



The Geo Information Model

Mark Jagt, Maarten van Hulzen & Raúl Jiménez Ortega

**2021 ESRI
DEVELOPER SUMMIT**

<https://developers.arcgis.com/rest>



Build powerful apps with the ArcGIS REST API.

Directly access ArcGIS services including geocoding, routing & directions, and spatial analysis.

Using the ArcGIS REST API you can:

- **Use ArcGIS Location Services**

- Geocoding
- Routing
- GeoEnrichment

- **Users, groups and items**

- Portal administration

- **Enterprise Administration**

- Manage security settings
- Register Data Stores

Requests

.../FeatureServer/0/addFeatures=1%3D1...

```
{
  "addResults": [
    {
      "geometry": { "x" : -118.15, "y" : 33.80 },
      "attributes": {
        "OWNER": "Joe Smith",
        "VALUE" : 94820.37,
        "APPROVED" : true,
        "LASTUPDATE" : 1227663551096
      }
    },
    {
      "geometry": { "x" : -118.37, "y" : 34.086 },
      "attributes": {
```







Build powerful apps with the ArcGIS REST API.

Directly access ArcGIS services including geocoding, routing & directions, and spatial analysis.

[Get Started](#)

Search the ArcGIS REST API documentation



[Get Started](#)

Use tutorials to build an app with the ArcGIS REST API.

[Location-based Services](#)

Search for addresses and places, routing and directions, and batch geocoding.

[Services Reference](#)

Access all ArcGIS services, including spatial analysis, geoenrichment, elevation, and offline map workflows.

[Users, Groups and Items](#)

ArcGIS services for managing groups, users, and items in either ArcGIS Online or ArcGIS Enterprise.

[Enterprise Administration](#)

Perform common tasks for ArcGIS Enterprise, including querying logs, or managing services and data stores.

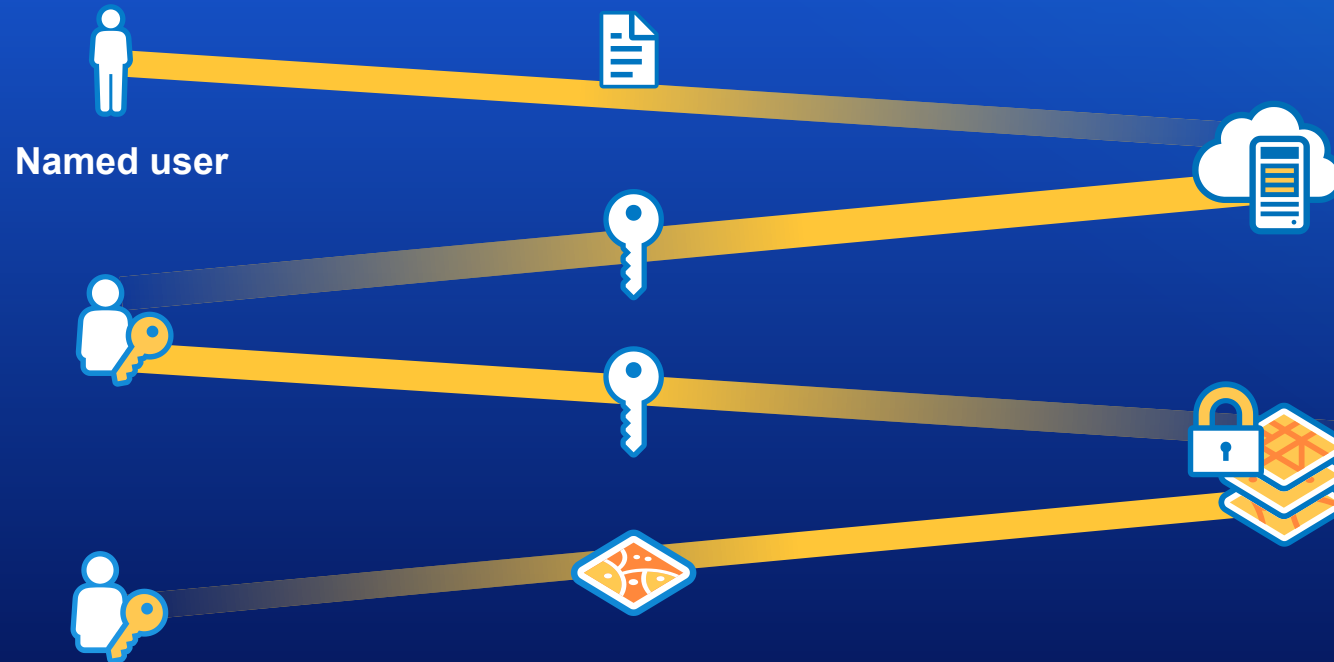
Security



Security

Token Security

```
{  
  "token": "4UhLJHdC8B1HuXZQNqtoWEsQ68vZKybwZg369..",  
  "expires": 1540220767529,  
  "ssl": true  
}
```



Security

Security's security

ArcGIS Portal Directory | [Home](#)

[Login](#) | [Sign Up](#)

Generate Token

[API Reference](#)

Username	maarten_dev
Password	
Client	☒ IP Address ☐ Webapp URL ☐ IP Address of this request's origin
Expiration	1 hour ▾
Format	HTML ▾
Generate Token	

Security

DEMO

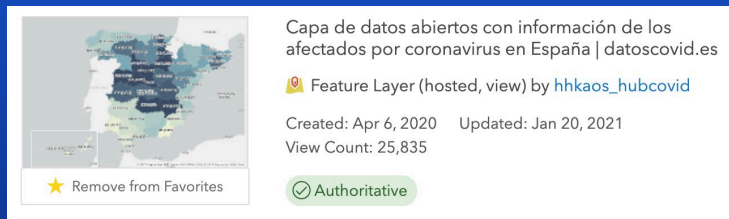


Items, Item Types and Search



Item REST endpoints

Metadata, data, related items ... | developers.arcgis.com/rest/users-groups-and-items/item.htm



Item Data (includes: type and typekeywords)

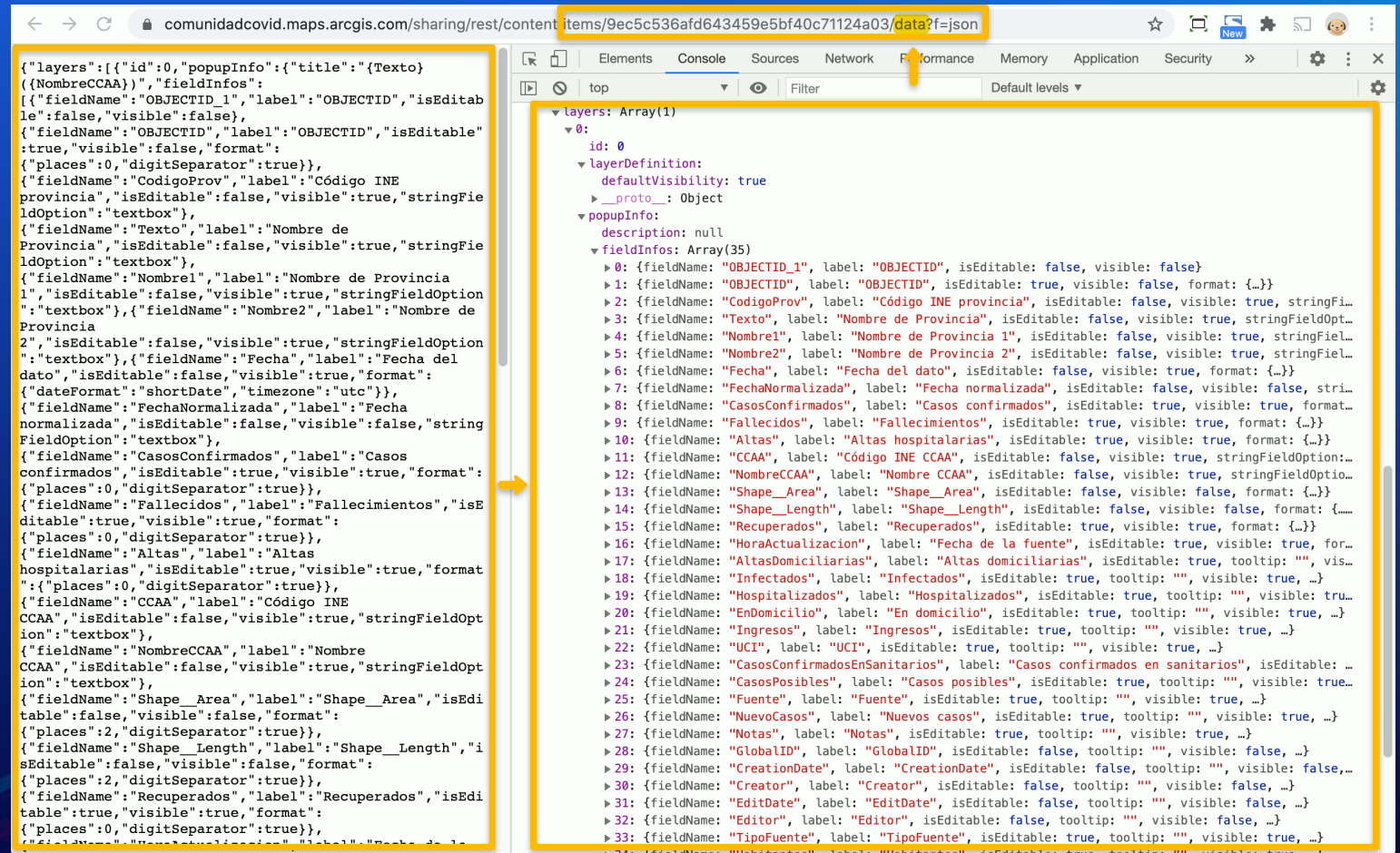
<https://<content-url>/items/<itemId>>

Item Data Resource

<https://<content-url>/items/<itemId>/data>

Related Items

<https://<content-url>/items/<itemId>/relatedItems>



<https://www.arcgis.com/sharing/rest/content/items/9ec5c536afd643459e5bf40c71124a03>

Typekeywords

Uses: **Enrich / classify item metadata**

- **Cloned items**

Uses: "source-<item_id>" prefix

- **Feature Layer Views**

Uses: "View service"

- **Self configurable apps**

Uses "selfConfigured"

The screenshot displays a web application interface for a map titled "Afectados por coronavirus por provincia en España [COMPLETA]". The map shows the distribution of COVID-19 cases across Spanish provinces. A green box highlights the "Feature Layer" label, and a yellow box highlights the "hosted, view" text. A green arrow points to the "Feature Service" type in the network inspector, and a yellow arrow points to the "View Service" type. The network inspector shows the following details:

- Name:** fd643459e5bf40c71124a03
- Headers:** XHR JS CSS Img Media Font Doc WS Manifest Other
- Preview:**
 - `title: "Afectados por coronavirus por provincia en España [COMPLETA]"`
 - `type: "Feature Service"`
 - `typeKeywords: ["ArcGIS Server", "Data", "Feature Access", "Feature Service", "Service", "Singlelayer",...]`
 - `0: "ArcGIS Server"`
 - `1: "Data"`
 - `2: "Feature Access"`
 - `3: "Feature Service"`
 - `4: "Service"`
 - `5: "Singlelayer"`
 - `6: "Hosted Service"`
 - `7: "View Service"`
 - `url: "https://services7.arcgis.com/lTrEzFGSU2ayogtj/arcgis/rest/services/COMPLETA_Afectados_por_coronavirus..."`

Typekeywords

Uses: **Configure interfaces**

The screenshot shows a Typekeywords item page for 'Afectados por coronavirus por provincia en España [COM...]' by user 'Raul Jimenez'. The page has a top navigation bar with links like Home, Gallery, Map, Scene, Notebook, Groups, Content, and Organization. Below this is a sub-navigation bar with tabs: Overview, Data, Visualization, Usage, and Settings. The main content area includes a thumbnail map of Spain, a description, a 'Layers' panel showing a 'Provincias Polygon Layer', and a 'Terms of Use' section. Annotations with yellow boxes and arrows point to specific elements: 'ITEM TYPE' points to the title, 'SUB NAVIGATION BAR' points to the sub-navigation tabs, 'ITEM PANEL' points to the 'Edit' button, 'LAYER PANEL (OPTIONAL)' points to the 'Layers' panel, and 'ITEM DETAILS' points to the 'Details' section at the bottom.

Home Gallery Map Scene Notebook Groups Content Organization

Afectados por coronavirus por provincia en España [COM...] Overview Data Visualization Usage Settings

Capa de datos abiertos con información de los afectados por coronavirus en España | datoscovid.es

Feature Layer (hosted, view) by hhkaos_hubcovid

Created: Apr 6, 2020 Updated: May 2, 2020 View Count: 24,375

Authoritative

Description

Estos datos son recopilados manualmente por voluntarios como se explica en esta página. Los detalles por comunidad autónoma se pueden obtener aquí.

Layers

Provincias Polygon Layer

Terms of Use

Estos datos puedes ser usados libremente ya que se encuentran licenciados bajo Creative Commons Attribution 4.0 International (CC BY 4.0).

Item Information

Low High

Top Improvement:

ITEM DETAILS

Details

Source: Feature Service

Created from: [COMPLETA] - Afectados por coronavirus por provincia en España , Feature Layer

Data Last Updated: Jul 6, 2020, 9:02:13 PM

Item details structures

The screenshot shows an ArcGIS item details page for 'eMergeSmartCorridors'. The page has a top navigation bar with links like ArcGIS, Pricing, Map, Scene, and Help. Below this is a sub-navigation bar with tabs: Overview, Details, and Share. The main content area includes a thumbnail of a 3D scene, a description, a 'Terms of Use' section, and a 'Legal Disclaimer' section. The right sidebar contains details like 'Size: 10 MB', 'Number of Downloads: 1,307', and 'Owner: MD_Apps'.

ArcGIS Pricing Map Scene Help

eMergeSmartCorridors Overview

Smart corridors ArcGIS VR 360

360 VR Experience by MD_Apps

Created: May 31, 2017 Updated: May 31, 2017 Number of Downloads: 1,307

Description

Smart corridors ArcGIS VR 360 experience.

For additional information you can contact Karen Grassi at Miami-Dade County Information Technology Department.

Terms of Use

Legal Disclaimer:

The Miami-Dade County provides the data for use "as is." The areas depicted by this map/data are approximate, and are not accurate to surveying or engineering standards. The maps/data shown here are for illustration purposes only and are not suitable for site-specific decision making. Information found here should not be used for making financial or any other commitments.

The Miami-Dade County provides this information with the understanding that it is not guaranteed to be accurate, correct or complete and conclusions drawn from such information are the responsibility of the user. While every effort has been made to ensure the accuracy,

Details

Size: 10 MB

Number of Downloads: 1,307

Share

Owner

MD_Apps

Feature Layers, Hosted Feature Layer Views, Tile Layer, Web Maps, Web Mapping Applications, instances of Web Mapping Applications, Document Links, 360 VR Experiences, ...

Typekeywords

Uses: Define product filters

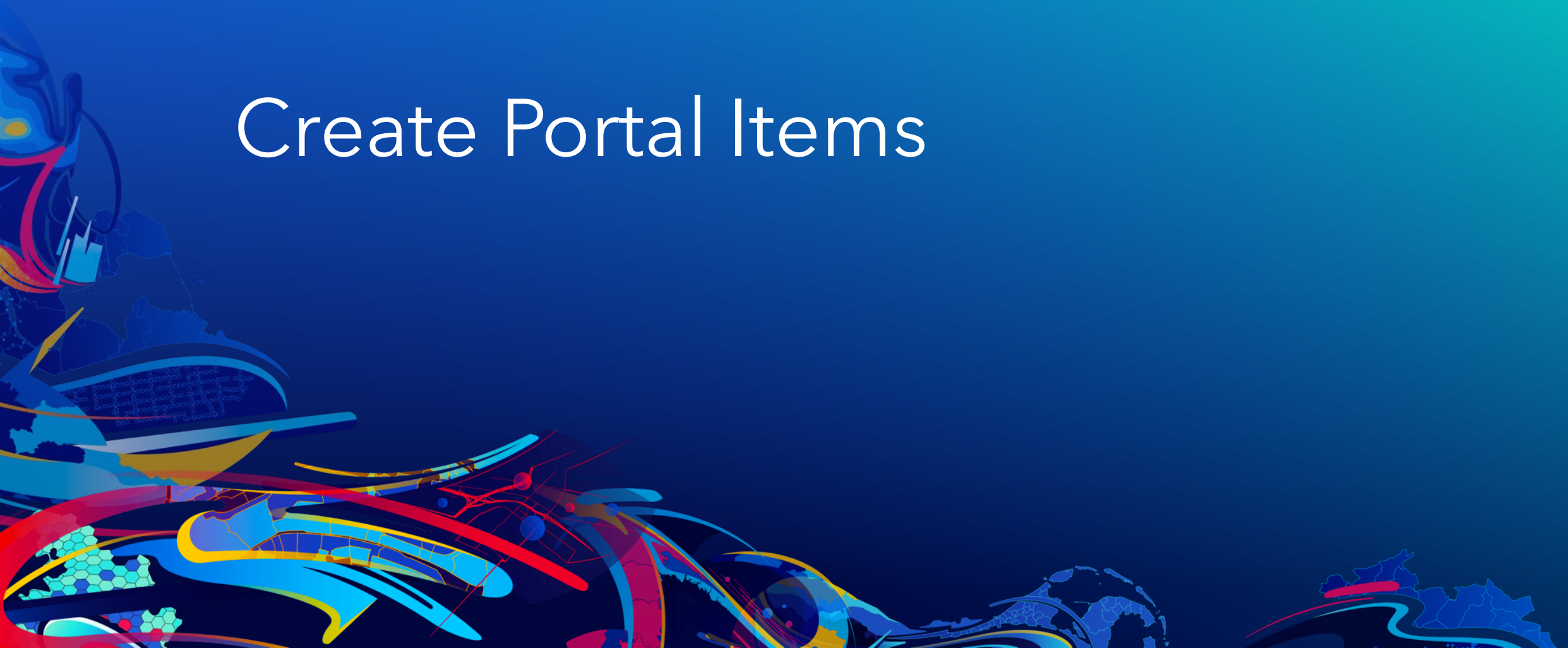
This screenshot shows the ArcGIS Online search interface. The search bar contains the text "Search for maps, layers, apps, groups and more in ArcGIS Online". Below the search bar, the "Content" tab is selected, and the "Filters" section is expanded. The "Item Type" filter is set to "Experience Builder Apps", which is highlighted with a yellow box and an arrow. The search results show two items: "RKI COVID-19 Germany" and "Covid19 Stat LINE". The "RKI COVID-19 Germany" item is highlighted with a yellow box and an arrow. The "1 - 20 of 6343" result count is also highlighted with a yellow box and an arrow.

Find "Experience Builder Apps" in ArcGIS Online
using built-in filters

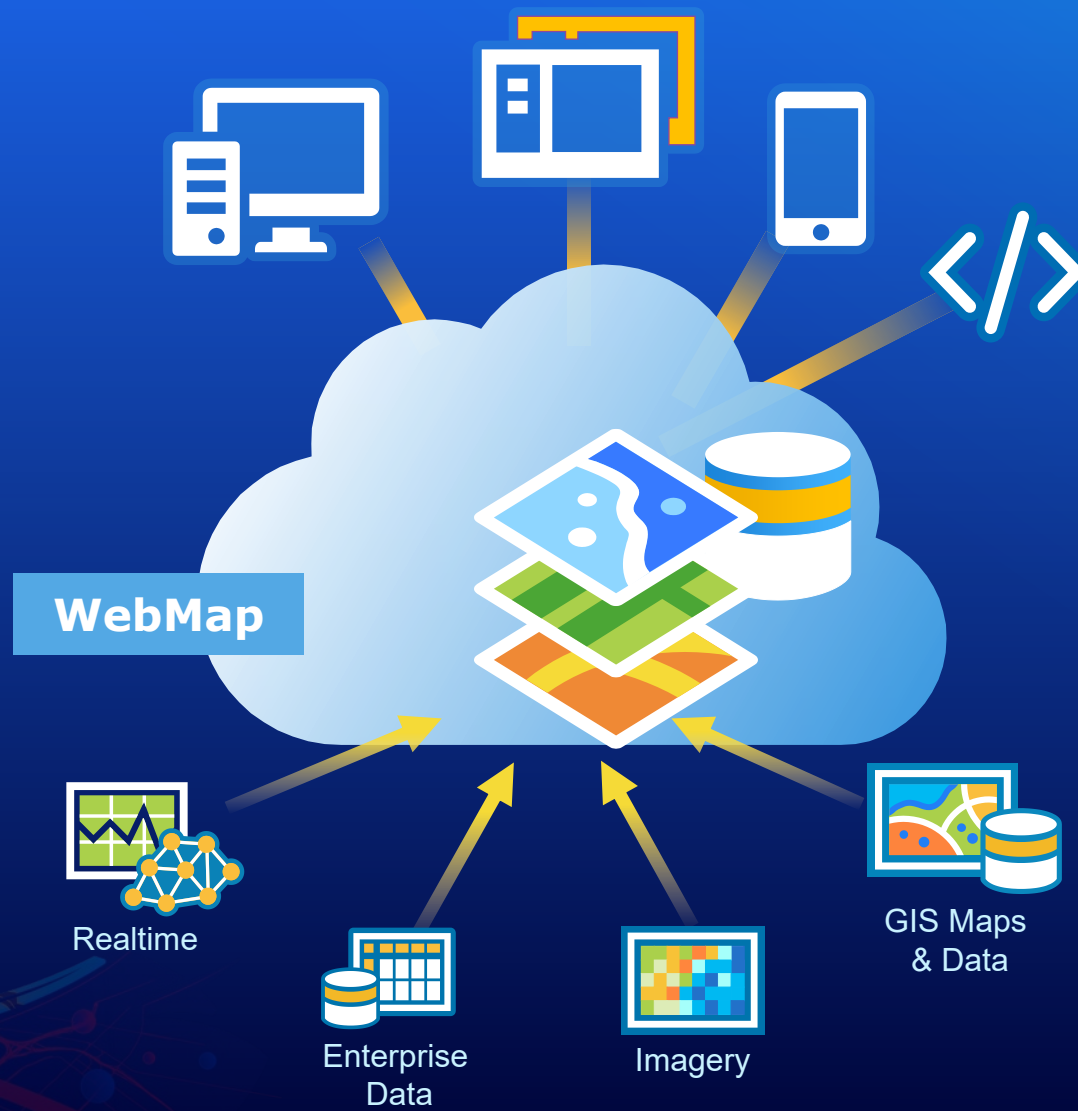
This screenshot shows the ArcGIS Online search interface. The search bar contains the text "typekeywords: \"Web Experience\"", which is highlighted with a yellow box and an arrow. Below the search bar, the "Content" tab is selected, and the "Filters" section is expanded. The "Item Type" filter is set to "Web Experience", which is highlighted with a yellow box and an arrow. The search results show two items: "RKI COVID-19 Germany" and "Covid19 Stat LINE". The "1 - 20 of 6343" result count is also highlighted with a yellow box and an arrow.

Find "Experience Builder Apps" in ArcGIS Online
using typekeywords

Create Portal Items



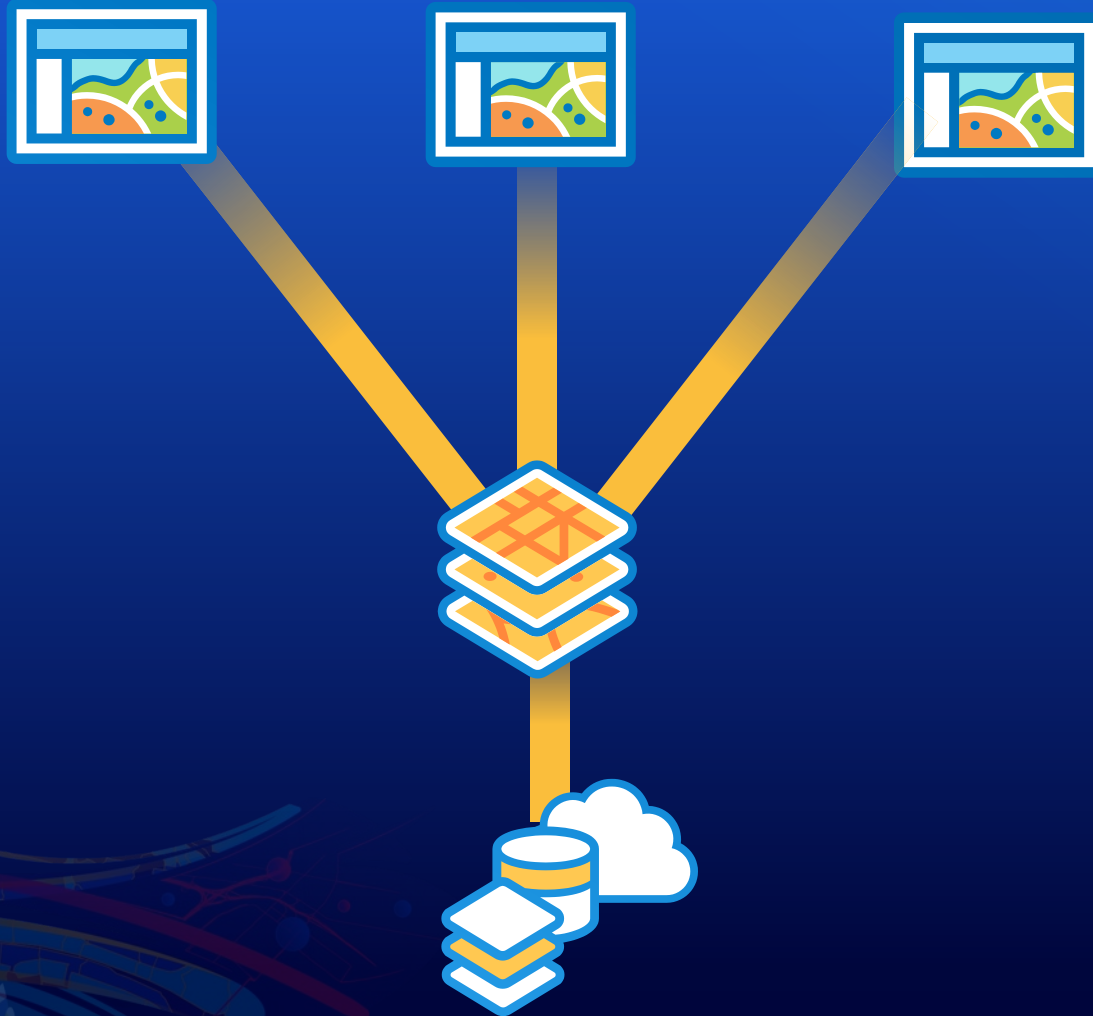
WebMap



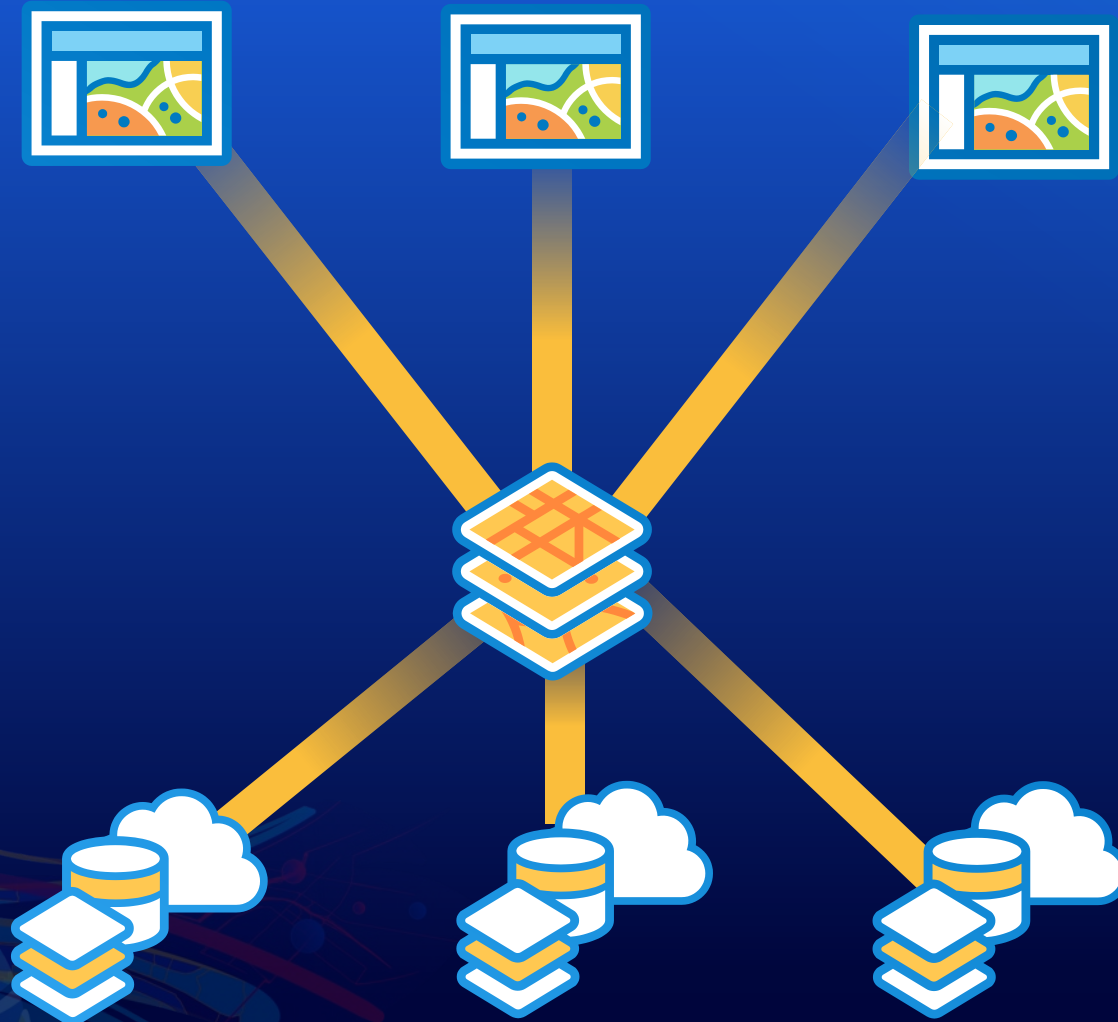
Trinity



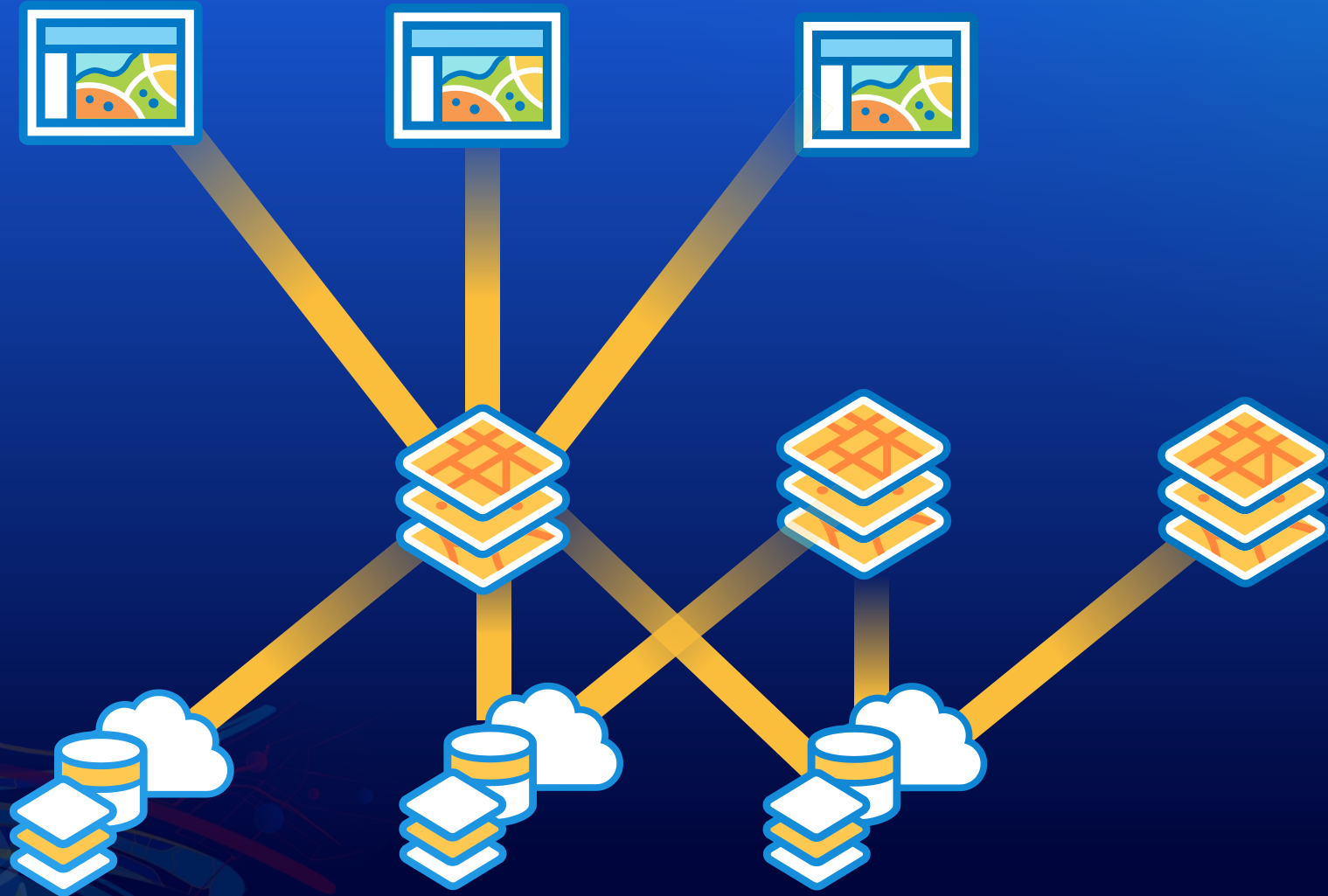
Trinity



Trinity



Trinity



Webmap

DEMO



Cascade model



Cascade on the GeoInformation Model

Like in CSS, **map properties** in the Esri's GeoInformation Model **can be defined in multiple places** and **depending on where they are defined, they will be overwritten or not**

Properties / Spec.	Description	Feature Service	Feature Layer Item type ¹	Web Map item type	Custom apps ²
Priority	---	1	2	3	4
drawingInfo	Simbology	<u>Y</u>	<u>Y</u>	<u>Y</u>	Y
extent	Map extension	<u>Y</u> ³	<u>Y</u> ⁴	<u>Y</u>	Y
labelingInfo	Geometry labels	<u>Y</u>	<u>Y</u>	<u>Y</u>	Y
minScale and maxScale	Visibility range	<u>Y</u>	N	<u>Y</u>	Y
defaultVisibility or visibility	True / false	<u>Y</u>	N	<u>Y</u>	Y
viewLayerDefinition	View layers filter	Y ⁵	N	N	N
layerDefinition	Filters	N	<u>Y</u>	<u>Y</u>	Y
popupInfo	Popup templates	N	<u>Y</u>	<u>Y</u>	Y
featureReduction	Clusters	N	N	<u>Y</u>	Y
baseMap	Background layers	N	N	<u>Y</u>	Y
opacity	Transparency	N	N	<u>Y</u>	Y
bookmarks	Map locations	N	N	<u>Y</u>	Y
...	...	...	...	...	...

Webhooks



Webhooks

Don't call us, we'll call you

Polling

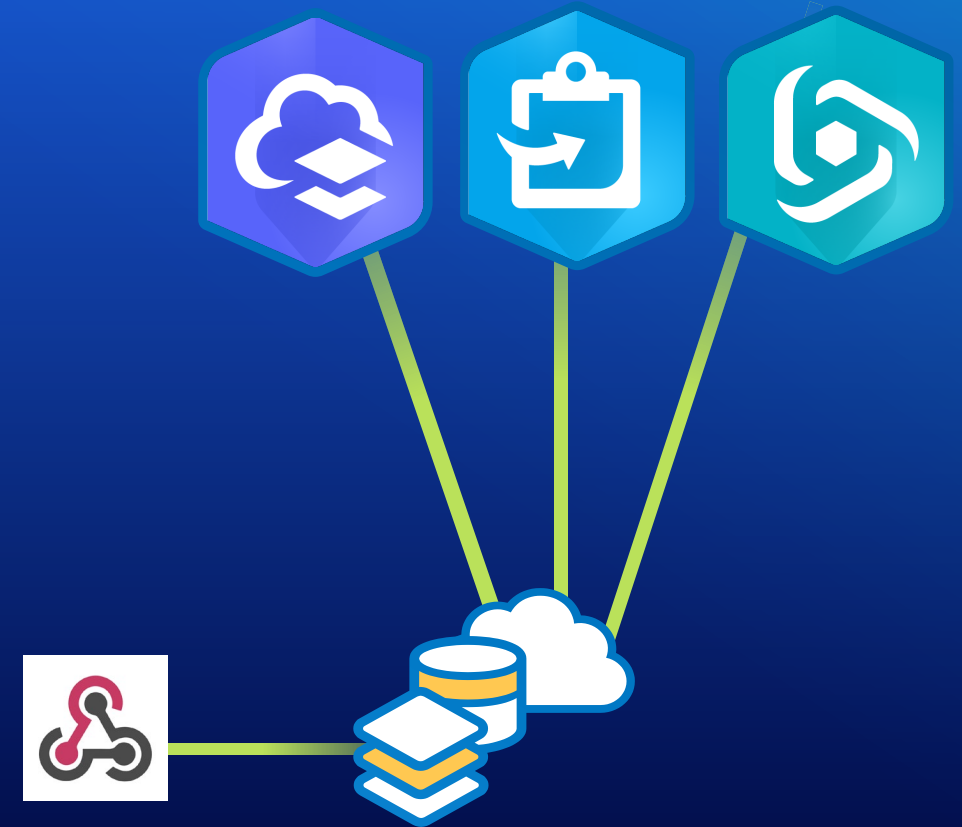


Webhooks



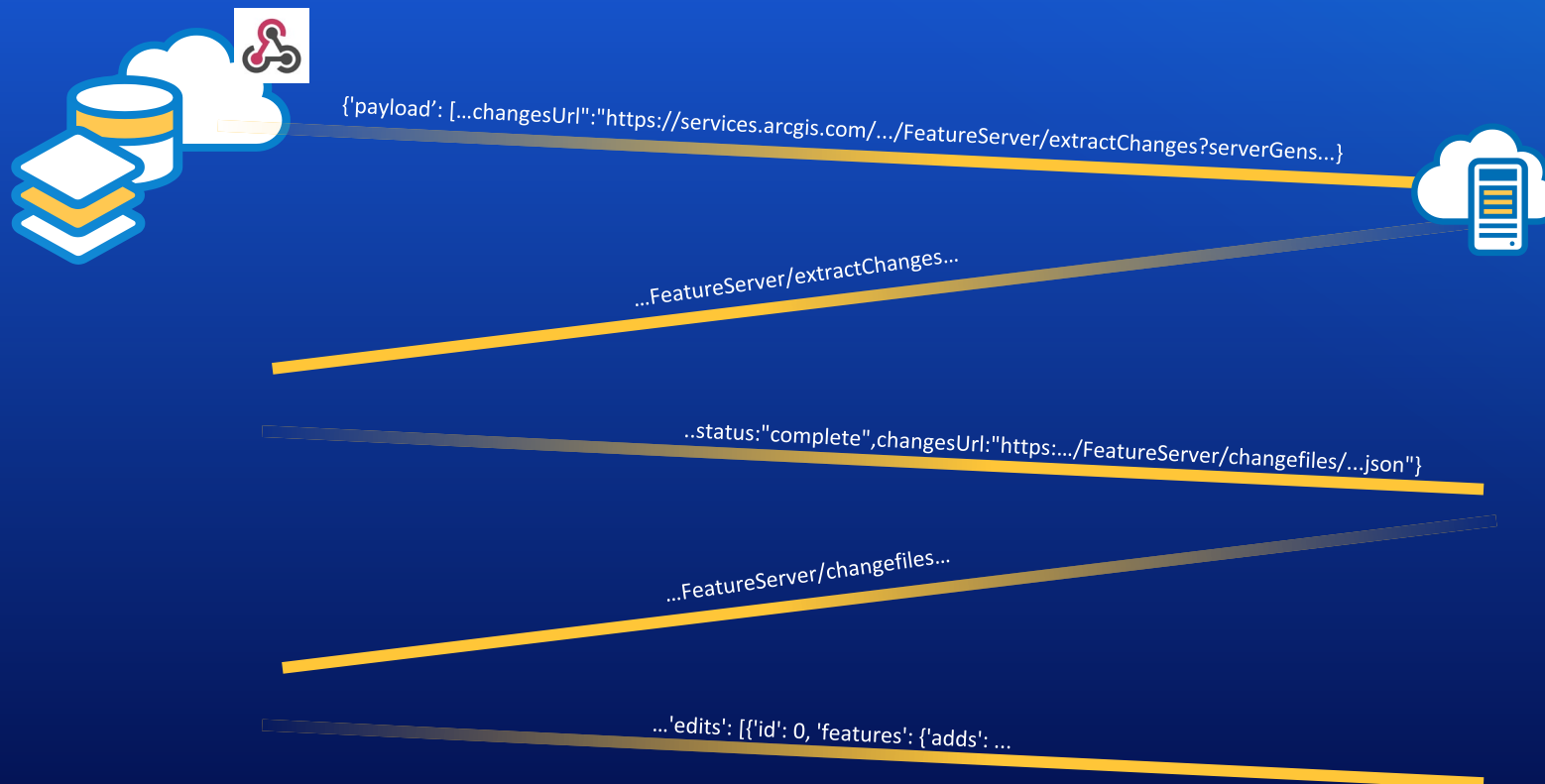
Webhooks

Survey123 vs FeatureService



Webhooks

A three-stage rocket



ArcGIS Location Services



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Glossary

[Location services](#) are ready-to-use services that provide basemap layer, geocoding, routing, spatial, demographics, and other types of location-based functionality. Learn about the capabilities of each service below or how to use the services in the [guide chapters](#).



Basemap layer service

Streets, satellite, and other basemap styles for maps and scenes.



Geocoding service

Search for addresses, businesses, and places around the world.



Routing service

Get turn-by-turn directions and solve advanced routing problems.



GeoEnrichment service

Find facts and demographic information about a location or area.



Spatial analysis service

Process spatial datasets to discover relationships and patterns.



Geometry service

Create, compare, and modify geographic shapes.



Elevation service

Generate elevation profiles and viewsheds.



Hydrology service

Trace water flow and generate watersheds.



Offline packaging service

Create and manage preplanned

ArcGIS location services

- Location services
- Data services

Was this page helpful?

☐ Yes ☐ No

 Find page...

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> Licensing

- License location services
 - License your app
 - Attribution

License location services

When you are ready to deploy your app to production you must consider how to license your use of ArcGIS technology. Applications have licensing requirements based on the [content and services](#) they use and the [API or SDK](#) they were developed with. Be sure to review the [terms of use](#) and the [FAQ](#) for more details.

Licensing the use of ArcGIS Location Services

If your app uses [location services](#) from the [ArcGIS Platform](#), regardless of the client API you choose to build your app with, you may license your production app as follows:

- **API key:** [API keys](#) authorize your use of [ArcGIS location services](#). You can develop and deploy an app with API keys using any [ArcGIS or open source client API](#). Manage and track usage of API keys on your [dashboard](#). Learn more about API keys in the [security and authentication](#) section of the developer guide.
- **ArcGIS identity:** If you or your organization purchased an [ArcGIS Online subscription](#), you do not need to take any additional steps to license your app for production. However, if your application uses all of your available prepaid **credits**, either [purchase additional credits](#) for your ArcGIS Online [subscription](#), or use [API keys](#) to access [location services](#) in your app.

Licensing Esri data

License location services

Licensing the use of ArcGIS Location Services

Licensing Esri data

Licensing 3rd party data

Attribution

Was this page helpful?

 Yes

 No

ArcGIS Location Services

DEMO

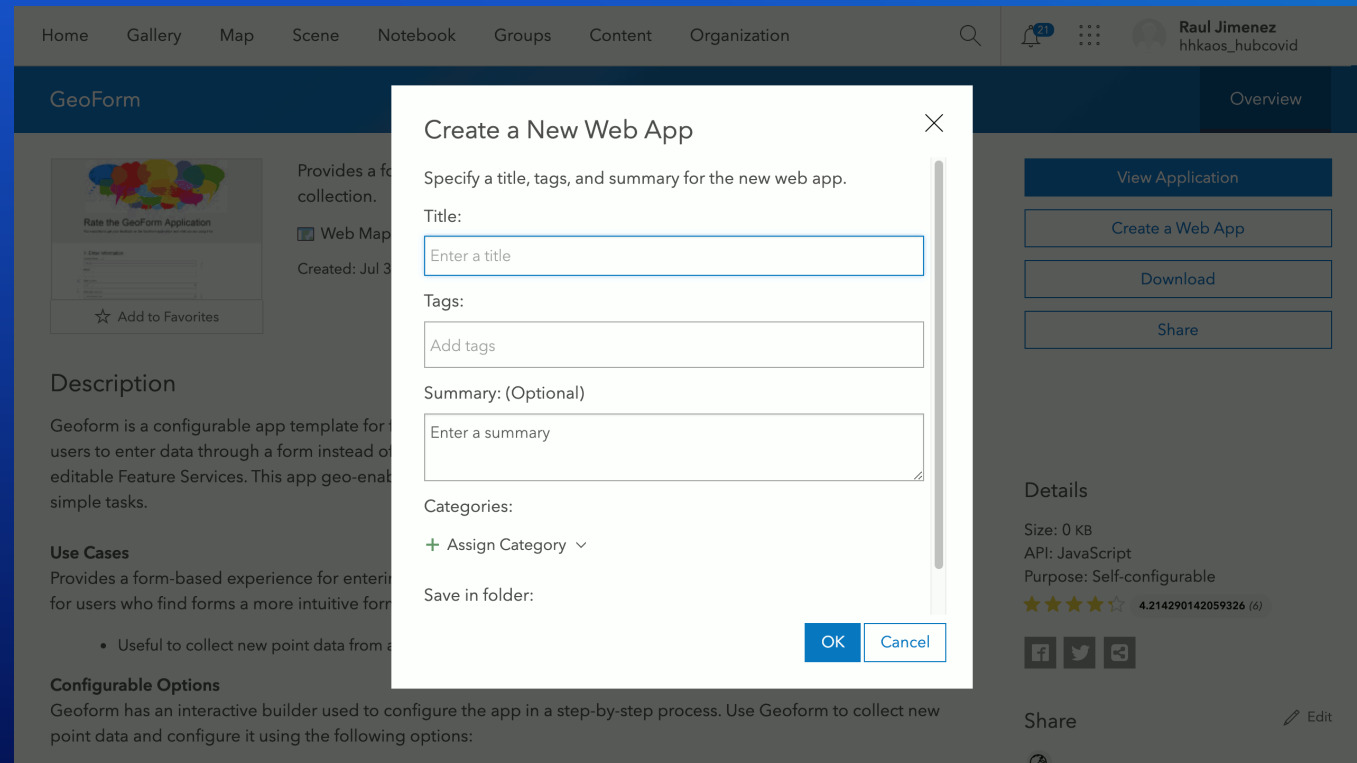
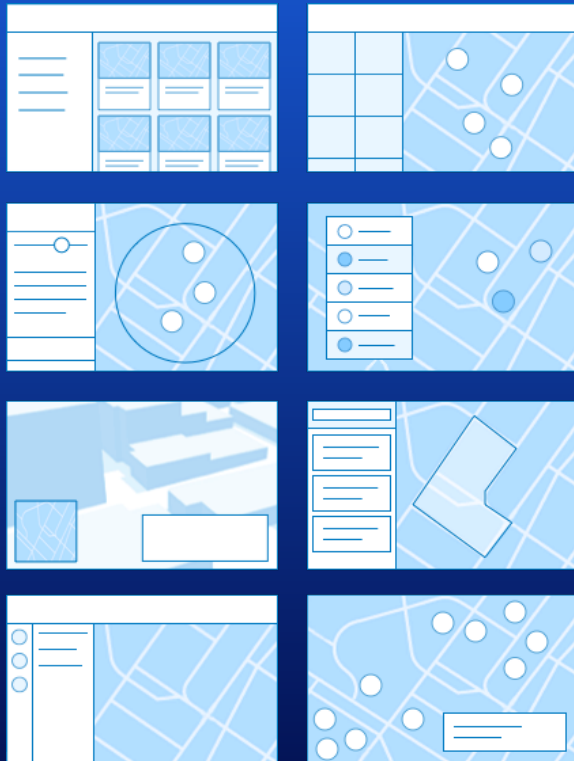


Configurable Apps



Configurable apps

Every ArcGIS users know what they are **but not every developers knows how easy it is to build a custom configurable app and add it to an organization**



Esri has open sourced +30 configurable apps:

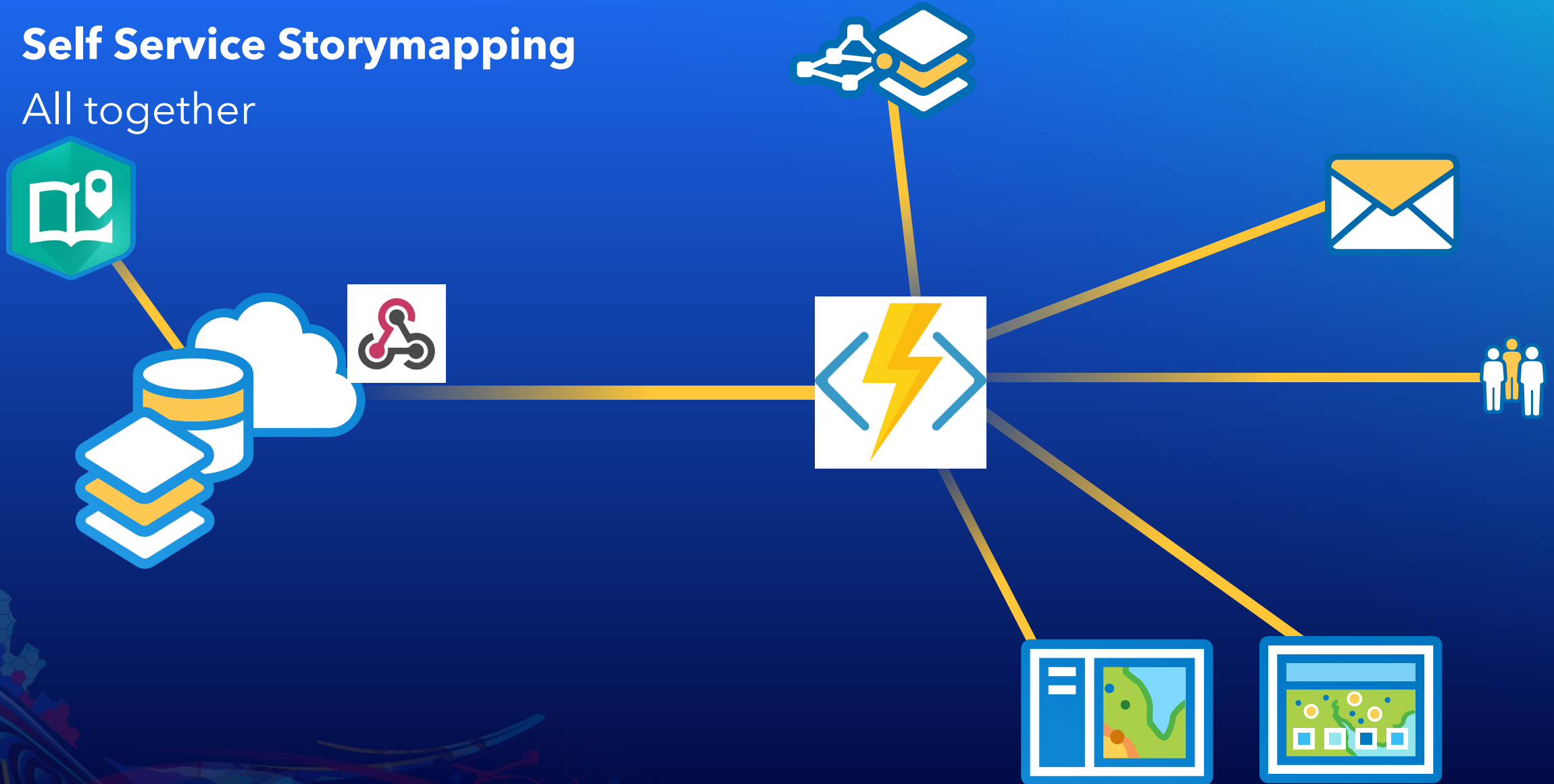
Minimalist, Map Styler, Elevation Profile, Interactive Legend, Compare Analysis, Story Map Journal, Story Map Tour, Story Map Swipe and Spyglass, GeoForm, Attachment Viewer, Crowdsourcing Polling / Manager / Reporter, Finder, Basic, Time Aware, Local Perspective, Filter, etc.

Self Service Storymapping



Self Service Storymapping

All together



Self Service Storymapping

Try it out yourself

<https://arcg.is/1GSjmS>



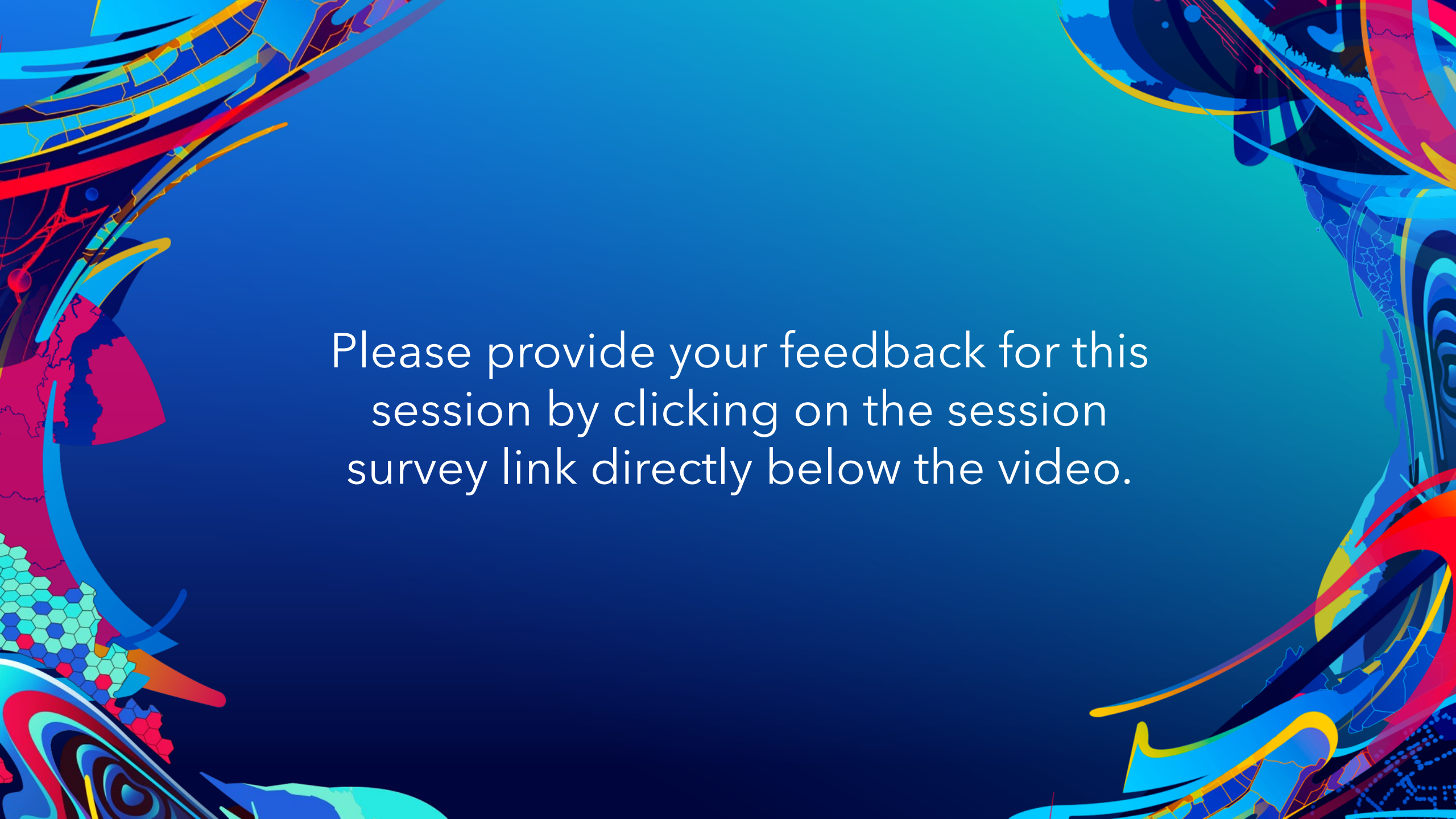


esrinederland.github.io



esri®

THE
SCIENCE
OF
WHERE®

The background is a vibrant, abstract composition. It features a central area of solid blue and teal. The left and right sides are framed by complex, colorful patterns. On the left, there are swirling shapes in red, yellow, and blue, along with a section of a hexagonal grid in shades of green and blue. On the right, there are more swirling patterns in blue, red, and yellow, with some areas resembling a stylized face or mask. The overall effect is dynamic and modern.

Please provide your feedback for this session by clicking on the session survey link directly below the video.



esrinederland.github.io