Interview with Ralph Bierett, Head of the Strategy and Future Programmes Department within the Telecommunication and Navigation Directorate at ESA

Prior to joining ESA in May 2006, Ralph Bierett was Head of the Space Division at the German Federal Ministry for Research. Before that, he was Director Public Affairs at a telecommunications company in Germany.

After studying mathematics and geography, he worked for many years for the German Parliament and at the Federal Chancellery in Bonn. In addition, he gained experience in the fields of EU policy, international cooperation and space at the German Federal Ministry for Research.

Mr Bierett, you are Head of the Strategy and Future Programmes department. What is the purpose of this department?

"Our department is responsible for identifying and developing future programmes and new activities for the Directorate. With this aim in mind, our focus is on user needs in telecommunications and navigation, on defining necessary technological developments and on investigating the developments of the corresponding markets."

The satellite telecommunication industry is by far the most important space sector for the European satellite manufacturing industry, representing more than 50% of satellite activities in Europe. The health of the global satellite telecommunications market determines to a great extent the sustainability, and therefore the continuity, of European Space Industry. What is ESA doing to ensure this competitiveness?

"We are convinced that we have to build on two principal approaches in order to strengthen the European space industry and to serve the people in Europe: we have to continue our way to support technological developments in cooperation with the industry; but we have in addition to strengthen our endeavours to amend this technology-push approach by a demand-pull approach. That means: we have to federate possible users of satellite communication and navigation and to demonstrate the convincing opportunities for them by using satcom and satnav solutions. "

What do you see as a major task in the near future?

"An important task will be to merge telecom and navigation applications in a "system of systems", meaning the inclusion of different space and terrestrial systems in order to deliver integrated solutions for the end-user. The integration of these services is likely, and in some cases will include Earth Observation data. A major tool in our work is the ARTES 1 programme line which aims mainly at telecommunications, but is also in favour of integrating navigation and therefore creates a link between these two applications."

Do you have any specific applications in mind?

"Without us realising it, satellite communications already permeates our lives and can be used in a plethora of ways. Innovative applications are being developed to address major challenges in our society such as the increasing mobility of people and goods and its consequences, growing security threats, or challenges related to the ageing population and its increasing need for medical care. ESA is encouraging new initiatives and helping new applications to emerge via its satellite telecommunications and navigation programmes."

Could you give some examples?

"Civil Protection telecommunications systems, for example, support relief operations with satellite-based solutions that can be rapidly deployed over a crisis location or an area lacking ground infrastructure. Satellite communications for air traffic management can solve the increasing problem of saturation of airspace in dense traffic areas. And Telemedicine is possible anywhere with telehealth consultations via satellite and medical services to individuals on the move."

You are also responsible for the Redu Ground Station in Belgium. ESA is taking steps to find an operator for this station. What is the background this activity?

"The Redu Ground Station in Belgium is a centre of excellence for telecommunication and navigation. It has outstanding experience, in particular with regard to In-Orbit Testing capabilities. Whilst looking for a new operator of our station we want to implement a new approach: on one side this operator will be responsible for the maintenance and operations of the station, and therefore also for the ESA missions which are lead by this station; on the other hand the operator will be required to create synergies by exploiting the station for commercial purposes. These latter activities should not be carried out by ESA itself as a public institution. Thus the appointment of this operator will create chances for other space companies as well: One idea, for instance, is to use Redu as a test environment for ground station equipment manufacturers.

For further information about ESA Telecommunications visit our website at:

http://telecom.esa.int

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"The European Space Agency (ESA) inspires the vision for Europe's future in space and, through a diverse range of projects, develops the strategies needed to see it realised"

Small GEO Platform contract signed

ESA officially announced the signing with OHB/Germany of a €100 million framework contract to develop a European Small Geostationary Satellite platform for telecommunication missions.

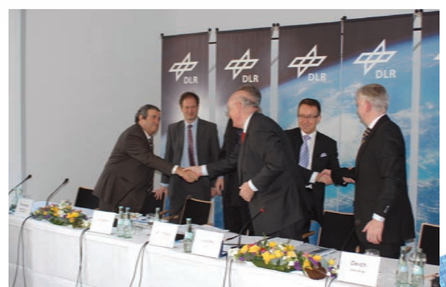
This contract covers the first part of the Small Geostationary Satellite initiative, aimed at the definition of a general-purpose small geostationary satellite platform which will enable European players to compete effectively in the commercial telecommunications market for small platforms.

To achieve this, ESA has set up a new programme element under ARTES (Advanced Research in Telecommunications Systems). The 'ARTES 11' programme was approved at the ministerial meeting of the ESA Council held in Berlin in December 2005 and currently eight of the Agency's Member States are participants.

Divided into two parts, the programme initially involves the development and manufacture of the first flight model of a generic satellite bus. This work is included in the contract that was signed by Mr Giuseppe Viriglio, ESA Director of Telecommunications and Navigation, and Professor Manfred Fuchs, CEO of OHB-System AG. The platform will accommodate a payload mass of up to 300 kg with power consumption of up to 3 kW over a 15-year mission lifetime.

The programme subsequently involves the development, manufacture and launch of a first satellite mission to provide flight heritage and in-orbit demonstration for the platform.

The mission payload is due to be selected around the end of 2007 / early in 2008 under an open tender process and the satellite selected is scheduled to be launched by the end of 2010.



The Small Geostationary Platform is being developed by a consortium headed by the German firm OHB with a core team line-up including LuxSpace (Luxembourg), the Swedish Space Corporation (Sweden) and Oerlikon Space (Switzerland). An industrial cooperation agreement between OHB and these companies was signed on 28 March in Berlin.

With this initiative, ESA is supporting European industry in broadening the product portfolio range on offer in the commercial telecommunications satellite market by covering a market segment where no optimised European solutions currently exist.

More information can be found at: http://telecomesa.int/smallgeo

Multimedia car radio of the future

Crackling radio stations, signal loss in tunnels and difficulties tuning to the correct frequency – the conventional car radio has had its day. ESA and its partners are developing the multimedia car radio of the future. The initial prototype was demonstrated at the Space Expo in Noordwijk, The Netherland, on 25 January.

The car radio of the future works in a similar manner to a satellite receiver for television channels. However, the car has no large dish antenna on the roof, but a specially designed mobile antenna, flattened so that it can be built almost invisibly into the bodywork. The antenna receives signals in the Ku frequency band used by communications satellites.

Memory

The idea of an in-car satellite receiver is not new. In America, more than 13 million people use the services of XM-radio and Sirius radio, two broadcasters that transmit to mobile satellite receivers. They do that via communication satellites, but also with the help of a rural network of transmitter masts.

In two important areas, the new European multimedia system advances beyond existing solutions. Instead of new satellites and a network of ground-based transmitters – which might easily requites an investment of more than a billion Euro – the ESA system uses only existing communications satellites.

Additionally, the mobile multimedia system employs a cache memory – a hard disk or its solid-state equivalent. Received signals can be stored – in a similar way to personal video recorders – and played back after a short time shift or much later. This clever intermediate step prevents loss of signal in tunnels or behind obstructions from disturbing the programme. The listener can also select a part of the broadcast to listen to, or pause the show as they stop to buy fuel.

Challenge

ESA developed the system with nine partners in the industry and service sectors. The main challenge was that the satellites used by the system were designed to broadcast television signals to large, fixed dish antennas. For use in cars, an entirely new approach was needed to achieve an antenna that can be easily built in by the car manufacturers.

ESA and its partners have worked on the mobile multimedia system for over three years. The technology has been demonstrated and has great potential for the car industry and information providers.

A group of well-known companies and institutes has carried out demonstration work, with SES Astra taking the lead: BMW, Deutsche Zentrum für Luft und Raumfahrt (DLR), Dornier Consulting, Deutsche Welle, Fraunhofer-Gesellschaft, Institut für Rundfunktechnik, Technische Universität Braunschweig, and TriaGnoSys.

More information can be found at:
http://telecom.esa.int/mobilekureceiver

SITPerf Performance Monitoring Tool for IP Satellite Networks released

ESA Telecom is making available SITPerf, a new software tool that measures end-to-end network performance parameters of IP satellite networks. Companies needing IP performance monitoring on their satellite IP networks and with an active project with ESA Telecom are invited to make use of this free service.

Developed by the Swedish company GHN with support from ESA Telecom, SITPerf (Satellite Interactive Terminals Performance) is a tool to test how two-way satellite networks perform in real deployment scenarios over a period of time. SITPerf can not only monitor the long-term performance of satellite networks, but can also test the performance of terrestrial Internet access networks. SITPerf is a generic, distributed, customisable test platform that allows the user to perform almost any imaginable test of an existing IP network service over the network itself.

SITPerf was designed to be distributed and highly flexible. Large-scale, distributed tests can be performed in an organised manner with hundreds or thousands of test clients. Its built-in, high-level scripting language lets users perform a wide variety of tests, from basic network connectivity and performance tests to advanced protocol-conformance tests.

New Technical Asset of the User Support Office

SITPerf passed the formal Acceptance Review with ESA on 12 January 2007. Both hardware and software have been delivered to ESA by GHN. Upon delivery it entered a six-month maintenance period for extensive testing and is now considered to be the newest technical asset of ESA Telecom's User Support Office.

ESA Telecom has long supported the development and use of satellite two-way solutions such as DVB-RCS and currently sponsors several projects that use SITs for the provision of Internet access via satellite.

The VSAT tutorial can be found on the ESA Telecom website under:http://telecom.esa.int/sitperf

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Dear Readers,

The European Space Agency (ESA) is inviting industry and experts from European Member States and Canada to come up with ideas and suggestions for future research and development activities in the area of satellite communication.

The Call for Ideas is open until 15 June 2007.

For more information and to submit your ideas, please go to:
http://telecom.esa.int/callforideas

Your ESA Telecom Team

In this issue:

- Interview with Ralph Bierett
  Head of the Strategy and Future Programmes Department
- Small GEO Platform
  Contract signed
- Mobile multimedia system
  The car radio of the future
- SITPerf Performance Monitoring Tool for IP Satellite Networks
  Now available

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