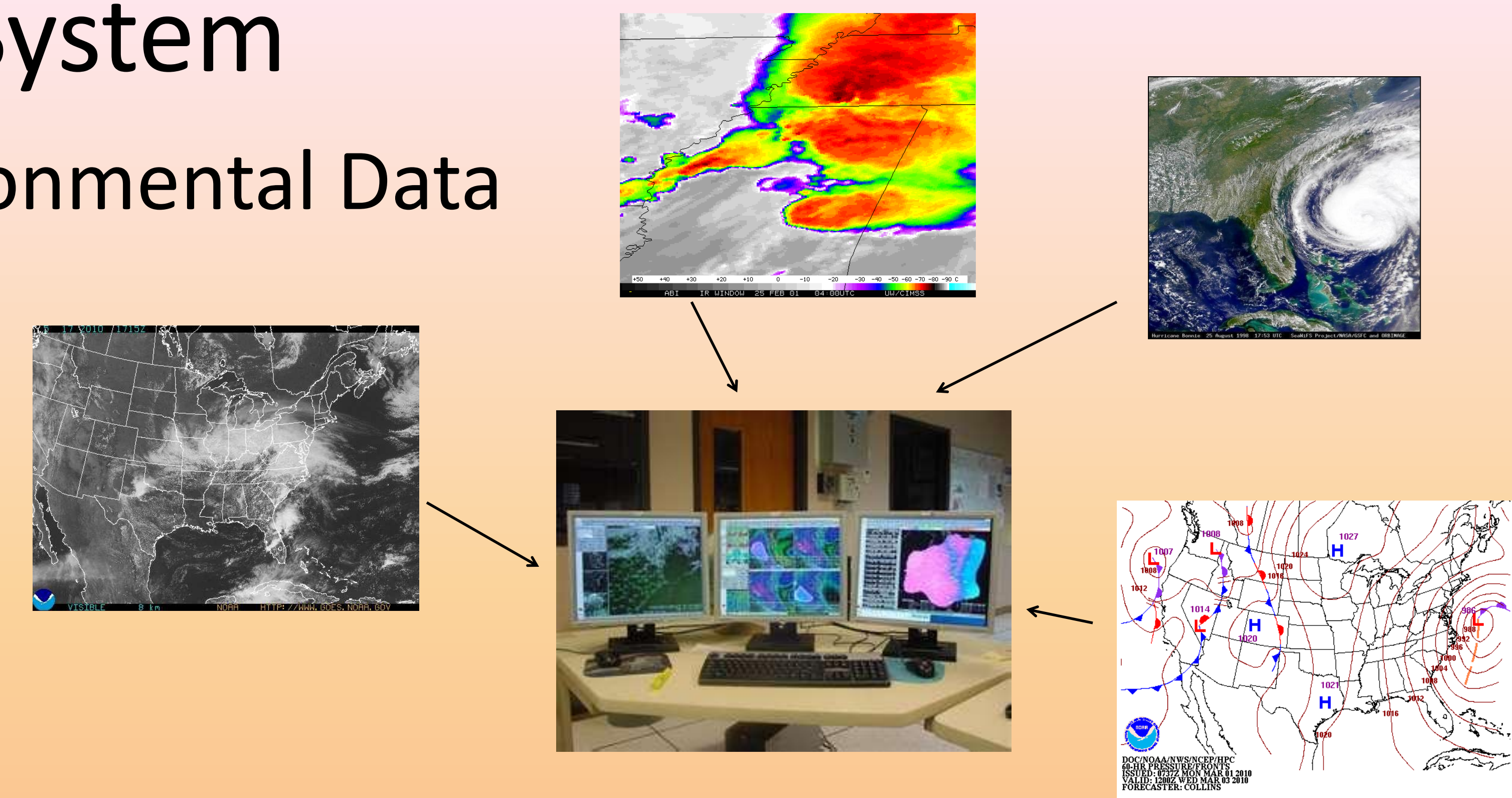


The JAGWIRE™ Environmental Data System

A New Compression and Dissemination Tool for Environmental Data



Abstract

The amount of weather data is expected to increase exponentially over the next 5-10 years with the employment of new satellite sensors such as the Advanced Baseline Imager (ABI), new software technologies, improved Doppler radar systems, higher resolution weather forecast models, and the integration of phased array radars. The increase of data threatens to overwhelm current data architectures. The proliferation of data also increases the chance a forecaster may overlook a key piece of information or even fail to make a timely decision while waiting for vital details.

ITT Exelis' JAGWIRE™ Environmental Data System (JAGWIRE-EDS) is a COTS-based data management and dissemination software solution. It provides rapid access and visualization of raw image data, image products and other environmental data such as netCDF and GRIB to users in seconds. JAGWIRE-EDS users can scan for and identify data using a rapid image delivery system that is compliant with both commercial and government standards. The system enables format conversion and the specialized processing of unique or complex datasets. It collects data in a centralized data catalog, allowing efficient dissemination in a network with multiple users. Compression schemes are user-selectable, giving the customer control of the stream rate/resolution trade off. JAGWIRE-EDS allows the client to view only the data required for the display and zoom extent, without wasting memory/bandwidth downloading the entire dataset. The system is interoperable, configurable and modular, so it can be used as the backbone for any SOA solution or on the periphery at data source locations to streamline receipt of data. The reuse of existing infrastructure saves money in development and expansion.

Randall Bass ITT Exelis/Geospatial Systems

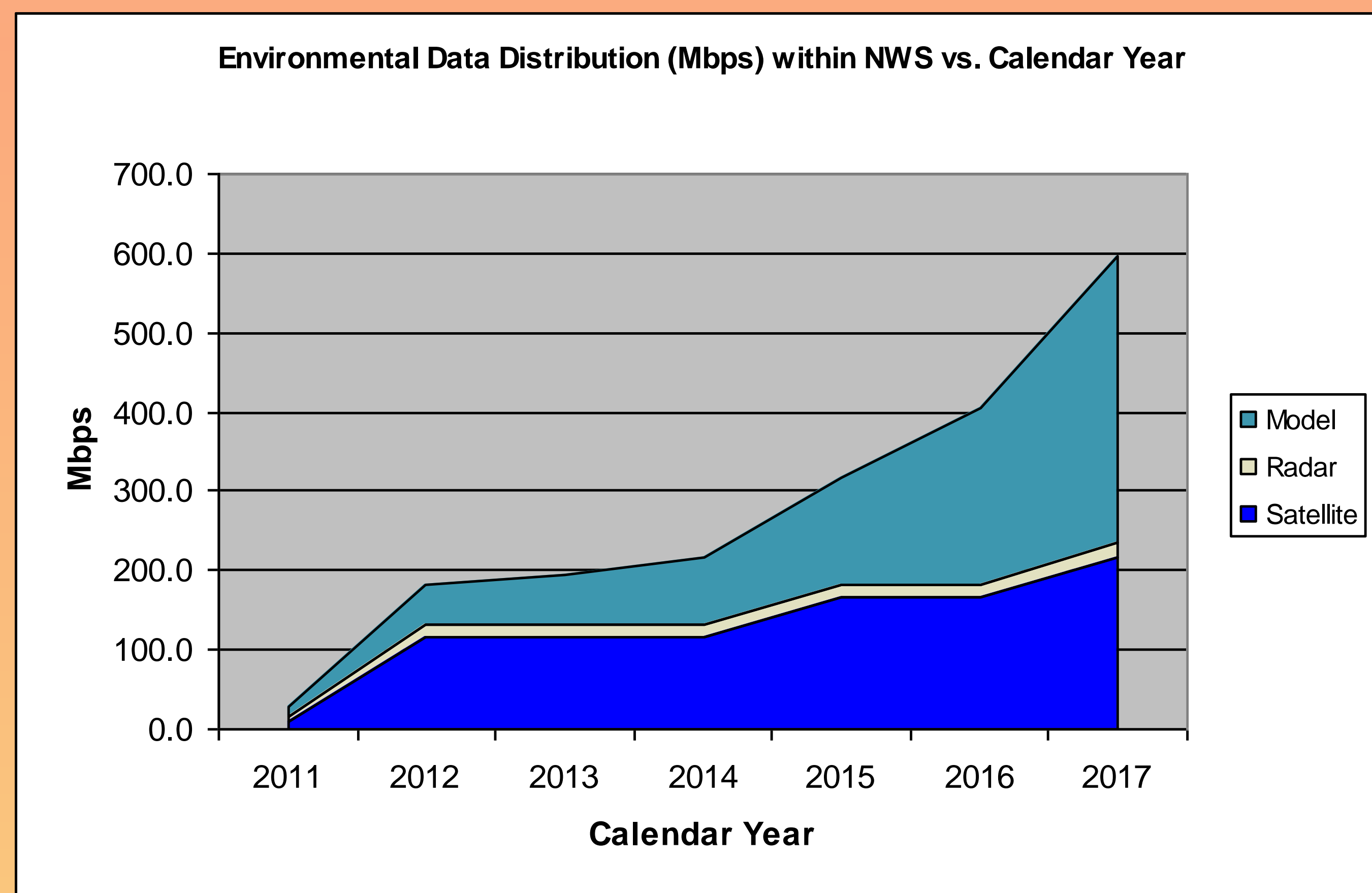
The JAGWIRE™ Environmental Data System (JAGWIRE-EDS) is a Data Management and Dissemination System

- Enterprise-ready
- Dramatically reduces delivery time for crucial data
- Capable of using a variety of communication architectures
- Efficiently manages metadata associated with the imagery and data
- JAGWIRE-EDS predecessors have been fielded and operational in other data domains as an imagery management system since 2005

The JAGWIRE-EDS Value Proposition

- Data ingestion & dissemination
- COTS-based compression for imagery, netCDF, GRIB2, Joint METOC Broker Language (JMBL) and other data file formats
 - Chip portions of imagery and distribute; instead of the entire image -- greatly reduces image size
 - Can be used as the backbone for any SOA solution or on the periphery at data source locations to streamline receipt of data

The system can be employed in a standalone function (such as at a data source) or as a network at each major node or data receipt location



Courtesy of John Sokich, NOAA/NWS, Telecommunication Operations Center

Employs A Pull Approach

The Pull Approach:

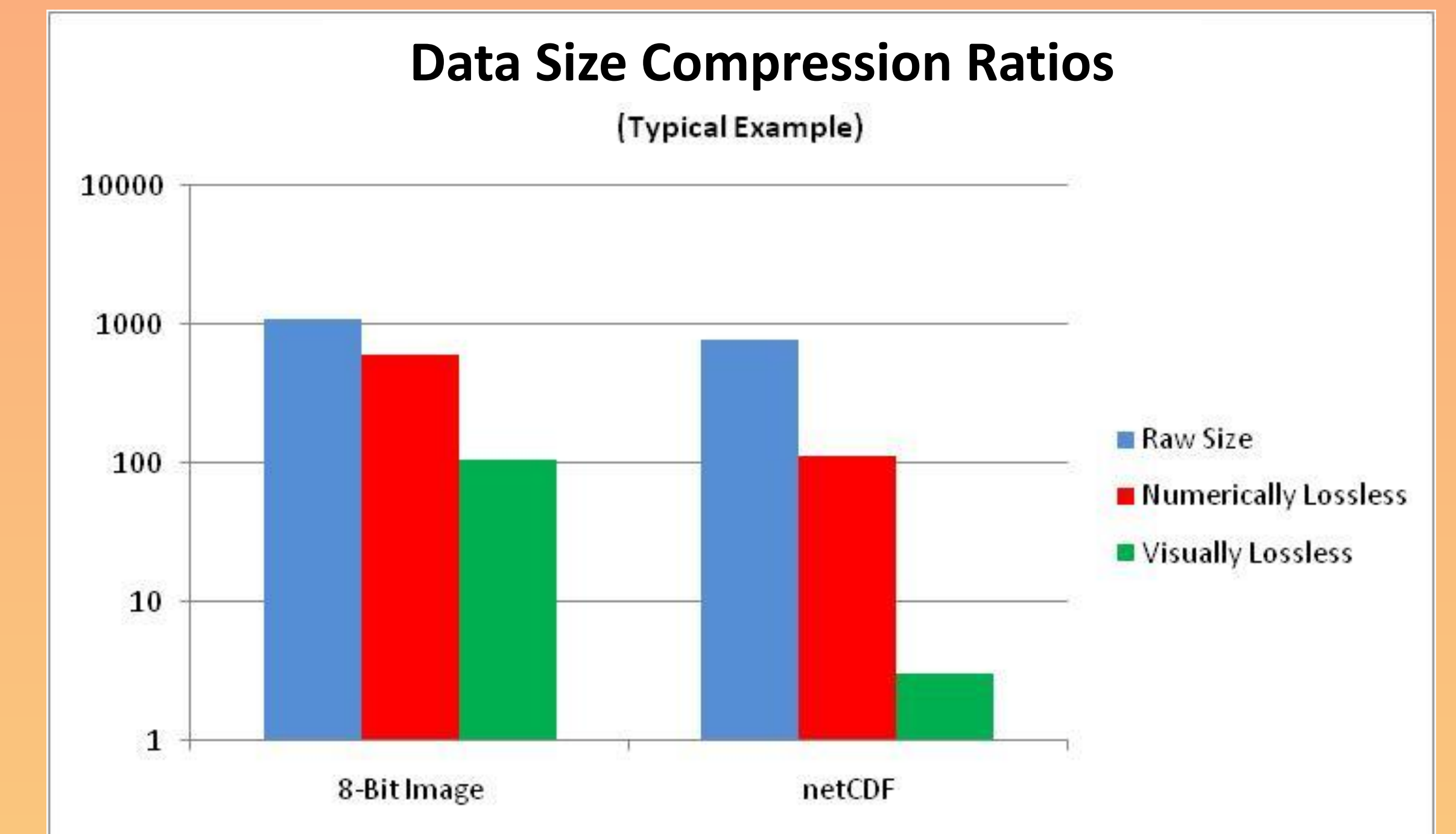
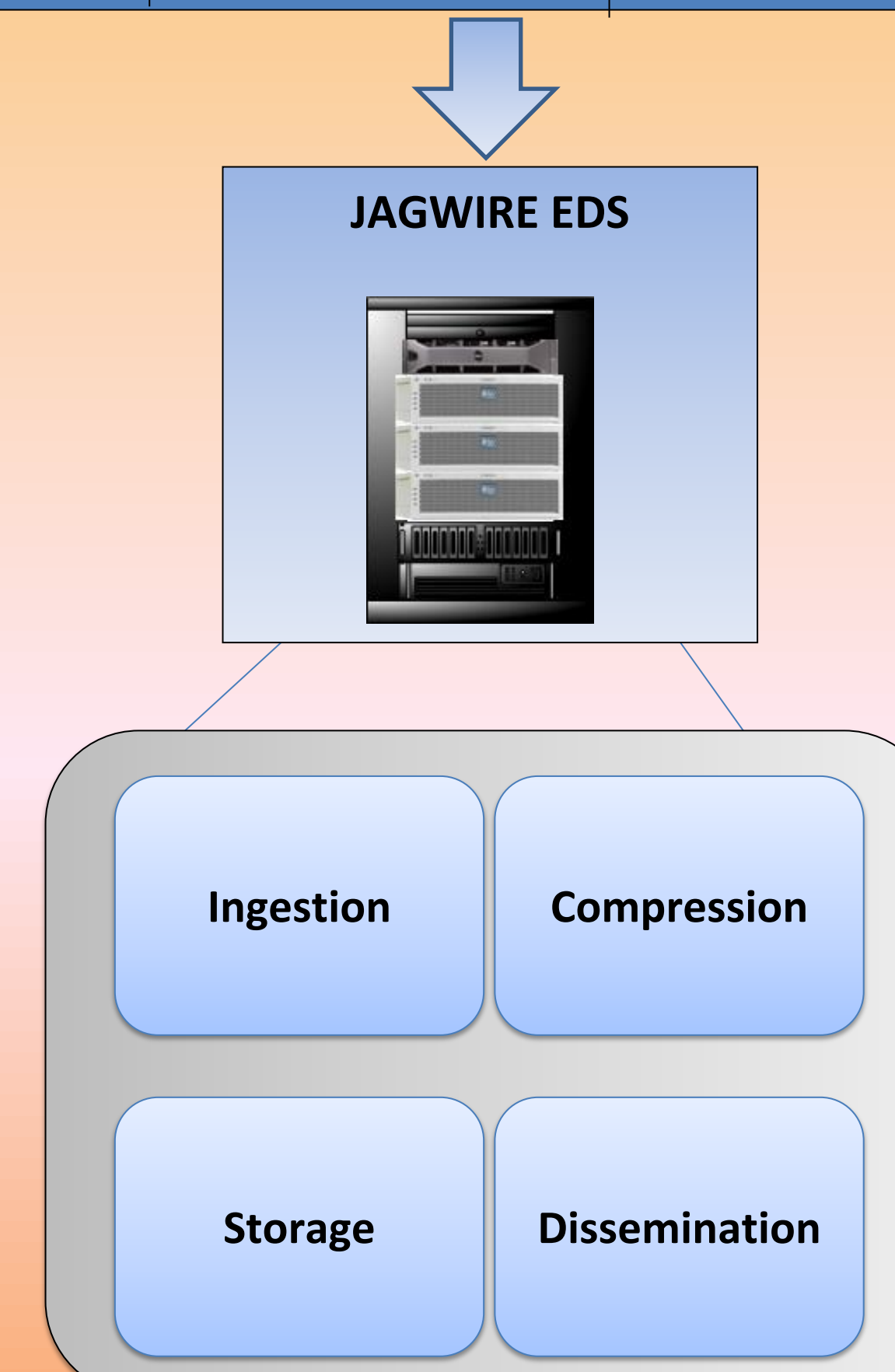
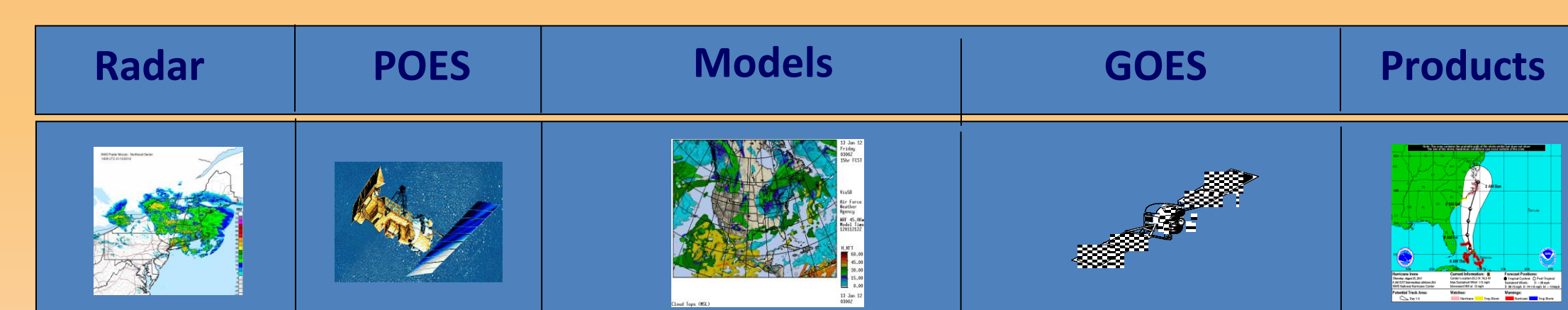
- Compress and store data on the Server side
- Transmit only the data the user requests
- Allow access to all of the information in every file

The benefit:

- Less storage space
- Smaller communication link demands
- Less expensive than using massive server farms
- Allow delivery of time-dominant information
- Allow support of a large and disperse user base

JAGWIRE-EDS can serve large products or large amounts of smaller products over existing communication links – all the way down to handheld devices such as cell phones and radios

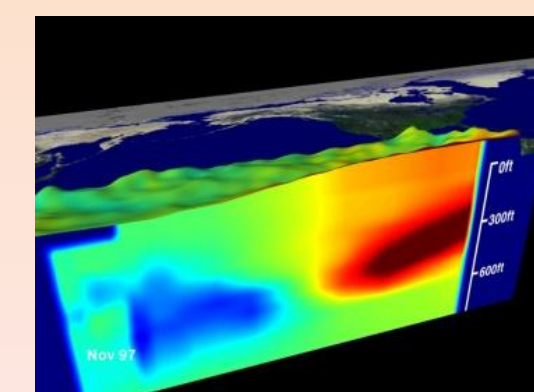
Multiple Data and Imagery Sources



Why the JAGWIRE-EDS Solution Works

- Leaves the data where it was collected
- Creates a federated catalog to all the data – regardless of storage location
- Implements a Pull Architecture
- Stream directly from the storage location to the user/requester
- Enabling users to have:

• Access to actionable intelligence and data



• When you need it



• Where you need it



Benefits

End User:

- Instant access to new data, regardless of bandwidth
- Provides full-resolution image quality
- Provides access to a wide range of data in different formats

IT Manager:

- COTS solution enables rapid deployment
- Services more users within existing infrastructure
- Integrated into SOA solution
- Manageable size, weight and power

Summary

- JAGWIRE-EDS can manage, compress and distribute imagery and environmental data in various formats, including the associated metadata
- Chip imagery to deliver only portions the user is interested in
- Secure streaming
- Interoperable
 - ISO conformance tests
 - OGC interoperability
- Extensible
 - Integrates with existing catalogs
- Horizontal scalability
 - As load increases, just add another node with minimal configuration