Networking and Virtualization with VMware – 3 days

CONTENTS

The Networking and Virtualization with VMware course provides a comprehensive introduction to three areas of a modern datacenter based on VMware technologies: Virtualized compute loads on vSphere, virtualized software defined networks (SDN) with network function virtualization (NFV) with NSX, and multi-tenant administration with vCloud Director.

Details and challenges in implementation and migration are covered. The mechanisms for guaranteeing enough performance for the four hardware resources, processor, memory, storage, and networking are reviewed. The course also provides an insight into the benefits and challenges of virtual networking, including inside virtual machines (VMs), virtualized VXLAN overlay networks, and hardware acceleration.

PREREQUISITES

General technical knowledge and good knowledge of networking fundamentals (non-virtualized).

NOTE: This course is not delivered with the FoldOut methodology.

VMware vSphere overview

- Components of the hypervisor - ESXi
- Understanding virtual hardware
- Guaranteeing compute on vCPU and resource scheduling
- Virtual machine snapshots for backup and cloning
- Deploying new functions quickly with VM templates
- Introducing virtual networks
- Switching packets in virtual vSwitches
- Different storage technologies, SAN, vSAN
- Storing virtual machines in VMDK files
- Administrating and organizing the data center with vCenter Server
- Load balancing and live migration with vMotion
- Storage vMotion
- Minimizing service interruptions with HA-clusters
- DRS-cluster for cluster load balancing

NSX

- Concepts and challenges with virtual switches
- Port groups for security and grouping
- Physical network interfaceing with vmnics
- NIC teaming and load balancing
- Distributed vSwitch for easier management
- Data plane vs Management plane
- Main features of the NSX software defined network controller (SDN)
- Managing the NSX Logical Switch
- Overlay VXLAN - overview
- Overlay VXLAN - encapsulation
- Optimizing traffic by choosing the correct virtual tunnel endpoint (VTEP) mapping
- Understanding VTEP Multicast-mode / hybrid
- The NSX Manager

- The NSX cluster Controller
- Distributed Logical Router
- Distributed Firewall for per VM/NFV interface traffic filters
- Getting traffic in and out of the data center with Edge Gateway Services

vCloud Director

- Overview of the major vCloud Directory components
- Exporting virtualized resources to the Self service portal
- Grouping resources for tenants in Provider Virtual Data Centers
- Provider VDC Storage resources
- vSphere Storage Policies
- Creating Organizations for different tenants
- Organization Roles for privilege assignment
- Mapping and controlling access to the NSX networks with Network Pools
- Mechanism for federation of authentication and access control. LDAP vs local users
- Publishing templates in Catalogs
- vAPPs - creating, deploying
- vAPP internal networks
- Importing virtual machines
- Monitoring vCloud components