Large scale dynamic web deployment for CERN, experience and outlook

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CERN’s Online Presence

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(day-to-day operations, press releases, announcements, collaboration, etc.)

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Centralised infrastructure
(run latest versions, apply security patches, meet design and communication guidelines)

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Standardised configuration
(provisioning, backups, service integrations, authentication, etc.)

837 production websites
Infrastructure Overview

Website
(Kubernetes pod)
Infrastructure Overview

Resources of each site

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Infrastructure Overview

Content Management System
Controllers

Resources of each site

Website (Kubernetes pod)
Infrastructure Overview

- Content Management System
- Controllers
- Database integration
- SSO integration
- Website (Kubernetes pod)
- Resources of each site
CERN Custom Distribution

- Standardization
- Centralized development and bug fixes
- Ease of operations
- CERN design guidelines
- Installing extra modules

Upstream Core Software (and base modules)

CERN Themes & Profiles

Custom Scripts

Gitlab Repository: https://gitlab.cern.ch/drupal/paas/cern-drupal-distribution
Rolling out a New Release

- New version available
- CI build and testing
- Update the CERN distribution
Rolling out a New Release

Automated browser testing

Controller rolls out a new pod without downtime

Git merge

Release tag

Updating the CR

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apiVersion: drupal.webservices.cern.ch/vlaphal
kind: SupportedDrupalVersions
metadata:
  name: supported-drupal-versions
spec:
  blacklist:
    - "v8.9-2"
    - "v9.4-1"
  defaultVersion: "v9.4-2"
status:
  versions:
    - name: "v9.4-2"
      releaseSpec:
        latest: "RELEASE-2023.04.08T15-43-35Z"
    - name: "v9.5-1"
      releaseSpec:
        latest: "RELEASE-2023.05.09T11-00-00Z"

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apiVersion: drupal.webservices.cern.ch/vlaphal
kind: DrupalSite
metadata:
  name: chep-2023
spec:
  siteUrl:
    - "chep-2023.webtest.cern.ch"
  version:
    name: "v9.5-1"
    releaseSpec: "RELEASE-2023.05.09T11-00-00Z"
configuration:
  qosClass: "standard"
  databaseClass: "standard"
  diskSize: "1Gi"
Migration Campaigns

apiVersion: drupal.webservices.cern.ch/v1alpha1
kind: DrupalSite
metadata:
  name: chep-2023-clone
spec:
siteUrl:
  - "chep-2023-clone.webtest.cern.ch"
version:
  name: "v0.5-1"
  releaseSpec: "RELEASE-2023.05.09T11-00-00Z"
configuration:
  gosClass: "standard"
  databaseClass: "standard"
  diskSize: "16i"
  cloneFrom: "chep-old"
Traffic

Top 25 sites ordered by unique IP visits in the last 30 days

Note: This is as of 04/05/2023 and does not include traffic to '.cern' domains
Special Events

- Infra handled the traffic without any extra preparation
- While maintaining a response time under the SLA
Learnings

- Upgrades are now automated and seamless
- Improved transparency through monitoring and alerts
- Users acclimatising to the new infrastructure took time
  - Underestimated the technical debt imposed on users
  - End-user involvement should have been prioritised earlier
- Heavy lifting done by the controller doing the operations
- Ability to adopt infrastructure to other Content Management Systems
Thank you!

Questions?
References

- CERN Drupal Distribution - [https://gitlab.cern.ch/drupal/paas/cern-drupal-distribution](https://gitlab.cern.ch/drupal/paas/cern-drupal-distribution)
- Drupalsite Operator - [https://gitlab.cern.ch/drupal/paas/drupalsite-operator/](https://gitlab.cern.ch/drupal/paas/drupalsite-operator/)
- Past publications - [https://drupal.docs.cern.ch/publications/](https://drupal.docs.cern.ch/publications/)
- Icons - [https://remixicon.com](https://remixicon.com)