How can ESA (and the European community) benefit from focusSuite®

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In a world where the concepts of globalisation and economy are taking unprecedented meaning, the need for general development frameworks is becoming more and more evident to the aerospace community. The times when the main concern and effort for the flight dynamics developer was to implement generic and robust algorithms for the satellite control and monitoring (i.e., the black-box concept in the early 80's) without paying due attention to the human-machine interface (i.e., plain tabular representations without scrolling capabilities, as in the MSSS, helped by the rather limited capabilities of the old operating systems, where the importance of monitoring resided in the quality of the data and not in the presentation) are definitively over. Ergonomic, operations ease and robustness, modern visualisation concepts, etc are just a few of the terms that started to be commonly used in the operational environments from the 90's (i.e., operating systems enhanced with dedicated visualisation tools to help operators to better use and exploit the implemented control algorithms, minimising the operational risk by the usage of alarms, automatic data consistency, etc).

In the attempt to improve the HMI aspects of the FD operational systems, the use of Commercial Off-The-Shelf (COTS) products – specially from the USA - has become one of the most extended trends has been until now. This concept has proven to be of rather limited application in the European aerospace market, in particular due to the limitations in the maintenance - both corrective and evolutive - policy required by the European industry: those COTS are difficult and expensive to change should the particular mission require modifications to the provided baseline capabilities and features of the product; the argument has always been that system rigidity is implicit to (pretended) low cost solutions, although the experience has shown that the licensing policy of those COTS is nothing but cheap.

focusSuite®, a client-server concept, was born after a dedicated and mature analysis of the currently existing (particularly European) flight dynamics systems, providing effective solutions to those detected deficiencies and limitations of the first attempts to provide generic FD systems suitable for the control of a variety of different platforms, with a special emphasis on the European operational end-to-end concept (from requirements compilation, architectural design and implementation to final validation and operation) represented by ESA/ESOC and the need for automation.

ESA can fundamentally benefit with focusSuite® from that professional pros & cons analysis of the different solutions and with the particular point of view of European monitoring and control practices and procedures. It is a true flight proven European COTS, with a long list of remarkable highlights:

- Conceived, designed and implemented to become a reference for future FD systems
- Designed to be highly configurable.
- Supports a variety of multiple operational approaches, allowing for easy extensions of the system. Smooth evolution and system growth
- Unlimited custom solutions are possible together with the highest of professional standards in custom support and software maintenance:
  - Extensions to the system
  - Adaptation of interfaces
  - Integration of new functionality with unprecedented ease
  - New computational modules
  - User interface adaptation
- Scalability
  - Capable of managing virtually unlimited number of satellites from different manufacturers
  - Safe and efficient means to allow a highly concurrent use of the system
  - Runs in any standard low cost Unix, Linux or Windows workstation or any combination of them.
  - It includes an API (Application Programming Interface) for extensions to third party and custom applications.
  - Export of FD products and internal data in XML format
- Reliable Ergonomic MMI
  - Advanced dynamic MMI
  - Events browser
  - Undo/Redo
  - Graphical representations
  - Highly customisable
  - Scenarios management