



X36LOS – 3. cvičení

VLAN

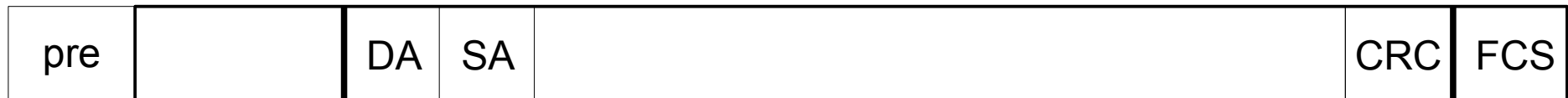


VLAN (Virtual LAN)

- více logických sítí na jedné fyzické síti
- úplné oddělení
- transparentnost pro klientské stanice
- ISL (Inter Switch Link) – 802.10
- 802.1q/802.1p

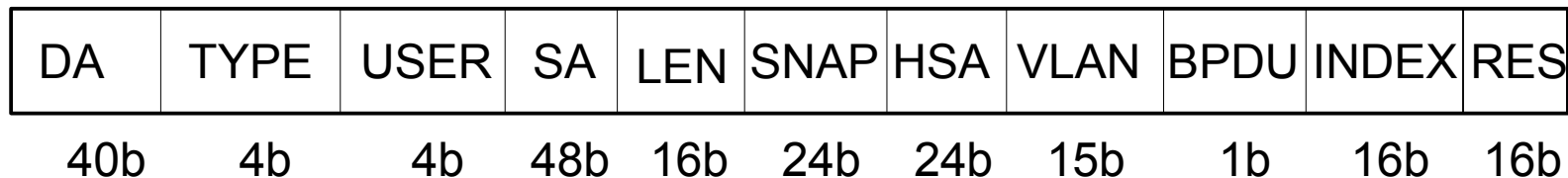


Cisco ISL (Inter-Switch Link)



↓ 26B
ISL header

4B



DA – Destination Address (konstanta:)
TYPE – Frame Type (Eth, ATM, TR, FDDI)
USER – User extensions (priority)
SA – Source Address
LEN – Length–18B
SNAP – "0xAAAA03"
HSA – High bits of source address

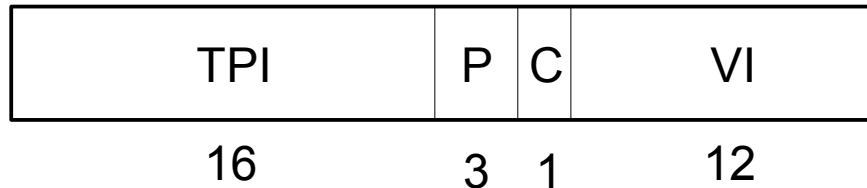
VLAN – VLAN identifikátor
BPDU – STP y/n
INDEX – diagnostická hodnota
(port na switchi)
RES – reserved for Token Ring



802.1p (CoS) & 802.1q (VLAN)



TCI – Tag Control Info - 4B



- TPI Tag Protocol Identifier (8100H pro Ethernet)
- P User Priority (802.1p) – 0 (nejnižší) až 7 (nejvyšší)
- C Canonical Format Indicator (pro kompatibilitu s Token Ring vždy 0)
- VI VLAN Identifier (až 4096 sítí)



Rozdělení stanic do VLAN

- podle portu
- podle fyzické adresy (MAC)
- podle příslušnosti k síti



Cisco (HP) - VLAN

- Konfigurace VLAN na Cisco switchi (VLAN id 10)

```
SW>enable
SW#configure terminal
SW(config)#vlan 10
SW(config-vlan)#name testovaci
SW(config-vlan)#exit
SW(config)#interface FastEthernet 0/17
SW(config-if)#switchport mode access
SW(config-if)#switchport access vlan 18
[Ctrl+Z]
SW#show vlan
```



Linux - VLAN

- Konfigurace VLAN na linuxu (VLAN id 10)

```
vconfig add eth0 10
ifconfig eth0.10 up
ifconfig ...
cat /proc/net/vlan/eth0.10
ifconfig eth0.10 down
vconfig rem eth0.10
```



Debian - VLAN

- Konfigurace VLAN v `/etc/network/interfaces`

...

```
auto eth0.222
```

```
iface eth0.222 inet static
```

```
    address 10.222.1.1
```

```
    netmask 255.255.255.0
```

```
    network 10.222.1.0
```

```
    broadcast 10.222.1.255
```

```
    vlan_raw_device eth0
```

...



Gentoo - VLAN

- Konfigurace VLAN v `/etc/conf.d/net`

```
...
modules=( "iproute2" )
...
vlans_eth0="10"
vconfig_eth0=("set_name_type VLAN_PLUS_VID_NO_PAD")
config_vlan10=("192.168.100.239 broadcast
                192.168.100.255 netmask 255.255.255.0" )
...
```