

Web GIS: Architectural Patterns and Practices

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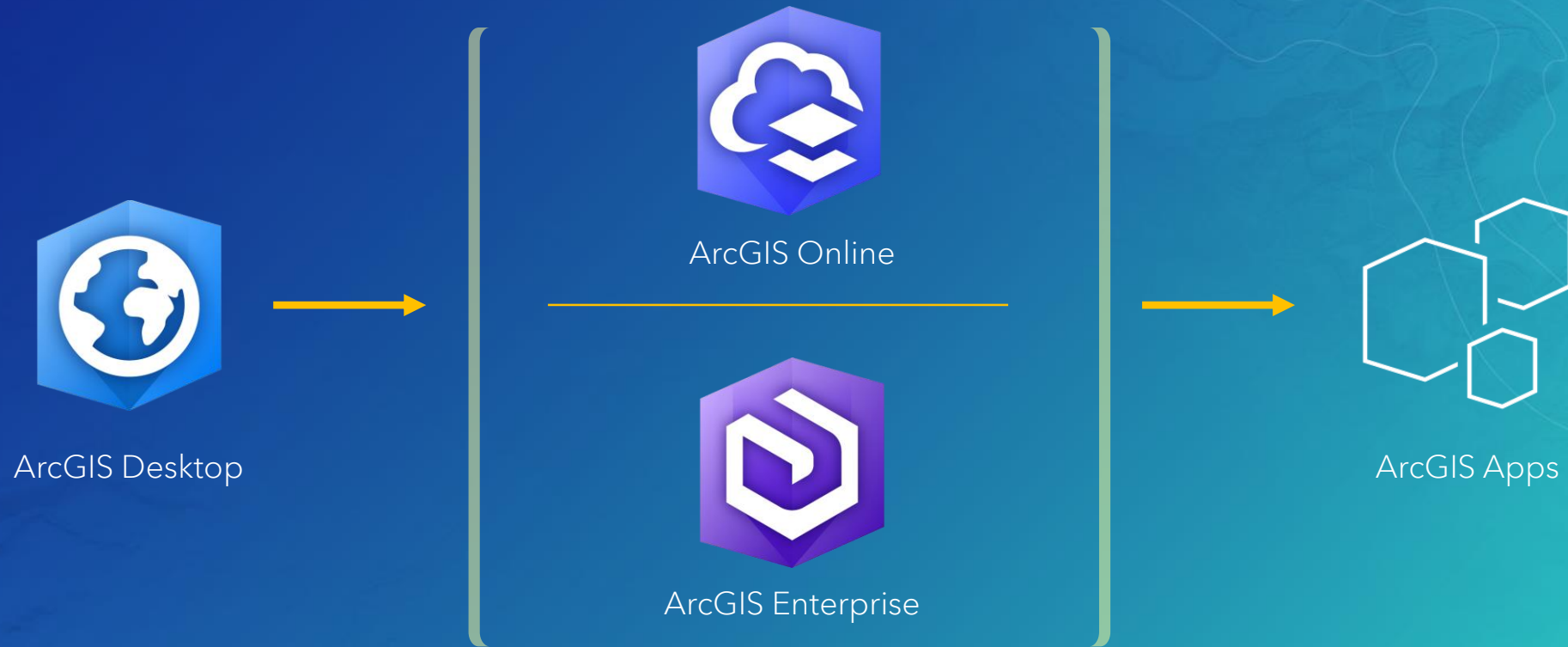
Philip Heede

Web GIS | Transformation of the ArcGIS Platform

Web GIS



Web GIS | Transformation of the ArcGIS Platform

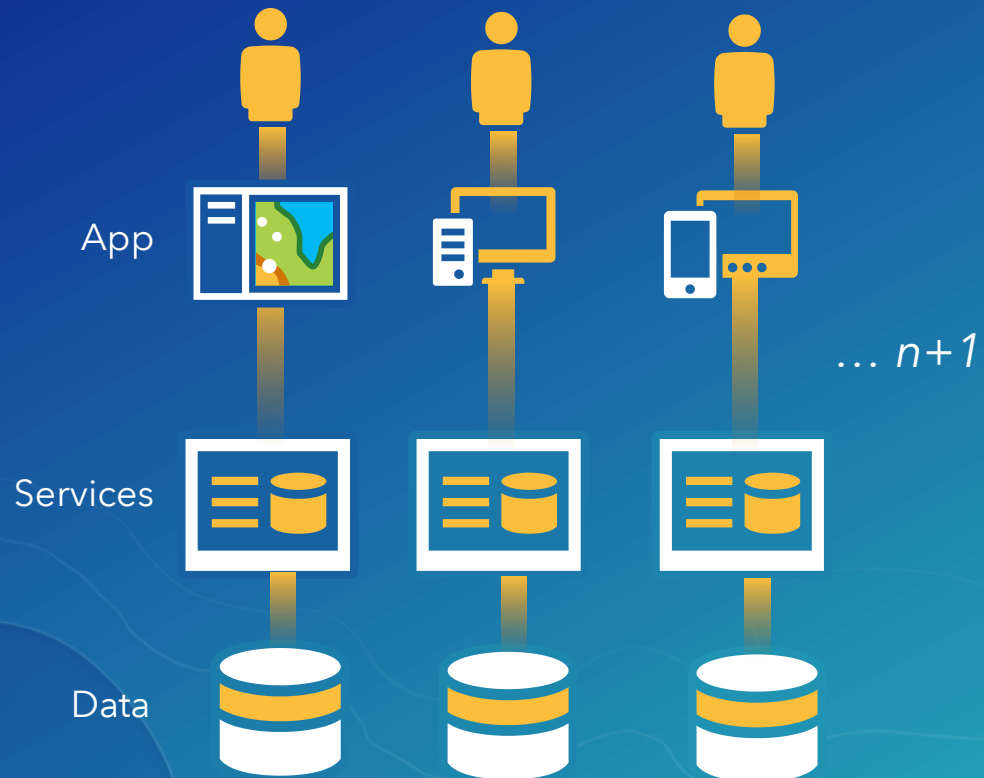


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ArcGIS for Developers

Server GIS vs. Web GIS

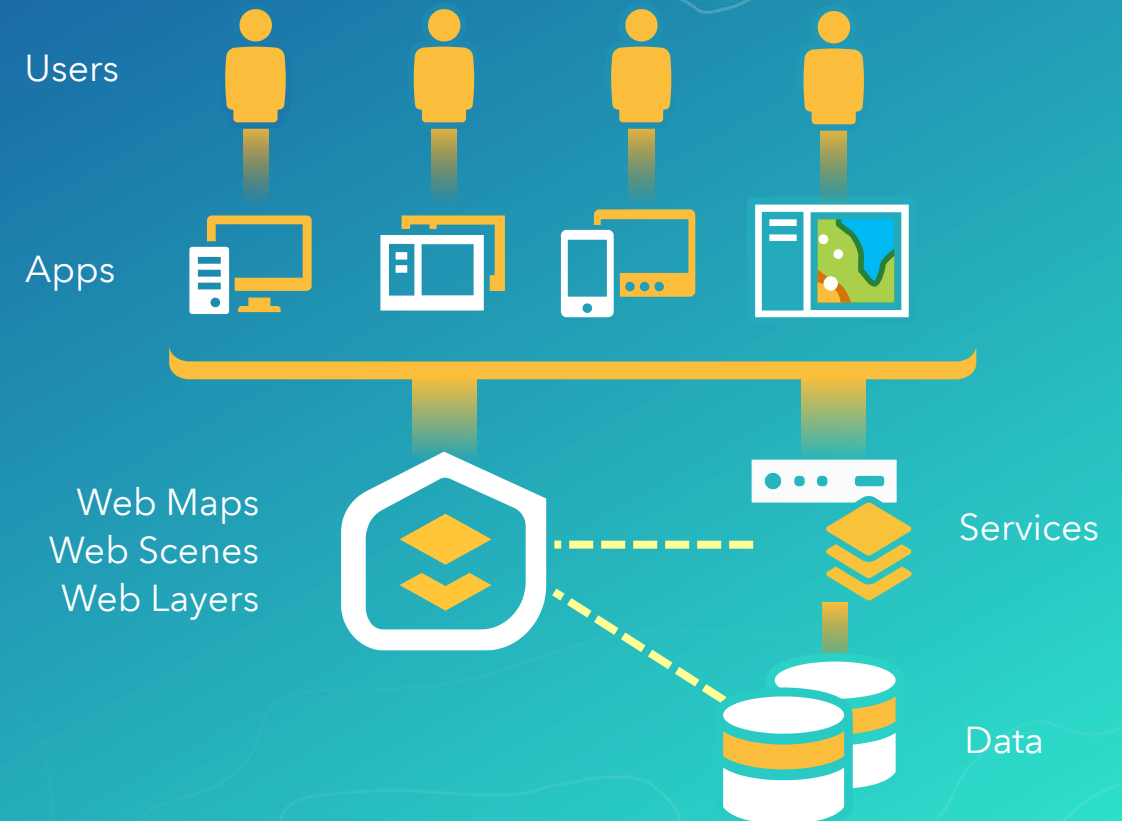
Server GIS

Silo'd use of GIS services within custom applications



Web GIS

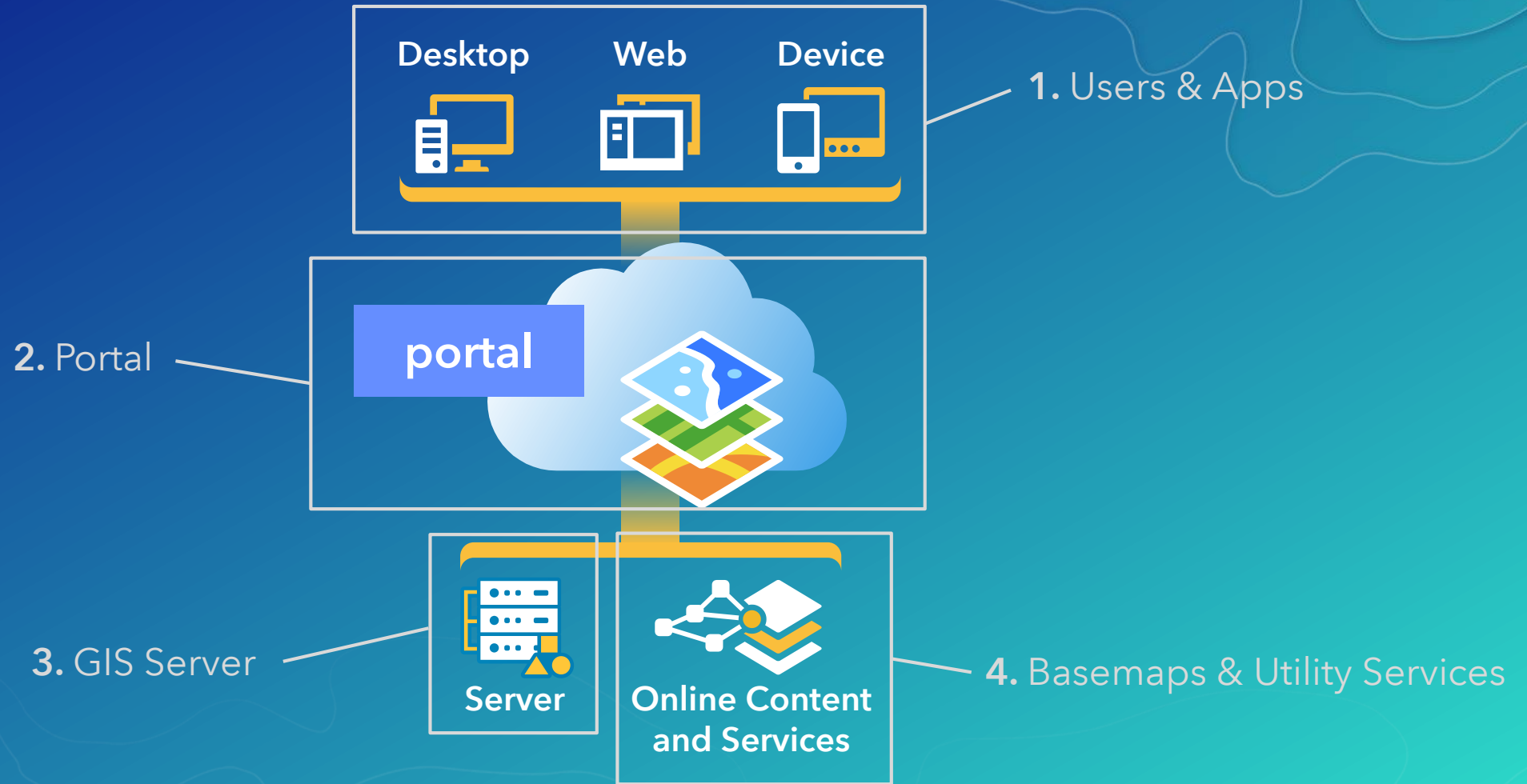
Pervasive use of web layers, scenes, and maps within all of the ArcGIS apps



ArcGIS offers a spectrum of tools for building Apps



Anatomy of Web GIS



How to get a portal

ArcGIS Enterprise

- Software
 - ArcGIS Enterprise software which includes Portal for ArcGIS
 - Releases 1-2 times per year
 - Upgraded manually (*by organization*)
 - Organization controls SLA
- Core Web GIS functionality (*visualization, smart mapping, analysis...*)
- Enterprise Integration
 - Web SSO via SAML
 - Web-tier Authentication via Web Adaptor
 - Enterprise Groups
 - ArcGIS Server Integration...
- Advanced GIS functionality

ArcGIS Online

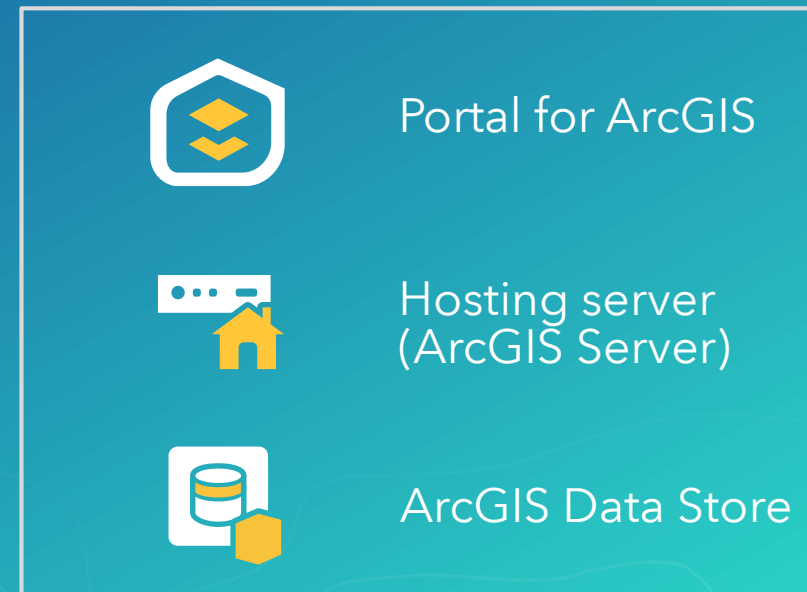
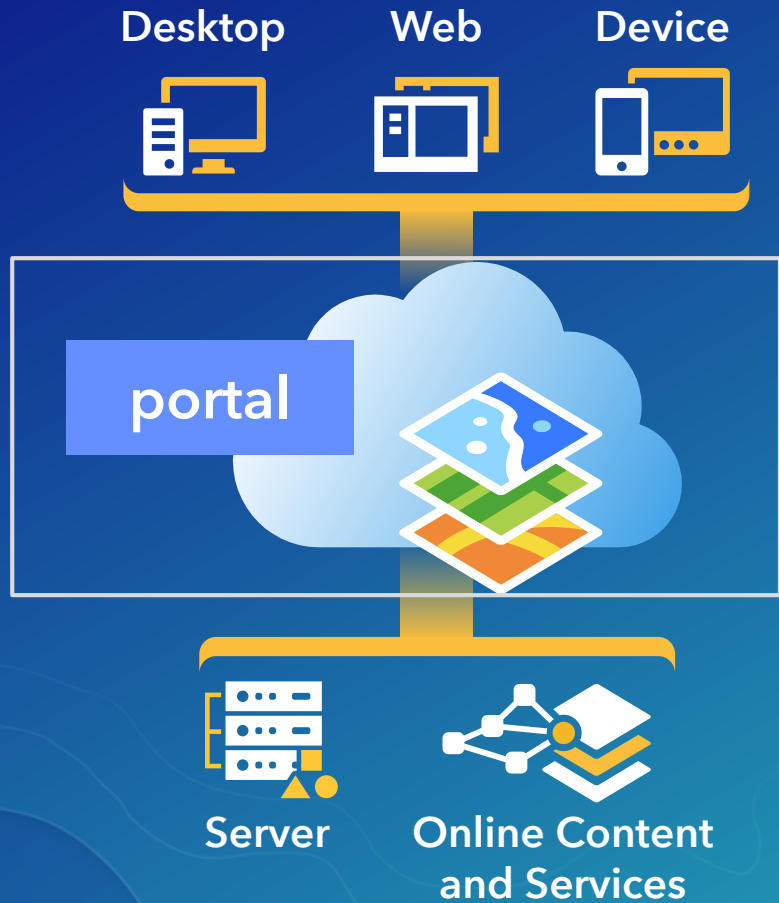
- SaaS
 - www.arcgis.com
 - Releases 3-4 times per year
 - Upgraded automatically (*by Esri*)
 - Esri controls SLA
- Core Web GIS functionality (*visualization, smart mapping, analysis...*)
- Enterprise Integration
 - Web SSO via SAML
- Esri-provided content and services
 - Basemaps
 - Living Atlas
 - GeoEnrichment, Routing, ...

Anatomy of the portal

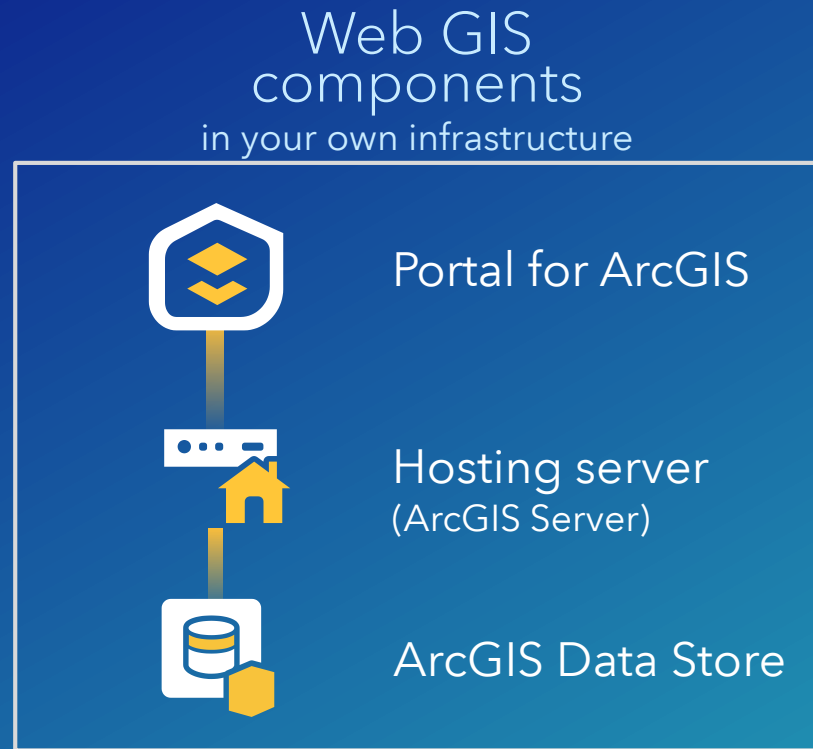
The portal and backend infrastructure in ArcGIS Online just is: hosted by Esri and no need for installation or maintenance nor breaking apart into the backend components..



For a deployment using ArcGIS Enterprise there are three main components that make up a Web GIS:



Anatomy of the portal



Supports hosted data as well
as the app and collaboration infrastructure;

referred to as the
base ArcGIS Enterprise deployment

Server GIS infrastructure



Supports publishing of authoritative data
from enterprise geodatabases

part of base ArcGIS Enterprise deployment
in the modern architecture

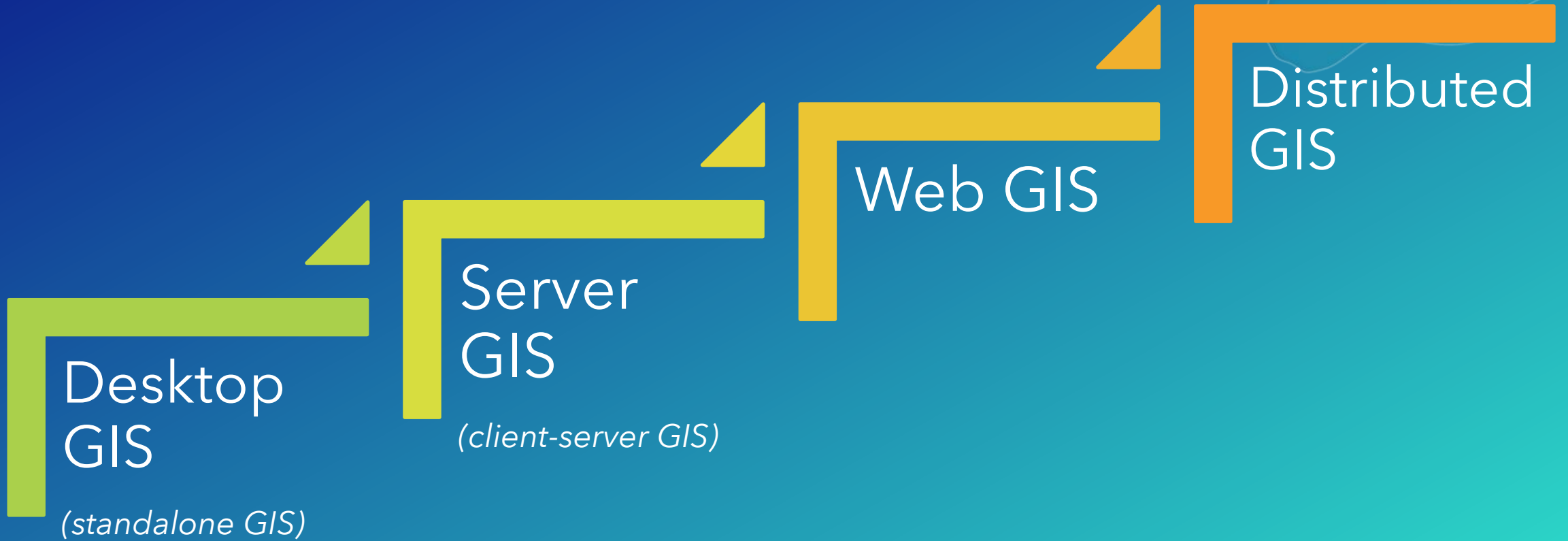
Web GIS and Distributed GIS Deployment Patterns

Begin with ArcGIS Online & SaaS →

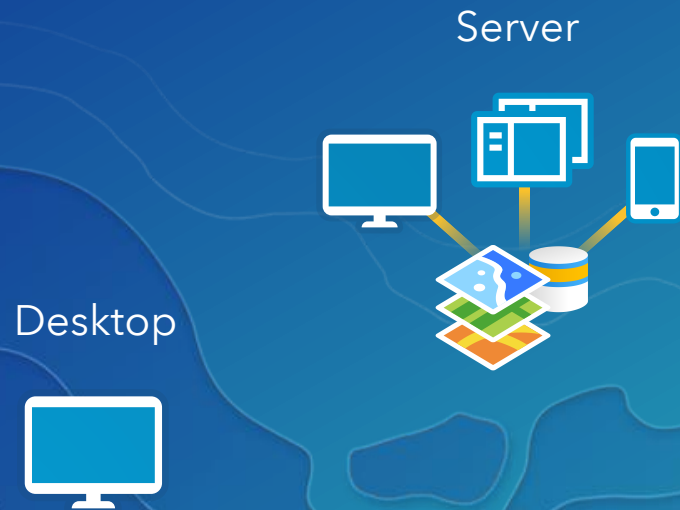


←
Begin with ArcGIS Enterprise & Software

Evolution of the modern GIS



The Journey to Modern GIS



The Journey to Modern GIS

Desktop



Server

Continued support

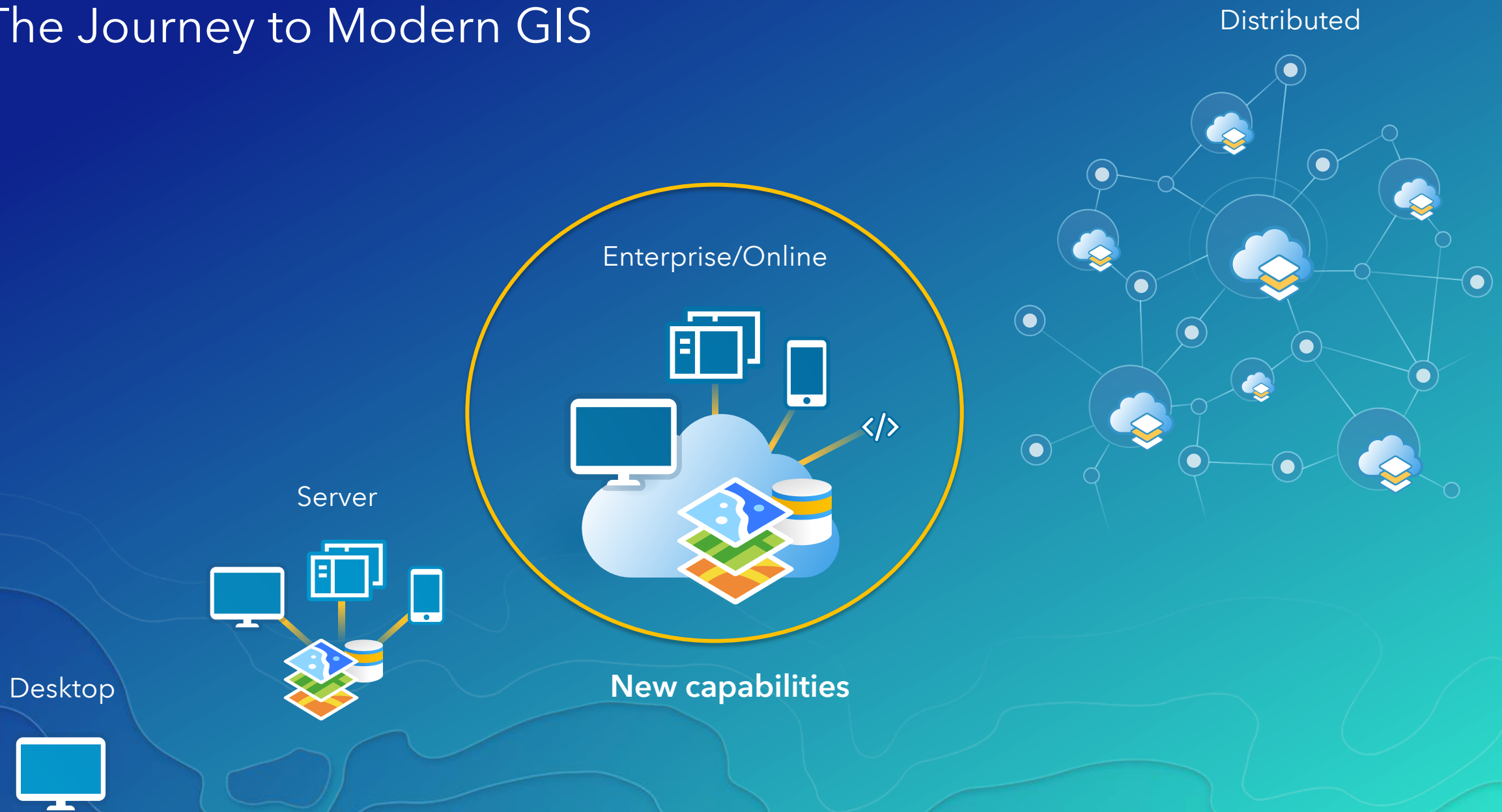
Enterprise/Online



Distributed



The Journey to Modern GIS



Building a System of Engagement

Thinking about the decisions you will make along the way



Create identities

- How will you manage onboarding new users?
- Who are your users?

Apply roles

- What permissions and access do you want people to have?
- How do you expect people to use the system?

Create groups

- How will you organize content for easy sharing?

Create and share content

Succeeding with Web GIS



Technology

+



Process

+



People

+

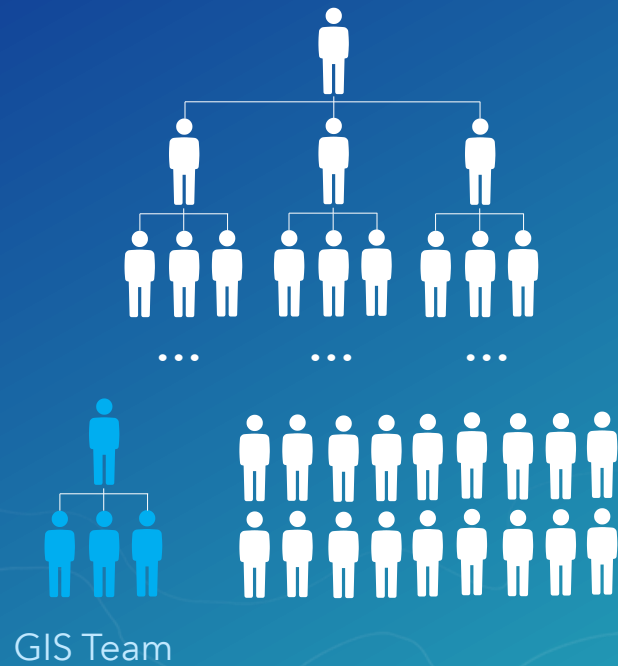


Planning

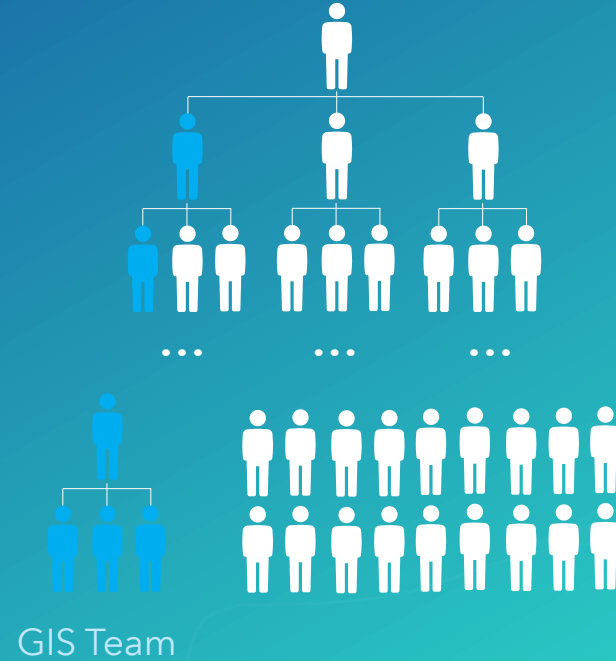
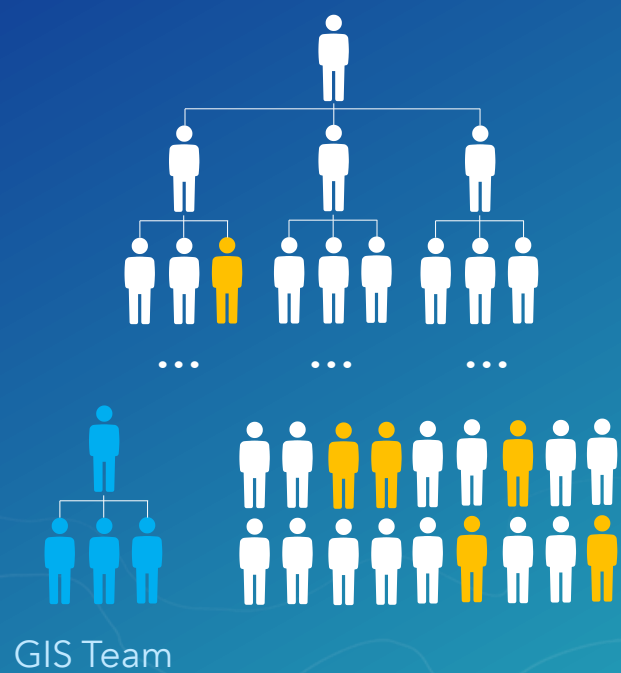
The Role of GIS Professionals in Web GIS



Increasing the Effectiveness of Your Web GIS

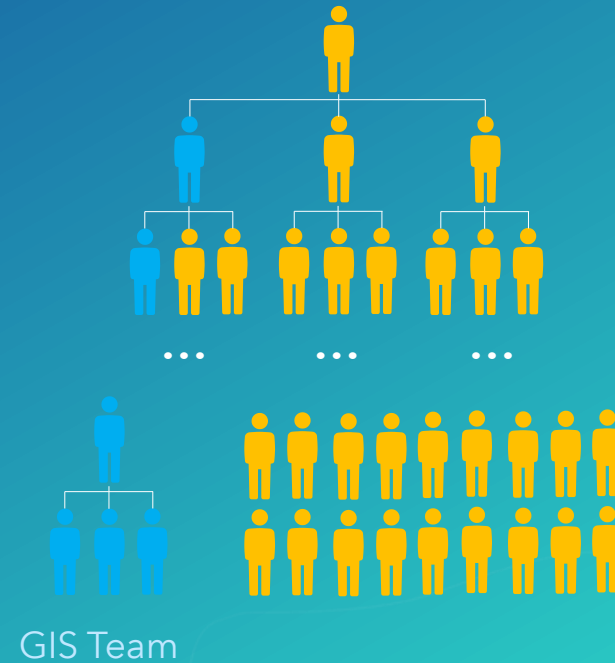
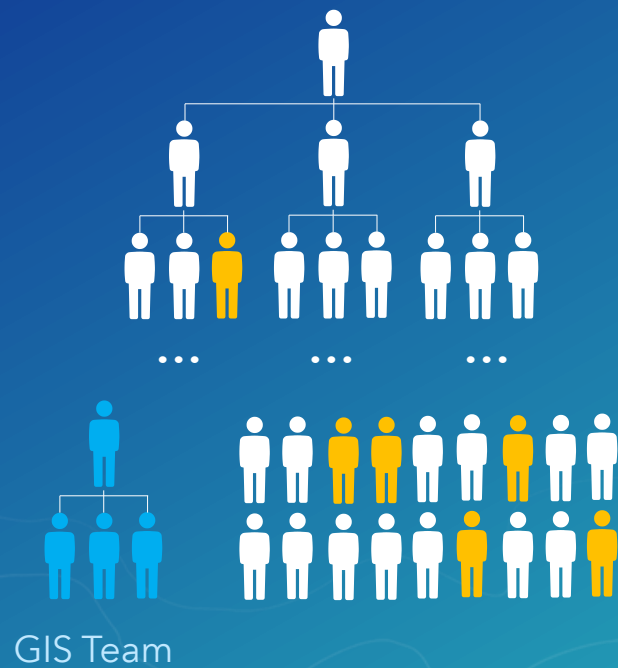


Increasing the Effectiveness of Your Web GIS

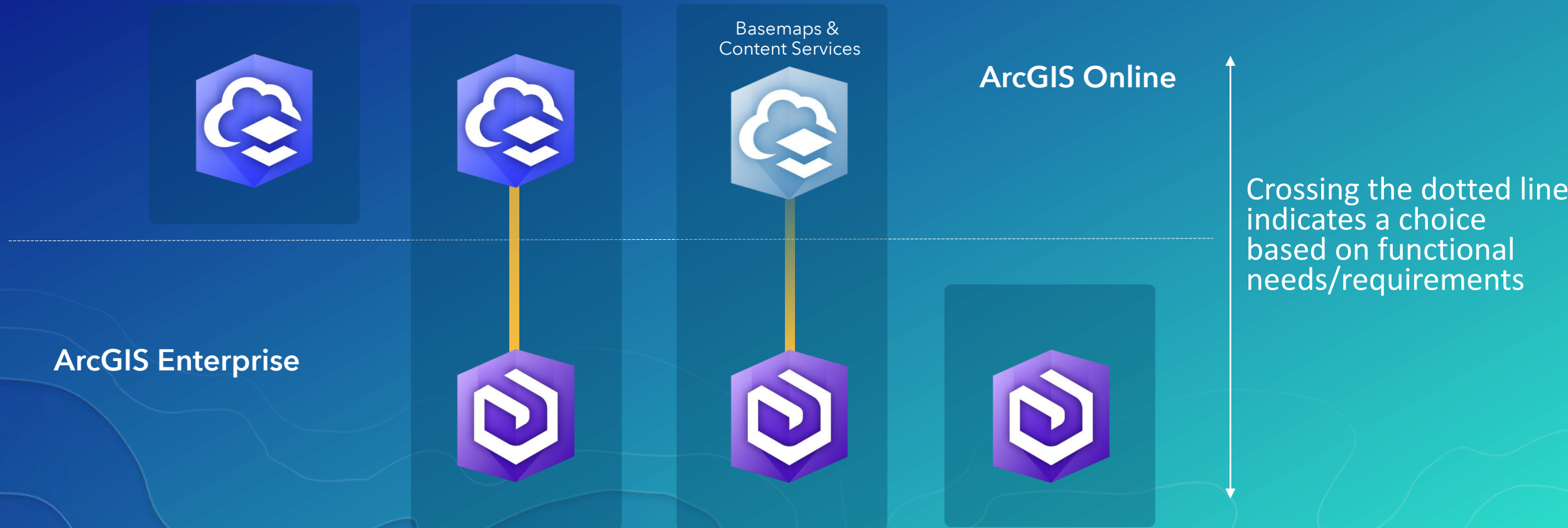


Increasing the Effectiveness of Your Web GIS

By securing executive sponsorship you can more fully saturate your organization



ArcGIS Online or ArcGIS Enterprise



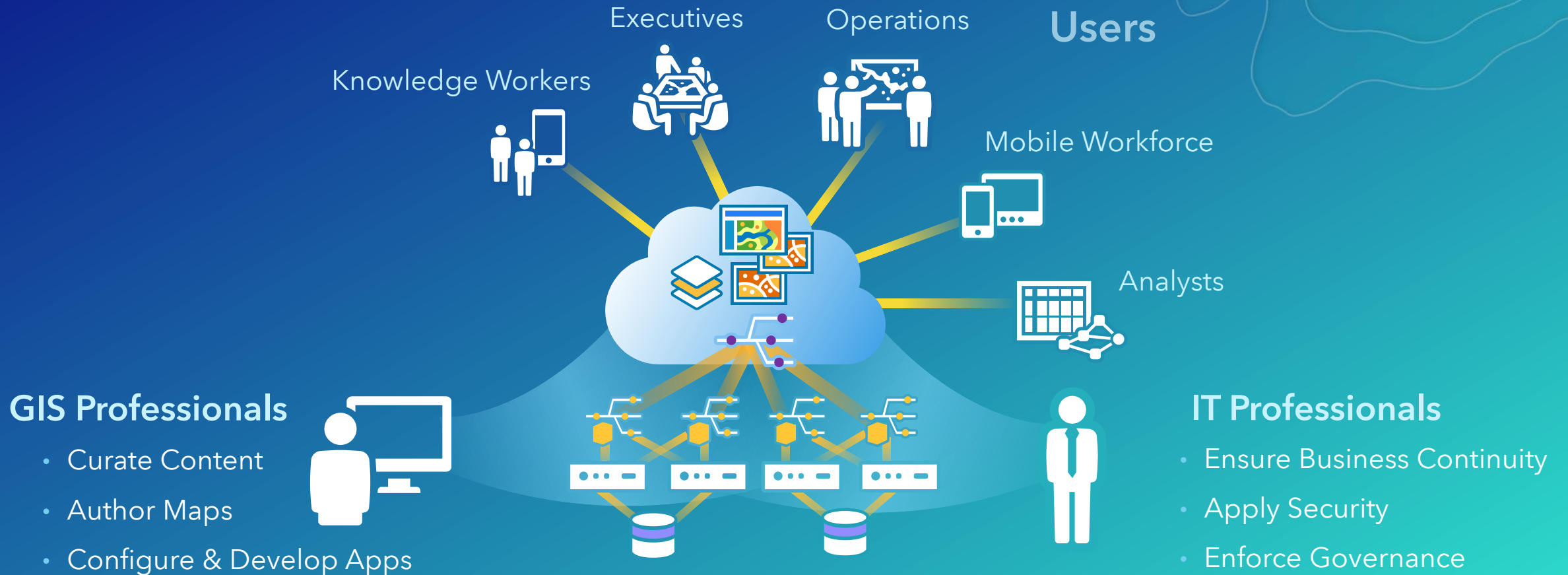
If choosing ArcGIS Enterprise you manage the infrastructure, during your planning phase consider:

- **What is your deployment environment?**
 - On-premises or in the cloud
- **What tools will you use to help streamline the deployment?**
 - ArcGIS Enterprise Builder, Chef, or cloud tools
- **What analytical capabilities will you include in your deployment?**
- **How do you expect ArcGIS Enterprise to be used?**
- **What are your SLA expectations?**

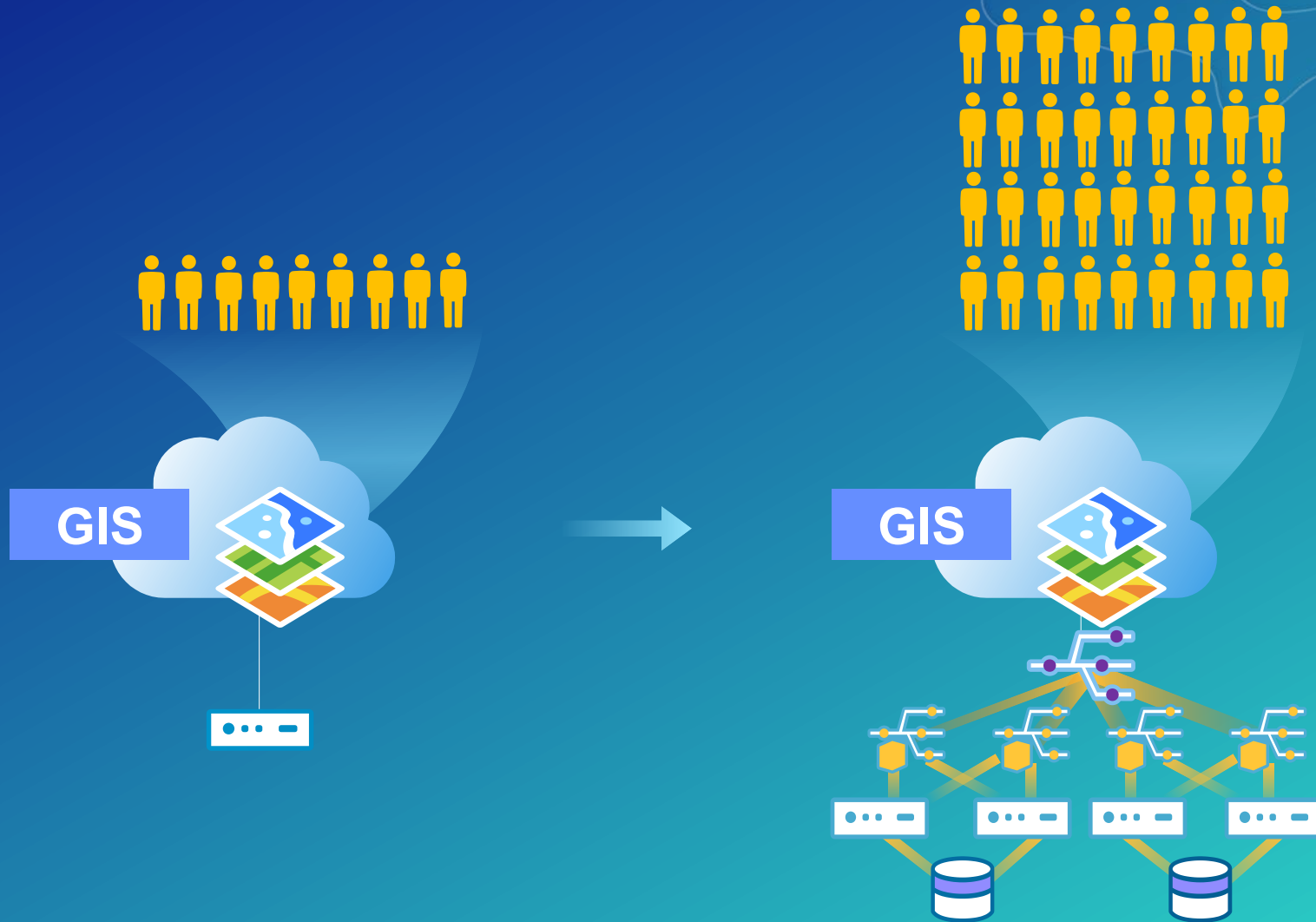
Tips for Success



Partner with your IT department

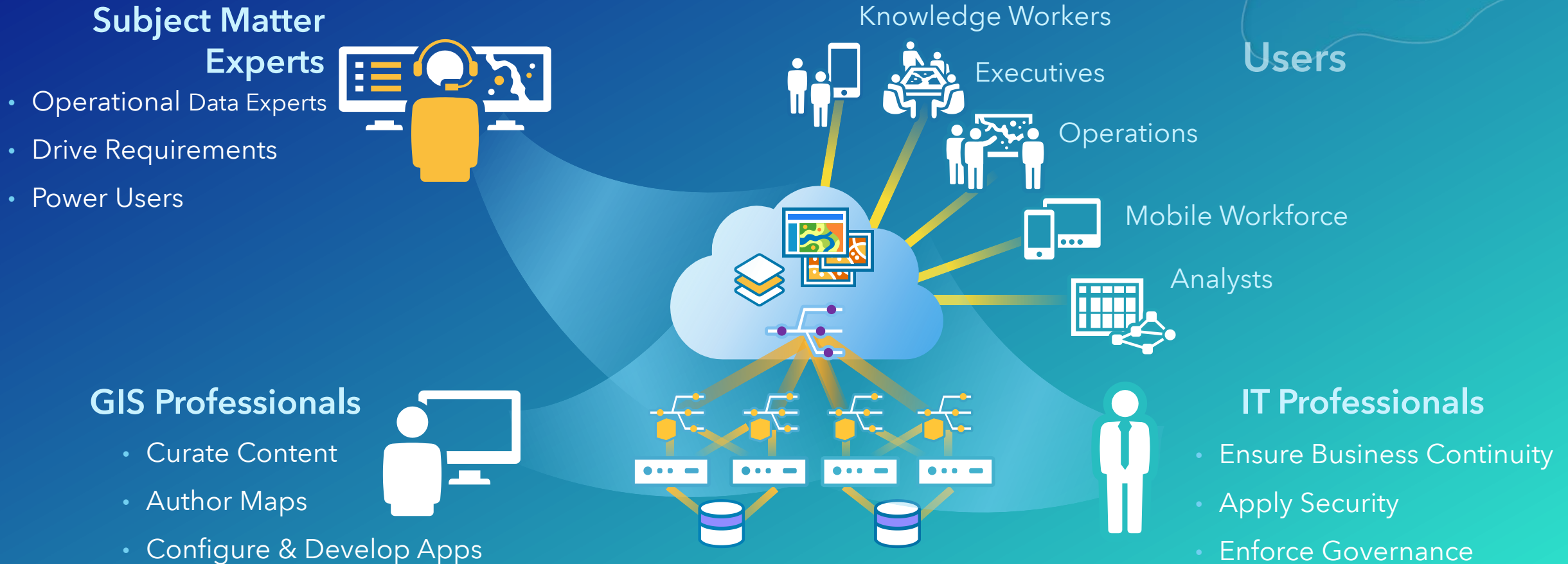


Plan and prepare to scale your deployment



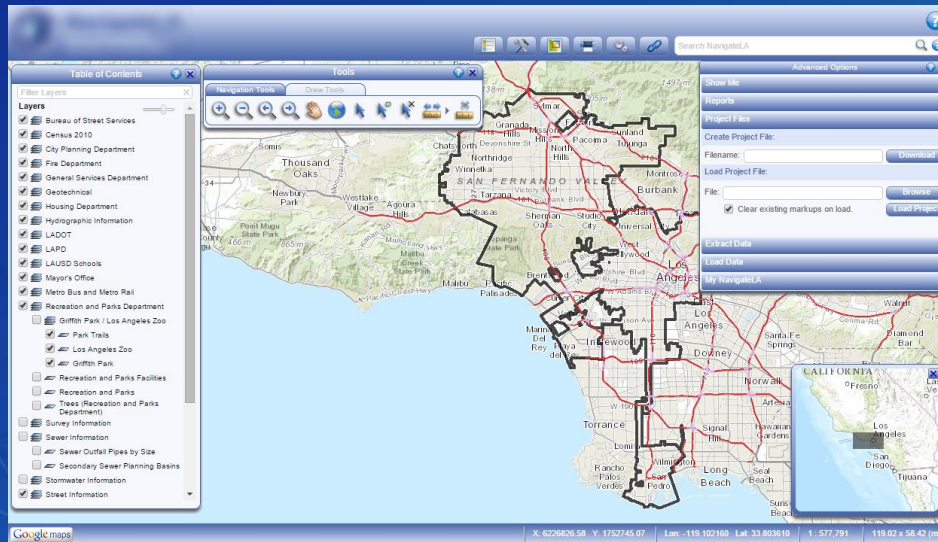
Don't neglect your GIS infrastructure!

Find more champions of your Web GIS



Build apps that solve specific problems

Think about your users ...



... deliver the app(s) they need

Story Maps

Portal

Dashboard

Explorer

Collector

Office

Focused Apps

(Configured and/or Customized)

Tackle your Mapzillas

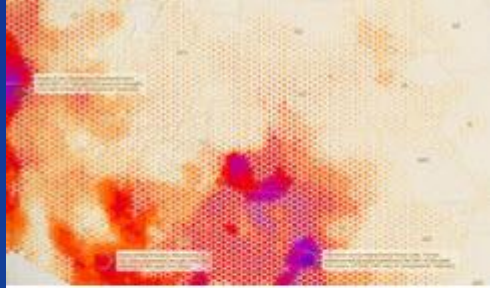
A black and white photograph of three men in white shirts leaning over a large table, working on a map. The man on the left is pointing at a section of the map. The man in the middle is looking down at the map. The man on the right is also looking at the map. A large filing cabinet is visible in the background. The text "Bring the art of cartography into your Web GIS" is overlaid on the image.

Bring the art of
cartography into your
Web GIS

Bring back the art of cartography



Submarine Cables



Five Years of Drought



Life on Mars



Gorgeous Gorge



Vision Zero Dashboard:
Real-Time Traffic



Red Relief for a Japanese
Volcano

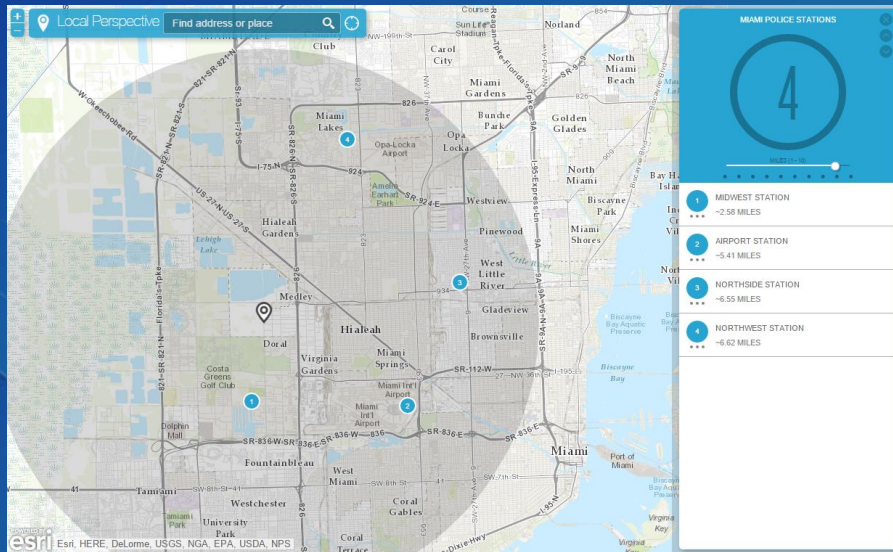


Tactile Atlas of
Switzerland

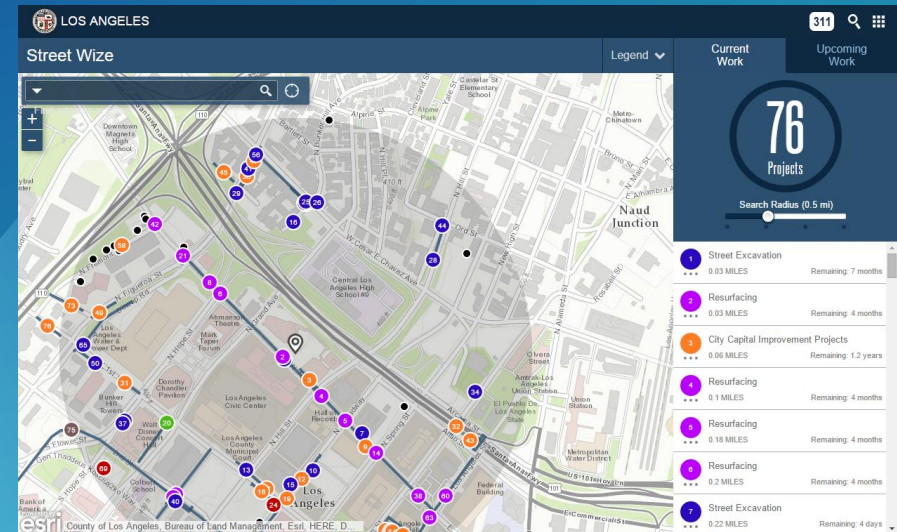
Don't underestimate the
power of good design

Configure first, but don't be afraid to customize

ArcGIS Local Perspective Template



City of LA Street Wize



- Updated styling & symbology
- Tailored workflow to the user
- Tailored application to the data

Take a Second Look, Show Something New

Mobile



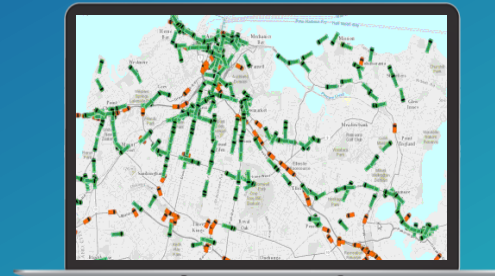
Story Maps



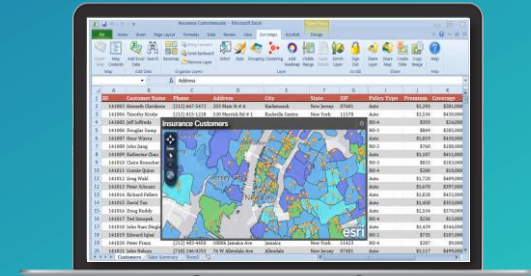
3D



Real-Time



Integration
(MS Office, ...)



Find inspiration, give inspiration

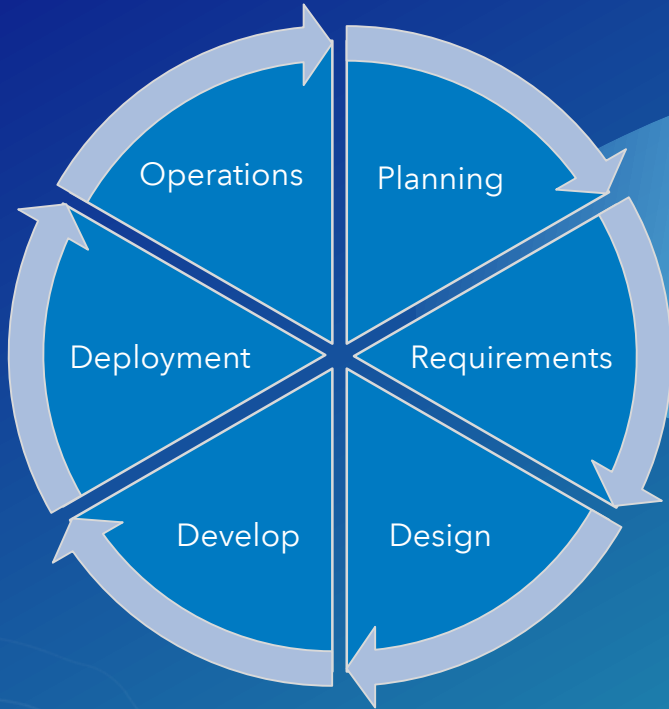
Take a Second Look, Show Something New

Story Maps



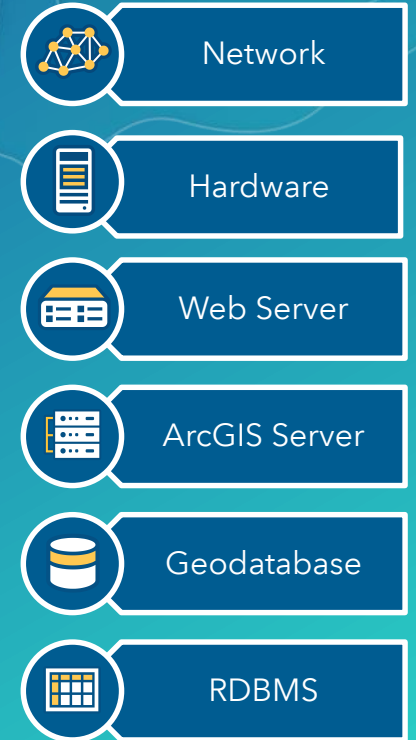
Monitor Your Web GIS

Don't set it and forget it



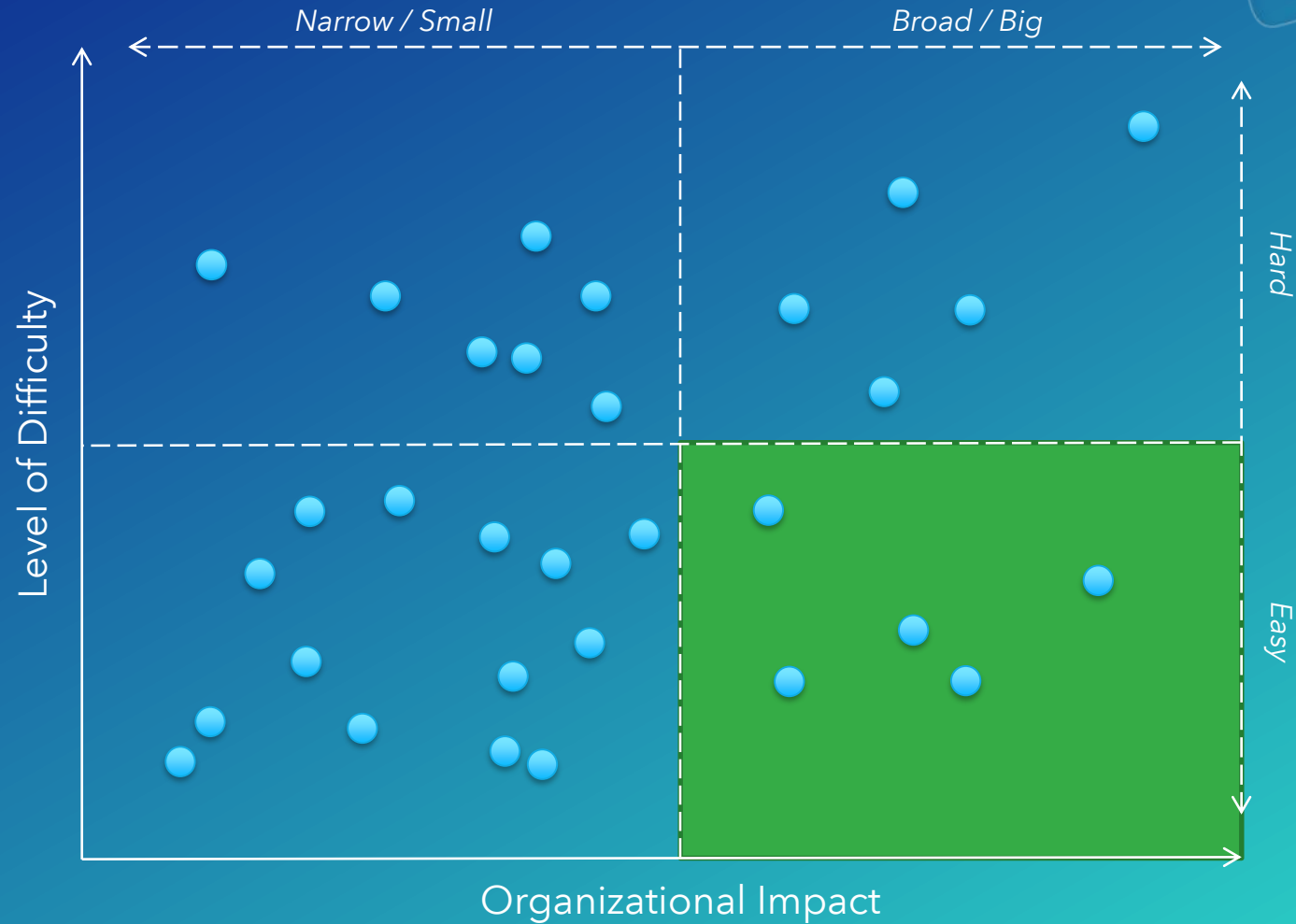
- **Maintain SLAs**
- **Transparency Into System**
- **Tune System Stability & Availability**
- **Reduce Risks**
- **Optimize Performance**
- **Identify Bottlenecks**
- **Improved Capacity Planning**

Plan for change ... it's inevitable



Prioritize the problems you solve

Go After Low Hanging Fruit





esri

THE
SCIENCE
OF
WHERE