Season's Greetings from TriaGnoSys

Supercharging SwiftBroadband

As an Inmarsat Solution Provider, TriaGnoSys will enable the leading mobile satellite communications provider to optimize the use of available satellite bandwidth, and reduce the cost of its global SwiftBroadband services further.

There are currently over 400 SwiftBroadband channels operated on aircraft worldwide, which can benefit from TriaGnoSys' Voice Compression and Enhanced Multiplexing Technology (VoCeM) to reduce cost per call.

Call cost per minute	L-Band	Ku-Band
Uncompressed	US$2.25	US$0.675
Using VoCeM	US$0.60	US$0.18

As a solution provider, TriaGnoSys adds value by additional data acceleration and compression, channel bundling, voice optimization for GSM/UMTS/Voice over IP, and quality of service (QoS) management of the backhauling satellite network.

TriaGnoSys booth at the Inmarsat Global Partner Conference 2009 in Berlin, at which Matthias Holzbock addressed attendees about VoCeM

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Communicating in the first hours
Emergency GSM Connectivity in five minutes

TriaGnoSys has finalised the design of its GSM Emergency Suite, a lightweight, rapidly deployable communications network infrastructure for emergency conditions. The system integrates terrestrial mobile radio networks - comprising GSM, WiFi, and optionally TETRA - over satellite, using Inmarsat BGAN and DVB-RCS systems.

The Emergency Suite weighs a total of only 15kg and consists of a self-contained lightweight Pelican case containing the satellite terminal and the hardware for the local GSM and WiFi service. It is intended to provide for immediate communications needs in the first hours and days after a disaster event, as well as medium to longer term needs, during the recovery and rebuilding phase.

Because it uses satellite communications, it can be used anywhere in the world, regardless of whether a local telecoms infrastructure exists, or indeed if the existing infrastructure has been damaged.

The Emergency Suite allows for the use of up to 14 parallel voice calls using standard mobile phones, and data services up to 432kbit/s data rate.

It takes only five minutes to deploy, and the Emergency Suite has a battery life of two hours. Thereafter, it can use external power, for instance from a small 100W petrol generator.

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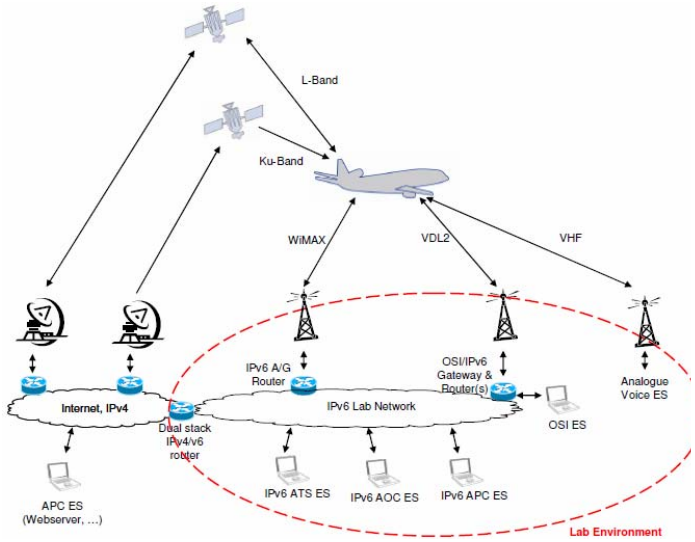
SANDRA
Seamless Aeronautical Networking through Integration of Data links, Radios, and Antennas



Air traffic in Europe is set to double by 2025 and current air traffic communications systems will not be able to manage that explosive growth. What is needed to meet the challenge is an integrated aircraft communication system to improve efficiency and cost-effectiveness and ensure a high degree of flexibility, scalability, modularity and reconfigurability.

The SANDRA project will design, implement and validate an integrated aeronautical communications system based on an open architecture, a common set of interfaces and on well-proven industry standards. It builds on the work completed by the NEWSKY project. TriaGnoSys' role is to provide satellite and terrestrial communication expertise, as well as systems to integrate both forms of communication.

The SANDRA concept is fully inline with SESAR and future plans for the deployment of European Air Traffic Management modernisation programme, as well as with the final conclusions and recommendations of Eurocontrol/FAA Future Communications Study.

INTEGRATION AT MANY LEVELS:

- **Service integration**
  Integration of a full range of applications and services - ATS, AOC/AAC, APC
- **Network integration**
  Interworking of different radio access technologies through a common IPv6 and IPv4-based aeronautical network
  Interoperability of network technologies - ACARS, ATN/OSI, IPS
- **Radio integration**
  Integration of radio technologies in an Integrated Modular Radio platform
- **Antenna integration**
  Hybrid Ku/L band SatCom antenna to develop an asymmetric high data rate DL
- **WiMAX**
  Adaptation for integrated multi-domain airport connectivity

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Low-cost satellite demo proves as good as its word

TriaGnoSys has successfully demonstrated its VoCeM satellite communications compression software over Inmarsat's BGAN network.

The successful trial paves the way for the commercial development of a low-cost satellite-based VoIP service with good quality voice being achieved with a total bit rate of only 3.3 kbit/s. The groundbreaking software solution is particularly appealing to service providers because installation of VoCeM requires only a simple upgrade.

Voice Server with Compression

- Supports up to eleven calls over Inmarsat using 32 kbit/s or less
- Use of AMBE2+ coding
- CDR billing information for RADIUS server
- Support of GSM, UMTS/3G, VoIP
- Optional ISDN / SIP MediaGW

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NEWSKY comes to an end

The final NEWSKY workshop took place in October at the German Aerospace Centre. The concept was of a mobile aeronautical communication network based on Internet technologies for both cockpit and cabin, integrating satellite and terrestrial data links.

TriaGnoSys' role in the project was the development of functionalities to integrate satellite and terrestrial links, something we demonstrated at the final workshop. The key to technology is IPv6 handover between satellite and terrestrial communication links. It will enable seamless and continuous aircraft communication, wherever the aircraft is flying, which will be central to the next generate aeronautical networks.

NEWSKY's work will now form the basis for a new project – SANDRA – which will move the research to a new level.

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