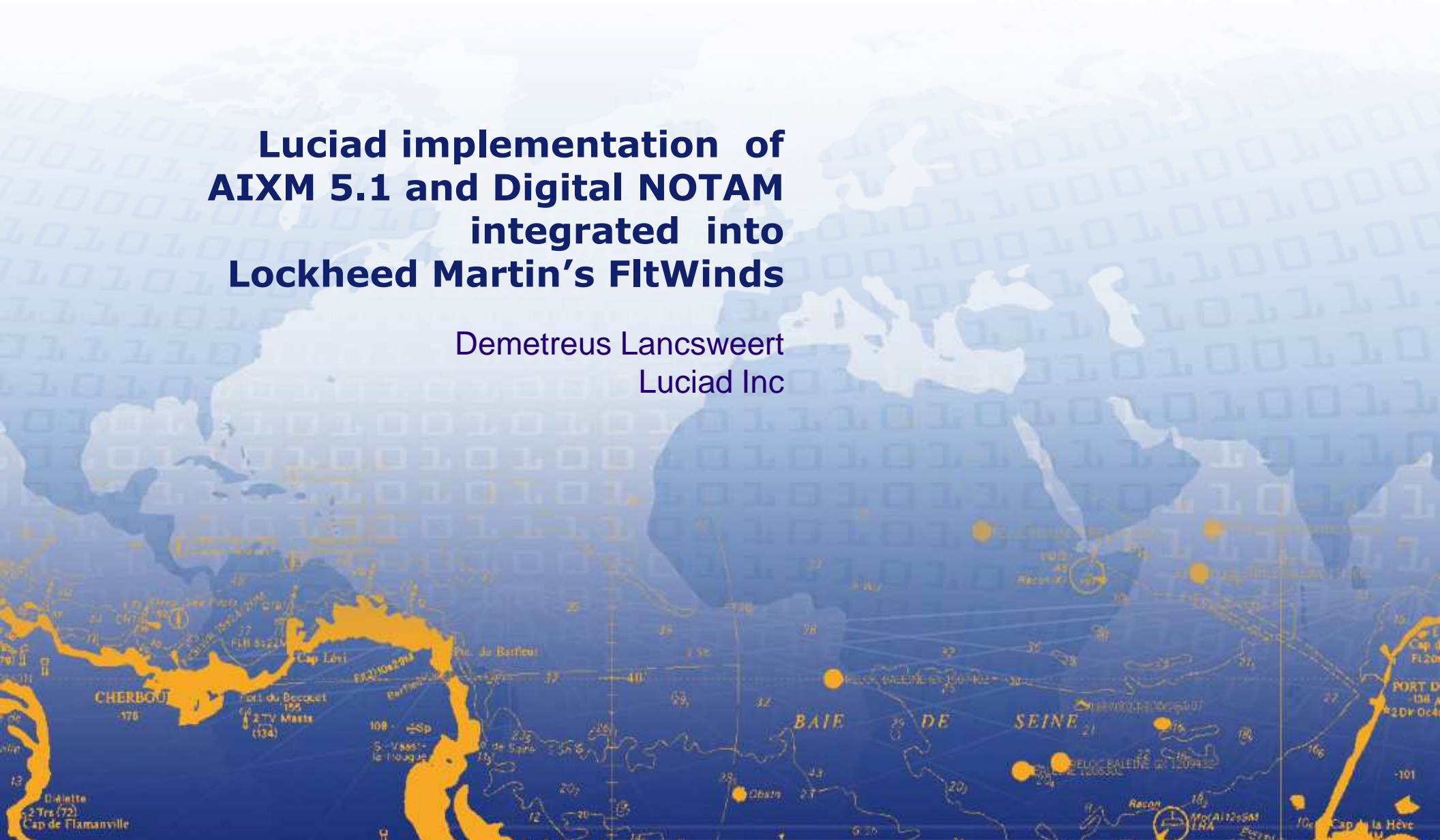


Luciad implementation of AIXM 5.1 and Digital NOTAM integrated into Lockheed Martin's FltWinds

Demetreus Lancsweert
Luciad Inc



Overview

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

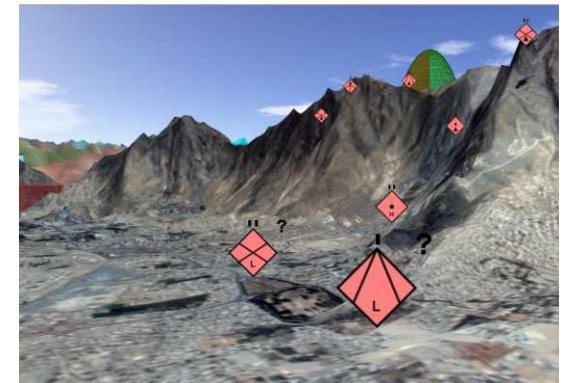
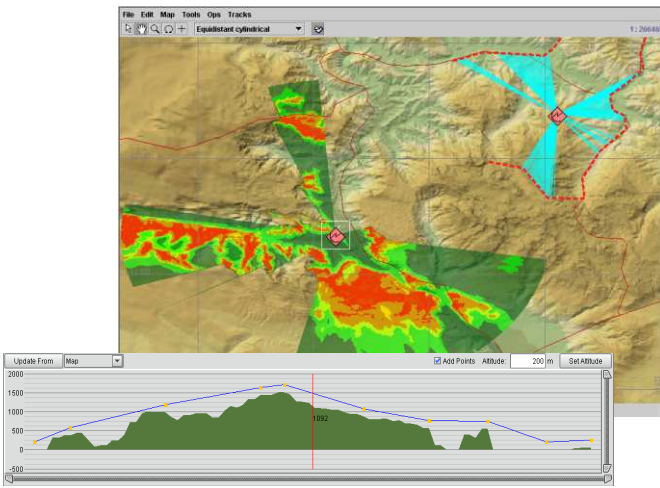
01

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

- **LMCO FltWinds 2**

- Prototype with Digital NOTAM / AIXM 5 capabilities



- **OGC OWS-6 & OWS-7**

- Electronic Flight Bag client based on LuciadMap
- Use of AIXM 5 & WXXM 1.1.1 in an OGC web services environment



03

Lockheed Martin FltWinds 2

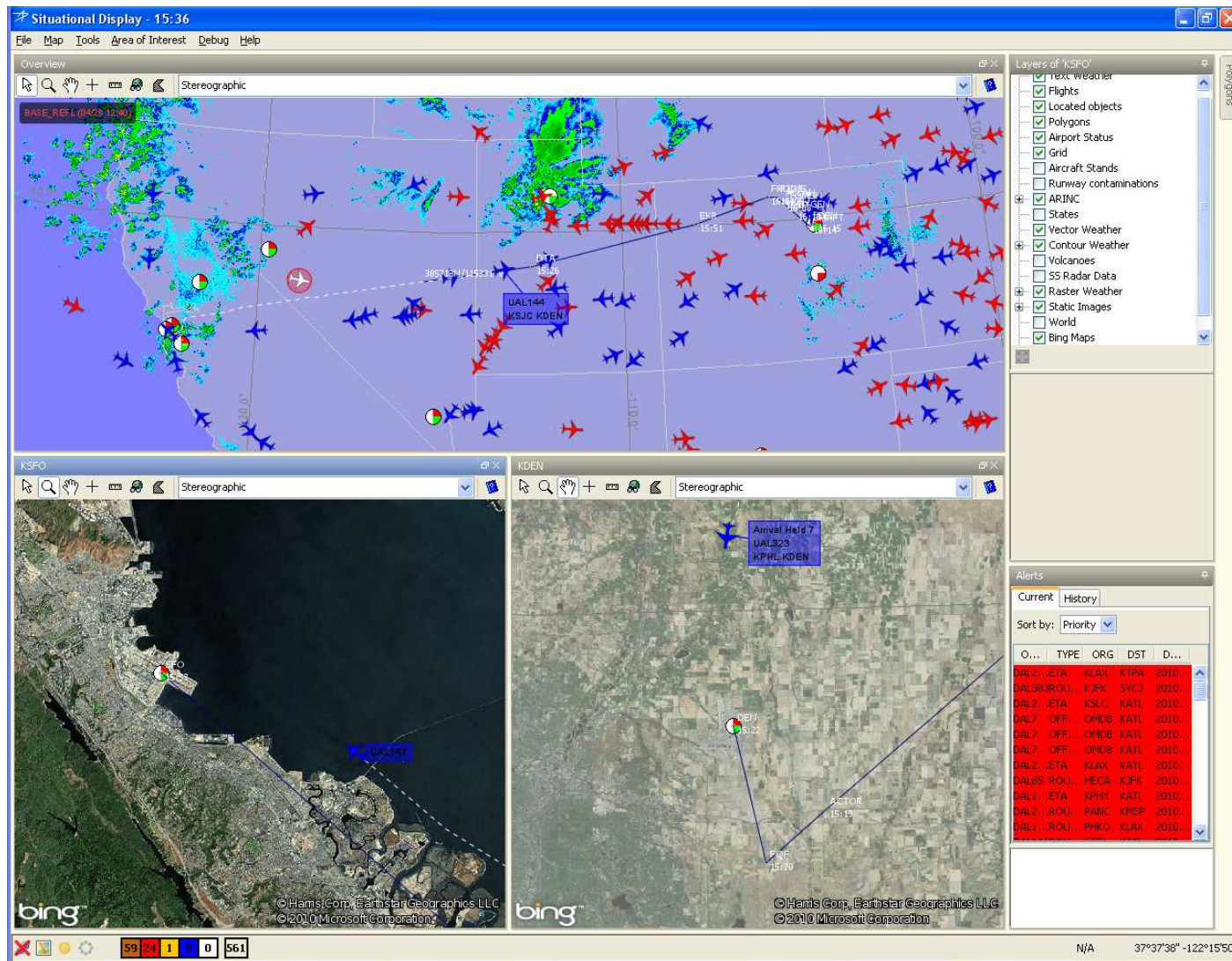
Overview

Architecture

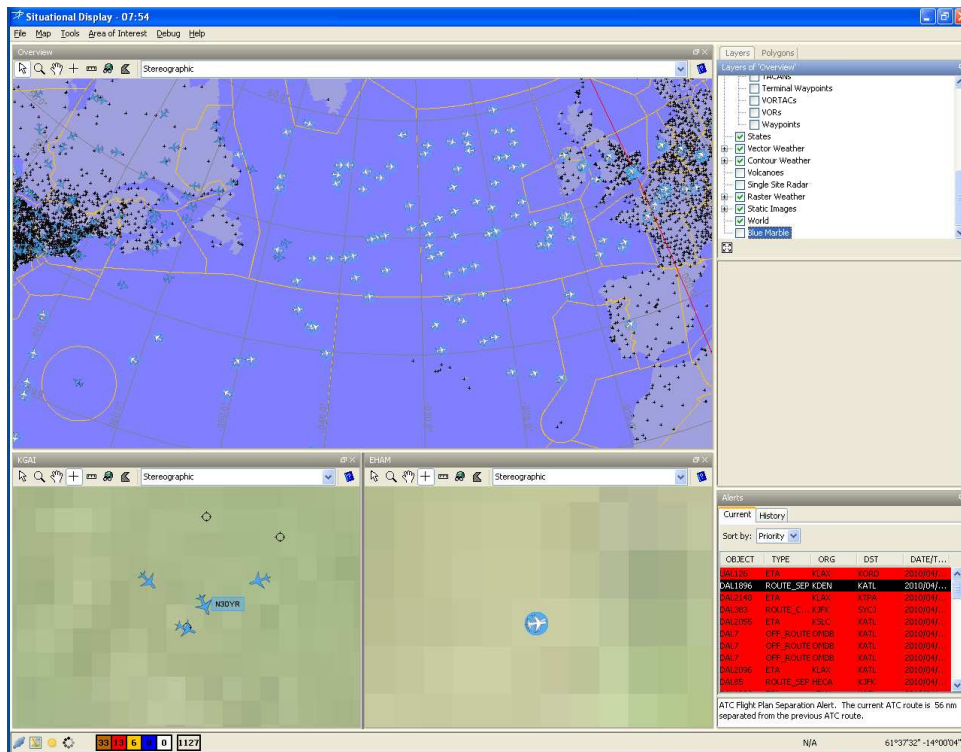
Digital SNOWTAM Trial integration



Lockheed Martin FltWinds



FltWinds Situational Display



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

FltWinds Flight List

Flight List - 07:55

Flight List: Global | EGR

Enroute Flights [147] Sort by: ETA

Flight	Origin	Destination	Status	Time
DAL712-28	KLAX	KJFK	S: 09:35	Time: +0:11
B752/Q				E: 09:24 Fuel:
DAL649-28	PGUM	RJAA	S: 09:27	Time: +0:01
B752/Q				E: 09:26 Fuel:
UAL158-28	KPFO	KORD	S: 09:36	Time: +0:10
H/B772/Q				E: 09:26 Fuel:
UAL932-28	KIAD	EDDF	S: 09:36	Time: +0:09
B772/Q				E: 09:27 Fuel:
DAL23-27	OJAI	KJFK	S: 09:38	Time: +0:09
B763/Q				E: 09:29 Fuel:
KLM602-27	KLAX	EHAM	S: 09:29	Time: +0:00
B744/Q				E: 09:29 Fuel:
DAL383-28	KJFK	SYD	S: 12:28	Time: +2:58
B752/Q				E: 09:30 Fuel:
DAL734-28	KLAS	KJFK	S: 09:38	Time: +0:04
B752/Q				E: 09:34 Fuel:
DAL8943-28	KLAX	KOKC	S: 08:49	Time: -0:45
A319/Q				E: 09:34 Fuel:
DAL146-28	SCDL	KATL	S: 09:36	Time: +0:00
B752/Q				E: 09:36 Fuel:
H/B763/Q				E: 09:36 Fuel:
UAL126-28	KLAX	KORD	S: 09:36	Time: +0:13
H/B763/Q				E: 09:36 Fuel:
UAL30-28	KPHX	KORD	S: 09:49	Time: +0:13
A319/Q				E: 09:36 Fuel:
A319/Q				E: 09:36 Fuel:
DAL11-28	EGSK	KATL	S: 07:54	Time: +0:00
DAL15-28	EDDF	KATL	S: 07:47	Time: +0:00
DAL25-28	EDDL	KATL	S: 07:17	Time: +0:00
DAL54-28	KATL	DNLL	S: 03:51	Time: +0:00
DAL79-28	EDDT	KJFK	S:	Time:

Flight Details: DAL33

Summary | Flight Plan | Weather | Fuel | ERQP/ETOP | ACARS | Raw Data

Identification:
 Callsign: DAL33 | Pilot:
 Tail Number: B763/Q | Fleet: B763/Q | Fleet ID:

Status:
 Last Update: 07:53 | Altitude: FL 380 | Alert State:
 Last Msg Type: TZ | Speed: 440 kn | Fuel Status:
 Position: 49:57:00 N 067:37:00 W | ERQP/ETOP: | GDP Status:

Flight Plan:
 Departure Airport: OJAI | Gate: | Alternate Airport:
 Destination Airport: KJFK | Gate: | Diversion Airport:

Doors	Out	Taxi	Off	On	In	Doors
Current:					2010/04/28 09:29E	2010/04/28 09:34E

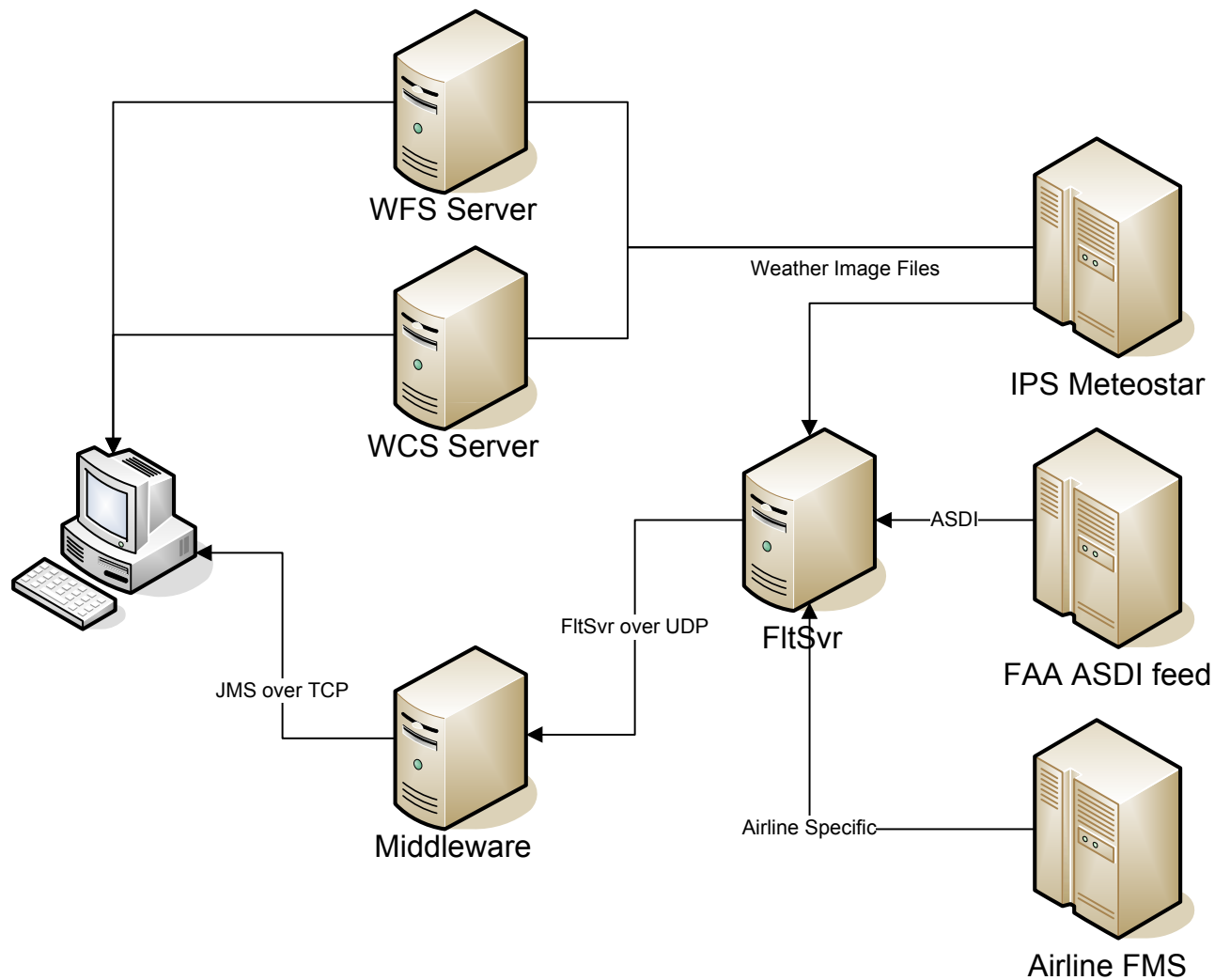
T/O:
 Atc: 2010/04/27 20:53 | 2010/04/27 21:08 | 2010/04/28 09:38 | 2010/04/28 09:43
 Plan:
 Orig:

Route Name	Route Text	Speed	Altitude	ETE	Distance
Current ATC	OJAI / S642N/05954W...BAREE..YSC..CAM..IGN/IGNB.KJFK	453 kn	FL 380	12:30	5,147 nm
Takeoff ATC					
Previous 1	OJAI / YDP..YBC..BAREE..YSC..CAM..IGN/IGNB.KJFK	453 kn	FL 380	12:30	5,147 nm
Previous 2					
Original	OJAI / YDP..YBC..BAREE..YSC..CAM..IGN/IGNB.KJFK	453 kn	FL 380	12:30	5,147 nm

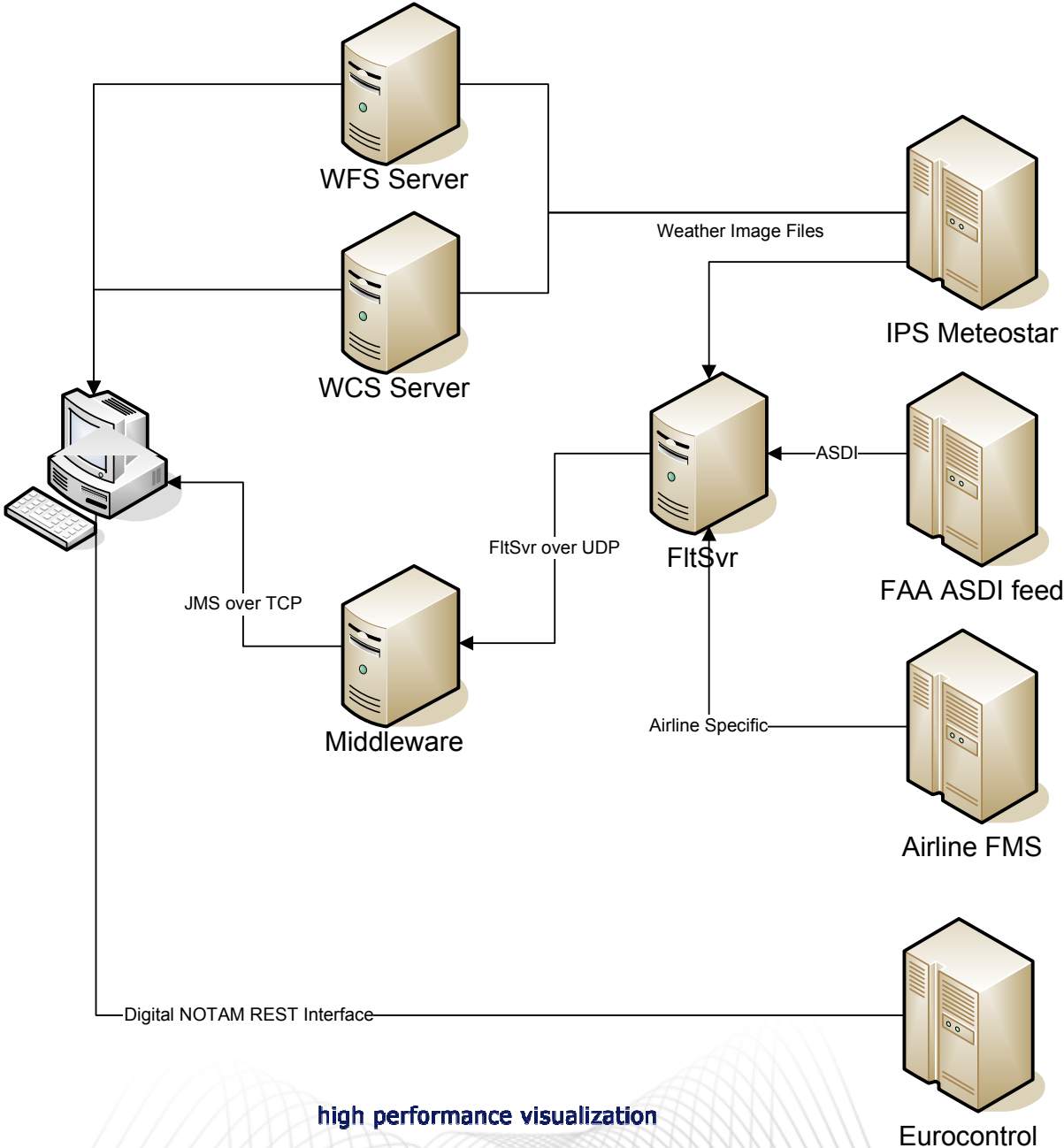
Fuel Plan:
 Waypoint Name | Lat/Lon | Altitude | Time | Fuel Remaining

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

Architecture

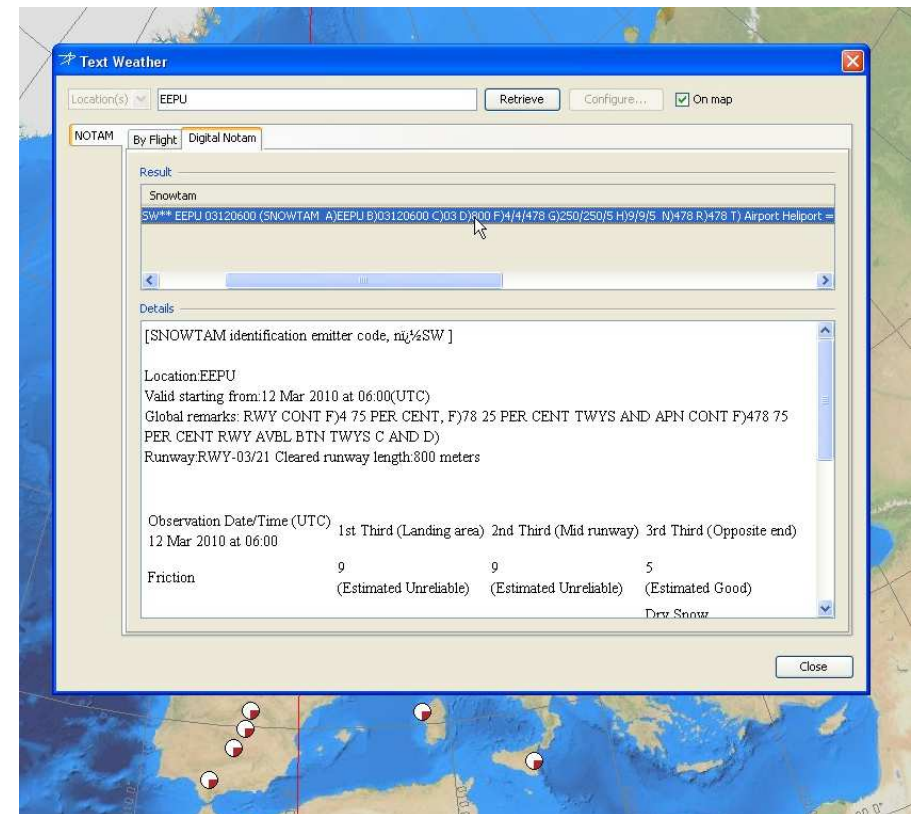
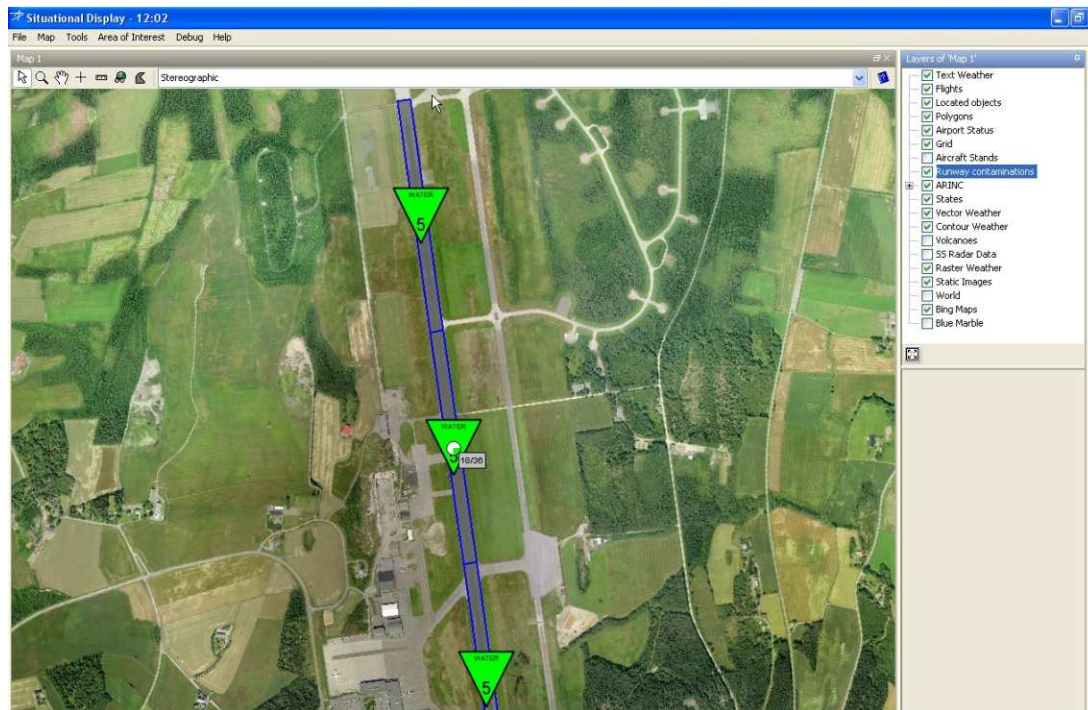


Digital NOTAM Integration

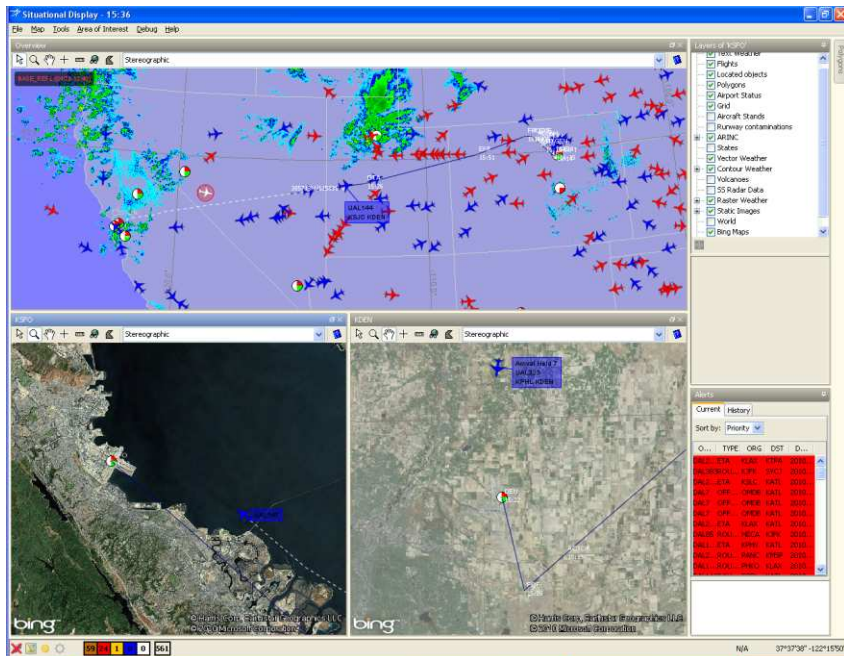


Digital NOTAM Integration

- Support for new data format and protocol
- Seamless integration with FltWinds 2 features available for classic NOTAMs



04



Lockheed Martin FtWinds 2
Demonstration

05

Q&A

