7th de.NBI Cloud User Meeting

Report of Contributions

Contribution ID: **1** Type: **not specified**

Welcome & Introduction

Monday 2 December 2024 09:00 (1 hour)

Contribution ID: **2** Type: **not specified**

OpenStack

Monday 2 December 2024 10:00 (3 hours)

OpenStack is the underlying infrastructure of the de.NBI Cloud. Participants of this workshop will learn how to start one or multiple virtual machines by using a graphical interface or via an API and get familiar with basic principles how-to use OpenStack for their projects e.g. assign floating IPs, mount volumes, setup security groups, etc.

Requirements: basic termial knowledge, Linux/OSX Terminal or Windows 10 PowerShell, Browser

Contribution ID: **3** Type: **not specified**

BiBiGrid

Tuesday 3 December 2024 09:00 (3 hours)

BiBiGrid is an open-source tool hosted on GitHub that facilitates easy cluster setups in openstack cloud environments. It provides an HPC like environment, providing a shared filesystem (NFS) between all nodes, a job scheduler (Slurm) and a monitoring system (Zabbix) on top of Ubuntu LTS or Debian. In this hands-on session we will learn how to setup a cluster in the cloud using BiBiGrid and execute a simple workflow (nextflow) on it. We will then briefly explore how to tailor the cluster to your specific needs using self-written Ansible tasks.

Requirements: basic terminal knowledge, Python3 and ssh/ssh-keygen locally installed, Linux/OSX Terminal or Linux for Windows (WSL2) , Browser No previous knowledge in NFS, Slurm, Zabbix, nextflow or Ansible is required.

Contribution ID: **4** Type: **not specified**

Security Considerations and Best Practices for OpenStack projects

Tuesday 3 December 2024 13:00 (3 hours)

This OpenStack Security course emphasizes the importance of IT security in the cloud to prevent attacks and data loss. Common threats include cryptomining, botnets, and ransomware, often resulting from unprotected services on public ports. To counter these threats, it's essential to implement secure access via VPN or SSHuttle, encryption (HTTPS) with domain name and certificate authority validation, and use a reverse proxy for additional security layers. Additionally, best practices include verifying Dockerfile and updating packages regularly, using trusted sources, changing default credentials, and seeking help from local admins when needed. By following these guidelines, project owners can ensure the security of their VMs and prevent potential threats.

Requirements: Have an understanding of the basics of OpenStack

Contribution ID: **5** Type: **not specified**

Advanced Kubernetes (Part 2)

Wednesday 4 December 2024 09:00 (8 hours)

The Kubernetes workshop covers essential topics for mastering scientific workflows in a cloud-native environment. Participants will learn how to schedule scientific workflows using Nextflow and Snakemake, as well as cloud-native workflow engines such as Argo Workflows on Kubernetes. The workshop will also dive into Kubernetes-based DevOps practices, explore GitOps principles for automating deployments via CI/CD pipelines, and gain hands-on experience deploying and scaling production workloads in Kubernetes. In addition, the workshop will cover the latest updates to Kubernetes, with a particular focus on use of new networking techniques such as the Gateway API, TCP/UDP services, and load balancing.

By the end of the workshop, attendees will have a deep understanding of how to streamline scientific use cases with K8s, including workflows, automating deployments, and using Kubernetes environments for production operations.

Requirements: Have an understanding of the basics of Kubernetes

Contribution ID: **6** Type: **not specified**

Advanced Kubernetes (Part 3)

Friday 6 December 2024 09:00 (3 hours)

The Kubernetes workshop covers essential topics for mastering scientific workflows in a cloud-native environment. Participants will learn how to schedule scientific workflows using Nextflow and Snakemake, as well as cloud-native workflow engines such as Argo Workflows on Kubernetes. The workshop will also dive into Kubernetes-based DevOps practices, explore GitOps principles for automating deployments via CI/CD pipelines, and gain hands-on experience deploying and scaling production workloads in Kubernetes. In addition, the workshop will cover the latest updates to Kubernetes, with a particular focus on use of new networking techniques such as the Gateway API, TCP/UDP services, and load balancing.

By the end of the workshop, attendees will have a deep understanding of how to streamline scientific use cases with K8s, including workflows, automating deployments, and using Kubernetes environments for production operations.

Requirements: Have an understanding of the basics of Kubernetes

Contribution ID: **7** Type: **not specified**

Discussion Round or One-on-One Consultation: Consult with Admin and/or de.NBI Cloud Governance

Friday 6 December 2024 12:30 (2h 30m)

Is there a topic you'd like to discuss in a one-on-one Zoom call with an admin or a member of the de.NBI Cloud Governance? If so, please specify. If the same topic is mentioned multiple times, it will be part of the discussion round.

Contribution ID: **8** Type: **not specified**

Advanced Kubernetes (Part 1)

Monday 2 December 2024 14:00 (4 hours)

The Kubernetes workshop covers essential topics for mastering scientific workflows in a cloud-native environment. Participants will learn how to schedule scientific workflows using Nextflow and Snakemake, as well as cloud-native workflow engines such as Argo Workflows on Kubernetes. The workshop will also dive into Kubernetes-based DevOps practices, explore GitOps principles for automating deployments via CI/CD pipelines, and gain hands-on experience deploying and scaling production workloads in Kubernetes. In addition, the workshop will cover the latest updates to Kubernetes, with a particular focus on use of new networking techniques such as the Gateway API, TCP/UDP services, and load balancing.

By the end of the workshop, attendees will have a deep understanding of how to streamline scientific use cases with K8s, including workflows, automating deployments, and using Kubernetes environments for production operations.

Requirements: Have an understanding of the basics of Kubernetes