Using a Location Platform for Integrated Intelligence

Ben Conklin
Craig Cleveland
Global Challenges
A Dynamic World Creates Complex Intelligence Challenges

- Pandemics
- Famine and Drought
- Natural Disasters
- Civil Unrest
- Displaced Persons
- Organized Crime
- Political Crisis
- Terrorism
- Adversaries

...And Impacts National Security
Technology Advances
A Whole New Pattern Is Emerging

Content
Crowdsourcing
Sensors
Real-Time
Remote Sensing
UAVs

Technology
GMTI
GPS
Social Media
Virtualization
Distributed Processing
Faster Computing
Cloud
IoT
Consumerization
Smart Devices

Applications
Collaborative
Real-Time
3D
Visualization
Analytics
Apps

Remote Sensing
Field Reports
WAMI
GPS
Social Media

Cloud
Virtualization
IoT
Consumerization
Smart Devices

Technology
Content
Applications

Technology Advances
A Whole New Pattern Is Emerging
A Fundamental Language for Understanding and Managing Our World

Location, Mapping and GIS Are Becoming Essential

Providing Content and Context About Everything
GIS Provides the Framework and Process

Transforming How We Think and Act . . .

Creating a More Sustainable Future

For Enabling a Smarter World

Data Integration and Management

Visualization and Mapping

Analysis and Modeling

Planning and Design

Decision-Making

Action
GIS Connects Everyone
Creating a System of Engagement

Supporting Real-Time Awareness and Collaboration

Communities

Organizations

People

GIS Provides a Common Language for Communication
GIS Embeds Advanced Analytics and Visualization

Providing a System of Insight

- Spatial Analysis & Geoprocessing
- Big Data GeoAnalytics
- Interactive Exploration
GIS Is Becoming Distributed
A New Architecture Is Emerging

Systems of Systems

Enabled by Portals . . .
. . . Abstracting Distributed Data and Analytics

Enabling Collaboration
GIS Integrates Everything
Connecting People, Processes, Things and Data About Them

Improving Efficiency, Collaboration and Communication

System of Insight
Supports Multiple Types of Systems

System of Record

System of Engagement

Helping Organizations Understand . . .
... And Be Aware, Alert, and Responsive
An Enterprise GIS
Connecting People, Processes and Data

Enterprise GIS Supports Multiple Types of Systems

- Foundation Data
- Imagery Libraries
- Manages Authoritative Content
- Streamlines Data Production
- Supports Transactional Workflows

System(s) of Record

System of Engagement

- Consumer Focused
- Unlocks data
- Exposes GEOINT services to the Community
- Easily Discoverable
- Enables self-service mapping
- Provides light-weight analytics
- Enables Collaboration
- Device Agnostic

System of Insight

- Event-based Alerting
- Enables Pattern Detection
- Performs Predictive Analytics
- Enables Self-Service Analytics
- Supports Rapid Decision Making
Evolving to an Enterprise GIS

Four Recommended Focus Areas

Integrate Imagery and Foundation into the Analytic Workflow

Derive Deeper Insights

Deliver Mission-Focused Apps

Expose Analytic Content to the Enterprise

…Continuous Evolution – Aligned to Technology Advancement
WebGIS - Portal
Craig Cleveland
System of Record
GIS Integrates Intelligence and Operations

- Geospatial Analysts
- Imagery Analysts
- HUMINT Analysts
- SIGINT Analysts
- All Source Analysts
- Enterprise Integration
- Commanders and Executives
- Mobile Operators

- Portal
- Analysis Services
- Internal Data Sources
- External Data Sources

- Classified
- Open-Source
Intelligence Platform
ArcGIS Can Provide the Intelligence Platform

Multi-Int Products
Combined Obstacle Overlays
Battle Damage Assessment
Helicopter Landing Zones
Target Development
Enemy Capabilities
Network Analysis
Mobility Analysis
Enemy Intention
Link Analysis
Route Study
Image Maps
Threat Maps
Collection Plans
Enemy Strength
Incident Analysis
IED Density/Threat
Line of Sight Analysis
GMTI Analyses/Reports
Point of Origin Detection
Indications and Warnings
Tribal/Human Terrain Maps

From Raw Data to Finished Intelligence
Foundation Geospatial Management
COTS-Based Topographic Production

Aero, Hydro, Topo, Names and Boundaries

Production Management ➔ Production Workflows ➔ Production Databases ➔ Dissemination Databases ➔ Portal

Cached Basemaps
Data Extract
Dynamic Services

System of Record ➔ System of Engagement

From Product Centric to Data Centric Production
Systems and Users Need Authoritative Content
Integrated across the ArcGIS Platform

Collect / Produce

Manage / Share

Disconnected Editing

Land Operations

Map Applications

Executive Access

Specifications

Data Models

ETL

Workflows

Server

Online Content and Services

Authoritative Content
Timely and Accurate
Ready-to-Use
Authoritative

Delivered at the point of warfighter and analyst needs to ensure timely decision making and operational success
Foundation Modernization Resources

http://go.esri.com/modernizinggovernment/webinars

http://www.esri.com/industries/mapping-statistics-imagery
System of Engagement
GIS is a Multi-Int Platform

- Terrain Workstation
- Imagery Workstation
- All Source Workstation
- CI / SIGINT Mobile
- Enterprise Integration

Portal

- Analysis Services
- Internal Data Sources
- External Data Sources

Classified Open-Source
GIS Dynamically Integrates Information
From Collector to Enterprise and Analysis

Visual Overlay

Mashup

Spatial Analysis

Modeling

Helping to Discover and Understand Relationships
GIS Connects Everyone
Enable your organization

Make their own maps
Use Authoritative data and tools
Access useful apps

GIS Provides a Common Language for Communication
A Platform for the GEOINT Community

60,000+ Users across the Intelligence Community

“One of our really great approaches is the use of ArcGIS as a geospatial framework…the IC GIS Portal is a platform for analytics, collaboration, and data sharing that is used throughout the Intelligence Community.” – Sue Gordon, Deputy Director, NGA
Mission Focused Applications

Planning & Collection
- Geoform
- Collector
- GeoEvent
- Workforce
- Crowd Source
- Survey123

Exploitation & Analysis
- Insights
- Pro
- Geo Planner
- Operations Dashboard
- Maps for Office
- Geo-Analytics

Production & Dissemination
- Open Data
- Story Maps
- Quick Report
- Summary Viewer
- Swipe & Spyglass
- Time Aware

Focused, Powerful and Ready-to-Use
Mission-Focused Applications
Configured Apps for Analytical Workflows

- Browser based Application
- Easily Configurable
- Custom Analytical Tools
- User-Defined Workflow
- Powered by Services

Jumpstart the Analytical Workflow
System of Insights
GIS Embeds Advanced Analytics and Visualization
Providing a System of Insight

- Big Data GeoAnalytics
- Spatial Analysis & Geoprocessing
- Interactive Exploration
Insights
Transforming Understanding with Exploratory Analysis

- A New App
- Visual, Intuitive, Responsive
- Dynamic Spatial Analytics and Visualizations
- Very Fast
Real-Time
Integrating Sensor Networks and the IoT

- High-Velocity Data Streams
- Monitoring and Alerting
- Dynamic and Big Data Analytics
Big Data
Parallelized Analytics on Vector and Raster Data

Lightning Strikes
Spatiotemporal Analysis
Solar Suitability
GeoAnalytics Server
Image Server
Portal Abstracts and Organizes Any Data Type

Web Maps, Layers, and Scenes

Any Client

REST Based Access

Any Data Source

Distributed
ArcGIS Enterprise | Server GIS vs. Web GIS

Scalability, Reliability and Maintainability

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

Users

App

Services

Data

... n+1

Users

Apps

Web Maps
Web Scenes
Web Layers

portal

Services

Data
Geospatial Infrastructure For Modern, Secure Networks

...providing scalability, reliability, maintainability and security
ArcGIS Is Open, Interoperable and Standards Compliant

Open Standards and Formats

Product Integration

Open Software

Open Data Access

Open-Source Contributions (300+)

Open-Source Integration

Extensible Architecture

Embeddable Components

Successfully Integrated into Thousands of Systems
Integrating and Enriching Intelligence using Location
The Power of a Multi-Int Platform
Putting it all together

Operators

ArcGIS

Workflows & Models

Tradecraft:
- Change Detection
- Land Cover Analysis
- Feature Extraction

Content

- Esri Provided
- Build-your-own

Foundation Services

Web Apps
- Templates
- Widgets
- Dynamic Content

Operators
Using a Location Platform for Integrated Intelligence

Ben Conklin

Craig Cleveland
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