



THE INTEGRATED COMMUNICATION SYSTEM FOR ROMATSA

Datanet Systems, member of Soitron Group, has designed and implemented a voice and data transport system that ensures availability of 99.999% of the ROMATSA services in all locations.

Initial state

In 2002, Datanet Systems provided ROMATSA (Romanian Air Traffic Services Administration) with an integrated communication network based on IP Cisco technologies, supporting air traffic control services. Thanks to this project, ROMATSA became the first air traffic control operator in Europe adopting a communication model entirely based on IP technology.

In the past, regarding the communication infrastructure, the data/ voice network was made up of a mixture of communication lines and equipment.

It was composed mainly from analogue telephone lines for operational voice applications and leased lines, analogue telephone lines and modems for data applications. The previous network was heterogeneous and difficult to manage.

It involved high operating costs and had a low usage coefficient in terms of engagement time by the communication services. Also, some of the communication protocols for software applications used by ROMATSA were no longer supported by telecommunication service providers.

“ The integrated communication system using IP technology for voice and data traffic for air traffic control organizations was designed and executed by Datanet Systems, for the first time in Europe, using Cisco equipment for switching and packet routing. Our solution worked without any interruption for more than 10 years, representing a proof of the system stability, the correct design and the professional operations. ”

Gabriel Musat

Technical, operations and marketing Director at Datanet Systems

Customer requirements

Because of insufficient capacity and security level of the system, ROMATSA decided to launch the project of modernization of the telecommunication network.

New communication system has been purchased and implemented following

a public acquisition where the successful proposal was based on Cisco equipment.

Datanet Systems proposed considerable upgrade of the existing communication infrastructure, which consisted of design of the solution, implementation of the project and post-implementation technical assistance.

Communication applications used by ROMATSA has very high operational and functional requirements because of specific character of their activity. Therefore the customer expected the new communication system to provide:

- * increase of availability
- * reduction of the operating costs related to the communication services and systems
- * increase of the efficiency of using communications services

- * reduction of exposure of the system lifetime to influences generated by old technologies
- * voice and data transportation system interface with the new large area communication technologies (IP)

Modernization of the telecommunication network within ROMATSA has proved to be a real challenge for Datanet Systems. One of the most important requirement of the customer was that the operational system had to be replaced with minimum interruption in communication services, measured in seconds or minutes.

“The network architecture based on Cisco technology implemented at ROMATSA proves that the intrinsic flexibility of IP communications can ensure the resilience and the redundancy while reducing operational costs. This is of particular importance in areas such as air traffic control, where reliability is critical and standards are extremely stringent.”

Cristian Popescu
General Director at Cisco Romania

Solution

Datanet Systems, the Cisco partner with the largest specialized technical team and Cisco market share in Romania, provided ROMATSA with a unique, integrated communication system for all the locations where ROMATSA carries out its activity. The system ensures voice and data transport services and is designed to ensure an availability of 99.999% of those services.

The functional requirements of the system led the design team to choosing Cisco products and technologies, capable of ensuring a very high level of flexibility and reliability of heterogeneous communication services. The most important challenges of the project came from the high availability and safety requirements imposed by the specificity of the ROMATSA activity. Datanet Systems had to guarantee the high level of availability of the system and also the maximum level of security of transmitted data when migrating the services to the new communication technologies.

All changes had to be applied to a functional operational system, without the possibility to interrupt any voice service for more than 4 seconds, or RADAR service for more than 3 minutes.

Implementation of the Quality of Service (QoS) policy was also part of the solution. Datanet Systems proposed to implement QoS due to:

- * aggregation of data from various applications on a single communication infrastructure
- * need to distinct various priorities to the traffic generated by different applications

Quality of Service techniques solve the critical issue of prioritizing “critical” applications over “delay-tolerant” applications.

Results

Multiple deployments of Cisco equipment ensured a modern network based on IP protocols for supporting air traffic control services. This network serves as a platform for all air traffic control communications, including air-ground and ground-ground, and all data transfer for aeronautical applications. Datanet Systems solution helps ROMATSA to reduce operational costs and meet its special resilience and redundancy needs.

Thanks to the new communication system, ROMATSA benefits from:

- * A significant increase of the availability of its communication system;
- * The extension of the new communication system lifespan – the new system enables, through its reliability, modularity and flexibility, the provision of new applications and services for at least 8 to 10 years;
- * The increased stability of the system – in case of any failure or scheduled technical intervention the total time of interruption of the communication with a network node does not exceed 2 seconds;
- * A high traffic capacity – the performance of the data network in terms of processing packets have increased by 2 orders of magnitude.

As a consequence of these benefits, the increase of availability and system efficiency are ensured, and the end user's degree of comfort is expected to increase. By adding new locations within ROMATSA IP communication network, the communication availability with airports was improved.

Deployed products

The solution provided has been designed with a modular architecture and multiple levels of resilience and security, using the following products:

Cisco Catalyst 7600 for the core layer, completely redundant, high performance platform;

Cisco Catalyst 7600 Security: firewall and IDS/IPS equipment for the protection of the core network;

Cisco ISR 3800 / 3900, multiservice platform and Catalyst Switches (layer 3 and layer 2) for the access layer;

Network management solution based on **in-house developed application** combined with **CISCO LMS** and **ZOOM International Call Recording**;

Cisco Unified CallManager and **Cisco IP phones** for voice communications.



“ The services provided by Datanet Systems specialists make a difference through professionalism from every aspect. The expertise level is excellent, the response to our requirements has always been prompt and efficient. ”

Catalin Apostol
IT expert at ROMATSA



Romatsa

ROMATSA (Romanian Air Traffic Services Administration) was founded in 1991. It operates on the Romanian market as an administrator of air traffic services for the aircrafts that perform GAT (General Air Traffic) flights under IFR (Instrument Flight Rules) conditions in the Romanian airspace, as well as any other airspace delegated to Romania under international agreements.

At the same time, ROMATSA ensures a seamless management and development of the control activities of aircrafts that belong to users or operators, promotes harmonization and integration into the European specialized system (EUROCONTROL). Together with the Ministry of National Defense, ensures the coordinated usage of the Romanian airspace by the civil and military aviation.

www.romatsa.ro



Datanet Systems

Datanet Systems, established in 1998, offers a complete portfolio of products and professional services for data, voice and video communication networks, including planning, design, implementation, integration, training, technical assistance, operation support and optimization services.

Datanet is one of the most important providers of communication technologies for a large number of banking and financial companies and telecom operators, establishing partnerships with Cisco, EMC, CryptoCard, Sun Microsystems, HP, Tandberg.

At the same time, Datanet is one of the most important Cisco partners in Romania, having the statute of Cisco Gold Partner since 2004 and several Cisco professional certifications for its specialists.

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Our company has long been active in the European market as a systems integrator in the areas of IT Infrastructure, Unified Communications, Customer Interaction, Content Management, Security, IT Services and Outsourcing. For more than 22 years, we have been helping companies such as Tatra banka, Slovenská sporiteľňa, Orange, E-On, J&T, Hewlett Packard and many others to grow their business. Our philosophy is to continue moving forward; that makes us the leader in implementing unique technologies and innovative solutions. This is reflected in Soitron Group annual turnover of more than 113 million EUR in 2012.

Currently we have more than 600 international experts working for us, including professional teams in Slovakia, Czech Republic, Romania, Bulgaria and Turkey.

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