GSoC 2018: Lightweight Sites Project

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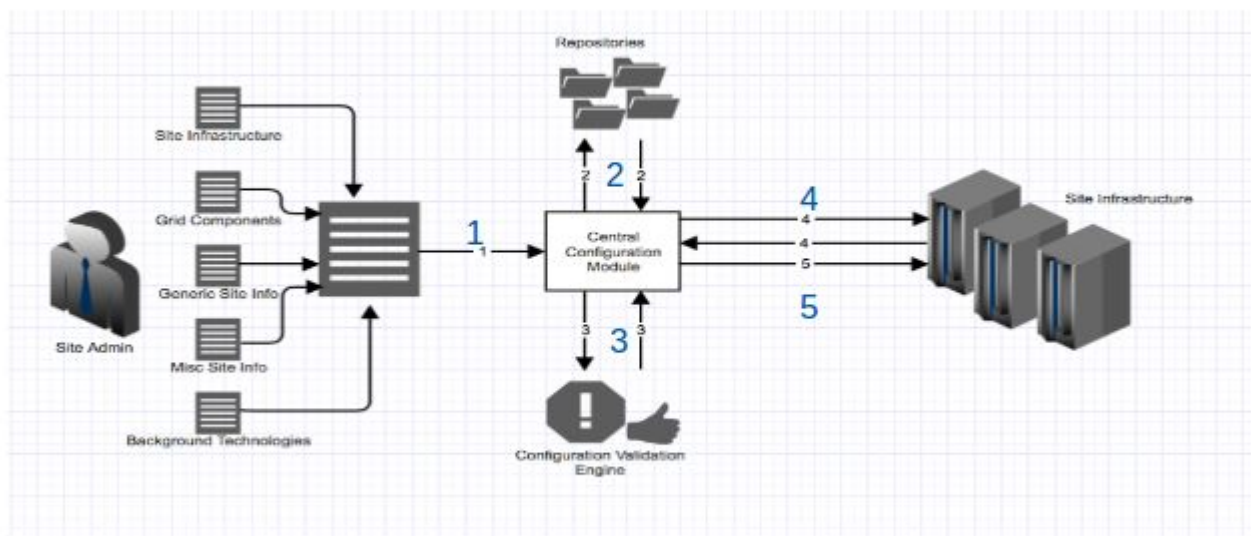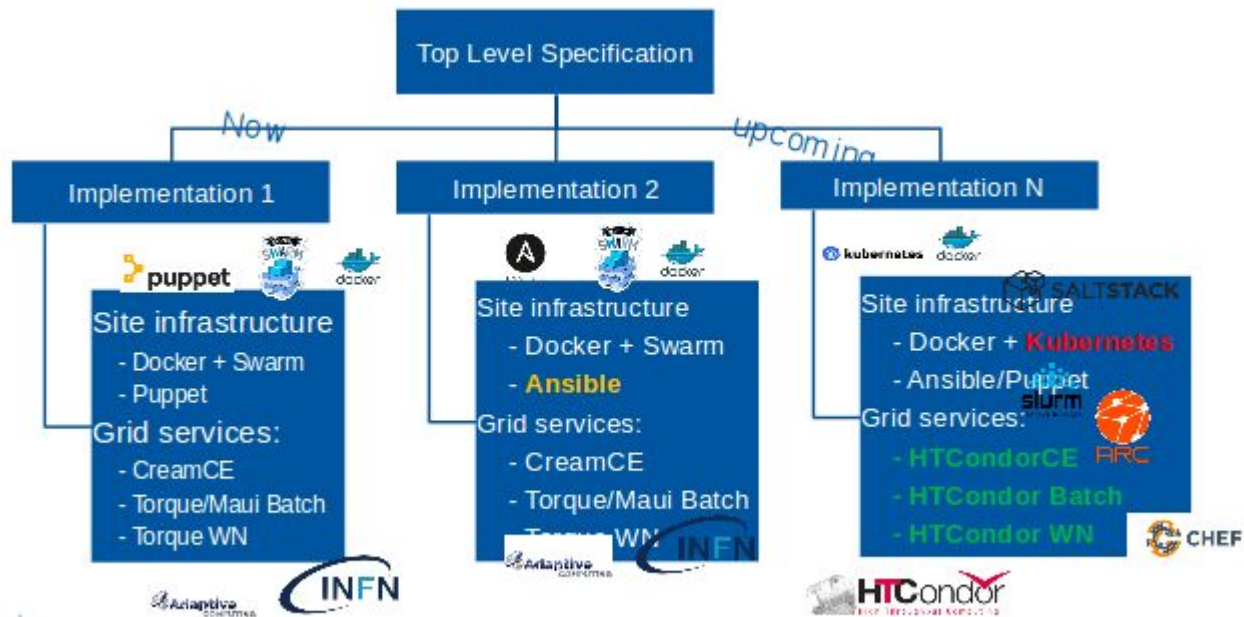Mentors: Maarten Litmaath, Mayank Sharma

Overview

Lightweight Sites is a project at CERN that enables the quick setup of new sites on the grid. During GSoC, I contributed to this project by implementing an Ansible module that would perform level 1 configuration. I also contributed to an Ansible module for level 2 configuration which would replace YAIM configuration.

Project Overview

Specification: Putting it Together

Technology Stack

Top Level Specification

Now — upcoming

Implementation 1

puppet

Site infrastructure
- Docker + Swarm
- Puppet

Grid services:
- CreamCE
- Torque/Maui Batch
- Torque WN

Adaptive Computing   INFN

Implementation 2

Site infrastructure
- Docker + Swarm
- **Ansible**

Grid services:
- CreamCE
- Torque/Maui Batch
- Torque WN

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Implementation N

kubernetes   docker   SALTSTACK

Site infrastructure
- Docker + **Kubernetes**
- Ansible/Puppet

Grid services:
- **HTCondorCE**
- **HTCondor Batch**
- **HTCondor WN**

slurm   ARC   CHEF

HTCondor

Contributions

- SIMPLE Grid YAML Compiler
- Torque WN Level-2 Configurations
- WLCG Ansible Module

Outcome

- Working with multiple technologies in domains of Infrastructure provisioning (AWS, DigitalOcean), container orchestration (Docker, Swarm), configuration management (Ansible, Puppet) and regular development (Python)
- Successfully validated that the architecture of SIMPLE framework can support multiple technologies that achieve similar goals w.r.t configuration management.
- Provide an alternate implementation of Central Configuration Module, that glues together all components of the SIMPLE framework.
- This ansible module is on the technical roadmap for upcoming releases.

Thank you