EGS-CC

EUROPEAN
GROUND SYSTEMS
COMMON CORE

SESP 2017 – EGS-CC Status

30/03/2017

Objectives of the EGS-CC Initiative

- The EGS-CC Initiative aims at developing a common European Monitoring & Control infrastructure. These are the main expected benefits:
  - Increased synergy across all pre- and post-launch mission phases
  - Reduced overall development, sustaining and maintenance costs
  - Enable the modernization of legacy implementations of Electrical Ground Support Equipment (EGSE) and Mission Control Systems (MCS)
  - Facilitate cost and risk reductions when implementing space projects through the provision of a stable common infrastructure
  - Promote the cross-fertilisation and enable the exchange of ancillary implementations across organizations and across missions.

Stakeholders of the EGS-CC Initiative

- EGS-CC is a collaboration of large system integrators and space agencies to develop a common core
  - AIRBUS Defence & Space
  - CNES
  - DLR
  - ESA ESOC
  - ESA ESTEC
  - OHB System
  - Thales Alenia France
  - Thales Alenia Italy
  - UKSA

We share the same problems: let's collaborate to find a common solution

Stakeholders and Integrators

- Stakeholders: signatories of the EGS-CC Collaboration Agreement
- Integrators: stakeholders that are actively integrating EGS-CC into their respective infrastructure
- Integrators are:
  - Airbus DS (Toulouse, Bremen, Friedrichshafen, Le Mureaux)
  - ESA (ESTEC and ESOC)
  - TAS (France and Italy)
  - GSOC (DLR)

EGS-CC Products

- EGS-CC products will continue to be developed by a collaborative community after completion of Phase C/D
- Products are not limited to the EGS-CC operational software. They also include:
  - Software validation infrastructure: Component Test Framework and Reference Test Facility
  - Basic Software Development Environment
  - Collaboration and distribution platform, CSDE hosted by ESA
  - Procedures and rules for software delivery and maintenance
- Back-end supported on OpenSuSE and SLES
- Front-end supported on Windows, OpenSuSE and SLES

EGS-CC Wish List…

The objectives of the EGS-CC initiative are very ambitious:

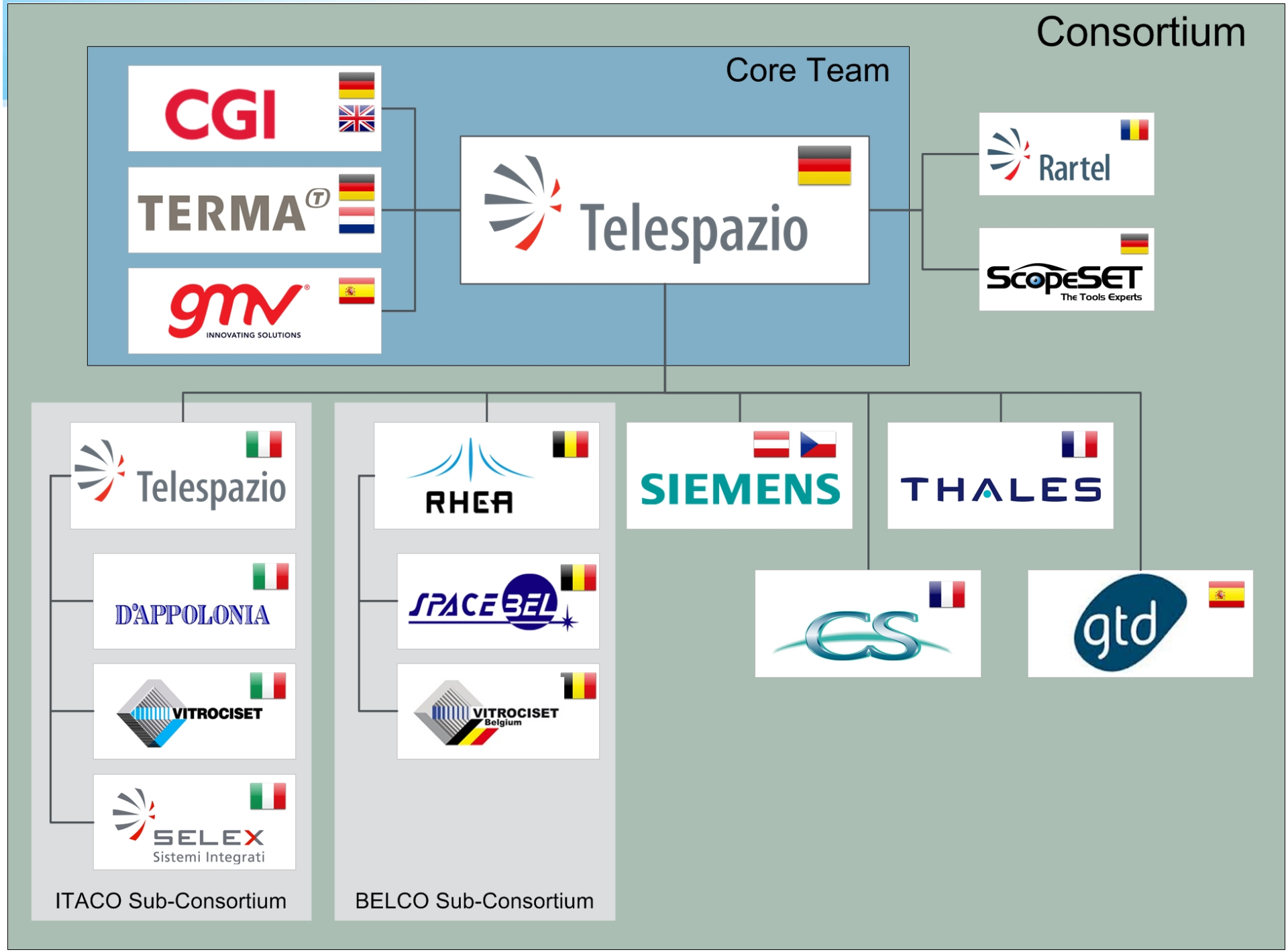
- Support of all mission phases
- Support of all mission types
- Support of heterogeneous space systems
- Generic and extensible functionality
- Designed for automation

- Component based, service oriented architecture
- Interface based design, strict dependency control
- Clear separation between generic M&C functions (kernel) and specific features of the controlled system (adaptation layer)
- Clear separation between the infrastructure and the application specific implementations

- High performance and scalability
- Long term maintainability (technology isolation, adoption of standards, portability, modularity, etc.)

EGS-CC Licensing

- EGS-CC products will be licensed as open source (similar to LGPL) within the ESA member territories:
  - Source code is available to users and can be modified by them
  - Users can sub-license the software
- EGS-CC may be licensed outside the ESA member territories under ESA Technology Transfer rules
- ESA will hold the IPR for EGS-CC products on behalf of the stakeholders
- Users may contribute to the EGS-CC baseline: bug corrections, improvements, etc.
- Interim license available for usage during development with limited conditions


Consortium
Core Team
CGI
TERMA
gmv
INNOVATING SOLUTIONS
Telespazio
Rartel
ScopeSET
The Tools Experts
Telespazio
D'APPOLONIA
VITROCISET
SELEX
Sistemi Integrati
ITACO Sub-Consortium
RHEA
SPACEBEL
VITROCISET
Belgium
BELCO Sub-Consortium
SIEMENS
THALES
CS
gtd

Releases up to now

- Releases delivered so far:
  - 0/1: first SDE release
  - 0/2: second SDE release
  - 0/2 + hotfix 1: added code generation functionality
  - DR 1/1: API generated code and dummy implementation for most components + SDE update
  - DR 1/2: first version with some functIonality + SDE major update (CTF and TMS)
  - DR 1/3: added functionality (and export/import API)
  - DR 1/4: first integration scenario demonstration
  - DR 1/4 + hotfix 1: finalisation of Release Document and new scripts to help with command line build
  - DR 1/5: added functionality
  - DR 1/5 + hotfix 1: correction of workflows, tests and incorrect repository
  - DR 1/6: release candidate
  - DR 1/6 + hotfix 1: issues with Release Document formatting and Git repository
  - DR 1/6 + hotfix 2: issues with deployment scripts and documentation
  - IR1: incomplete release, provided only because of infrastructure problems at the Prime
  - IR1 + hotfix 1: complete IR1 release
  - IR1 + hotfix 2: solution of blocking build problems
  - IR1 + hotfix 3: final IR1
  - DR 2/1: invalid release
  - DR 2/2: release candidate for IR2
  - IR2
  - IR2 + delta1: implementation of a number of Class A changes

Current Status

- Component based, service oriented, innovative development lifecycle and associated technologies have required a steep learning curve across a large consortium
- Some delay in the schedule (~4 months)
- Significant effort has been taken up by preparation of deliveries
- Limitations in installation, deployment and configuration have hindered usage by Integrators and validation activities by the Industrial Consortium
- Significant number of change requests (new or changed requirements)
- Backlog of validation activities

Releases

- Five Integration Releases prior to Final Release: major intermediate releases
- Development Releases: additional releases in between Integration Releases
- Despite automating the delivery process to a high extent:
  - Significant effort on the Integrators' side to build, deploy and use the releases
  - Significant effort on the Industrial Consortium side to produce the releases

Current Strategy

- Releases in 2017 reduced to two
- Freeze of changes to requirements
- Additional scenario based validation
- Priority:
  1. Increasing stability and robustness
  2. Simplify deployment, configuration and tailoring
  3. SPR fixes
  4. Development and integration of Integration Release 3
- This will allow to recover the backlog of Requirements Baseline validation

Conclusions

- Development has progressed significantly
- Although not operational, current releases allow to demonstrate fundamental functionality of the EGS-CC
- Integrators have initiated already major activities around EGS-CC