DEVELOPER SUMMIT
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Indoor Location
With the ArcGIS Platform

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Before we begin…

- This is a research project.
- This is intended as an open discussion.
- I don’t claim to be an expert.
- It is a hot topic.
- It’s a (relatively) new frontier for Geospatial.
- I’m either really brave or really dumb.
So… Indoor Location.

- Commercial
- Retail
- Mobile Payments
- Big Names
  - Apple
  - Google
  - Microsoft
ArcGIS for Facilities

- Did you know?
ArcGIS is a Platform

Making mapping and location aware apps available across your organization

Knowledge Workers

Executive Access

Public Engagement

Work Anywhere

Enterprise Integration

Professional GIS

Web GIS
ArcGIS  ► Maps At Work -- Diversity of Users and Applications
ArcGIS

Represent the authoritative inventory of your assets and resources
ArcGIS  Deliver decision support apps at all scales and dimensions
ArcGIS for Portfolio Management

Increasing cost efficiencies, occupant productivity & satisfaction, & revenue generation

- Site selection and demographic analysis
- Indoor space & amenity site selection
- Real-time portfolio performance mapping
- Building performance mapping
- Space allocation and utilization
ArcGIS for Operations

- Increasing cost efficiencies, reducing response times, optimizing tasks

- **Active, high priority work orders**
- **Optimized scheduling & dispatch to work order locations**
- **Real-time indoor environment monitoring & alerts**
- **Density or hot spot analysis of work order activity**
- **Alerts for service requests & scheduled maintenance**
ArcGIS for Safety & Security

- Reducing and mitigating risks; improving occupant health; optimizing compliance

- Natural hazard & continuity of operations
- Risk assessment & planning
- Event planning, safety, and security
- Live camera feeds and viewsheds
- ADA compliance and emergency evacuation routes
Point 2 Point In-building Routing – Progression Timeline

2010

2011-2012

2013-2014
2015: In-building Route Creation – single floor

**Inputs**
- Space Polys
- Floor Lines
- Doors
- Space
- Points
## Supported Route Restriction -- Considerations

### Route Preference
- Primary/secondary/tertiary paths (avoid cutting through rooms)
- Indoor/outdoor/covered paths
- Wall distance (for readability)

### Accessibility
- Wheelchair accessible
- ADA compliant
- Slope
- Curbs or ramps

### Safety & Security
- Emergency exit routing
- Prefer well-lit paths

### Physical Limits
- Path width/height
- Path direction (1-way or 2-way)
- Door key access (directional)

### Route Summary (solver optimizes distance & walk time)
- Total walking time
- Total distance (feet or meters)
- Directions
1. Create fishnet
2. Clip to floor
3. Add wall lines
4. Erase walls & calculate wall distance
5. Add spaces
6. Tag primary paths & add space centroids
7. Calculate floor paths
8. Calculate all paths
9. Deploy network

In-building routing network generation – whole building
Sets stage to take advantage of new 2D & 3D options

- Packaging and testing the 3D network generation workflows
  Initial 3D network tools will be made available near 2015 Dev Summit
- ArcGIS Pro development -- improved “floor awareness”
  - easily navigate and view 3D building interior assets
- Leverage new Campus Viewer app add-ins
- UC technical workshops
What About Real-Time Navigation?

- The “blue dot” experience
- Predominantly a hardware solution
  - Radio triangulation
  - Beacons
- You still need the map 😊
- Several 3rd party solutions
  - GISi Indoors/GeoMetri
  - Pen Bay
  - RF Spot
  - NewAer
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Thanks!

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Sample Title
Sample text for position

Floodplain Management

Floodplains Management

DC GIS, Washington, DC

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Flooding