

CheatSheet: SDN & NSX-T

VMWARE

- PDF Link: [cheatsheet-sdn-A4.pdf](#), Category: VMware
- Blog URL: <https://cheatsheet.dennyzhang.com/cheatsheet-sdn-A4>
- Related posts: CheatSheet: Cloud Virtualization, [#denny-cheatsheets](#)

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1.1 SDN

1.1.1 SDN Basic Concepts

| Name | Command |
|----------------------------------|--|
| SDN(Software-defined networking) | |
| NAT(Network address translation) | Allow you to hide the IP addresses. |
| DNAT | For ingress traffic, hide your server IP |
| SNAT | For egress traffic, hide your server IP |
| VLAN (Virtual LAN) | Group hosts together even if not directly connected to same network switch |
| East/West traffic | Traffic within a data center. Usually depict local area network (LAN) traffic horizontally |
| North/South traffic | Traffic coming into and out of the network into Internet space |
| BGP(Border Gateway Protocol) | Among autonomous systems (AS) on the Internet . eBGP vs iBGP |
| Overlay networks | |
| vnet(a virtual network) | allows instances to migrate among compute nodes without changing networking conf |
| Floating IP Pool | |

1.1.2 SDN More Concepts

| Name | Command |
|---|---|
| VNIC (Virtualized Network Interface Card) | A virtual NIC based on a physical one, then added to a network bridge |
| VIF (Virtual Network Interface) | |
| VTEP (VXLAN Tunnel Endpoint) | |
| LAG(Link aggregation) | |
| Transport Network | |
| BFD(Bidirectional Forwarding Detection) | BFD can be used for BGP peers but also for static routes |
| DFW(Distributed Firewall) | |
| NFV(Network function virtualization) | |
| L2 networking | L2 bridge |
| L3 networking | |
| L7 networking | |
| GRE(Generic Routing Encapsulation) | |

1.1.3 Switch - L2 layer

| Name | Command |
|--------------------------------|---|
| VLAN (Virtual LAN) | Group hosts together even if they are not directly connected to same network switch |
| VXLAN (Virtual Extensible LAN) | |
| Geneve | |
| Logical Switch | Spin up isolated logical L2 networks |
| OVS (Open vSwitch) | |
| VNI(Virtual Network Instance) | |
| TEP table | |

<https://raw.githubusercontent.com/dennyzhang/cheatsheet.dennyzhang.com/master/cheatsheet-sdn-A4/open-vswitch.png>

1.1.4 Router - L3 layer

| Name | Command |
|--------------------------------|--|
| LR(Logical Router) | Create multiple routing domains with a single router. It composes: DR and SR |
| Two-tier routing | T0-router(physical routing infra), T1-router(per tenant first hop router) |
| Uplink | Used to connect to physical infrastructure |
| Router Link | Used to interconnect Tier0 and Tier1 Logical routers |
| Downlink | Used to connect logical switches |
| Static Routing/Dynamic Routing | |
| DR(Distributed Router) | |
| SR(Service Router) | |
| LRP | |

https://raw.githubusercontent.com/dennyzhang/cheatsheet.dennyzhang.com/master/cheatsheet-sdn-A4/two_routers.png

1.2 VMWare NSX-T

<https://raw.githubusercontent.com/dennyzhang/cheatsheet.dennyzhang.com/master/cheatsheet-sdn-A4/nsxt-topology-nat.png>

1.2.1 NSX-T Components

| Name | Command |
|------------------|---|
| NSX Manager node | hosts API services. |
| NSX Controller | host the central control plane cluster daemons. |
| NSX-T Edge | Provides routing services and connectivity to networks external to NSX-T deployment |

1.2.2 NSX-T In PKS

| NSX-T Component | Summary |
|-----------------------|--|
| NSX Manager Appliance | 1 instance; 16 GB RAM per Instance; 4 vCPU per instance; 140GB Disk per Instance |
| NSX Controllers | 3 instance; 16 GB RAM per Instance; 4 vCPU per instance; 120GB Disk per Instance |
| NSX-T Edge | 1 up to 8 instance; 16 GB RAM per Instance; 8 vCPU per instance; 120GB Disk per Instance |

1.2.3 NSX-T Concepts

| Name | Command |
|-----------------------------------|---|
| NCP | NSX-T container plugin CNI. Link: Overview of NSX-T Container Plug-in |
| N-VDS | NSX Virtual Distributed Switch |
| LCP(Local Control Panel) | |
| CCP(Central Control Panel) | |
| ASGs(Application Security Groups) | |
| Link | VMware Products, NSX-T Container Plug-in for Kubernetes |
| Transport nodes | host local control plane daemons and forwarding engines. |
| Plane agent | Every node hosts a management plane agent. |

1.2.4 NSX-T Commands

| Name | Command |
|-------------------------|---|
| nsxcli in PKS | <code>/var/vcap/jobs/ncp/bin/nsxcli -c get ncp-master status</code> |
| ncp log | <code>/var/vcap/sys/log/ncp/</code> |
| NSX-T networking in PKS | https://docs.pivotal.io/runtimes/pks/1-1/nsxt-prepare-env.html |

1.3 More Resources

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