DEVELOPER SUMMIT

EUROPE

ArcGIS Runtime An Introduction

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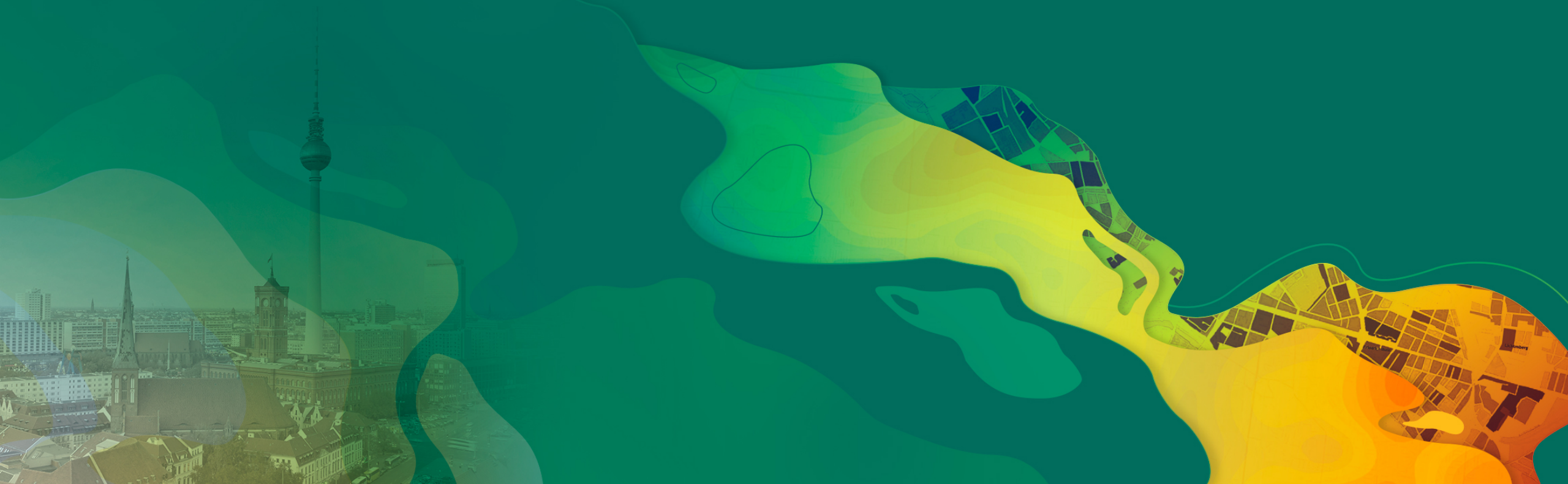
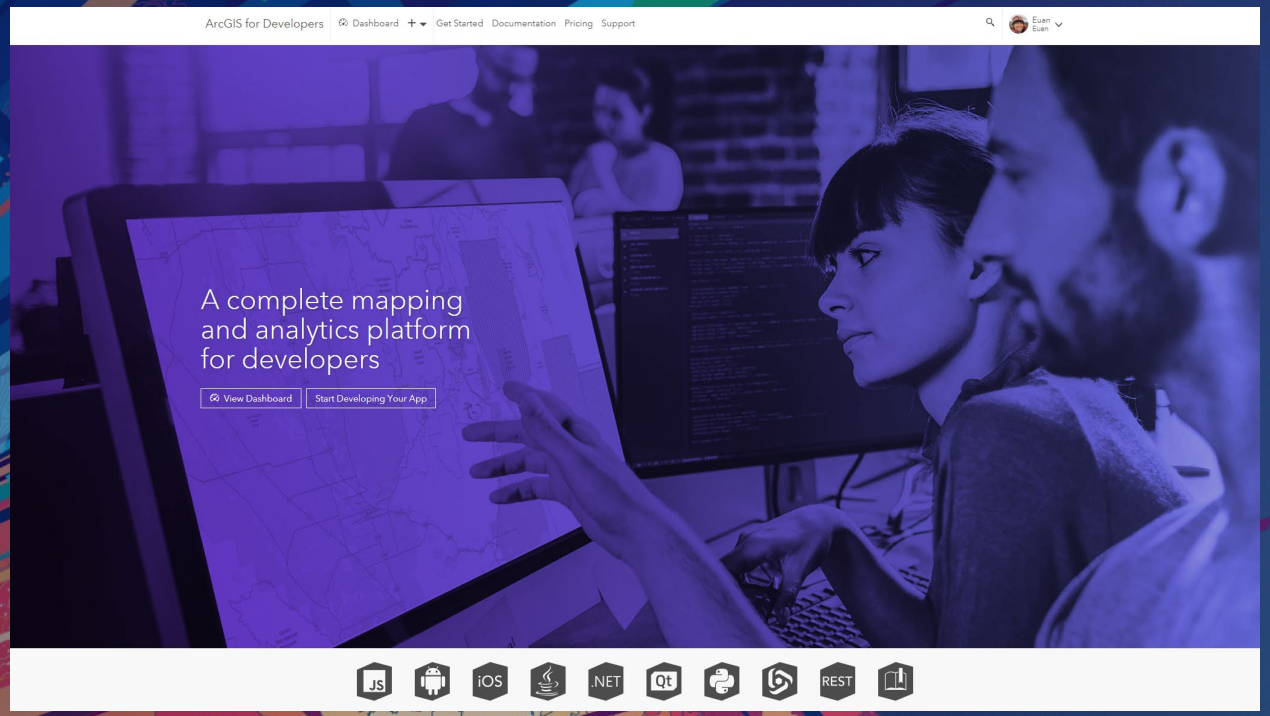


Agenda

- Getting Started
- Solution building strategies
- Developing Apps to work with Web GIS
- Runtime SDKs and supported platforms
- Architecture
- Functionality
- Licensing and deployment



Getting Started

David

ArcGIS Runtime Designed for Web GIS

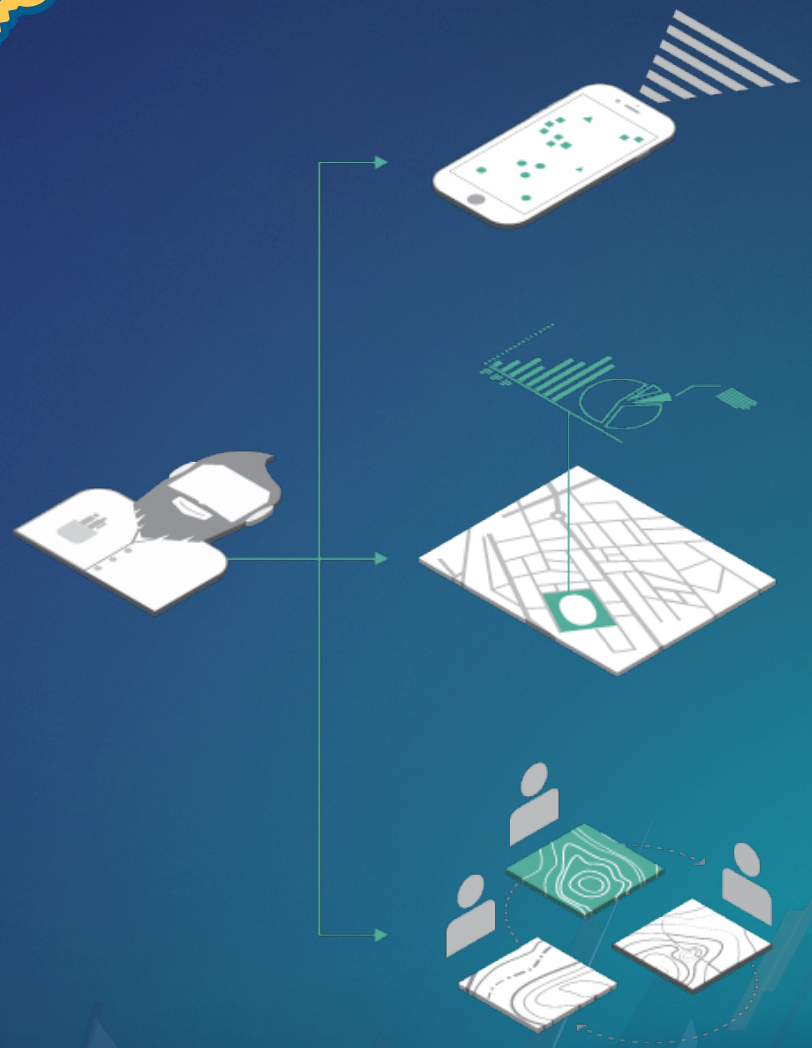
Working with the GeoInformation Model – Maps and Layers

- The GeoInformation Model is the information model of WebGIS
- Content can be authored using online Map Viewer or ArcGIS Pro
  - Complex advanced visualizations easily created with Smart Mapping
  - Capabilities such as popups, bookmarks and slides supported
- The API for working with raw services is the same as content authored
  - No capabilities are lost
- Working with Maps, Scenes and Layers are more productive than the raw services
- Apps can be updated on the fly with new content via the maps they open

ArcGIS Runtime Designed for Web GIS

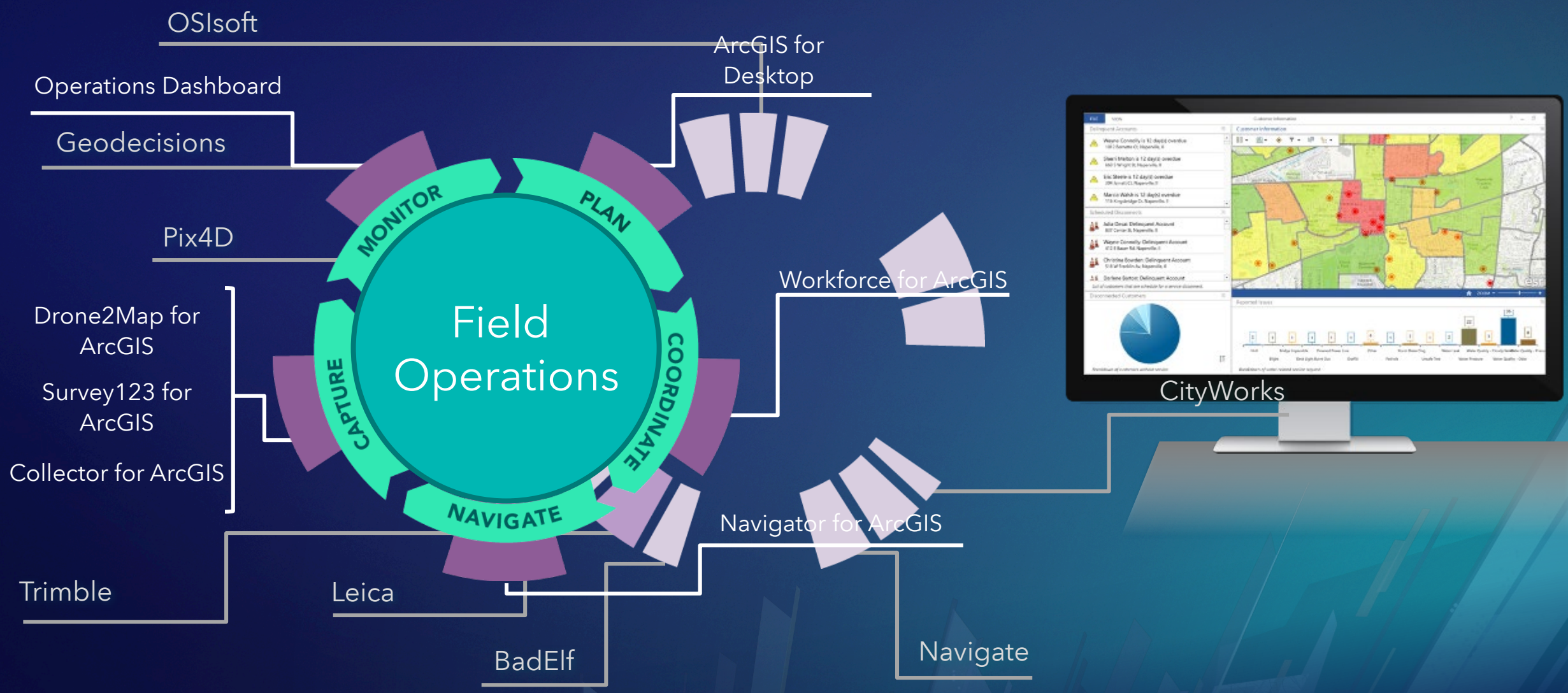
Working with the GeoInformation Model – ArcGIS Identity

- Users have a unique secure identity
- Content saved under user name
- Users can be assigned special privileges
- Users can share or keep content private
- Organize users, content and services
- Find, upload, share, configure, secure



Esri Apps and Your Apps Working Together

A Field Apps Example



ArcGIS Runtime SDKs

Supporting Native App Development

- Supports 6 platforms
  - Android, iOS, macOS, Linux, Universal Windows Platform and Windows
- 6 APIs
  - .Net, Android, iOS, Java, macOS and Qt
- Allows you to select the development environment of your choice
  - Integrates with your solution
  - Makes you productive
- Your users benefit from the optimum solution

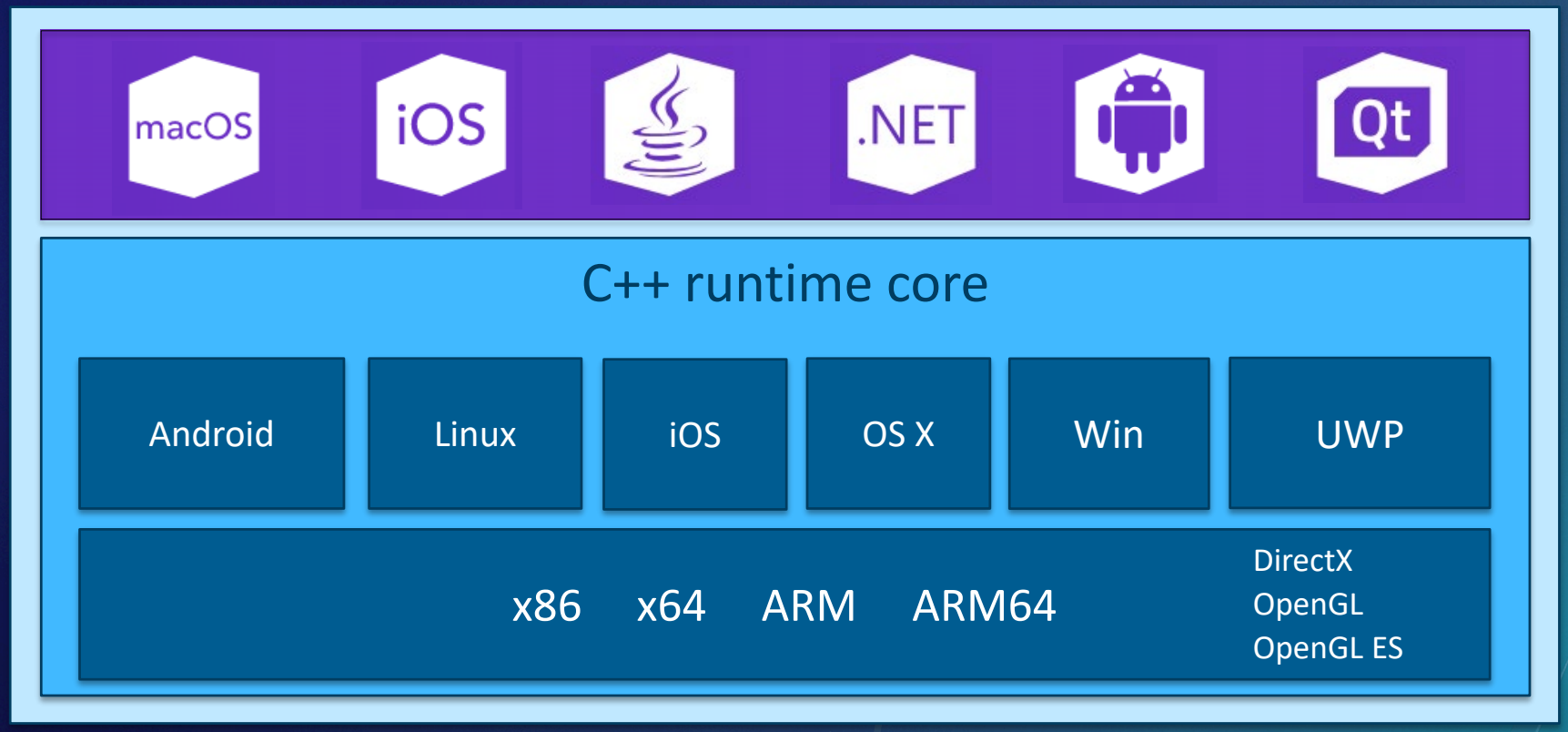
ArcGIS Runtime SDKs

Why Build a Native App?

- Only native apps can give the best performance
- Fully leverage device capabilities
- Access all peripherals via their native SDKs
- Best debugging experience
- Offline use of ArcGIS

ArcGIS Runtime SDKs

An Architecture Designed to Maximize Performance and Reuse



ArcGIS Runtime SDKs

C++ Core has Advantages

- C++ core and hardware accelerated rendering offer best performance available
- Performance of C++ core is independent from API chosen
- Common conceptual model across all public APIs
- Capabilities the same across all APIs and devices*
- Public APIs can vary to conform to their platform norms

* Dependent on device support

ArcGIS Runtime SDKs

Working with Layers from Services

- Feature layer
- Raster layer
- Map Image Layer
- Scene Layer
- Vector tiles
- OGC services
  - WMTS, WMS, KML and WFS*
- Rich symbology with smart mapping
- Layers are created from items or in code connecting directly to the service

* Release in Q1 2019

ArcGIS Runtime SDKs

Layers from Local GIS Data

- Feature Layer with vector data
  - Mobile Geodatabase, GeoPackage, Shapefile
  - Read and write
- ENC Layer – S57 with S52 symbology
- Raster Layer
  - Mosaic dataset, GeoPackage,
  - Raster file formats: ASRP/USRP, CRF, DTED, GeoTIFF/TIFF, HFA, HRE, IMG, JPEG, JPEG2000, NITF, PNG, RPF, SRTM (HGT), USGS DEM
  - Apply raster renderers and raster functions
- KML Layer
  - Full OGC KML 2.2 + extensions
- Mobile Map Packages
- Scene Layer Packages
- Vector Tile Basemaps

ArcGIS Runtime SDKs

Working with Maps

- Working with maps
  - Maps are a central API component
    - Build a Map, display it in a MapView
  - Maps are created from items or code
- Platform sharing of maps and layers
  - Share & consume maps from Portal, ArcGIS Pro or other apps
  - Share maps and layers in Mobile Map Packages
- Offline maps and layers
  - Take maps and layers offline using on-demand or pre-planned workflows

Where Do Maps Come From?

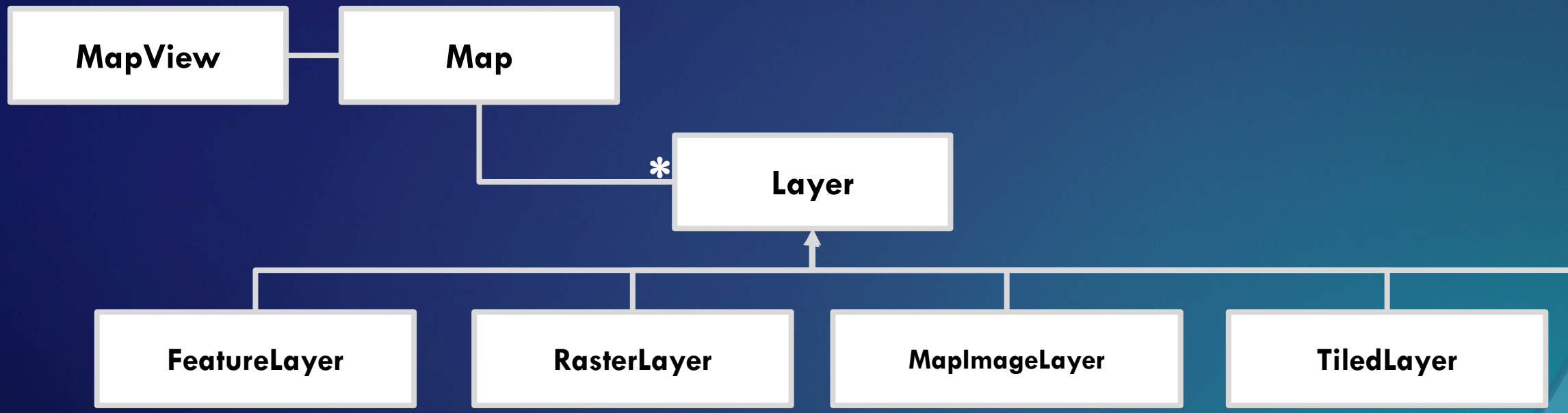
- Portal (web maps)
  - Create with a PortalItem or URL
- Pro (mobile maps)
  - Access maps inside a Mobile Map Package
- From disk (mobile maps)
  - Create with a LocalItem or a Path
- You!
  - Create a map in code
  - Save to a portal
    - Web maps and mobile maps will be different portal item types
  - Save locally

ArcGIS Runtime SDKs

Offline Mapping Workflows

- Build everything up in code and raw data on the device
  - + Provides most flexibility and data type options
  - - Development intensive and less flexibility after deployment
- Author Maps and Scenes in ArcGIS Pro and share via Packages
  - + Productive authoring experience with advanced cartographic options
  - - Read only maps and data
- Author map for use within Online or Enterprise and take offline using on-demand workflow
  - + Productive authoring experience with little overhead to support offline use
  - + Supports data editing with sync
  - - Must consider performance impacts when there are a large number of field users
- Author map for use within Online or Enterprise and take offline using on pre-planned workflow
  - + Productive authoring experience with a small amount of upfront cost for defining offline areas
  - + Supports data editing with sync
  - ± Field areas are restricted to admin selected areas

Maps and Layers

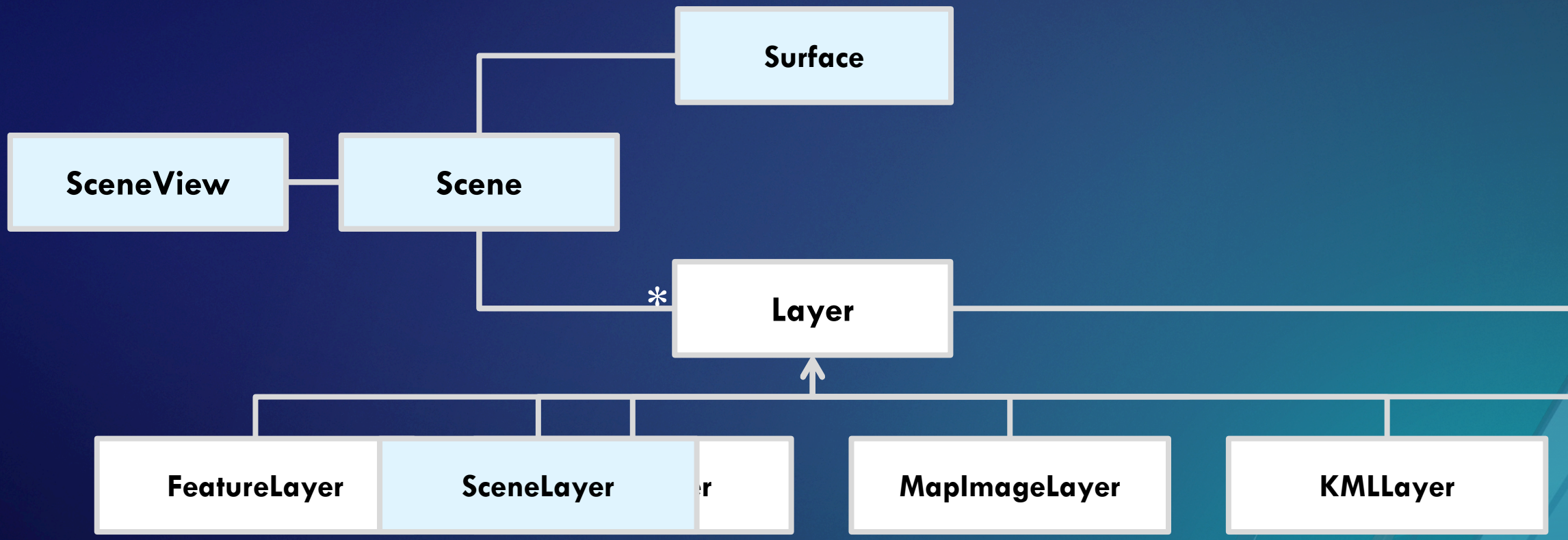


ArcGIS Runtime SDKs

Working with 3D Content

- High performance on Desktops, laptops and mobile devices
- All 2D layers work in 3D
- Specific 3D layers for 3D content
  - Terrain
  - 3D features
  - Models
  - Integrated meshes
- Interactive analysis tools
  - Viewshed
  - Line of sight
  - Measure

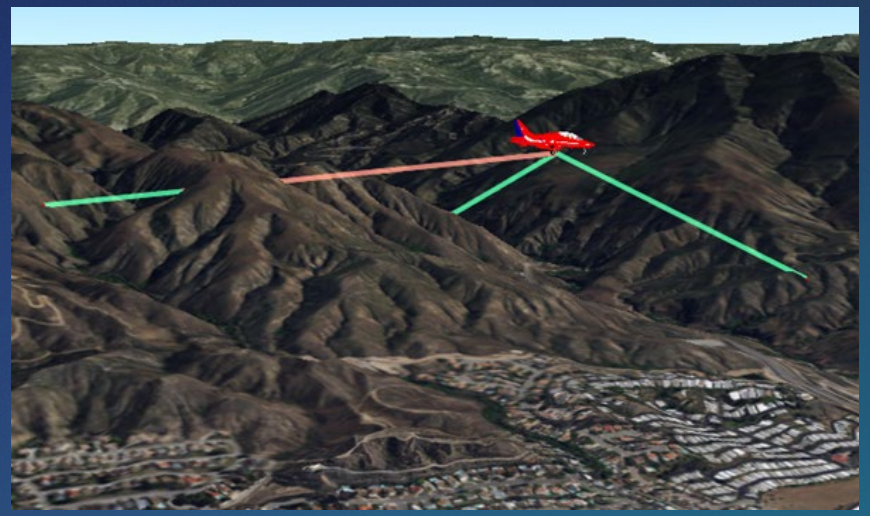
Runtime 3D Mapping API

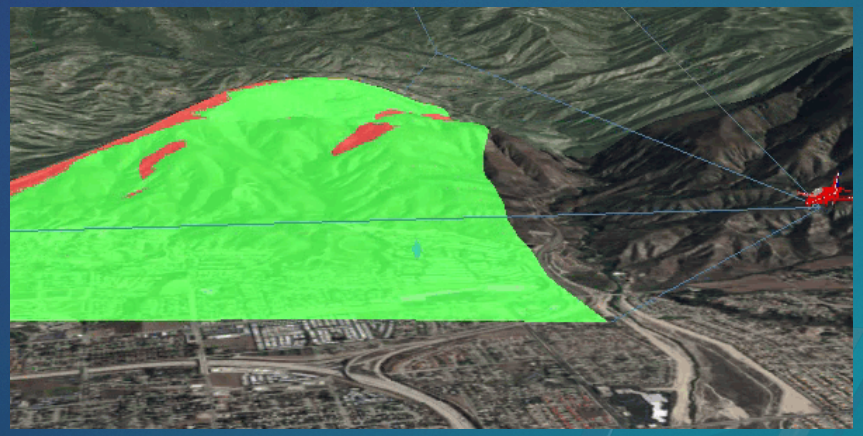


ArcGIS Runtime SDKs

Analysis

- Works with services
  - Geoproessing
  - Network analyst
- Local Engines
  - Geometry
  - Projection
  - Network
- Interactive 3D Analysis

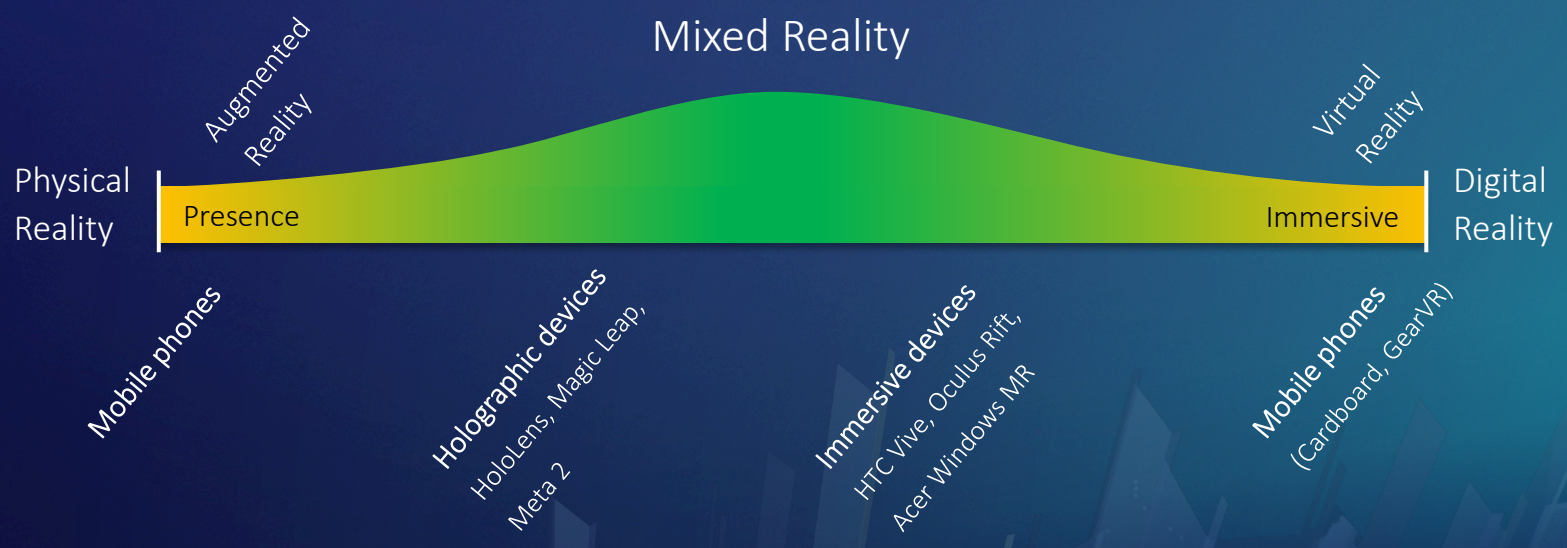




ArcGIS Runtime SDKs

Augmented Reality and Virtual Reality

- Developers want to use their authoritative GIS content and analytics across the mixed reality spectrum
- Critical needs for usability
  - Virtual reality needs high fidelity and responsive performance
  - Augmented reality needs positional accuracy



ArcGIS Runtime SDKs

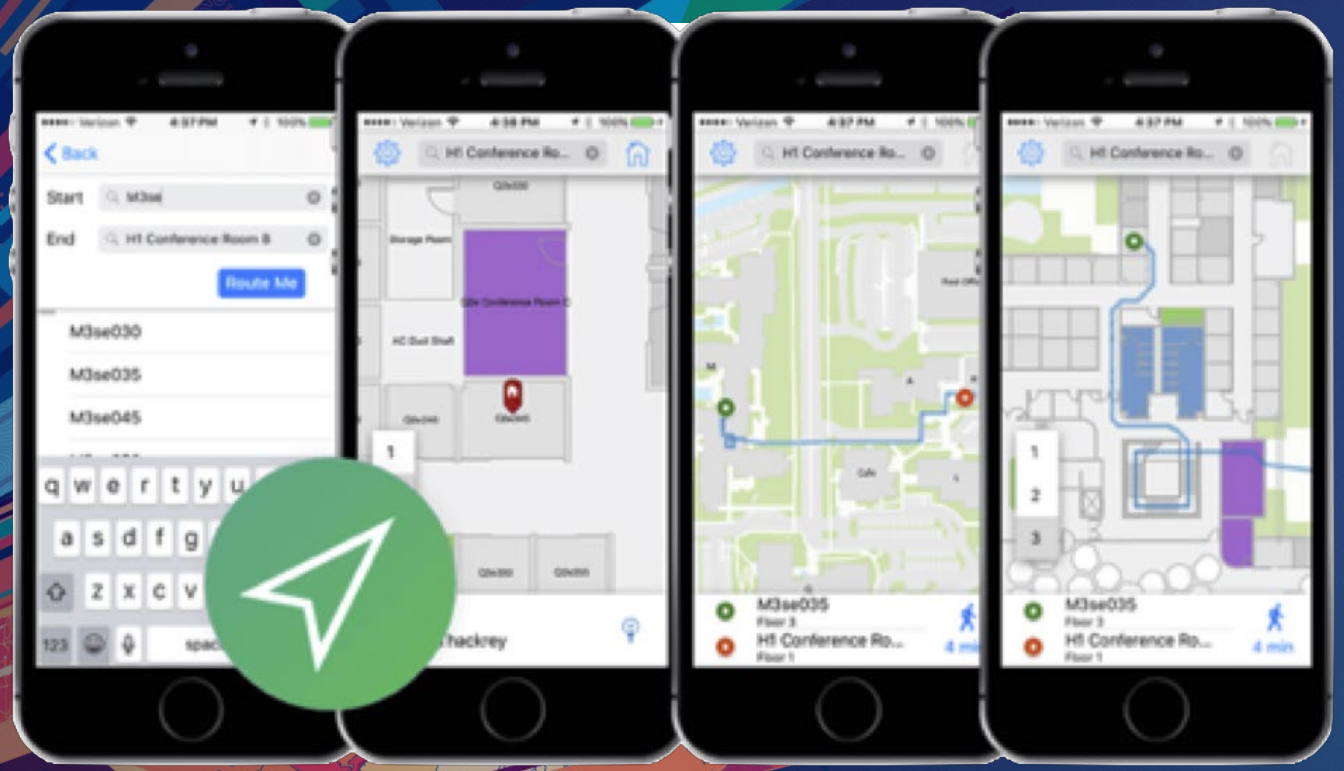
Supporting Mixed Reality

- Enhance existing ArcGIS Runtime SDKs
  - Integrated with the ArcGIS Platform
  - 3D already supported on all platforms/devices
  - Native apps able to access sensors/controllers
- Currently in private beta

ArcGIS Runtime

Local Server

- Local server is a ‘mini’ ArcGIS server dedicated to one client App
- Supports Windows and Linux desktops
- Support for ArcGIS Desktop and ArcGIS Pro packages
- For advanced analytical workflows
- Useful when integrating with ArcGIS Desktop workflows
- Independent SDK
  - Works with .Net, Java and Qt SDKs



Functionality Review

David

ArcGIS Runtime SDKs

Ultimate Performance

- Device capabilities continue to grow
- Harnessing this power is critical for tomorrows Apps
- Runtime core brings it all together
  - Display
  - Data access
  - Analytics
- Apps that use large data volumes updating in real-time are now possible

Deploying Apps using ArcGIS Runtime

Technical and Business Considerations

- Technical
  - Deploy runtime binaries and supporting resources (runtime core with API) along with your app and any supporting resources required by your app
  - If using Local Server, build and deploy an appropriate Local Server deployment using the tools in the SDK
- Business
  - Revenue generating apps that use ArcGIS Online data or services require a commercial deployment license
  - Review functionality and select license level required
  - Chose the appropriate licensing method for your App
    - ArcGIS Identity
      - Apps that extend or compliment ArcGIS
    - Embedded license
      - Standalone apps
  - Credit bearing services require credit plan

Deploying Apps using ArcGIS Runtime

License Levels

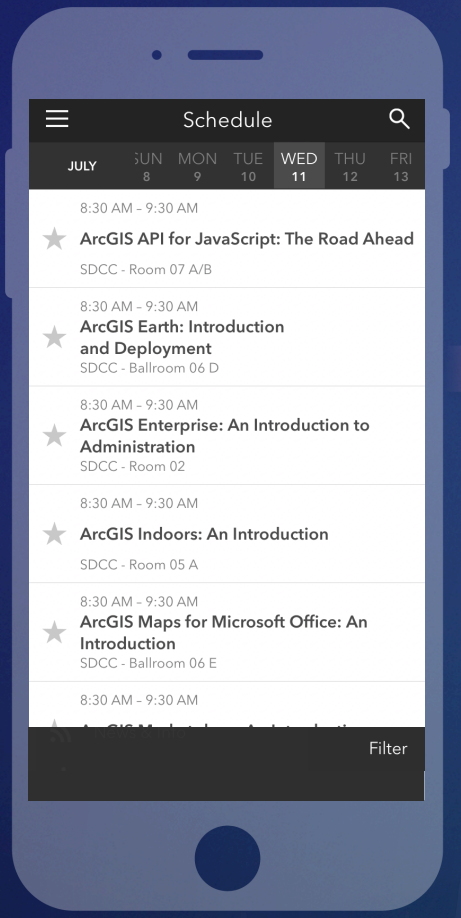
- Lite
  - View maps, scenes and layers from the platform, simple routing and place finding
- Basic
  - Simple feature editing (connected or disconnected),authoring maps, creating groups and sharing
- Standard
  - Local data access and Local Server
- Advanced
  - Direct connect to SDE, Mosaic datasets, advanced GP tools

- Analysis Extension
  - Available with Standard and Advanced levels
  - Spatial, 3D and Network Analysis tools

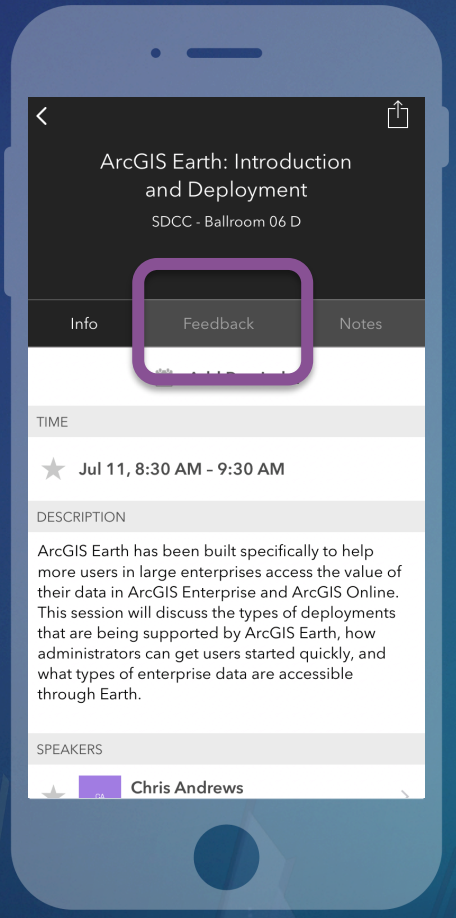
Please Take Our Survey on the App

Download the Esri Events app and find your event

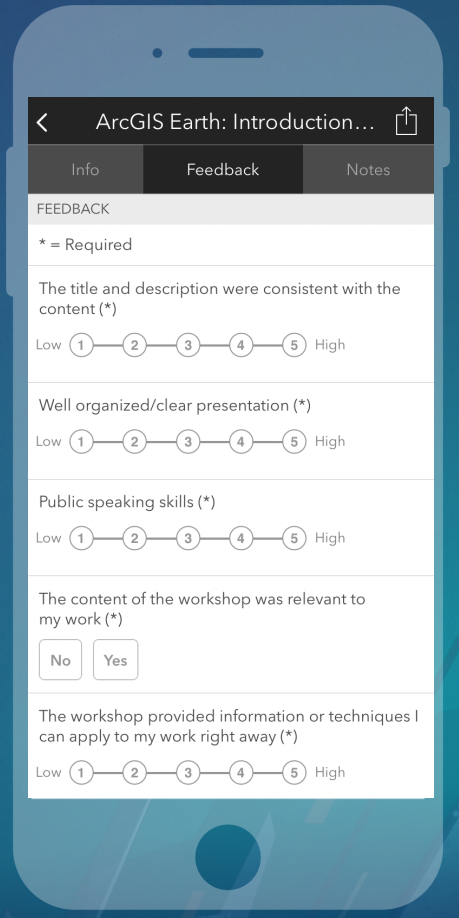
Select the session you attended



Scroll down to find the feedback section



Complete answers and select "Submit"



Questions

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