

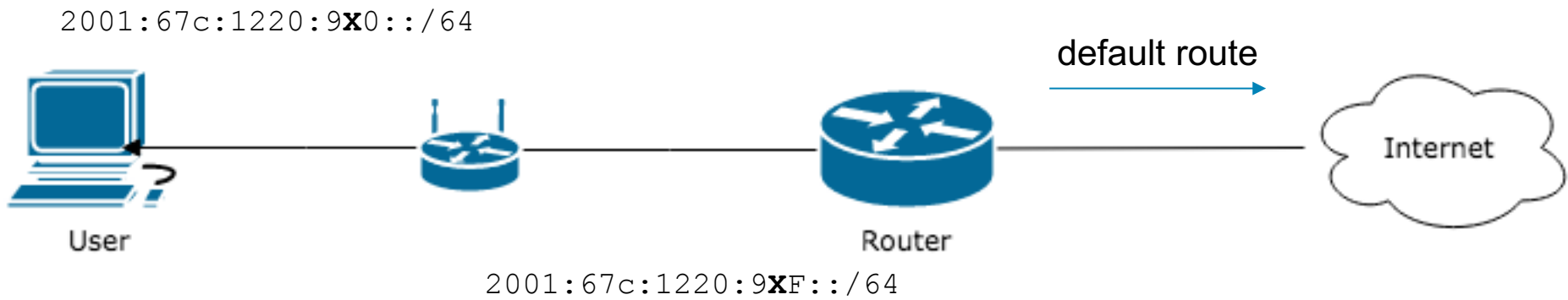
IPv6 labs

NAT64/DNS64

CCS Module 3

Topology

Prefix: 2001:67c:1220:9x0::/60

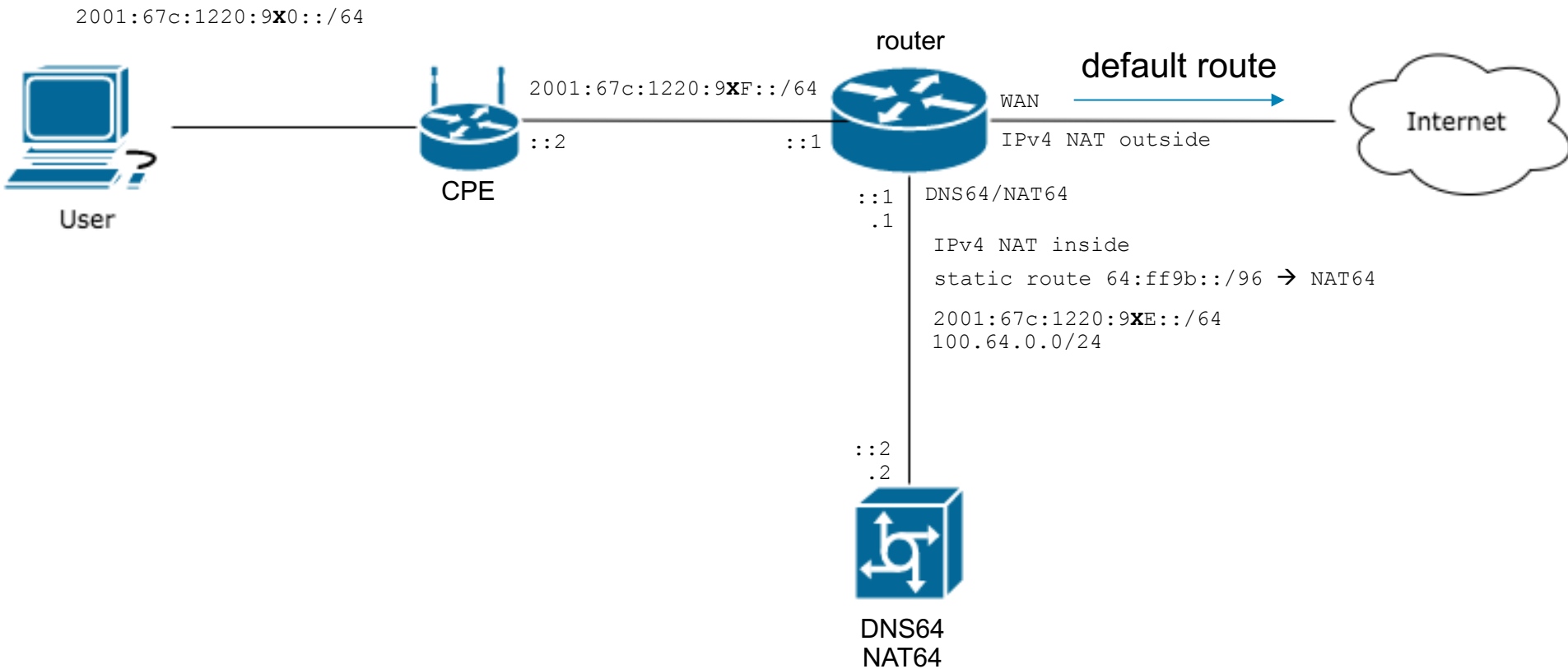


Lab1

1. Set up static IPv6 connectivity in the network
2. Change IPv6 address assignment for end nodes to SLAAC
3. Migrate to routing information using RIPng/EIGRP/OSPF without losing a packet during the migration

Lab2 – DNS64/NAT64

Prefix: 2001:67c:1220:9x0::/60



Lab2 – DNS64/NAT64 – basic connectivity

- Cable the topology
- Configure IPv6 prefixes and addresses on interfaces
- Router gets IPv4 address on WAN interface using DHCP
- Configure IPv4 NAT on router between DNS64/NAT64 and WAN interfaces
- Create static route on router for DNS64 prefix (`64 : ff9b :: /96`) pointing to DNS64 server

DNS64 + NAT64

- install bind + bind-utils (yum install)
- install epel distro (yum install epel-release)
- install tayga

- DNS64
 - Configuration file: `/etc/named.conf`
 - Add `dns64 64:ff9b::/96 {};` to options in `named.conf`
 - Change `listening` and `allow-queries` options
 - Start `named` (`systemctl start named`)
 - Verify
 - `dig idnes.cz AAAA @127.0.0.1`
 - `dig idnes.cz AAAA @2001:67c:1220:9XE::2`

NAT64 - tayga

- Enable forwarding:

```
sysctl -w net.ipv4.ip_forward=1
sysctl -w net.ipv6.conf.all.forwarding=1
```

- Config file in `/etc/tayga/default.conf`

```
tun-device nat64
ipv4-addr 192.168.255.1
ipv6-addr 2001:db8:1::2
prefix 64:ff9b::/96
dynamic-pool 192.168.255.0/24
data-dir /var/lib/tayga/default
```

- Create tun interface, set interface up

```
tayga -mktun -c /etc/tayga/default.conf
ip link set nat64 up
```

- Add routing entries

```
ip -6 r add 64:ff9b::/96 dev nat64
ip r add 192.168.255.0/24 dev nat64
```

- Add NAT rules (change INTERFACE to appropriate interface name)

```
iptables -t nat -A POSTROUTING -s 192.168.254.0/24 -o INTERFACE -j MASQUERADE
```

- Run NAT64 in debug mode and verify connectivity to IPv4 only web page

```
tayga -c /etc/tayga/default.conf -d
```

LAB created by [Matěj Grégr](#) for CCS course

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