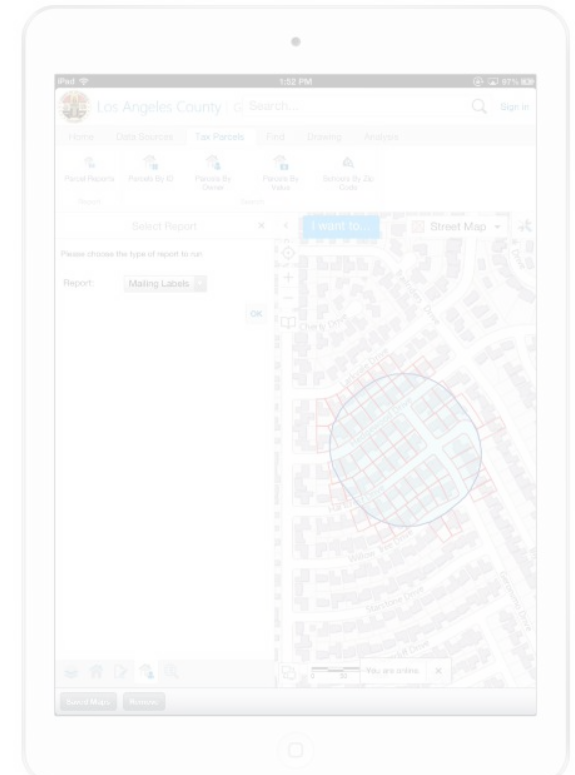
ons



Step 1
Collect form data



Step 4
Generate report



Step 3
Map automation



Home

Welcome! This demonstration showcases some of the tools and features available in Geocortex.



Search

Find content on the map using keywords. For example, [search for 'Sunset'](#).



Explore

The ["I want to..."](#) menu and [toolbar](#) provide additional application options and features



I want to...



DEMO:



Open Stre...



0 1 2km



Road Closures

3rd Party Data

Crime Mapping



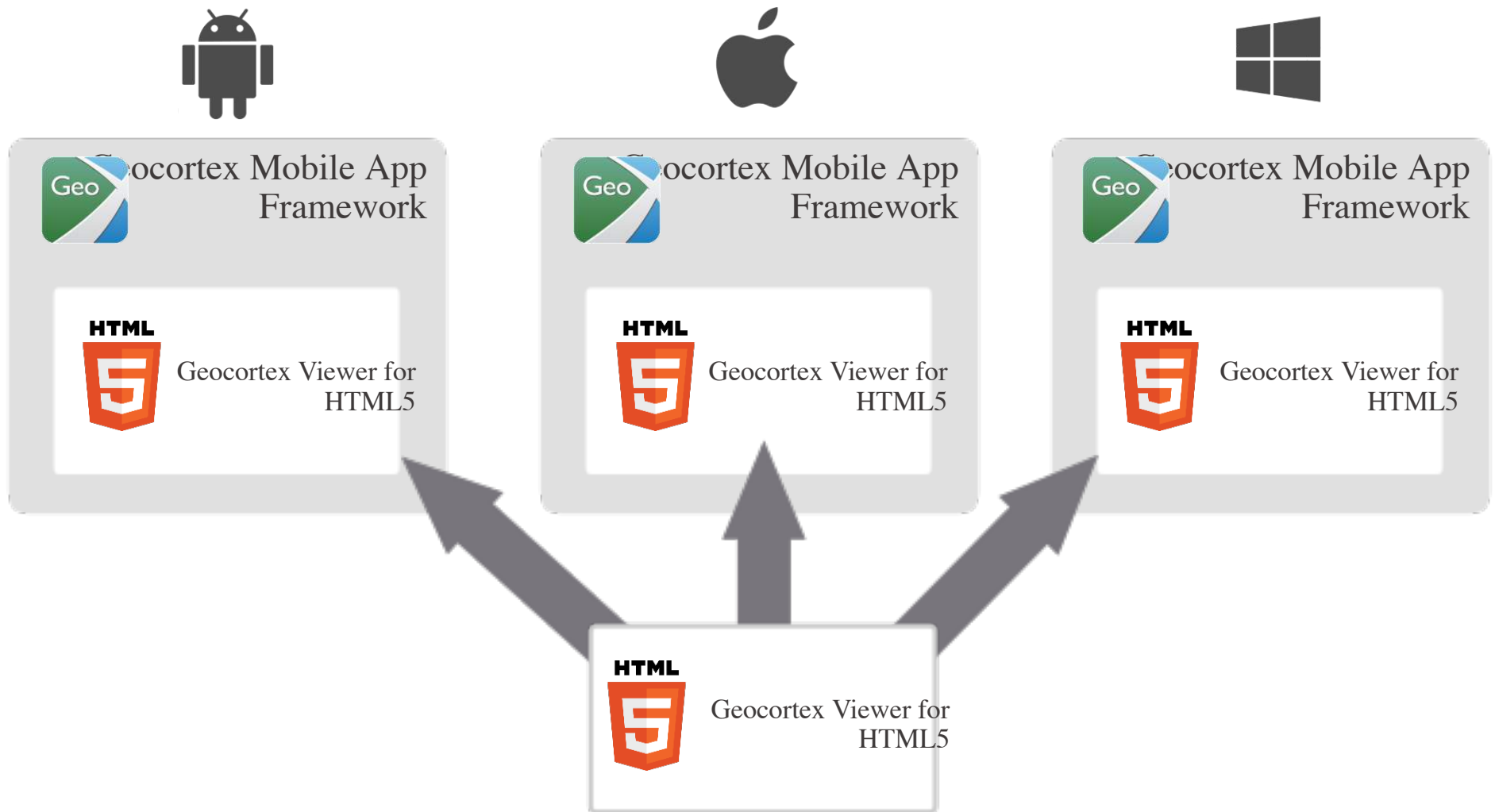
Technology Update: Geocortex Mobile App Framework



Geocortex Mobile App Framework

- Part of Geocortex Essentials
- Embeds Geocortex Viewer for HTML5
- Enable configurable, and fully custom apps
- Supports offline editing and sync
- Available for
 - iOS 7 (deprecated), 8, 9
 - Android 4.0.3+
 - Windows 7, 8, 10

Architecture





Home

Welcome! This demonstration showcases some of the tools and features available in Geocortex.



Search

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DEMO:



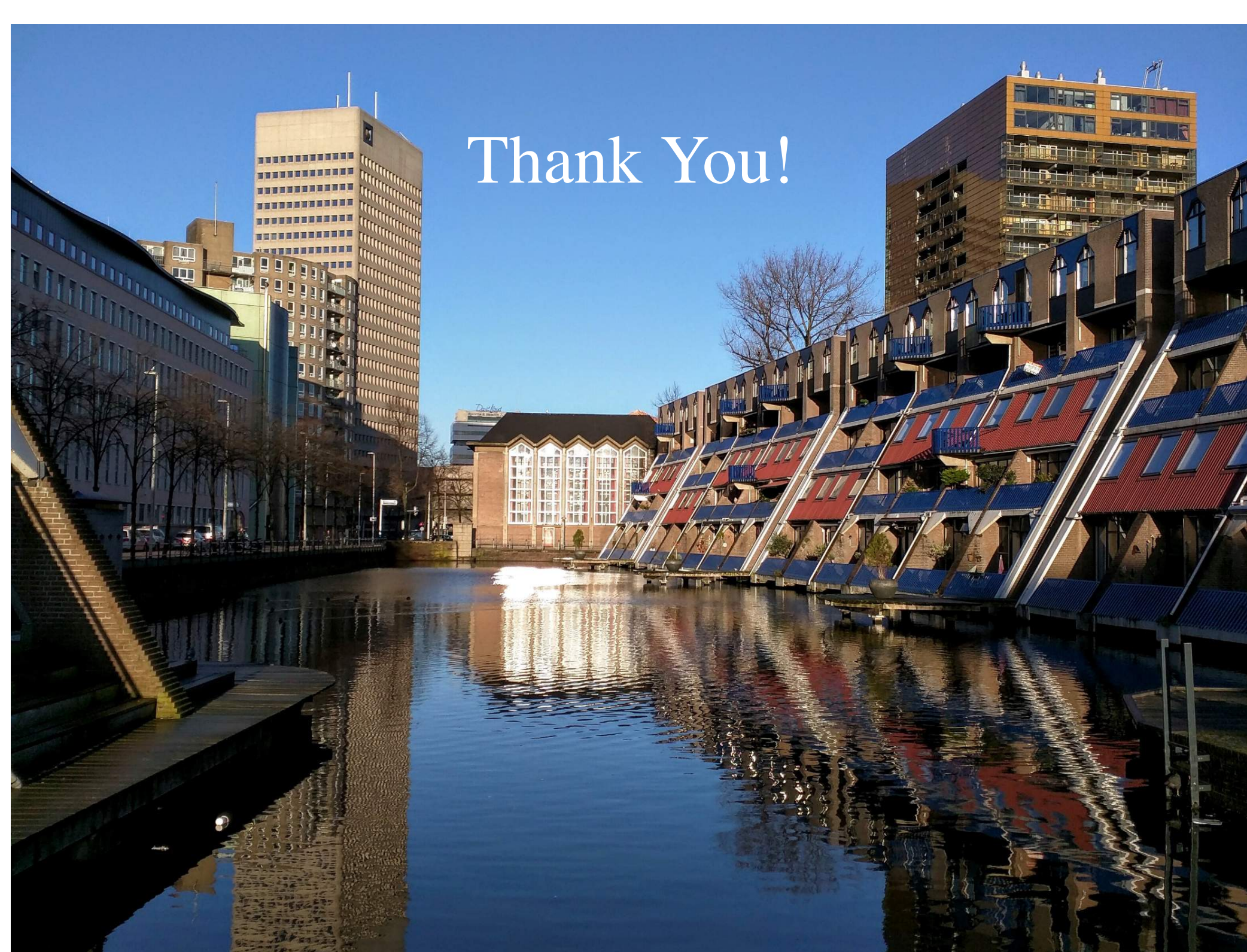
Open Stre...



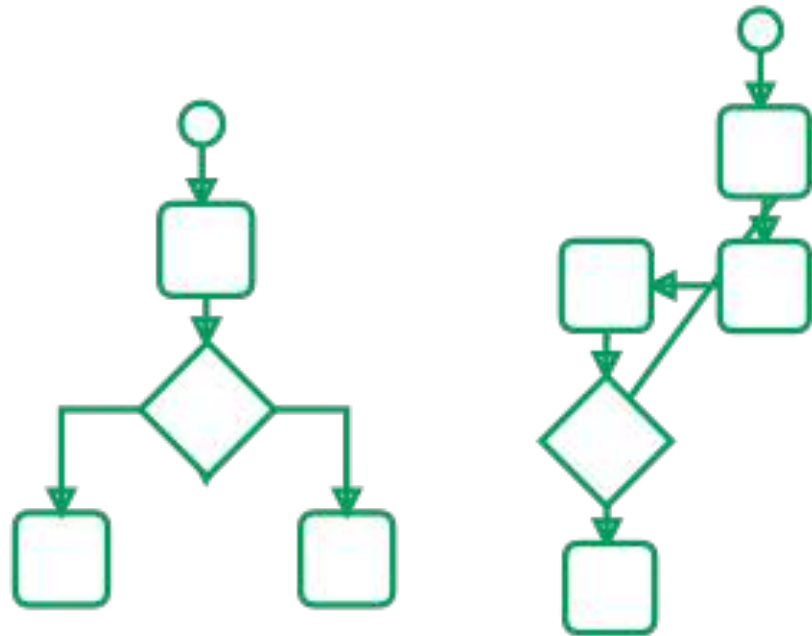
0 1 2km



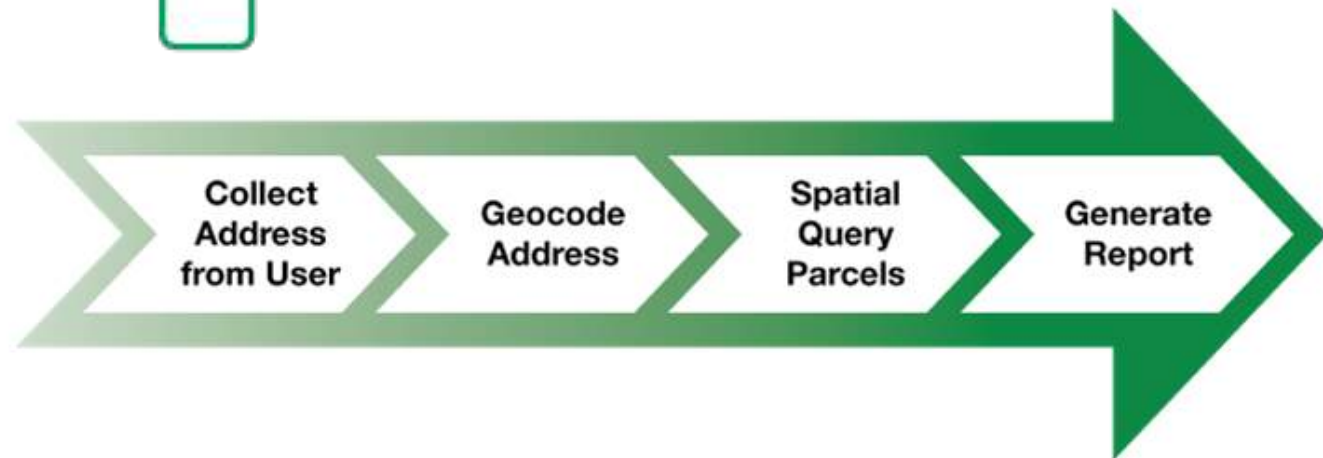
Thank You!



Workflow Technology



Easily build simple, guided interactions for your users, without programming.



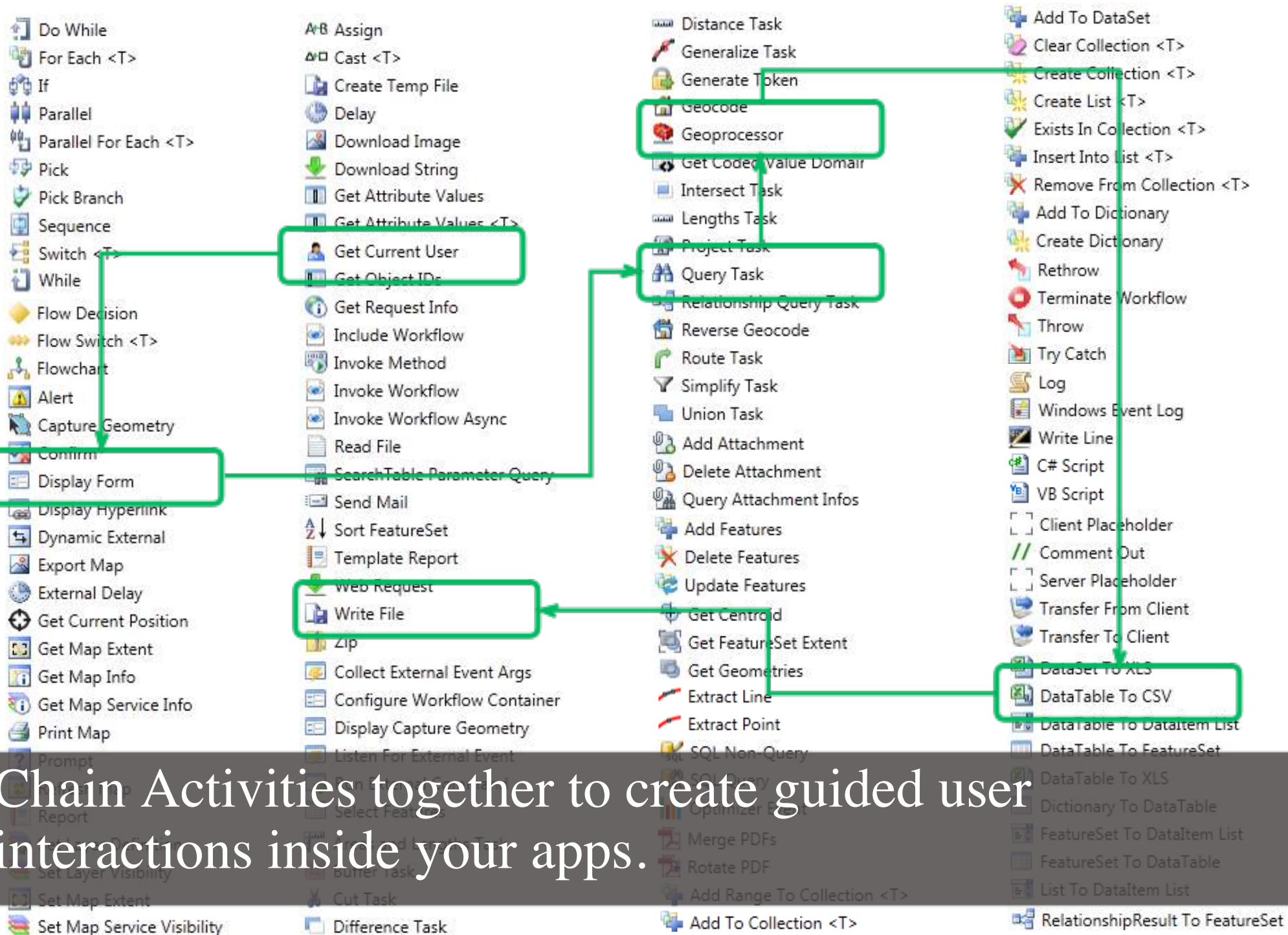
- Do While
- For Each <T>
- If
- Parallel
- Parallel For Each <T>
- Pick
- Pick Branch
- Sequence
- Switch <T>
- While
- Flow Decision
- Flow Switch <T>
- Flowchart
- Alert
- Capture Geometry
- Confirm
- Display Form
- Display Hyperlink
- Dynamic External
- Export Map
- External Delay
- Get Current Position
- Get Map Extent
- Get Map Info
- Get Map Service Info
- Print Map

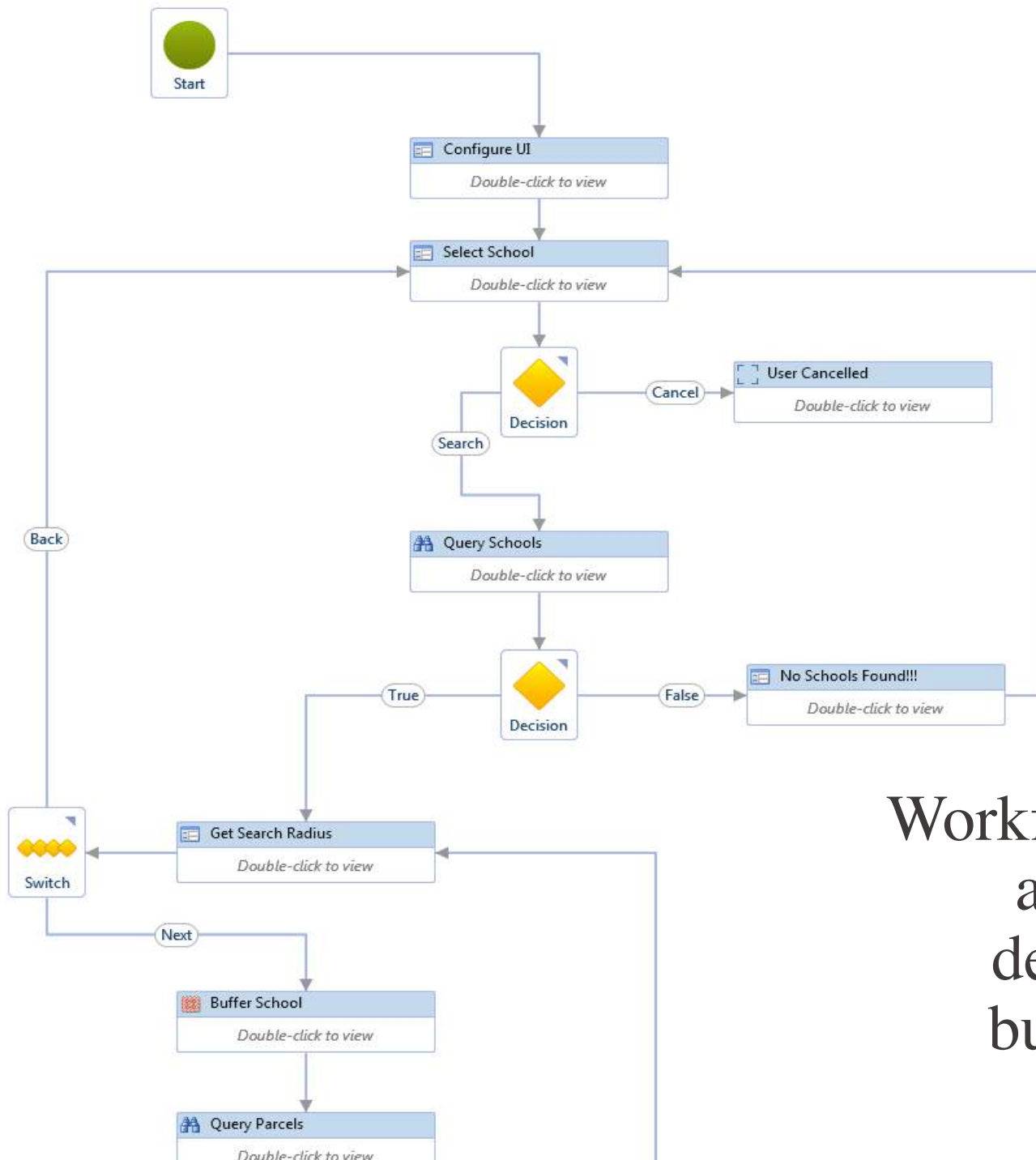
- Assign
- Cast <T>
- Create Temp File
- Delay
- Download Image
- Download String
- Get Attribute Values
- Get Attribute Values <T>
- Get Current User
- Get Object IDs
- Get Request Info
- Include Workflow
- Invoke Method
- Invoke Workflow
- Invoke Workflow Async
- Read File
- SearchTable Parameter Query
- Send Mail
- Sort FeatureSet
- Template Report
- Web Request
- Write File
- Zip
- Collect External Event Args
- Configure Workflow Container
- Display Capture Geometry
- Listen For External Event
- FeatureSet To Collection
- Select Features
- Assign Lengths Task
- Buffer Task
- Cut Task
- Difference Task

- Distance Task
- Generalize Task
- Generate Token
- Geocode
- Geoprocessor
- Get Coded Value Domain
- Intersect Task
- Lengths Task
- Project Task
- Query Task
- Relationship Query Task
- Reverse Geocode
- Route Task
- Simplify Task
- Union Task
- Add Attachment
- Delete Attachment
- Query Attachment Infos
- Add Features
- Delete Features
- Update Features
- Get Centroid
- Get FeatureSet Extent
- Get Geometries
- Extract Line
- Extract Point
- SQL Non-Query
- SQL Query
- Optimizer Event
- Merge PDFs
- Rotate PDF
- Add Range To Collection <T>
- Add To Collection <T>

- Add To DataSet
- Clear Collection <T>
- Create Collection <T>
- Create List <T>
- Exists In Collection <T>
- Insert Into List <T>
- Remove From Collection <T>
- Add To Dictionary
- Create Dictionary
- Rethrow
- Terminate Workflow
- Throw
- Try Catch
- Log
- Windows Event Log
- Write Line
- C# Script
- VB Script
- Client Placeholder
- Comment Out
- Server Placeholder
- Transfer From Client
- Transfer To Client
- DataSet To XLS
- DataTable To CSV
- DataTable To DataItem List
- DataTable To FeatureSet
- DataTable To XLS
- FeatureSet To DataTable
- FeatureSet To DataItem List
- FeatureSet To DataTable
- List To DataItem List
- RelationshipResult To FeatureSet

Choose from a huge library of reusable Activities,
or create your own.

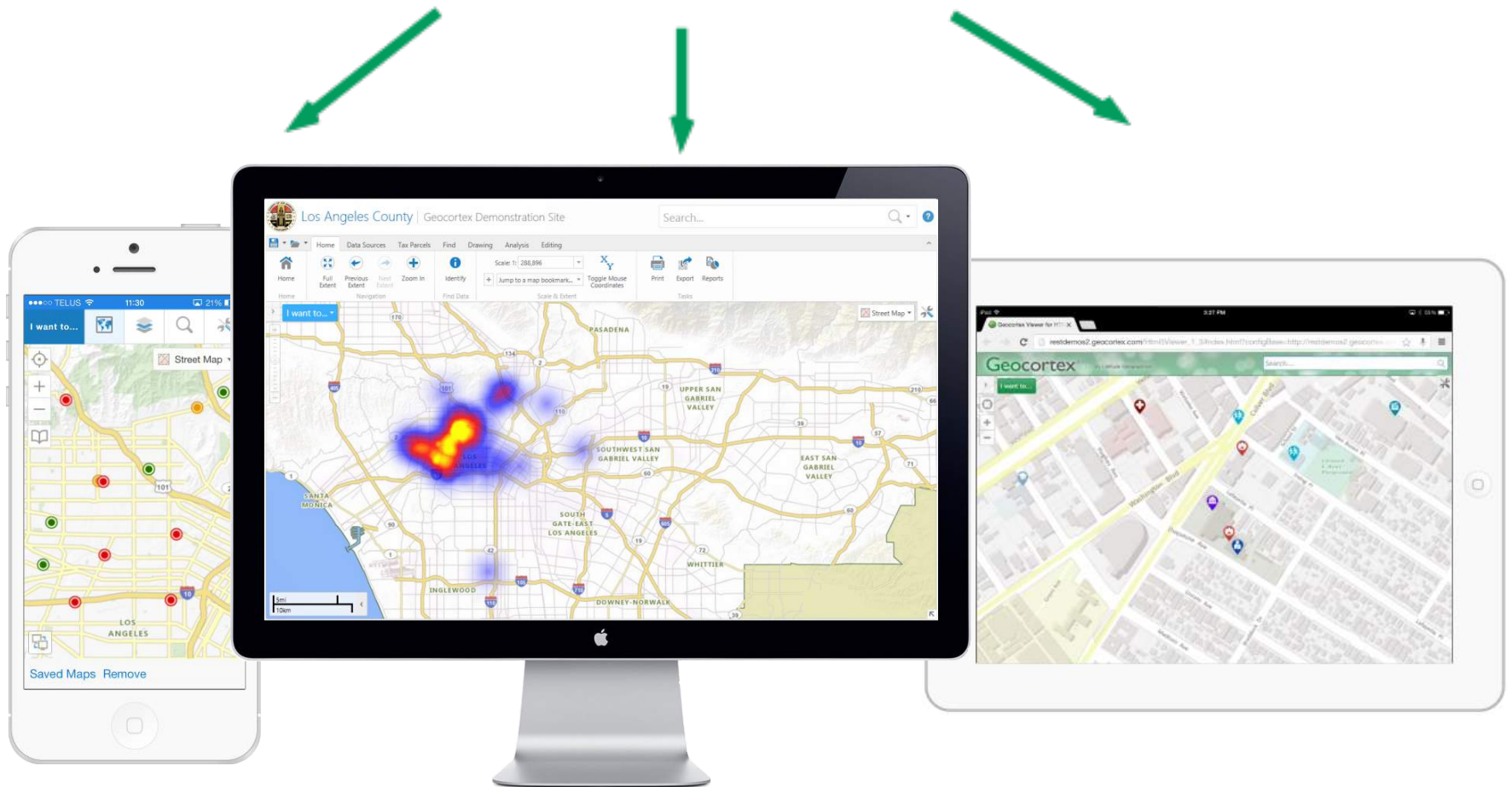




Workflows are a functional and highly visual description of your business processes.

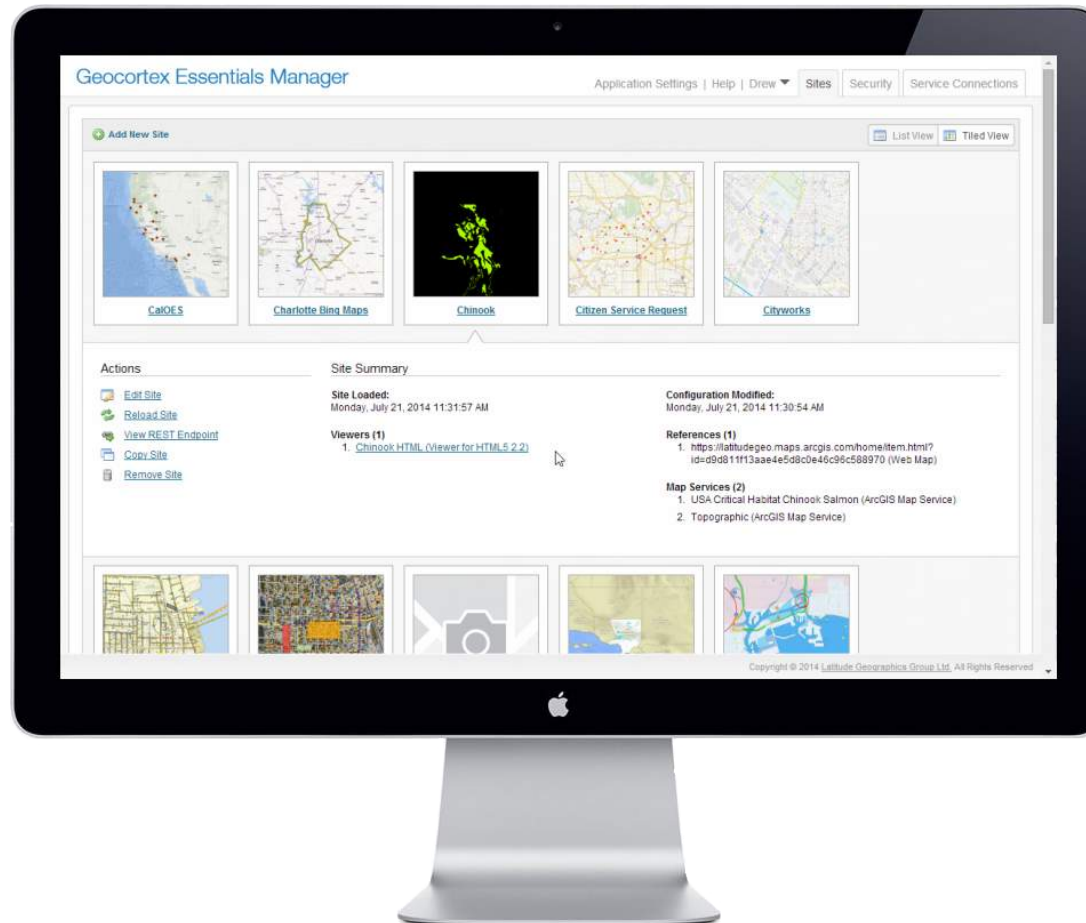
Technology for Producers

Producers



How do we build and maintain these?

Flexible, Accessible Application Creation & Management Tools



Rich Developer SDKs

- Developer documentation
- Fully configured samples
- Community code gallery
- Online forums



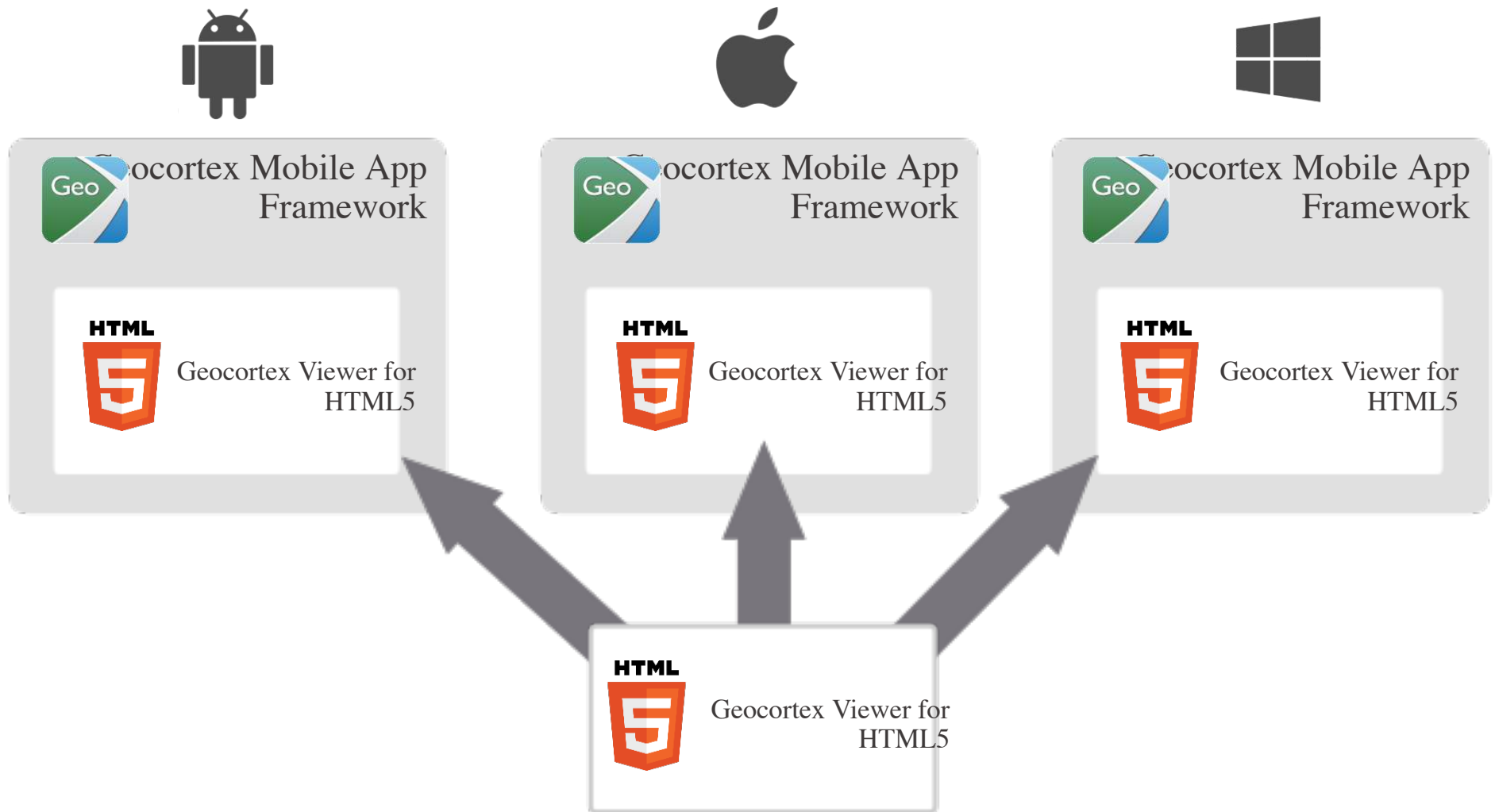
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Architecture



New in 1.3:

QR Code Scanning



New in 1.3:

HTTPS Secured Viewers



Feature Videos Available Now

Geocortex® | Support Center

Geocortex
Essentials

Geocortex
Insight

Geocortex
Active Operating Picture

What's New

Community

Knowledge Base

Code Gallery

Ideas

Videos

Downloads

Browse by categories

All Categories

Geocortex Essentials

Geocortex Viewer for
HTML5

Geocortex Viewer for
Silverlight

Workflows and Workflow
Designer

Geocortex Mobile App
Framework

Extensions

What would you like to know?



sorted by: Date Posted



Your Guide to the Geocortex Support Center

Want to get to know the Geocortex Support Center? This is your starting place.

September 22, 2015 · Like (0)



Announcing the Release of Essentials 4.4

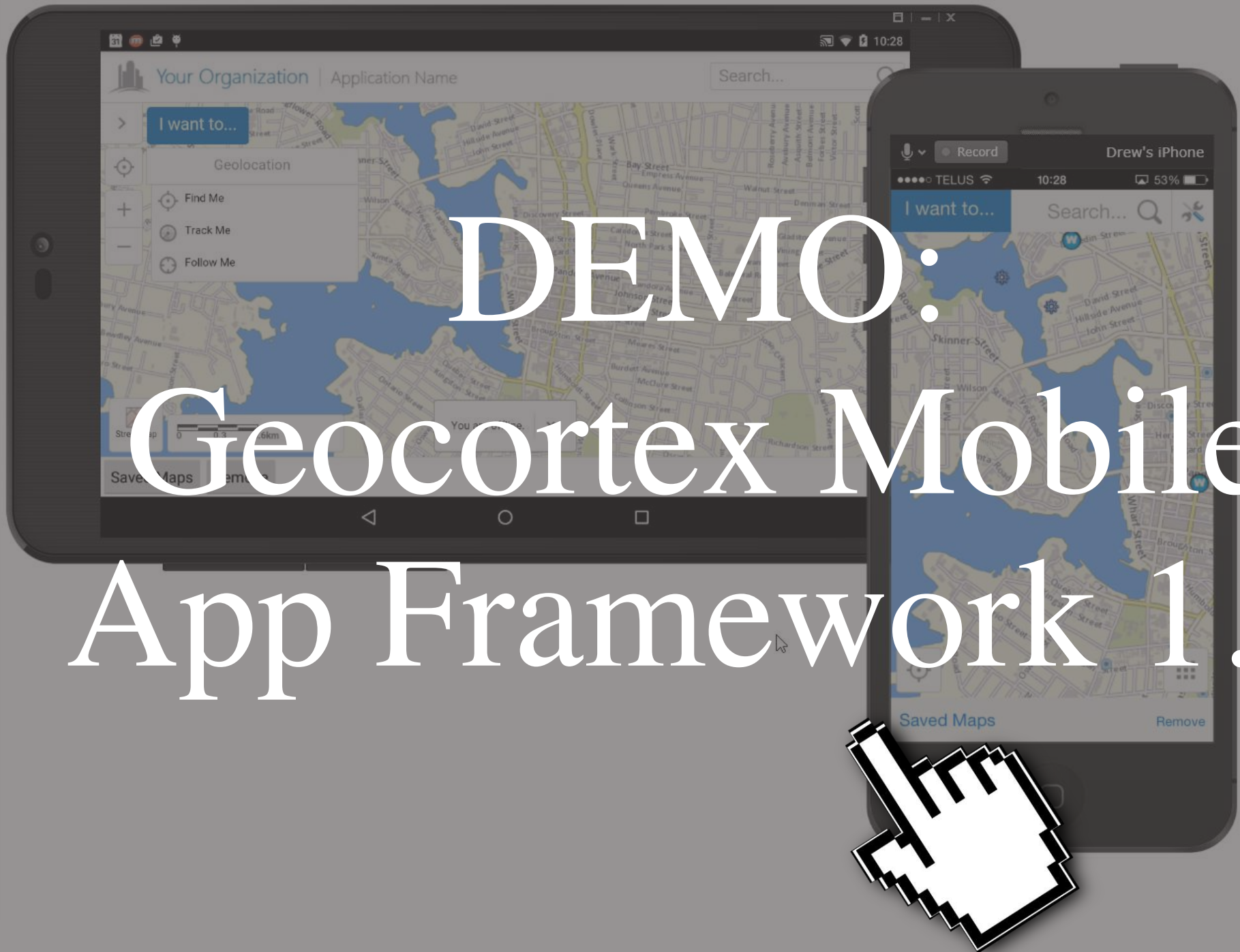
New HTML5 viewer features & improved offline capabilities are here.

September 21, 2015 · Like (0)



Install a standalone instance of Geocortex Identity Server

DEMO: Geocortex Mobile App Framework 1.3



Maintenance Releases

October

- Maintenance Release (October 5th)
 - Geocortex Essentials 4.4.1
- Security Update (October 13th)
 - Geocortex Essentials 4.4.2
 - Geocortex Viewer for HTML5 2.5.1
 - Geocortex Mobile App Framework 1.3.1
- Maintenance Release (November)
 - Geocortex Essentials 4.4.3
 - Geocortex Viewer for HTML5 2.5.2
 - Geocortex Mobile App Framework 1.3.2

Geocortex Viewer for Silverlight 2.5

October 15, 2015

- Maintenance release, and support for Geocortex Insight
- Ships alongside Pictometry Extension 1.2

Technology Update: Geocortex Active Operating Picture



Active Shooter Scenarios
Schools, shopping malls and
other public spaces.



Special Events
VIP visits, sporting events and
cultural celebrations.



Weather Events
Floods, hurricanes, tornadoes,
snow/ice storms, earthquakes
and wildfires.

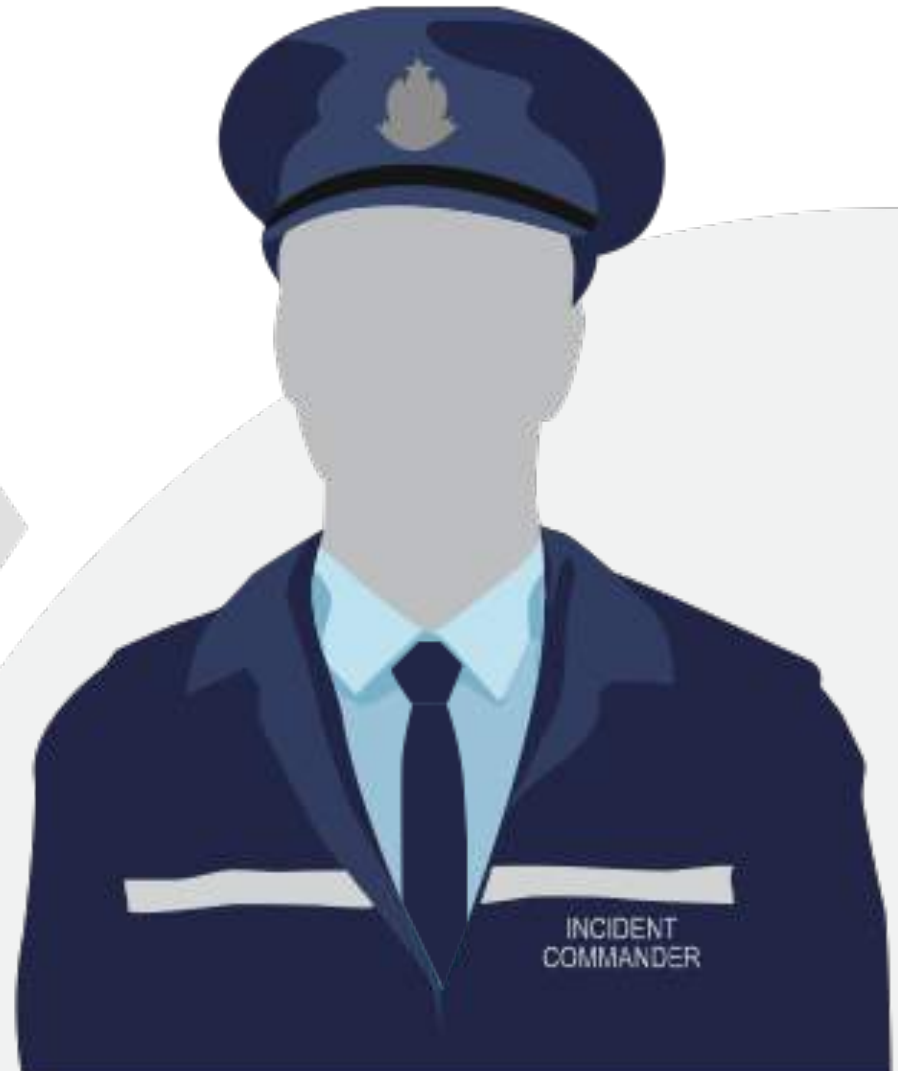


Mass Casualty Events
Terrorist attacks, train
derailments, building
collapses/fires and
chemical explosions.

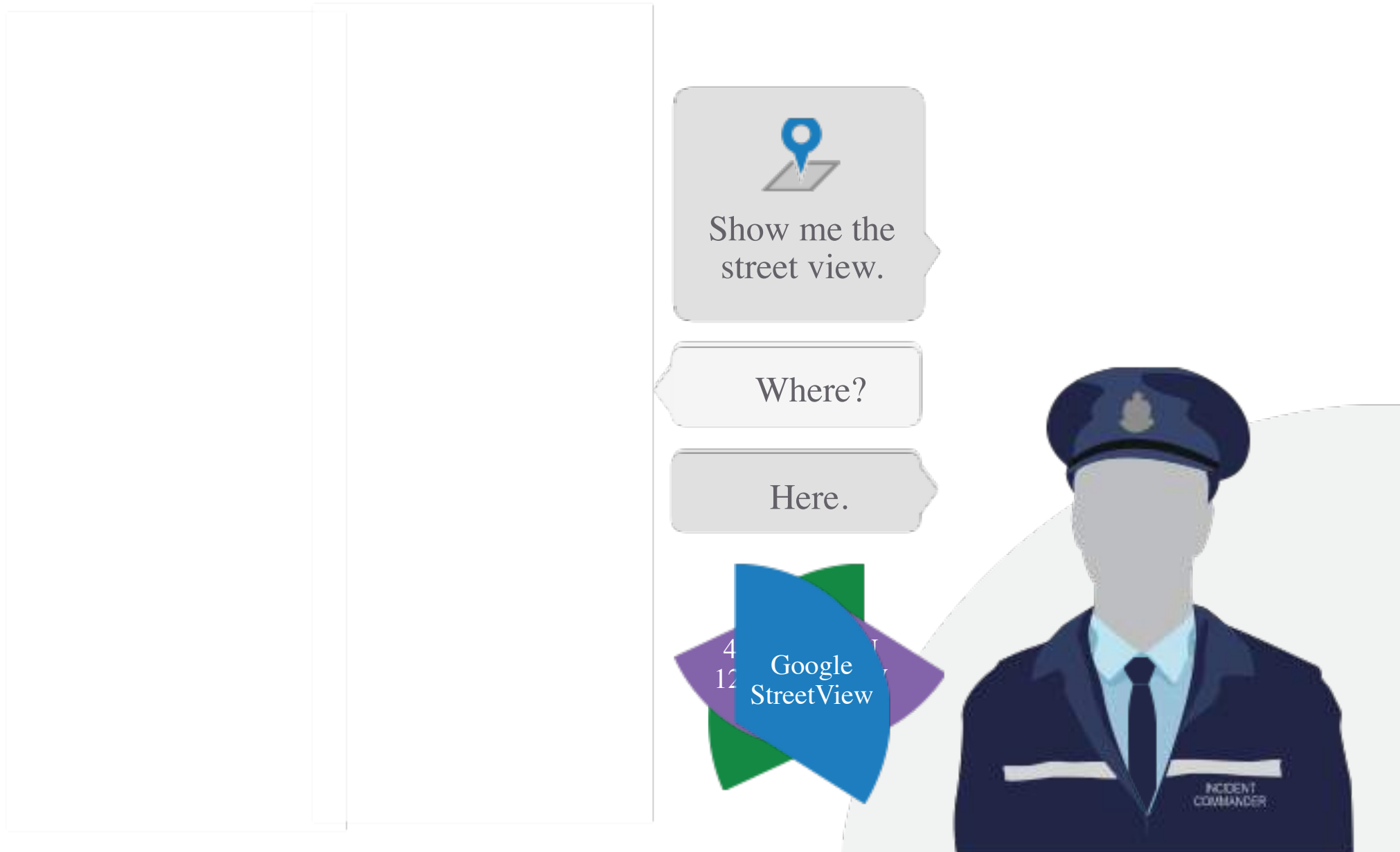
How do incident commanders and responders locate and access data?

Don't make me hunt for information.

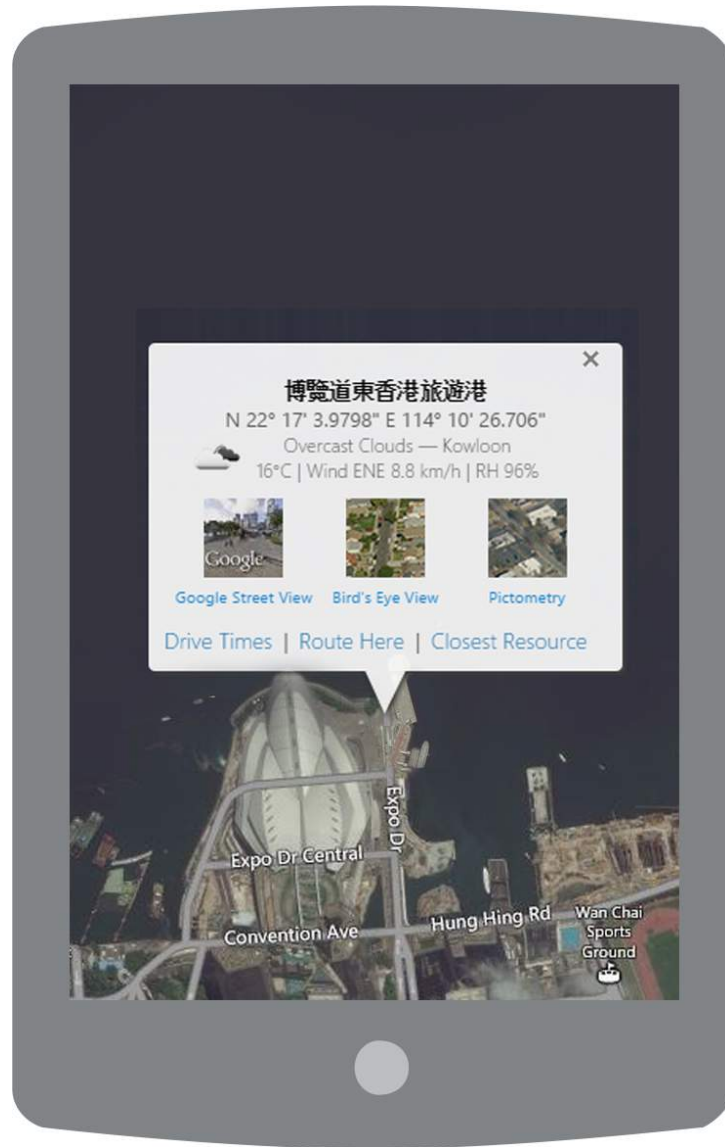
Offer what you have available and make me aware of important information.



“Tools-based” approach



A new approach



123 Elm
St.

Google
StreetView

- Organize the most important information together
- Keep complexity behind the scenes



9 N Congress St

N 34° 59' 39.7536" W 81° 14' 30.372"



Sky Is Clear — York

42°F | Wind WSW 2.2 MPH | RH 93%



[Google Street View](#)



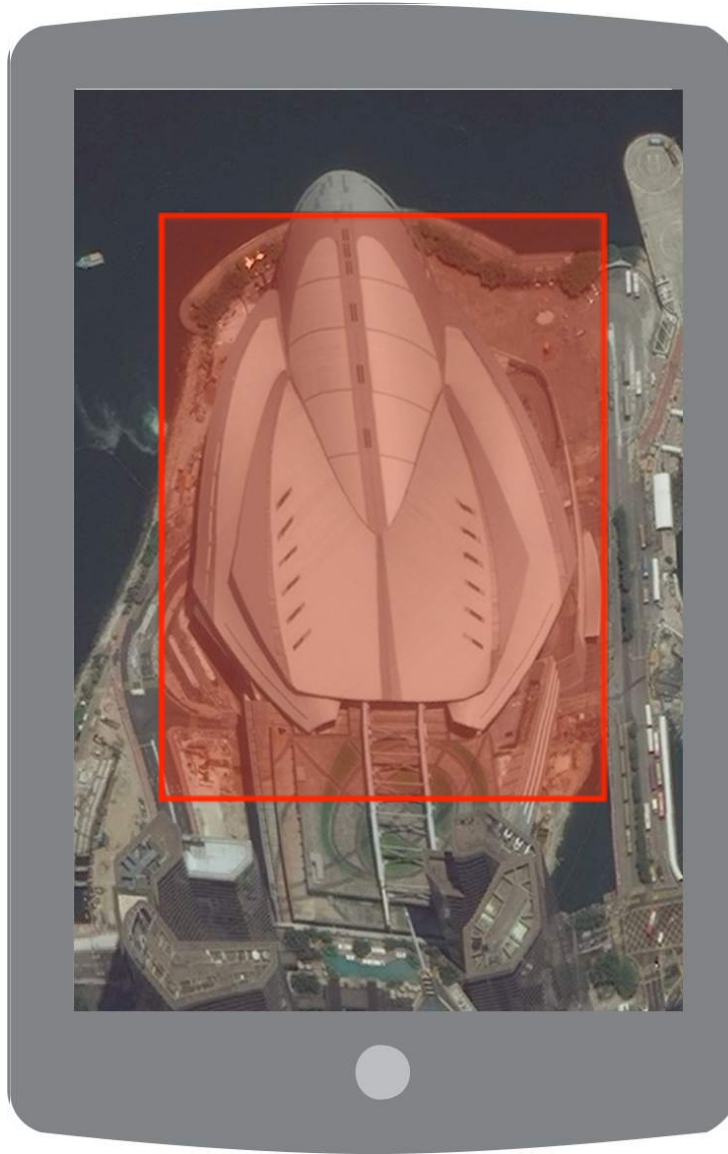
[Bird's Eye View](#)



[Pictometry](#)

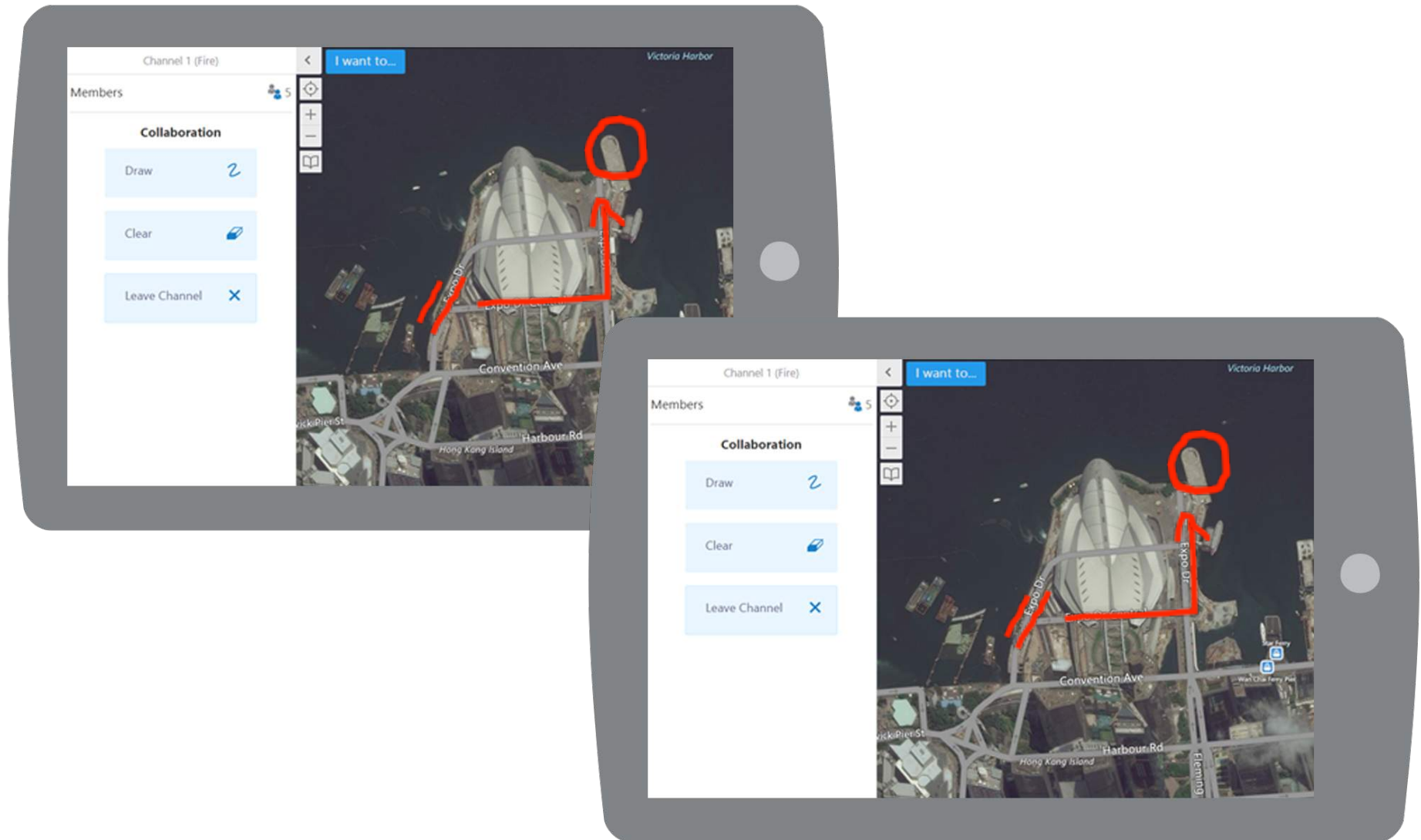
[Drive Times](#) | [Route Here](#) | [Closest Resource](#)

Information within an area

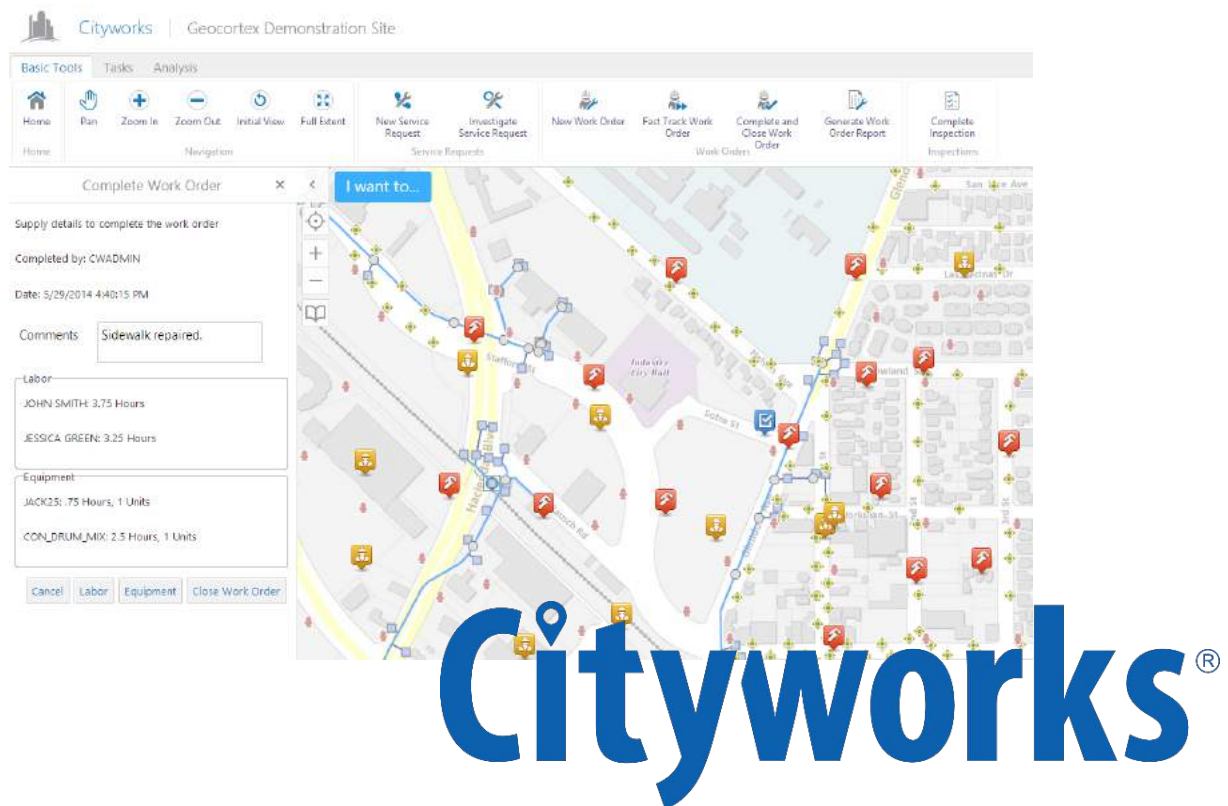


- Through the rapid interaction of drawing a box, the incident commander can request all available information for the area

Collaboration



Technology Update: Cityworks Extension for Geocortex Essentials



Cityworks®

GIS-centric Enterprise Asset Management Software

Manage physical assets, operations,
and cost tracking for:

- Service Requests
- Work Orders
- Inspections



What is the Cityworks Extension?



Everything needed to build use-targeted Cityworks-connected applications with guided interactions.

What is the Cityworks Extension?

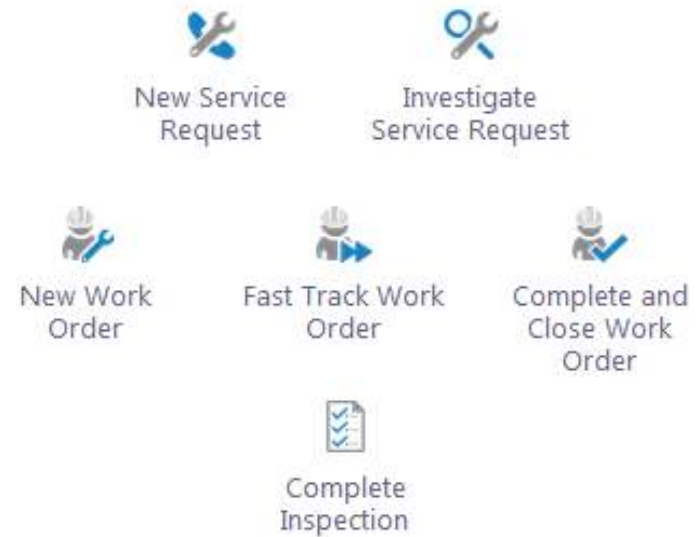
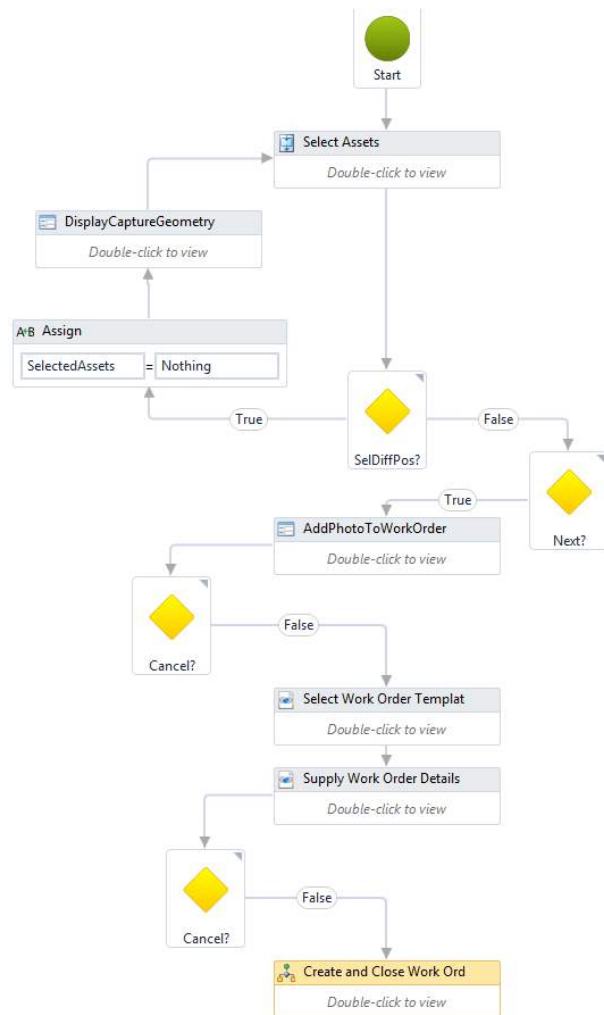
A collection of Cityworks-connected workflow activities

Cityworks

- ☐ Add attachment to Inspection
- ☐ Add attachment to Service Request
- ☐ Add attachment to Work Order
- ☐ Add comments to Service Request
- ☐ Add comments to Work Order
- ☐ Add equipment costs to Work Order
- ☐ Add labor costs to Work Order
- ☐ Cancel Service Requests
- ☐ Close Inspections
- ☐ Close Work Orders
- ☐ Create Inspection QA form
- ☐ Create Service Request
- ☐ Create Work Orders
- ☐ Create Work Orders from Service Reques
- ☐ Generate Cityworks Token
- ☐ Get Cityworks configuration file
- ☐ Get Cityworks Spatial Reference
- ☐ Get current Cityworks user
- ☐ Get employees
- ☐ Get entity groups
- ☐ Get entity types
- ☐ Get equipment
- ☐ Get Inspection Ids within GIS extent
- ☐ Get Inspection questions and answers
- ☐ Get Inspections from Ids
- ☐ Get labor cost codes
- ☐ Get problems
- ☐ Get Service Request attached file
- ☐ Get Service Requests attachment
- ☐ Get Service Requests from Ids
- ☐ Get Service Requests Ids within GIS extent
- ☐ Get Work Order attached file
- ☐ Get Work Order attachments
- ☐ Get Work Order comments
- ☐ Get Work Order costs
- ☐ Get Work Order Templates
- ☐ Get Work Orders from Ids
- ☐ Get Work Orders Ids within GIS extent
- ☐ Update Inspection
- ☐ Update Work Order

What is the Cityworks Extension?

Several out-of-the-box workflows



... many other workflows can be built using the Cityworks Extension for Geocortex Essentials



Cityworks

Geocortex Demonstration Site

Home

Welcome to the Cityworks Extension for
Geocortex Essentials

More Info... ▼



[Open the toolbar](#) to explore out of the box
workflow examples



[See an example](#) of how Cityworks
information can be included in a Geocortex
report



I want to...



DEMO:

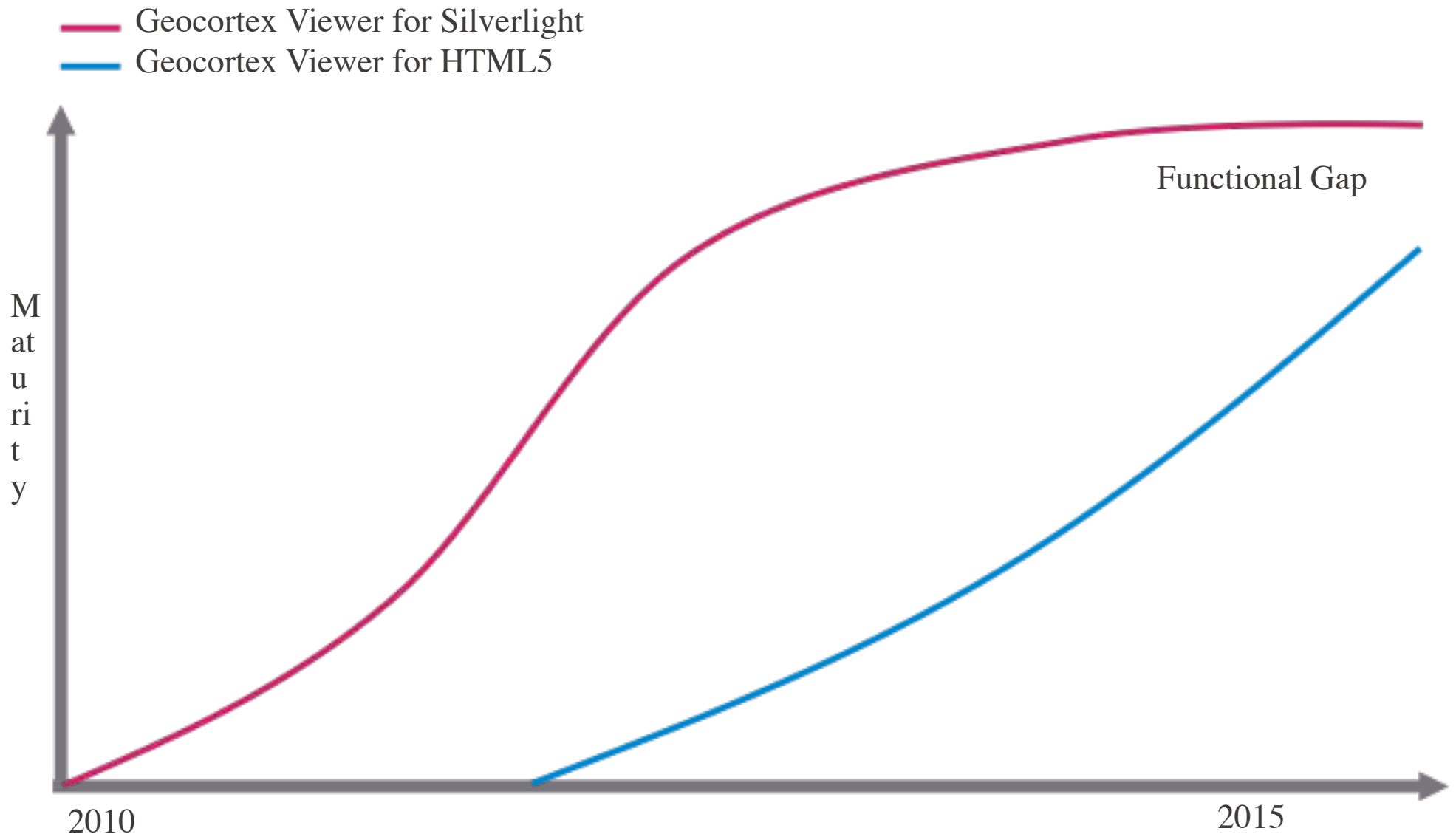
Cityworks Extension



Technology Update: Geocortex Essentials Development Plans



Our Current Gap Analysis



Geocortex Viewer for HTML5 2.6



Save/Open Project



- Save and reload everything about the application state
- Save locally, or onto the server
 - Sharing with groups, users or everyone
- Integration with ArcGIS Online & Portal

Upload Data



- Support for CSV, Excel, Shapefile, KML and File GDB
- Batch geocoding of address files
- Integration with ArcGIS Online and Portal

Search Data Links



- Treating non-spatial records as first-class citizens
- Honoring relationships to spatial data
- Integrating with layer search, Instant Search and Query Builder

Selection



- Maintain multiple, named selections
- Add and remove features from selections
- Perform set operations
 - Union, subtract, intersect

Coordinate Tools



- Enter and plot a list of coordinates
- Save coordinate list, and include coordinates in print outputs
- Change the coordinate system of plotted coordinates

Right-click Context Menu



- Right-click on map for a list of configurable menu actions
- Automatic reverse geocoding (address lookup) and coordinate reporting
- Long-press support on touch devices

Scale Ratio Input

1:500

- Display the current scale ratio of the map
- Allow the user to enter a custom scale
- Provide a pick-list of scales when a basemaps with scale levels is used

Print Preview



- View extent of printed map area
- Dynamically update preview before issuing print request

Field Value Formatting



- Provide formats for dates and times
- Provide formats for numeric fields
 - Decimal precision
 - Currency
- Offsets for dates/times stored in different time zones
- Configuration of field order

Optimized Launch URLs



- Viewer launch URLs are shortened, containing only the viewer name as a querystring parameter:
`http://myserver/Html5Viewer/index.html?viewer=MyViewer`

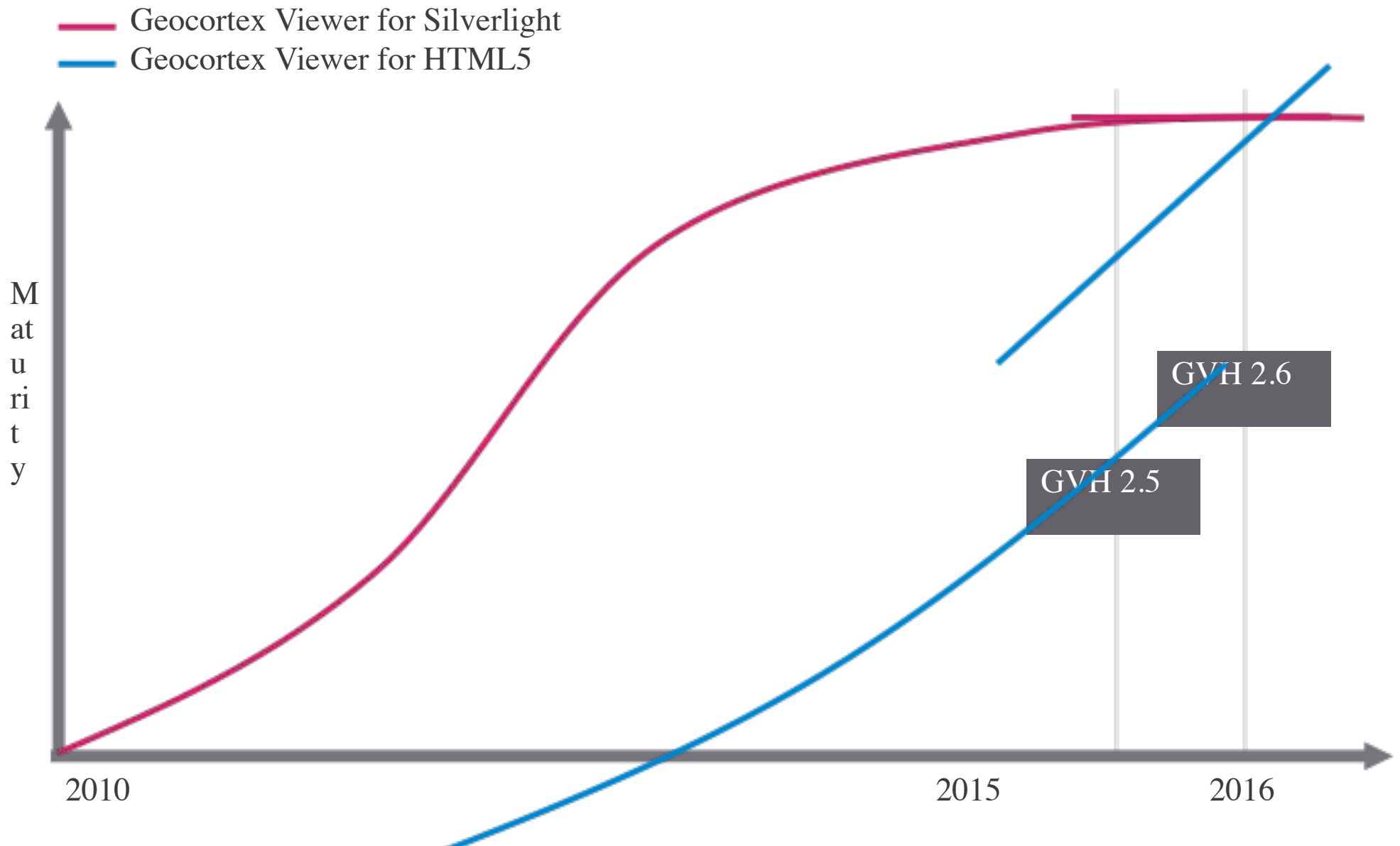
... and several other improvements

- Save drawings to Shapefile
- Improved measure markup
- Publish webmap to ArcGIS Online
- Configurable logo on splash screen
- Layer hyperlinks
- Global toolbar
- Support dynamic GDB version on feature layers and dynamic layers

Summary

- Save/open project
- Upload/add data file
- Search non-spatial data
- Selections
- Coordinate tools
- Map context menu
- Scale ratio input
- Print preview
- Field value formatting
- Optimized launch URLs
- Save drawings to Shapefile
- Improved measure markup
- Publish webmap to ArcGIS Online
- Configurable logo on splash screen
- Layer hyperlinks
- Global toolbar
- Support dynamic GDB version on feature layers and dynamic layers

Eclipsing the Functional Gap



What's Left...

- Time slider
- Dynamically add services/layers
 - Layer Catalog
- Dynamic layer symbolization
- Modify layer labels
- Filter layer list
- Undo/redo markup
- Edit attributes in results grid
- Help system

Not currently planned...

- Advanced polygon editing tools
 - Align edges
 - Create vertices at geometry intersections
 - Choose editable object from overlapping features on the same layer
- Add feature attribute as a label markup
- Verify hyperlinks before displaying to user
- Launch page listing multiple viewers
- Scale slider
- Save bookmarks on the server

ArcGIS API for Javascript: xQML and Esri's QML API— xAPI Reference Overview | x

https://developers.arcgis.com/javascript/jsapi/

ArcGIS for Developers

FEATURESPLANSDOCUMENTATIONCOMMUNITY

SEARCH

ArcGIS API for JavaScript

HomeGuideAPI ReferenceSample Code

< Hide Table of Contents

API Reference Overview

Set up a development environment

Preferred Argument Aliases

> esri

> esri/arcgis

> esri/dijit

> esri/dijit/analysis

> esri/dijit/editing

> esri/dijit/geoenrichment

> esri/dijit/util

> esri/geometry

> esri/layers

> esri/plugins

> esri/process

> esri/renderers

> esri/styles

> esri/symbols

> esri/tasks

API Reference Overview

The API Reference contains detailed descriptions for each class in the ArcGIS API for JavaScript. Use the API Reference to find constructors, methods, and events for each class.

Classes in the API are organized into modules. There is a one-to-one relationship between classes and modules (one exception is the `esri/arcgis` module, refer to the [preferred argument aliases table](#) for others). Related modules, such as `esri/arcgis/layers` or `esri/arcgis/tasks`, are grouped into [packages](#) (also sometimes called folders). To find the reference page for a class, type all or part of its name in the box in the upper right.

If you are interested in writing your own custom classes and modules, refer to the [Write a class](#) and the [Create a re-usable widget](#) tutorials.

[Report an error on this page.](#)

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ArcGIS API for JavaScript 4.0

- 2D/3D support
- Vector tiles (supporting continuous zoom)
- API changes
 - Separation of business logic from drawing logic
 - Properties with get, set and watching
 - New object names with proper case
 - Legacy dojo loader removed – AMD only

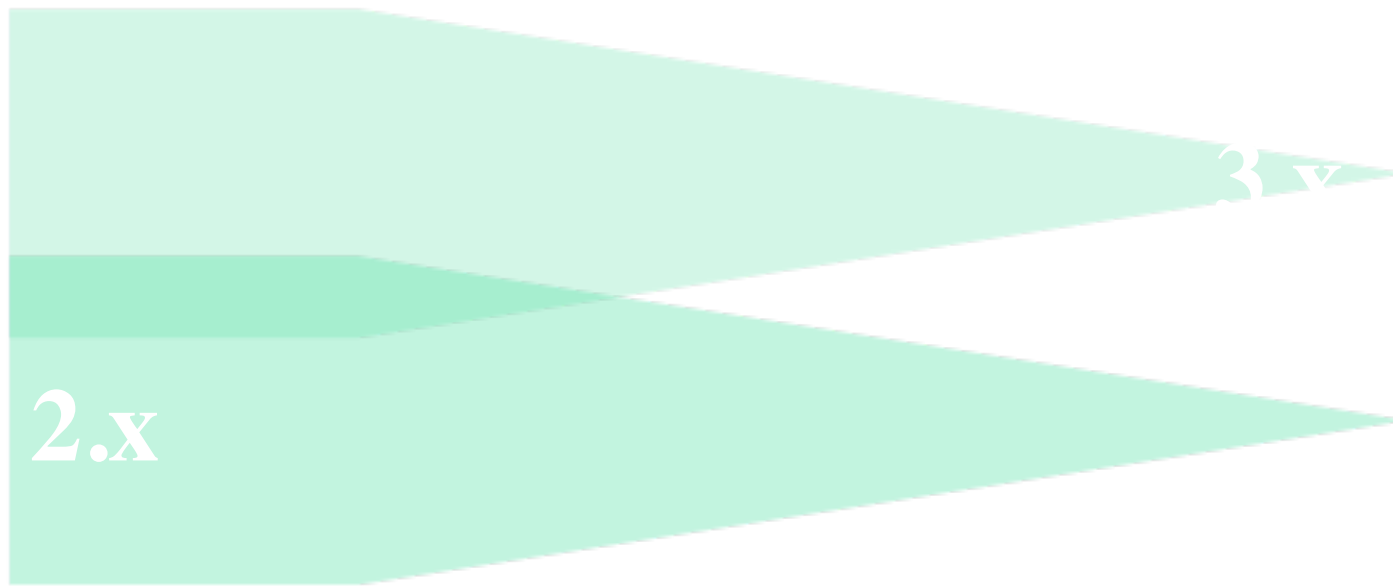
An important update,
but with breaking changes...



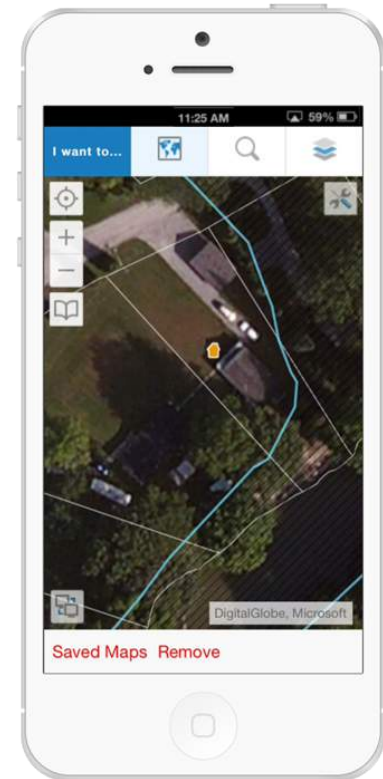
Our Response...

Geocortex Viewer for HTML5 3.0

2.X and 3.0



Geocortex Mobile Application Framework 2.0



Offline Routing & Search



- Embeds Esri's ArcGIS Runtime SDKs
- As the Runtime SDK evolves, Geocortex Mobile App Framework can take advantage
- Native functionality is exposed in JavaScript method calls

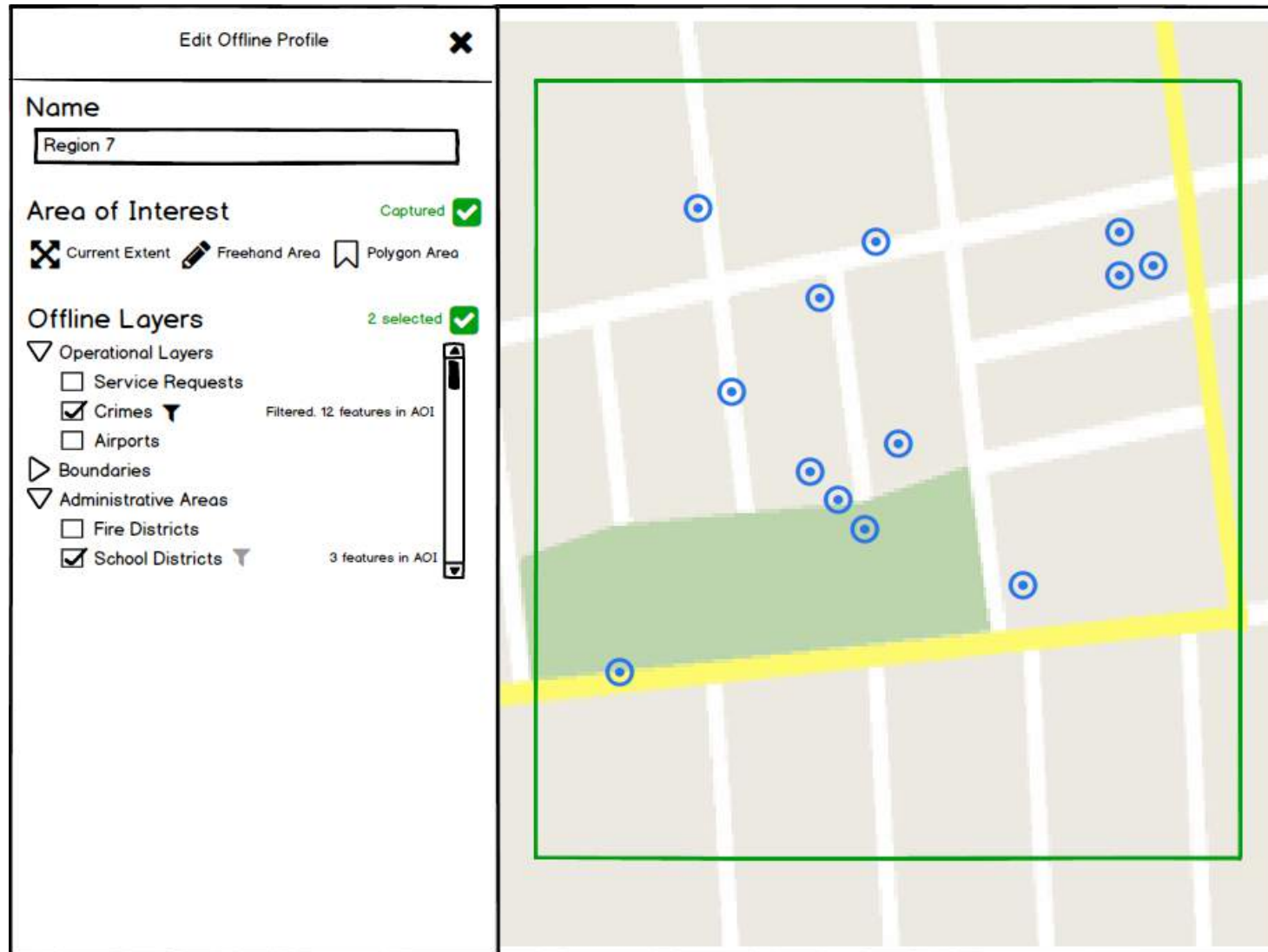
Offline Geodatabase Replicas

- Replacing current offline feature storage with geodatabase replicas in Runtime SDK
 - Supports editing of features, related records and attachments
 - Supports attribute search and query
 - Supports advanced spatial search (lines, polygons)
- Read-only (one-way sync) replicas can be used with Runtime SDK *basic* licensing
- Editing (two-way sync) replicas required Runtime SDK *standard* licensing
- Losing the “Edit Log” – will be reintroduced

Runtime SDK Licensing

- Support activation using Basic Edition or Standard edition license key
- Support activation when signing in with an ArcGIS named user (Portal or ArcGIS Online)

Offline Profiles



Offline Basemap (TPK) Improvements

- Better management of static, pre-defined basemaps
 - Static basemaps are shared across OPs and viewers
- New “Dynamic Offline Basemaps” can be associated with OPs
 - Remove the OP, remove the dynamic offline basemap

Geocortex Mobile Offline Administrator User Experience: Future

- 1 Publish basemaps and feature services using ArcGIS



- 2 Configure a viewer using Geocortex Essentials Manager



- 3 Create and publish offline profiles



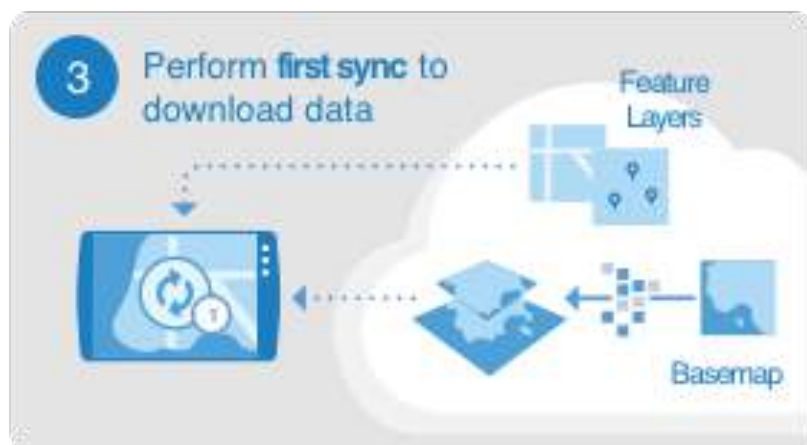
- 4 Assign permissions on offline profile(s) (optional)



- 5 Publish Geocortex Mobile App Framework with the embedded viewer



Geocortex Mobile Offline **End-User** Experience: Future



Future Developments: Summary

- New release of Geocortex Viewer for HTML5 bringing it up to feature parity with our previous generation Silverlight technology
- Ongoing alignment with Esri and inclusion of the ArcGIS API for JavaScript 4.0
- Major improvements to mobile offline workflows

Geocortex Insight

Geocortex Insight

My Dashboards 

Summary

Status

Trends

5

Alarms

Geocortex Essentials

Default

4

Alarms

Geocortex Application

Oil and Gas

1

Alarm

ArcGIS Online

Latitude Geographics

1

Alarm

Geocortex Application

GVH25

1

Alarm

ArcGIS Server

AGSDEMO

0

Alarms

Geocortex Application

LA County Stock

0

Alarms

Geocortex Application

Los Angeles County Offline

0

Alarms

Geocortex Application

Test Site Viewer

0

Alarms

Geocortex Application

Los Angeles County

0

Alarms

Geocortex Application

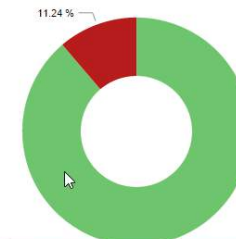
LA County HTML5

0

Alarms

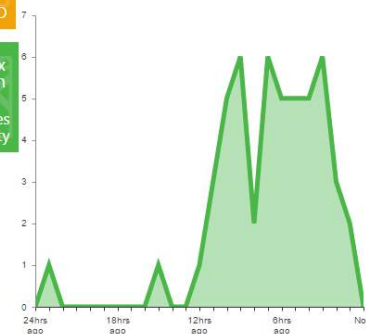
Geocortex Application

Eagle Ford



316 probed items were consistently available in the last 24 hours.

Uptime (Last 24hrs)



How do we
improve uptime,
increase performance,
and ensure stability
of our
GIS infrastructure?

Providing insight into your GIS Infrastructure

- Collect → Routine probing and real-time usage logging
- Monitor → Is this map service responding? How quickly?
- Alarm → No response 3x | Response time > 3000ms
- Act → Notification by SMS message or e-mail
- Report → Show map service uptime and response times over the past 30 days

Provides Answers to Questions:

- Understand the current state of your system
 - How much is my map being used?
 - How are people using my maps?
 - How well is my map performing?
 - How well is my system performing?
- Identifying red flags
 - Is there a particularly costly layer or map service?
 - Did many alarms fire at any particular time?
 - Was system uptime unacceptably low at any time?
- Recognizing trends
 - Is there an upward or downward trend in the map usage?
 - Is there a change in map usage patterns?
 - Is there a downward trend in map performance?

Building on the past...

Modern ArcGIS Platform
Era

ArcGIS Server
Era

Geocortex Insight

ArcIMS
Era

Geocortex Optimizer

Geocortex Statistics/
Geocortex Uptime

2000

201
0

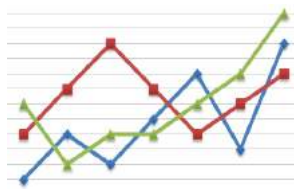
2020



Three Main Areas:



Status



Trends



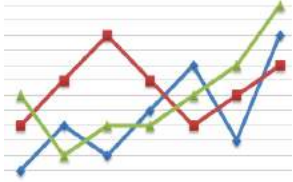
Dashboard



Status

“Right Now”

- Current CPU % in use on each *server*
- Which of my web maps in my *portal* are currently broken?
- Last time each Geocortex Essentials *site* was accessed
- How many users are currently using this *application*?

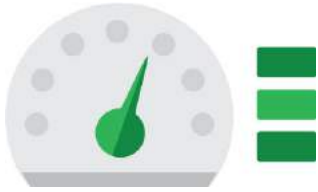


Trends

“Past”

Over the currently selected reporting period:

- What is the uptime/downtime of this *server*?
- Who is my most active user on this *application*?
- How many requests did this Geocortex Essentials *site* receive?
- What is the average response time for a query on this ArcGIS Server *service*?



Dashboard

“All in One Place”

Enhanced to provide significant improvements:

- Customize to contain only the most important reports
- Build multiple dashboards for different purposes (daily reports, monthly summaries, production system statuses, etc.)
- Schedule and print reports directly from custom dashboards

Summary

Status

Trends

July

Last Month

This Month

Filter List

Filter

Trends Geocortex Essentials > Default

System

Servers

Portals

ArcGIS Servers

Geocortex Essentials

Default

LA County

LA_County_Offline

LA County Sales Demos

LA County Sales Demos HTML

Oil & Gas

Oil & Gas Offline

Raster_Images

SDK Viewer Sample Site

Test Site

Geocortex Applications

Websites

LA County

Oil & Gas Offline

LA_County_Offline

Raster_Images

LA County Sales ...

SDK Viewer Sam...

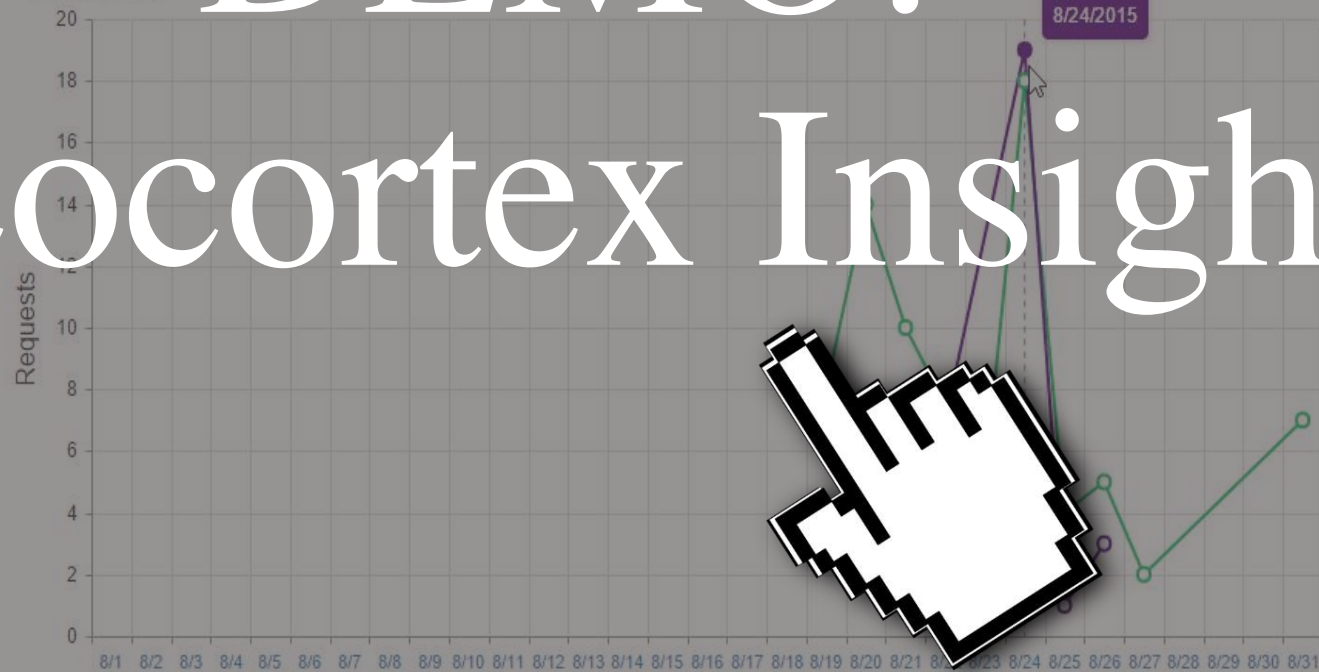
LA County Sales ...

Test Site

Oil & Gas

Aggregate Resource Requests

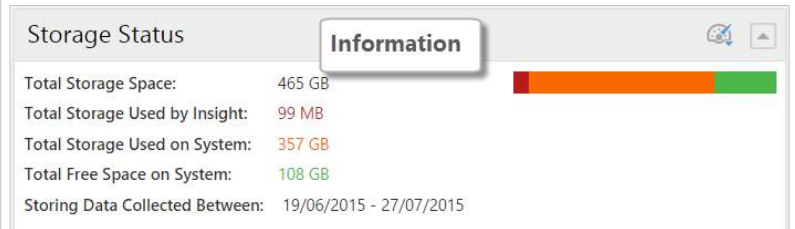
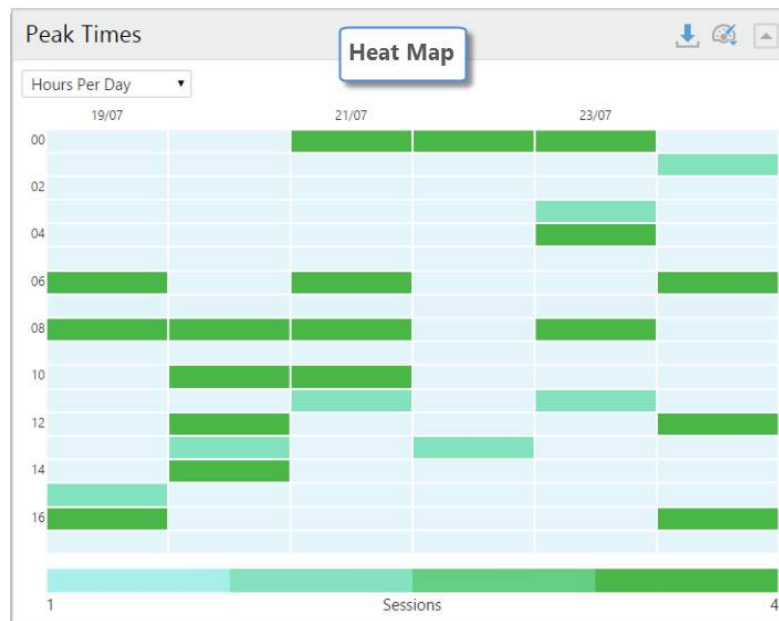
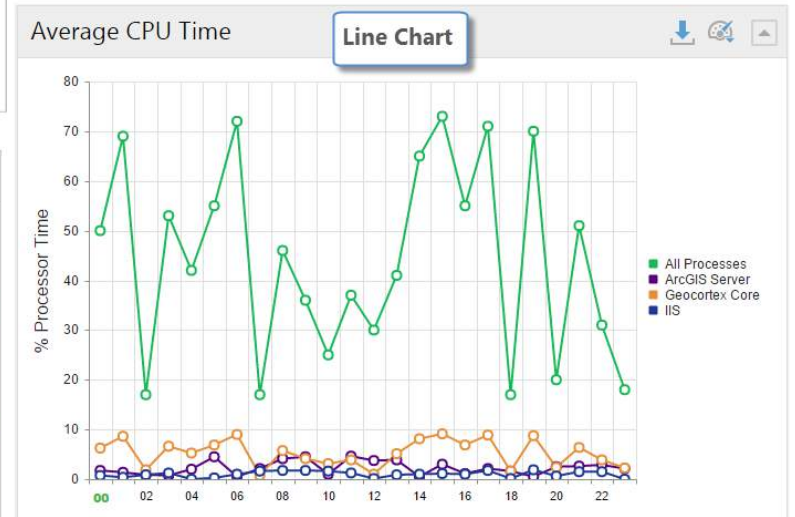
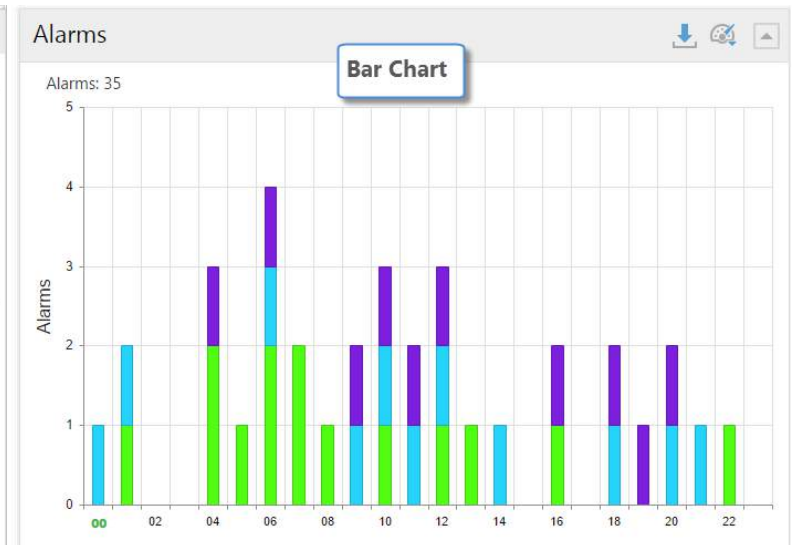
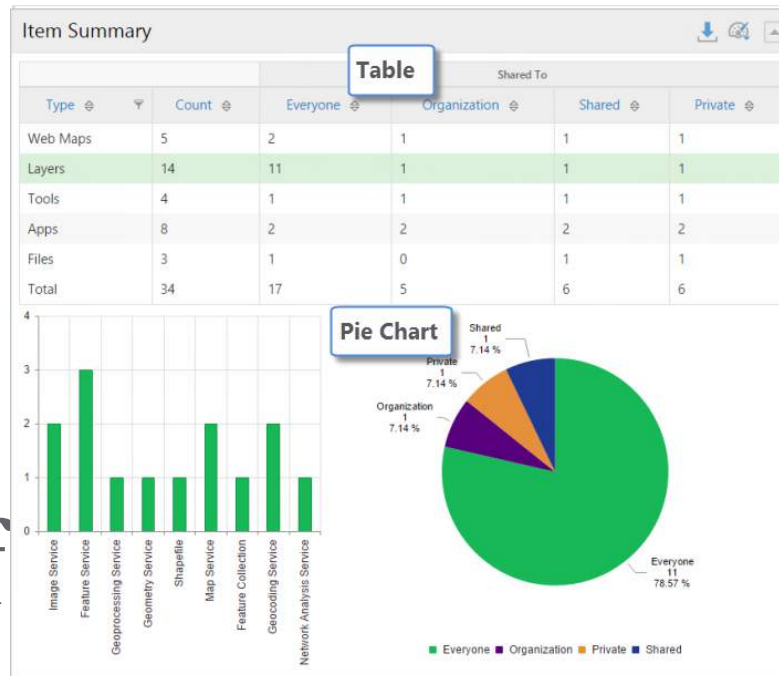
Requests: 153



Day

Requests

Types of Reports



Over 150 Interactive Reports

STATUS

- 5 Server reports
- 10 Portal for ArcGIS reports
- 10 ArcGIS Online reports
- 5 ArcGIS Server reports
- 15 Geocortex Essentials reports
- 4 Application reports
- 3 Website reports

TRENDS

- 10 Server reports
- 8 Portal for ArcGIS reports
- 11 ArcGIS Online reports
- 23 ArcGIS Server reports
- 19 Geocortex Essentials reports
- 25 Application reports
- 5 Website reports

Navigation

Query

Reports

Share Map

Measurement

Photo Log

Help/Feedback

Start

Photo Log

Layers

Asset & Performance Measures

Assets

Asset & Performance Measures

Bridge

Bridge

Culvert

Pavement

Safety

I want to...

BasicBase...

0.4km

0.2mi

FOREST SERVICE 510 RD

RESORT RD

UNDETERMINED (288)

CORAL RD

RESORT BLVD

TWIN ARROWS

UNDETERMINED (286)

BIRD'S EYE RD

UNDETERMINED (287)

TOONERVILLE RD

Photo Date: Apr 22 2014

Route: I-40

Milelog: M219+0.552

2009

2010

2011

2012

2013

2014

2009

2010

2011

2012

2013

2014

2009

2010

2011

2012

2013

2014

I want to...

+ ☐ Safety

Zoom to Feature

NAIP

NAIP2007

NAIP2013

0.2mi

0.2mi

014



Navigation



Start



Photo Log

Asset & Performance

— ☒ Assets

— ☒ Alerts

— ☒ Reports

+ ☐ Settings

+ ☐ Help

+ ☐ About

+ ☐ Feedback



System

Health

History



We have already built a custom photolog tool (like google street view but just for the SHS, we have a van that collects this data annually). We have included tools for users to provide feedback to us as we develop. We also set up tools to link to existing documents, tools, and reports. In this way Geocortex is acting as a data portal which links previously fragmented content to the map and the data behind it. We also created web pages which contain metadata about each of the layers which are linked to via the map tooltips, so if a user wants to understand terms, know how old data is, understand how data was collected, get in touch with the data stewards, or just get more background info that can all be achieved with a couple of clicks. The metadata is beginning to expand into its own sort of metadata encyclopedia which can be accessed via Geocortex, so that the data and metadata can live together side by side.

In the future we plan to build more tools to automatically build reports for federal reporting requirements and business intelligence and enhance the data portal aspect by allowing users to pass special queries to our spatiotemporally rich datasets (such as maintenance crew work reports, or precipitation) to generate summarized views of the data. We also want to add in tools for things like straight line diagramming (a way to view lots of layers of information about the highway what would normally stack on top of each other in a map) and a sort of advanced spatial join tool that would enable better analysis of data which uses disparate spatiotemporal reference frames. As ADOT continues our adoption of ESRI Roads and Highways it should become easier to work with the source data and get it all to conform to the same linear referencing network.