Architecting the ArcGIS Platform: Best Practices

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Patterns & Practices Solution Architects…
Amplify customer success by offering strategic guidance, communicating best practices, and aligning technology with business needs.
“…You wouldn’t build a house without a blueprint…”

- Warren Peterson
“…So don’t build your life GIS without one either!”

- Warren Peterson
The ArcGIS Conceptual Reference Architecture
Architecting the ArcGIS Platform: Best Practices

- Application Implementation Strategies
- Apply IT Governance
- Automation
- Capability Delivery
- Distributed GIS
- Enterprise Integration: Application Patterns
- Environment Isolation
- High Availability
- Load Balancing

- Managing Identities
- Patterns of Use
- Prioritization Approach
- Publication Strategy
- Real-time GIS Strategy
- Security
- Workforce Development
- Workload Separation
Best Practice: Application Implementation Strategies

Minimize cost and maximize development resources

- Configure **First**
- Extend **Existing** Apps & Templates
- Use the ArcGIS Web **APIs** and **SDKs**

Configure first for the lowest cost and least effort

*Deviations from “core” increase risk!*
Best Practice: Capability Delivery

- Involve stakeholders
- Keep iterations brief (~30 days)
- Stop | restart at any time
- Iterations terminate with the business need

Each iteration results in deliverable you can use…
Best Practice: Distributed GIS
An integrated set of geographic information systems working together as part of a trusted collaboration

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

Preserve control and access within individual departments while supporting the broader needs of the enterprise.

Distributed GIS is a modern approach that supports a new type of sharing
Best Practice: Environment Isolation

Separate and distinct compute environments

- **Production**: an operational, real-time compute environment
- **Staging**: a separate, mirrored, pre-production environment
- **Development**: a limited scale environment sufficient for primary code and data modeling

Reduce risk and protect operational systems from unintentional changes and negative business impacts
Best Practice: Manage Identities
Uniquely and securely describe user access to maps, apps, data, and analysis

- Configure in the portal
  - Users
  - Roles
  - Privileges
- Incorporate in your apps

Built-in Security -OR- Third Party Identity Management

Identity enables participation!
# Common Patterns of Use

Common geospatial functions that re-occur across business models and environments

<table>
<thead>
<tr>
<th>Mapping &amp; Visualization</th>
<th>Data Management</th>
<th>Field Mobility</th>
<th>Monitoring</th>
<th>Analytics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Understand locations and relationships with maps and visual representations</td>
<td>Collect, organize, and maintain accurate locations and details about assets and resources</td>
<td>Manage and enable a mobile workforce to collect and access information in the field</td>
<td>Track, manage, and monitor assets and resources in real-time</td>
<td>Discover, quantify, and predict trends and patterns to improve outcomes</td>
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<table>
<thead>
<tr>
<th>Design &amp; Planning</th>
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<th>Constituent Engagement</th>
<th>Sharing &amp; Collaboration</th>
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<tr>
<td>Evaluate alternative solutions and create optimal designs</td>
<td>Gain situational awareness, and enable information-driven decision making</td>
<td>Communicate and collaborate with citizens and external communities of interest</td>
<td>Empower everyone to easily discover, use, make, and share geographic information</td>
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*The patterns are a framework for driving value*
Best Practice: Prioritization Approach
Maximize success by balancing business benefits with challenges

Drive value from technology investments
Best Practice: Project Prioritization
Maximize success by balancing business benefits with challenges

Drive value from technology investments
## Best Practice: Project Prioritization - Benefits

Measure the Impact of GIS on Org Units

<table>
<thead>
<tr>
<th>Express Need</th>
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## Best Practice: Project Prioritization - Benefits

Measure the Impact of GIS on Strategic Interests

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Drive value from technology investments
### Best Practice: Project Prioritization - Benefits

**Measure the Impact of GIS Initiatives on Strategic Interests**

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*Drive value from technology investments*
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Drive value from technology investments
Best Practice: Project Prioritization
Maximize success by balancing business benefits with challenges

Drive value from technology investments
Best Practice: Project Prioritization
Assessing the Challenge Posed By GIS Initiatives

Configure
Extend
Customize

Time & Effort (Costs)
Implementation & Maintenance

Drive value from technology investments
### Best Practice: Project Prioritization
Assessing the Challenge Posed By GIS Initiatives

<table>
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*Drive value from technology investments*
Aggressively Embrace
Cautiously Embrace
Best Practice: Prioritization Approach
Maximize success by balancing business benefits with challenges

Drive value from technology investments
Best Practice: Security

Securing the ArcGIS platform should be addressed early in the design process as techniques and approaches may vary depending upon business needs and environment.

- Authentication/Authorization
- Filtering
- Encryption
- Logging/Auditing

Leverage the organization’s existing security framework!
Who are these people?

What can they use?
Best Practice: Workforce Development

Equip people with knowledge and experience

Workforce Development should not be considered a cost, but rather an investment!

Achieve greater value and a faster return on investment from ArcGIS
Best Practices Documented

Architecting the ArcGIS Platform: Best Practices

https://go.esri.com/bp
Where can I find the document?
• go.esri.com/bp

Which Best Practices are currently included?

People
Capability Delivery, Patterns of Use, Managing Identities, Workforce Development

Process
Application Implementation Strategy, IT Governance, Prioritization Approach

Technology