

Migration of CMSWEB cluster at CERN to Kubernetes

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The CMS experiment heavily relies on CMSWEB cluster to host critical services for its operational needs. The cluster is deployed on virtual machines (VMs) from the CERN Openstack cloud and is manually maintained by operator and developers. The release cycle is composed of several steps, from building RPMs, their deployment, validation and coordination tests. To enhance the sustainability of the CMSWEB cluster, CMS decided to migrate it to a containerized solution such as docker, orchestrated with Kubernetes (k8s). This allows us to significantly reduce the release upgrade cycle, follow end-to-end deployment procedure, and reduce operational cost. This contribution gives an overview of the current CMSWEB cluster and its issues. We describe the new architecture of the CMSWEB cluster in k8s and its implementation strategy. We also provide a comparison of VM and k8s deployment approaches, emphasizing pros and cons of the new architecture and report on lessons learned during the migration process.

I read the instructions

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