Enterprise System Integration Patterns
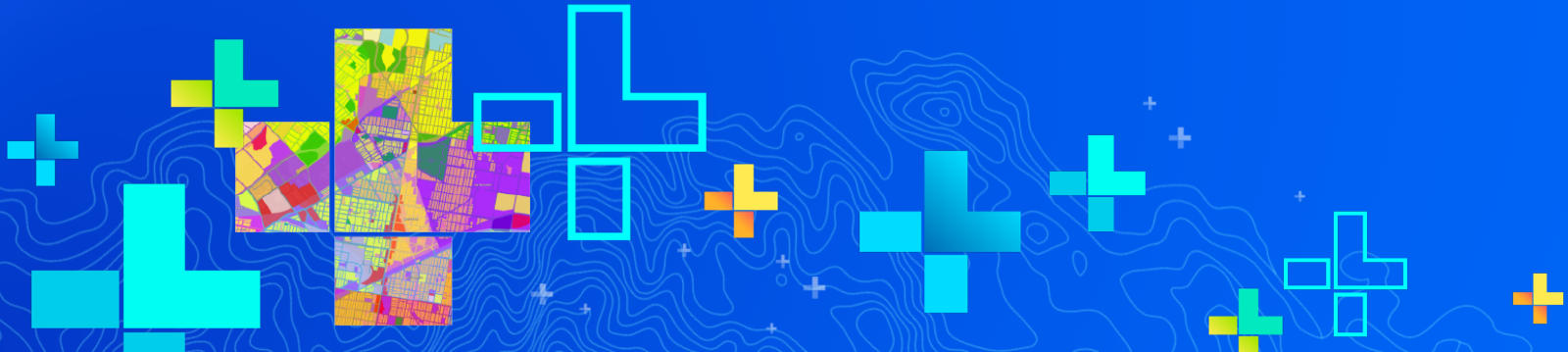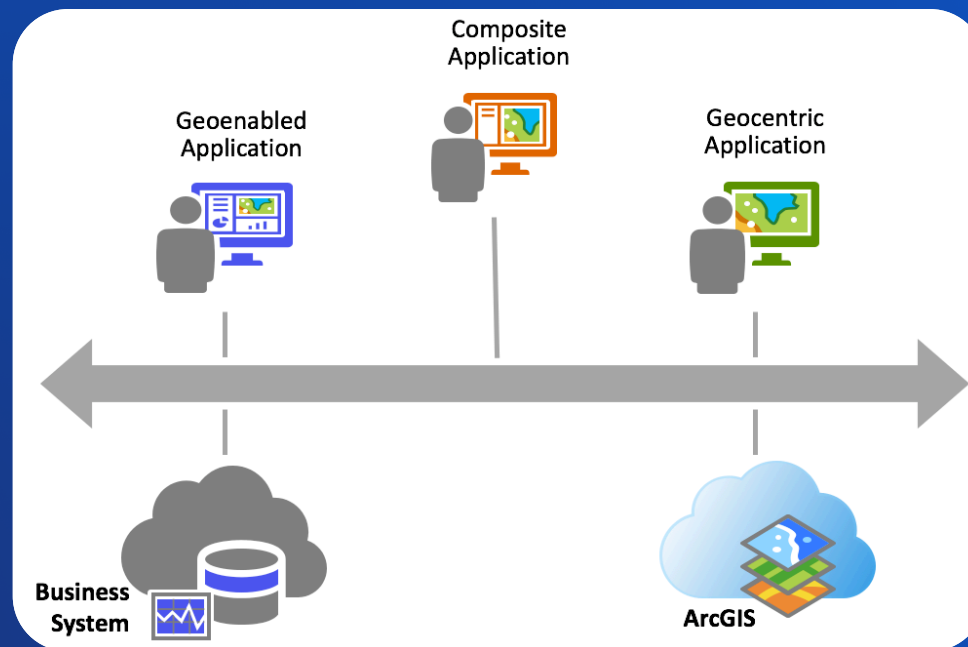
Sean McGinnis – Solution Architect

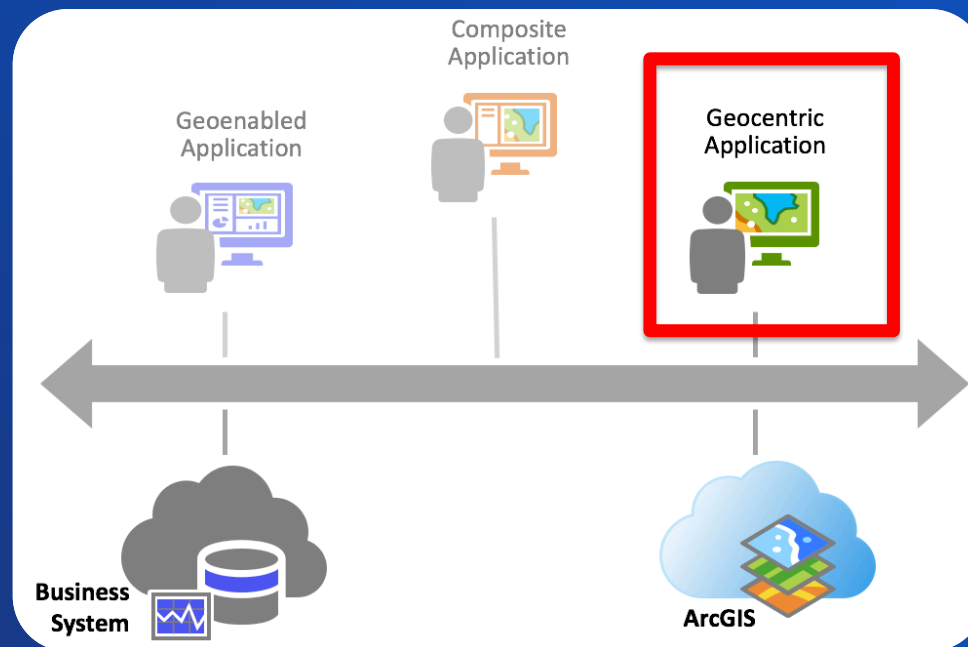# Enterprise Integration: Application Patterns

Patterns for integrating disparate information systems

Seek to achieve the greatest impact from available capabilities

Enterprise Integration: Application Patterns
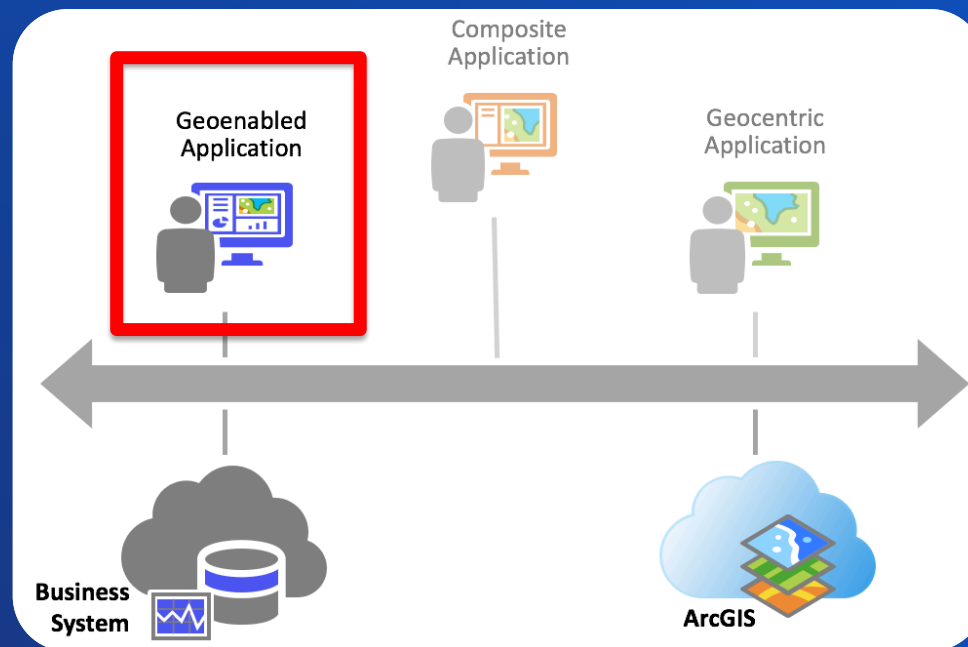
Patterns for integrating disparate information systems

…enhance mapping applications

Enterprise Integration: Application Patterns
Patterns for integrating disparate information systems

…enhance business applications

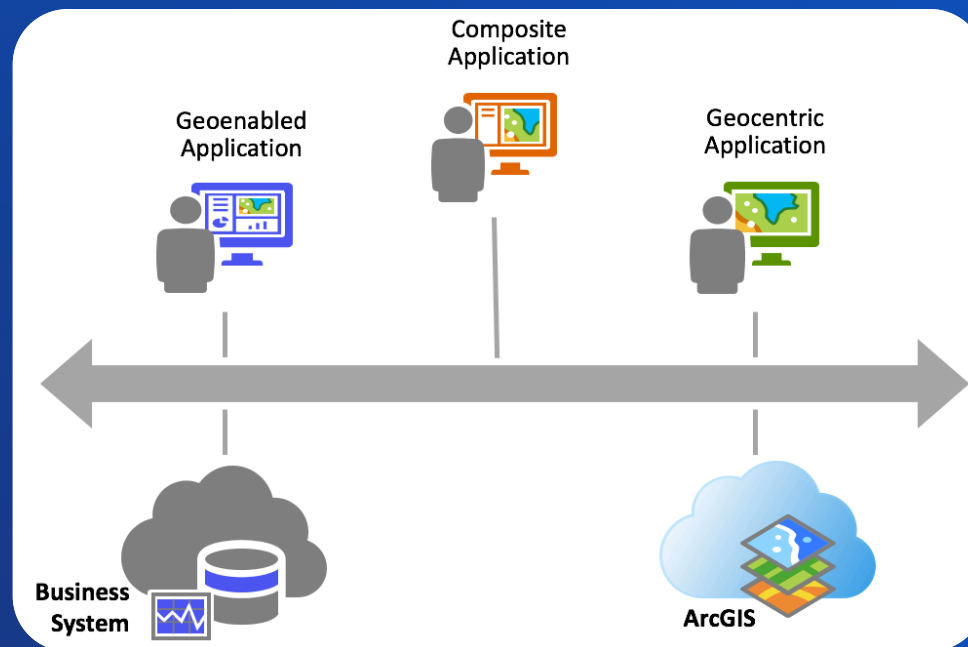# Enterprise Integration: Application Patterns
Patterns for integrating disparate information systems
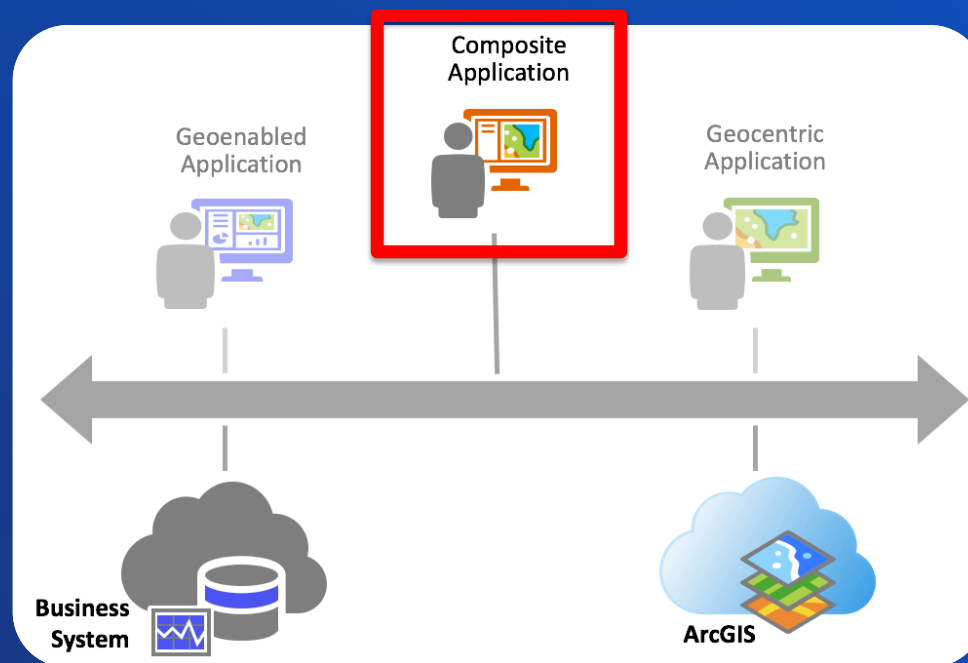
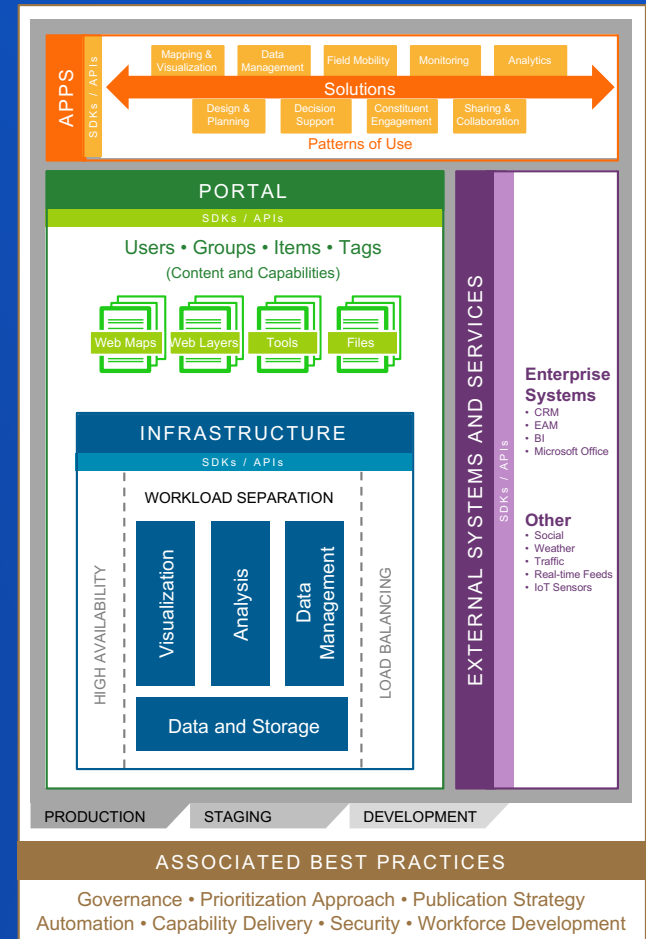

...integrate from multiple systems

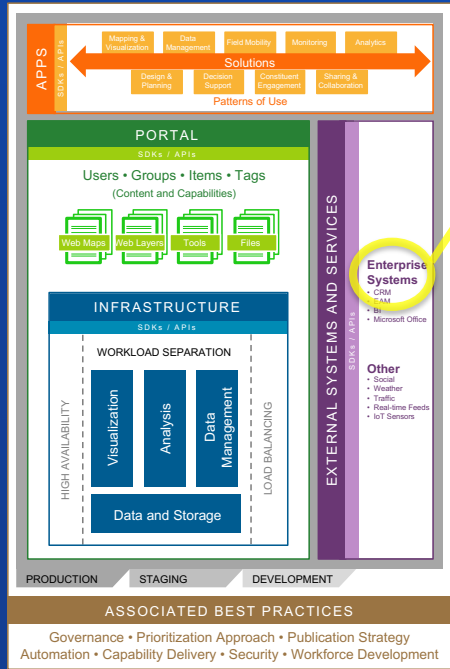# Enterprise Integration: Application Patterns

Patterns for integrating disparate information systems

…enhance workflows by leveraging the power of location

ArcGIS Conceptual Reference Architecture

AN ESRI
WHITE PAPER

JUNE 2019

Architecting the ArcGIS Platform: Best Practices

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APPS SDKs / APIs

Mapping & Visualization | Data Management | Field Mobility | Monitoring | Analytics

Solutions

Design & Planning | Decision Support | Constituent Engagement | Sharing & Collaboration

Patterns of Use

PORTAL
SDKs / APIs

Users • Groups • Items • Tags
(Content and Capabilities)

Web Maps | Web Layers | Tools | Files

INFRASTRUCTURE
SDKs / APIs

WORKLOAD SEPARATION

Visualization | Analysis | Data Management

Data and Storage

HIGH AVAILABILITY | LOAD BALANCING

EXTERNAL SYSTEMS AND SERVICES

Enterprise Systems
• CRM
• EAM
• BI
• Microsoft Office

Other
• Social
• Weather
• Traffic
• Real-time Feeds
• IoT Sensors

PRODUCTION | STAGING | DEVELOPMENT

ASSOCIATED BEST PRACTICES

Governance • Prioritization Approach • Publication Strategy
Automation • Capability Delivery • Security • Workforce Development

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Enterprise Integration: Application Patterns

Application integration patterns describe different approaches to incorporating location intelligence into applications. You can use these patterns to identify how users will interact with geospatial content, and how capabilities from GIS and other business systems should integrate.

Patterns for Integrating GIS with Business Applications

Application integration lets you deliver solutions that combine data and tools from disparate systems—including your GIS as well as business systems like permitting, licensing, and asset management systems. With integrated solutions, you can improve cross-functional business processes and provide decision-makers with integrated views of your organization's information.

How you integrate GIS with other systems will depend on which system you use as the hosting framework. ArcGIS helps you meet varying integration needs by supporting multiple application integration patterns (as shown in figure 5). These patterns include:

Figure 5: Application integration patterns for the ArcGIS platform.

1. **Geocentric applications**, which enhance GIS applications with business data and capabilities to automate or inform location-centric activities. Geocentric applications are dominated by geospatial content and capabilities, while delivering business content and capabilities secondarily. This pattern typically uses a GIS application as the hosting framework. It is best suited for staff who are familiar with GIS applications, for situations where GIS activities are central, or for cases where a user-friendly GIS template or configurable app provides most of the needed functionality.

2. **Geoenabled applications**, which enhance business applications with GIS data and capabilities to automate or inform business activities. Geoenabled applications are dominated by business system content and capabilities that are supplemented by GIS capabilities. This pattern typically uses the business system as the hosting framework. It is best suited for staff who are familiar with the business system that automates the related workflows, or when an extensible business system provides most of the needed functionality.

3. **Composite applications**, which integrate capabilities from multiple systems in situations where no existing system can or should serve as the hosting framework. This pattern typically uses web services to integrate data and logic from multiple systems to derive new functionality. Composite applications are conceptually comparable to mashups, and they represent a contemporary trend in enterprise application development.

No single application integration pattern fits all situations. You can use the application pattern that best combines capabilities from ArcGIS and your business system to deliver the greatest impact.

Recommendations

The following guidelines can help you determine which application integration pattern best suits your situation:

1. If most of the capabilities you need are delivered by your GIS, deploy a geocentric application.

2. When you need to access GIS content and capabilities within a business system or application, deploy a geoenabled application.

3. When you need a discrete application that integrates content and capabilities from both your GIS and existing business systems, build a composite application.

Back to Reference Architecture

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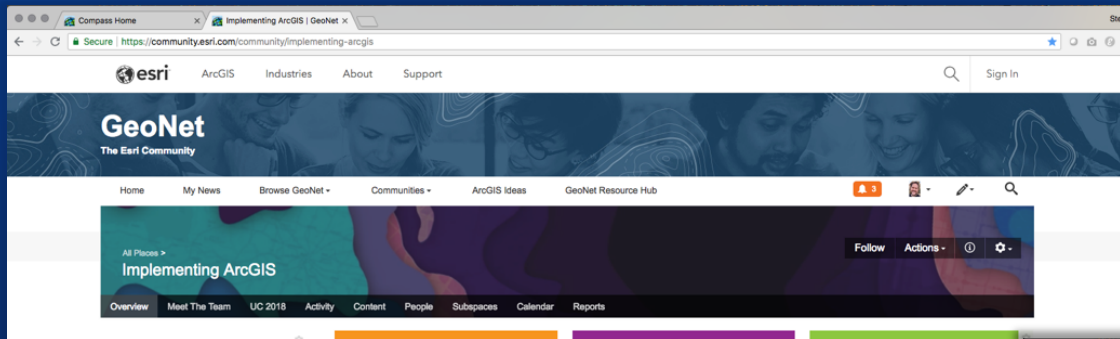
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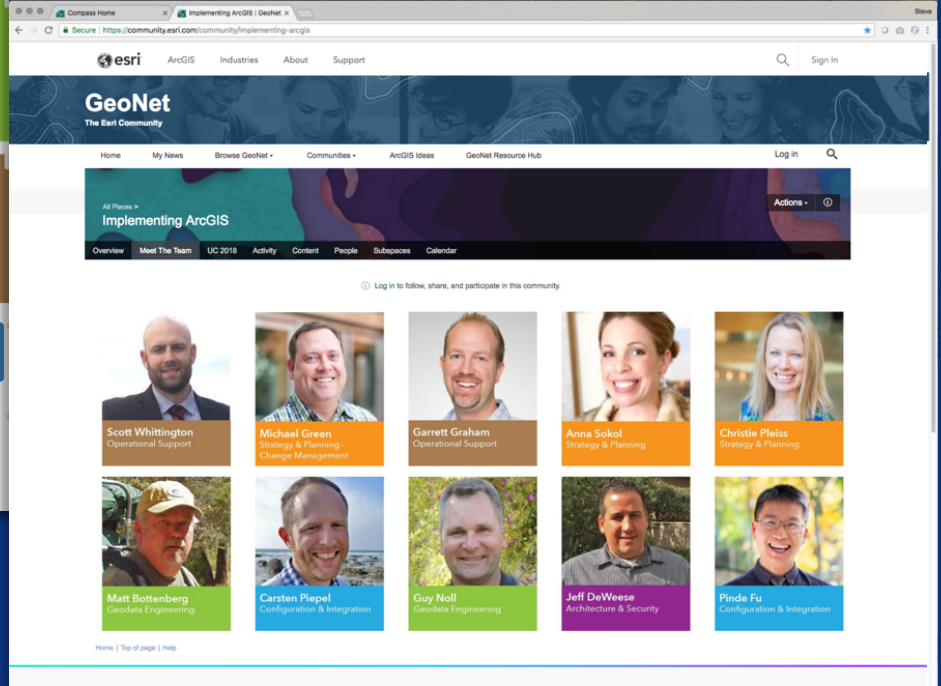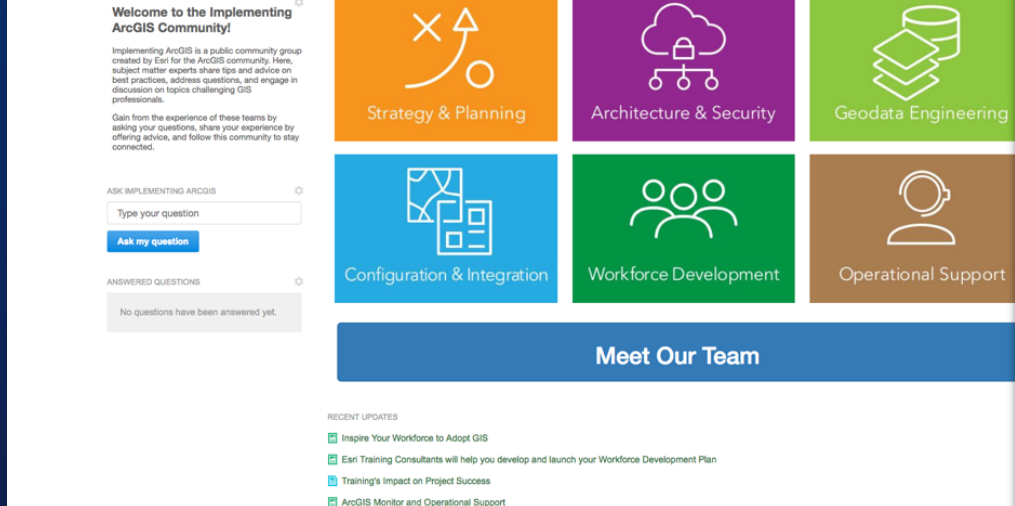
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