



Visual Information Solutions

Delivering Interoperable Streaming & OGC Web Services

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Agenda

- Background
 - Overview of ITT VIS Products & Services
- Case Examples
 - DARC GDEVL
 - GI²RA
- Future Developments



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ITT VIS Products & Services

Background

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Introducing ITT VIS

- Formerly Research Systems Inc (RSI)
- Acquired by ITT to become ITT VIS
 - Part of Space Systems Division
- HQ Boulder, Colorado
- Offices in Europe and Asia plus distributors
- Consultancy, customisation & education services
- 30 years experience in image processing, data analysis and visualisation



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ITT VIS Desktop Products

- IDL (Interactive Data Language)
 - Easy-to-use programming language
 - Widely used in data analysis & visualisation
 - Used by scientists, engineers, researchers
- ENVI
 - Image display and processing application
 - Written in IDL
 - Extensible using IDL
 - Available for use as a batch toolkit
 - Originally for multi- and hyper-spectral analysis
 - “ENVI Zoom” recently developed for image/geospatial analyst



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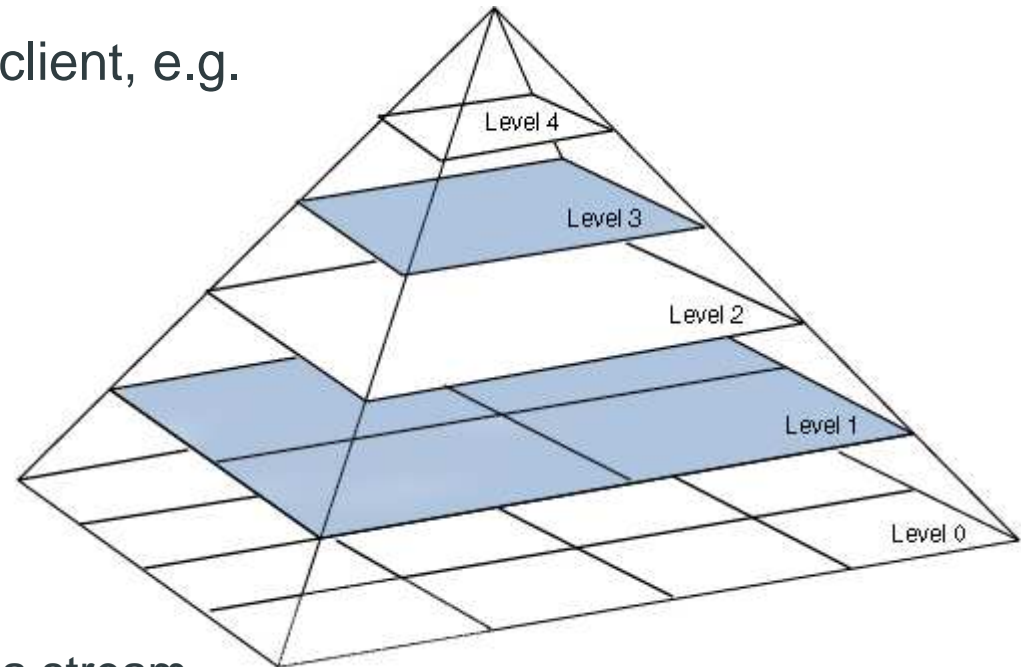
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ITT VIS Server-Side Products (IAS)

- Make Informed Decisions Faster
 - Provide deployed military personnel and disaster responders in remote locations with quick access to large geospatial images
 - Immediately stream full image scenes with metadata regardless of network bandwidth limitations, including dial-up (56k) connections
- IAS Provides
 - Support for the critical standards
 - Standards-compliant, JPEG 2000 Interactive Protocol (JPIP) image streaming
 - NITF, JPEG 2000, NGA NPJE & EPJE, and DoDIIS Interoperability
 - A scalable COTS architecture designed for performance
 - Consulting engineering services for integration into existing enterprise architectures

JPIP/JPEG2000 Overview

- Useful for rapid image data dissemination
- Standards-based, so multi-client, e.g.
 - IAS Viewer
 - ENVI Zoom
 - Kakadu Show
- JPEG2000
 - Wavelet Compressed
 - Image Pyramid
- JPIP Streaming
 - Protocol to deliver data as a stream
 - Uses image pyramid for “smart” delivery
 - Good for “on-demand” dissemination



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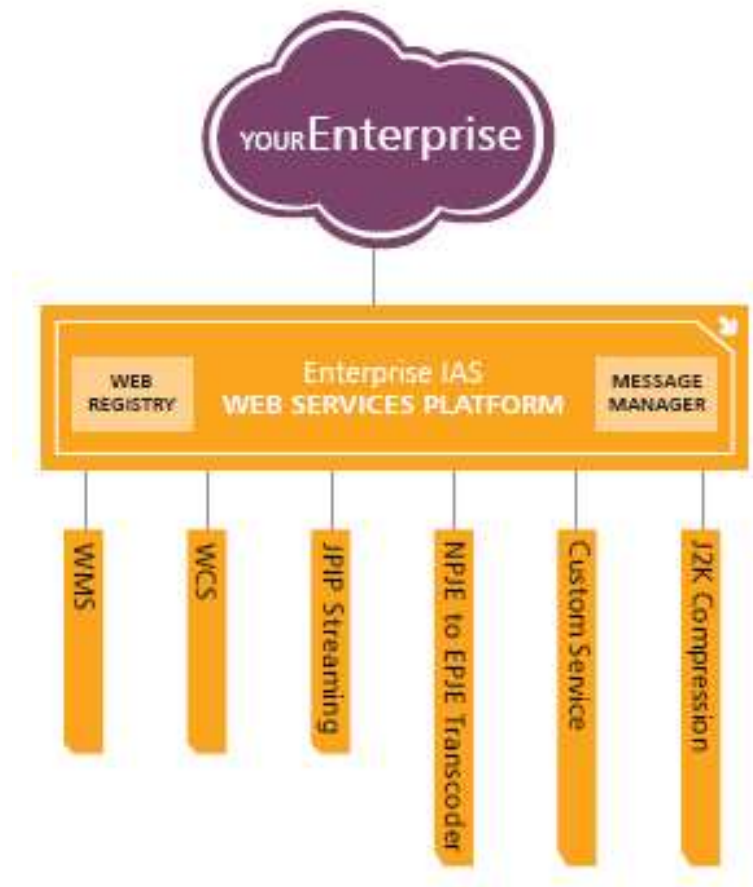
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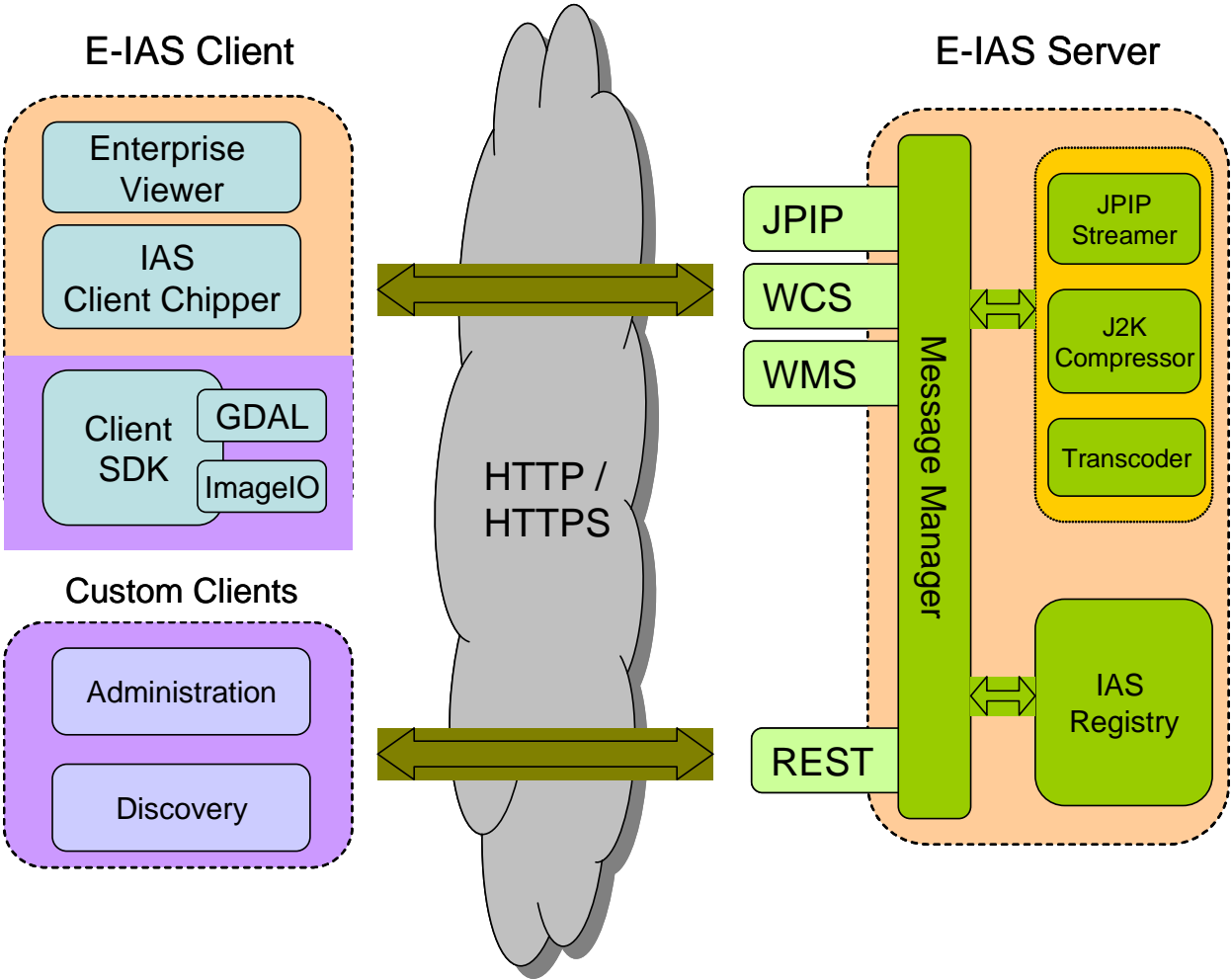
Enterprise IAS Components

Bringing rapid image delivery services to the enterprise

- JPIP Streaming services
- Image compression services
- NITF J2K services
- Custom services
- Access from Java Viewer, ENVI and other clients



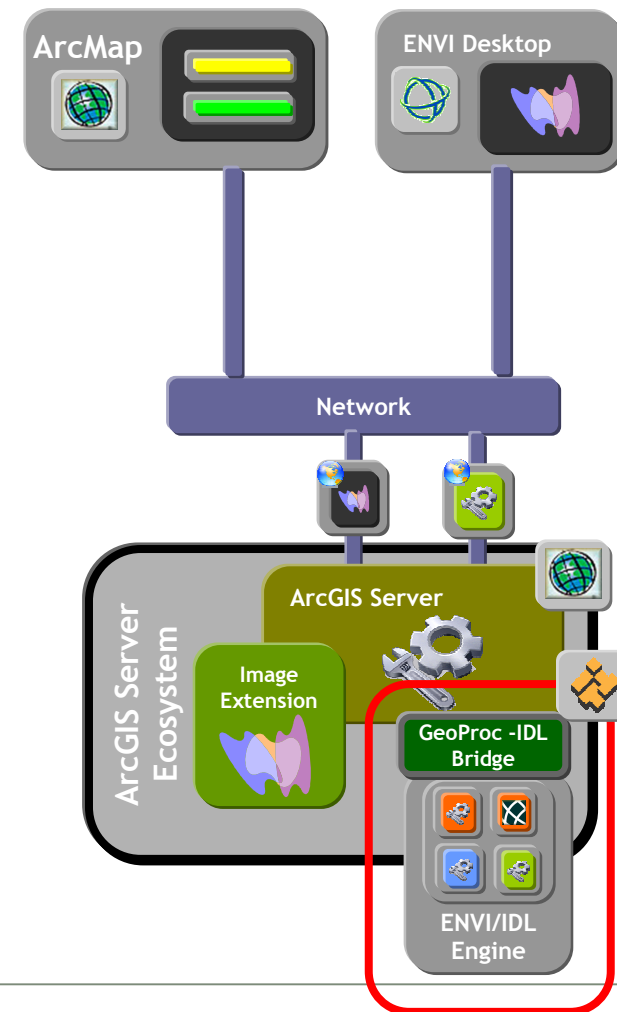
Enterprise IAS System



ArcGIS & ENVI Integration

Leveraging ENVI Functionality within ArcGIS Server

- Proven ENVI processing and algorithms are deployed in server via the GeoProcessing (GP) tools of ArcGIS
 - A processing bridge/adaptor is delivered to support this integration
 - Enables rapid integration of ENVI functionality
 - Allows user published functionality in the future.
- ArcGIS Server provides service publishing, management and execution



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ITT Projects using OGC Services

Case Examples

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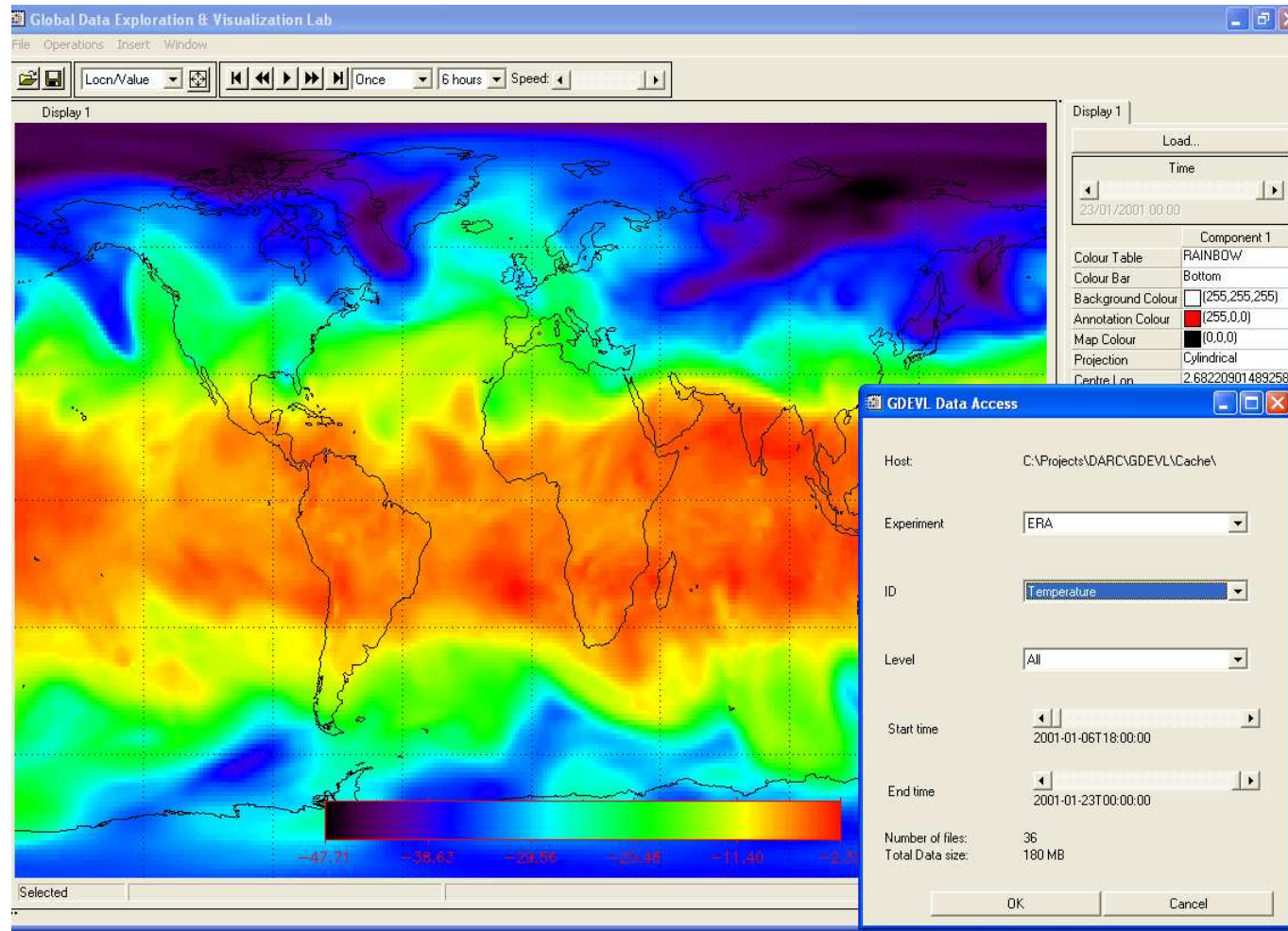
Case Example 1: DARC GDEVL

- DARC: Data Assimilation Research Centre at Reading University
- GDEVL: Global Data Exploitation & Visualization Laboratory
- NERC funded collaboration between DARC and ITT VIS UK (formerly RSI UK)
- Dissemination and display of multi-dimensional, multi-variate temporal data from atmospheric data models
- Allow addition of custom algorithms by researchers
- Permit display of other data for extended usage/life-cycle

Case Example 1: DARC GDEVL

- Server-side
 - 35TB RAID Storage Facility
 - Apache Web Server
 - OGC Web Coverage Service (MapServer)
- Client-side
 - IDL Client Animation Tool (multi-platform)
 - OGC Query/Download
 - Local data caching

Case Example 1: DARC GDEVL

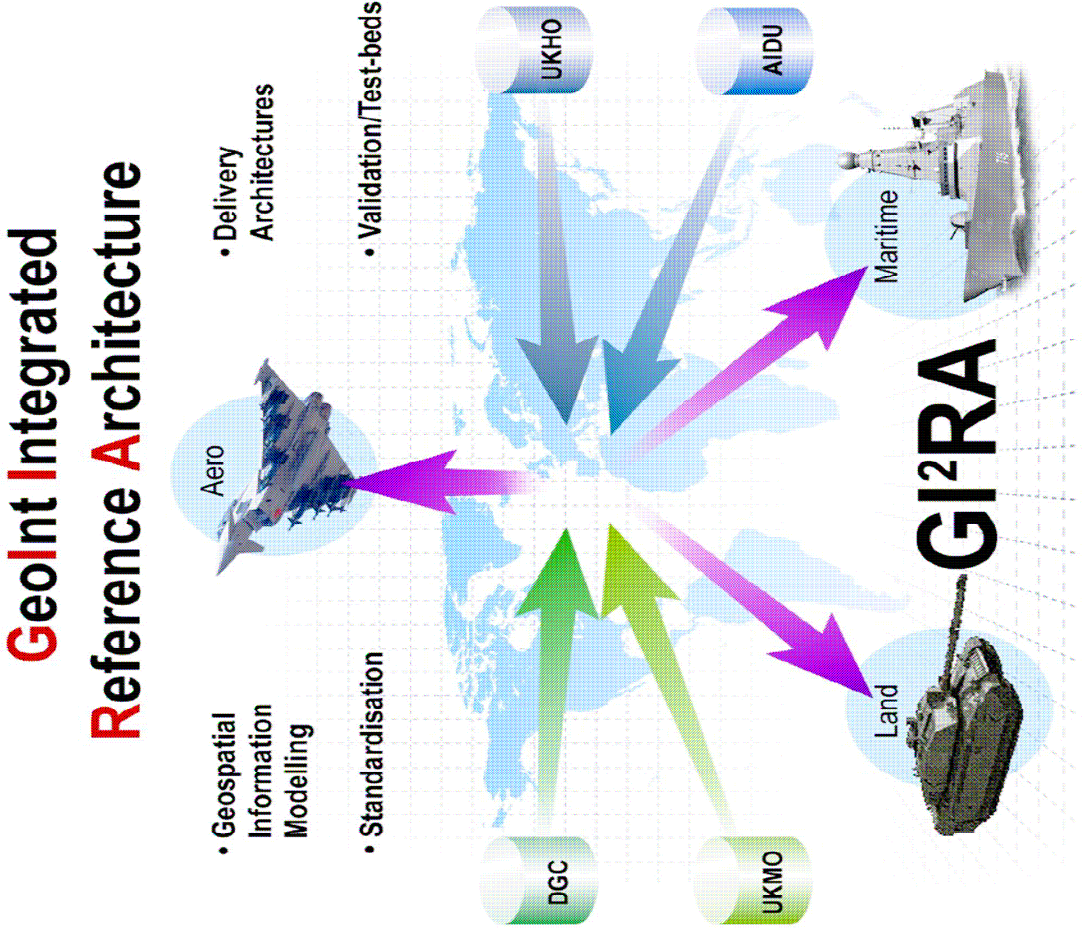


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Case Example 2: GI²RA



Case Example 2: GI²RA

Delivery of Geospatial Data Server (GDS) including:

- Web management/query interface (Omar / ebXML)
- JPEG2000 compression & JPIP streaming
- WCS, WMS & WFS services (Geoserver)
- Batch upload, download & replication
- Drop/Watch folder compression
- FTP upload including auto-ingestion/conversion
- Feature extraction service (ENVI / IDL & Geoserver WPS)
 - Output automatically published via WCS/WMS/WFS



ITT Product Web Services Developments

Future Developments

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ENVI For The Enterprise

Image Preparation and Analysis Services – ENVI ES

- Delivering ENVI Geo-processing Services
 - Standard image processing and analysis capabilities will be available as services to the enterprise
 - Additional services can be added as needed
 - Custom services available
 - Access ArcGIS Server from ENVI
- Bringing ENVI Orthorectification Services to ArcGIS Server
 - Access rigorous orthorectification as a service
- We are releasing our first round of ENVI Enterprise Services or ENVI ES in the Q3 of 2010.



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Enterprise Imagery Solutions Strategy

Key Components of ENVI ES:



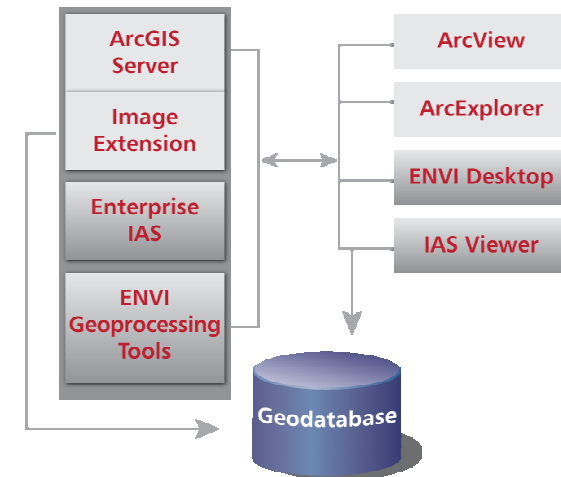
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A Complete Imagery Server Solution

ESRI + ENVI ES Solution

- **Complete Image Delivery Solution**
 - Compression
 - JPIP Streaming
 - Scales easily for image delivery across large enterprises or geographically distributed organizations
- **Complete Imagery Prep & Analysis Solution**
 - ENVI provides image processing & analysis to ArcGIS
 - IAS Viewer provides image viewing
- **Benefits**
 - Proven server technology
 - Robust imagery support
 - Best in Breed image processing & analysis
 - Proven, scalable image processing



**Providing proven solutions
for both server and
federated systems.**

- Questions?
- Demonstration

<http://iasdemo.ittvis.com>

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