OpenStack and NFV
(based on Open Virtual Network - OVN and OpenFlow)

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.

Management of OpenStack cloud in practice

- Getting to know OpenStack
    - *OpenStack components (Keystone, Glance, Nova, Neutron, Cinder, Swift, Heat)*
    - *Interaction with OpenStack cloud*
    - *OpenStack daemons and API communication flow*

- Keystone - Identity management service
    - *Domains, projects, users and roles*
    - *Service catalogue and endpoints*
    - *Openrc and clouds.yaml - CLI client configuration files*
    - *Creating users and projects*

- Glance - Image service
    - *Images adjusted to the cloud*
    - *Image features (properties, metadata, format, container)*
    - *Uploading and downloading image*

- Neutron - Networking
    - *Overview of the Neutron architecture*
    - *ML2 plugins for Neutron*
    - *Basic Neutron network resource types*
    - *Networking at the Compute Node*
    - *Manage tenant networks, subnets*
    - *East-West routing*
    - *Manage external/provider networks*
    - *North-South routing*
    - *Floating IPs management*
    - *Manage security groups and rules*
    - *Anti-spoofing - port security*
    - *Networking quotas*
    - *Verification of Neutron services*

Training plan c.d.

- Nova - Compute service
    - *Nova architecture*
    - *Interfaces to hypervisors*
    - *Keypair management*
    - *Flavour management*
    - *Instance parameters*
    - *Creating an instance*
    - *Instance management*
    - *Assigning floating IPs*
    - *Interactive console and console log*
    - *Security groups assignment*
    - *Accessing the instance via metadata namespace*
    - *Tapping into instance interface via tcpdump*
    - *Live-migration of the VM*

- Cinder - Block Storage
    - *Volume parameters*
    - *Creating volume*
    - *Manage volume*
    - *Attaching volume to Nova instance*

Deep-dive into Neutron and it's OVN backend

- OVN architecture
- OVN components
- ML2 - OVN vs OvS driver
- Top-down OVN networking
    - *OpenStack logic (Neutron database)*
    - *Northbound database*
    - *Southbound database*
    - *Logical datapath pipelines*
    - *Logical flows*
    - *OpenFlow flows*

- Neutron network and OVN logical switch
    - *Logical ports and their types*
    - *Switching flows*

Training plan c.d.

- Neutron router and OVN logical router
    - *NAT types*
    - *Routing flows*
- Neutron subnet and native DHCP
    - *DHCP flows*
- Security groups in OVN
    - *ACLs and Port Groups*
    - *Security group flows*
    - *Port security in OVN*
- Summary of OVN Northbound tables
- Information flow in OVN
    - *Neutron DB, OVN NB and SB DB, OpenFlow at OvS*
- Logical flow tracing
    - *Defining microflows*
    - *L2 tracing*
    - *L3 tracing*
    - *DHCP tracing*
- Physical flows - OpenFlow
    - *Physical live-cycle of VM-originated packet*
- Physical tracing
    - *Tracing for hypothetical packets*
    - *Tracing for real packets*
- Displaying Open vSwitch database and resources

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