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# OPENSTACK SECURITY

Kategoria	Czas trwania	Termin	Cena
Cloud	21h / 3 dni	ustalamy indywidualnie	ustalamy indywidualnie

## Program szkolenia:

Poniżej przedstawiamy przykładowy program szkolenia, który może zostać zmodyfikowany zgodnie z oczekiwaniami oraz poziomem grupy szkoleniowej. Przed przygotowaniem docelowego programu szkolenia, przeprowadzamy rozmowę techniczną, w której bierze udział trener oraz osoba techniczna lub cały zespół developerów reprezentujący klienta, w celu ustalenia szczegółów szkolenia.

## ■ Training plan

### Introduction to OpenStack

- History of the cloud and OpenStack
- Cloud features
- Cloud models
  - *private, public, hybrid*
  - *on-premise, IaaS, PaaS, SaaS*
- Public and private cloud deployments based on OpenStack
- Open source and commercial OpenStack distributions
- OpenStack deployment models
- OpenStack ecosystem
  - *Modules*
  - *Underlying tools*
  - *Integrations*
- OpenStack lifecycle
- OpenStack certification
- OpenStack lab (VM) for this course

# ■ Training plan c.d.

## Cloud security and OpenStack

- Security domains in private clouds
- Threat classification and attack types
- System and network documentation
- System management
  - *Vulnerability management*
  - *Configuration management and policies*
  - *System backup and recovery*
- Server hardening
- OpenStack Management interfaces
  - *Dashboard*
  - *API*
  - *SSH*
  - *OOB*
- Secure communication
  - *TLS and HTTPS*
  - *Reference architectures*

## OpenStack architecture and security

- Keystone - Identity Service
  - *Keystone architecture*
  - *Authentication and available backends*
  - *Token types and token management*
  - *Authorization in OpenStack - roles and oslo.policy*
  - *Keystone resources - domains, projects, users*
  - *Openrc and clouds.yaml - CLI clients configuration*
  - *OpenStack service catalog*
  - *Quota system in OpenStack*
- Glance - Image Service
  - *Glance architecture*
  - *Images adjusted to the cloud*
  - *Adding new image*
  - *Securing image service deployment*
  - *Image metadata*

# Training plan c.d.

- Neutron – Networking Service
  - *Neutron architecture*
  - *Neutron service distribution*
  - *Networks in OpenStack deployment*
  - *Network isolation in Neutron*
  - *Basic resources in Neutron*
  - *Compute node networking*
  - *Tenant (self-service) networks and subnets*
  - *Routing for tenant networks (East-West routing)*
  - *Provider networks*
  - *Accessing external resources (North-South routing)*
  - *Network namespaces*
  - *Physical traffic in Neutron nodes*
  - *Floating IPs*
  - *Security Groups*
  - *Role based access control (RBAC)*
  
- Nova – Compute Service
  - *Nova architecture*
  - *Hypervisors in the compute service*
  - *QEMU vs. KVM*
  - *Keypair management*
  - *Flavour management*
  - *Instance metadata*
  - *Instance features*
  - *Creating, verifying and managing virtual instance*
  - *Inspecting VM at compute node*
  - *Assigning Security Groups and Floating IPs*
  - *Tapping into instance ports*
  - *Anti-spoofing (port security) in OpenStack*
  - *L3 virtual resources (router functions for instance traffic)*
  - *Nova-scheduler – compute node selection*
  - *Metadata service and configuration drive*
  - *Instance migration*
  - *Hardening compute service*

## ■ Training plan c.d.

- Cinder – Block Storage
  - *Cinder architecture*
  - *Volume features*
  - *Creating a volume*
  - *Attaching and accessing the volume*
  - *Storage backends - iSCSI, Ceph*
  - *Volume wipe*
- Barbican – Key Management Service
  - *Barbican architecture*
  - *Storing passphrases*
  - *Generating and storing symmetric encryption keys*
  - *Volume encryption mechanisms*
  - *Configuring Cinder storage type for volume encryption*
  - *Limitations of volume encryption*
  - *Storing X.509 certificate bundles*
- Auxiliary services and their security
  - *Logging in OpenStack*
  - *RabbitMQ – Message queue (RPC) in OpenStack*
  - *MySQL – database access*
  - *Monitoring OpenStack deployment*

### **Other aspects related to architecture & security**

- Tenant data privacy
- Instance security
- Oslo.policy – creating custom role and API authorization
- High Availability in OpenStack

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**Skontaktuj się z Przemkiem!**



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