## Application GRE de - encapsulation

Virtualisation is a very common approach in data centers, but for monitoring purposes it is somehow not so easy, because the network communication within the hyper visor is not transported over the physical NIC in the server, it is transported over the virtual switch. Thus, there is no access to this traffic.

It is common to use virtual taps to solve this issue. But this virtual taps could not send out the traffic straight, they use in most cases a GRE Tunnel.

GRE is a L2 transparent tunnel.

Tunnel IP header	GRE header		Original IP Header	Original Payload
			GRE Payload	
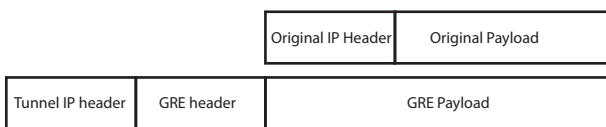
The original IP traffic will be encapsulated with a new IP header and the GRE header. This traffic can then pass the virtual and in some cases a hardware switch to reach the monitoring device. But this traffic could not directly use for monitoring, it first must be de encapsulated.

This can be done in an easy way with the Packetmaster, even the smallest unit the EX2 supports GRE de encapsulation at line rate.

After de encapsulation the traffic looks like the original and can be filtered and forwarded to the monitoring device.
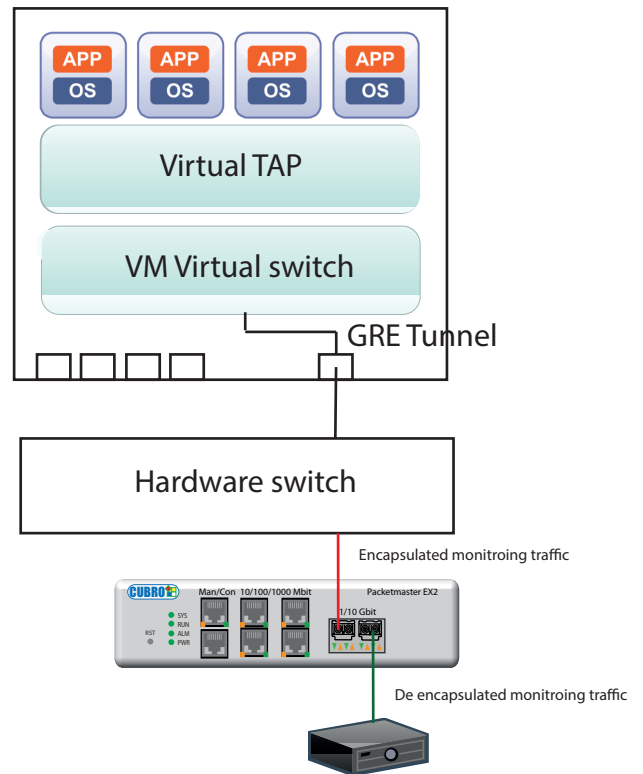
Before GRE de encapsulation

```
⊞ Frame 1698: 604 bytes on wire (4832 bits), 604 bytes captured (4832 bits) on interface 0
⊞ Ethernet II, Src: Vmware_63:23:42 (00:50:56:63:23:42), Dst: CentecNe_0a:10:16 (00:1e:08:0a:10:16)
⊞ Internet Protocol Version 4, Src: 172.17.1.1 (172.17.1.1), Dst: 172.17.1.2 (172.17.1.2)
⊞ Generic Routing Encapsulation (Transparent Ethernet bridging)
⊞ Ethernet II, Src: IntelCor_5b:b0:9c (60:67:20:5b:b0:9c), Dst: Vmware_aa:c0:d3 (00:50:56:aa:c0:d3)
⊞ Internet Protocol Version 4, Src: 172.16.100.61 (172.16.100.61), Dst: 172.16.101.220 (172.16.101.220)
⊞ Transmission Control Protocol, Src Port: 64008 (64008), Dst Port: 80 (80), Seq: 3827, Ack: 68616, Len: 500
⊟ Hypertext Transfer Protocol
  ⊟ GET /modules/imageframe/frames/flicking/BR.gif HTTP/1.1\r\n
    ⊞ [Expert Info (Chat/Sequence): GET /modules/imageframe/frames/flicking/BR.gif HTTP/1.1\r\n]
      Request Method: GET
      Request URI: /modules/imageframe/frames/flicking/BR.gif
      Request Version: HTTP/1.1
    Host: album.creneco.com\r\n
    User-Agent: Mozilla/5.0 (Windows NT 6.1; WOW64; rv:38.0) Gecko/20100101 Firefox/38.0\r\n
    Accept: image/png,image/*;q=0.8,*/*;q=0.5\r\n
    Accept-Language: en-US,en;q=0.5\r\n
    Accept-Encoding: gzip, deflate\r\n
    Referer: http://album.creneco.com/main.php?g2_view=imageframe.CSS&g2_frames=none%7Cshadow%7Cflicking\r\n
  ⊞ Cookie: GALLERYSID=78cb78dbabb51f330677f4a72c4f22b9\r\n
```

After GRE de encapsulation

```
⊞ Frame 7508: 566 bytes on wire (4528 bits), 566 bytes captured (4528 bits) on interface 0
⊞ Ethernet II, Src: Cisco_73:7e:c2 (00:17:94:73:7e:c2), Dst: Vmware_aa:c0:d3 (00:50:56:aa:c0:d3)
⊞ Internet Protocol Version 4, Src: 172.16.100.61 (172.16.100.61), Dst: 172.16.101.220 (172.16.101.220)
⊞ Transmission Control Protocol, Src Port: 64325 (64325), Dst Port: 80 (80), Seq: 4686, Ack: 100998, Len: 500
⊟ Hypertext Transfer Protocol
  ⊞ GET /modules/imageframe/frames/flicking/BR.gif HTTP/1.1\r\n
    Host: album.creneco.com\r\n
    User-Agent: Mozilla/5.0 (Windows NT 6.1; WOW64; rv:38.0) Gecko/20100101 Firefox/38.0\r\n
    Accept: image/png,image/*;q=0.8,*/*;q=0.5\r\n
    Accept-Language: en-US,en;q=0.5\r\n
    Accept-Encoding: gzip, deflate\r\n
    Referer: http://album.creneco.com/main.php?g2_view=imageframe.CSS&g2_frames=none%7Cshadow%7Cflicking\r\n
  ⊞ Cookie: GALLERYSID=78cb78dbabb51f330677f4a72c4f22b9\r\n
```

Highlights

- GRE receiver and originator
- Hardware de encapsulation
- line rate up to 40 Gbit
- multiple GRE streams per unit
- easy to configure
- afterwards filtering possible
- standard feature (no extra charge)

Supported BY:

Packetmaster

EX2, EX 5-2, EX 12, EX 32

EX 20400, EX 48400