



# ArcGIS Enterprise: Architecture Best Practices

Witt Mathot

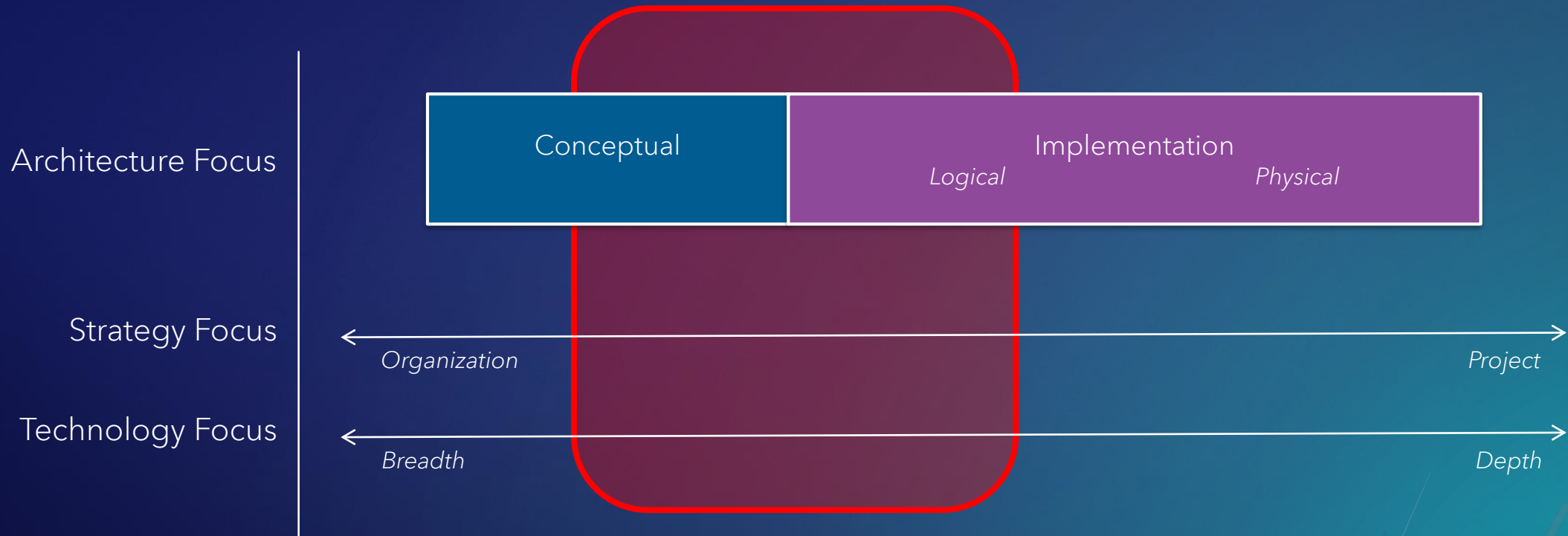
An abstract graphic on the right side of the slide, composed of various colored geometric shapes (blue, orange, green, yellow) and lines, creating a sense of depth and movement. It includes a topographic map-like pattern on one of the blue shapes.

**GIS  
INSPIRING  
WHAT'S  
NEXT**

# Our World is Evolving



# Architecture | Scope



# ArcGIS | Implementation Patterns

Desktop



Server



Enterprise/Online

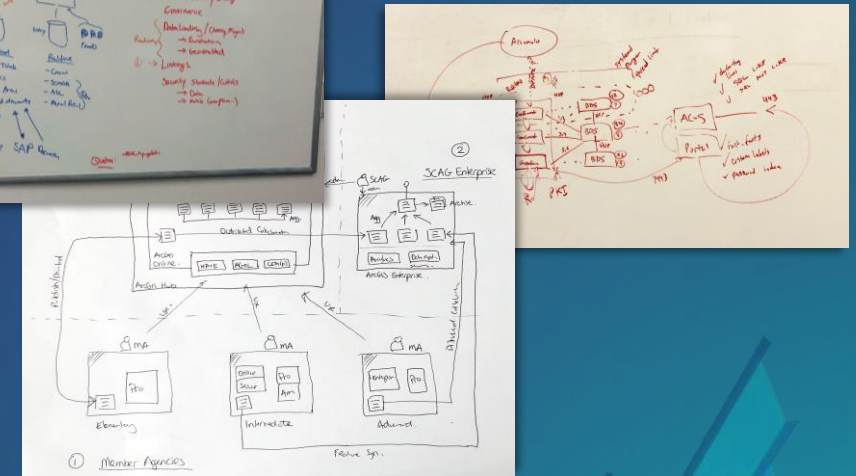
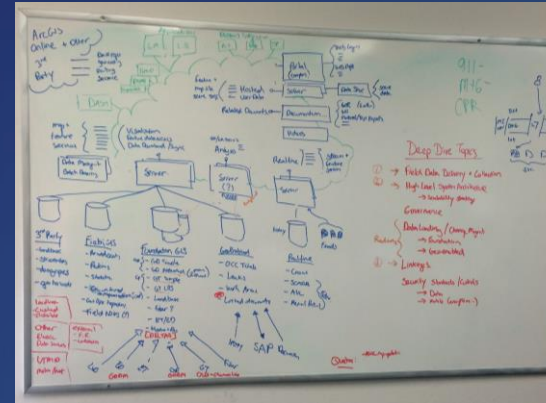


Distributed



# ArcGIS | Architecture Domains

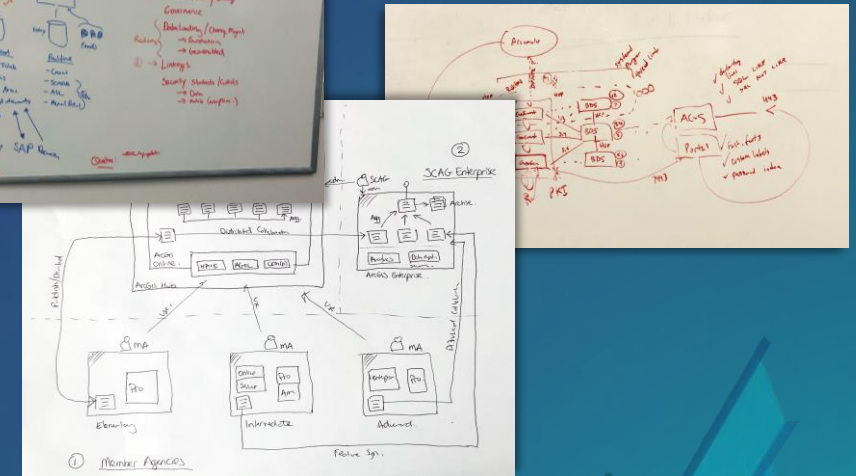
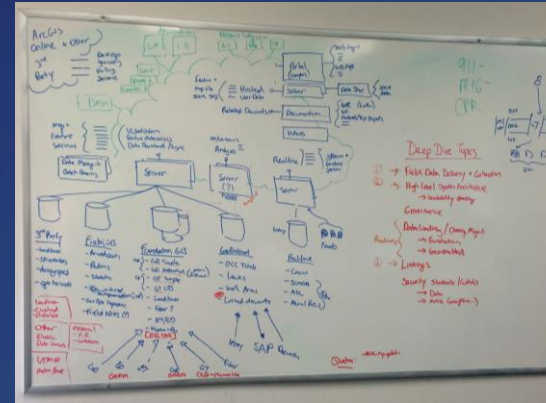
1. Enterprise GIS Deployment
2. Business Continuity (*high availability, disaster recovery*)
3. Security
4. Publication Strategies
5. Distributed Collaboration
6. Geodata Management
7. Imagery Data Management
8. Real-time GIS & Big Data
9. Enterprise Integration
10. Mobile GIS Deployment
11. Desktop GIS Deployment
12. Organizational Structure & IT Governance
13. Operations & Monitoring





# ArcGIS | Architecture Domains

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# Business Continuity | Terminology

A word cloud of business continuity terminology on a dark blue background. The words are arranged in a scattered, non-uniform pattern. Some words are larger and more prominent, while others are smaller. The colors of the text range from light blue to a golden-yellow. The background features abstract, dark blue geometric shapes at the bottom, resembling a stylized cityscape or architectural elements.

BC

Resiliency

RPO

Backups

High Availability

Fault Tolerance

Load Balancer

Disaster Recovery

RTO

Failover

Round Robin

Geographic Redundancy

SLA

Change Management

Recovery

Redundancy

Continuity

Active-Active

Contingency

Mission Critical

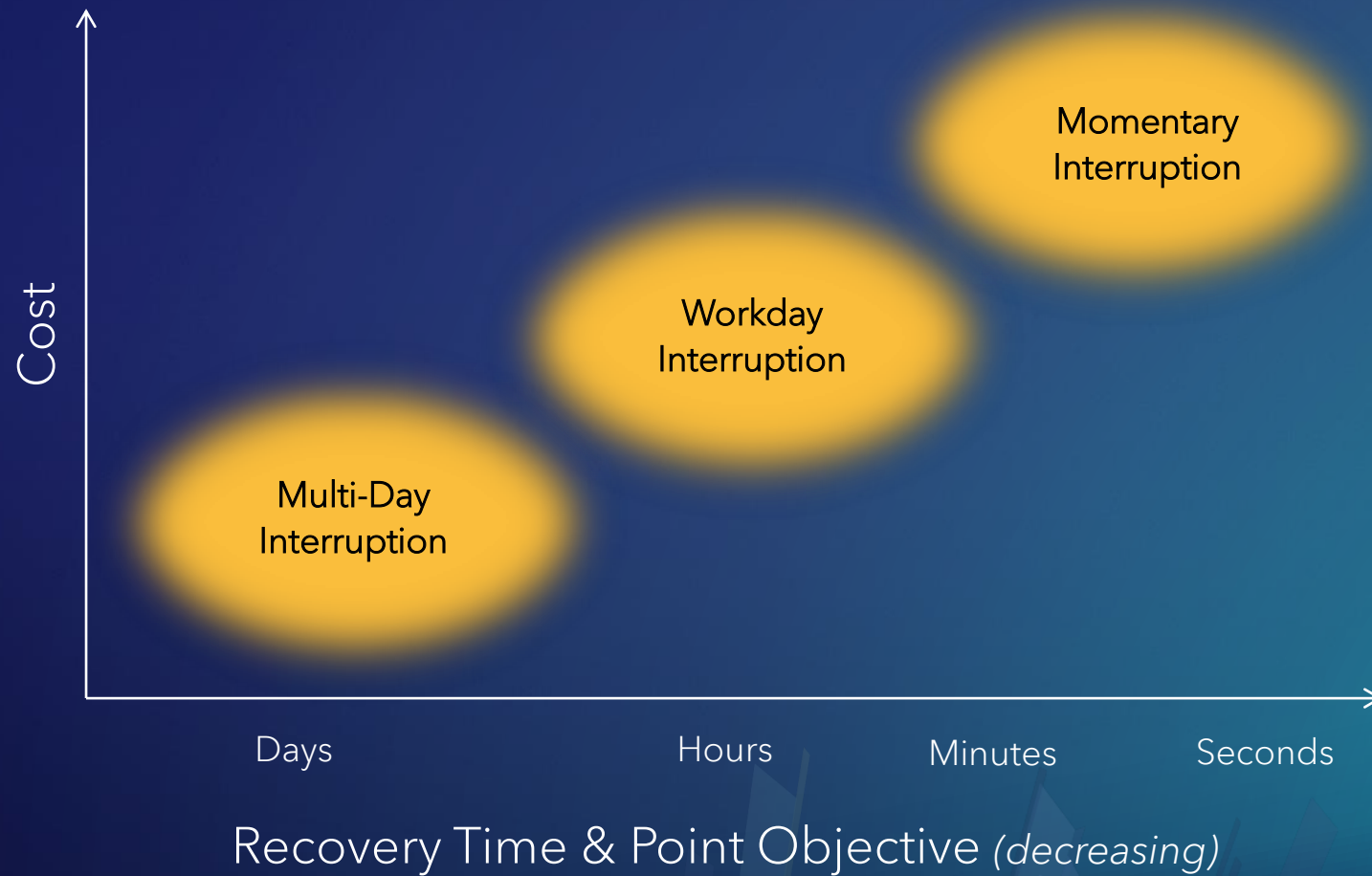
BCM

Federation

Data Loss Threshold

Active-Passive

# Business Continuity | Shorter Recovery = \$\$\$





# Business Continuity | Likely Varies By System



Tier	Criticality	Recovery Time (RTO)	Recovery Point (RPO)	Others... (test frequency, etc.)
Tier 1	Mission Critical	< 4 hours	< 1 hour	...
Tier 2	Business Critical	< 24 hours	< 1 hour	...
Tier 3	Significant	< 72 hours	< 48 hours	...
Tier 4	No Impact	< 1 week	< 1 week	...

*NOTE: Traditional GIS deployments are typically seen in Tiers 3-4, but are becoming more prevalent Tiers 1-2*

# Business Continuity | With ArcGIS Enterprise

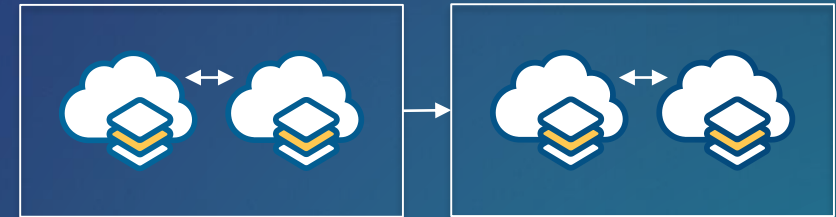
Backup & Restore  
(WebGISDR)



High Availability

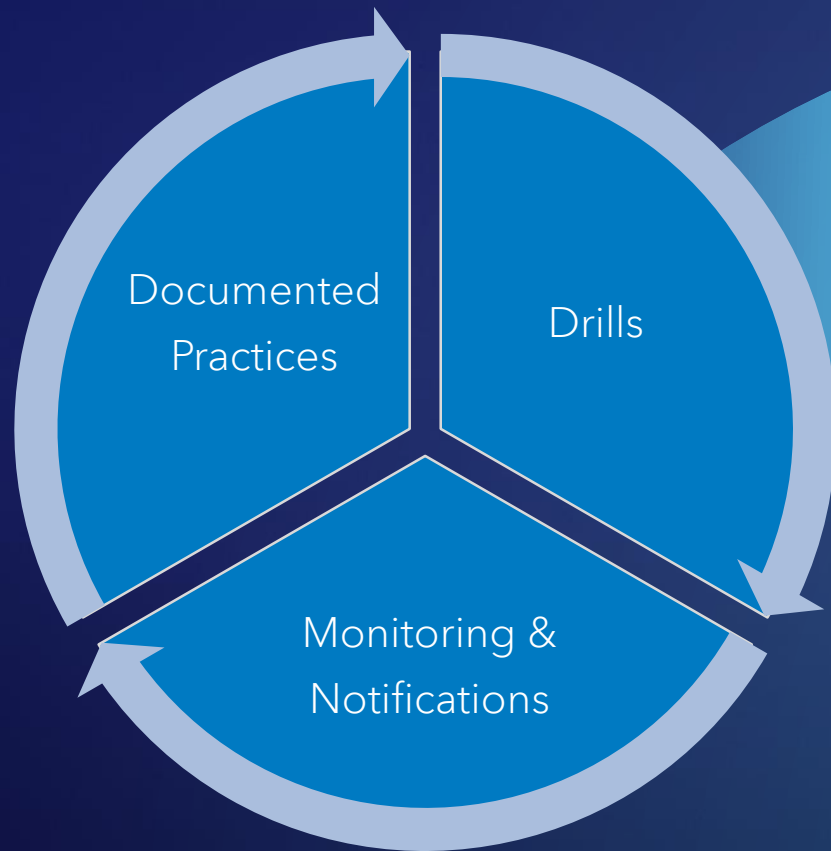


Disaster Recovery  
(WebGISDR)



----->  
Cost & Complexity Increases

# Business Continuity | Requires More Than Technology



## People

- IT Managed
- Strong Technical Team
- Knowledge of GIS & IT



## Governance

- Business Alignment
- Established SLAs
- Knowledge Management
- Training

# Publication Strategies | Definitions

- Publication: the act of delivering content to consumers (*data, services, information products, & apps*)
- Strategies: plans or approaches for achieving desired outcomes
- **Good** publication strategies ensure that appropriate content is delivered to consumers in a well performing, scalable, reliable, and secure manner

*"Information is a source of learning. But unless it is organized, processed, and available to the right people in a format for decision making, it is a burden, not a benefit."*

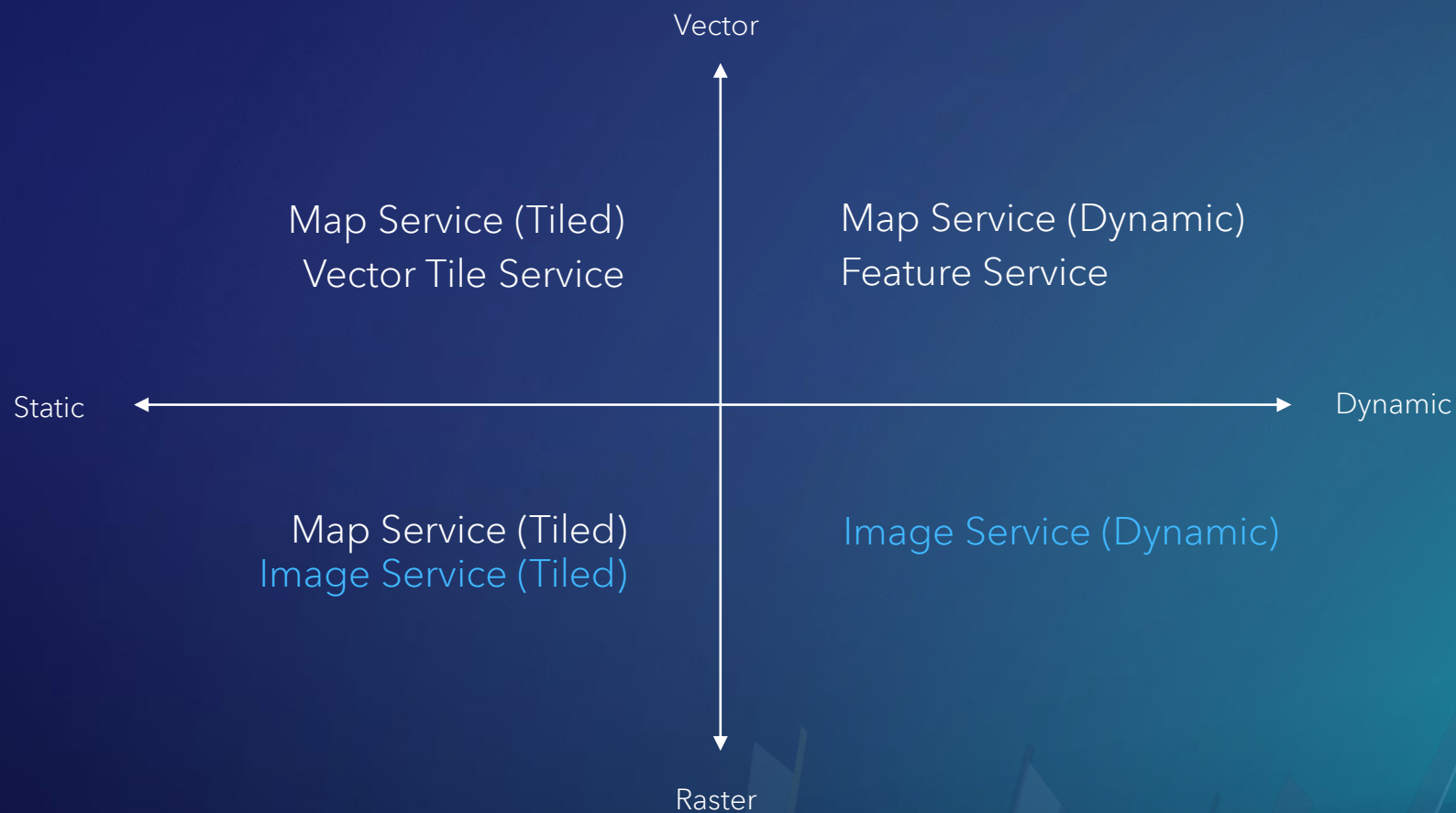
*-William Pollard*

# Publication Strategies | Key Considerations

- **Audience** – Where are they? What is their device? What is their ability?
- **Capabilities** – requisite functionality
- **Performance** – End user app / back office system
- **Scalability** – up or out
- **Reliability** - SLAs
- **Security** – Access to content, authorization to functionality, protecting the back office



# Publication Strategies | GIS Service Types *(mapping & visualization)*



# Publication Strategies | GIS Service Types (*mapping & visualization*)

	ArcGIS Online vs. Enterprise	ArcGIS vs. User Managed	Rendering	Identify & Query	Tiled	Generalized	Offline Support	Editable	OGC
Map Service ( <i>Dynamic</i> )	E	U	Server	X					X
Map Service ( <i>Tiled</i> )	O & E	A & U	Server	*	X		X		X
Map Service ( <i>Feature Layer</i> )	E	U	Client	X	+				
Feature Service	O & E	A & U	Client	X	+	X (on-demand)	X	X	X
Vector Tile Service	O & E	A	Client		X	X (pre)	X		

\* Identify & query not supported when cache is disconnected

+ Feature Services are requested in tiles by JSAPI

# Publication Strategies | Approach

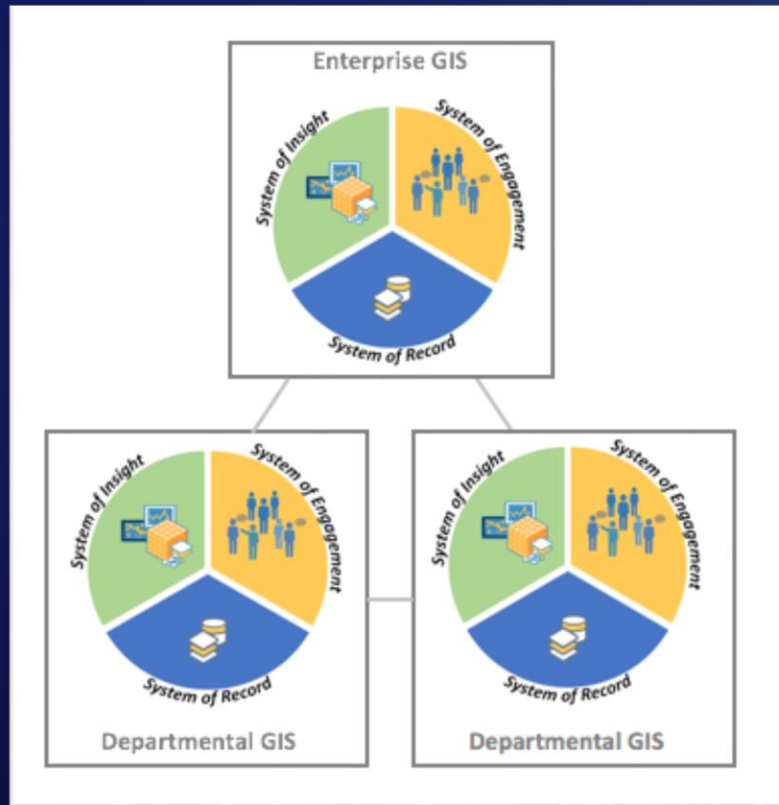
1. Focus on business
2. Start with the end (consumer), build bottom up (data)
3. Align/select technology accordingly
4. Adjust over time – be agile!



# Distributed GIS | Next Evolution in GIS



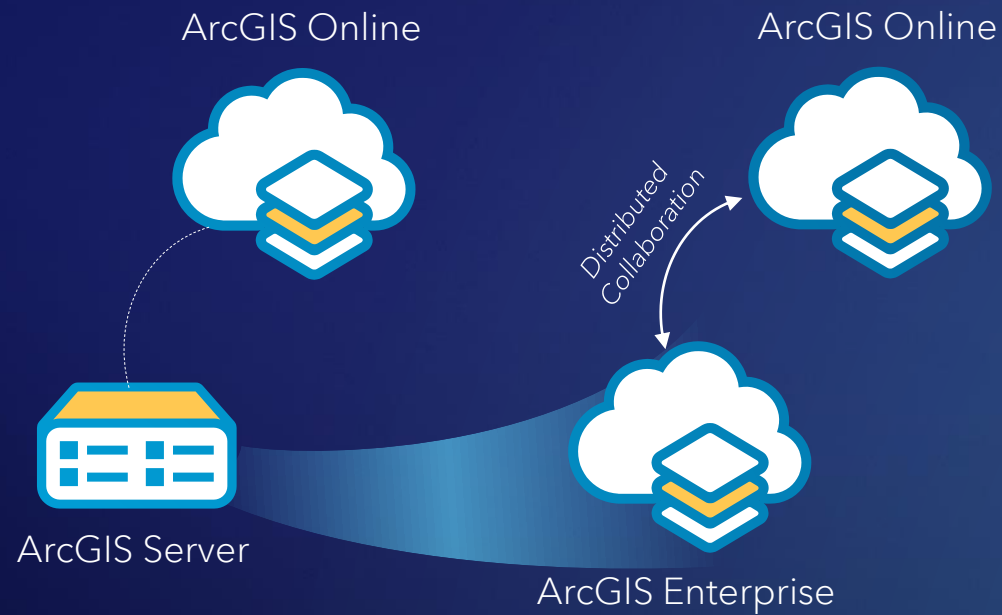
# Distributed GIS | Multiple GIS Working in Trusted Collaboration



- Model after the organization
- Preserves departmental control
- Supports enterprise needs



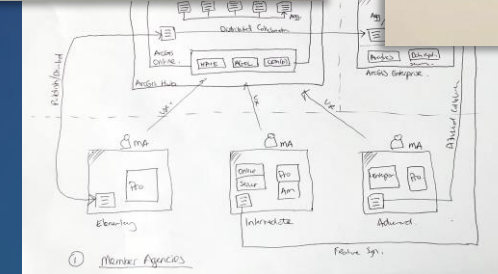
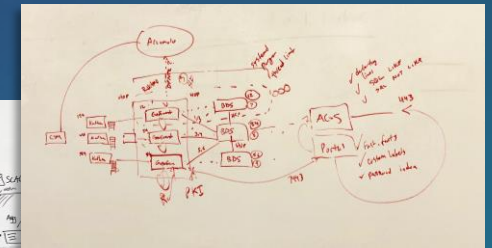
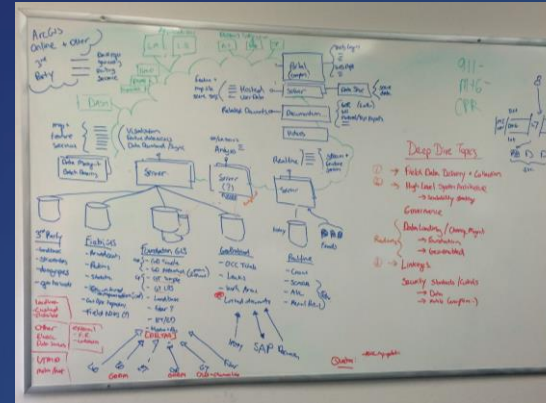
# Distributed GIS | Powering the Modern Hybrid Pattern



- Seamless bi-directional sync
- Supports new functionality
- Publish & Administer w/ ArcGIS Pro
- Separate destinations for internal & external stakeholders

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# ArcGIS | Don't Forget About the People & Process!

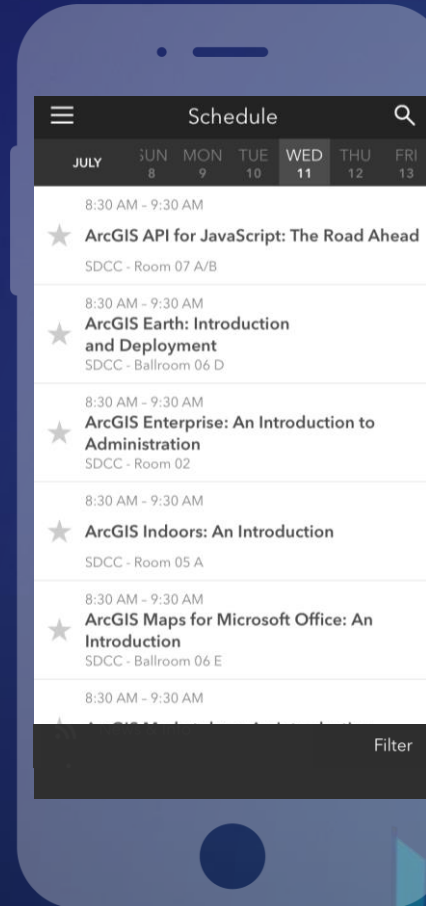


# Please Take Our Survey on the App

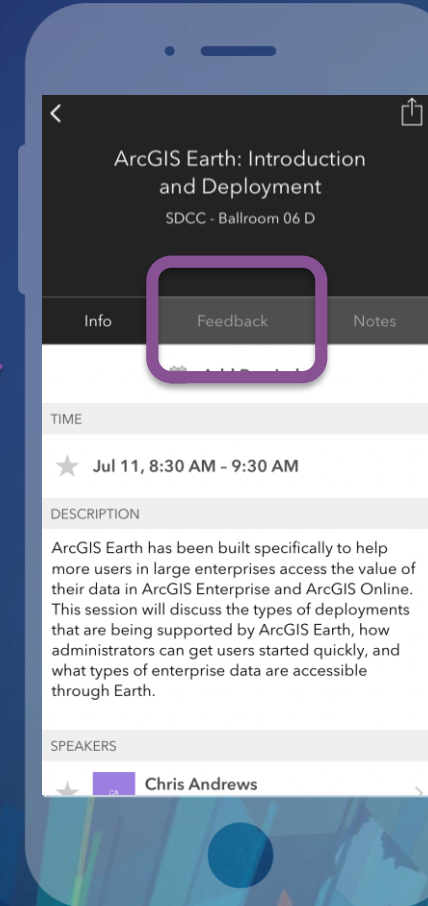
Download the Esri Events app and find your event



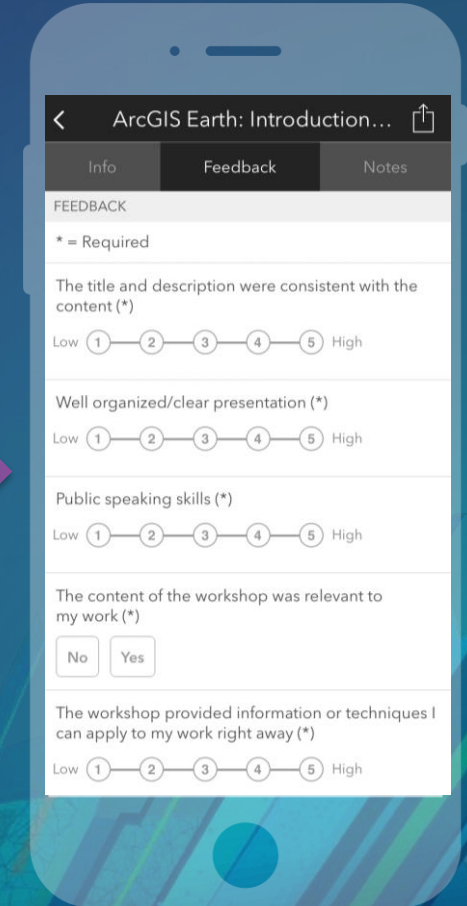
Select the session you attended



Scroll down to find the feedback section



Complete answers and select "Submit"





# See Us Here

WORKSHOP	LOCATION	TIME FRAME
<b>Tuesday</b> <ul style="list-style-type: none"><li>• Build Security into Your System</li></ul>	<ul style="list-style-type: none"><li>• Here!</li></ul>	<ul style="list-style-type: none"><li>• 1:30 – 1:40 pm</li></ul>
<b>Wednesday</b> <ul style="list-style-type: none"><li>• Designing a Web GIS Security Strategy</li><li>• Architecting the ArcGIS Platform: Best Practices</li><li>• Esri Best Practices: Architecting Your Implementation</li><li>• Distributed GIS: Establishing a Trusted Collaboration</li></ul>	<ul style="list-style-type: none"><li>• SDCC - Room 09</li><li>• SDCC - Ballroom 20 A</li><li>• SDCC - Room 17 B</li><li>• Here!</li></ul>	<ul style="list-style-type: none"><li>• 8:30 – 9:30 am</li><li>• 10 – 11:00 am</li><li>• 1 – 2:00 pm</li><li>• 5:45 pm - 6:05 pm</li></ul>
<b>Thursday</b> <ul style="list-style-type: none"><li>• ArcGIS Enterprise: High Availability and Disaster Recovery</li><li>• ArcGIS Enterprise: Best Practices for Layers and Service Types</li><li>• Esri Best Practices: Architecting Your Implementation</li></ul>	<ul style="list-style-type: none"><li>• SDCC - Room 30 E</li><li>• SDCC - Room 16 B</li><li>• SDCC - Room 05 A</li></ul>	<ul style="list-style-type: none"><li>• 8:30 – 9:30 am</li><li>• 10 – 11:00 am</li><li>• 4 – 5:00 pm</li></ul>





esri

THE  
SCIENCE  
OF  
WHERE