DevOps Networking Ninja Handbook

From Zero to Hero – 100+ Commands with Descriptions

Covers Linux, Cloud, Docker/K8s, Firewall, Routing, Monitoring, Troubleshooting

1. Basic Linux Networking

```
$ ifconfig                  # Show network interfaces and IPs
$ ip addr show              # Display IP addresses
$ ip link show              # Show network interfaces
$ ip route show             # Display routing table
$ hostname                  # Show system hostname
$ hostname -I               # Show IP addresses
$ ping <host>               # Test connectivity to host
$ traceroute <host>         # Trace path to host
$ mtr <host>                # Real-time traceroute + ping
$ netstat -tulnp            # Show listening ports and processes
$ ss -tulnp                 # Modern socket statistics
$ arp -a                    # Show ARP table
$ ip neigh show             # Display neighbor table
```

2. DNS Commands

```
$ nslookup <domain>         # Resolve domain name
$ dig <domain>              # DNS query with details
$ host <domain>             # Quick DNS lookup
$ cat /etc/resolv.conf      # Show DNS resolvers
$ ping <domain>             # Resolve domain and test connectivity
```

3. Connectivity Ports

```
$ curl -I <url>             # Fetch HTTP headers
$ wget <url>                # Download file / test HTTP
$ telnet <host> <port>      # Test TCP port connectivity
$ nc -zv <host> <port>      # Scan port using netcat
$ nmap -sP <network>        # Ping scan local network
$ nmap -sT -p 1-65535 <host> # TCP full port scan
$ ping6 <host>              # IPv6 connectivity test
$ iperf3 -s                  # Start iperf server
$ iperf3 -c <host>           # Bandwidth test client
```

4. Firewall Security

```
$ sudo ufw status            # Show firewall status
$ sudo ufw enable            # Enable UFW
$ sudo ufw disable           # Disable UFW
$ sudo ufw allow <port>      # Open port
$ sudo ufw deny <port>       # Close port
$ sudo iptables -L           # Show iptables rules
$ sudo iptables -A INPUT -p tcp --dport 22 -j ACCEPT # Allow SSH
$ sudo iptables -D INPUT -p tcp --dport 22 -j ACCEPT # Delete SSH rule
$ sudo firewall-cmd --list-all      # Show firewalld config
$ sudo firewall-cmd --add-service=http --permanent # Open HTTP
$ sudo firewall-cmd --reload        # Reload firewalld
```

5. Routing NAT

```
$ ip route show              # Show routing table
$ ip route add <network> via <gateway> # Add route
$ ip route del <network>     # Delete route
$ iptables -t nat -L -n      # Show NAT rules
$ iptables -t nat -A POSTROUTING -o eth0 -j MASQUERADE # Enable NAT
$ iptables -t nat -D POSTROUTING -o eth0 -j MASQUERADE # Disable NAT
$ iptables -t nat -F         # Flush NAT table
```

6. Monitoring Troubleshooting

```
$ ss -s                      # Socket summary
$ netstat -rn                 # Routing table
$ tcpdump -i eth0             # Capture packets
$ tcpdump -nn -X -i eth0      # Capture with hex+ASCII
$ watch -n 1 'netstat -tulnp' # Live network monitoring
$ ping -c 5 <host>            # Send 5 ICMP packets
$ curl --verbose <url>        # Debug HTTP request
$ traceroute -n <host>        # Numeric traceroute
$ arp-scan --localnet         # Scan local LAN
$ ethtool eth0                # NIC stats
$ nmcli device status         # Network device status
$ nmcli connection show       # Show active connections
```

7. Cloud Networking (AWS Focus)

```
$ aws ec2 describe-vpcs                      # List VPCs
$ aws ec2 describe-subnets                   # List subnets
$ aws ec2 describe-security-groups           # Show security groups
$ aws ec2 authorize-security-group-ingress --group-id <id> --protocol tcp --
    port 22 --cidr 0.0.0.0/0 # Allow SSH
$ aws ec2 revoke-security-group-ingress --group-id <id> --protocol tcp --
    port 22 --cidr 0.0.0.0/0  # Revoke SSH
$ aws ec2 allocate-address                  # Allocate Elastic IP
$ aws ec2 associate-address --instance-id <id> --allocation-id <id> # Attach
     EIP
$ aws ec2 describe-network-interfaces        # Show ENIs
$ aws ec2 attach-network-interface --network-interface-id <id> --instance-id
     <id> # Attach ENI
$ aws ec2 describe-route-tables              # Show route tables
```

8. Docker Networking

```
$ docker network ls                      # List Docker networks
$ docker network inspect <name>          # Inspect network details
$ docker run --network <net> <image>     # Run container on network
$ docker exec -it <container> /bin/bash # Enter container
$ docker network create <name>           # Create network
$ docker network rm <name>               # Remove network
```

9. Kubernetes Networking

```
$ kubectl get pods -o wide           # Show pod IPs
$ kubectl get svc                    # List services
$ kubectl describe svc <name>        # Service details
$ kubectl get ingress                # Show ingress resources
$ kubectl get networkpolicy          # Show network policies
$ kubectl exec -it <pod> -- /bin/bash # Access pod
$ kubectl logs <pod>                 # View pod logs
$ kubectl port-forward <pod> <local>:<remote> # Port-forward pod
```

10. Advanced Networking Commands

```
$ nmap -sT -p 1-65535 <host>    # TCP port scan
$ nmap -O <host>                 # OS detection
$ tcpdump -i any port 80         # Capture HTTP traffic
$ ss -atun                       # Show all TCP/UDP connections
$ iptables -L -v -n              # Verbose firewall rules
$ ethtool -S eth0                # NIC statistics
$ arp -n                         # Display ARP table
$ mtr --report <host>            # Network diagnostics
$ ip rule show                    # Show advanced routing rules
$ iptables-save                  # Save firewall config
$ iptables-restore <file>        # Restore firewall config
```

This **DevOps Networking Ninja Handbook** provides **100+ commands with one-line descriptions**, covering **Linux networking, DNS, connectivity, firewall, routing, monitoring, cloud, Docker/Kubernetes, and advanced networking**.

Use it as:

- **quick reference**
- **practice, troubleshooting, or interview prep**, and level up your **DevOps networking skills**!