Emerging Technologies Showcase and Social
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InSPIRE
Emerging Web GIS Tools that Enhance Public Safety

Stuart Rucker, Esri Public Safety Team
ArcGIS Hub is an easy-to-configure cloud platform that organizes people, data, and engagement tools to accomplish Initiative goals.

For each initiative (mission, project), ArcGIS Hub provides a framework for:

- Data Sharing (open data/private data)
- Community Engagement (sites)
- Team Management
- Performance Tracking
Give Community Members Identities

Mike Wheeler
Team-Enabled Collaboration and Engagement Pattern

Initiative Collaboration

Staff

Anonymous Community Members

Geospatial Cloud
Shared Data, Maps & Apps

Site and Engagement Tools

Community Engagement

Teams
Team-Enabled Collaboration and Engagement Pattern

**Initiative Collaboration**

- **Staff**
- **Internal - External Collaborators**
- **External Stakeholders**
- **Anonymous Community Members**
- **Initiative Followers**
- **Volunteers**
- **Hard-to-reach Community**

**Geospatial Cloud**

Shared Data, Maps & Apps

**Initiative Engagement**

- **Teams**
- **Site and Engagement Tools**
- **Initiative Followers**
- **Volunteers**
- **Hard-to-reach Community**

**Teams**

- **Staff & Contractors**
- **Community Members with Identity**
Hub capabilities

- **Sites**
  - Modern, Responsive Webpages

- **Content + Apps**
  - Easy to deploy & configure tools

- **Events**
  - Schedule and Gather People

- **Initiatives**
  - Organize Collaboration

- **Community Identity**
  - Consistent engagement and access to tools

- **Team(s)**
  - Coordinate Activities + Sharing

- **Feedback**
  - Discussions, Surveys, Crowdsourcing

- **Subscriptions**
  - Community Notifications + Alerts
Emerging Web GIS Tools That Enhance Public Safety

Stuart Rucker, Esri

Why a New StoryMaps?

Story maps have evolved over eight years. We’re enhancing them as we enter a new era of easy, modern, and stylish storytelling.

Esri's StoryMaps team August 29, 2019

https://storymaps.arcgis.com/collections/f7c280b6daa64b40ab90616358b462db/present?item=2

InSPIRE
LiDAR
Introducing HERE LiDAR

How is it collected and what does the LiDAR look like
Places Extract
Places Extract
How HERE is building the most comprehensive database of Places in the world

Sourcing
Millions of records of place data are gathered from thousands of sources daily

Big Data Processing
Machine learning technology continually sorts and contextualizes the data

Delivery
Resulting in the most reliable database of Places in the world

1. Clean
   - Standardized for global consistency

2. Geocode
   - Accurately located on the HERE Map

3. Match
   - Carefully organized to eliminate duplicates

4. Blend
   - Multiple sources merged into the hybrid place

5. Score
   - Assessed to indicate accuracy

- 126M reviews
- 400+ categories
- 260+ attributes
- 19% countries
HERE differentiation
Not your old business points!

Quality Scoring

5 | Best (highest accuracy)
4 | Premium (highly accurate)
3 | Choice (moderate accuracy)
2 | Select (lower accuracy)
1 | Closed (historical accuracy)

On-demand

Self-serve web tool

Custom build to your requirements

Data delivered directly, within 24hrs

Flexibility

monthly

Choice (moderate accuracy)
Street Level Capture Capabilities

Discovery and verification

Imagery

LiDAR, too!
Thank you
ARDENTMC

Migrating Geospatial Workloads to the Cloud
FEMA Preliminary Disaster Assistance (PDA)

Migrating to AWS GovCloud
Multi-Tenant Cloud Hosting for DHS HQ/Geospatial Management Office

Challenge
• DHS components had 20 stove piped situational awareness systems spanning multiple networks, Govt Data Centers, lack of identity management

Solution
• GMO created a multi-tenant shared service platform called Geospatial Information Infrastructure (GII)
• Ardent has been running the GII for a decade and is migrating one of the largest Federal Esri solutions to AWS GovCloud

Results
• Unified Situational Awareness
• Common set of API’s/Services
• Repeatable & scalable system/application design
Readiness Assessment
- Align architecture to mission
- Cloud education and outreach
- App discover & assessment
- Security analysis
- TCO detail review
- Portfolio prioritization

Architect for the Cloud
- Architecture for future state
- Determine migration pattern
- Migration tool selection
- Architect CI/CD pipeline
- Review with stakeholders
- Cloud security review

Perform Migration
- Tailor scripts/configurations
- Deploy target infrastructure
- Initial migration POC
- Migration readiness review
- Coordinate with stakeholders
- Data migration

Integrate Services
- Functional testing
- Security control assessment
- Load & performance testing
- CI/CD pipeline testing
- Data validation
- User acceptance test

Deliver Operations
- Support transition
- Service Management
- Enable/test monitoring
- Security review
- Governance review
- Post migration evaluation

Migration Integration
- Application Portfolio Discovery
- Application Analysis
- Migration Planning & Design
- Migration
- Integration
- Validation
- Operate & Optimize

40% Automation
60% Automation
90% Automation

ARDENTMC
Customer examples – Proven, Ready & Focused Solutions

- **FEMA** – Mobile Disaster Assessment Toolset to determine impact to Commercial and Residential infrastructure to determine amount of FEMA recovery resources required for response.

- **DHS GII** – 24x7x365 Situational Awareness for National Special Security Events, Ops Planning, man-made/natural threats against the US.

- **Responder Cloud/Public Safety Cloud** – IaaS and PaaS for First Responders to collaborate and visualize damage assessments, real-time response asset tracking, multi-jurisdictional CAD integration, and mutual aid sharing.
Noah Goodman
Principal
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Automating Secure Mission Critical Cloud Deployments

Robert Pitts
Program Manager

Dave Williams
Cloud Architect
The Scenario

- Large Disaster Event
  - Cat 5 Hurricane Approaching Gulf Coast
- Response Coordination Activities
  - Evacuation, Logistics, Estimating Impacts, etc.
- Massive Demand for Information
  - Map & Data publishing, web requests, etc.
- Large Diverse User Base
- Hours Until Landfall

Requirements

- Need to Quickly Deploy New Online Mapping System to Support Missions
- Must Serve Large Data & be Robust to Handle Massive User Traffic
- Must be Able to Support Web, Desktop & Mobile User Base
- Must Comply with Important Security Requirements – GovCloud, System Isolation, U.S. Residency, etc.
Infrastructure & Software Delivery Lifecycle

- Multistep process requiring specialized staff in technical and administrative roles
- Most steps are manual
Traditional DIY Approach

- Requires Specialized Expertise
- Slow Multistep Process
- Prone to Issues & Delays
- Expensive
- Provisioning Mismatch
- Limited Scalability
- Technical Debt
Modern Automated Approach

- Infrastructure-as-Code
- Best Practice
- Fast
- Documented
- Repeatable
- Full Automated Deployment of Environment & Application
- Security Rules Applied

Production

Staging

Dev
How Fast?

Full Cloud Environment Build

Ready to Use
Benefits of Automation

- Fast
- Repeatable
- Testable
- Sharable
- Extensible
- Interoperable with CI
Benefits for Cybersecurity

- Compliance as Code
- Automatically Define Security Policy Baseline
- Compliance Enforcement & Drift Detection
- Enforces Standardization
- Scripts are Documented Security Artifacts
- Removes Human Error
Automation = Faster & Safer