



Esri International Developer Summit
Palm Springs, CA

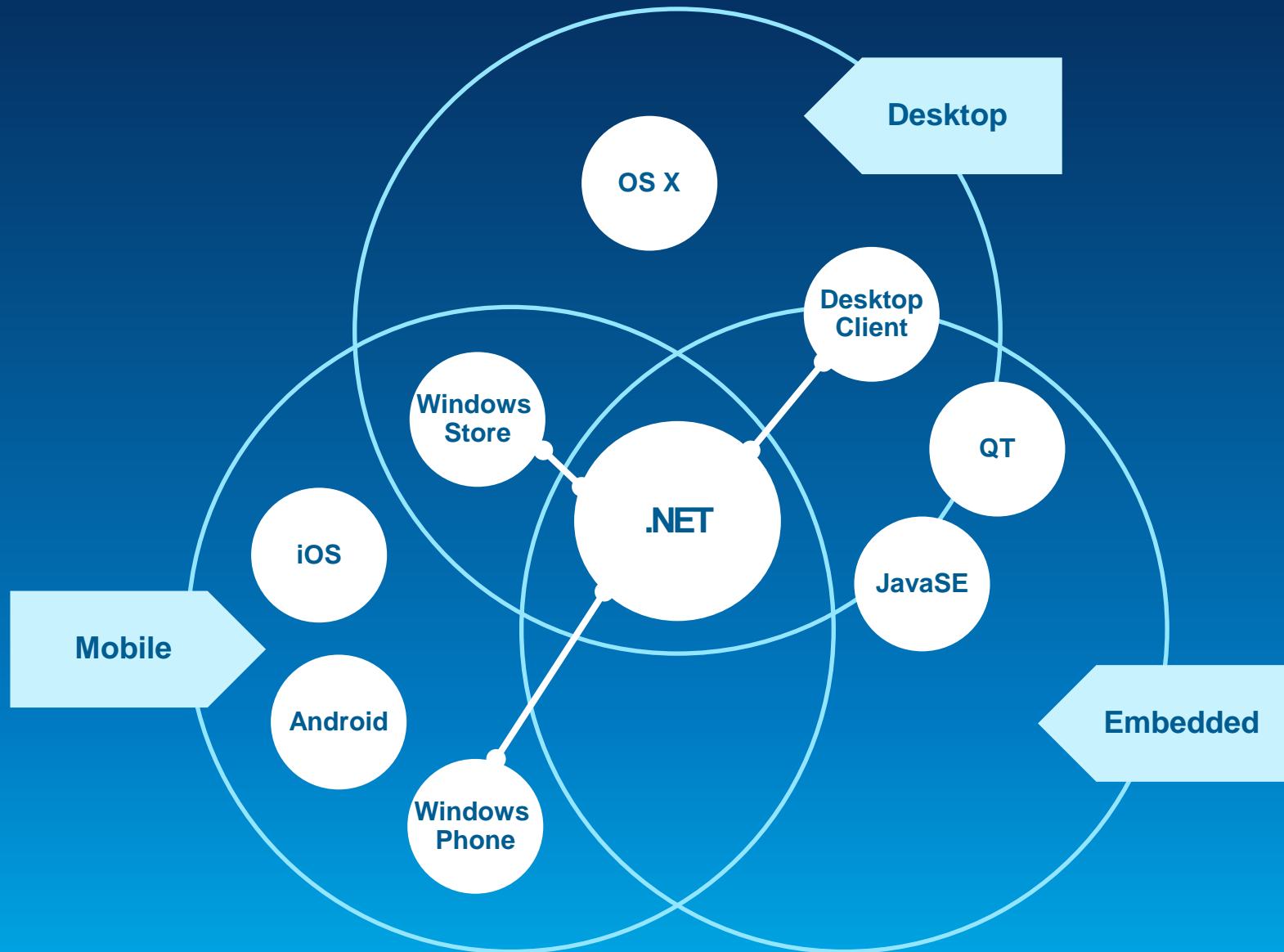
Building Offline Apps with ArcGIS Runtime SDK – Part 2

Will Crick, Justin Colville

Agenda

- ~~Part One – Workflows and Data~~
 - ~~What can you build?~~
 - ~~Where does the data come from?~~
 - ~~Authoring and sharing content with Runtime Apps~~
- Part Two – Using the APIs
 - Mapping
 - Editing
 - GeoCoding
 - Networks
 - What's changed since Beta
 - What's coming

Runtime platforms



10.2.2 release

- **Beta @ 10.2, now in final**
- **Basemaps**
 - **ExportTileCacheTask**
- **Features**
 - **GeodatabaseSyncTask**
- **Addresses**
 - **Locator (local)**
- **Directions**
 - **RouteTask (local)**
- **New but familiar building blocks**

Working With Basemaps Offline

- **ArcGIS Desktop Can Create Tile Caches**
- **Esri Basemaps**
 - <http://tiledbasemaps.arcgis.com/...>
 - [AGOL basemap group](#)
- **ArcGIS Server Tiled Map Services**
- **Services Limit Extent**
 - **Administrator Sets the Limit**
 - **Workable Size**
 - Compression quality
 - **Estimations**
- **Consider Reusing Offline Basemaps**

Psuedo/Code snippets

```
task = new ExportTileCacheTask(url);
```

```
params = new ExportTileCacheParams();
```

```
params.setLevelsOfDetail( [1,2,3,4] );
```

```
params.setAreaOfInterest( geometry );
```

```
task.estimateTileCacheSize( params); //async
```

```
task.exportTileCache( params, path ); //async
```

SubmitJob

Poll for status

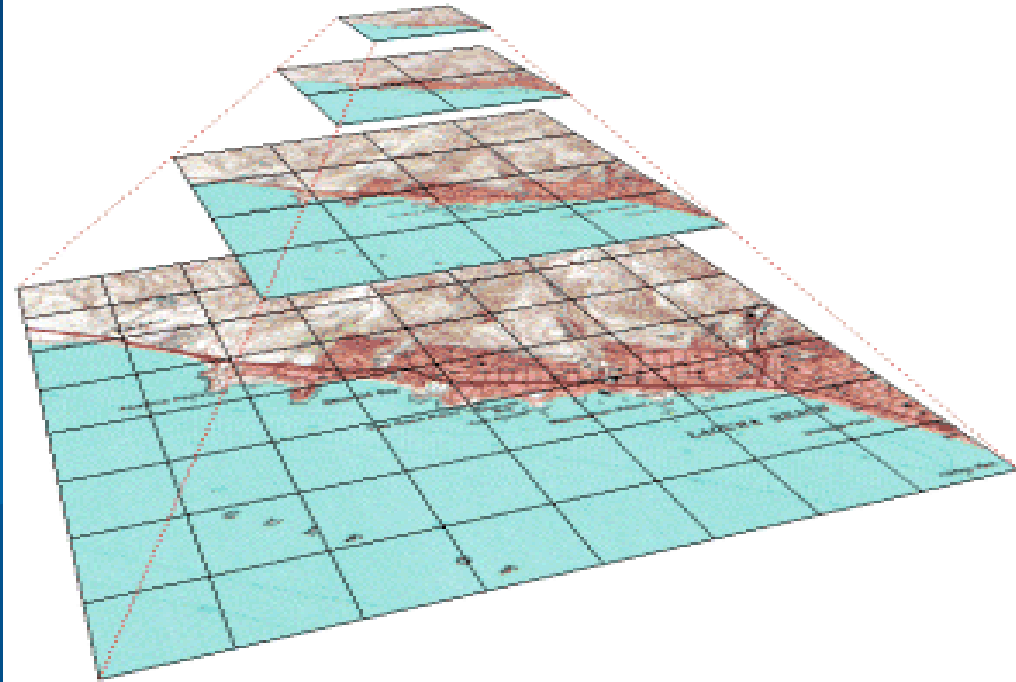
Download when complete

Some platforms handle partial downloads

Demo

Taking ArcGIS Online Basemaps Offline

Justin



Working With Operational Data Offline

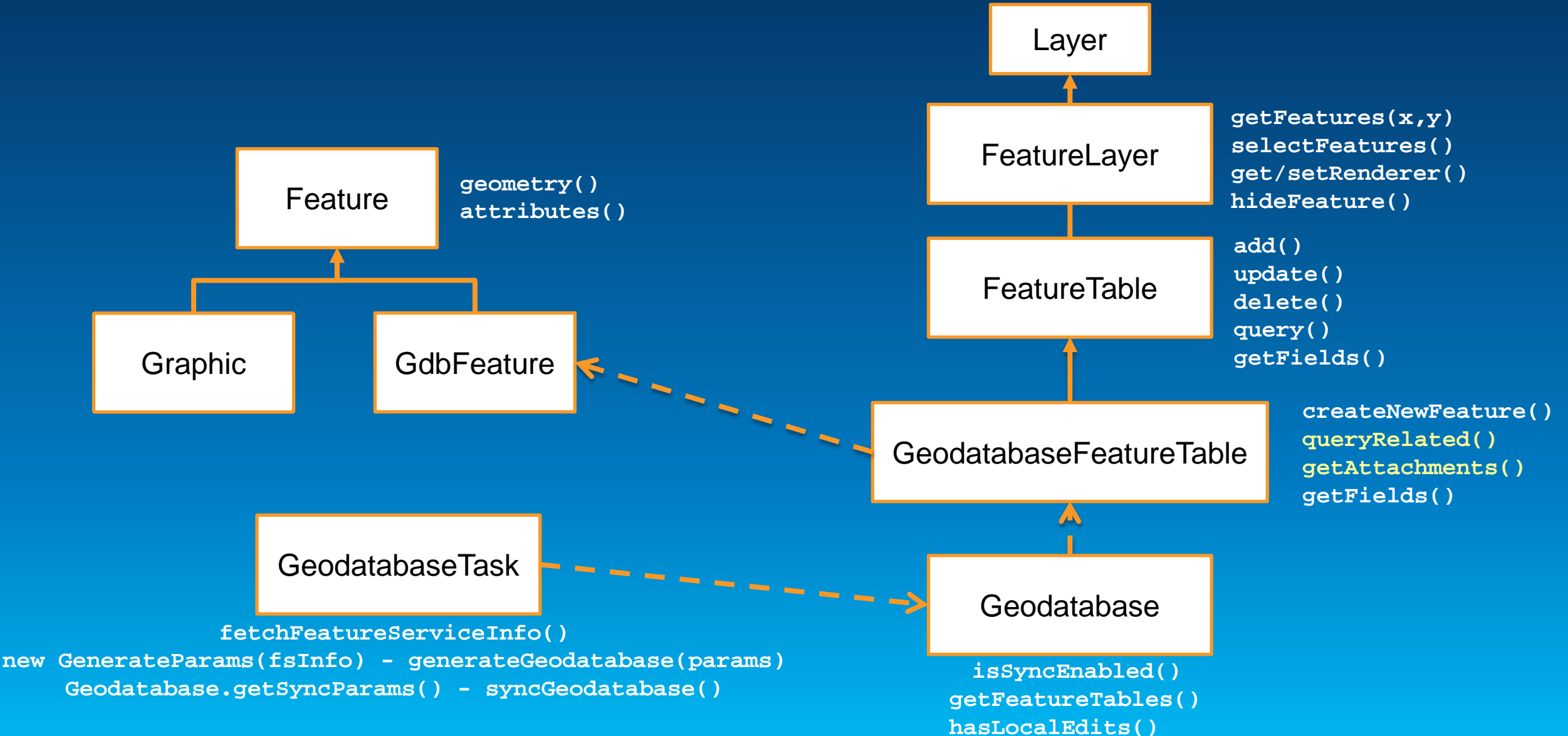
It is all about the features

- **Read only access**
- **Work with Attachments and Relates**
- **Edit Features**
- **Use Popups**
- **Sync Changes with a Server**

Syncing With a Server

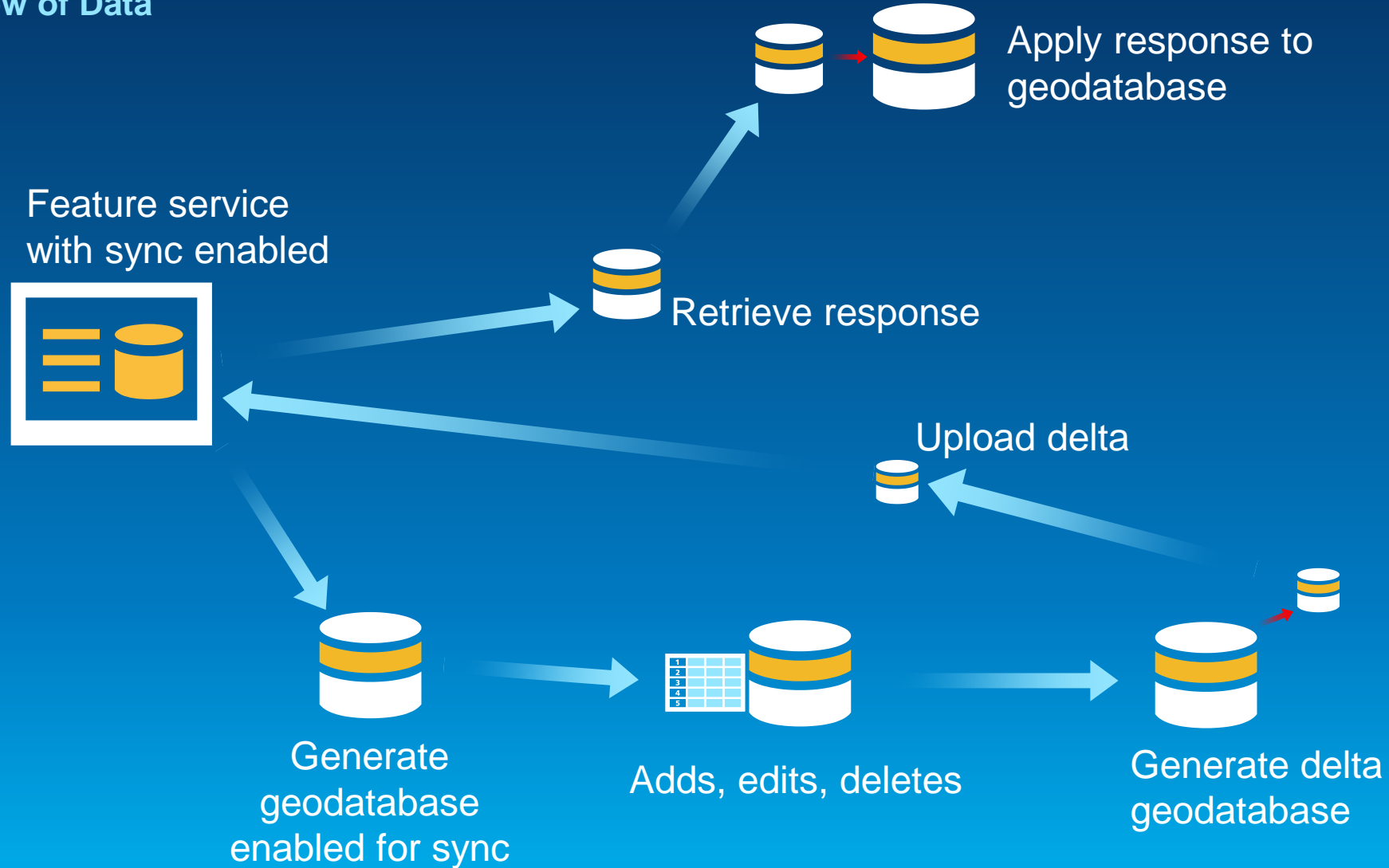
- **Send Edits**
- **Versioned Data – download only**
- **Per Layer Sync – non versioned data**
- **Per Geodatabase Sync – versioned data (download only)**
- **Control Over Sync Direction**
 - **None**
 - **Download changes only**
 - **Upload edits only**
 - **Download changes and upload edits - bidirectional**

Generating a Geodatabase and Showing Features



How Does Sync Work?

The Flow of Data



Offline Features

Android samples

CreateRuntimeGeodatabase

OfflineEditor



Working With Locators Offline

- Prepared for Offline Use Using ArcGIS Desktop
- Programming Model Similar to Online Locators
- High Performance

Locator psuedo code

- `task = new Locator(path);`
- `//geocode`
- `params.setText("");`
- `task.findAddress(); //async`
- `//reverse geocode`
- `task.findLocation(point);`

Demo

Offline Locators

Justin



Working With Networks Offline

- Prepared for Offline Use Using ArcGIS Desktop
- Programming Model Similar to Online Networks
- High Performance

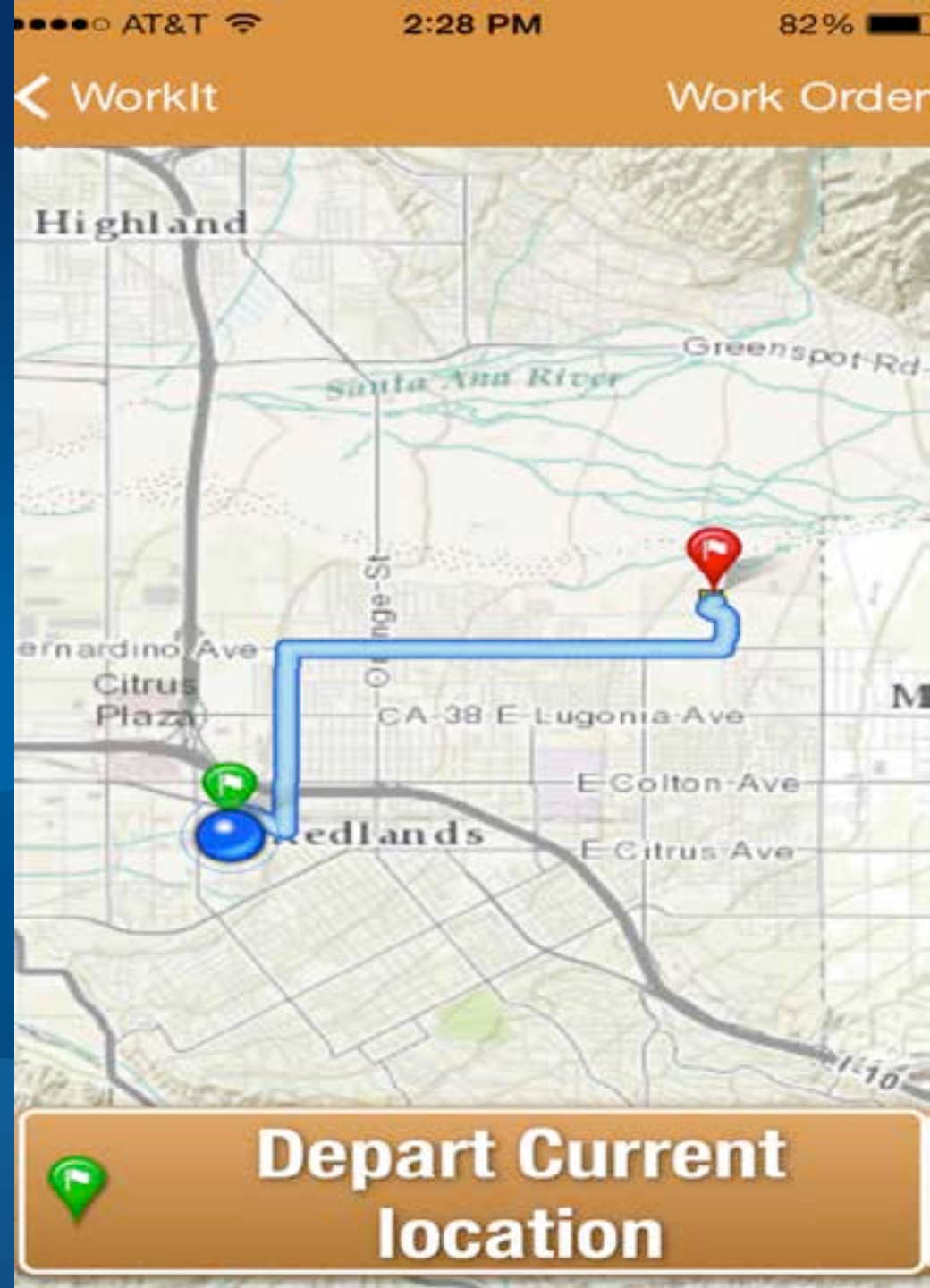
Routing psuedo code

- `task = new RouteTask(path);`
- `params = task.retrieveDefaultRouteTaskParams();`
- `params.setStops(NAFeatures);`
- `task.solve(); //async`

Demo

Offline Networks

Justin



App development

- **Killed/exited apps**
 - **Hold on to params (or with iOS jobid) and resubmit same job (with use cached job=true)**
 - **If job still exists on the server, will not resubmit job**
 - **If partial download on disk, will not resubmit job**
 - **If error, will resubmit job**
- **Backgrounded iOS apps**
 - **Go to iOS session!**
- **Large data over 3G**
 - **Check for wifi access for ExportTilecCacheTask??**

Licensing Offline Capabilities

- Viewing Vector and Raster Data
 - Basic License
- Offline Feature Editing, Geocoding and Networks
 - Standard License



Migrating code from 10.2 beta

- **Name changes**
 - gdb -> geodatabase
 - TileCacheTask -> ExportTileCacheTask
 - GeodatabaseTask -> GeodatabaseSyncTask
 - generateGeodatabase, syncGeodatabase
- **Return edit errors**
- **Support for symbol rotation renderers**
- **Hide features**
- **Fault tolerance**
 - Throw exceptions if not editable, editing outside of extent
- **Stability and performance**

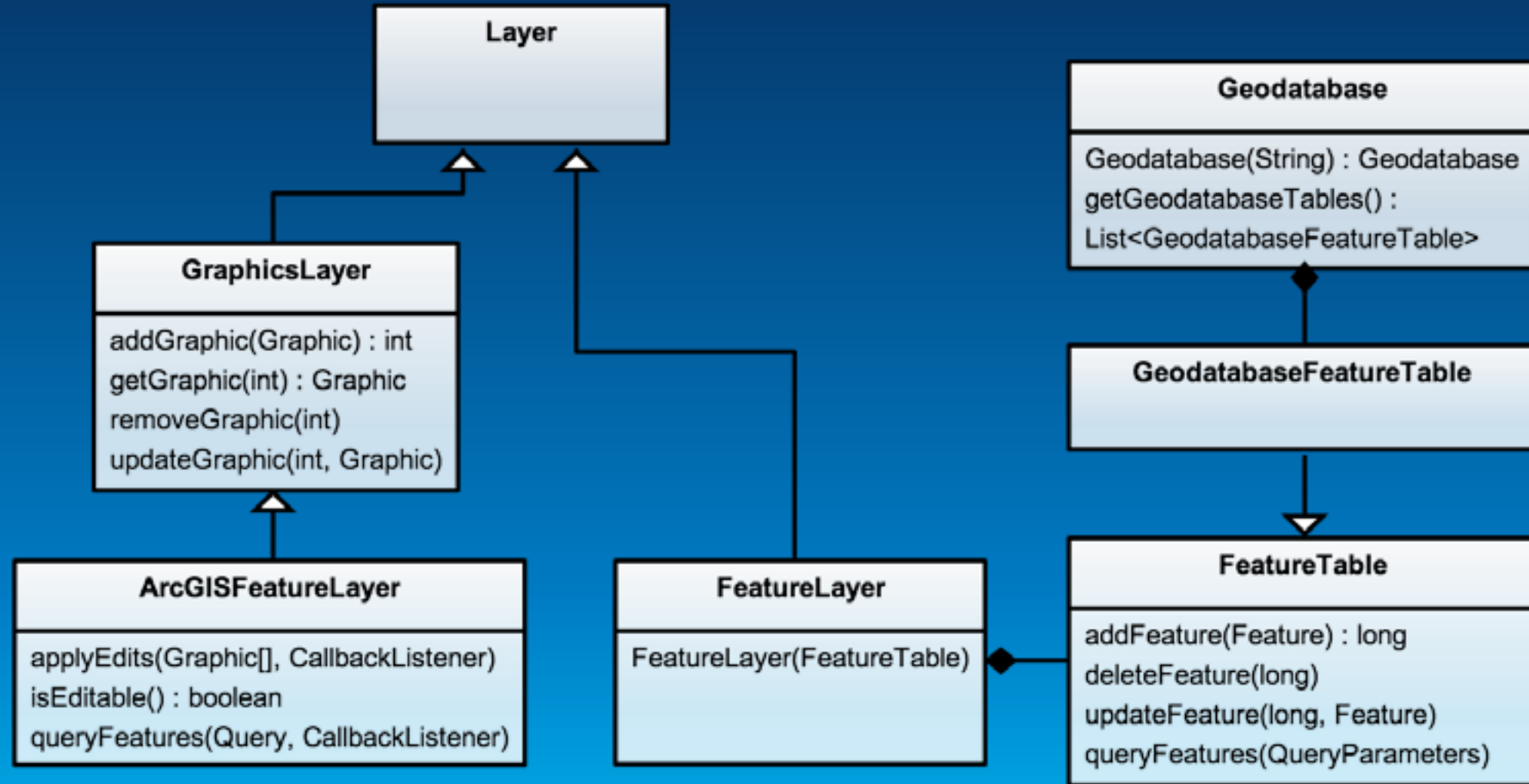


See release notes for each platform

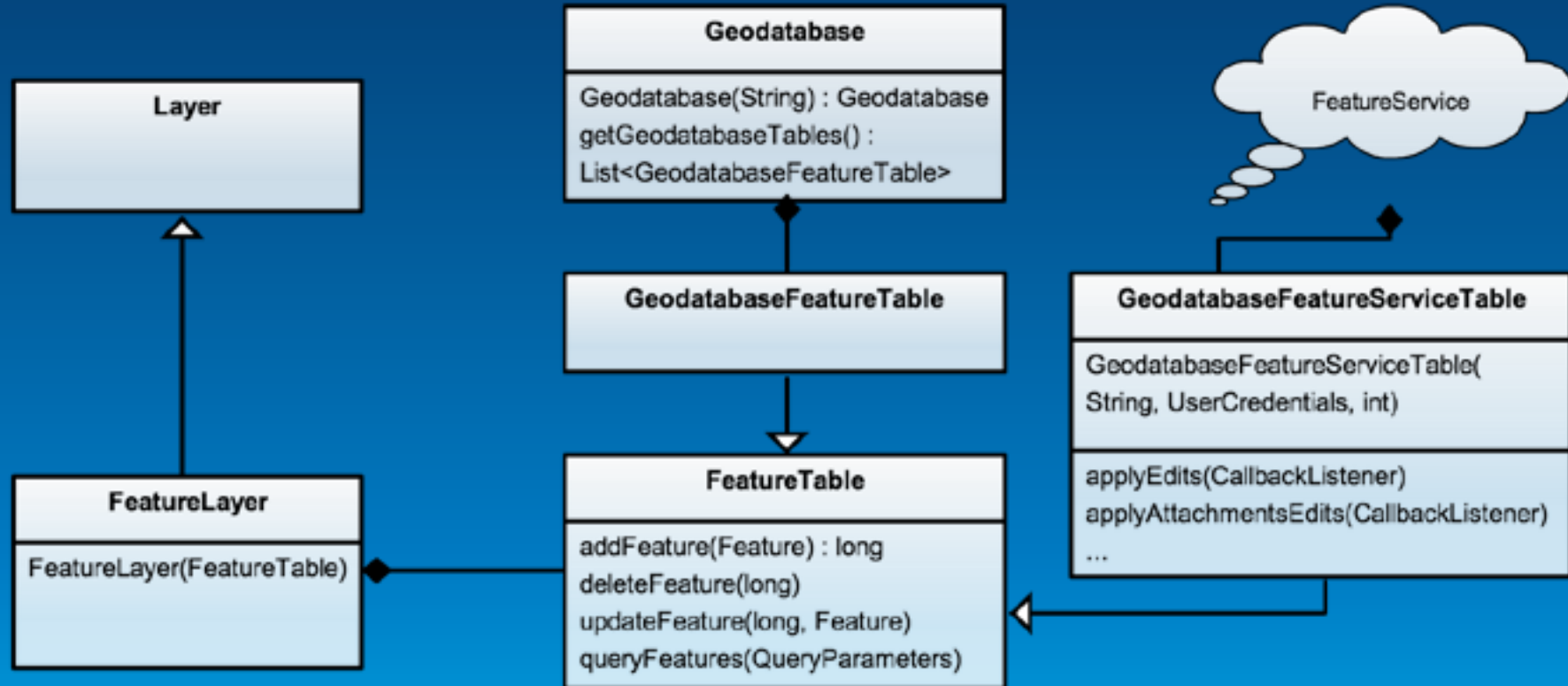
What's coming?

- **Summer**
 - Support for editing versioned data
 - Check-in to ArcGIS desktop
 - Local raster and vector data
 - Feature Service Table
 - Online usage using a FeatureTable
 - Allows code/pattern reuse
 - Allows for short drops in network connections
- **Beyond**
 - Take maps offline
 - More offline analysis
 - Extensible data formats
 - Custom symbology

Life without the feature service table



Feature Service Table



Questions?



Understanding our world.





Understanding our world.