

# CODEEN

COLlaborative DEvelopment  
ENVironnement for Euclid  
spacecraft

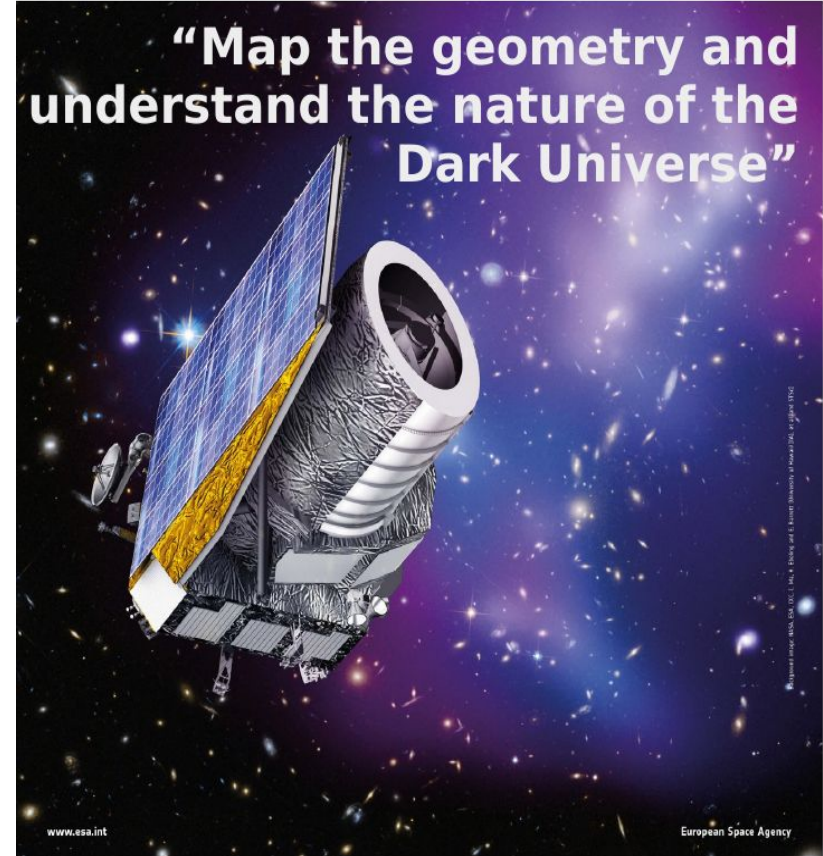


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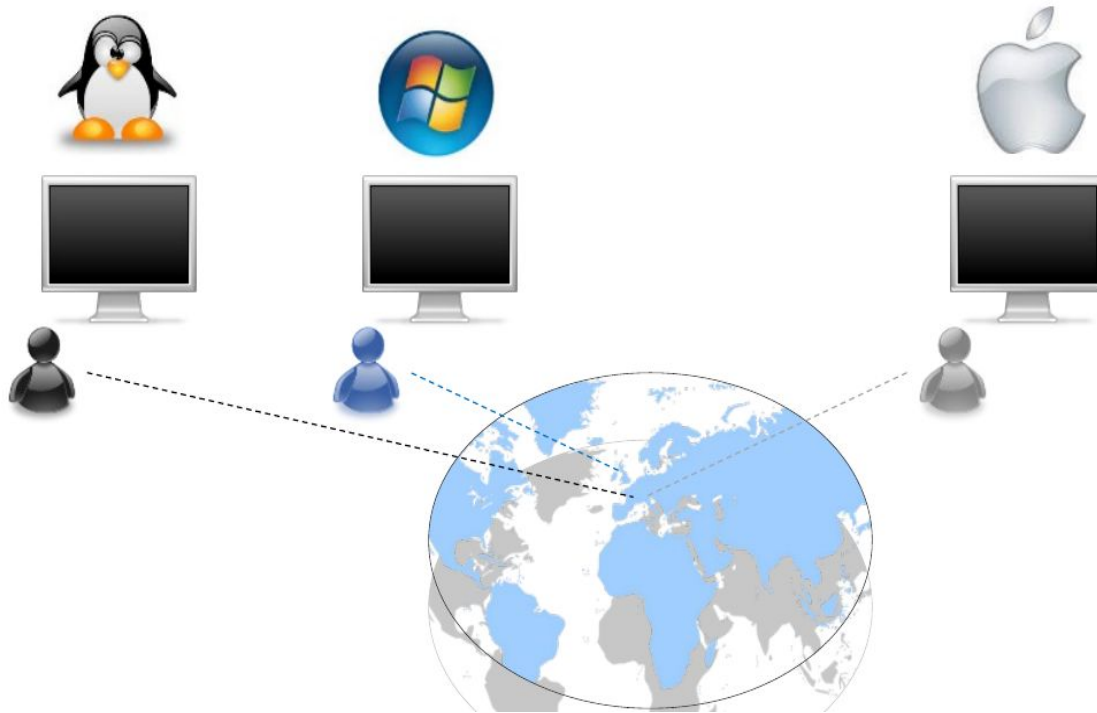


- **Euclid is an ESA medium class astronomy and astrophysics space mission**
- The imprints of dark energy and gravity tracked by two complementary probes: Weak gravitational Lensing and Galaxy Clustering
- Euclid will be equipped with a 1.2 m diameter mirror telescope feeding 2 instruments : a high quality panoramic visible imager (VIS), a near infrared 3-filter photometer (NISP) with spectrograph
- Launch is planned for 2023
- *“Aims at understanding why the expansion of the Universe is accelerating and what is the nature of the source responsible for this acceleration which physicists refer to as dark energy.”*

Source : <https://www.euclid-ec.org/>



## Comment fédérer des environnements différents?



# EDEN : Euclid development environment

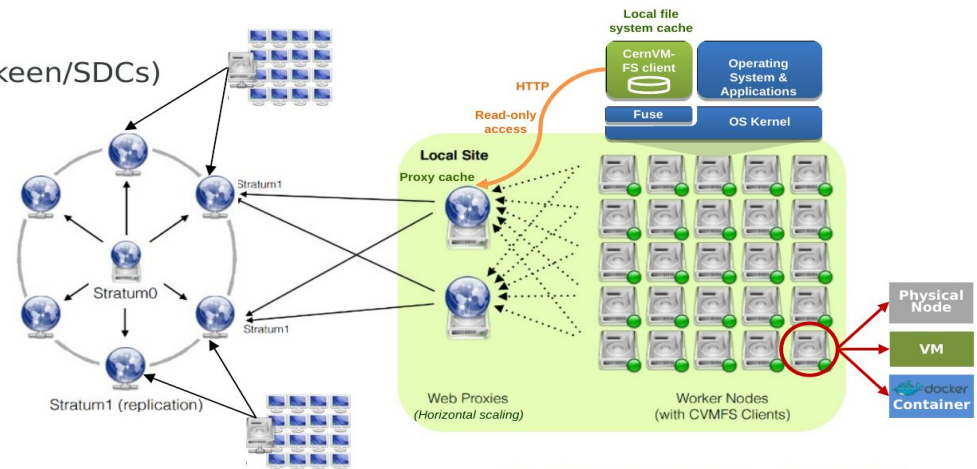
- **EDEN** : Euclid development environment, is the **reference environment**. Among others, it defines the coding rules, the operating system, languages and libraries.
- **LODEEN** : local development environment. It is a **virtual machine** which implements **EDEN** and even
- **DOCKEEN** : EDEN inside a Docker container



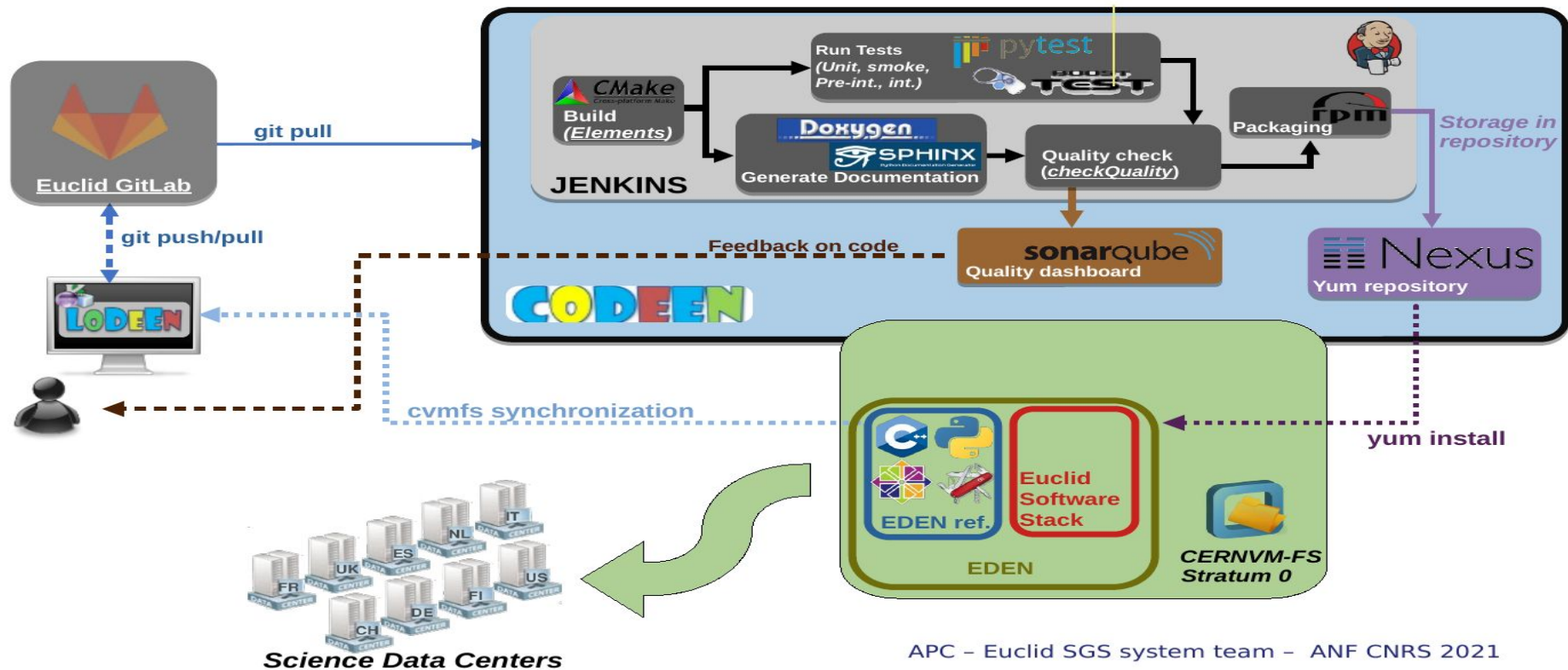
- CernVM-FS is a network filesystem, which you can mount in Linux or macOS via FUSE (Filesystem in Userspace) and on Windows in a WSL2 virtualized Linux environment.  
In some ways it is similar to other network filesystems like NFS or AFS, but there are various aspects to it that are quite different.
- Read-only filesystem over HTTP
- Developed and maintained by CERN
- The primary use case of CernVM-FS is to easily *distribute software* around the world

## Structure :

- a central *Stratum 0*
- several *Stratum 1*
- proxy servers
- final clients  
(Lodeen/Dockeen/SDCs)



## CODEEN: COlaborative DEvelopment ENvironment



## Quelques mots sur des outils : Jenkins

**Jenkins** is an *open source* automation server. It helps automate the parts of *software development* related to *building, testing, and deploying*, facilitating *continuous integration* and *continuous delivery*.

Continuous integration orchestration.

→ ~300 projets Jenkins (CODEEN)



# Jenkins

The screenshot shows the Jenkins dashboard interface. At the top, there's a search bar and user information. The main area displays a table of jobs with columns for build status (PF, S, W), job name, and build details (DG, G, D, Last Success, Last Failure, Last Duration). The 'Build Queue' section on the left indicates 'No builds in the queue.'

PF	S	W	Name	DG	G	D	Last Success	Last Failure	Last Duration
All									
CH									
CP									
CT									
EL									
			EL_Alexandria				3 mo 10 days - log	N/A	13 sec
			EL_ArrayLib				8 mo 0 days - log	N/A	3.9 sec
			EL_Background				5 mo 13 days - log	N/A	4.5 sec
			EL_CatalogLib				3 mo 27 days - log	N/A	7.9 sec
			EL_EuclidCatalogLibrary				8 mo 0 days - log	N/A	3.8 sec
			EL_FITsIO				3 mo 18 days - log	N/A	7 sec
			EL_imageLib				8 mo 0 days - log	N/A	3.7 sec

A **software repository** is a storage location for **software packages**. A software repository is typically managed by **source control** or **repository managers**.

NEXUS : software repository developed by Sonatype



- EDEN referential and Euclid software stack packages.

The screenshot shows the Sonatype Nexus Repository Manager interface. The top navigation bar includes the Sonatype logo, version "OSS 3.34.1-01", a search bar for components, and user information for "aboizard". A left sidebar contains navigation options: "Browse" (selected), "Welcome", "Search", and "Upload". The main content area is titled "Browse" and displays a table of repository assets.

Name ↑	Type	Format	Status	URL	Health check	IQ Policy VI...
central	proxy	maven2	Online - Ready t...		Analyze	Loading... >
conda-euclid	hosted	raw	Online			Loading... >
conda-forge	proxy	conda	Online - Remot...		Analyze	Loading... >
conda.raw.eden...	hosted	raw	Online			Loading... >
docker-reposito...	hosted	docker	Online			Loading... >
el7.eden.2.1	hosted	yum	Online			Loading... >
el7.eden.2.1.DEV	hosted	yum	Online			Loading... >



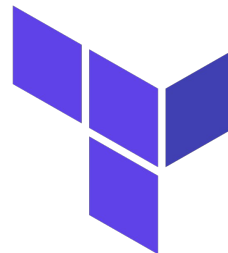
**SonarQube** is an *open-source* platform developed by *SonarSource* for continuous inspection of *code quality* to perform automatic reviews with static *analysis of code* to detect *bugs*, *code smells* on 29 *programming languages*.

- Euclid tool for **quality dashboards**  
→ base for **maturity level** attribution.



The screenshot shows the SonarQube web interface. At the top, there's a navigation bar with tabs for "Projects", "Issues", "Rules", "Quality Profiles", "Quality Gates", and "Administration". A search bar is on the right. Below the navigation, there's a "Perspective" dropdown set to "Overall Status" and a "Sort by" dropdown set to "Name". A search bar for projects is also present, showing "1558 projects". The main content area displays two project quality dashboards. The first dashboard is for "Alexandria\_2.17.0" and shows a "Passed" status. It includes metrics for Bugs (0), Vulnerabilities (0), Code Smells (335), Coverage (56.0%), and Duplications (0.0%). The second dashboard is for "Alexandria\_2.17.1" and also shows a "Passed" status with the same metrics. On the left side, there are filters for "Quality Gate" (Passed: 462, Failed: 1.1k) and "Reliability ( Bugs )" (A: 1k, B: 67, C: 429, D: 2, E: 29).

- Instance Openstack CC IN2P3
- Déploiements de services via terraform + ansible
  - Terraform : création des instances openstack
  - Ansible : configuration de l'os
- Os déployés : debian 11 et centos 7 (passage a rocky 9 en cours)



## Vue d'ensemble

A N S I B L E

### Synthèse des Quotas

#### Compute



Instances  
Utilisé 43 sur 90



VCPUs  
Utilisé 113 sur 180



RAM  
Utilisé 195,8Go sur 390,6Go

#### Volume



Volumes  
Utilisé 35 sur 50



Instantanés du volume  
Utilisé 0 sur 5



Stockage de volumes  
Utilisé 8,8To sur 9,8To

#### Réseau