Modernize web central hosting:
- Support modern development frameworks
- Provide more flexibility
- Reduce the need for "locally managed" web servers

Improve offering of tools to developers:
- Make it easier to get started
- Automate application deployment
- Integration with code hosting (GitLab)
- CI/CD pipelines (GitLab/Jenkins)

Facilitate deployment & operation of web applications:
- Fast prototyping
- Hosting of central services
- Self-service templates for application instances
- Save application manager from maintaining OS

CERN Web Frameworks strategy:
"Use containers to host everything and widen service options. OpenShift to orchestrate all."

Deployment:
- RedHat’s PaaS solution based on Docker and Kubernetes: OpenShift v3
- Open source version: OpenShift Origin
- Puppet-managed Openstack VMs
- Considering deployment on top of Openstack Magnum

Present Infrastructure (October 2016):
- 27 VMs (2 clusters)
- 9TB of app volume storage (Cinder, NFS)

Integration:
- CERN WebServices:
  - name allocation
  - management of project ownership and lifecycle
  - quota management
  - SSO authentication
  - E-group authorization
  - GitLab for code hosting and CI/CD pipelines
  - CVMFS storage
  - EOS storage

Goals

Architecture

Implementation

Use cases

PaaS for web applications with OpenShift Origin
Alexandre Lossent (CERN), Alberto Rodriguez Peon (CERN)

Generic web site hosting:
- Serve static & CGI content from shared EOS filesystem
- OpenShift to enable more dynamic scaling, load spread and flexibility than VMs
- 4000+ sites currently on AFS
- 1000+ Drupal websites

Custom web application hosting:
- Automated build & deployment from sources in GitLab
- Development, staging and prod environments
- DBoD service provides databases as needed
- Support for multiple frameworks

Deploy 3rd party applications:
- Off the shelf Docker images or CERN customized
- CERN Central services
- Self-service per-team application instances

CERN Web Services:
- name allocation
- management of project ownership and lifecycle
- quota management
- SSO authentication
- E-group authorization
- GitLab for code hosting and CI/CD pipelines
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PAAS for web applications with OpenShift Origin
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Future

SDN (virtual network)

Network storage

Database-on-demand

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