



SWITCH

The Swiss Education & Research Network

CASG

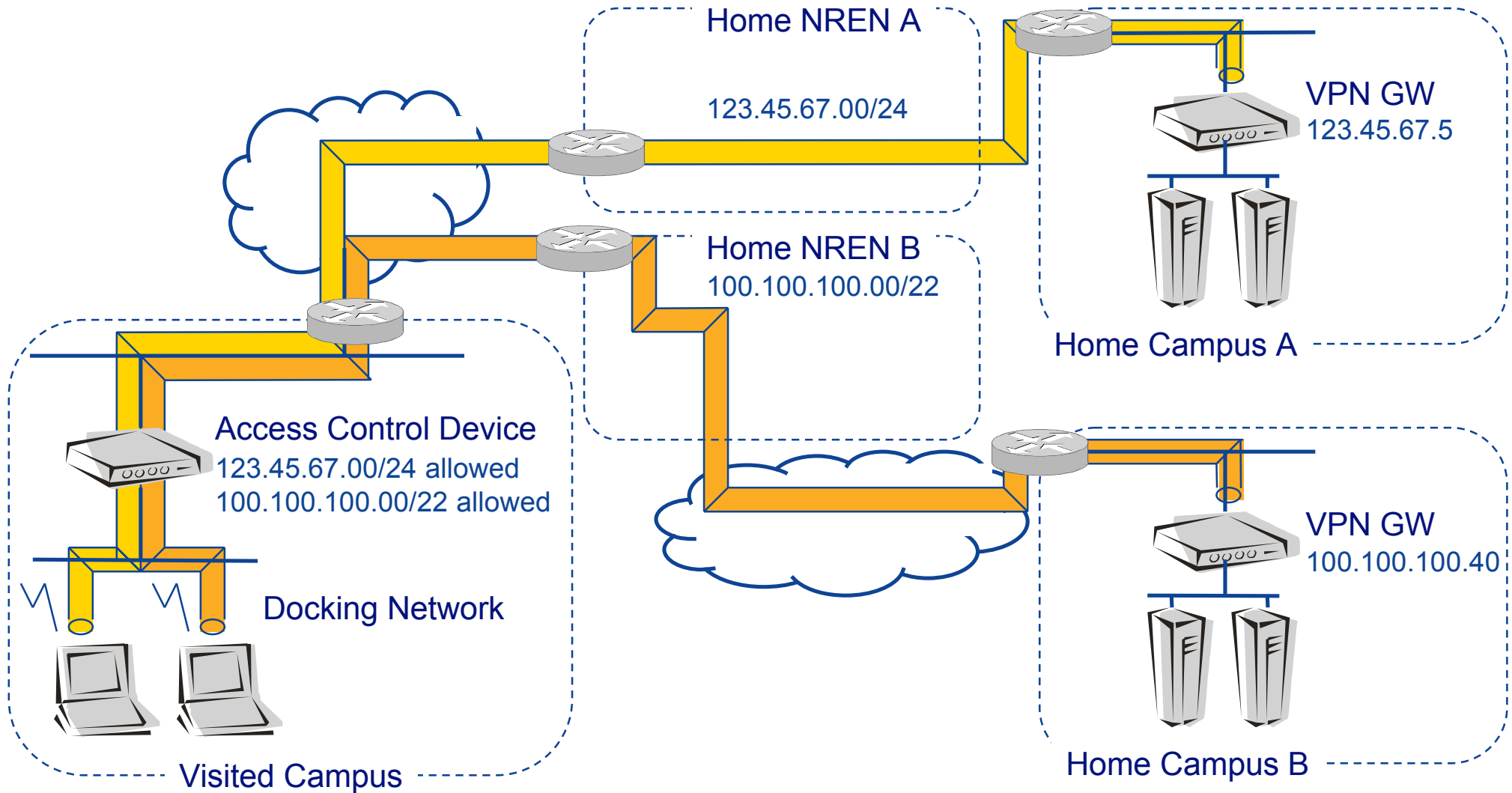
Proof of Concept

Hansruedi Born

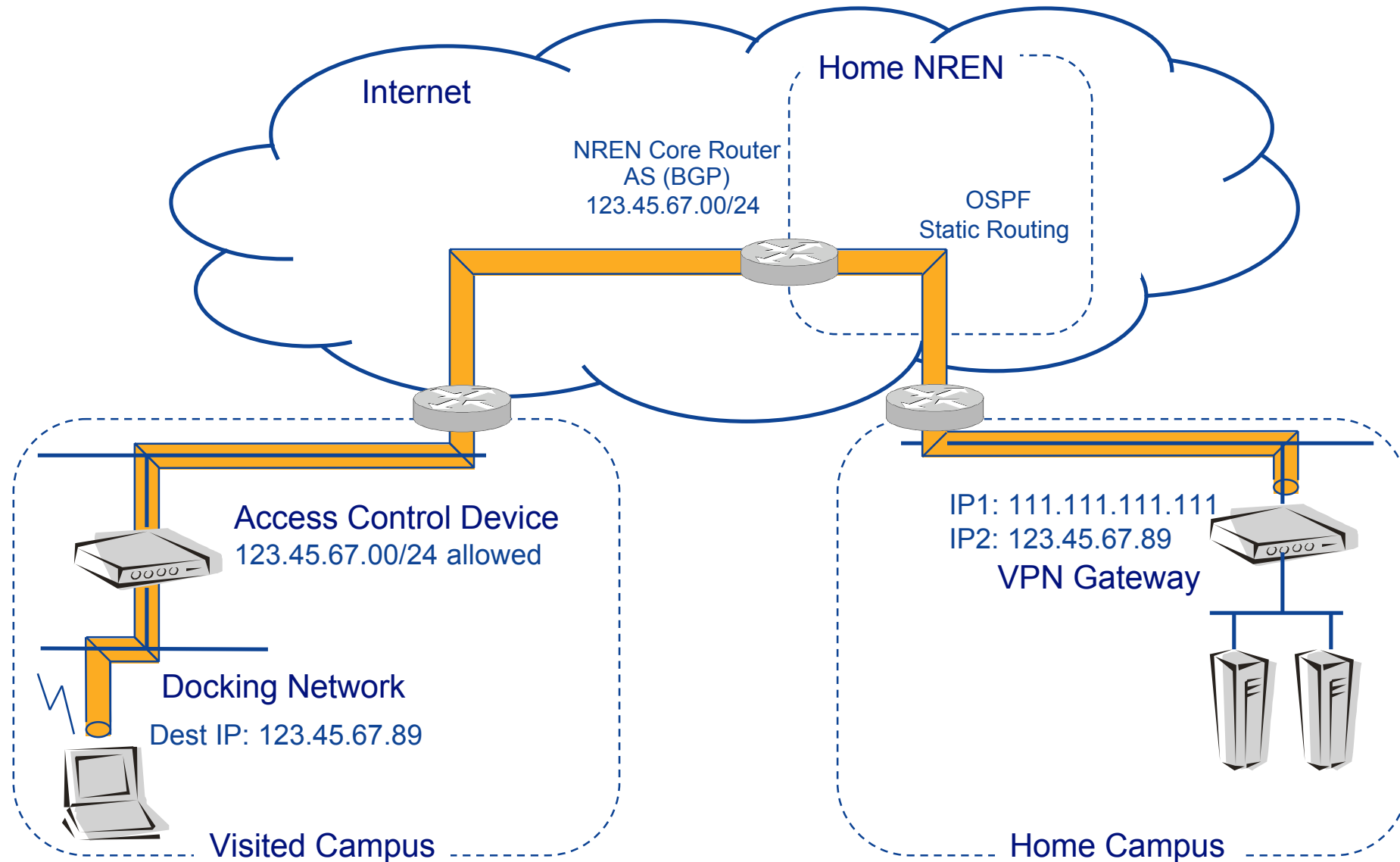
TERENA TF Mobility Meeting, Amsterdam 30.01.2004

- ❑ **CASG Concept**
 - ❑ Dedicated Routing
 - ❑ Relay Network
- ❑ **Proof of Concept**
 - ❑ Setup
 - ❑ Live Demo
- ❑ **Forwarding Device**
 - ❑ Configuration `/etc/network/interfaces`
 - ❑ Configuration iptables
- ❑ **Boundary Conditions IPsec**
- ❑ **Questions & Answers**

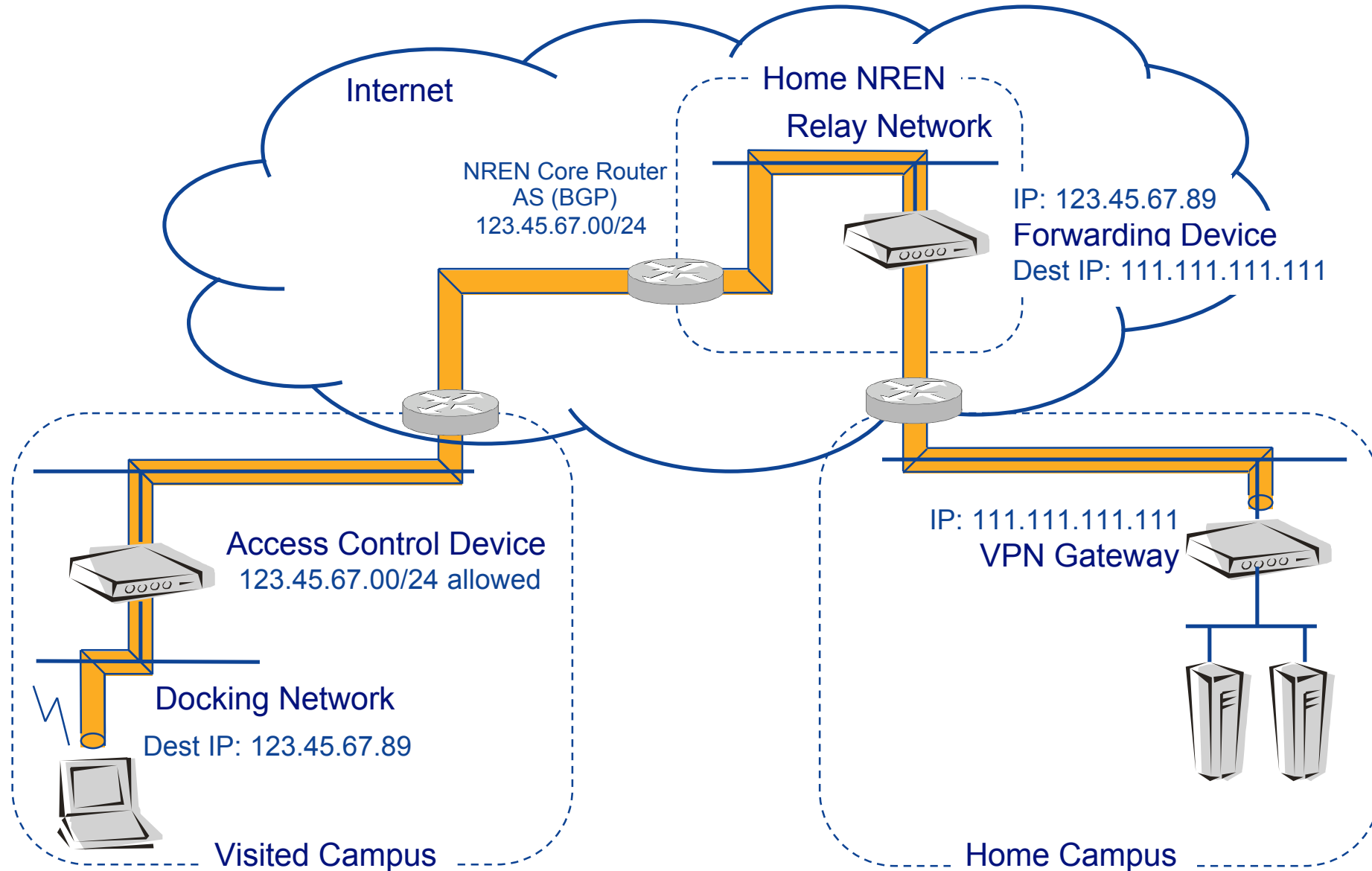
CASG - Concept



Dedicated Routing



Relay Network - VPN Forwarding



Dedicated Routing

- Routing Issue
- No Changes in Network Frames

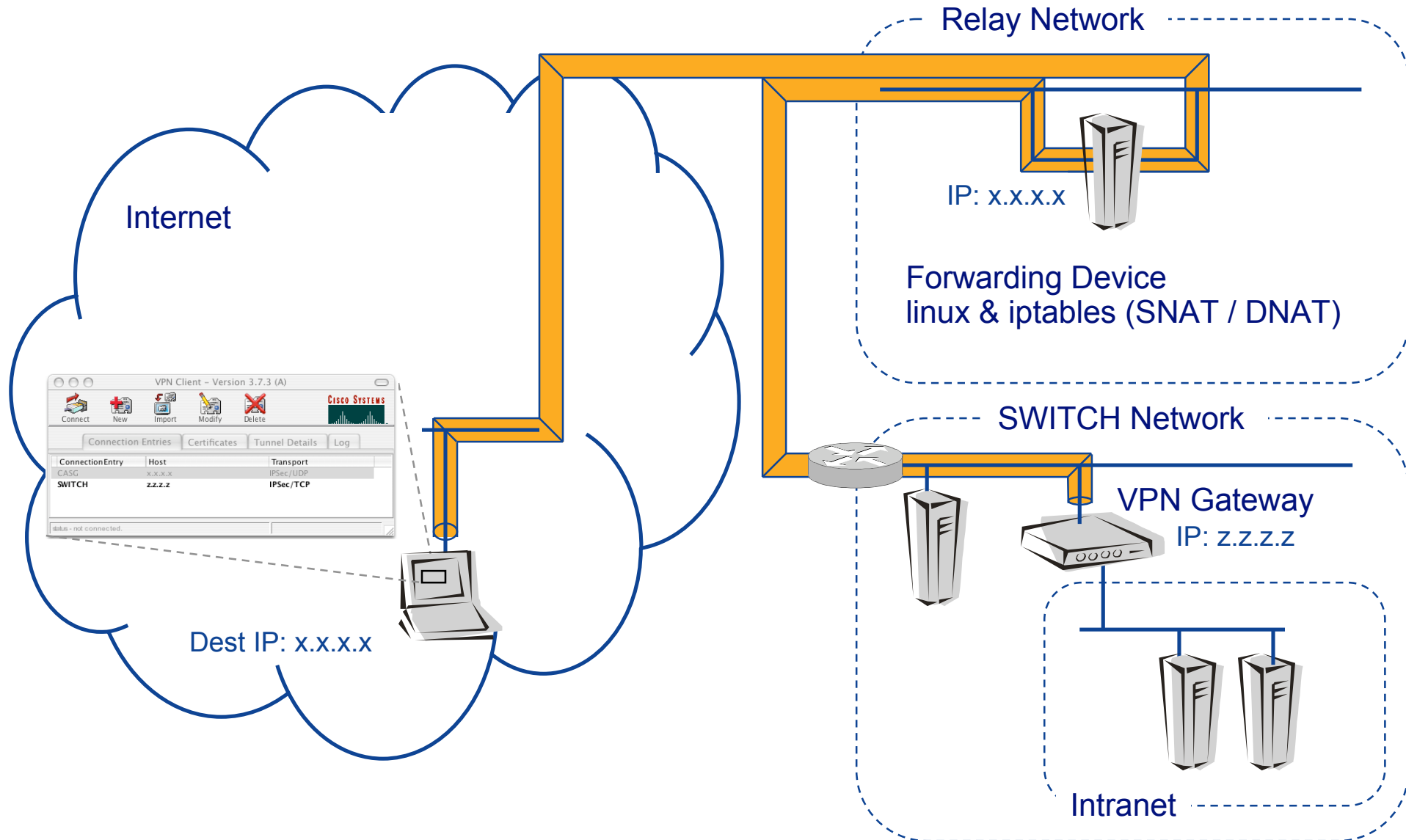
⇒ **Proof unnecessary**

Relay Network - VPN Forwarding

- Routing Issue
- Changes in Network Frames (Forwarding Device)

⇒ **Proof necessary**

Setup



```
# The loopback interface
auto lo
iface lo inet loopback
```

```
# The first network card - this entry was created during the Debian installation
# (network, broadcast and gateway are optional)
auto eth0
auto eth0:0
```

```
iface eth0 inet static
    address 130.59.x.x
    netmask 255.255.y.y
    network 130.59.x.z
    broadcast 130.59.x.y
    gateway 130.59.x.v
```

← Administration Interface

```
iface eth0:0 inet static
    address 130.59.x.u
    netmask 255.255.y.y
    network 130.59.x.z
    broadcast 130.59.x.v
```

← Forwarding Interface

```
#!/bin/sh
```

```
# Virtual Gateway Interface
```

```
VGI_INET_IP="130.59.x.u"
```

```
# Genuine Gateway Interface
```

```
GGI_INET_IP="130.59.y.y"
```

```
# Forwarding Interface
```

```
F_INT="eth0"
```

```
echo 1 > /proc/sys/net/ipv4/ip_forward
```

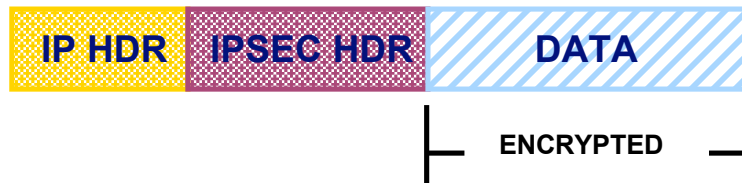
```
iptables -t nat -A PREROUTING -i $F_INT -d $VGI_INET_IP -j DNAT --to $GGI_INET_IP
```

```
iptables -t nat -A POSTROUTING -o $F_INT -d $GGI_INET_IP -j SNAT --to $VGI_INET_IP
```

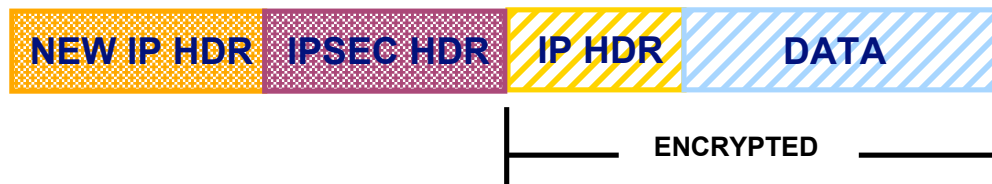
Boundary Conditions IPsec



IP Frame



IPsec Frame TRANSPORT MODE



IPsec Frame TUNNEL MODE

➡ Forwarding Device

End

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Questions & Answers