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NewSky brings together flight data

The NetWorking in the Sky (NewSky) concept was showcased at ATC Global in Amsterdam. NewSky envisages aircraft acting as nodes on a worldwide broadband Internet Protocol (IP)-based network carrying ATM and a range of other information. Air traffic control needs would be met by increasing available bandwidth and geographical reach, enabling increased data communications and improved strategic planning of flight routes.

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TriaGnoSys to demonstrate power of integrating satellite and air-ground technology for future of Air Traffic Control

TriaGnoSys, a member of the NEWSKY consortium, will be displaying the next generation of air traffic control services at ATC Global 2009 in Amsterdam, 17-19 March.

The NEWSKY network is designed to meet future air traffic control needs, in particular by increasing both available bandwidth and geographic reach, to enable both the increased level of data communications, and more strategic planning of flight routes.

TriaGnoSys role in NEWSKY is the design, implementation and integration of a demonstrator test-bed to show the seamless integration of IPv6-based satellite and air-to-ground communications, which is the focus of the live demonstration at the leading event for air traffic management professionals. To that end, TriaGnoSys has developed and integrated the appropriate routing and mobility algorithms, system-level resource management strategies, and seamless hand-over techniques.

The integrated network being demonstrated at ATC Global, on stand H129, will show advanced services such as graphical weather maps and VoIP, as well as passenger Internet connectivity. Further air traffic services applications are under development, as well as applications for airline operation communications, airline administrative correspondence, and inflight passenger communications.

Markus Werner, Managing Director of TriaGnoSys, said, Using a combination of existing Inmarsat satellite technology and developing terrestrial communications links, in this case L-DACS1 as a prototype, we will be able to show true air transmissions, not emulated links. What you will see at ATC Global is an exact working model of the cutting-edge NEWSKY system.

In the demonstration at ATC Global, two appropriate broadband communication segments are used to allow operation of several parallel calls and/or streams, meaning the feasibility of service prioritisation and Quality of Service support can be validated. In all cases IPv6 is baseline protocol version, providing effective future-proofing.

In addition to the test-bed demonstration, simulations will show the NEWSKY approach on a large scale. The data traffic communication link characteristics and the overall network topology will be modelled to a high level of detail, to validate functions such as optimized IP mobility schemes and Quality of Service provision.

The modular architecture of the NEWSKY approach enables the cost-efficient integration of legacy and future data links for short range airport communications, as well as long range en-route data transfer, and satellite communications.

In addition, NEWSKY supports the move away from proprietary solutions in aviation to the use of commercial off-the-shelf Internet technologies. In this context, the International Civil Aviation Organization (ICAO) Council has recently approved an amendment to the Aeronautical Telecommunications Network (ATN) for the use of the IP Suite (IPS). The NEWSKY consortium has contributed to the definition of ATN/IPS, and the NEWSKY demonstration will be based on this specification.

Publication: Jane's Airport Review
Date: April 09
Region: Global
Media Type: Online

Jane's AIRPORT Intelligence and Insight You Can Trust REVIEW

NewSky merges flight data

The NetWorking in the Sky (NewSky) concept was showcased at ATC Global.

NewSky envisages aircraft acting as nodes on a worldwide broadband Internet Protocol (IP)-based network carrying ATM and a range of other information. Air traffic control needs would be met by increasing available bandwidth and geographical reach, enabling increased data communications and improved strategic planning of flight routes.

Funded EUR2.1 million (USD2.74 million) by the European Commission, NewSky is designed to feed into the Single European Sky ATM Research (SESAR) programme.

Led by the German Aerospace Centre's Institute of Communications and Navigation, the NewSky team includes German air navigation service provider DFS; Thales Alenia Space of France; UK technology company QinetiQ; Austrian technology company Frequentis; the University of Salzburg; and communications specialist TriaGnoSys. Eurocontrol contributes technical project oversight and a number of the team mem-

bers also belong to the SESAR Joint Undertaking.

TriaGnoSys' role in NewSky is the design, implementation and integration of a demonstrator testbed to show the seamless integration of baseline protocol IPv6-based satellite and air-to-ground communications, which was the focus of a live demonstration at ATC Global.

The laboratory setup is due to be used to validate the new concept by the end of May. TriaGnoSys has developed and integrated the appropriate routing and mobility algorithms, system-level resource management strategies, and seamless handover techniques.

The integrated network

demonstrated at ATC Global showed advanced services such as graphical weather maps and VoIP, as well as passenger Internet connectivity.

Further air traffic services applications are under development, as well as applications for airline operation communications, airline administrative correspondence, and inflight passenger communications.

The demonstration used a combination of existing Inmarsat satellite technology and L-DACS1 prototype terrestrial communications links. Two broadband communication segments were used to allow operation of several parallel calls and/or streams. *BV*



■ The NewSky concept was demonstrated by TriaGnoSys at ATC Global 2009. NewSky seeks to merge flight data and other information from aircraft into a worldwide IP-based network.

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Publication: Pressebox
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Region: Global
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TRIAGNOSYS TO DEMONSTRATE POWER OF INTEGRATING SATELLITE AND AIR-GROUND TECHNOLOGY FOR FUTURE OF AIR TRAFFIC CONTROL

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Publication: Pressemitteilungen

Date: 09 March 09

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PRESSEMITTEILUNGEN*

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Publication: Satellite Today
Date: 09 March 09
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TriaGnoSys to Demonstrate Satellite Air Traffic Control System

TriaGnoSys is set to reveal a next-generation Newsy Network air traffic control service that integrates satellite technology to provide graphical weather maps, Voice Over IP and passenger Internet connectivity, the company announced March 9.

TriaGnoSys' role in Newsy is the design, implementation and integration of a demonstrator test-bed to show the integration of IPv6-based satellite and air-to-ground communications.

"Using a combination of existing Inmarsat satellite technology and developing terrestrial communications links, in this case L-DACS1 as a prototype, we will be able to show 'true air' transmissions, not emulated links," Markus Werner, managing director of TriaGnoSys, said in a statement.

The company said further air traffic services applications are under development, as well as applications for airline operation communications, airline administrative correspondence, and inflight passenger communications.

Publication: SatNews
Date: 09 March 09
Region: Global
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Future Air Traffic Control System From TriaGnoSys

TriaGnoSys, a member of the *NEWSKY* consortium, will be displaying the nexgen of air traffic control services at *ATC Global 2009* in Amsterdam, 17-19 March.

The screenshot shows the TriaGnoSys website with a navigation menu at the top. The main content area is titled "TriaGnoSys' Aeronautical Products" and lists several services:

- TriaMeGis:** The most sophisticated and efficient connectivity server solution for aircraft to satellite connectivity for wireless and wire communications for passengers, and is integral to passenger communications services. [Click here for more information](#)
- TriaComMa:** TriaComMa provides connectivity across diverse networks for single or multiple user groups and applications. An example of its use will be to power passenger communications on the Airbus A380. [Click here for more information](#)
- TriaSat3G:** TriaSat3G provides 3G/UMTS voice and data services on moving networks on aircraft. [Click here for more information](#)
- Antenna tracking:** TriaGnoSys' digital beam forming and optimized antenna pointing, acquisition and tracking solutions for airborne antennas providing high data rates using a cost effective, compact platform. [Click here for more information](#)
- Billing:** TriaVerBit and TriaGroundBit offer integrated billing and settlement solutions to meet the specific needs of moving networks in the air. [Click here for more information](#)

There is also a section for "The original vision: The Wireless Cabin" with a link to wirelesscabin.triagnosys.com and an image of an airplane in flight.

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Date: 16 March 09

Region: Global

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New aeronautical communication network presented for the first time

At ATC Global 2009 (an international Air Traffic Control Exhibition and Conference), to be held in Amsterdam from 17–19 March 2009, the NEWSKY consortium will give a live demonstration of how aircraft, satellites and ground stations communicate with each other through an innovative data network using Internet technologies.

On Earth, this has already become standard practice and the NEWSKY research project, led by the German Aerospace Center (Deutsches Zentrum für Luft- und Raumfahrt; DLR), aims to introduce it in the air as well.

In time, passengers will no longer be requested to “Please turn off any electronic equipment” before takeoff. The NEWSKY communication network allows pilots to communicate with the control tower over VoIP (Voice over Internet Protocol) and to download up-to-date weather and traffic data to the cockpit, while at the same time allowing the passengers in the cabin of the aircraft to surf the web and answer their e-mails. The connection is established and data is transmitted through processes that run completely in the background.

Regardless of whether a direct connection to a ground station is established or whether it is relayed via a satellite, the network independently selects the best data connection for any given situation. “This means that the pilot does not need to think about which data channel to use, just as a mobile phone user does not need to think about which network is being used”, explains Frank Schreckenbach, NEWSKY project manager at DLR, when asked about the advantages of the system.

Networking the sky

The NEWSKY project aims to create a communication network that meets the challenges of future air traffic. This, first and foremost, involves a reliable data exchange between the aircraft and the ground, both in remote areas over oceans and polar regions and in overloaded large metropolitan areas. By making extra information available, NEWSKY is expected to lead to a long-term improvement in air traffic safety standards, as well as a reduction in environmental pressure thanks to the optimisation of flight paths.

This project to ‘network the sky’ is being carried out by an international project team led by DLR and bringing together engineers from Thales Alenia Space, QinetiQ, Frequentis, Triagnosys, Deutsche Flugsicherung (the company in charge of air traffic control for Germany) and the University of Salzburg. The NEWSKY project is funded by the European Commission.

Safety-related data versus passenger e-mails

An important consideration in the development of the network was guaranteeing that safety-related data, for instance a distress call issued by the pilot, is always given priority over other data streams, such as passenger e-mail traffic. By incorporating unambiguous prioritisation by

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the system and the pilot, the engineers have ensured that safety-related data is always transmitted with the highest priority.

Another challenge, and one which makes this project fundamentally different from a ground-based communication network, is the fact that aircraft are highly mobile. The engineers solved this problem by including a number of ground-based computers in the communication channel linking the aircraft and the ground. These four or five servers are aware of the aircraft's exact position at any given time, which enables them to relay the data streams accordingly. If there were a direct communication link with the aircraft, the network would need to be continuously reconfigured because of the constantly changing position of the aircraft, leading to a substantial increase in data flow.

On stand H129 at ATC Global, the researchers will give a realistic demonstration of NEWSKY communications from the perspective of a pilot in the cockpit. The computer in the exhibition centre will be integrated into a terrestrial and a satellite-based network and behave as if it were on board an aircraft flying across the Atlantic Ocean. An additional display will show the data streams between the aircraft and the ground stations. In addition to this, the researchers will use a simulation environment to demonstrate how such a communication network will function when a large number of aircraft are involved.

Extensive certification required

The research team expects that their innovative network design can be realised in about ten years. "This is a global system, and extensive certification will be needed to meet the strict requirements of the aeronautics sector, leading to high investment outlays", says Frank Schreckenbach. Once the system is actually introduced, however, it will be many times cheaper to purchase and operate than current systems, and it will enable far more efficient data communication than now.