a Sopra Steria company

# GOSMIC

## GROUND SEGMENT PRODUCT LINE

https://gosmic.eu

**A dual satellite operations platform and service developed by CS GROUP.**
**Cloud-native, secure and scalable.**
**Designed for constellations and new space missions.**

**Built in and for the cloud, GOSMIC relies on a Docker / Kubernetes micro-services architecture to deliver performance, scalability and business continuity.**

**GOSMIC** (Ground Operation System and Mission Intelligence Center) Satellite Ground Segment is a product line developed by CS GROUP, based on its long-term experience in developing and integrating **Control Centers, Mission Planning, Flight Dynamics Systems and Production Centers.**

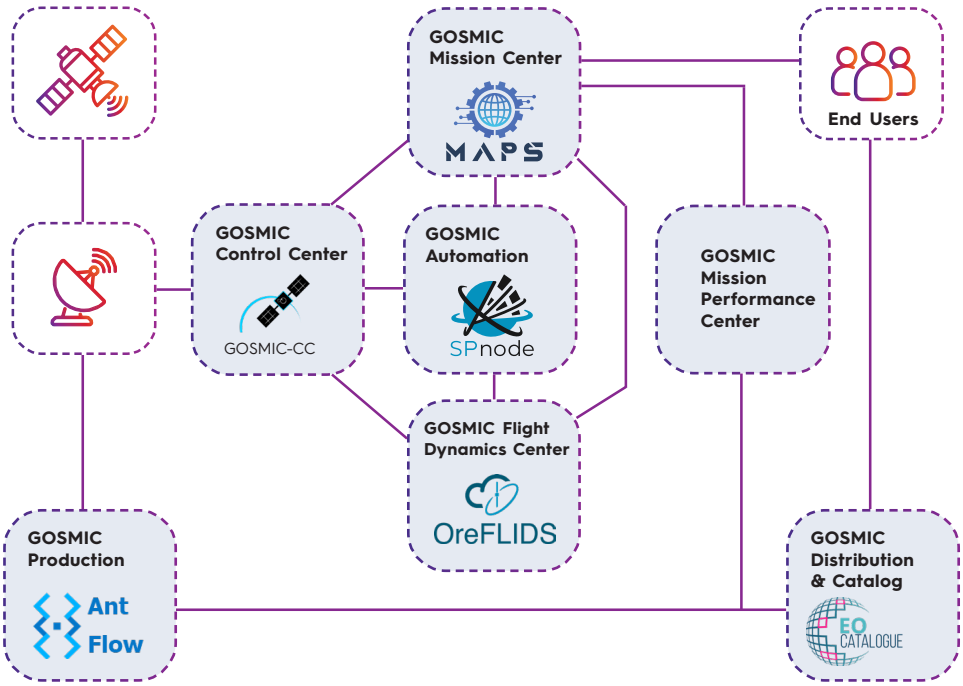
All products composing GOSMIC Ground Segment consider both **NewSpace requirements** (fast development, simple deployment and cost reduction) and **SmartSpace expectations** (reliability, performance and wide constellation support).

**GOSMIC is a modular and cloud-native Ground Segment Product line composed of interoperable components.**

GOSMIC is based on an integration of CS GROUP products for each of the ground segment functional blocks: Control Center, Flight Dynamics Systems, Mission Center, Production, Calibration & Validation Center and Data Distribution Center.

GOSMIC

GOSMIC can be deployed as a full end-to-end solution or through selected components integrated into the client's ground segment, either on-premise or in the cloud. Its cloud-agnostic architecture ensures multi-cloud compatibility without dependency on any provider, delivering flexibility, portability, and avoiding vendor lock-in or hardware constraints.



## Use cases

Supported mission profiles for the GOSMIC Ground Segment Product Line:

### In-Orbit Services

GOSMIC supports advanced in-orbit operations such as refueling, repair, relocation, debris removal, inspection and on-orbit assembly.

Our flight dynamics system ensures precise maneuver planning and control, as demonstrated in missions like ADRAS-J.

### Earth Observation

GOSMIC payload data ground segment runs data pipelines and parallelizes processing tasks dynamically to provide the best performances and optimize the use of computing resources. It ensures data quality, traceability, and availability. It's an optimized solution for transforming space data into critical information for environmental monitoring, global water resource management, climate change studies, natural disaster management, agriculture, urban planning and civil/military security.

### Telecom & IoT Constellations

For large communication and IoT networks, GOSMIC provides a unified control infrastructure.

Our control center supervises multi-satellite operations, automates telemetry and telecommand flows, and ensures continuous service for global broadband and data missions.

### Space for Defence

GOSMIC offers a **secure, reusable** satellite sovereign ground segment for defence operations (in-orbit services and inter-satellite rendezvous operations and monitoring). It has a **modular, sovereign, and interoperable architecture** that is quick to learn for defence operators. It is connected to an **early warning service** and **optimized** to meet defence needs in real time.

## GOSMIC features

### Cloud native solution

GOSMIC components are **built in and for the cloud** (relying on a Docker/Kubernetes architecture). Optimized to get the most of this architecture including cost savings, improved performances, resiliency, scalability and business continuity.

### Scalable architecture

GOSMIC architecture is **not limited** in terms of number of satellites. Dedicated SDB, TM and TC chains can be instantiated for each new satellite. The chains can be deployed on demand so that **hardware resources** utilization is **optimized**.

### Quick & smooth deployment

GOSMIC components architecture is designed to be **Cloud Agnostic.** Solution is not tightly coupled to the features, services, or APIs of a particular cloud provider. This approach maximizes flexibility & portability, avoid any vendor lock-in and minimizes hardware infrastructure dependencies.

### Full automation

All GOSMIC components are based on a **microservices architecture,** with a **web-based user interface** (UI) and a service access system via REST APIs. The GOSMIC ground segment can therefore be **fully automated** thanks to its scheduler.

### Flexible solution

Flexible architecture by design allowing an easy **integration of new satellites.**
**Heterogeneous constellations management** - whether satellites are positioned in various orbits or have different platforms, GOSMIC components can handle all the situations.

### Constellation management

GOSMIC is designed for constellations management providing a **performant automation module** with user-friendly operator interface.
It also offers a **centralized satellite configuration** (common parameters declared once in a single place, same configuration and/or satellite database applicable to several satellites).



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