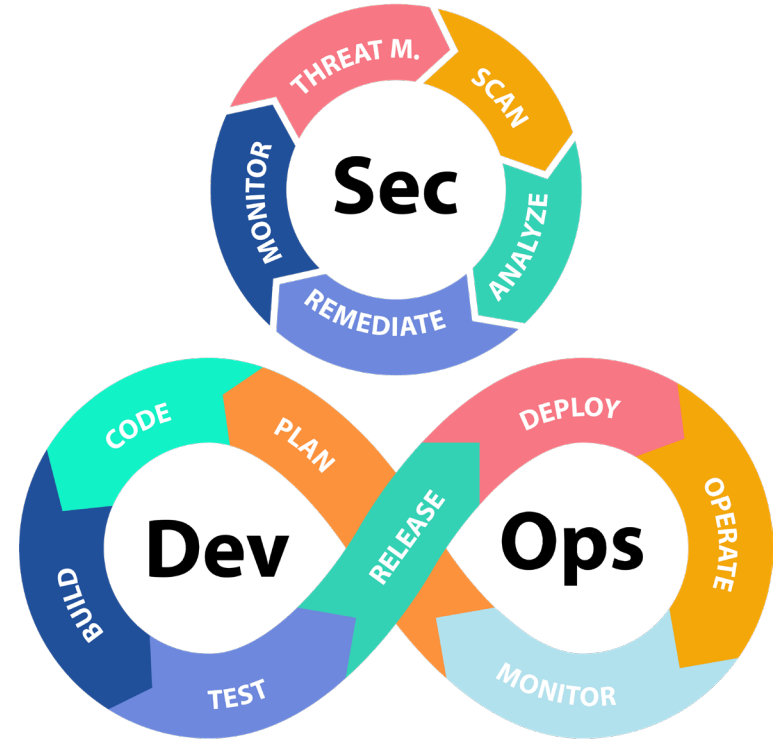


EGOS-MG

A DevSecOps approach to Multi-Mission operations

27 February 2024



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Rui Santos, ESA/ESOC

Agenda

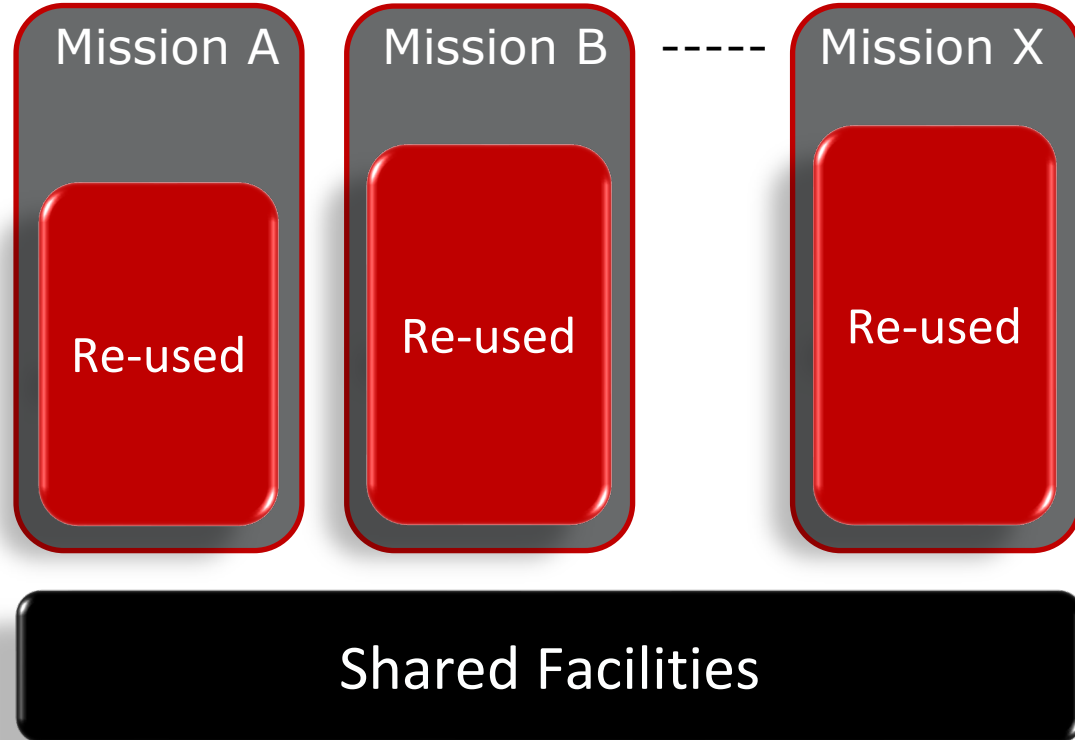
- **Background & Overview**
- **Architecture**
- **Status & Next Steps**

Background & Overview

Current Approach

Mission Centric Lifecycle

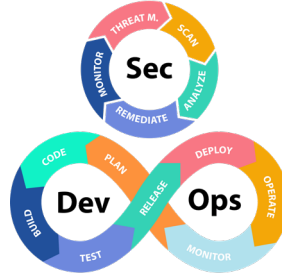
- Dedicated processes, tools, lifecycles and systems
- Large re-use of generic implementations
- Shared IT and OCC Facilities



Target: An integrated Eco-System of App. and Services

Multi-Mission Lifecycle

Application layer: Generic Applications supporting the complete Operations lifecycle for all missions



Infrastructure layer: Integrated Multi-mission Environments supporting the complete System lifecycle



Why?

- To reduce efforts/costs on set-up and operations of missions control ground segment
- To reduce risk and 'leading time' to reach an operational state (target is 3 months!)
- To increase overall security



The EGOS-MG approach

- Supported missions
- Application-level multi-mission support services
- Integrated environments supporting all mission systems throughout their complete lifecycle
- Shared Infrastructure Services

Mission A

Mission B

Mission X

Shared Application Services

Integrated Environments

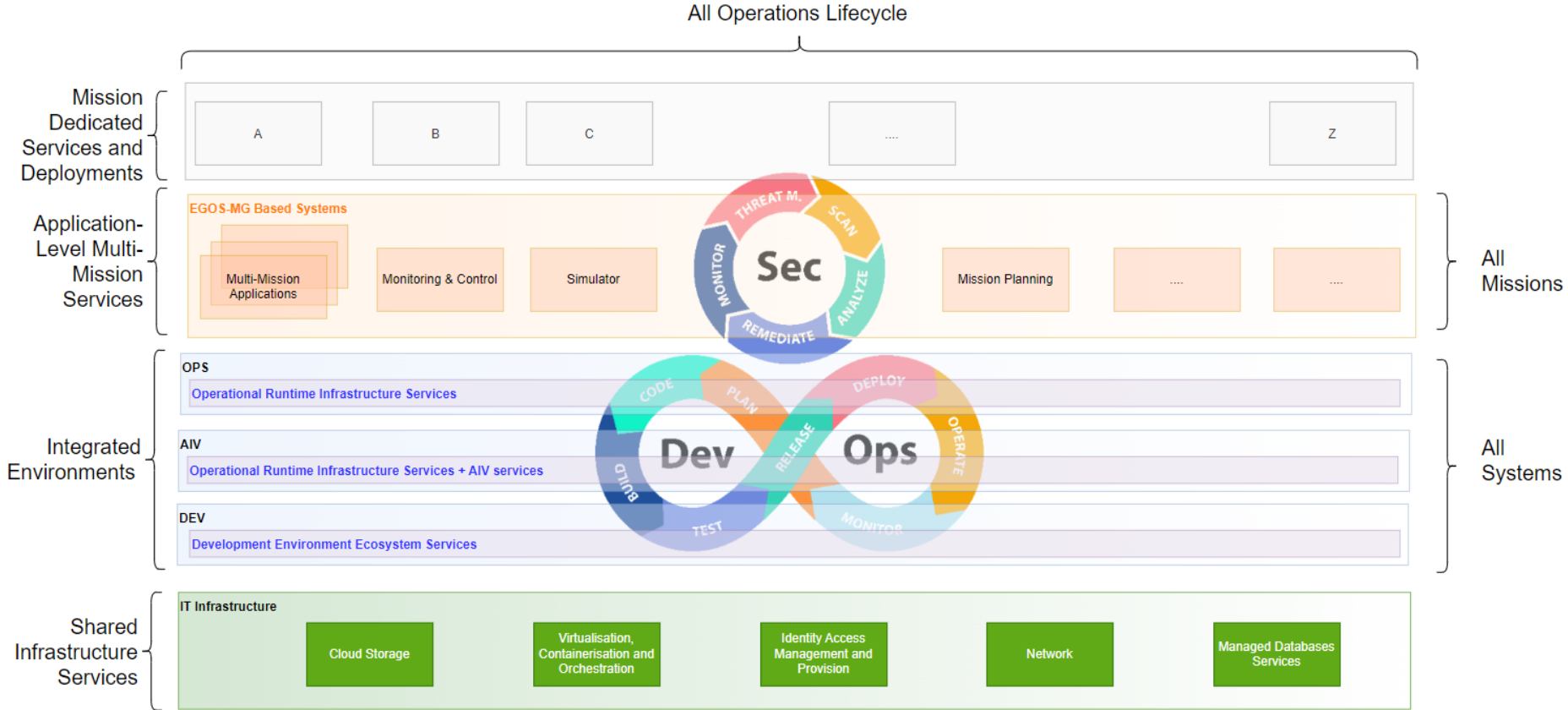
Shared Infrastructure Services

Architecture

Key Aspects/Features

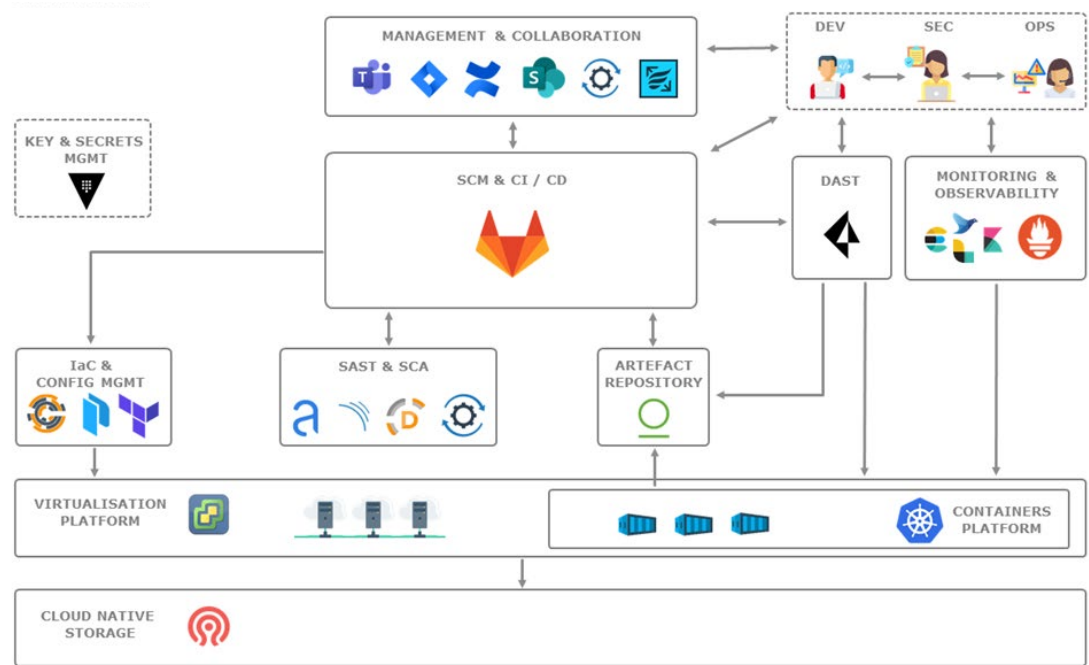
- Agile Methodologies / Scrum
- Cloud technologies
- DevSecOps
- Scalable and shareable resources
- Zero-Trust Design principles
- Platform(s) as a Service
- Application(s) as a Service
- Security independent certification to support high levels of protection

Layered Architecture



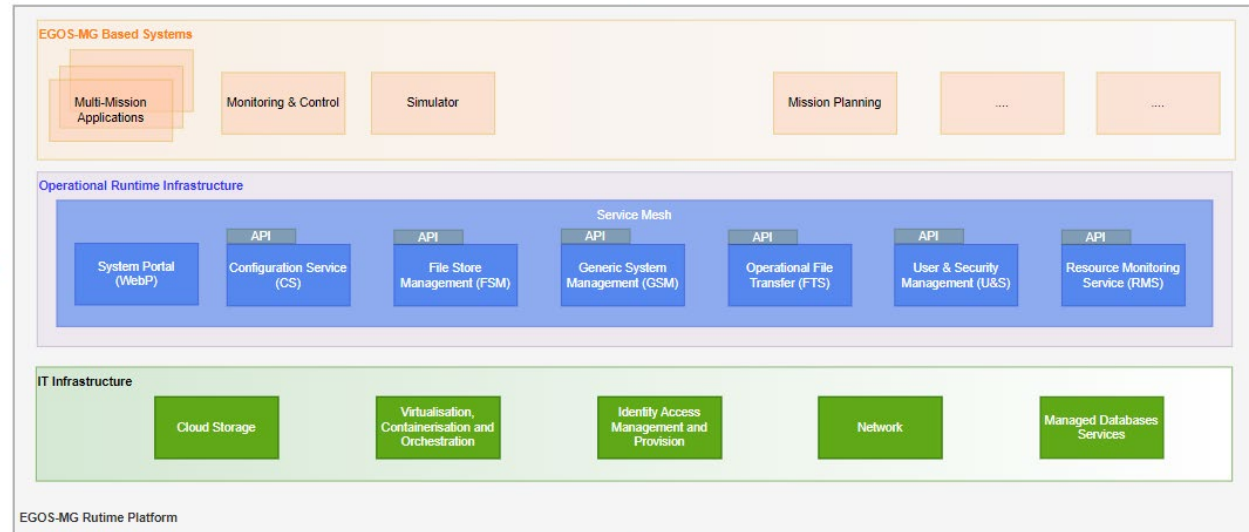
Development Environment

- Fully Integrated DevSecOps Ecosystem
- Not restricted to applications to be deployed in the EGOS-MG Run-time Infrastructure
- Provides Common Stores
 - ❖ SW Development
 - ❖ Keys & Secrets Store
 - ❖ SW Release and Deployment



OPS & AIV Environments

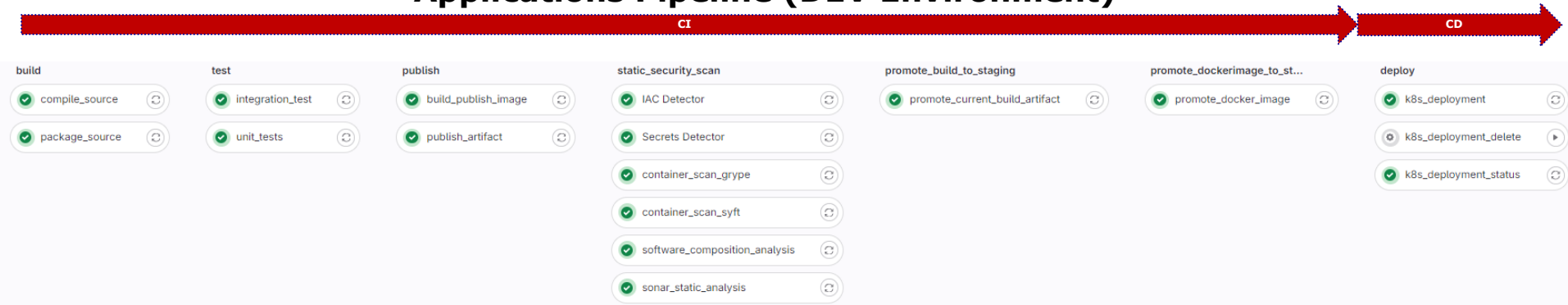
- Unified environments for managing applications across various missions and projects
- **Operational Runtime Infrastructure** deployed on OPS and AIV Environments
- **OPS Envs:** Systems in Operations
- **AIV Envs:** Systems Under Test



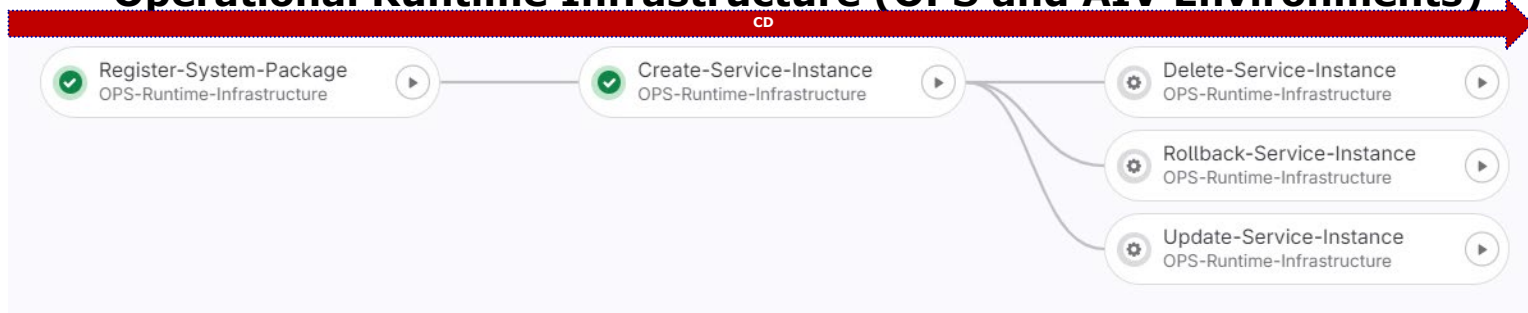
CI/CD Pipelines

- Multiple CI/CD pipelines available


Applications Pipeline (DEV Environment)







Operational Runtime Infrastructure (OPS and AIV Environments)






Portal & Services


EGOS-MG
GMV Integration ▾

Welcome to EGOS-MG System Portal (user: egosmg admin)

Choose a context

- 
GAIA
GAIA Mission
- 
Bepi-Colombo
Bepi Colombo Mission
- 
Sentinel SP
Sentinel SP mission


EGOS-MG
GMV Integration ▾
Sentinel SP ▾






CONTEXT: SENTINEL SP

- Resource allocation ▾
 - Systems
 - Service Instances**
 - Linked Systems

Service Instances ?

[Refresh](#)

Name	Title	System	Status	Actions
<div style="display: flex; justify-content: space-between; align-items: center;"> ⌵ s5psim + Create </div>				
s5psim-desktop-ui-530	s5psim-desktop-ui-530	s5psim (s5psim) - desktop-ui-service	running	<div style="display: flex; gap: 5px;"> Stop User Session Update Snapshot Delete </div>
s5psim-session		s5psim (s5psim) - session-service	running	<div style="display: flex; gap: 5px;"> Stop User Session Update Snapshot Delete </div>
<div style="display: flex; justify-content: space-between; align-items: center;"> ➤ mcs + Create </div>				



Status & Next Steps

Status & Next Steps

1. Model Based System Engineering (MBSE)
2. Production of Integrated Environments
 - Development (DEV)
 - Operational (OPS)
 - Assembly Integration and Verification (AIV)
3. DevOps Services
 - Development part in the DEV Env.
 - Operational services in the OPS Env.
4. Migration of existing EGOS systems to the new concept
5. Support of first pilot missions (planned for Q1 2024)

Legend: Done Ongoing Not started





Thank you

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gmv.com

Questions?