

# Adopting the Appropriate Technologies for GIS-T Integration

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# Topics

UDOT IT/GIS Integration Principles

Important GIS Technical Decisions

UDOT GIS

Demos

Conclusion

# Integrated GIS/IT Vision

**Inputs**  
Business systems  
GIS / CAD

**Services**

**uGate**

**Tools**

**Output  
Formats**

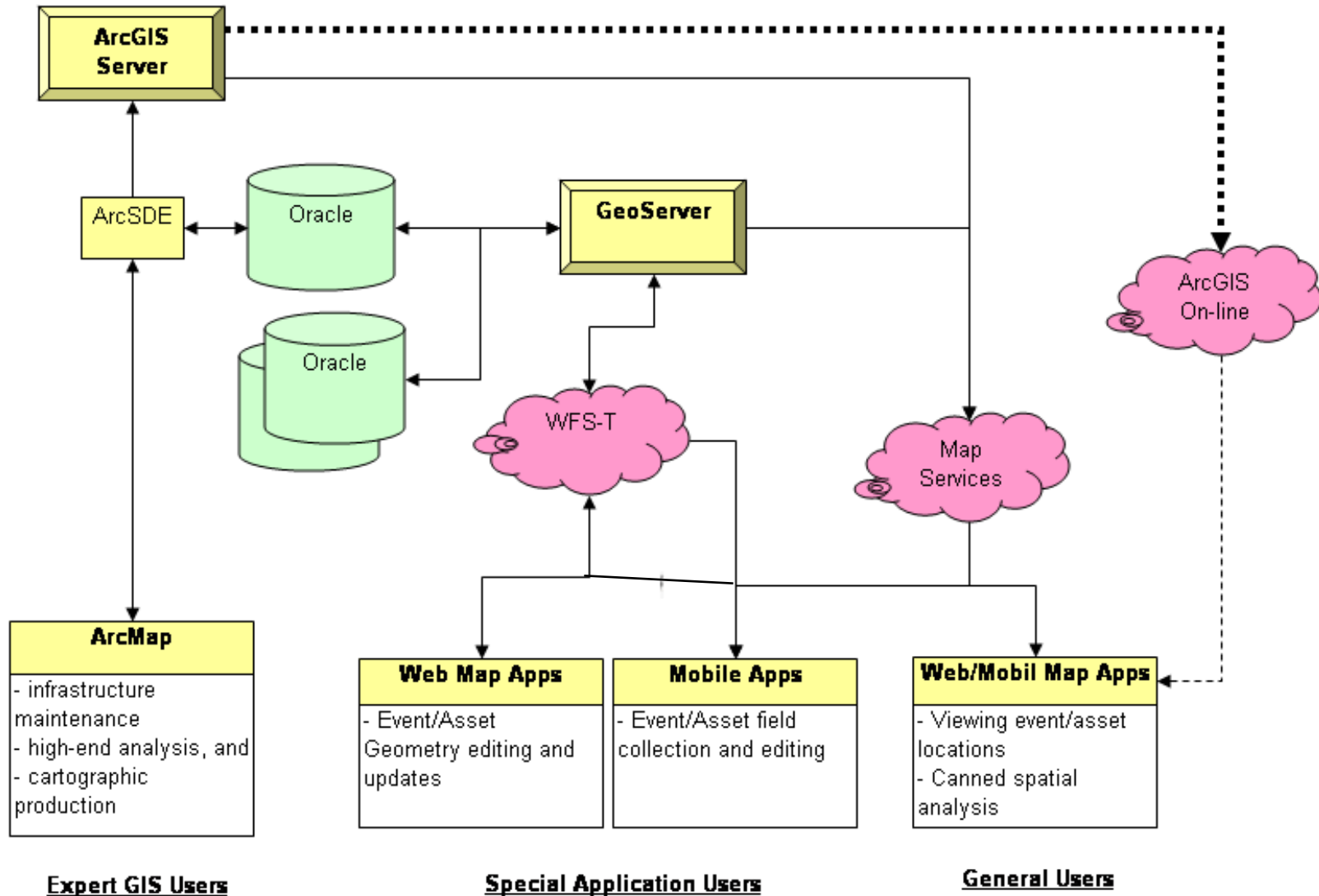
# UDOT IT Principles

- Database Centric
  - GIS spatially-enables IT, but GIS is part of IT
  - Eliminate data silos and promote data sharing
- Open Architecture
  - Standard-based Web Services
- Leverage Existing Investment
  - AGRC, ESRI, Oracle & JavaScript
- Maintain homogeneity of platform and tool set

# Important GIS Technical Decisions

- Proper roles for various GIS Technologies
- Development Platform
- Web Map Servers
- Web Map APIs
- Base Map

# GIS Components in UDOT's IT Enterprise



# GIS Tools and Use Cases

Item	Expert User	Special User	Casual User
Focus	Spatial data maint. and Presentation	Business Data	Business Data
Users Community	Small	Limited	Large
Key Criteria	Powerful	Easy & Efficient	Google-like Easy
Selection	ArcInfo Desktop	Web App w/ Transactions	Light-weight Web App

Other

Considerations:

- Licensing Cost
- ArcSDE Administration Cost

# Web Map Development Platform

Item	JavaScript	Flash	Silverlight
In-house capability	Yes	No	No
Presentation	.... & Yes!	Yes	Yes
Browser Compatibility	Temperamental	Good	Good
Developer Community	Very Large	Large	Large



# Web Map Server Decision

\* Based on 2-year-old, cursory research

Service or Format	ArcGIS Server	GeoServer	Oracle MapViewer
ArcGIS Rest Feature Service	X		
KML	X	X	X* (modPLSQL)
Google Map			
WMS	X	X	X
WFS	X	X	X
WCS	X	X	
Shapefiles		X	
GML		X	
GeoRSS		X	

# Data Consumption by JavaScript Map APIs

\* Based on 2-year-old, cursory research

Data Sources	ArcGIS API	Google Map API	Openlayers	Oracle Maps
ArcGIS Rest	X	X (ext needed)	X	
Google Map	X	X	X	
Bing Map	X		X	
Openstreet	X		X	
GeoJSON		X	X	
KML	X	X	X	
GeoRSS			X	X
GML	?		X	X
WKT			X	
WFS			X	X

# Base Map and Projections

- Base Maps
  - Google, Microsoft or ESRI
  - AGRC Maps & State Standard
- Projections
  - WGS 84 lat/long (EPSG 4326) vs Spherical/Web Mercator (EPSG 3857/102113)
  - Cannot switch between Web Mercator-based maps and AGRC UTM projected maps.

# Demos

- LinearBench Explore
- UPlan
- Interactive Map

# Conclusions

- The complexity and the abundance of technologies is overwhelming
- Chasing the best, coolest technologies may not be realistic
- Finding the appropriate technology stacks for your organization is the way to go.
- Keep Open - Open mind, Open architecture, Open Source.