

> Simulation

In Mont-de-Marsan, the renovated simulation center takes into account the changing conditions of modern air combat. A complete system which combines realistic operational configurations and efficient teaching resources.



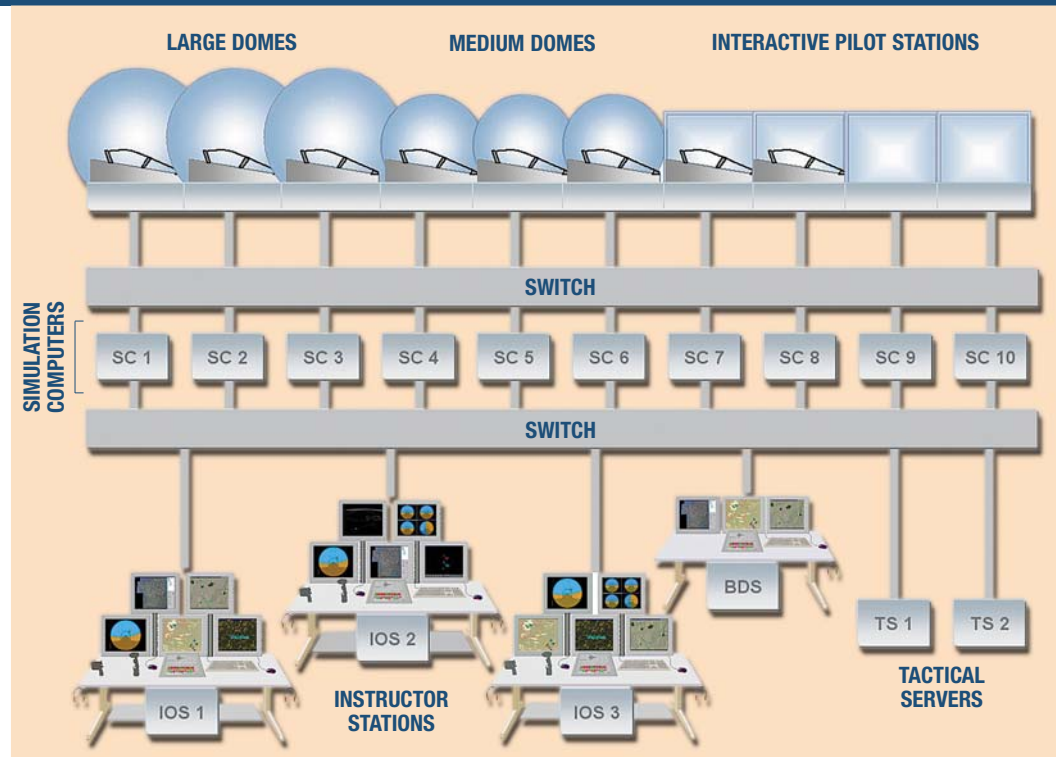
NETWORK TRAINING FOR COMPLEX TACTICAL SITUATIONS

An easily reconfigurable architecture

From the beginning, the architecture of the CEC was designed to create a homogeneous simulation center and not a juxtaposition of simulators which are occasionally linked together. The exercises simulated can involve dozens of airborne players (more than 30 aircraft and 40 missiles in flight) operating in an environment of maximum complexity (air situation, terrain masks, etc.) and using the most recent weapon systems, either individually or on patrol. The sequence of operational phases (briefing, mission preparation, performance, debriefing), which is fully complied with for teaching purposes, is complemented by functions specific to training: replay, post-action analysis, etc. Depending on the teaching objectives, four levels of restitution of the visual environment can be selected: wide visual fields in a large dome (300° H x 130° V), more restricted fields in a small dome (280° H x 120° V), projection on a flat screen in a closed compartment, or monitors associated with a simplified cockpit. All in all, an easily reconfigurable architecture which offers all the flexibility required to successfully conduct both independent missions executed simultaneously and a single complex mission mobilizing all resources.

intelligent and autonomous simulation of a realistic tactical framework. Integrated in the instructor and preparation or briefing/debriefing workstations, the functions of the TS offer the full range of operational and pedagogical options required: definition of the platforms and their characteristics (kinematics, NWS, counter-measures, weapons, flight mechanics, etc.), volume (number of aircraft and missiles), taking into account of the environment (relief, weather conditions, performance of sensors, etc.), modeling of the various types of combat, definition of the missions, specific teaching functions (temporary takeover by the instructor and direct intervention, replay, observation of behavior, etc.). On the instructor control panels, a wide choice of possible views, such as 2D and 3D views of the tactical situation, cockpit views and reproductions of the piloted aircraft's displays contribute to the quality and reliability of the teaching. With the CEC, which is now fully operational, the French Air Force now has the biggest real-time simulation center in Europe, in which air defense pilots and ground attack pilots will be able to meet and exchange their experiences more easily. ■

1. Medium dome (foreground)
2. Projection in large dome
3. Mission performances at the instructor stations
4. Mirage 2000 cabin in medium dome



Previously limited to stand-alone flight simulators, the concept of training has undergone radical changes. The main reasons for this are the drastic reduction in training flight hours and the low frequency of major air exercises, which are direct consequences of economic constraints and the new geostrategic context, particularly in Europe. The trend today – irreversible in major air forces – is

therefore towards high-level collaborative training in multinational systems, generating a realistic and complex tactical environment rapidly adaptable to new threats through appropriate tactics. The Mont-de-Marsan Combat Training Center (CEC), in which several simulators brought together on the same site function in collaborative mode, is Sogitec's response to this new situation.

A powerful tactical server, the heart of the system

In addition to the simulation equipment proper, which forms its backbone, the system is complemented by a structuring computer configuration using "off-the-shelf" hardware and software (around a hundred PCs), while conventional Ethernet switches are used to configure the networks. The real heart of the system, however, is constituted by the tactical server (TS), a particularly advanced system developed by Sogitec which compensates for the inadequate number and nature of the participants in the aerial exercises by

HIGH-PERFORMANCE CHARACTERISTICS

- Ten simulations of aircraft piloted simultaneously ,
- Simulation of 5 combat aircraft in service in the French Air Force
- Easy creation of simulations of foreign aircraft (F16, Mig, etc.)
- Realistic simulation of possible players (French aircraft + foreign aircraft and their weapons)
- Optimized operation enabling rapid reconfiguration of the center
- Easy creation of tactical scenarios
- Mission preparation and follow-up systems.