

10 February 2010

## CANAC 2 : Media briefing

**Belgocontrol** is an autonomous public company with the mission to ensure traffic safety in the airspace for which it is responsible and at the five Belgian public airports. Its zone of activity extends from ground level to flight level 245 (8,000 metres) for Belgium, and between flight levels 135 and 245 (from 4,500 to 8,000 metres) for the Grand Duchy of Luxembourg. The authority for the area beyond level 245 has been delegated to the Eurocontrol air traffic control centre in Maastricht (the Netherlands). Belgocontrol also offers aeronautical and meteorological information services that are indispensable to its mission and that meet the needs of airspace users, as well as training and consultancy services to external customers.

The **Single European Sky (SES)** is a European Commission initiative, which aims both to improve current safety standards and to increase overall efficiency in the organisation and use of the European airspace. It also aims to prepare for the long-term growth of air traffic, taking economic and environmental issues into account. These objectives imply a more rational management of European airspace, no longer based on the national borders of the Member States, but on criteria relating to operational efficiency, among others reorganising the airspace use between the civil and military actors. Four new European Parliament and European Council regulations came into force on 20 April 2004. These regulations have an immediate effect: they do not have to be transposed into national law. On 25 March 2009, a second legislative package has been added to the 2004 regulations, introducing performance objectives as regards safety, capacity, cost-effectiveness and environment.

**SESAR** : this is the technological part of the Single European Sky. The harmonisation of air traffic management on the European level can only be accomplished by coordinating the developments of the new ATM technologies and systems. That is the objective of the programme called SESAR (Single European Sky ATM Research), a partnership between public and private actors from the aeronautical sector that aims to develop a pan-European ATM system for the future.

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**FABEC** : the Single European Sky regulation aims to reorganise airspace irrespective of national borders and requires the States and air navigation service providers to construct Functional Airspace Blocks (FAB). Six States, that is to say Belgium, France, the Netherlands, Luxembourg, Germany and Switzerland, decided therefore to create the FAB Europe Central (FABEC) that covers the airspace of these six countries. A declaration of intent was signed between the six States on 18 November 2008 in Bordeaux and an agreement to make the FABEC official, should be drawn up in 2010. The seven civil air navigation service providers involved, i.e. those of the six States plus the Eurocontrol MUAC centre, have to practically organise, with their military counterpart, cooperation within the future FABEC. The Single Sky regulation imposes the implementation of the FABs at the end of 2012 at the latest.

**CANAC 2** is an air traffic management system that implements a new operational concept. It is installed in the new air traffic control centre of Belgocontrol in Steenokkerzeel as well as in the control towers at the five Belgian public airports: Brussels National, Charleroi, Antwerp, Ostend and Liege. CANAC 2 was put into service on 28 November 2009, without a noticeable reduction of capacity and thus with no major drawbacks for the airspace users. The heart of CANAC 2 is Eurocat-E, which is a software of the Thales ATM company that is one of the major stakeholders in the world of aeronautical equipment and an active member of the SESAR programme, i.e. the technological part of the Single European Sky.

**Strong points.** The CANAC 2 system improves the performances regarding safety, capacity, punctuality, economic and environmental efficiency in the most complex airspace of Europe. Its main advantages are the following:

- > **Dynamic management of capacity** : The flexible allocation of sectors enables a better adaptation of human resources to traffic conditions since traffic of any airspace sector can be managed from any work station. This was not the case with CANAC 1 where the work stations were linked to a given sector. Capacity, that is to say the air traffic control offer, can thus be more easily adapted to traffic demand in the different sectors.
  
- > **Maximal availability of air traffic control tools and information:** In the old CANAC, air traffic controllers had to change terminals in order to use some tools and not all of them had access to all useful information. In CANAC 2, the triptych consoles are the single access points to all the air traffic controllers' tools, whatever their function (radar operator or planner). This

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provides a high-level flexibility: for instance, new positions of air traffic controllers planners can be opened in order to cover a sector with heavy traffic, since all working positions in CANAC 2 give access to all the tools and information. CANAC 2 significantly increases the air traffic controllers' productivity and makes their working environment more comfortable, which is a safety gain.

> **Room configuration to optimize communication:** the lay-out of the petal-like working positions was not chosen at random. This configuration is the result of ergonomic studies that showed a bigger efficiency of voice and body communication between air traffic controllers. Communication is an essential component of the air traffic controller's job. There are four petals in the operational room: ACC West, ACC East, Approach and Training.

> **2-Men sector :** In the old centre, a sector was controlled by a team of 3 persons: one radar operator controller, one planner and one assistant. The automation of some tasks enables to suppress the assistant job.

> **Extended silent co-ordination with the neighbouring centres:** In the past, a defined number of messages or flight plan data could be exchanged electronically with neighbouring centres. The exchange possibilities are now extended to other data. This reduces the sources of human errors and the air traffic controllers' workload.

> **Increase of air navigation safety:** safety nets are covering all the stages of a flight course. Some safety nets are based on real-time radar data, as the Short Term Conflict Alert enhancement, which warns the air traffic controller when a risk of non-observance of safety distances between aircraft is detected. Other nets are based on a correlation between radar and flight plan data, and check for instance the route compliance or the flight level compliance. In CANAC 2, the essential systems are physically redundant and installed in the various computer rooms. Moreover these systems have two emergency levels that provide the main functionalities.

> **Tactical management of air traffic flows:** CANAC 2 provides air traffic controllers with both an overall and extremely accurate view of air traffic. This

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makes it easier to proceed to a dynamic management of traffic flows. The management tools for holdings and arrival sequence (AMAN) provided by CANAC 2 enable to anticipate potential delays, to reduce them thanks to a more accurate planning of the arrival sequence. They also enable aircraft to resolve these potential delays at high altitude and at the same time to save fuel. The management of departure routes takes into account the military activity. This will enable us to adopt more direct routes, to relieve congestion in already heavily used routes, to reduce flight time and thus to fully meet our customers' expectations.

> **Possibility to create new sectors and to manage new airspace:** CANAC 2 has many working positions and has been designed with the prospect of creating new sectors in order to be able to absorb the military air traffic control or new sectors resulting from an extension of the area for which Belgocontrol is responsible within the FABEC. Belgocontrol has indeed an advanced air traffic control centre and sufficient capacity to extend its services beyond its current boundaries.

> **Very realistic training programmes:** for the work of the air traffic controller as well as for maintenance and the management of breakdowns by the technical teams. The Training petal has the same configuration and offers exact the same instruments as the three other petals in the operational room. The training programme can simulate traffic scenarios on the basis of registered operational data. The training petal can also be connected to the operational platform and thus be fed with real traffic data. The Training petal is also used to test new procedures and working methods, to simulate breakdowns and to test new functionalities, etc. If required by traffic conditions, the working positions of the Training petal can be used for operational air traffic control.

## Operational Room - facts and figures

> The operational room comprises 4 petals: ACC West, ACC East, APP and Training. Each petal counts 14 working positions and a Team leader position. In the middle of the room we have Centre Supervisor and Traffic

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Manager working positions who plan and coordinate the work in the operational room.

- > The operational room of the new centre is 29 metres wide and 35 metres long, which makes a surface of little more than 1000 m<sup>2</sup>. The height of the ceiling is 6m70.
- > The light shaft with a side of 5.9 metres gives natural light to the room.
- > Each working position is composed of a console with a triptych of screens, as well a device for digital communication. Each consol gives access to all air traffic control tools by means of one single keyboard and one mouse. The functioning is equal to that of a standard PC.
- > Each console is equipped with its own computer with a Linux operating system and independent aid systems. These computers and systems are connected to servers in the data processing rooms in order to form a network. This network counts more than 60km of cables and 2km of optical fibre cables.

**BELGOCONTROL** is an autonomous public company, created in October 1998, with the mission to guarantee the safety of air navigation in the airspace for which Belgium is responsible. Its zone of activities extends from ground level (at Brussels airport and the airports of Antwerp, Charleroi, Liege and Ostend) to 8,000 metres for Belgium and from 4,500 to 8,000 metres for the grand duchy of Luxembourg. The Eurocontrol centre in Maastricht is responsible for the area above 8,000 metres, and jointly manages the air traffic of the upper airspace of Belgium, Luxembourg, the Netherlands and the western part of Germany. Belgocontrol manages the air traffic at five public airports: permanently at Brussels Airport, Antwerp, Charleroi, and Ostend, and only at night during the week and 24/24h during weekends in Liege (the military is responsible for the traffic control by day during the week).

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