

The Carbon Project

Innovative Geosocial Solutions

Using AIXM/WXXM in NextGen
Aviation Solutions

Contact:

Nuke Goldstein | ngoldstein@thecarbonproject.com | www.TheCarbonProject.com

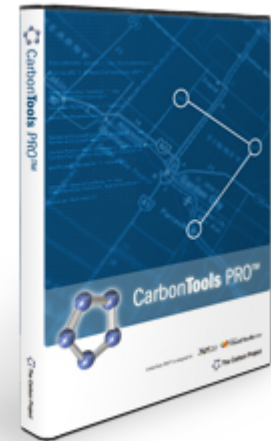
The Carbon Project

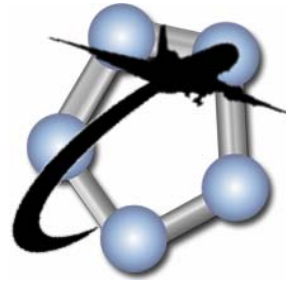
- Innovative software and technology company, specialized in mapping & geosocial networking®
- Solutions for developers, government agencies & businesses focused on geospatial data and mapping
- Products include CarbonTools PRO (developers API), Gaia (free geospatial client), CarbonArc PRO (OGC enhancements to ArcGIS), Echo myPlace (geosocial networking) and more.
- OGC Member. ESRI, Microsoft and CubeWerx Partner.

CarbonTools PRO

Geospatial SDK for .NET developers

- ✓ **Advanced API for Geospatial Interoperability**
- ✓ **Supports GML, KML/KMZ, Shapefiles more...**
- ✓ **Supports OGC Services: WMS, WMTS, WFS, more...**
- ✓ **Robust tools for mapping and symbology**
- ✓ **Source-Handler-Data[®] architecture (patent pending)**

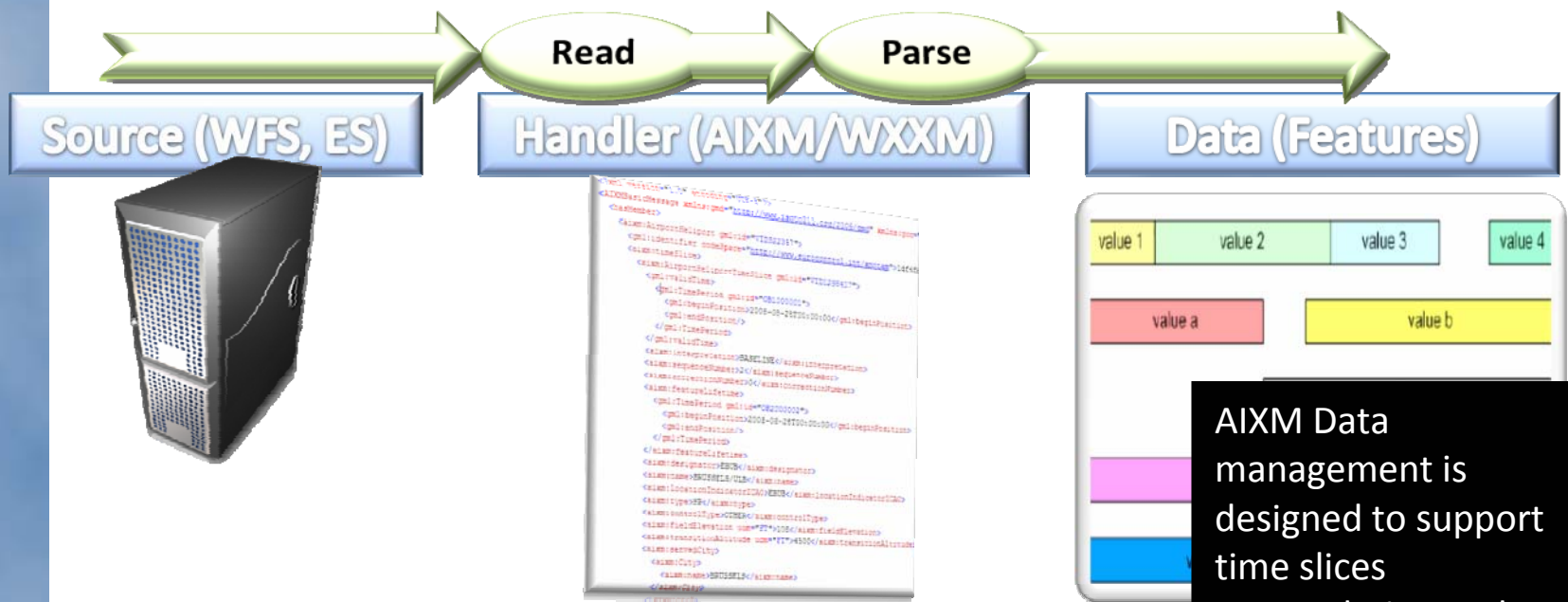




OWS-6

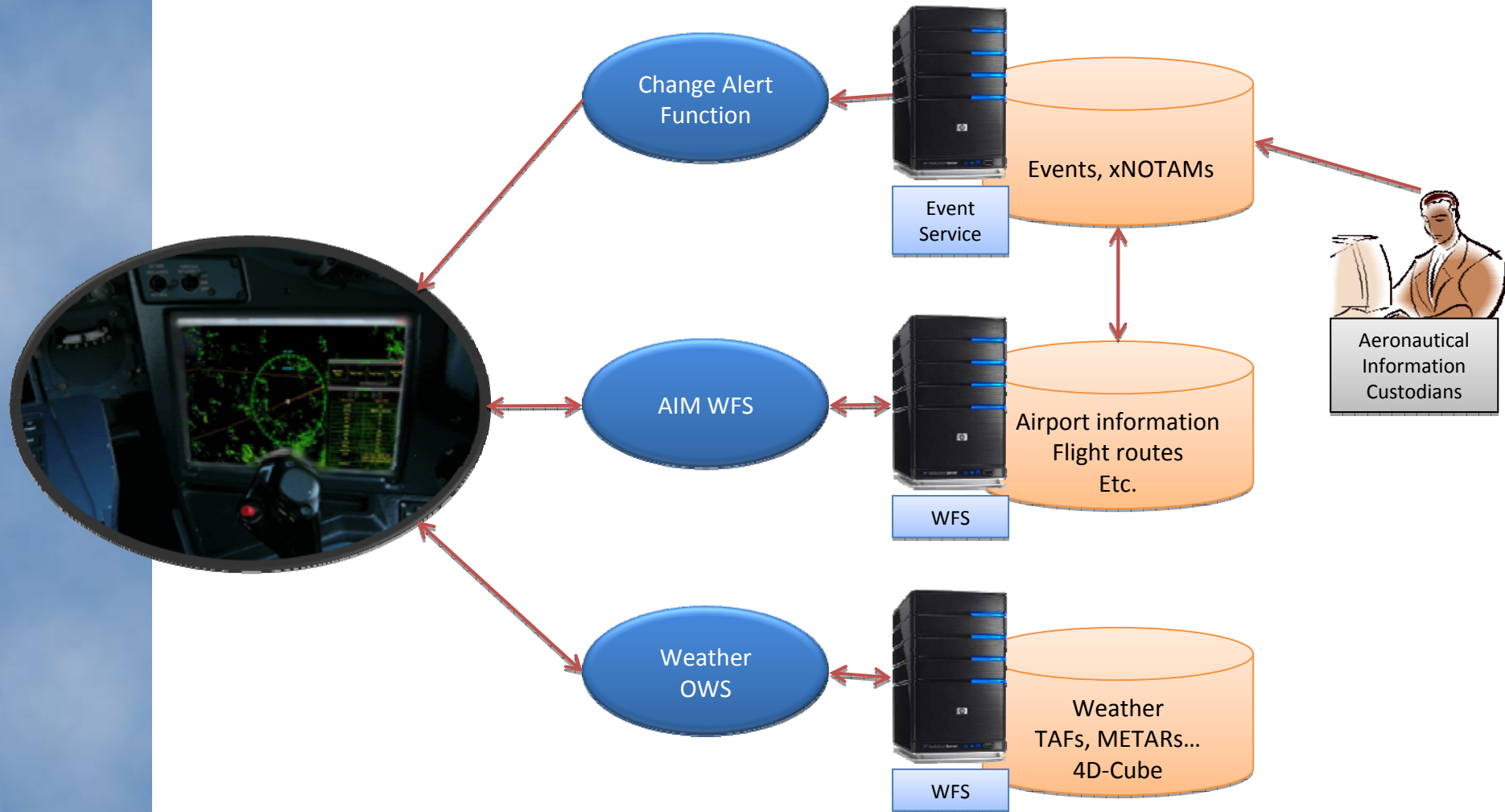
Extending CarbonTools PRO to support
spatiotemporal sources AIXM & WXXM

Source-Handler-Data to support AIXM



AIXM Data management is designed to support time slices accumulation and allows resolution of a snapshot based on the stored deltas.

NextGen/SDI Architecture



Sample Applications

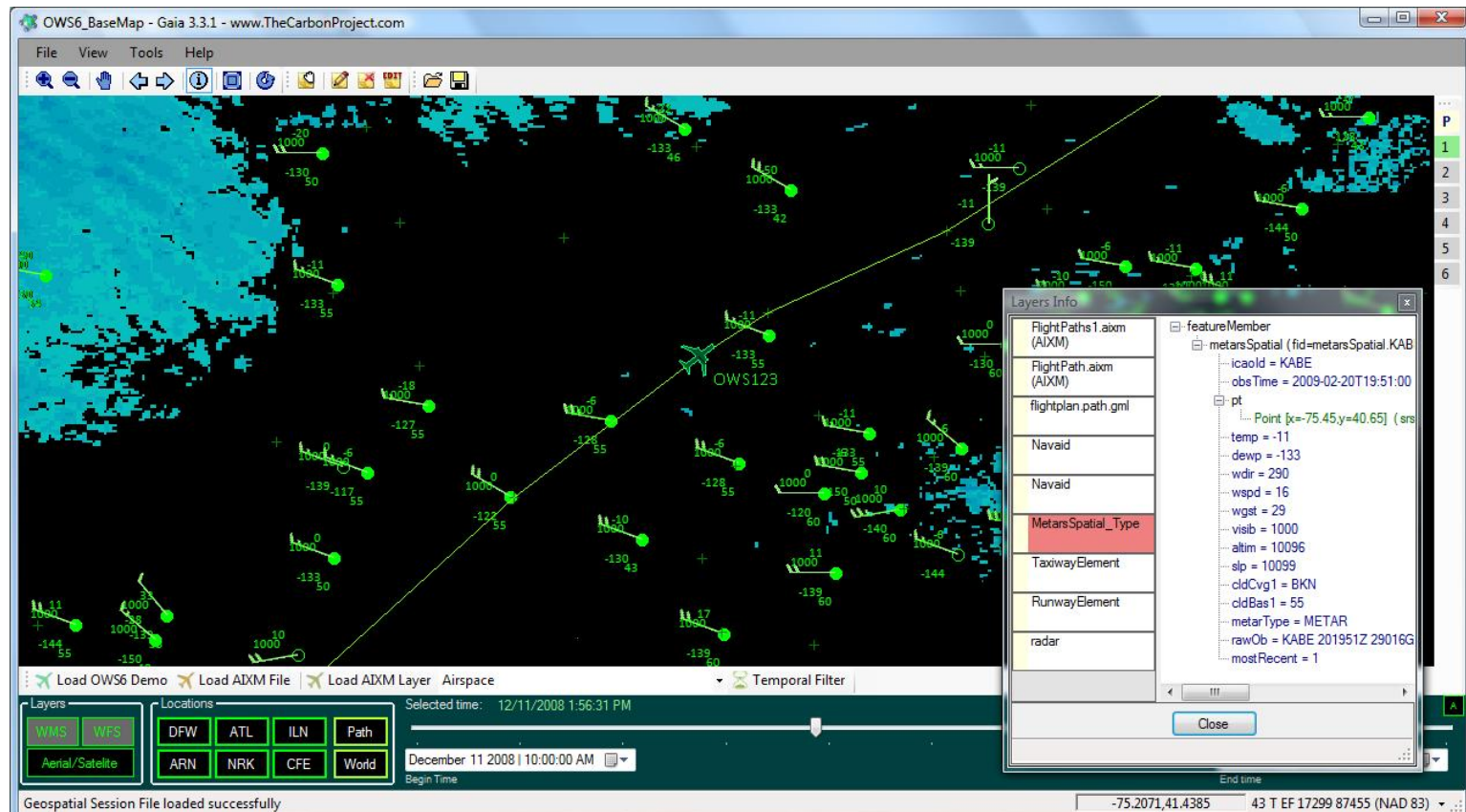
Gaia OWS-6-AIM Extender

The screenshot displays the Gaia OWS-6-AIM Extender software interface. The main window shows a map of Oklahoma and Arkansas with a flight path labeled 'OWS123' highlighted in green. The 'Layers Info' panel on the right shows the selected layer 'FlightPaths1.aim (AIXM)' and its features, including 'testFlight (id=TCP0001)', 'timeSlice', 'AirportHeliportTimeSlice (id=VID1298417)', and 'ARP'. The bottom toolbar includes buttons for 'Track Me', 'Load OWS6 Demo', 'Load AIXM File', and 'Load AIXM Layer'. The status bar at the bottom indicates the session file loaded successfully and provides coordinates and time information.

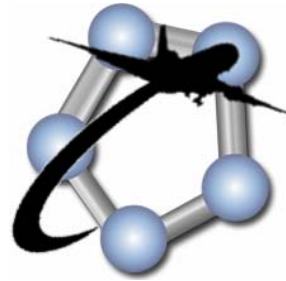
Advanced tools for AIXM and Filter Encoding 2.0 spatiotemporal standards

Sample Applications

Gaia OWS-6-AIM Extender

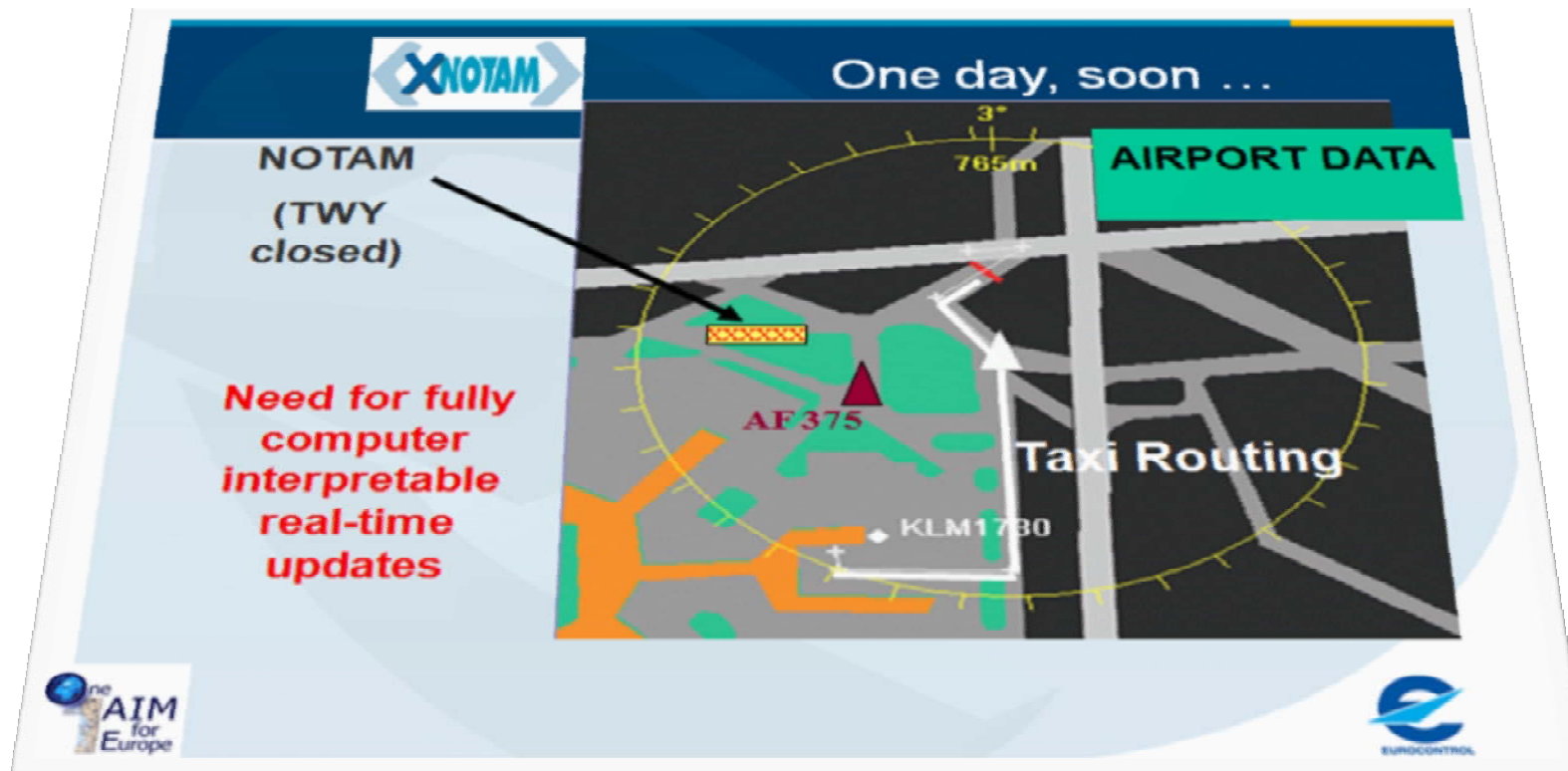


Weather using real-time radar via WMS, TAFs WXXM & NOTAMs GML from NOAA



NextGen Aviation

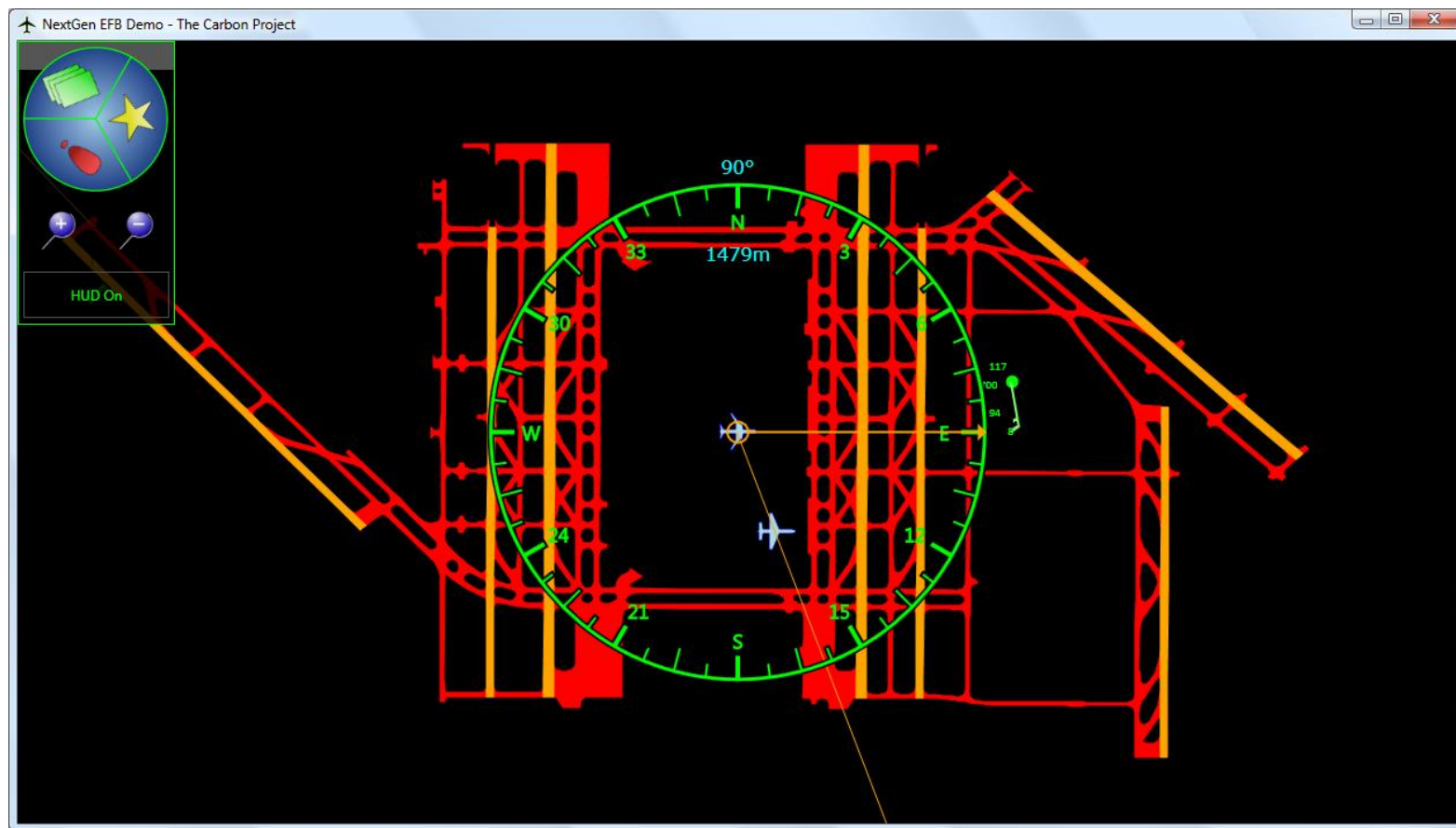
Leveraging the New Data & Infrastructure
How would the NextGen EFB Utilize It?



We found this 'one day soon' slide in a 2005 EUROCONTROL AIM briefing and felt we have the ability to match and surpass some aspects of the outlined vision.

AIM Sample Applications

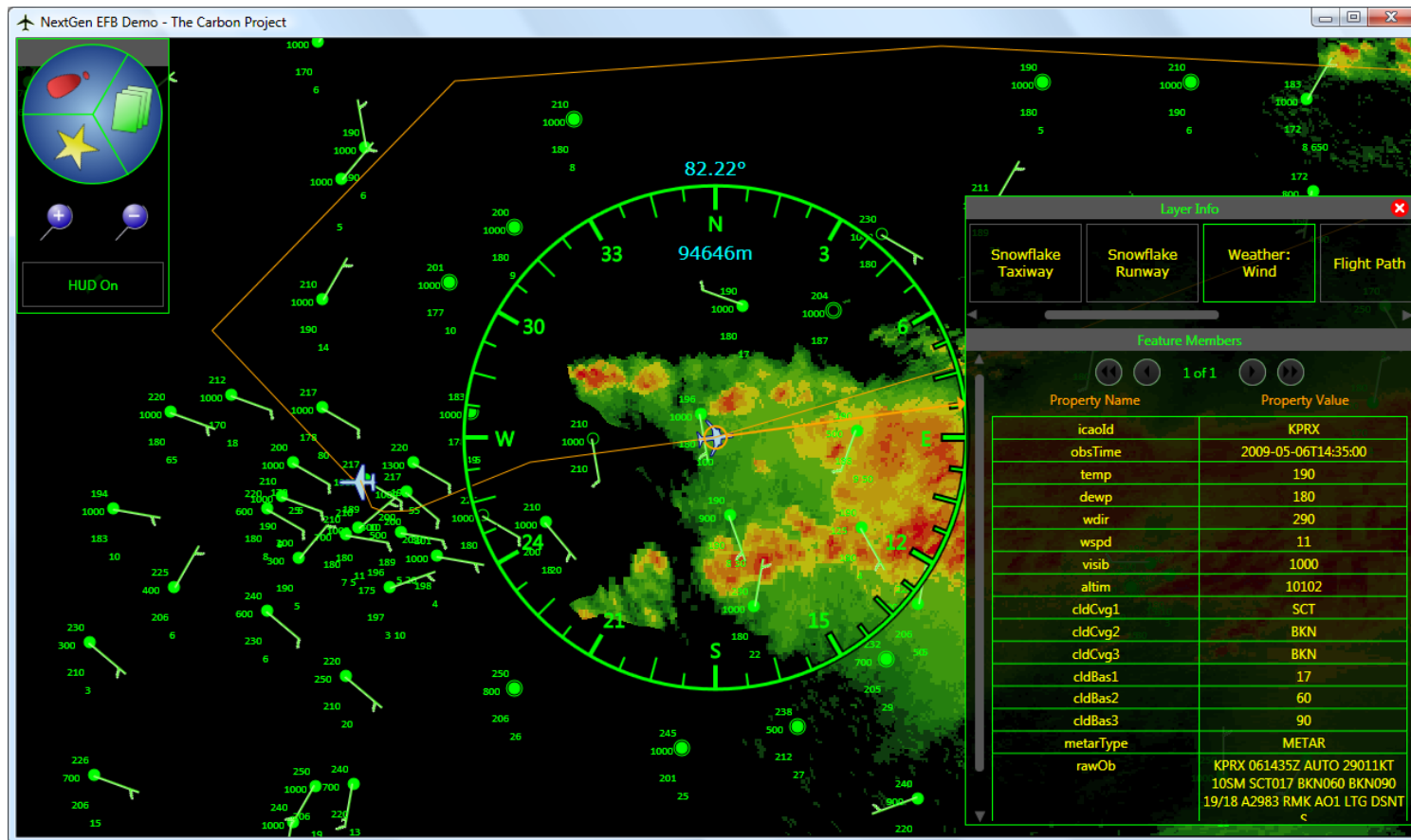
Electronic Flight Bag Prototype



Airport runways and taxiways from a WFS using temporal AIXM

AIM Sample Applications

Electronic Flight Bag Prototype



Real-time TAFs and METARs from NOAA WFS with Radar data from CustomWeather



OGC Web Services Initiative, Phase 6 (OWS-6)

Aviation Information Management (AIM)

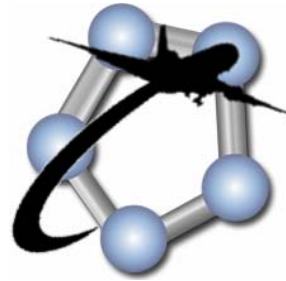
Utilizing the NextGen Infrastructure

What data does the EFB need and when?

What tools can the EFB provide?

What is the pilot's user-experience?

- Reducing dependency in paper and voice with **reliable** digital technologies
- Hiding the data **clutter** for the pilot, ATC or other users
- **Intuitive** user experience using modern interface technologies (e.g. touch screen, voice recognition etc.)
- Clear and **unambiguous** switch between various operating modes
- **Automatic** tools that make recommendations and alert for hazard
- Interacting with the **legacy** system without creating new dangers



OWS-6 Summary

Accomplishments by The Carbon Project
During the OWS-6 effort

Demonstrated NextGen Tech

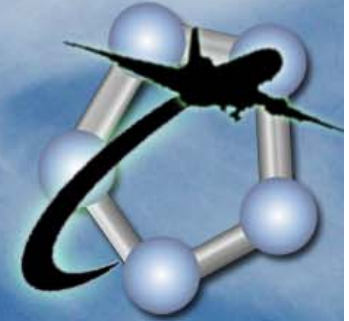
- Ability to handle any type and source of geospatial content using our patented Source-Handler-Data® architecture and tools
- Ability to separate visualization from content – important when enhancing existing tech, or using data for behind-the-scenes analysis
- Available tools for data standards such as AIXM, xNOTAM and WXXM
- Seamless online/offline use – important for cockpit based technologies
- Dynamic geospatial symbology that allows any type of digital charting
- NOAA weather-station symbology
- Robust flexible layered mapping capability
- Cutting-edge Windows/.NET technologies for UI and communications

Software Developed

- **CarbonTools PRO (software development toolkit) –**
 - Data extension to support GML 3.2, AIXM & WXXM data and services
 - Enhanced support to Filter Encoding 2.0 temporal filters
 - Added support to .NET 3.5/WPF based user interface

- **Gaia (geospatial viewer) –**
 - Extender panel and tools to support the OWS-6 demo
 - Extended to support the spatiotemporal data handling and display
 - Weather-station visualization

- **Demo NextGen EFB –**
 - Developed as an EFB prototype not GIS targeting touch-screen devices
 - Support spatiotemporal data and services (AIXM, xNOTAMs)
 - Support Event Service notifications using an embedded peer listener
 - Weather-station visualization



The Carbon Project

Innovative Geosocial Solutions

NextGen Aviation Solutions

www.TheCarbonProject.com

www.YouTube.com/TheCarbonProject

Contact:

Nuke Goldstein | ngoldstein@thecarbonproject.com | www.TheCarbonProject.com