

**Meet us at Aircraft Interiors**  
Hamburg, 18- 20 May 2010  
**Stand 6C1**

Come to our stand to learn more about our inflight connectivity solutions for **voice and data with high-speed Internet**, and how our unique technology can help you **cut the cost of satellite communications by a factor of ten**.

TriaGnoSys will again be showcasing its latest systems engineering at Europe's leading event for inflight communications and entertainment innovation.



### TRIAGNOSYS CHOSEN BY SESAR

The SESAR Joint Undertaking has been tasked with the development of next generation air traffic management (ATM) technology. The starting point is a thorough analysis of exactly what is required, and what technologies are currently being developed.

And that is where TriaGnoSys comes in: we are heading a consortium that is investigating the technologies required to support ATM concepts and communications infrastructures for the next 20 years.



Our remit includes:

- Refine the future need for communications services for all phases of the flight, in support of the future SESAR Concept of Operations
- Verify that the technologies currently identified to support the multi-link concept – namely direct air-to-ground and air-to-air connections, satellite-based connectivity, and the ground-based airport segment – are the correct ones
- Identify any other technologies that could be appropriate
- Investigate potential suppliers, both from the aviation sector and outside

Our partners are Audens ACT, Rainer J Koll Consulting and ATMOSPHERE. The work on WiComS started in January 2010 and will be concluded in September, with the first element being delivered in April.

For more information, contact Markus Werner on [markus.werner@triagnosys.com](mailto:markus.werner@triagnosys.com)

### THALES SHOWCASES LATEST INFLIGHT SOLUTIONS POWERED BY TRIAGNOSYS

Thales has opened a high-tech showcase for its inflight connectivity solutions, at its base in Crawley, near London. The showcase allows airline customers to experience the power and flexibility of TopConnect - Thales' TopFlight SwiftBroadband equipment and TopSeries range of audio/video-on-demand (AVOD) in-flight entertainment systems, both powered by TriaGnoSys.

Click [here](#) to see a video of Thales' test flight of the inflight connectivity solutions.

For more information contact Axel Jahn on [axel.jahn@triagnosys.com](mailto:axel.jahn@triagnosys.com)

### CUTTING THE COSTS OF IPv6 SATELLITE COMMUNICATIONS

TriaGnoSys exists for two main reasons. The first is to enable communications where the provision of terrestrial communications infrastructures is either impractical or impossible. The second is to ensure the cost and quality of remote communications is as similar as possible to terrestrial communications.

As the next generation Internet Protocol, IPv6, becomes mainstream, many aircraft communication services, including air traffic control applications, are using the new protocol.

However, no satellite IPv6-based networks have been deployed to date and, given the time to bring new satellite networks into service, this is likely to be the situation for at least a number of years. To overcome this obstacle, Network Crossing via Translation (NeXT) has been designed as an efficient way of transporting IPv6 information over an IPv4 network.

Alternatives, including the Layer 2 Tunnelling Protocol, exist but do not come close to providing the cost savings of between 35% and 50% for the satellite segment that are achievable with NeXT.

So NeXT is typical of our work: enabling remote communications and cutting costs.

For more information contact Axel Jahn on [axel.jahn@triagnosys.com](mailto:axel.jahn@triagnosys.com)

TriaGnoSys is a Patron on this year's Advanced Satellite Multimedia Systems Conference, which is being run in conjunction with the Signal Processing for Space Communications Workshop.

The conference is organised by the University of Bologna, the DLR Institute for Communications and Navigation, the European Space Agency, and the Integral Satcom Initiative Technology Platform. Markus Werner is on the Technical Program Committee, which is currently deciding the focus for ASMS.

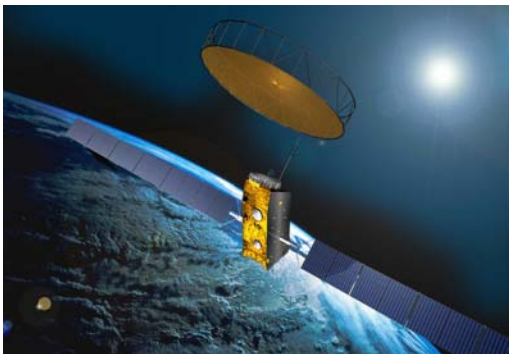
For more information, contact Markus Werner on [markus.werner@triagnosys.com](mailto:markus.werner@triagnosys.com)



## HOW TO TEST NEW AIRCRAFT COMMUNICATION APPLICATIONS WITHOUT USING A SATELLITE

Inmarsat's SwiftBroadband (SBB) service enables remote communications services on aircraft. It is currently the most popular and advanced Inflight Entertainment and Connectivity satellite network, designed to meet the demand for high bandwidth, high quality and more demanding applications across all areas of the aviation industry.

But testing new services over the satellite system is very expensive. On top of that, satellite performance can be unpredictable during tests and is certainly not the same as lab conditions. However, regardless of which type of cabin or cockpit communication application is being developed, all applications must be thoroughly tested for interworking with the satellite system before deployment.



Inmarsat I-4 satellite

The solution is to use TriaGnoSys' SwiftBroadband Arinc 781 Emulator. It cuts out the need for a SBB modem and satellite airtime, cutting the cost of testing new applications by up to 90%.

The other main advantage of our SBB Emulator is that it recreates all the potential difficulties of using a satellite link in a controllable and replicable way. This allows application developers to run thorough tests, targeting any particular areas of difficulty in a way that is simply impossible using a live satellite link.

The satellite link characteristics replicated include:

- protocol problems
- delay
- jitter
- dropped and duplicated packets
- bandwidth limitation

### Some technical information:

The SBB Emulator modem interfaces to the System Under Test (SUT) via an Ethernet port, which responds to SBB signalling and routes IP traffic through the SBB simulator

The SUT requests modem contexts from the emulator, in exactly the same way it would from a real modem

The modem emulator forwards traffic from the SUT to the connected ground network and back. The 'ground network' can be the live Internet or a hosted network representing the ground network and the communication peers within it.

Protocols used between the SUT and the emulator modem are according to ARINC 781 attachment 5:

- PPP/PPPoE
- Telnet
- SNMP

The SBB Emulator can simulate unsuccessful signalling and failures.

For more information contact Axel Jahn on [axel.jahn@triagnosys.com](mailto:axel.jahn@triagnosys.com)

## INFLIGHT WIFI GOES GLOBAL

Last month, Oman Air made inflight connectivity history by being the first airline to offer WiFi Internet connectivity that combines GSM and WiFi. The service using Inmarsat SwiftBroadband was launched on its Muscat-London route.



OnAir is the service provider and the satellite communications software is provided by TriaGnoSys.

It means that inflight WiFi is now available everywhere in the world.

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