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Infrastructure as Code and DevOps approach for the SVOM mission

Thursday 18 April 2024 12:00 (25 minutes)

The Space-based multi-band astronomical Variable Objects Monitor (SVOM) is a French-Chinese mission dedicated to the study of the most distant explosions of stars, the gamma-ray bursts. This talk will cover a brief overview of the whole mission infrastructure before focusing on the French Scientific Ground Segment (FSGS) infrastructure. The FSGS relies on a micro-services architecture with a full container based approach. The development of these micro-services are under the responsibility of several French and Chinese laboratories. Thus to ensure control and homogeneity among the different actors during the integration / delivery / deployment process we make an intensive use of the GitLab CI/CD by adopting a common git workflow and common job CI templates automatising the build, test, packages delivery and deployment steps. The micro-services orchestration is performed with Docker Swarms, we are currently migrating towards a Kubernetes cluster in high availability mode.
The FSGS uses 3 environments sites for the integration, pre-production stages and production. Each environment consists of an OpenStack project hosted at the IN2P3 Centre de Calculs and at IJCLab. The deployment of our infrastructure on each of these environments is fully automatised using a combination of Infrastructure as Code (IaC) tools, namely Terraform and Ansible. The former for provisioning the immutable OpenStack cloud infrastructure (Network, VMs, Volumes, Security Groups) and the later for configuring the VMs. This IaC approach drastically improved the immutability and idempotency of our infrastructure with reasonable effort which is valuable when manpower is limited.

Desired slot length

20

Speaker release

Yes

Author: Dr CORRE, David (CEA Irfu/Lilas)

Co-authors: Dr FORMICA, Andrea (CEA Irfu/Lilas); Dr LOUVIN, Henri (CEA Irfu/Lilas)

Presenter: Dr CORRE, David (CEA Irfu/Lilas)

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