



Esri Petroleum GIS Conference

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ArcGIS Runtime Mobile and Desktop

Jeff Shaner and David Cardella



Application Development - Trends

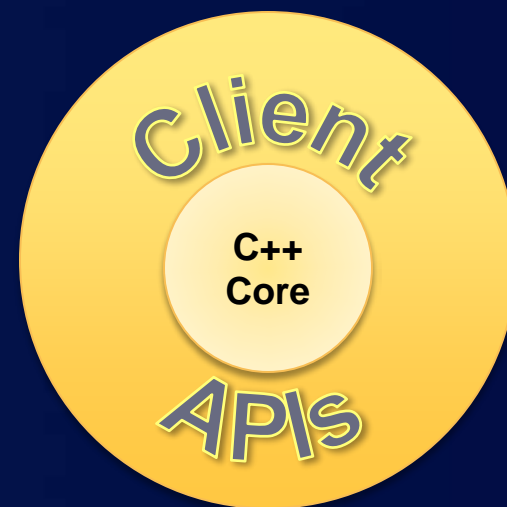
A New Paradigm

- **Microsoft Style - Desktop Applications**
 - Desktop apps with menus, toolbars and ribbons
- **Google Style – Web**
 - Browser based, always connected
- **Apple Style – Native Applications**
 - Focused applications
 - Often part of an eco-system of apps
 - Connected – Powered By ArcGIS Online
 - Disconnected
 - Built to exploit the device



The ArcGIS Runtime Architecture

- **Every Platform Requires a Runtime**
 - A GIS runtime
- **Runtime Core**
 - C++
 - Small
 - High performance
- **Client APIs Expose Functionality to Developers**
 - DotNet
 - Java
 - Objective C



ArcGIS Runtime

Application

ArcGIS Runtime

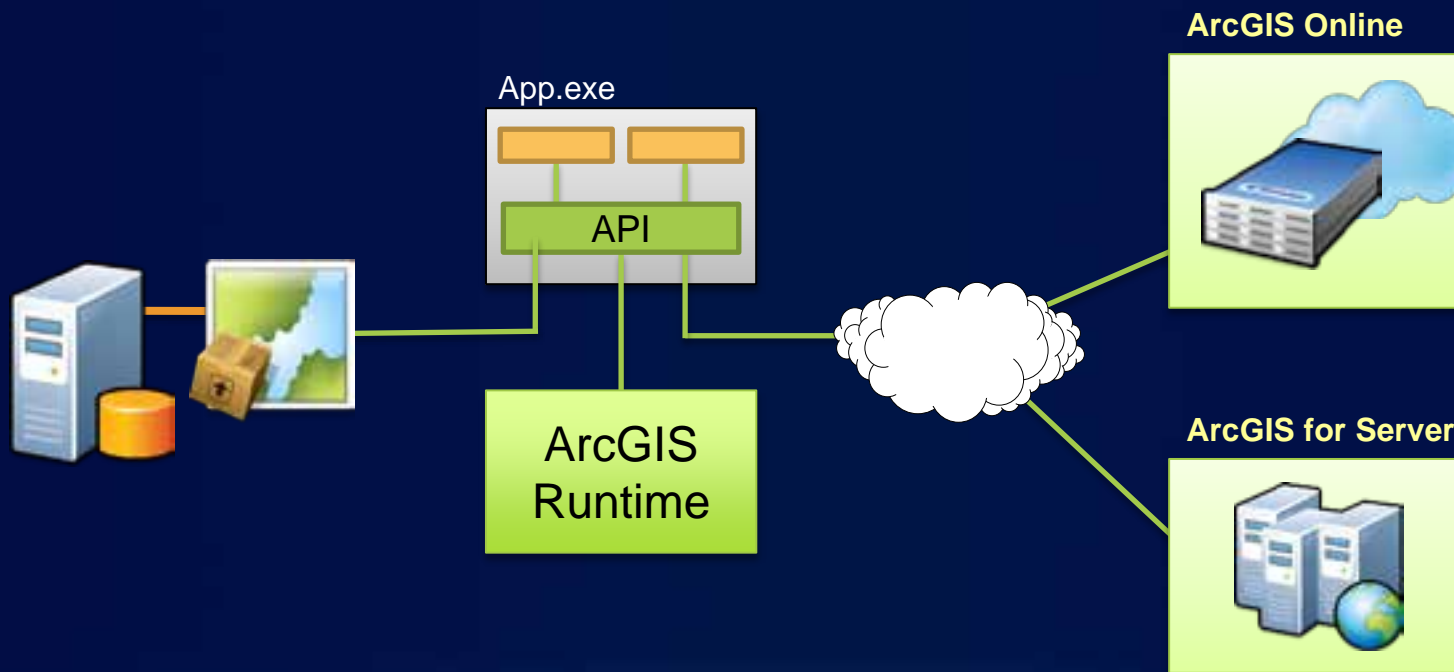
ArcGIS Runtime

- **The Runtime is Technology**
 - **Developers build applications with SDKs**
 - **Users run Applications**
- **Fully Integrated Inside the ArcGIS System**
- **Access ArcGIS Online Services**
- **Maps, Data and Tools Managed with ArcGIS Desktop Shared with the Runtime**



Solid Foundation for Developers Moving Forward

- Designed for offline and online development



Developers Are Productive on the Desktop and Online

Its Not Just About Writing Code

Disconnected Usage

- **ArcGIS for Desktop Used to Provision Solution**
- **Content is Authored**
 - Map Packages
 - Tile Packages
 - Locator Packages
- **Functionality Can Be Authored**
 - Geoprocessing Packages
- **Packages can be delivered on Media, or downloaded from online**
- **ArcGIS Server Can Deliver Content to Clients**



ArcGIS - A Complete Geographic Information System

Connected Usage



... For Authoring, Serving & Using Geographic Knowledge

ArcGIS for Web & Mobile



Native Application Development Platforms

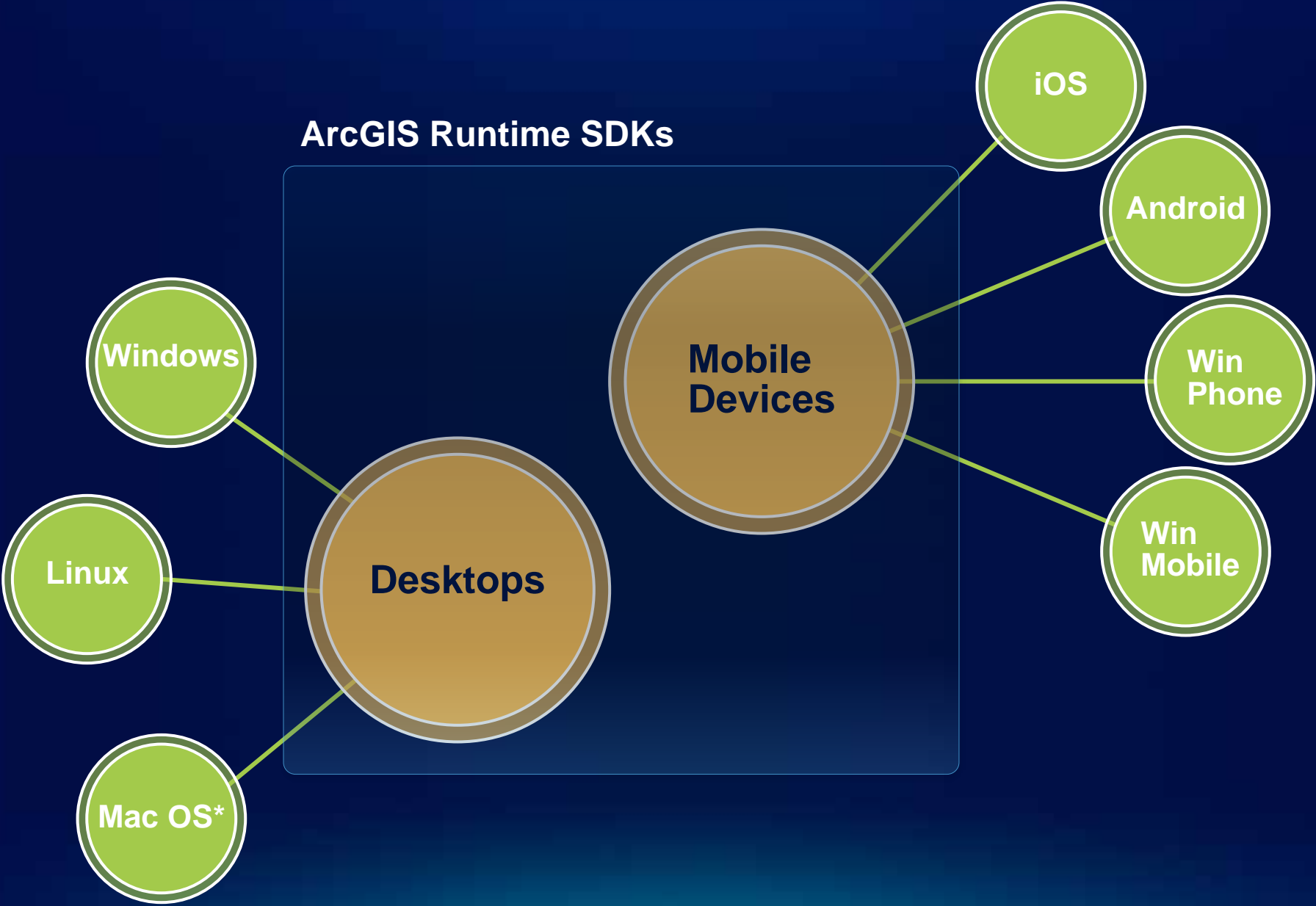


Mobile Devices

Desktop

- Each Platform Has
 - A runtime
 - API + SDK
 - Applications

ArcGIS Runtime SDKs



Smartphone and Tablet Runtime SDKs

- **Powerful**
- **Native APIs**
- **Rich, Sample driven SDK**
- **Similar object models**
- **REST-based**



Smartphone and Tablet Runtime SDKs

Advantages

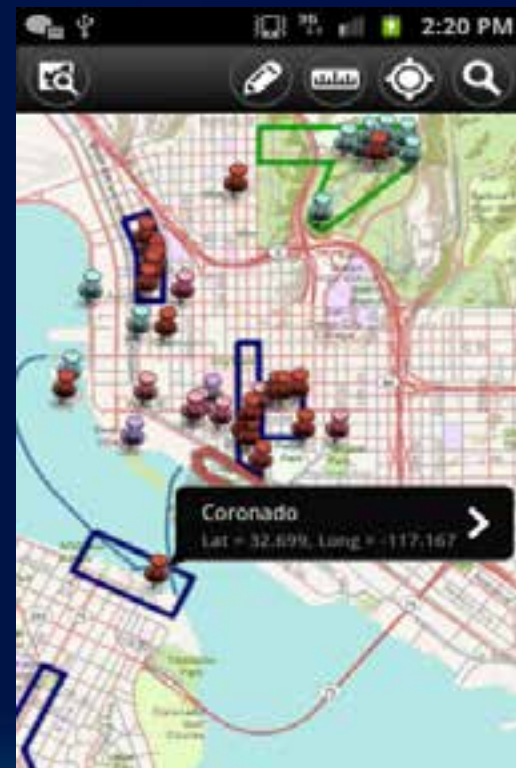
- **Access your own authoritative data**
- **Advanced analysis**
 - Ask questions of your data
- **Collect new data**
 - Improve the accuracy of your data
 - Citizen as a sensor
- **Build focused apps**
- **Implement mapping in to an existing app**



What can the Mobile SDKs do?

Map Layers

- **Tiled**
 - ArcGIS Server, Bing
- **Dynamic**
 - ArcGIS Server, ArcGIS ImageServer
- **Graphics Layer**
- **Feature Layer**
 - ArcGIS Server
- **Web maps**



What can the Mobile SDKs do?

Local Tiled layers

iOS Platform

- Tile Caches
- Tiled packages (.tpk)

Android Platform

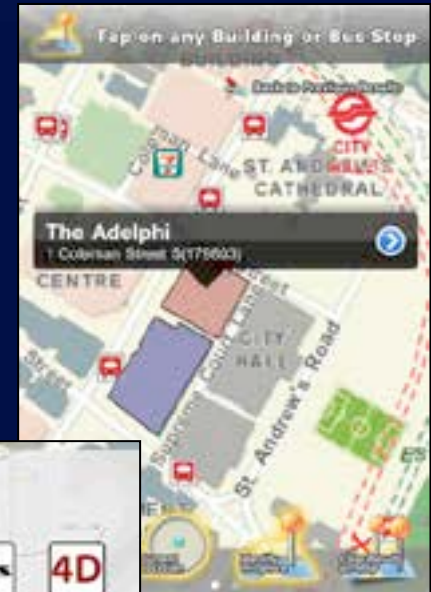
- Tile Caches



What can the Mobile SDKs do?

Graphics

- Arbitrary objects added to a Graphics Layer
 - Point, Lines, Polygon, Text
 - Geometry + Symbol + Attributes
- Commonly used
 - Sketching
 - Callouts
 - Popups
 - authored in ArcGIS online
 - Attributes

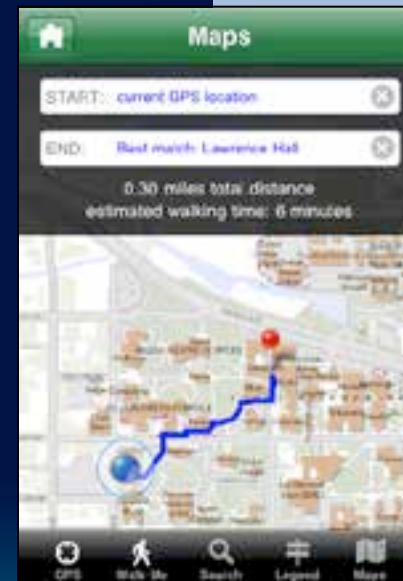


What can the Mobile SDKs do?

iOS, Windows Phone, Android

Analysis

- Query, Identify, Find GIS features
- Locate/Geocode addresses
 - Reverse geocode
- Geometry Engine
 - Native, high-performance engine
 - geometric operations on the device
 - Cut, Union, Buffer, etc.
- Geoprocessing Tasks
- **Routing**

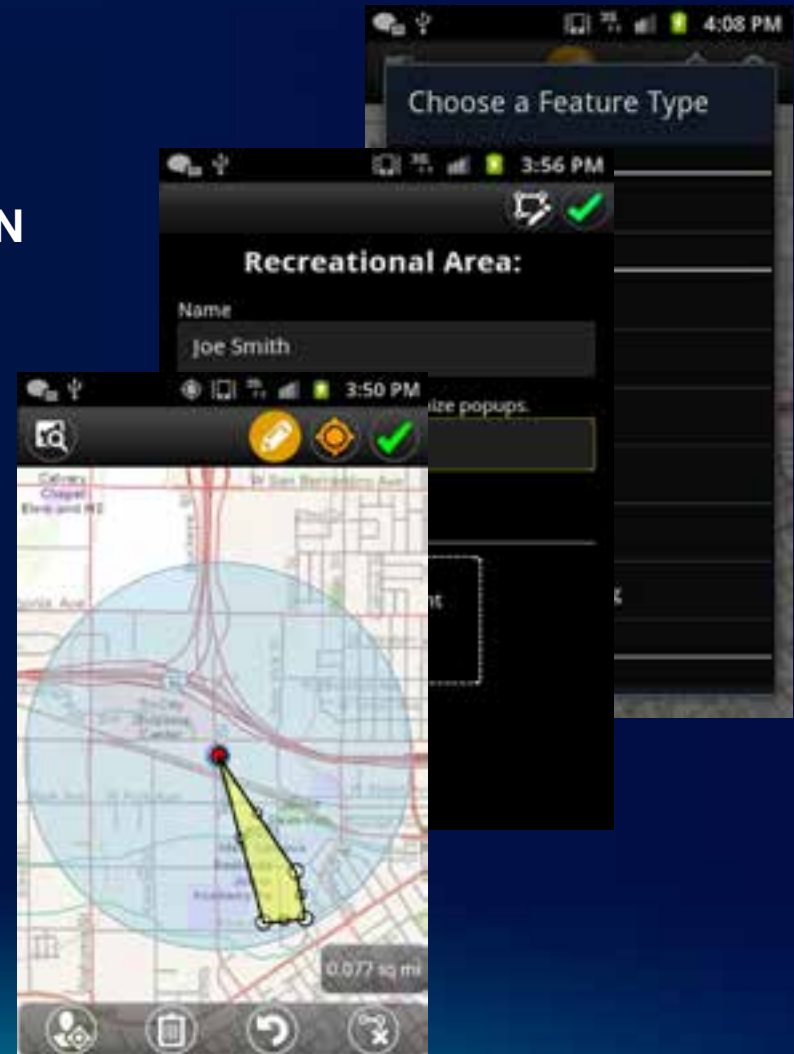


What can the Mobile SDKs do?

Data Collection

- **Against a Feature Service**
 - Samples serialize/deserialize JSON
- **Connected Editing**
- **Attachments**
- **Add, delete, modify, cancel**

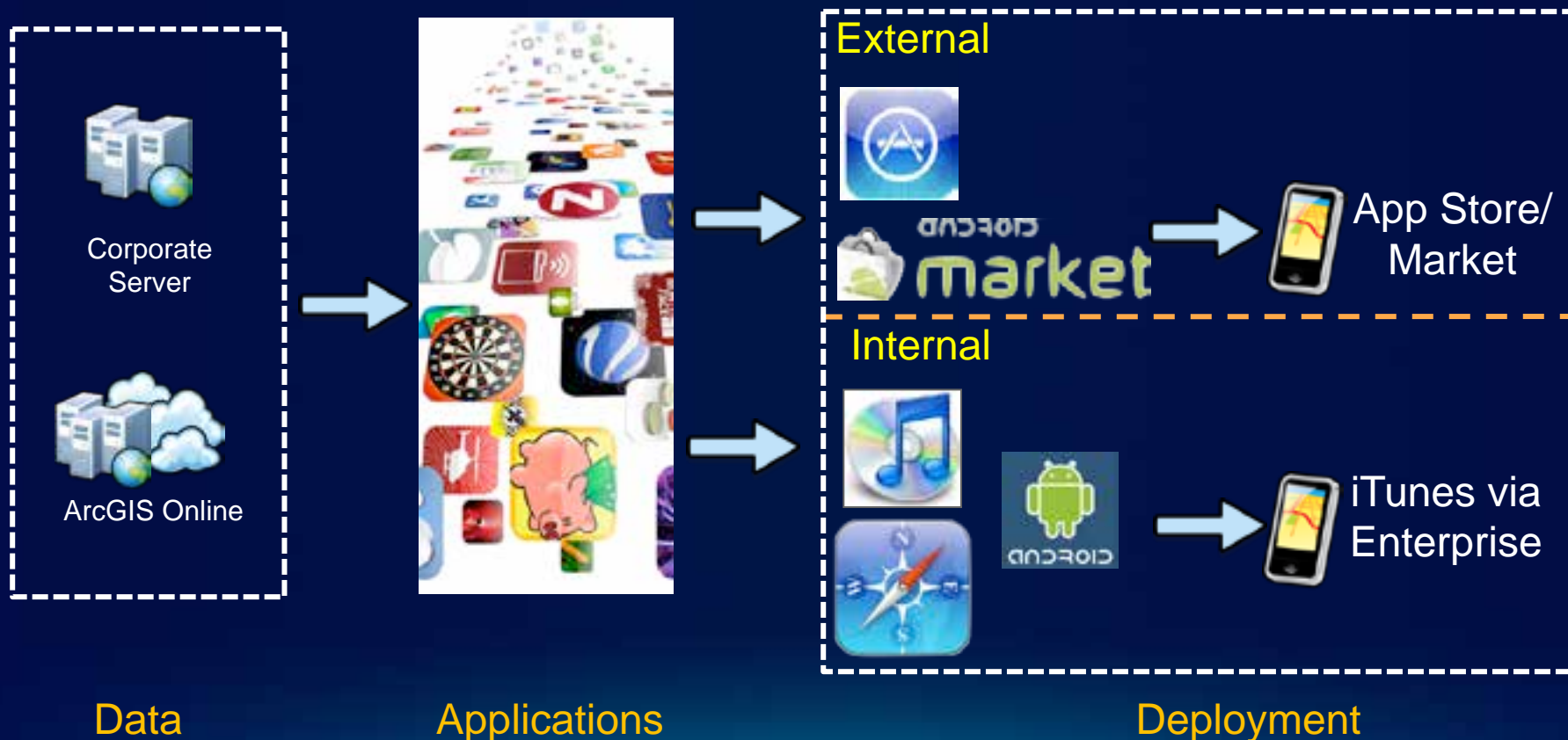
- **OFFLINE IS COMING!!**



Deployment

iOS Application Deployment

What are my deployment options?



Desktop Runtime

Development Options



Desktop Developer Challenges

- **Complex Object Model**
- **Large Memory and Disk Footprint**
- **32bit Native Code Execution**
- **APIs have strong COM Bias**
- **Display Architecture Not Optimized for Speed**
- **Difficult Deployments**

We understand the challenges and are creating something new

Introducing the ArcGIS Runtime

A New GIS Runtime for desktop

- Integrated into the ArcGIS system
- Small Footprint
- Fast Display
- More than Mapping
- Modern API
- Easy to Deploy



What About The Other Desktop Developer Options?



ArcGIS Runtime Specifics

- **New Architecture**
 - Native 32 and 64 bit code execution
 - Utilizes hardware (Cores, CPUS,..)
 - Asynchronous programming pattern
- **Simplified Deployment**
 - No install required
 - Deploy only needed components
 - Side-by-Side deployment
 - Independent of other ArcGIS installs
- **SDKs**
 - WPF and Java APIs
 - Map Control

What can you do with ArcGIS Runtime

Its Not Just About Writing Code

- **ArcGIS for Desktop Used to Provision Solution**
- **Content is Authored**
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Mapping and Cartography

- **Fully Supports ArcGIS Cartography Including Representations**
- **Annotation and Labeling**
 - **Maplex Support Included**
- **Author Maps using ArcGIS Desktop**
- **Limitations Around Custom Components**
 - **Custom Layers**
 - **Custom Renderers**
 - **Custom Data Sources**
- **Map or Tile?**



Editing

- **Geodatabase Feature Editing**
 - File and SDE Geodatabase
 - Simple Feature Editing
 - Attributes and Shape
- **Feature Services**



Geocoding

- Support for ArcGIS Locators Packages
- Geocoding and Reverse Geocoding Supported
- Single Line Geocoding Supported



Geoprocessing

- **Tools, Scripts and Models Supported**
- **System Tools Available Depend on Level of the Runtime**
 - **Basic (None)**
 - **Standard (ArcView and some ArcEditor)**
 - **[Tool List available](#)**



Release Schedule - WPF and Java SDKs

- **Pre-Release – April**
- **1.0 Final – June**
- **1.1 Q3 2012**
- ...

On going releases independent of ArcGIS 10.x



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