UC
2019
Esri User Conference

SEE
WHAT
OTHERS
CAN'T

OUR WORK

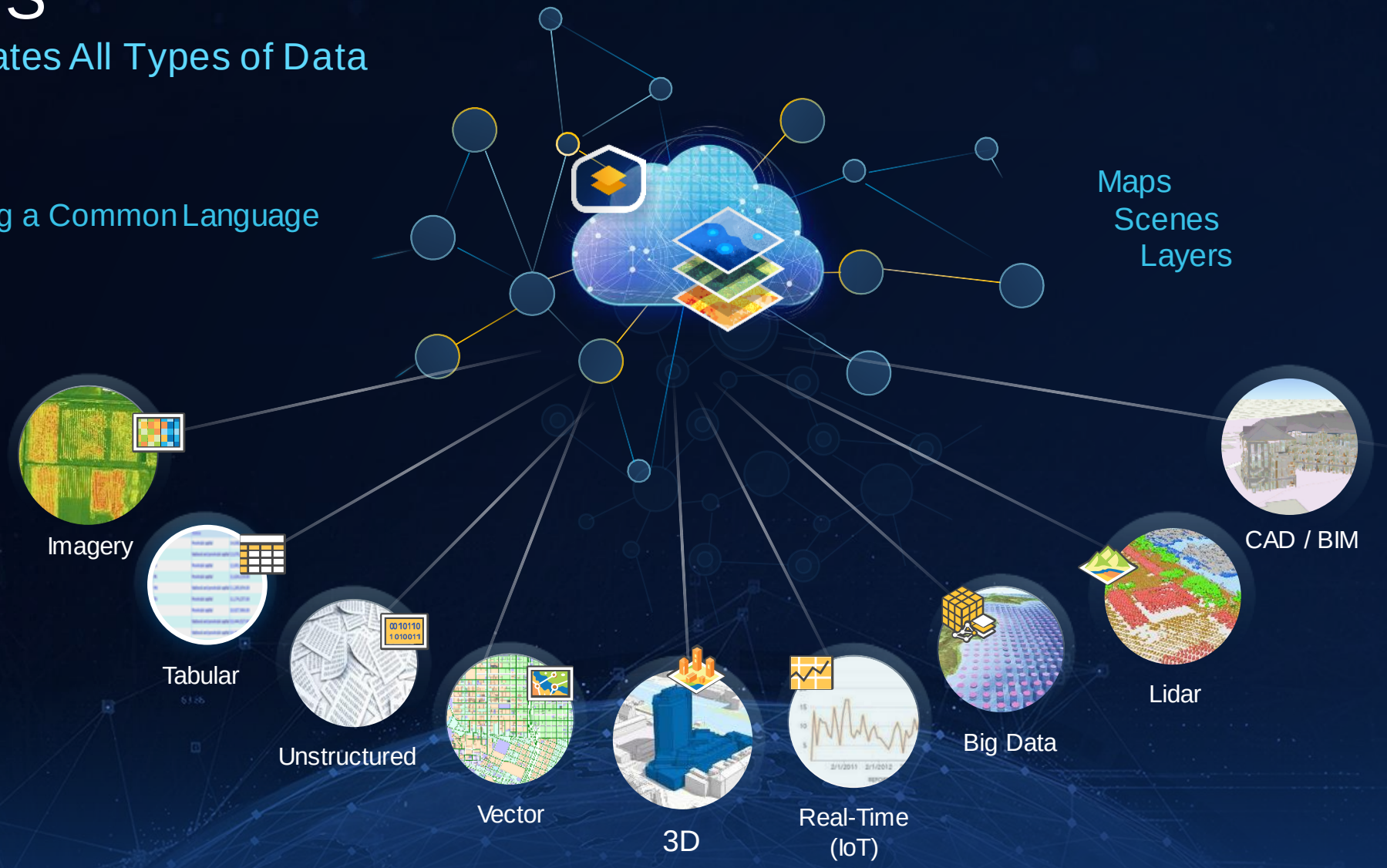
CREATING USEFUL TECHNOLOGY *and* SUPPORTING OUR USERS

ArcGIS

Integrates All Types of Data

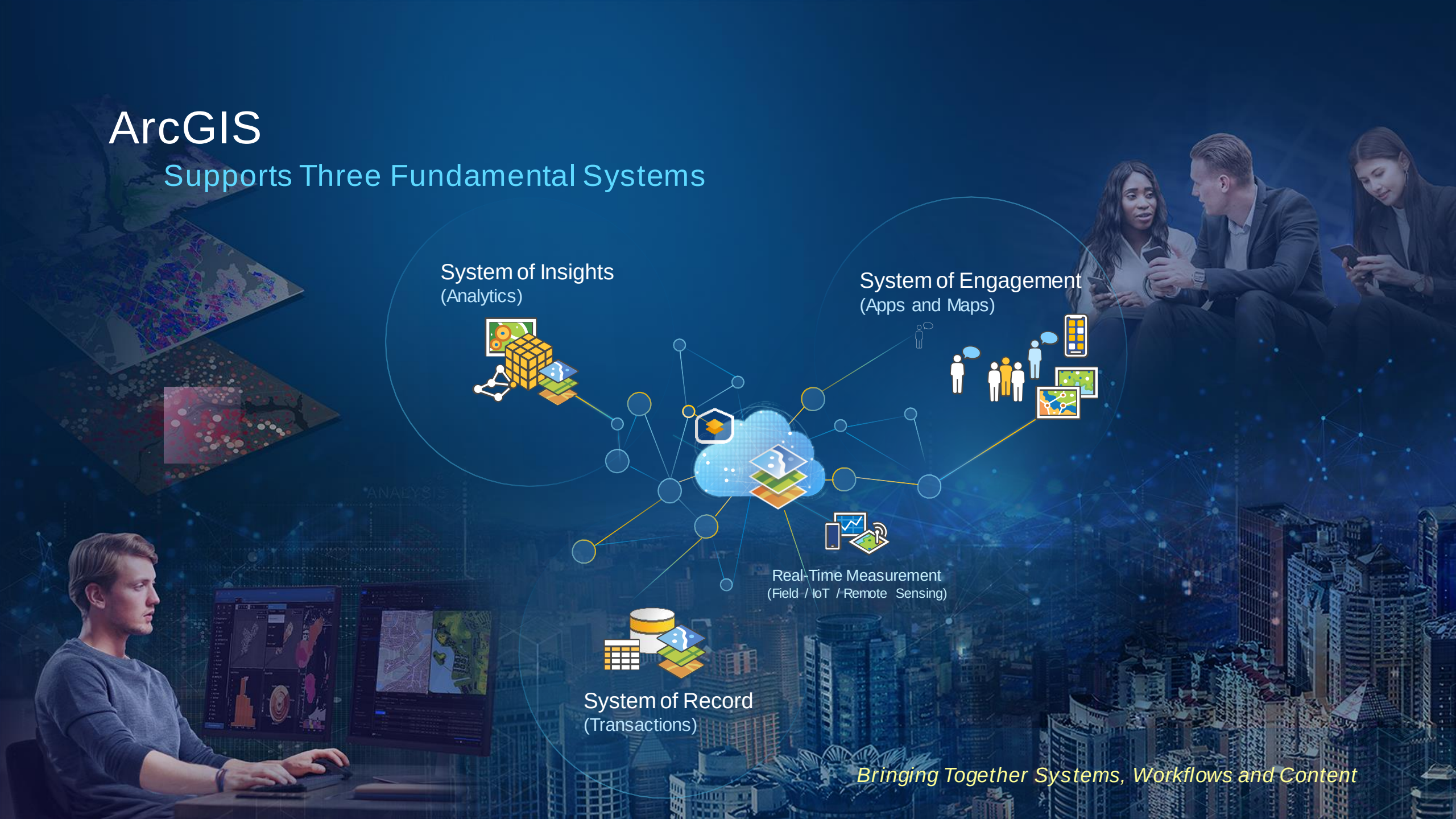
Creating a Common Language

Maps
Scenes
Layers



ArcGIS

Supports Three Fundamental Systems



Bringing Together Systems, Workflows and Content

Content

Spatial Analysis & Data Science

3D Visualization & Analytics

Data Management

Field Operations

Imagery & Remote Sensing

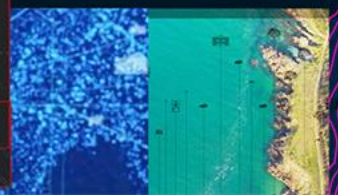
Application Development & Customization

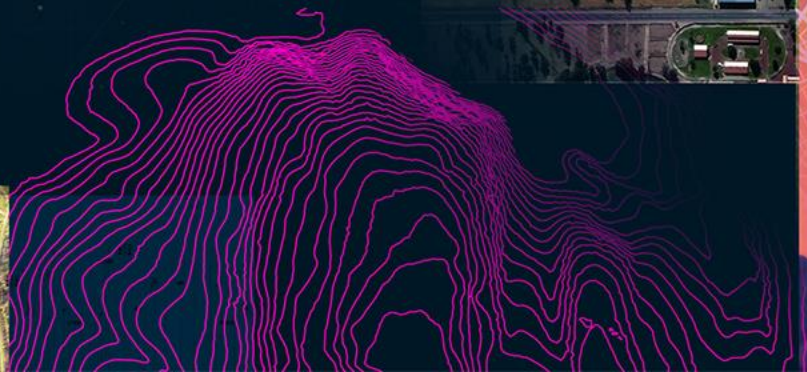
Real-Time Visualization & Analytics

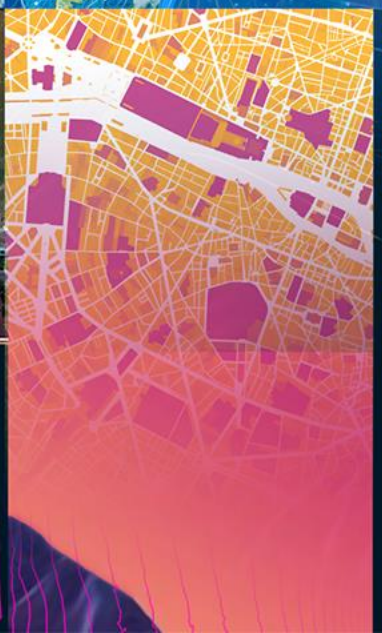
Mapping

ArcGIS Capabilities Are Advancing

MANY NEW INNOVATIONS



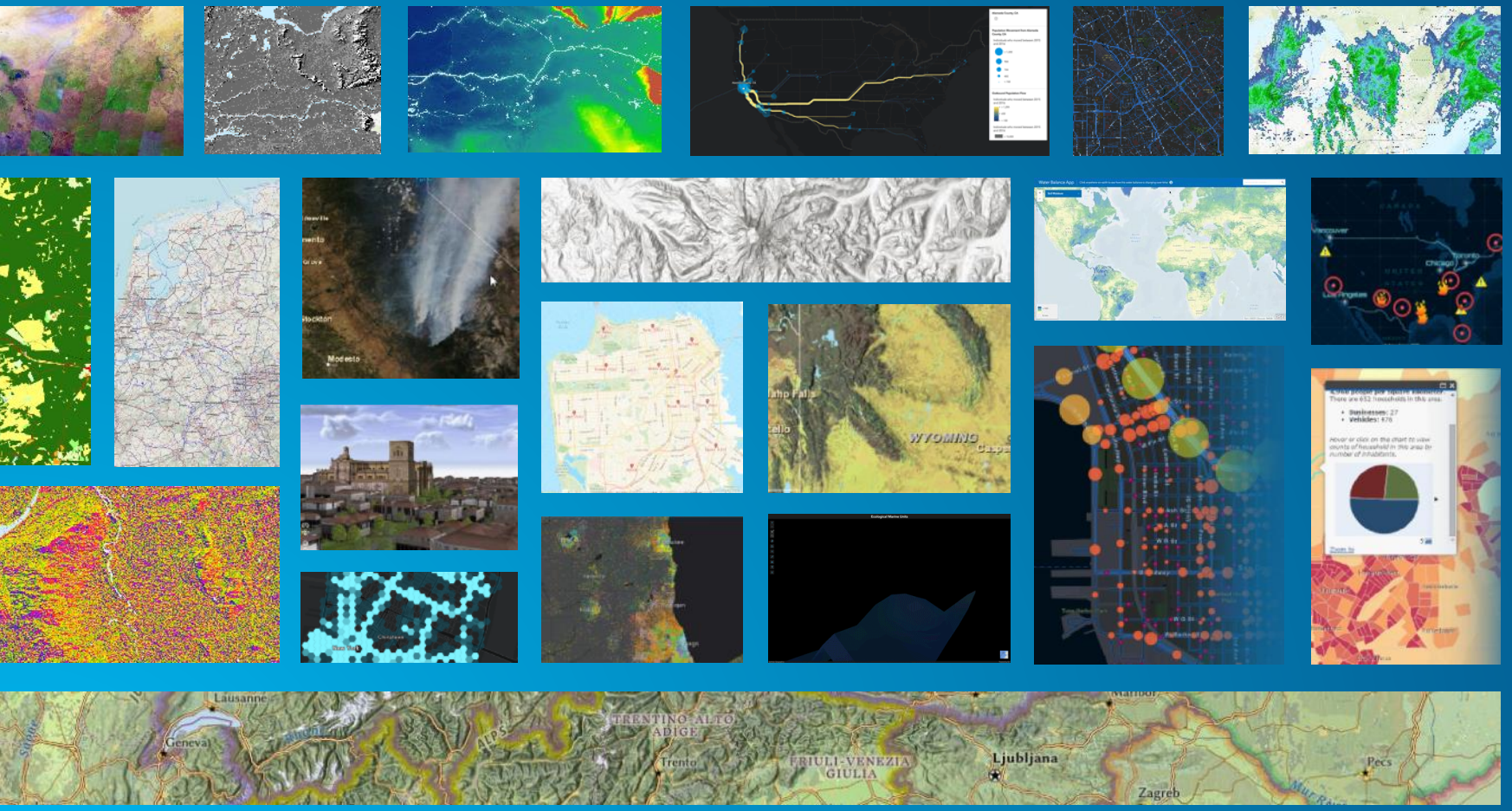




ArcGIS Includes Content

A Living Atlas of the World

Over 7,000 Ready-to-Use
Maps and Datasets

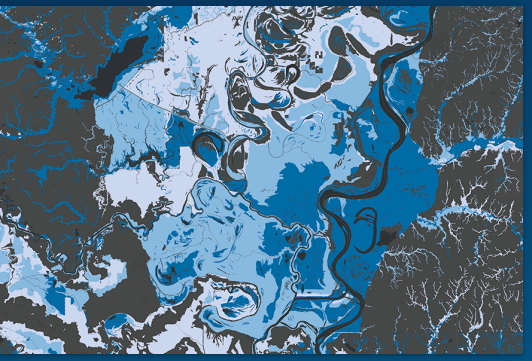


. . . And Millions of Maps, Layers and Datasets Shared by Users

ArcGIS Content Is Continuously Improving

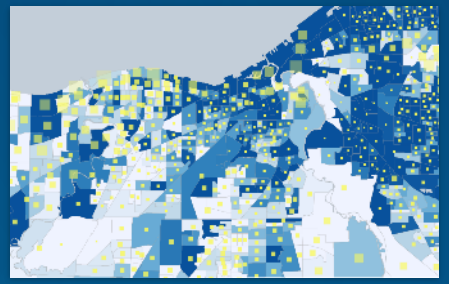
Many New and Updated Services

SSURGO Soils



Customizable Vector Tile Basemaps

US Demographics

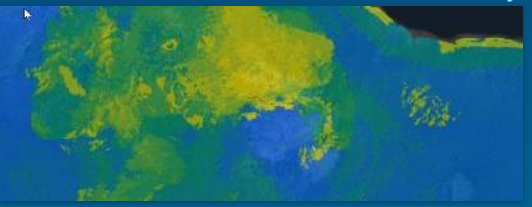


Updated Imagery

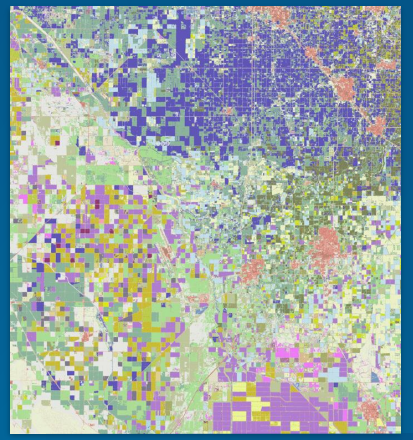
OpenStreetMap

Updated Land Cover (NLCD)

Biodiversity

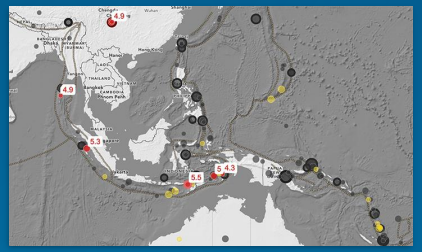


CropScapes

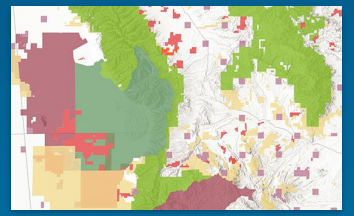


NGS Basemap

Real-Time Observations



Protected Areas (PADUS)



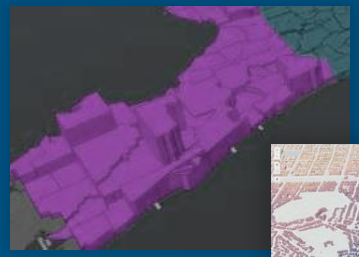
Urban Change

Demographics
Biodiversity
Land Cover
Environment
Soils
Agriculture
Basemaps
Imagery
Protected Areas

Growing and Changing on a Daily Basis…

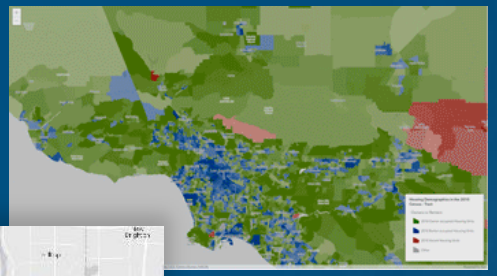
. . . Integrating Community Content Shared by Our Users

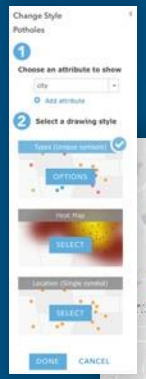
Smart Mapping Enabling Everyone to Make Amazing Maps

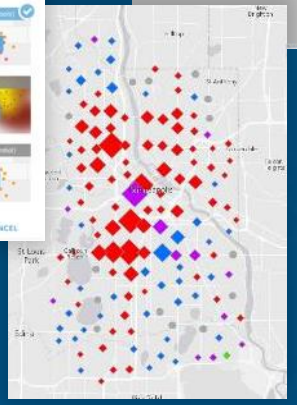


Data-Driven 3D

Fast Performance WebGL

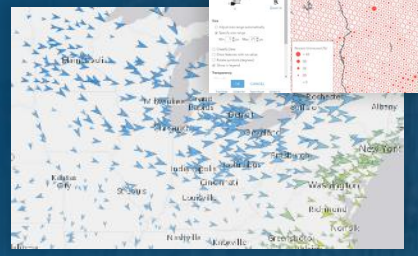




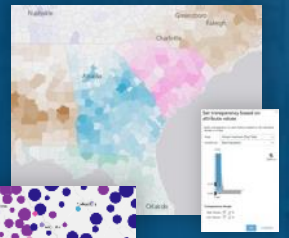


Dynamic Clustering

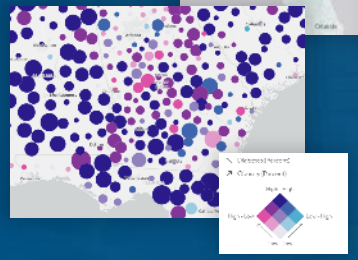
Exploratory Mapping



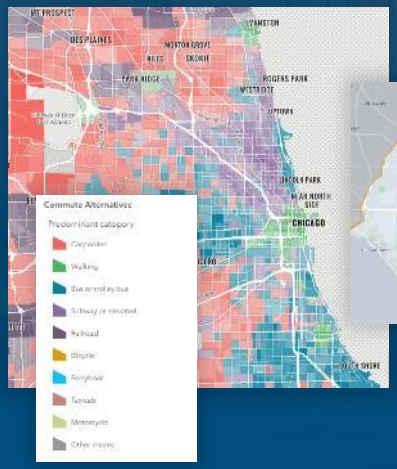
Directional Mapping

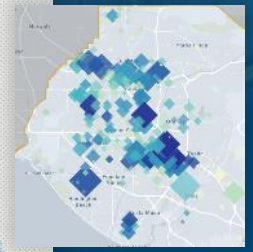


Multivariate

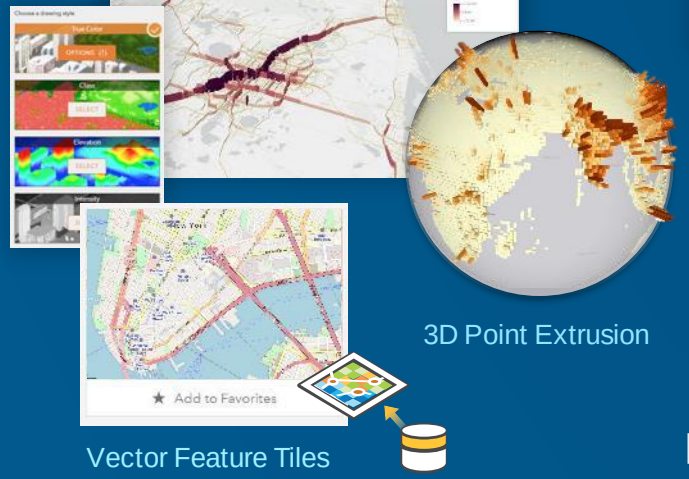


Predominance Mapping





Graduated Symbols



Vector Feature Tiles

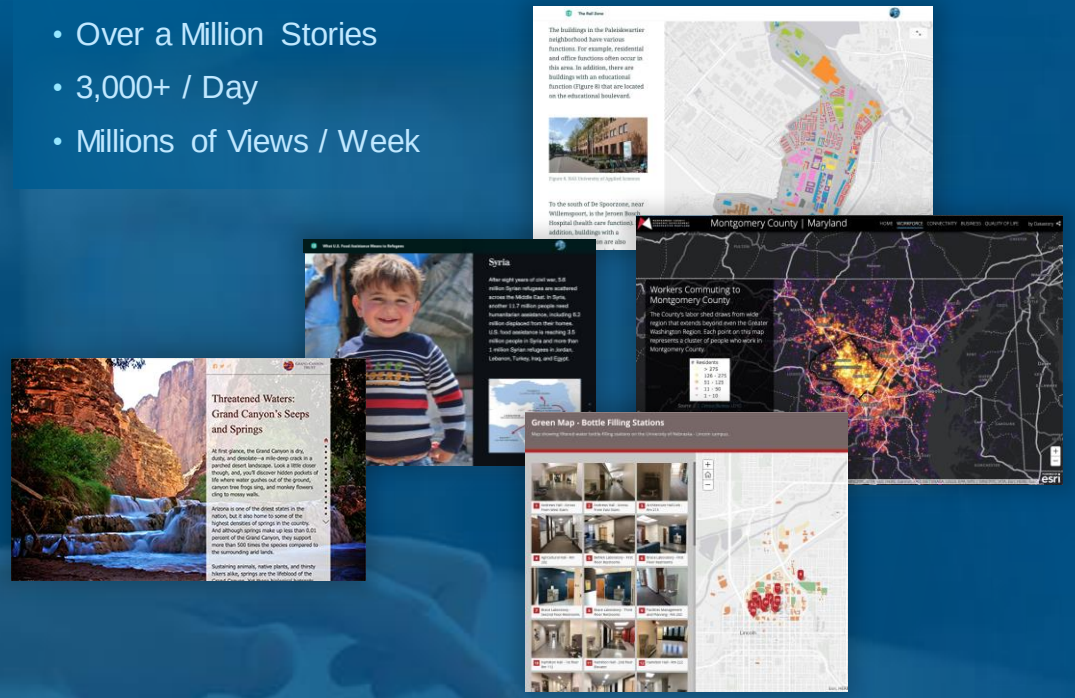
3D Point Extrusion

Dynamic and Data-Driven Mapping

StoryMaps A Whole New Way to Tell Stories

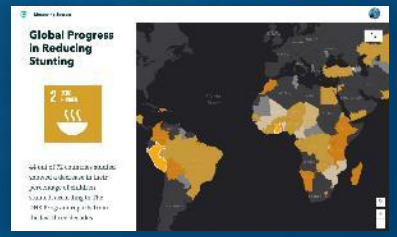
Exponentially Growing

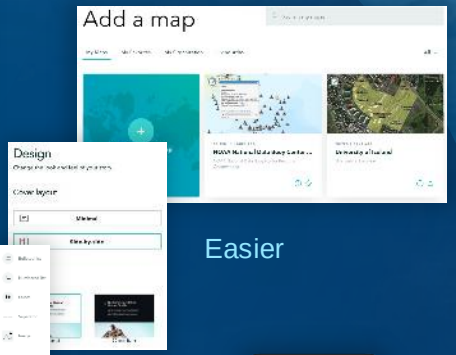
- Over a Million Stories
- 3,000+ / Day
- Millions of Views / Week



Next Generation

New

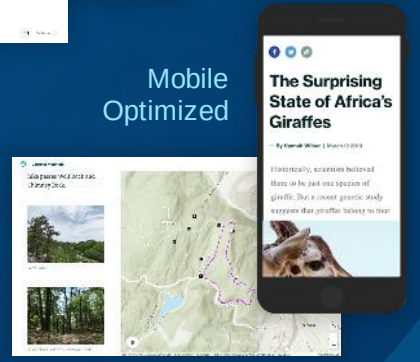




Easier

Integrated Mapping
Express Map

Mobile Optimized

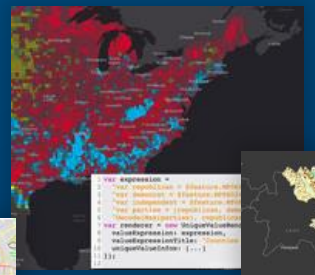


Mapping and Cartography Improved Tools and Technology

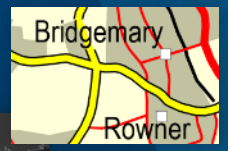
Symbology, Annotation & Processing

Reference Grids

Powerful Arcade Expressions



Symbol Layer Masking



Dimensions

Customizable Vector Tiles (Style Editor)

Symbol Effects

Clip to Shape

Generalization

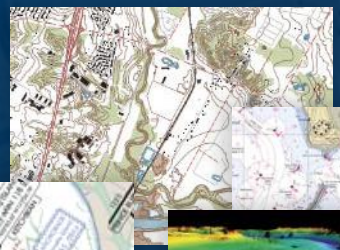
Dynamic Binning

Shoal Biased Contouring

Equal Earth Projection

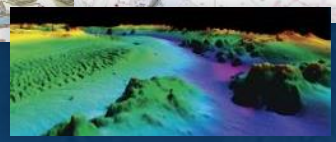
Production Mapping & Charting

Topographic



Nautical

Aeronautical



Bathymetry

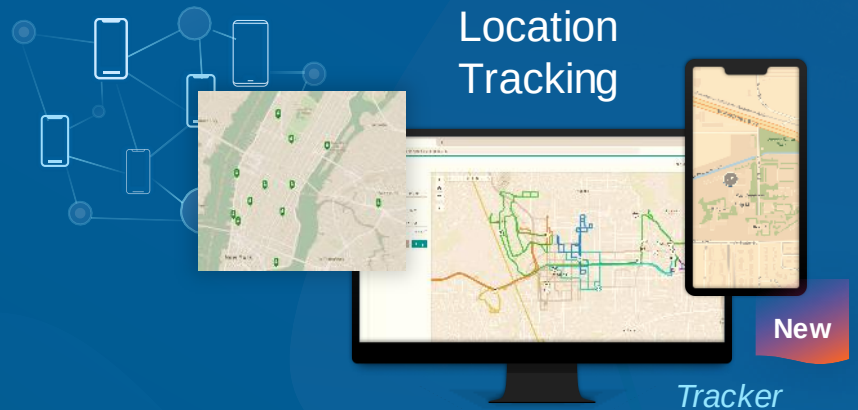
Maps for Adobe Creative Cloud

Seattle Times

Field Operations Location-Enabling All Aspects of Field Work

New Capabilities

- Tracking
- Offline Workflows
- Preplanned Routes

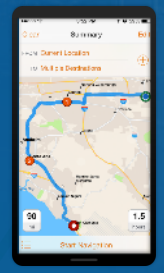


Location Tracking

New

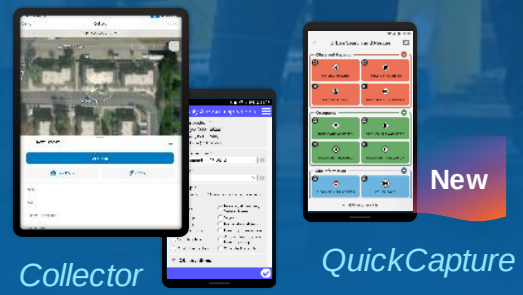
Tracker

Navigation



Navigator

Data Capture



New

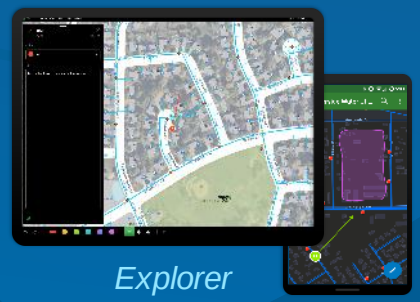
Collector *Survey123* *QuickCapture*

Planning and Management

Workforce

Dashboard

Maps & Mark Up



Explorer

Tracker for ArcGIS – What is Location Tracking?

Tracker Mobile app (iOS, Android)

- Simple, schedule-driven tracking experience
- Supports offline use
- Optimized for low battery consumption
- Requires an add-on license*

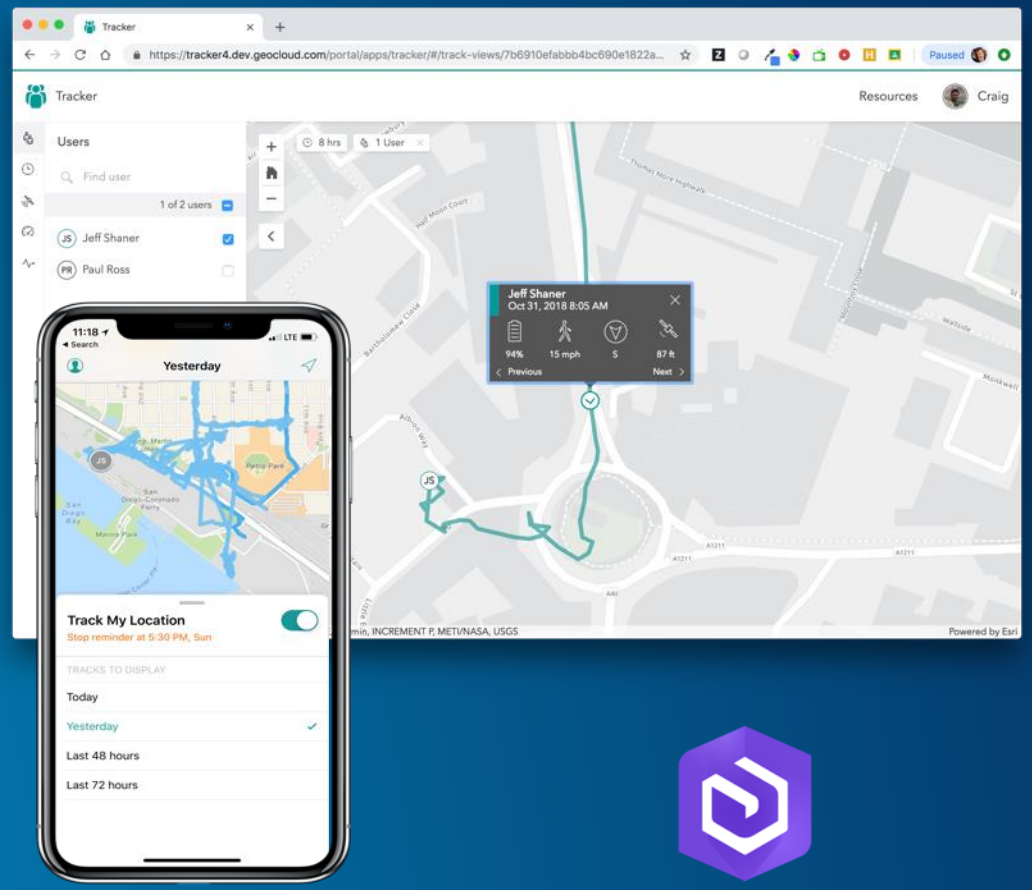
Track Viewer Web app

- Display and manage users and their location history
- See only the users that you have access to (Feature Service views, OBAC)

New Organizational Capability

- Enable location tracking in their organization
- Single service for storing and managing location tracks
- Requires the **spatiotemporal big data store**

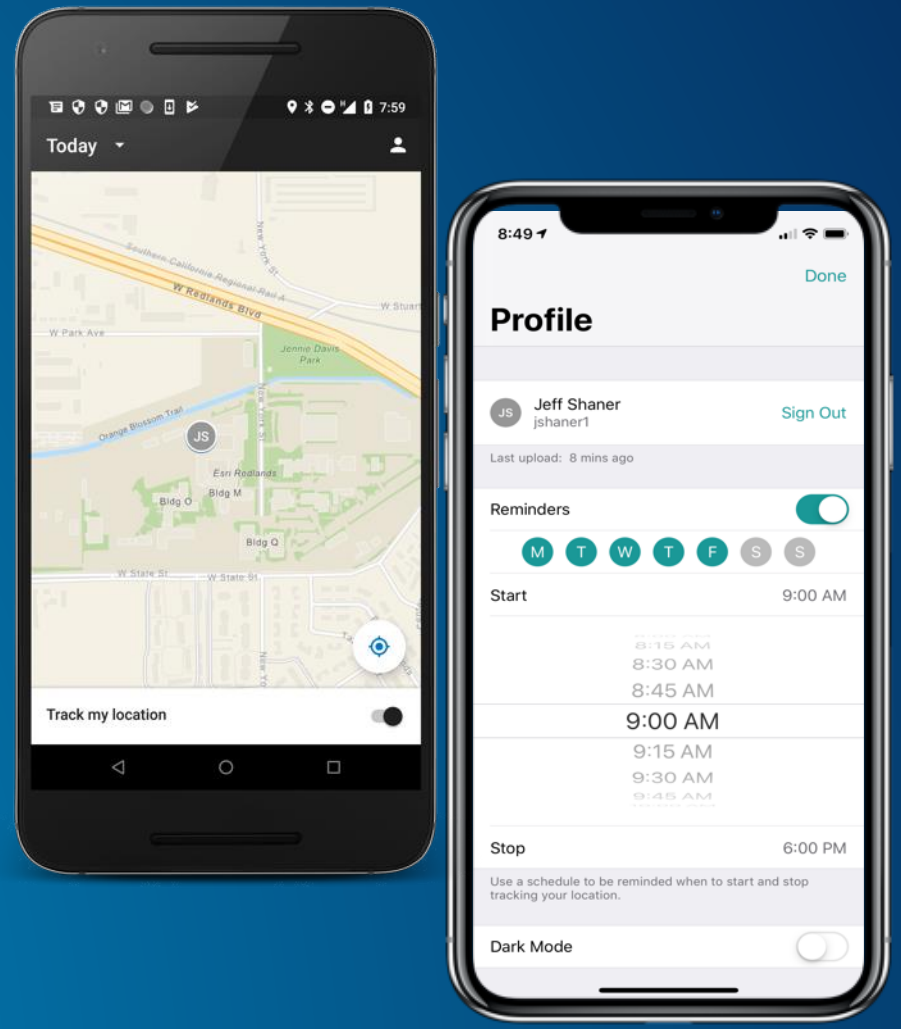
Release Plan!



ArcGIS Enterprise 10.7 only!

Tracker Mobile App

- Mobile user in control
  - Turns on/off tracking
  - Set reminders/schedule to start or stop tracking
- Collect Tracks
  - Tracks are collected using movement with mobile Core Motion and Fitness APIs
- Tracks are uploaded every
  - 10 mins (60 secs if device is being charged and battery is > 20%)
- LKL (Last known location) are uploaded every
  - 60 seconds but configurable to 30 seconds
- Supports offline use
  - Tracks stored locally if connectivity is lost
- Licensing
  - Premium app that works with Viewer+ user type
  - Included with Field Worker user type



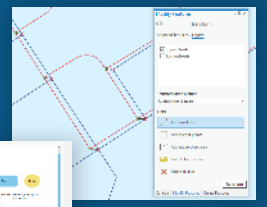
GET IT ON Google Play

Download on the App Store

Editing and Data Management Advancing Tools, Workflows and Data Models

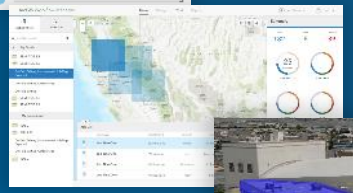
Improved Editing Tools

Rubber Sheeting

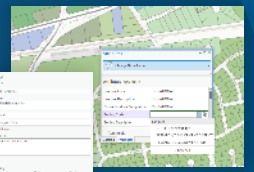


Workflow Management

QA / QC Tools



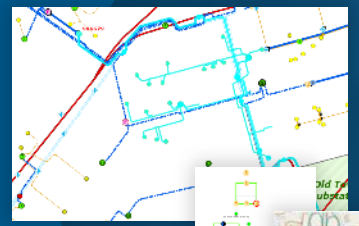
3D Editing



Attribute Rules

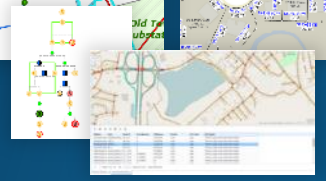
Contingent Values

Stronger Industry Models



Utilities

Parcels

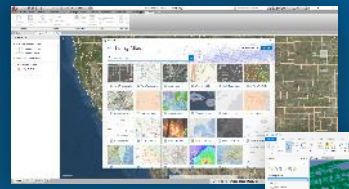


Roads and Highways (LRS)

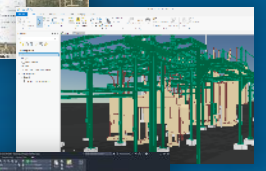
Airports

Pipelines

Autodesk Integration

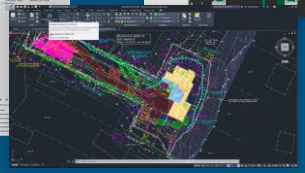


AutoCAD



Revit

Infraworks

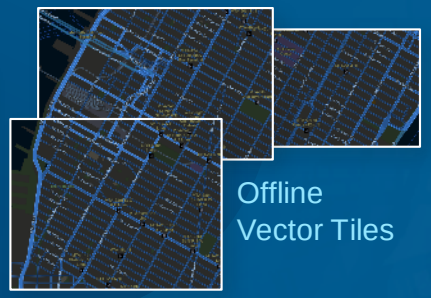


Civil 3D

BIM

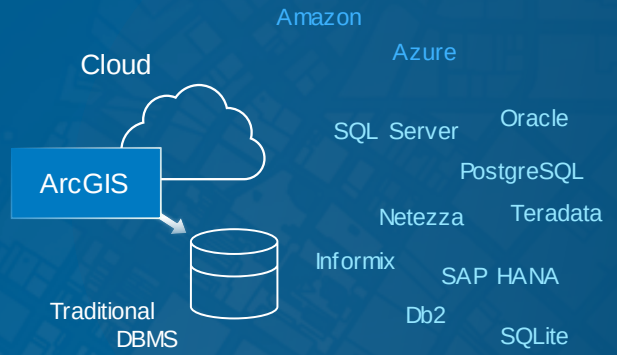
Offline Workflows

Pre-Planned Offline Map Areas



Offline Vector Tiles

Comprehensive Data Management

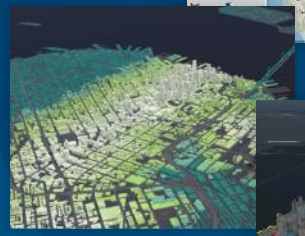


3D Visualization

New and Improved

- 3D Smart Mapping
- Mobile
- Point Clouds
- BIM Support
- Symbology

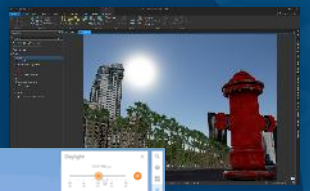
Smart Mapping



Data Visualization

Symbology

3D Symbols



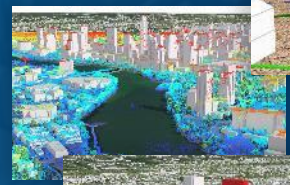
Effects

Power Lines

City Modeling

Underground

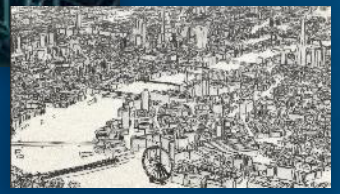
Lidar



Extrusion

BIM as Scene Layers

Edge Rendering



Mobile Scene Packages

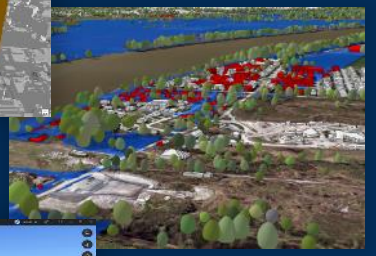
Augmented Reality / VR

Mobile

3D Analysis

Analytics

Shadow Analysis



Flood Impact

3D Measurement

Lidar to Buildings

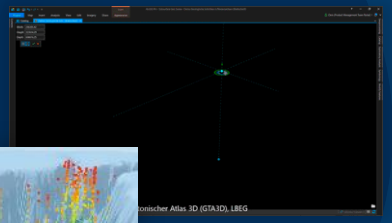
Elevation Profile

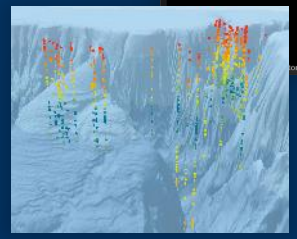
Line of Sight & Viewshed

Volumetrics

Volumetric Slicing

Interactive Slice

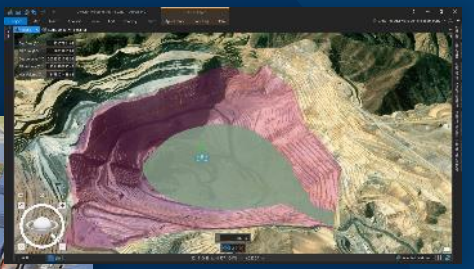




3D Interpolation (EBK)

Apps

Pro

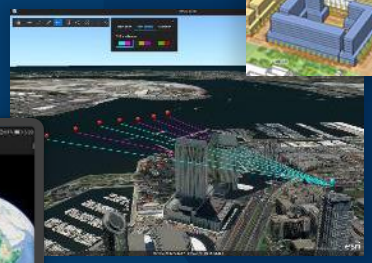


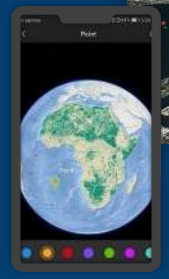
3D GIS

CityEngine

Procedural Modeling

Earth





3D Visualization and Analytics

Mobile

Scene Viewer

Visualization

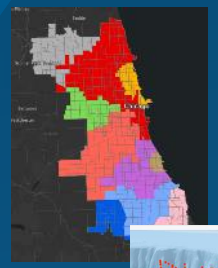
Spatial Analysis and Data Science

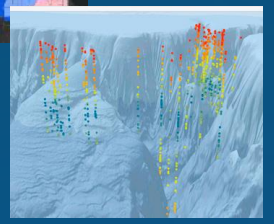
Many Improvements

- Functionality
- Scalability
- Accessibility

Spatial Statistics

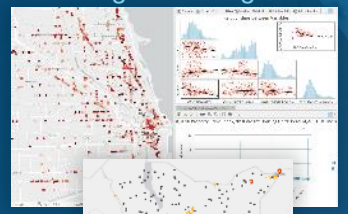
Balanced Zones

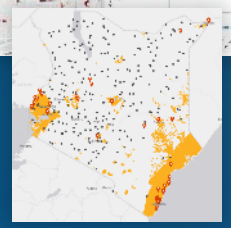




3D Interpolation (EBK)

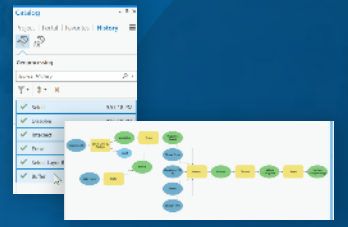
Logistical Regression





Forest-based Classification and Regression

Improved Processing



Tool History to Models

Models to Python

Hosted Python Notebooks

Enterprise

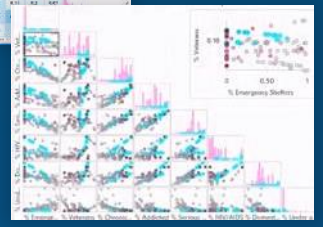
Pro

Scalable GeoAnalytics

Deep Learning

Charting

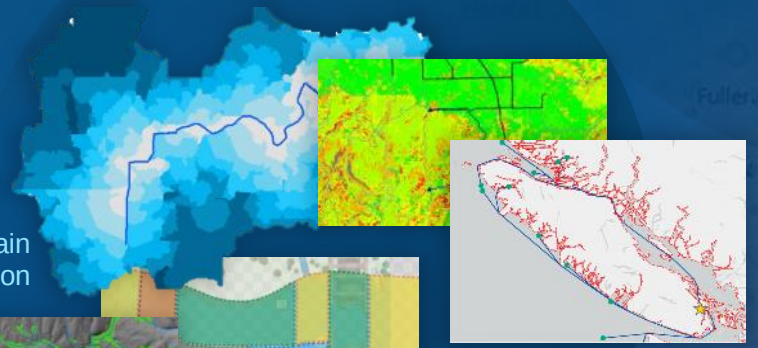
Calendar Heat Map



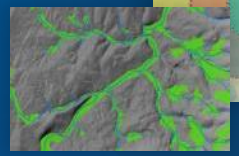
Scatter Plot Matrix

Data Clock

Raster Functions



Floodplain Delineation



DEM Error

River Classification

Cost Distance

Hosted Python Notebooks For Integration, Modeling and Automation

Integrating Distributed Services and Data . . .

. . . The World of Open Science & Big Data

Interactive Computing

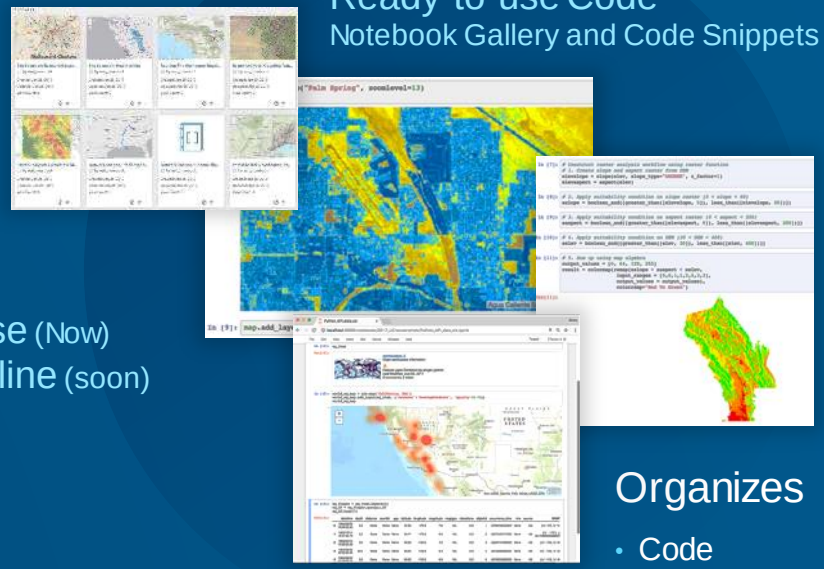
ArcGIS

Notebook Server

Enterprise (Now) and Online (soon)

Ready-to-use Code

Notebook Gallery and Code Snippets



Organizes

- Code
- Data
- Visualization
- Documentation

Data Stores / Lakes

ArcGIS Analytic Servers

(Image, GeoAnalytics, Spatial)

Open Science Libraries

Providing Notebooks as Items . . .

. . . and ArcPy Geoprocessing as a Service

AI, ML and Deep Learning Integrating Open Science

New and Improved

- Clustering
- Prediction
  - Classification
  - Regression
  - Interpolation
- Object Identification

Coming

- Feature Extraction
- Site Selection
- Event Prediction

ArcGIS

Pro

Python Notebooks

Spatial Machine Learning

Density-Based Clustering

Empirical Bayesian Kriging Regression Prediction

Training Data Preparation

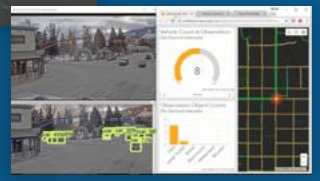
AI, ML and Deep Learning

Feature Extraction

PACI, Kuwait

Accident Prediction

Object Detection



OpenCV

Keras

TensorFlow

scikit learn

PYTORCH

Multiple Frameworks & Platforms

Imagery A Comprehensive System for Imagery and Remote Sensing

New

- Image Cube Support
- Deep Learning Tools

Image Management

Image Mosaics
Dynamic

Image Cube
Pre-Processed

Imagery

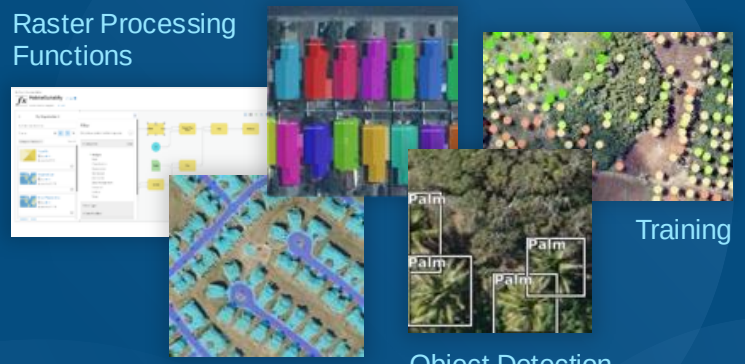
Rich Content
All Types & Formats

Analysis

Raster Processing Functions

Segmentation

Deep Learning Tools

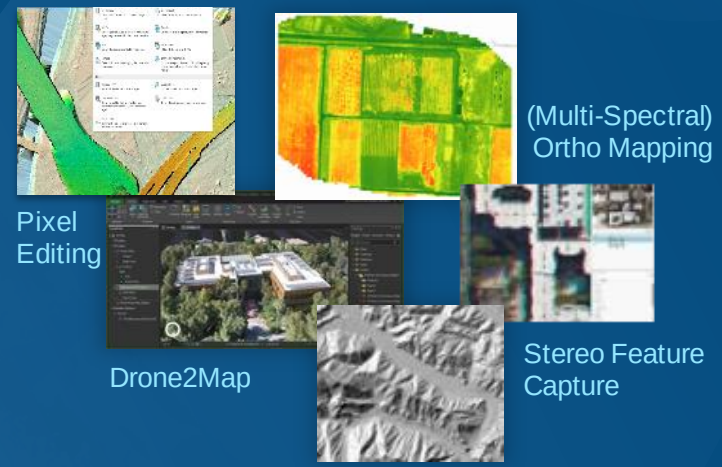


Training

Pixel Classification

Object Detection

Map Production



Pixel Editing

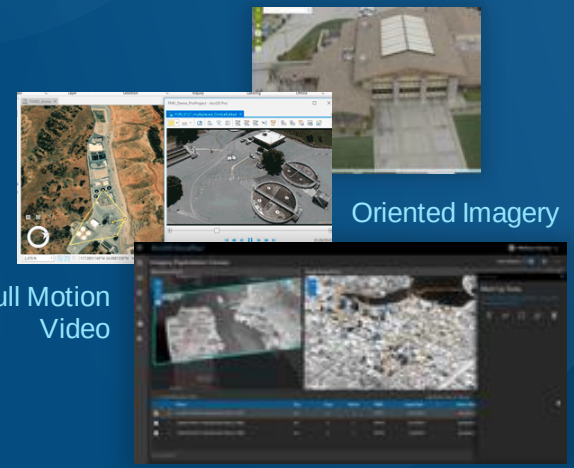
(Multi-Spectral) Ortho Mapping

Drone2Map

Stereo Feature Capture

DTM Generation

Visualization & Exploitation



Oriented Imagery

Full Motion Video

Structured Observations

New

Imagery Exploitation Web-Based Structured Observation Management

Excalibur

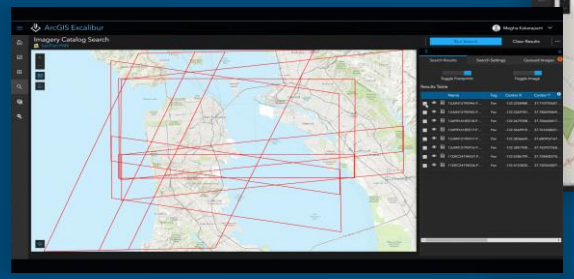
Search & Discover

Exploitation
Ortho & Oblique Viewing
Feature ID
Measurement

Analytics
On-the-Fly Processing

Project Tasking & Management

Search and Discover



Observation

Activity-Based Analysis

Exploitation

GIS View

Image Space

Delivering Next Generation Imagery Workflows

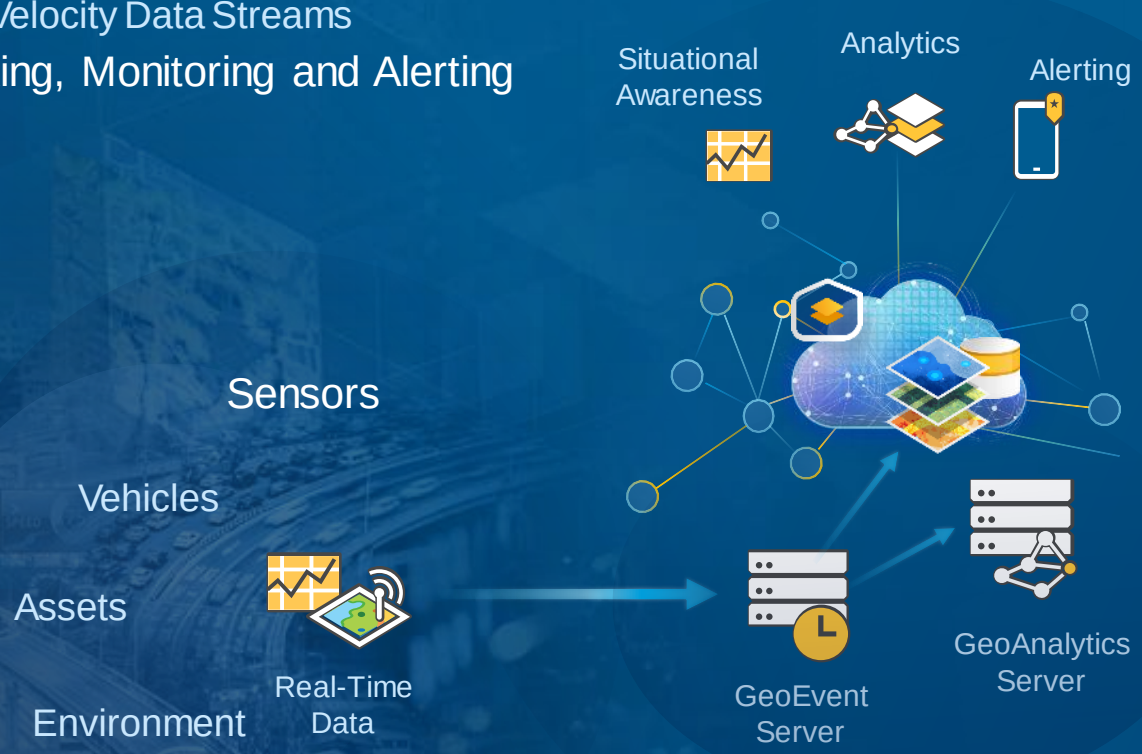
Real-Time Analytics Integrating Sensor Networks and IoT

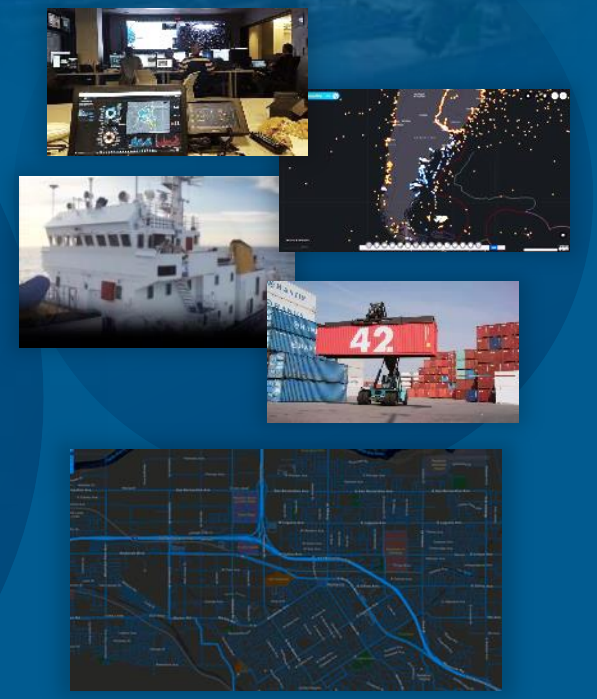
Supporting High-Velocity Data Streams

Tracking, Monitoring and Alerting

Improved

- Performance
- Scalability
- Resiliency
- Cloud Connectors
- Actuation

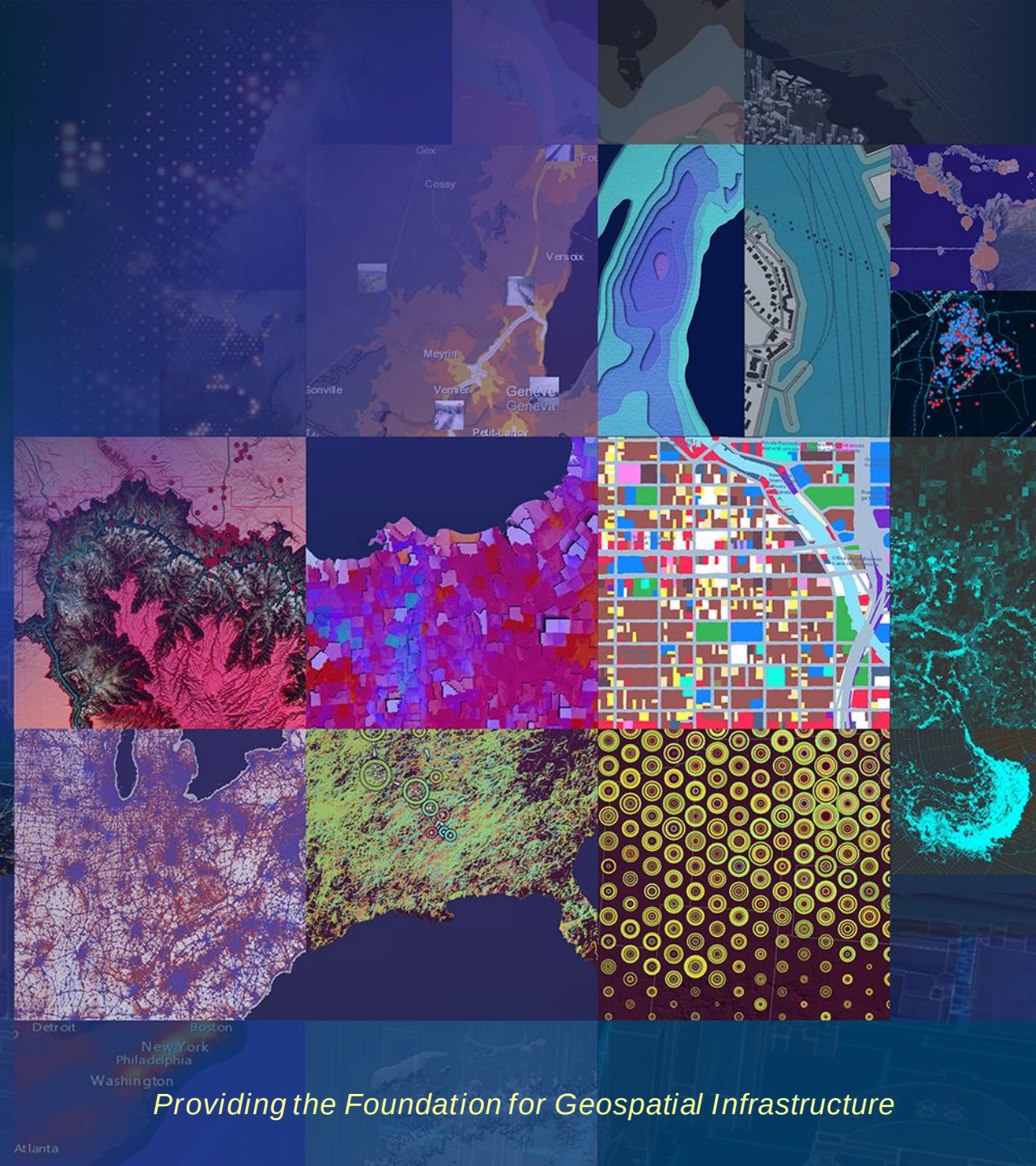




Enterprise Now . . .
. . . SaaS Coming

Collapsing the Time from Measurement to Decision Making

ArcGIS Products



Providing the Foundation for Geospatial Infrastructure

ArcGIS Online Complete Mapping and Location Platform

Content

2D / 3D

Configurable

- 7+ Million Users
- Billions of Maps
- 25 Million Items
- 150k Open Datasets

World's Largest Mapping and Data-Sharing Ecosystem

New and Improved

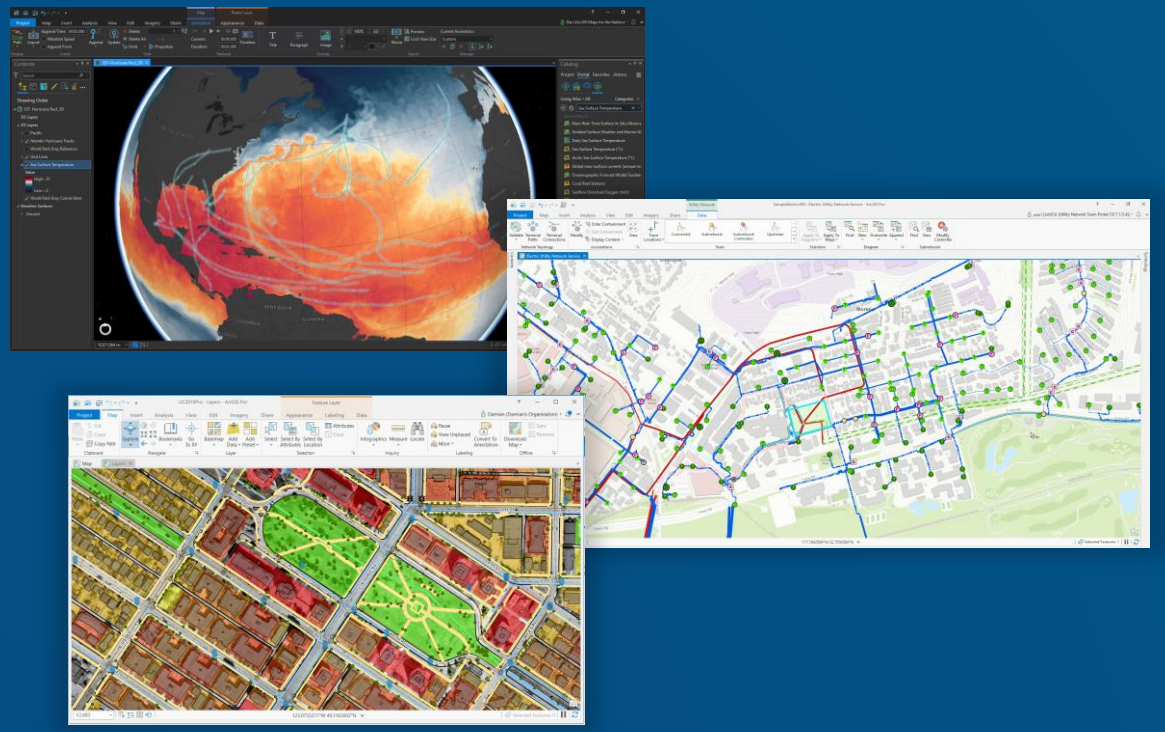
- User Types
- Search
- Large Organization Administration
- Configurable Basemaps (Vector Feature Tiles)
- Smart Mapping Styles
- 3D
- New StoryMaps

Coming

- New Map Viewer
- Bulk User & Item Management
- Org-to-Org Collaboration
- Tracking
- Notebooks
- Hosted Imagery
- IoT Integration

ArcGIS Pro Professional GIS

Pro 2.4



Advanced Mapping, Visualization, Editing and Analysis

Improvements

- Utility Management
- Faster Startup
- Editing Tools
- Catalog Preview
- Definition Expressions
- Contingent Attributes

New

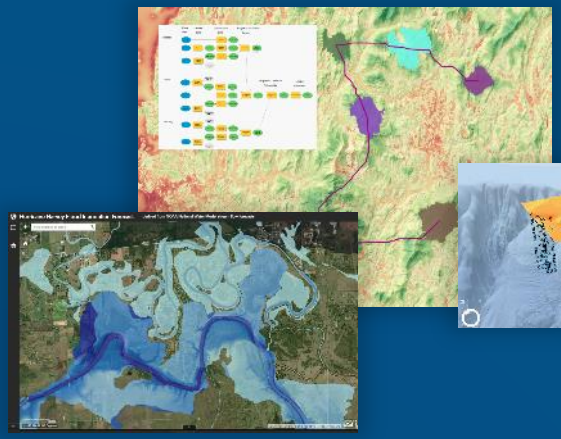
- Reports
- Dimensions
- Spell Check
- Publish to Server
- Deep Learning
- Parcel Management

Coming

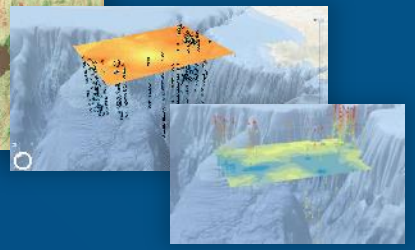
- Offset Printing
- More Parallel Processing
- Voxel Support

ArcGIS Pro Extensions Integrating Focused Capabilities

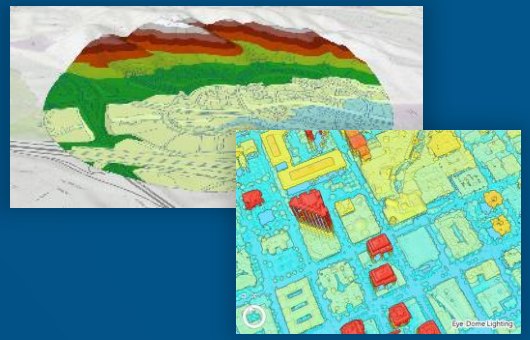
Spatial Analyst



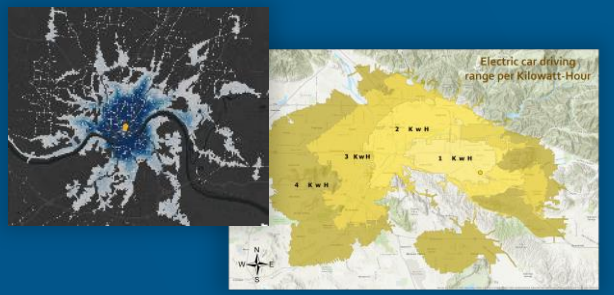
Geostatistical Analyst



3D Analyst



Network Analyst



Data Reviewer

Workflow Manager

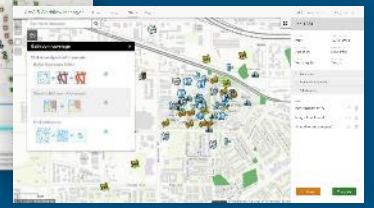
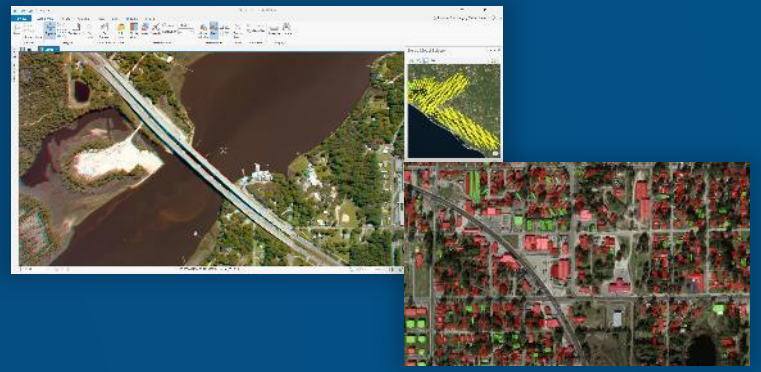
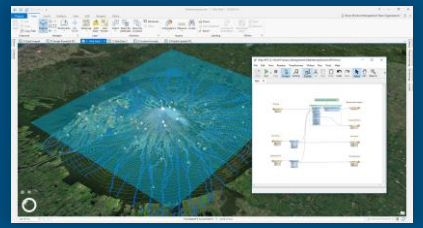


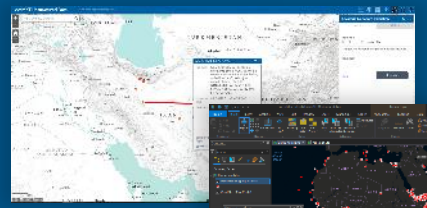
Image Analyst



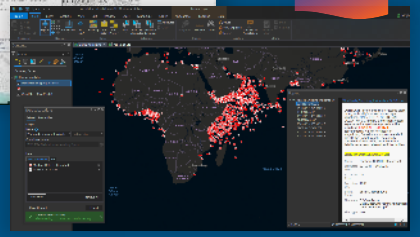
Data Interoperability



LocateXT

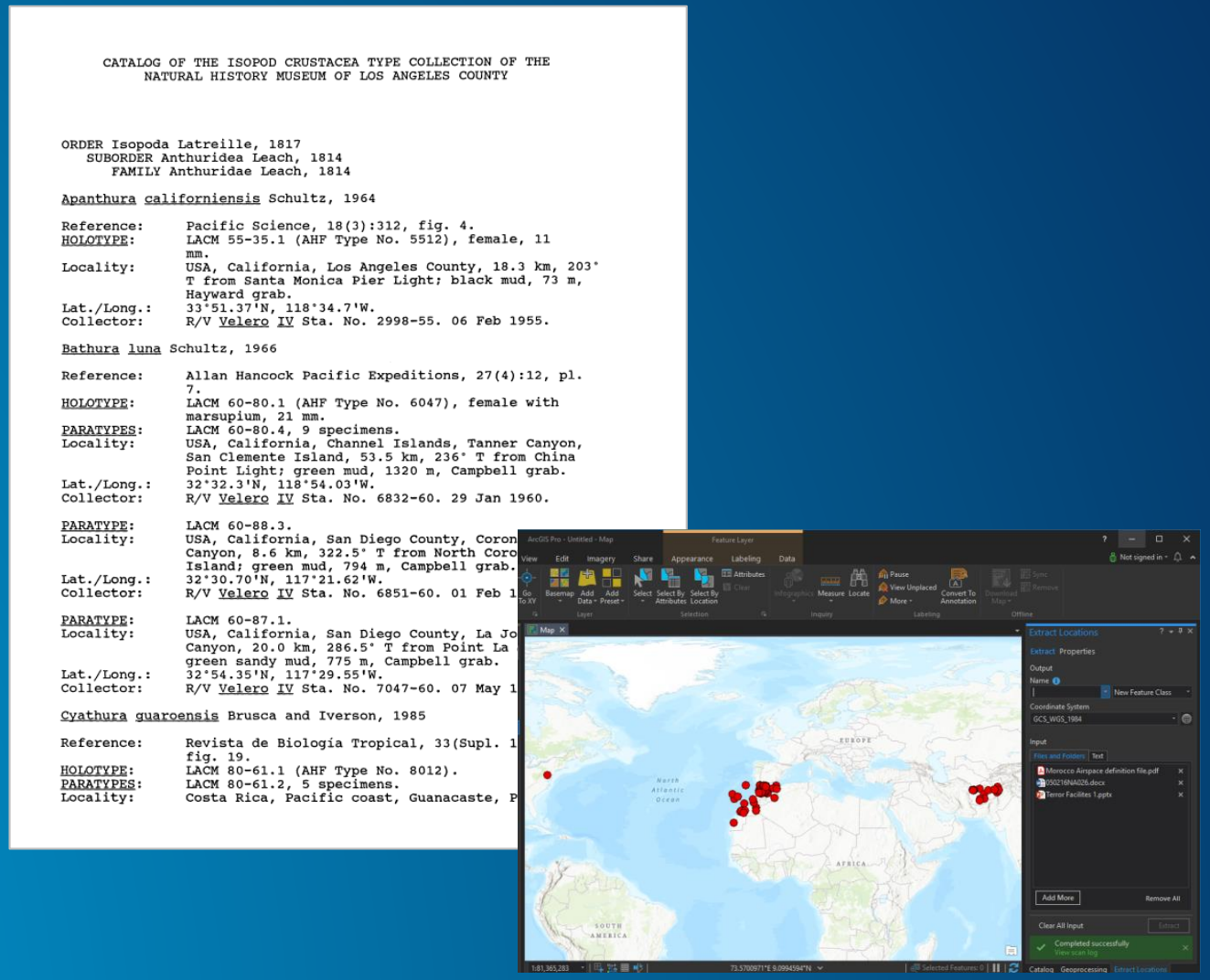


New



LocateXT New Pro Extension

- Extract from unstructured data
  - Coordinates
  - Dates
  - Attributes
  - Locations
  - Geoprocessing tools



CATALOG OF THE ISOPOD CRUSTACEA TYPE COLLECTION OF THE
NATURAL HISTORY MUSEUM OF LOS ANGELES COUNTY

ORDER Isopoda Latreille, 1817
SUBORDER Anthuridea Leach, 1814
FAMILY Anthuridae Leach, 1814

Apanthura californiensis Schultz, 1964

Reference: Pacific Science, 18(3):312, fig. 4.
HOLOTYPE: LACM 55-35.1 (AHF Type No. 5512), female, 11 mm.
Locality: USA, California, Los Angeles County, 18.3 km, 203° T from Santa Monica Pier Light; black mud, 73 m, Hayward grab.
Lat./Long.: 33°51.37'N, 118°34.7'W.
Collector: R/V Velero IV Sta. No. 2998-55. 06 Feb 1955.

Bathura luna Schultz, 1966

Reference: Allan Hancock Pacific Expeditions, 27(4):12, pl. 7.
HOLOTYPE: LACM 60-80.1 (AHF Type No. 6047), female with marsupium, 21 mm.
PARATYPES: LACM 60-80.4, 9 specimens.
Locality: USA, California, Channel Islands, Tanner Canyon, San Clemente Island, 53.5 km, 236° T from China Point Light; green mud, 1320 m, Campbell grab.
Lat./Long.: 32°32.3'N, 118°54.03'W.
Collector: R/V Velero IV Sta. No. 6832-60. 29 Jan 1960.

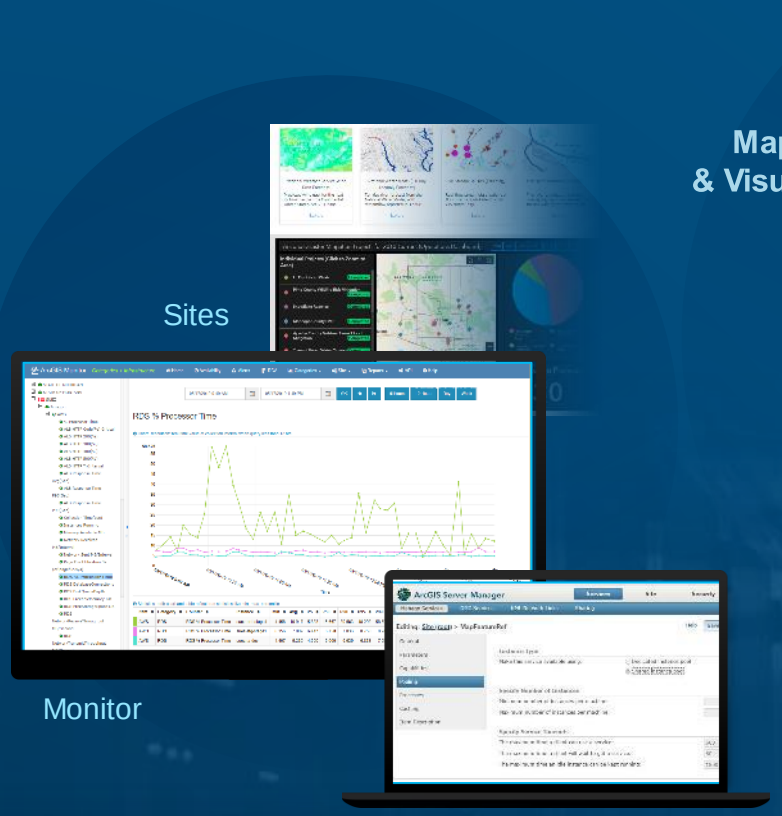
PARATYPE: LACM 60-88.3.
Locality: USA, California, San Diego County, Coron Canyon, 8.6 km, 322.5° T from North Coro Island; green mud, 794 m, Campbell grab.
Lat./Long.: 32°30.70'N, 117°21.62'W.
Collector: R/V Velero IV Sta. No. 6851-60. 01 Feb 1

PARATYPE: LACM 60-87.1.
Locality: USA, California, San Diego County, La Jo Canyon, 20.0 km, 286.5° T from Point La green sandy mud, 775 m, Campbell grab.
Lat./Long.: 32°54.35'N, 117°29.55'W.
Collector: R/V Velero IV Sta. No. 7047-60. 07 May 1

Cyathura guaroensis Brusca and Iverson, 1985

Reference: Revista de Biología Tropical, 33(Supl. 1 fig. 19.
HOLOTYPE: LACM 80-61.1 (AHF Type No. 8012).
PARATYPES: LACM 80-61.2, 5 specimens.
Locality: Costa Rica, Pacific coast, Guanacaste, P

ArcGIS Enterprise Comprehensive GIS for Your Organization



Enterprise Data Management,
Mapping, Analysis and Collaboration

New and Improved

- User Types
- Reduced Memory (95%)
- Bulk Publishing
- Webhooks
- Hosted Python Notebooks
- Sites
- Machine Learning & AI

Coming

- Containerization
- Microservices
- Large Organization Management
- Intelligent Search

Runs in Commercial Clouds,
Private Clouds and in Your Own Infrastructure

ArcGIS Enterprise Architecture

Modular and Massively Scalable

- Specialized Servers
- Independently Scalable
- Flexible Deployment

Monitor

Providing

- Alerts & Warnings
- Root Cause Analysis
- Performance Reporting

Portal

GIS Server

Image Server

GeoEvent Server

GeoAnalytics Server

Notebook Server

New

10.7.1 Dramatically Reduces Memory Requirements

- More Services
- Less Memory

Easy to Setup and Administer

ArcGIS User Types Provides Flexible Licensing

Delivering Powerful Capabilities Across Your Organization

For Enterprise and Online

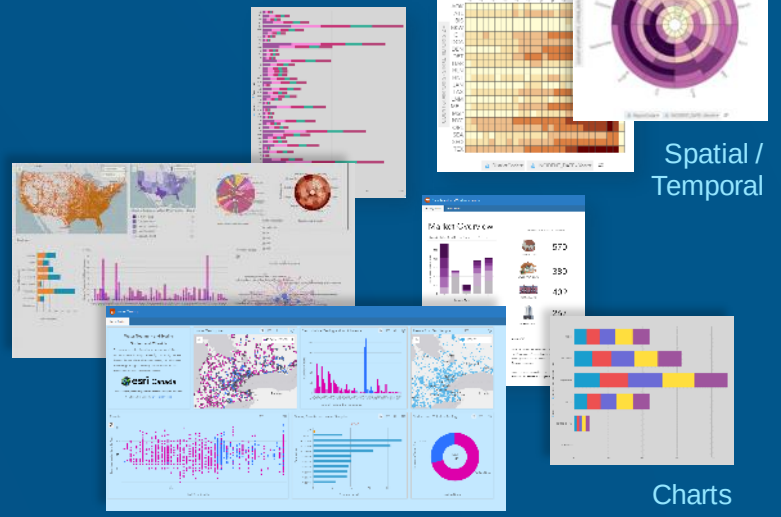
Insights for ArcGIS Opening Location Analytics to Everyone

Mapping
Thematic
Smart Mapping

Analytics
Spatiotemporal
Statistics
Predictions
Link Analysis

Charting
Bar, Column,
Pie, Scatter,
Box, Data Clock,
Heat . . .

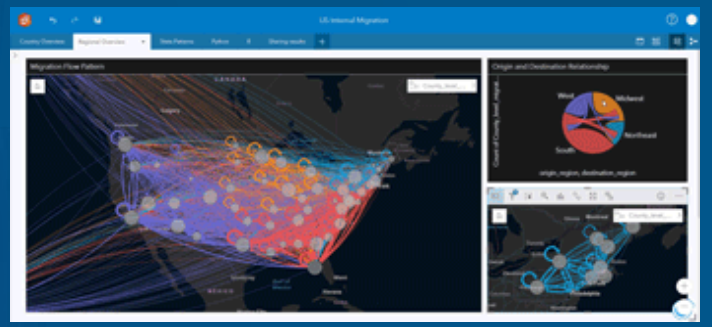
Exploratory Mapping & Analysis



Charts

Spatial / Temporal

Link Charts



New and Improved

- Link Analysis
- Presentations & Reports
- Public Sharing
- Python & R Integration

Providing Powerful Data Visualization and Analytics . . .

ArcGIS Solution Templates Ready-to-Use Industry Configurations

Tools

Data Models

Apps

Comprehensive Workflows

Maps

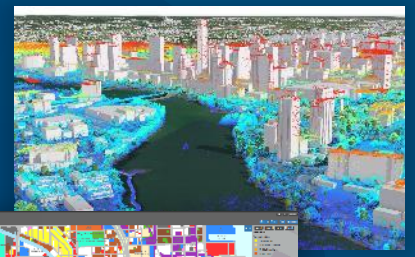
Widgets

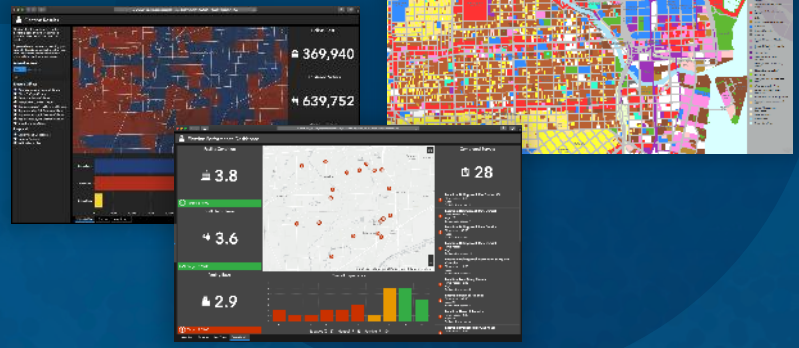
Add-Ins

Dashboards

- Popular (500K Downloads)
- Extensive (450+)
- Open Source
- Fully Supported
- Free

Local & State Government

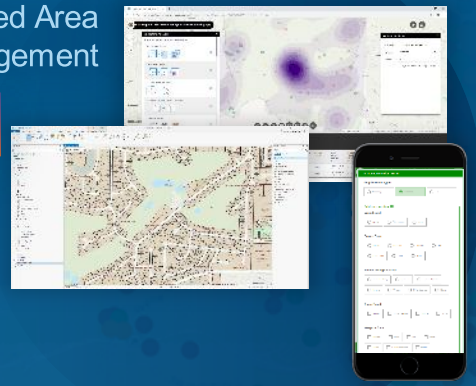




Utilities & Telecom

Protected Area Management

Coming



Defense & Security

Emergency Management & Public Safety

Helping Users Realize Value Quickly . . .

ArcGIS App Builders Enabling Everyone to Build Apps

Web AppBuilder

New Widgets

Infographics

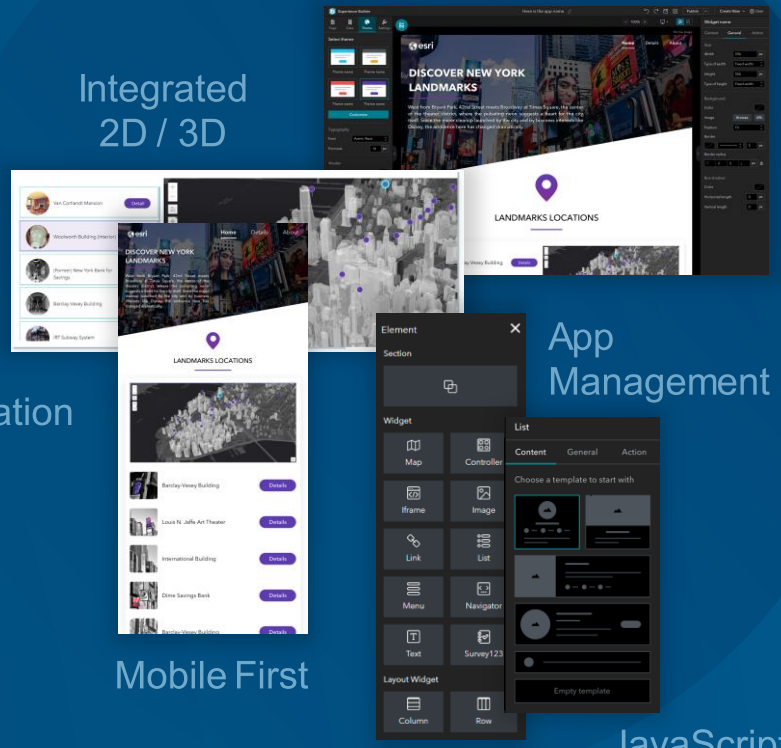
Visibility

Simple and Powerful

700,000+ Web Apps Created and Deployed

Experience Builder
(in Beta Soon)

Integrated 2D / 3D



Next Generation

App Management

Mobile First

JavaScript 4.x

No Programming Required

Esri Geo-Enabled Systems

Directly Supporting Focused Workflows

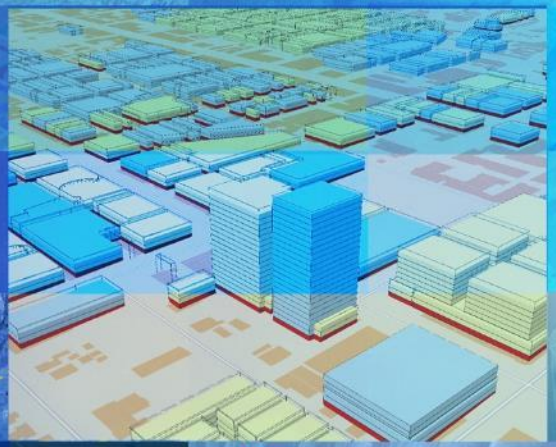
Indoors
Indoor Mapping

Hub
Engagement

Business Analyst
Business Intelligence

Urban
Urban Planning

Mission
Awareness and
Collaboration
(Coming)



Esri Geospatial Cloud

New

Indoors An Enterprise Mapping System for Operations and Mobility

GIS for Asset, Space and Building Management . . .
. . . In a Single System

Operations

Safety & Security
Emergency Management
Problem Reporting
Asset Management

Wayfinding

Employee Routing
Indoor Positioning
Public Kiosk
Tracking

Portfolio Management

Buildings
Infrastructure

Data Management

System of Record
CAD / BIM
Floor Plan Integration

Stakeholders

- Business Owners
- Operators
- Employees
- Visitors

Floor Plans

3D Maps

Wayfinding

Indoor Positioning

Location Sharing

Workplace Analytics

Hub System for Enabling Community Engagement

Connecting Organizations & Communities of Interest

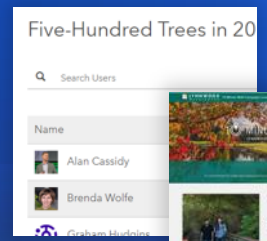
Initiatives
Website
Apps & Content
Engagement Tools
Crowdsourcing

Organize Communities
Identities and Groups
Sharing Data
Events and Discussions
Participation / Feedback

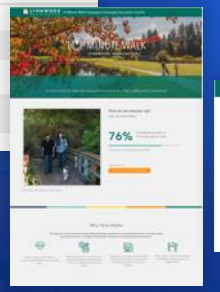
FREE

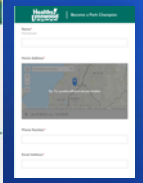
Open Data
Multiple Formats
Open APIs
Maps & Charts

Stakeholders
- Governments
- Communities
- Universities
- NGOs
- Citizens
- Staff



Team Management

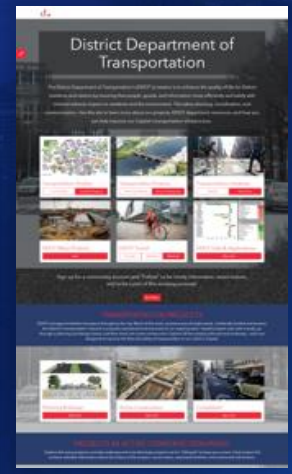




Surveys

Event Calendars

Initiatives



Performance Reporting

Open Data

New

Urban System for Planning and Managing Urban Development

Transforming Planning Operations and Design

Enabling Smart Cities

Plans

Land Use
Zoning
Overlays

Projects

Buildings
Infrastructure

Indicators

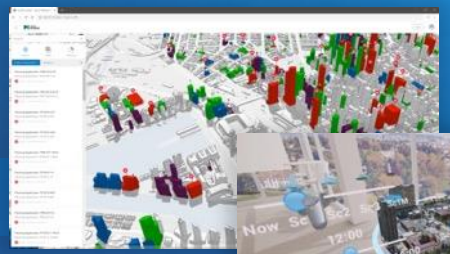
Baseline
Suitability
Impact Models

Visual, Analytic & Interactive

Stakeholders

- Government
- AEC
- Real Estate
- Citizens
- NGOs

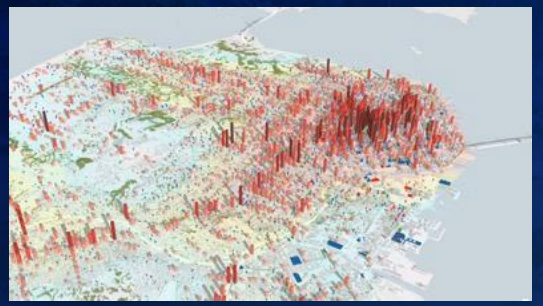
Track and Evaluate Projects



Immersive

Create
Planning Scenarios

Report and Engage



Coming 2020

Mission System for Geospatial Collaboration and Awareness

Supporting Operations and Management . . . End-to-End

Mission Planning

Define Area
Assign People
Provision Data

Tactical Situational Awareness

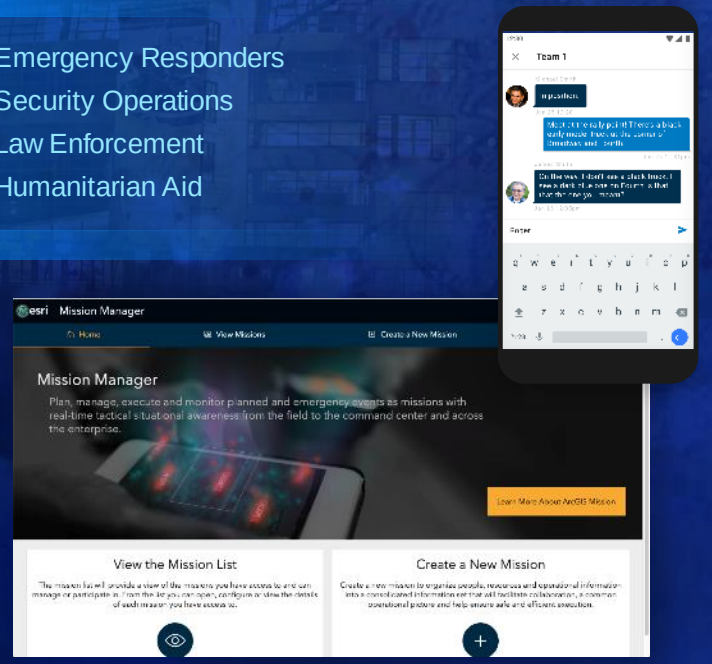
Peer-to-Peer Communication
Location Tracking
Chat & Messaging

Mission Management

Monitor Activities
Engage Team

Stakeholders

- Emergency Responders
- Security Operations
- Law Enforcement
- Humanitarian Aid



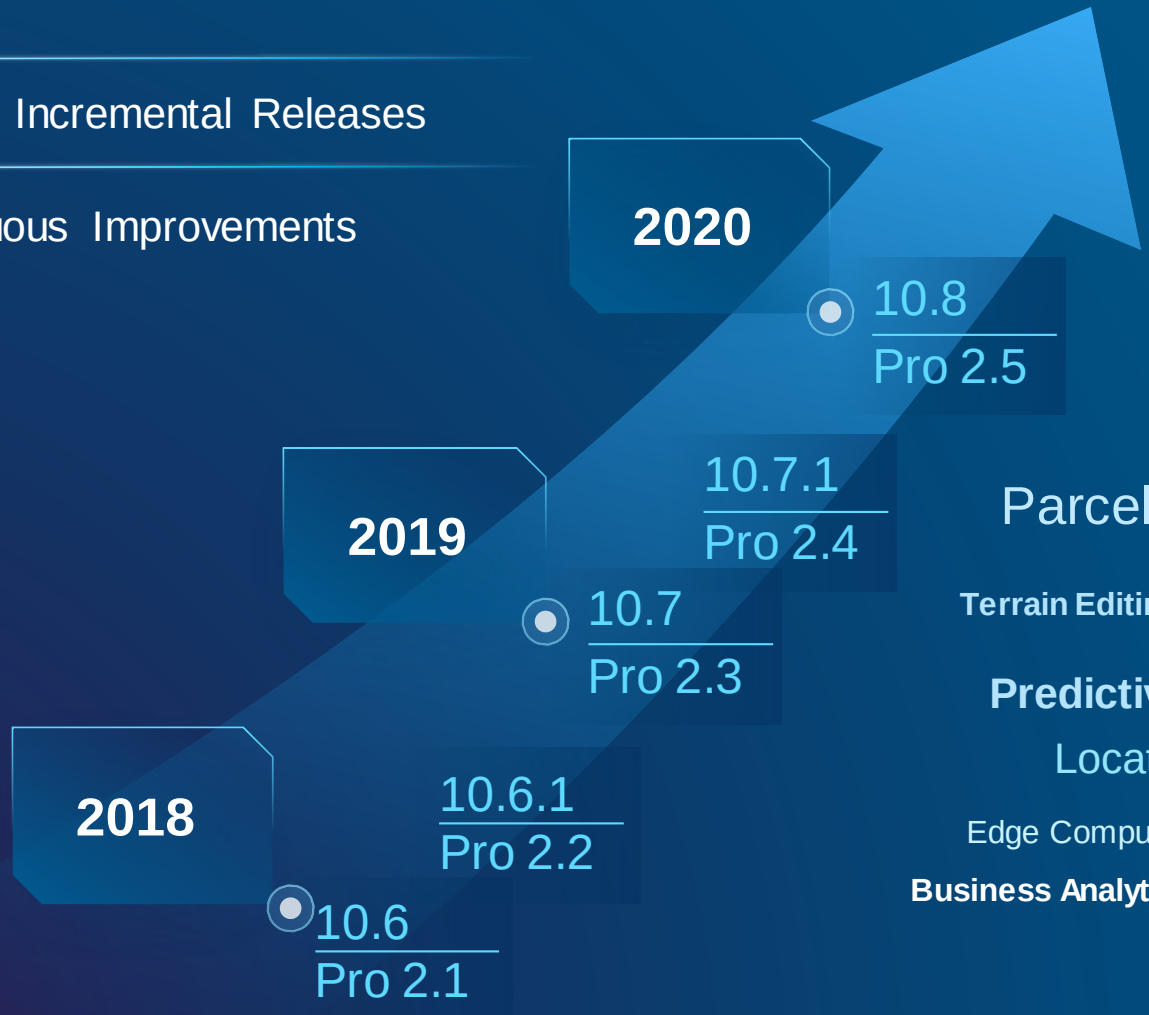
Mission Manager Web App

Mobile Responder App

What's Next

Incremental Releases

Continuous Improvements



Smart Cities
Solution Templates
AI
Machine Learning
HUB
High Fidelity 3D
3D Effects
Data Science
Augmented Reality
Urban
Oriented Imagery
IoT
Situational Awareness
Image Exploitation
SaaS
Big Data
Volumetric Data
BIM
Spatiotemporal
Real-Time
Parcel Management
Indoor
Mission Management
Link Analytics
Terrain Editing
Microservices
Intuitive Mapping
Predictive Analysis
Unstructured Data
Location Tracking
Containerization
Edge Computing
Voice Assisted Capture
Voxels
Business Analytics

. . . Continued Focus on Quality, Performance and Innovation

UC
2019
Esri User Conference