

Luciad implementation of AIXM 5.1 and Digital NOTAM integrated into Lockheed Martin's FltWinds

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Overview

- **Luciad Introduction**
- **Luciad AIXM & WXXM in use**
- **Lockheed Martin FltWinds 2**
- **Demonstration**
- **Questions**

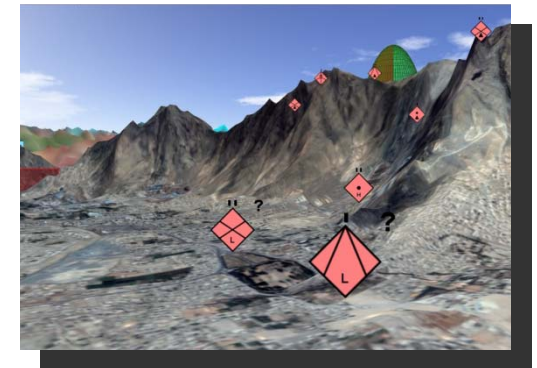
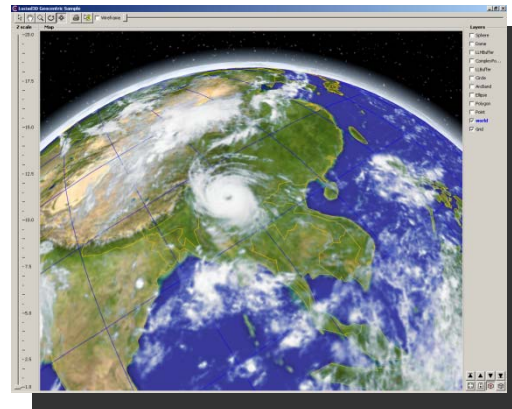
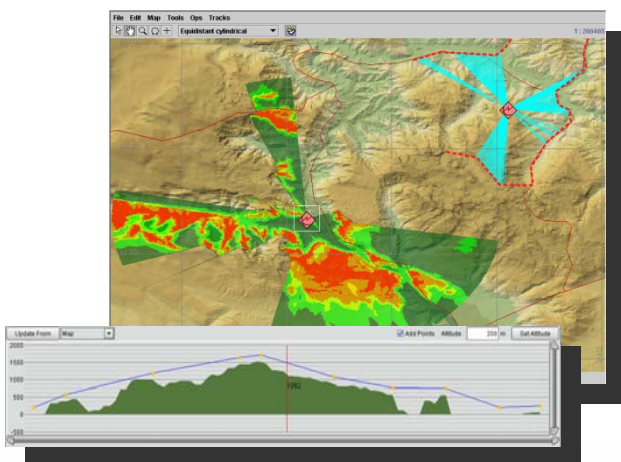
01

Luciad Introduction

- Who is Luciad?
- Who are Luciad customers?
- What does Luciad offer?

Who is Luciad?

Specialized in high-performance visualization for situational awareness applications in Aviation, Defense, and, Security



Who are our customers?



LUCIAD|MAP

Base software platform for situational awareness application development

- High performance visualization
 - Open, object-oriented architecture
 - Flexible modular structure
-
- **Specialized functionality for rapid application development**
 - Real-time, Terrain analysis, Symbology, 3D, Graphs & Path planning
 - **Interoperable**
 - 30+ aviation & defense formats supported
 - Web enabled
 - Standards Compliant, comprehensive database support
 - **Lucy**
 - High-level application component - all LuciadMap functionality in one integrated, configurable application



02

Luciad AIXM & WXXM in use



Products

Projects

Luciad AIXM & WXXM support

Goal

- **Allow easy development of applications using the full power of AIXM and WXXM**
- **Take away complexity – Leave in flexibility**
 - 3000+ Schema elements
 - XPath / XLink resolution
 - Extensions
 - Temporality
 - High performance visualization

LuciadMap 10.0 – AIXM & WXXM support

- **Full AIXM 5.0 & 5.1 support**
 - Including ISO 19115 Metadata
- **Prototype of WXXM 1.1.1**
- **Decoding, editing, encoding**
- **Fully integrated in LuciadMap toolkit**
 - Easy to program applications on top of API
 - Integrates with 2D, 3D, OGC Web services, ...
- **Visualization according to ICAO symbology**
- **Full temporality support (Digital NOTAM)**
- **Support for AIXM & WXXM extensions (SUA)**

Projects using Luciad AIXM & WXXM

- **FAA Special Use Airspaces**

- Airspace editing in AIXM 5

- **FAA Airport GIS**



- **Eurocontrol Skyview 2**

- Will integrate AIXM 5 data



- **OGC OWS-7**

- Electronic Flight Bag client based on LuciadMap
- Use of AIXM & WXXM in an OGC web services environment



03

Lockheed Martin FltWinds 2

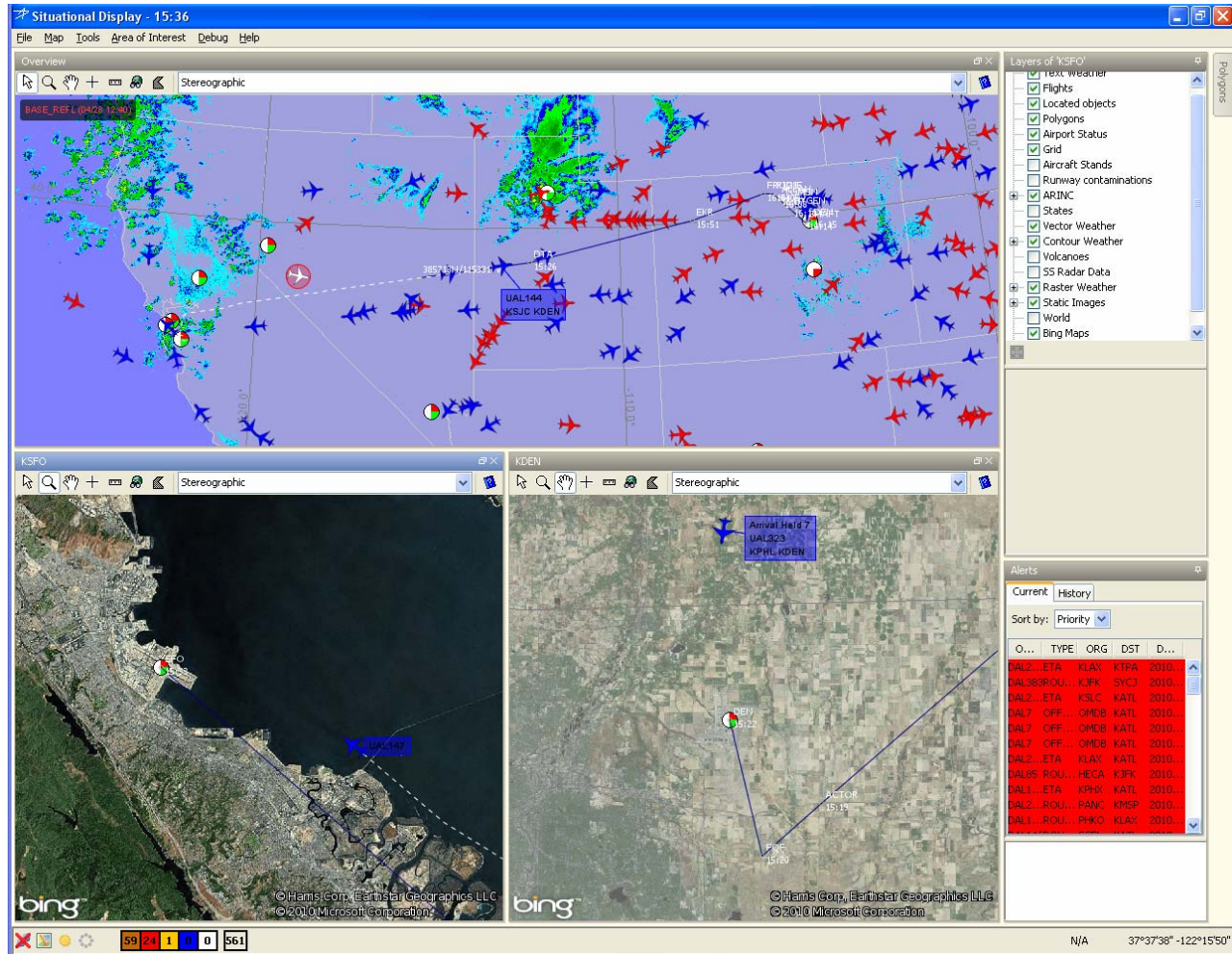
Overview

Architecture

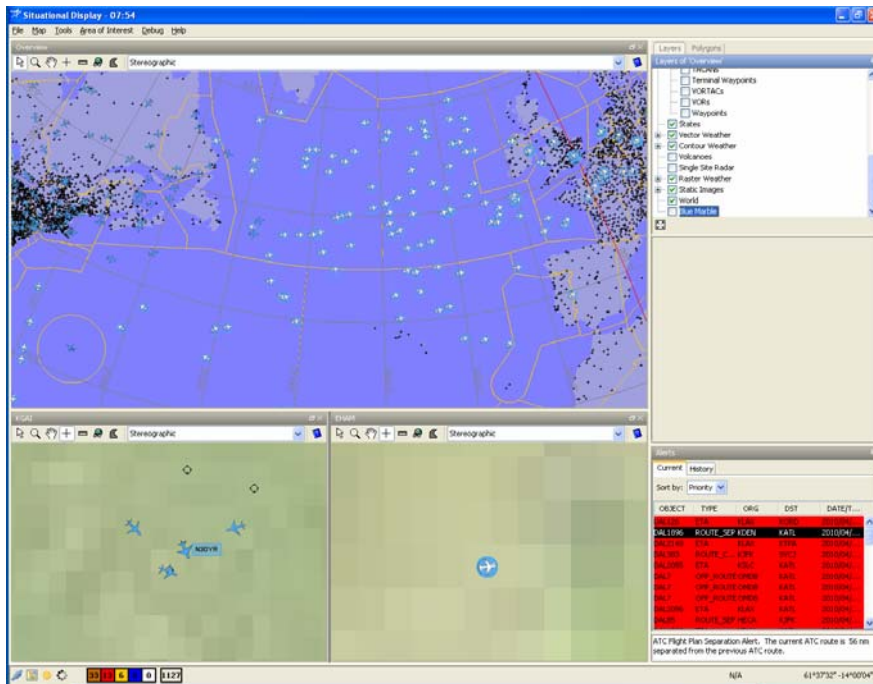
Digital SNOWTAM Trial integration



Lockheed Martin FltWinds



FltWinds Situational Display



- Multi-map
- Integrates many data sources
 - Flight data (ASDI)
 - Weather Products
 - Nav database

FltWinds Flight List

The screenshot displays the FltWinds Flight List application. The main window is titled "Flight List - 07:55". It features a "Flight List" tab and a "Flight Details" tab for flight DAL33.

Flight List (Global):

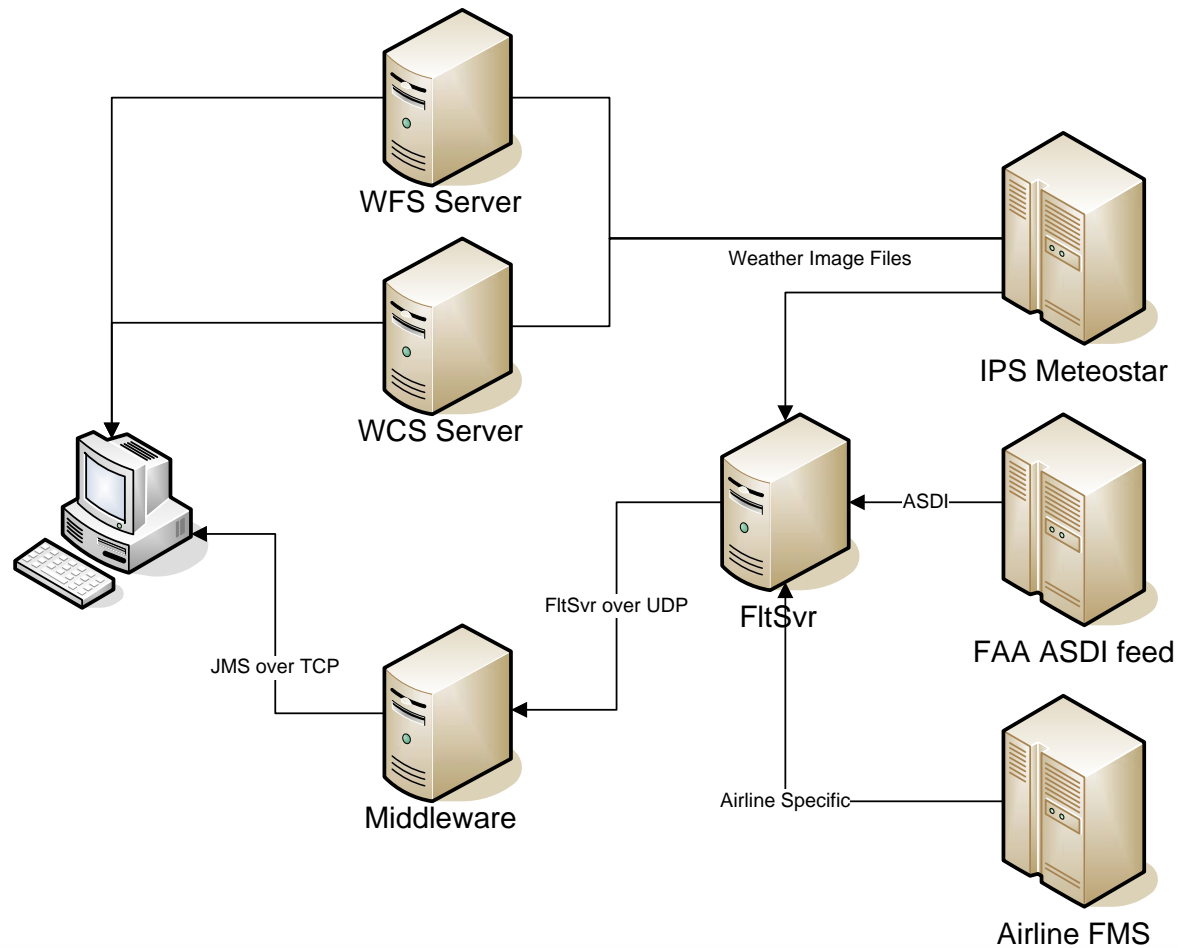
- Sort by: ETA
- Enroute Flights [147]
- Flights listed include: DAL712-28 (KLAX-KJFK), DAL649-28 (PQUM-KJMA), UAL158-28 (KJFK-KORD), HB772Q (KJFK-KJFK), UAL932-28 (KJFK-EDEP), B772Q (KJFK-KJFK), DAL33-27 (OMM-KJFK), B733Q (KLAX-DHAP), KL862-27 (KLAX-SYD), DAL383-28 (KJFK-SYD), DAL724-28 (KLAX-KJFK), HB763Q (KLAX-KJFK), DAL894-28 (KLAX-KJFK), A339Q (KATL-KATL), DAL146-28 (SCEL-KATL), HB763Q (KATL-KATL), HB763Q (KLAX-KORD), HB763Q (KATL-KATL), HB763Q (KATL-KATL), DAL30-28 (KJFK-KORD), A339Q (KATL-KATL), DAL11-20 (EGAX-KATL), DAL15-20 (EDEP-KATL), DAL25-28 (EKOL-KATL), DAL54-28 (KATL-DAL), DAL79-28 (EDEP-KJFK).

Flight Details (DAL33):

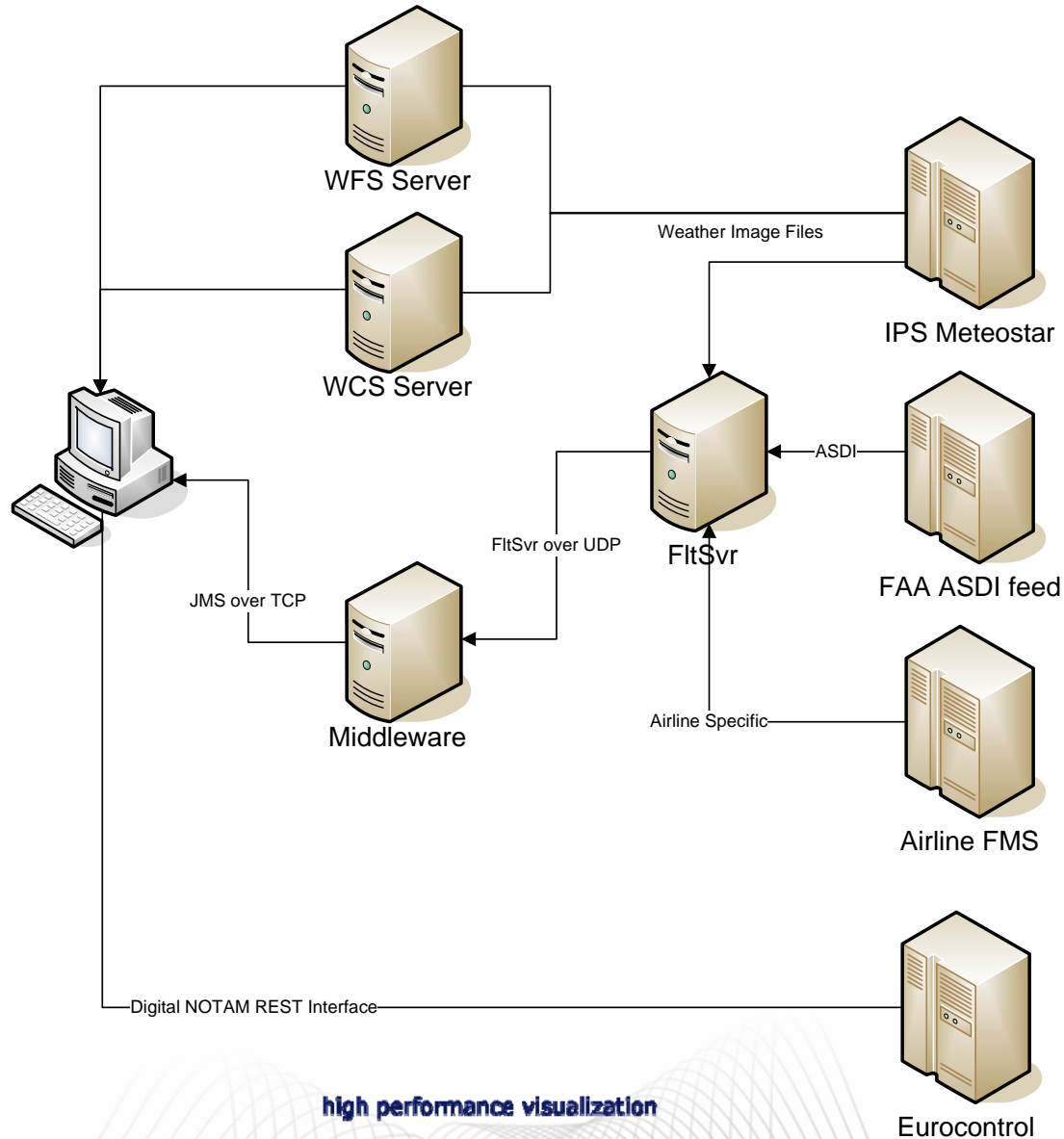
- Summary: Flight Plan, Weather, Fuel, PROJECTION, ACARS, Raw Data
- Identification: Call sign: DAL33, Tail Number: , Fleet: B763Q, Desk: , Fleet ID:
- Status: Last Update: 07:53, Altitude: FL 300, Alert State: , Last Msg Type: TZ, Fuel Status: , Position: 49:57:00 N 067:37:00 W, EROP/ETOP: , GDP Status:
- Flight Plan: Departure Airport: OMM, Gate: , Alternate Airport: , Destination Airport: KJFK, Gate: , Diversion Airport:
- Doors: Table with columns: Doors, OUT, Tail, OFF, On, In, Doors. Current: Edit Current
- T/O: , Alt: 2010/04/27 20:53, Plan: 2010/04/28 09:30, Orig: 2010/04/28 09:43
- Route Name: Route Test
- Current ATC: OMM / SAAZ/20594W, BARRE_VSC_CAM_SUN308 KJFK, Speed: 453 kn, Altitude: FL 300, ETE: 12:30, Distance: 5,147 nm
- Takeoff ATC:
- Previous 1: OMM / YCP_VSC_BARRE_VSC_CAM_SUN308 KJFK, Speed: 453 kn, Altitude: FL 300, ETE: 12:30, Distance: 5,147 nm
- Previous 2:
- Current Airline:
- Original: OMM / YCP_VSC_BARRE_VSC_CAM_SUN308 KJFK, Speed: 453 kn, Altitude: FL 300, ETE: 12:30, Distance: 5,147 nm
- Fuel Plan: Table with columns: Waypoint Name, Lat/Lon, Altitude, Time, Fuel Remaining

- Detailed flight information
- Weather reports
- Flight planner interaction
- Fuel consumption reports
- ACARS messaging

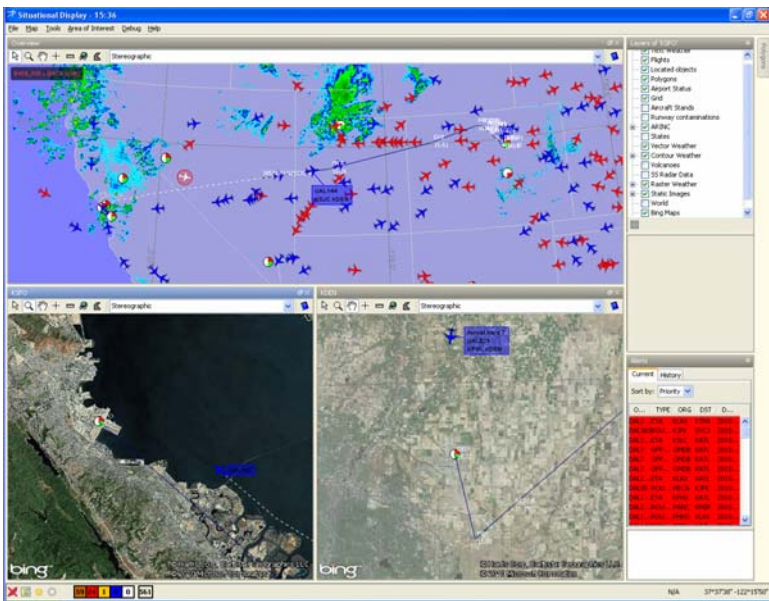
Architecture



Digital NOTAM Integration



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Lockheed Martin FitWinds 2
Demonstration

05

Q&A



What products does Luciad offer?

- **LuciadMap**

- LuciadMap Foundation
- LuciadMap Specialized Packages
 - Lucy
 - Web Services Suite
 - Terrain Analysis
 - ...

LUCIAD | MAP

- **Luciad Earth Enterprise**

LUCIAD | EARTH
ENTERPRISE

- **Luciad LightSpeed**

LUCIAD | LIGHTSPEED™

- **ATCPlayback**

LUCIAD | ATC
PLAYBACK

New products 2010 – 2011

LUCIAD | EARTH ENTERPRISE

- **Manage huge data sets**
 - static, dynamic – vector, raster, matrix
- **Intelligent data fusion**
- **Create situational understanding**

LUCIAD | LIGHTSPEED™

- **Technology shift**
 - in support of Graphics Intensive Applications
- **Benefit from advances in graphics hardware**

LUCIAD | EARTH™ Enterprise

Massive amounts of dynamic data – managed, fused, served

- **Massive amounts of data**
 - High performance flexible access to virtually unlimited spatial datasets at any resolution – tile based architecture
- **Dynamic**
 - Makes available new data right away
 - UAV Imagery, Surveillance data, ...
- **Managed, fused, served**
 - Intuitive data management
 - High performance server
 - Flexible data fusion engine
- **Scalable from strategic level theatre to individual field units**
- **Multiple data sources – multiple clients**



Expertise and Strengths in ATM

