HIIT Workshops for OpenStack and Ceph

Introduction

High Intensity Training (HIIT) Workshops

StackHPC provides technical workshops that build a team's skill set and confidence in order to make their OpenStack administration effective and self-sustaining as quickly as possible. Teams already familiar with managing traditional HPC or just system administration can take advantage of a tailor-made programme to suit their specific needs.

StackHPC

StackHPC is the leading OpenStack consultancy working with research institutions worldwide. Formed in 2016 in the UK, StackHPC has established a formidable reputation working with eminent organisations developing OpenStack for their benefit.

StackHPC is a Member of the Open Infrastructure Foundation.

OpenStack

OpenStack is a powerful open source project for deploying and managing a cloud computing platform that controls compute, storage and network resources. Developed since 2010 it is a leading tool for controlling these resources for scientific research and other High Performance Computing (HPC) demands.

OpenStack comprises over fifty projects and is made up of millions of lines of code. While extremely flexible, it is complex and needs to be designed, built and managed by skilled system administrators to maximise its enormous potential.

Navigating and learning these collective projects can be a challenge to the unfamiliar engineer even if they are a highly skilled system administrator.

The StackHPC Training Proposition

By running training courses over the past few years, StackHPC has refined its training programme to the point of creating our **HI**gh **I**ntensity **T**raining Workshop or **HIIT**. To maximise the learning opportunity, we have designed an affordable series of hands-on technical workshops.

These are held in a hosted cloud laboratory for up to six people over a period of three days. Provisioning, configuration and use of the cloud laboratory is included in the fixed price.
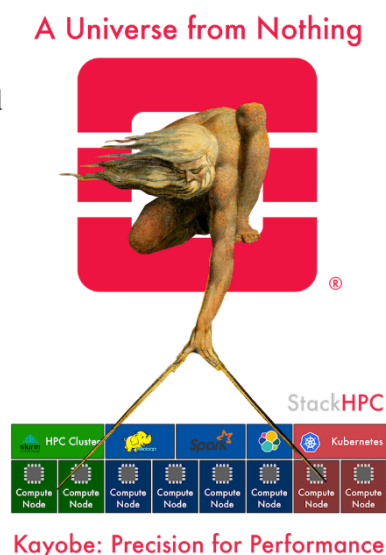
Content Tailored to the Client

Every organisation has different requirements. We offer a choice of nine modules, from which a client can select up to six. These six workshops can be scheduled together, or spread apart, to allow for self-guided follow-up investigation. The workshops are delivered as an online video conference by one or more of our OpenStack subject matter experts.

Choose from Nine Modules

The topics available represent a broad spectrum necessary for OpenStack support and provide a cost-effective way to prepare an operations team for day-to-day support of OpenStack and Ceph.

1 **"A Universe from Nothing"** A Step-by-step deployment of an OpenStack control plane into a virtualised lab environment.

2 **A deep dive into the Control Plane.** To understand how it fits together and how it works.

3 **Operations and Site Reliability Engineering (SRE) principles.** Best practices for operating cloud infrastructure.

4 **Monitoring and logging for OpenStack infrastructure and workloads.**

5 **Deploying platforms and applications to OpenStack infrastructure.**

6 **OpenStack software-defined networking deep dive.**

7 **Ceph storage and OpenStack.**

8 **Contributing to a self-sustaining open source community.**

9 **Deploying Kubernetes using OpenStack Magnum.**

A Universe from Nothing

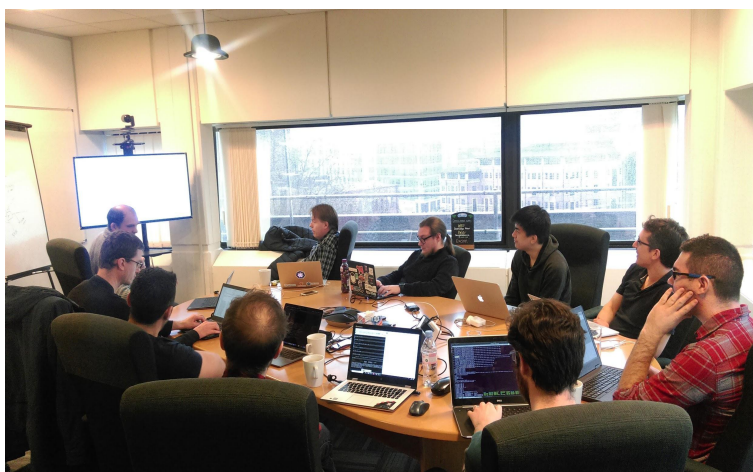Kayobe: Precision for Performance

Further Training

Once an organisation completes the HIIT workshops further topics can be explored. A bespoke training programme can be designed around specific client requirements. These could focus on a specific challenge or build upon the learning developed at the HIIT.

Examples include (but are not limited to):
- Upgrading OpenStack releases
- Migrating scientific applications to the cloud
- Making significant architectural changes

Benefits of HIIT Workshops

- HIIT is an affordable fixed price training programme that will develop OpenStack skills in your existing technical team.
- Your team will be trained by engineers. People who deploy, manage, operate, and live OpenStack day-in, day-out.
- The StackHPC team is comprised of senior contributors, Project Team Leads, and reviewers of some of the major OpenStack projects.
- Our OpenStack Specialists have skills across a wide range of topics: HPC, Terraform, Kubernetes, Ansible, Ceph, OpenStack and its components Nova, Monasca, Neutron, Ironic, Kayobe, Keystone, Blazar, CloudKitty etc.
- Our founders come from a scientific compute background; HPC runs through our DNA.
- We are also experts in the Site Reliability Engineering (SRE) topics needed for success:
  - Infrastructure as Code
  - Monitoring and Observability
  - Security and Audit

Testimonials

This is what previous clients have said:

> "The OpenStack training offered by StackHPC helped us to be more efficient and productive with OpenStack administration."
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> **Heinz Stockinger,**
> **SIB Swiss Institute of Bioinformatics**

> "The training was one of the best we've attended, the setup was great, the trainer's expertise and their quick thinking or rather well-considered answers in providing solutions to our questions was impressive. The information gathered and shared is helping us with our OpenStack operations and we can only grow strong from here with our OpenStack expertise as well."
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> **Zamantshinga Mtshali, Senior Linux Systems Engineer,**
> **Centre for High Performance Computing, South Africa**

> "King's College London wanted to unify its diverse research computing ecosystem into a single OpenStack cloud. The StackHPC HIIT training allowed a group of experienced systems administrators to quickly assess the viability of this project through an intense schedule of sessions that touched each of the facets of building a fully automated research cloud with the Kayobe deployment framework. The sessions leads were all deeply knowledgeable and evidently active in the OpenStack and scientific infrastructure communities. We appreciated the ability to tailor content and steer sessions to fit the project context ahead of us."
>
> **Matt Penn, Faculty Computing Manager**
> **Faculty of Natural and Mathematical Sciences King's College London**

About StackHPC

StackHPC is an OpenStack and Cloud design consultancy employing an exceptionally talented development team with a proven track record in OpenStack, software-defined networking and HPC with heavy use of Ansible, Terraform, Docker containerisation within a DevOps environment.

Principal staff from StackHPC have also been instrumental in creating and driving the community efforts around OpenStack and, in particular, research computing. One of our founders is chair of the OpenStack Scientific Special Interest Group, co-ordinating activities supporting research institutes worldwide.

StackHPC has established itself as one of the leading organisations focusing on the delivery of HPC solutions within a cloud-centric framework.

We have worked with illustrious research institutes including:

- UK Research Infrastructure (UKRI) for the STFC
- The Square Kilometre Array (SKA) project
- The Wellcome Sanger Institute
- Centre for High Performance Computing (CHPC), South Africa
- Swiss Institute of Bioinformatics (SIB)

Our extensive blog covers many of the areas in which our work unites OpenStack, HPC and AI.