GPON FTTH HSI Service Provisioning

www.huawei.com

HUAWEI

Objectives

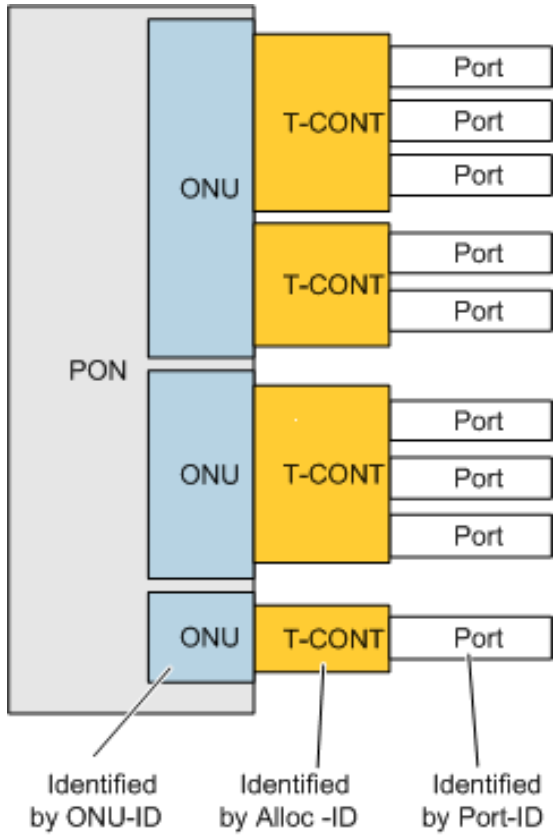
- Upon completion of this course, you will be able to :
  - Describe GPON FTTH HSI service principle
  - Master how to do the GPON FTTH HSI service configuration
  - Know the basic steps to check the GPON HSI service

Contents

HUAWEI

GPON Service Multiplex Structure

- In the G-PON TC layer, a T-CONT, that is identified by Alloc-ID, is the basic control unit. The concept of a port, identified by Port-ID, is used for multiplexing traffic flows over a T-CONT.
- There are three important concepts:
  - ONU-ID
  - T-CONT
  - GEM Port



HUAWEI

DBA

- DBA Bandwidth Types
  - Each DBA corresponds to different bandwidth types.
  - Each bandwidth type has its own QoS feature.

	Delay Sensitive	Allocation Mode	TCONT Type				
			Type 1	Type 2	Type 3	Type 4	Type 5
Fixed	Yes	Provisioned	√				√
Assured	No	Provisioned		√	√		√
Non-Assured	No	Dynamic			√		√
Best-effort	No	Dynamic				√	√
Max	No	Provinsioned			√	√	√

Mapping From Service to GEM Port

- Relationship Between GEM Port and Service Traffic

Mapping	Details	Application
VLAN ID mapping	It maps the service traffic of the specified VLAN ID to a unique Port-ID.	The ONU/ONT adopts the VLAN ID to differentiate the user service traffic.
802.1p mapping	It maps the specified 802.1p service traffic to a unique Port-ID.	The ONU/ONT adopts the priority to differentiate the user service traffic. The user packet must be Pri-tagged.
VLAN ID+802.1p mapping	It maps the specified VLAN ID + 802.1p service traffic to a unique Port-ID.	The ONU/ONT adopts the priority +VLAN ID to differentiate the user service traffic.

Questions

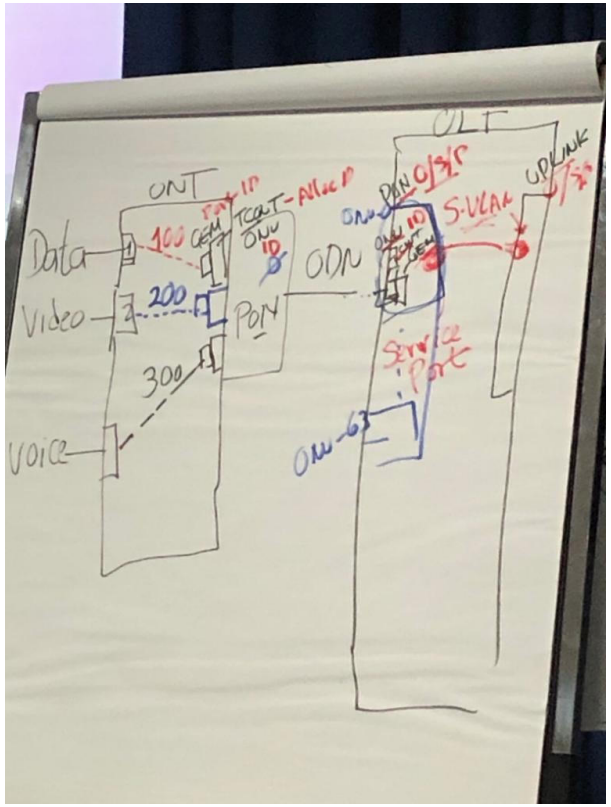
tdm en ethernet

- Which kind of frame is transmitted in GPON?
- How to identify GEM Port? uiq identifier, gemport id
- What’s the basic control unit of the upstream service stream in the GPON system? the tcon
- What’s the difference between assure bandwidth and fixed bandwidth?

minimum bandwidth

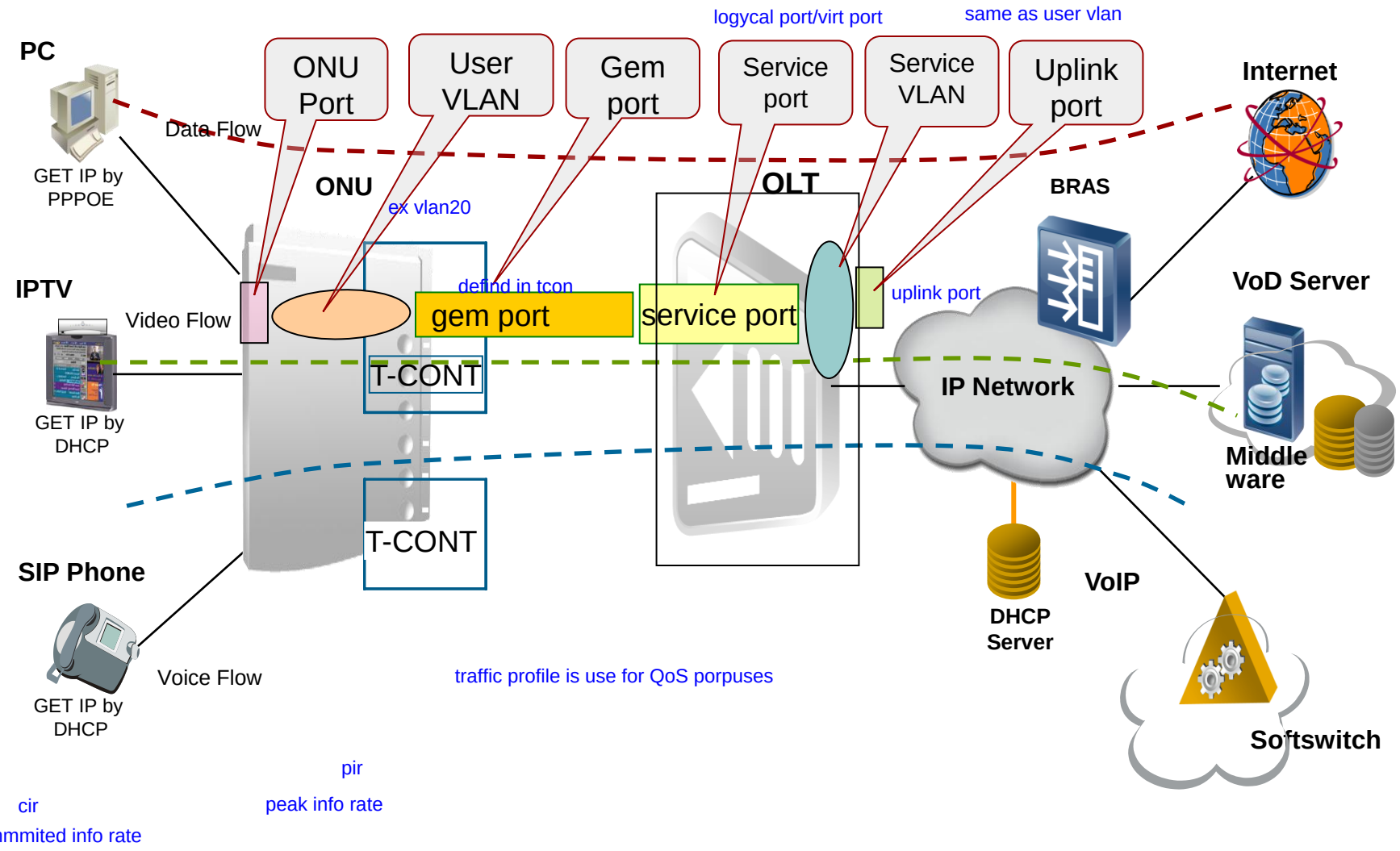
bandwidht dedicated
always resereved

Contents

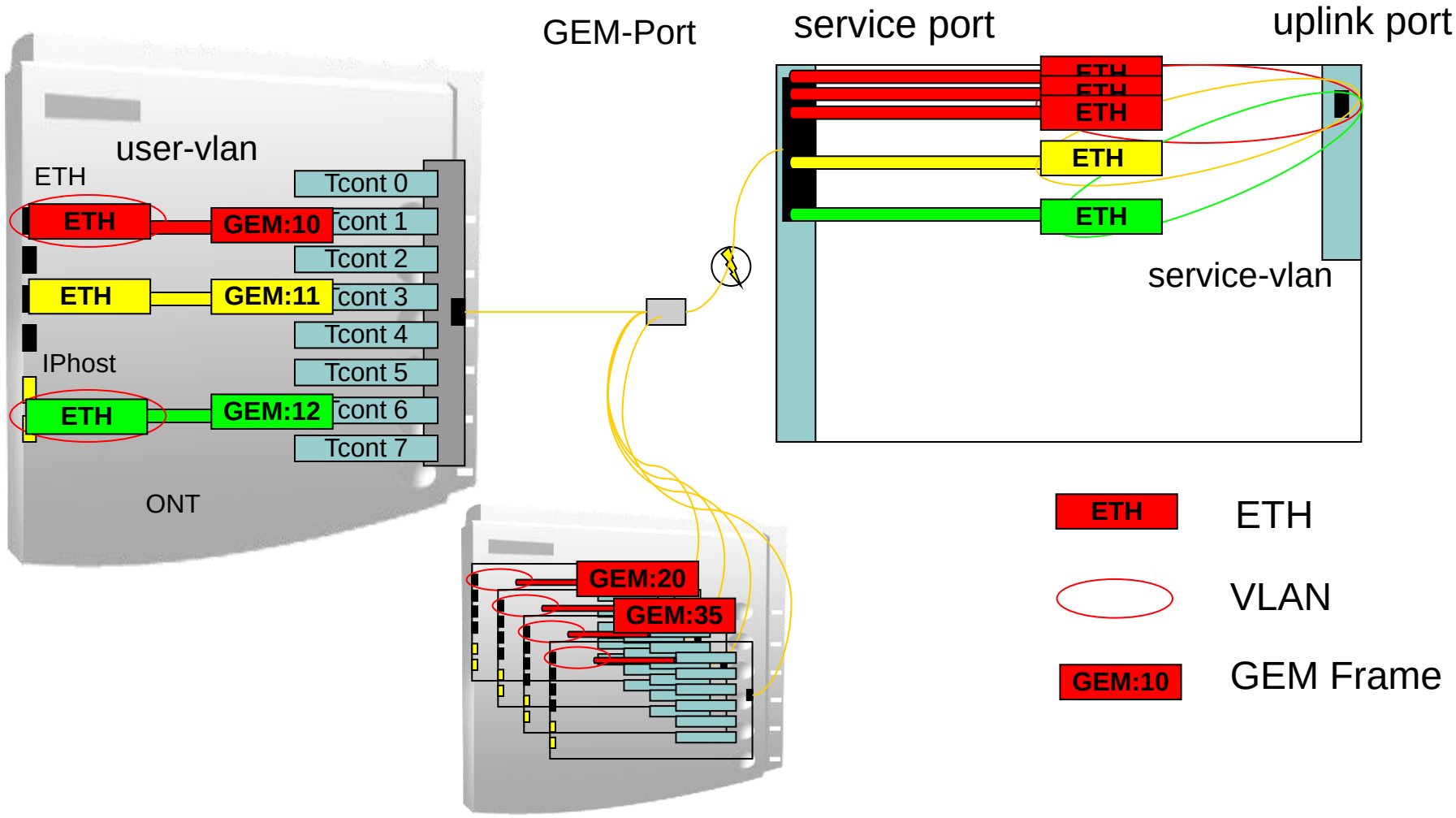


HUAWEI

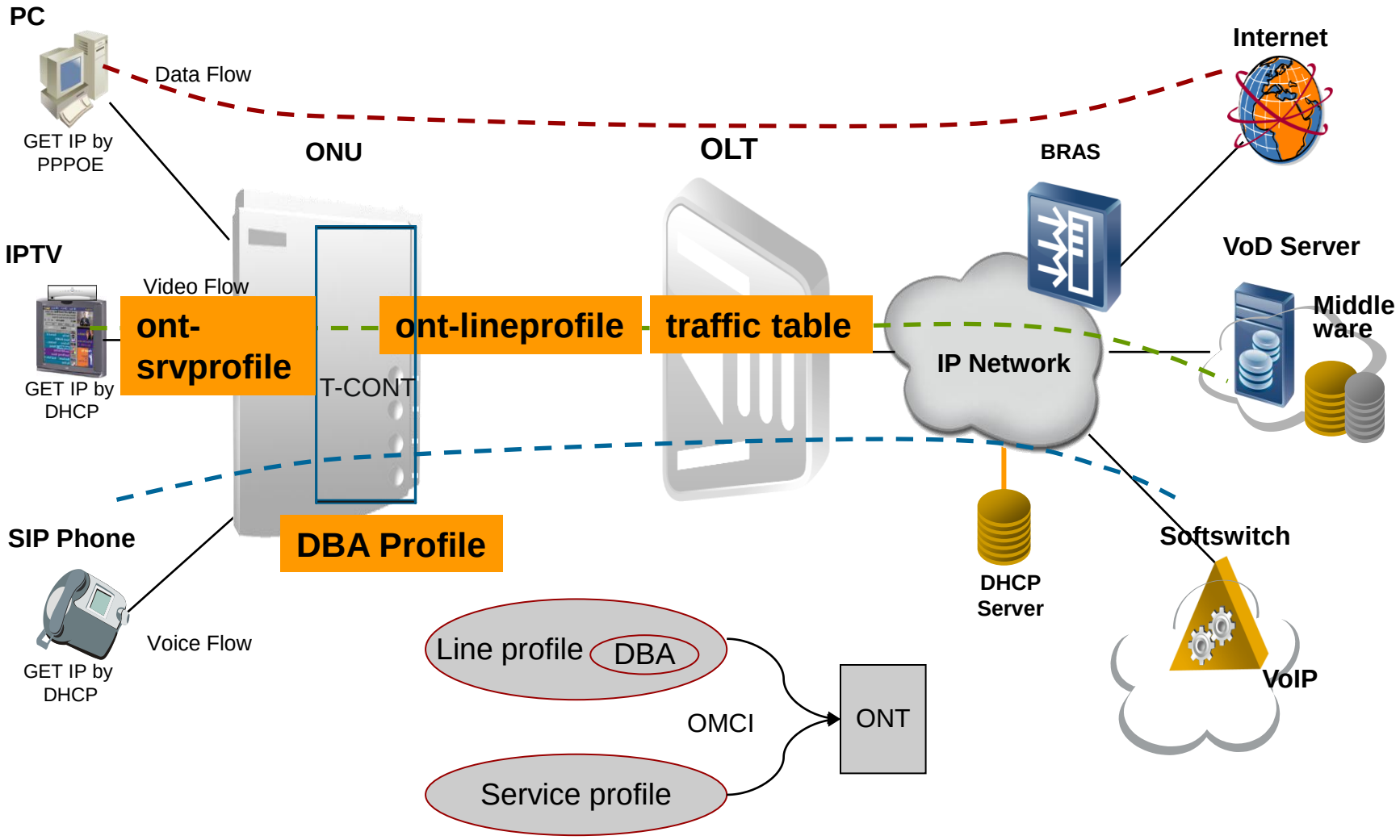
Service Mapping



ONT and OLT Service Flow Principle



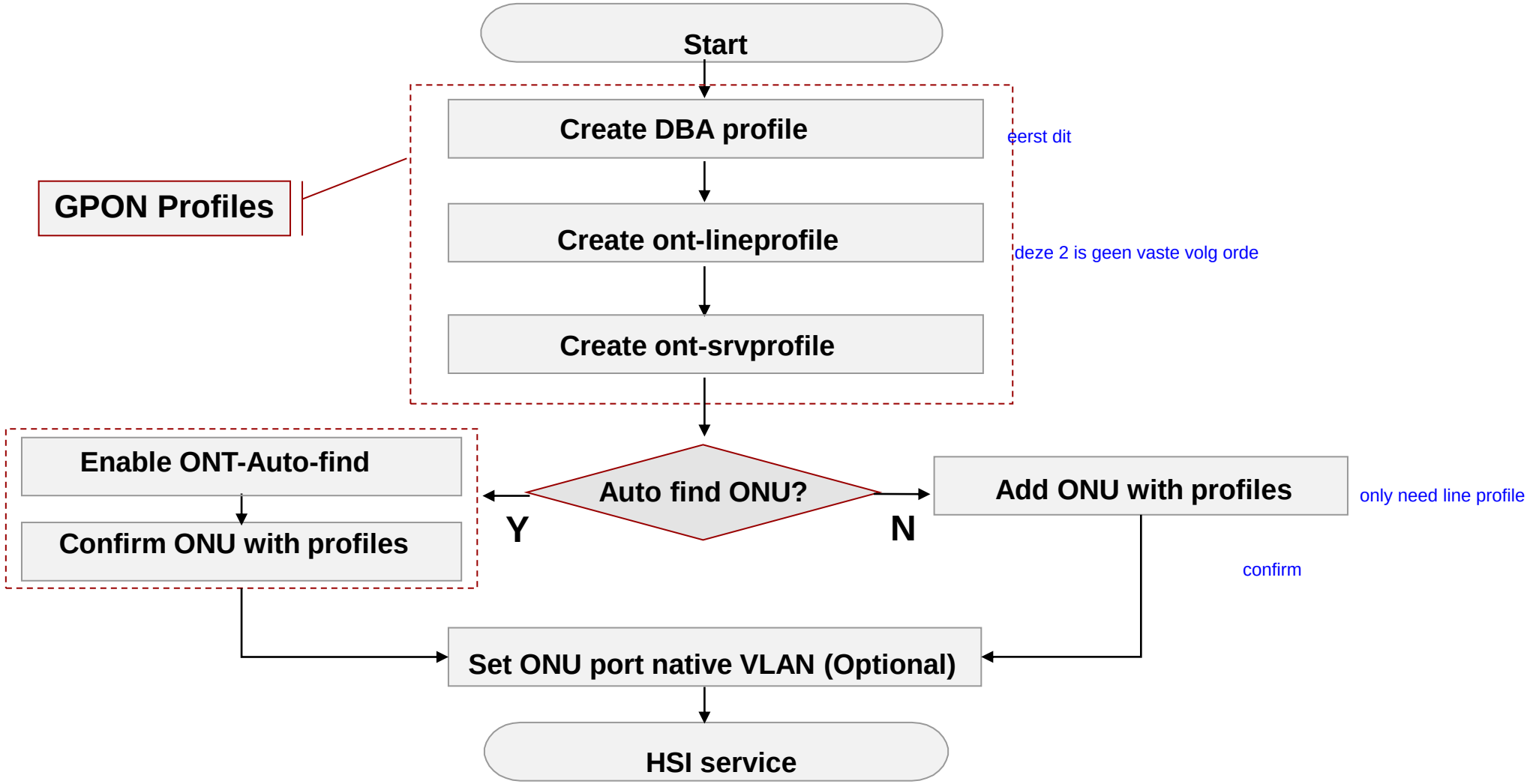
Service Control



HUAWEI

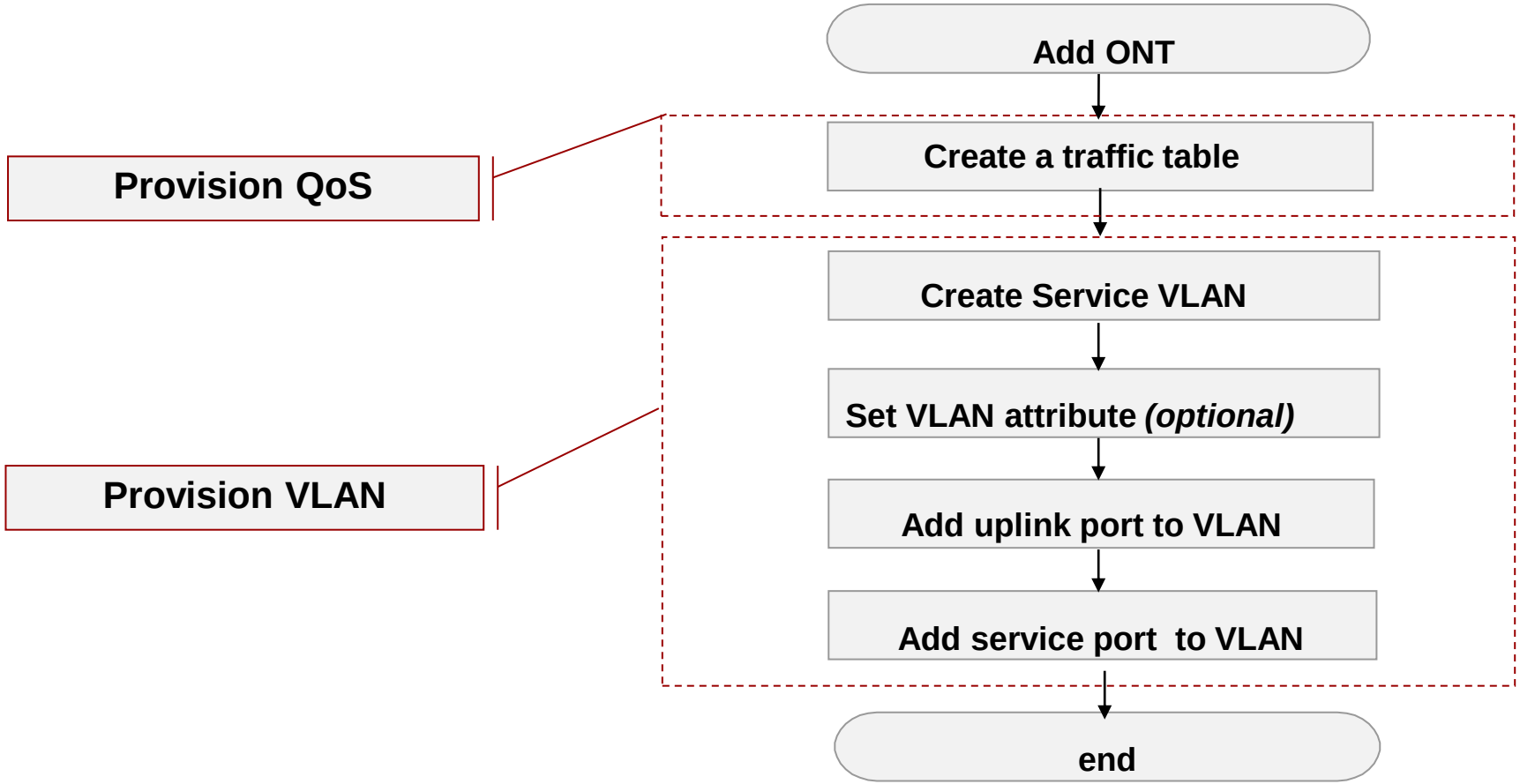
Flow Chart-Add ONT

in de service port
gem port
pon port



Flow Chart-HSI Service

provision mean create modify activate



HUAWEI

Create DBA Profile

query dba
display dba-profile all

- Add dba-profile
  - huawei(config)#**dba-profile add profile-id**
    { profile-id<U><10,512> }:**20**
    { profilename<K>|type1<K>|type2<K>|type3<K>|type4<K>|type5<K> }:**profile-name**
    { profile-name<S><Length 1-33> }:**10M** kan maar 1 keer worden gebruikt
    { type1<K>|type2<K>|type3<K>|type4<K>|type5<K> }:**type4**
    { max<K> }:**max**
    { max-bandwidth<U><128, 10000000 > }:**10240**

Create ONT Line Profile(1/4)

- Add ont-lineprofile
  - huawei(config)#**ont-lineprofile gpon profile-id 66**

    { <cr>|profile-name<K> }:**profile-name**

    { profile-name<S><Length 1-32> }:**ftth**
  - huawei(config-gpon-lineprofile-66)#

Remark: If we don’t assign profile-id, system will assign profile-id randomly.

Create ONT Line Profile(2/4)

test question

- TCONT bind dba-profile **(necessary step)**
  - huawei(config-gpon-lineprofile-66)#**tcont**
    { tcont-list<S><Length 1-13> }:**2**
    { <cr>|dba-profile-id<K>|dba-profile-name<K> }:**dba-profile-id**
    { profile-id<U><0,515> }:**20** as in dba id
- Add gem port and mapping to TCONT **(necessary step)**
  - huawei(config-gpon-lineprofile-66)#**gem**
    { add<K>|delete<K>|mapping<K>|modify<K> }:**add**
    { gem-index<U><0,1023> }:**20** as in gem mapping gem index is zelfde als tcont index
    { service-type<E><eth,tdm> }:**eth**
    { tcont<K> }:**tcont**
    { tcont-id<U><0,127> }:**2** zelfde als in tcon list
    { <cr>|cascade<K>|downstream-priority-queue<K>|encrypt<K>|gem-car<K>|priority-queue<K> }:

Create ONT Line Profile(3/4)

- Set mapping mode
  - huawei(config-gpon-lineprofile-66)#**mapping-mode**

    { iptos<K>|port<K>|port-priority<K>|port-vlan<K>|port-vlan-priority<K>|priority<K>|vlan<K>|vlan-iptos<K>|vlan-priority<K> }:**vlan**
- Set mapping relationship between gem port and VLAN **(necessary step)**
  - huawei(config-gpon-lineprofile-66)#**gem mapping**

    { gem-index<U><0,1023> }:**20** as in gem port moet 2 zijn als tcont

    { mapping-index<U><0,7> }:**0**

    { e1<K>|eth<K>|eth-bundle<K>|flow-car<K>|iphost<K>|ippath<K>|moca<K>|priority<K>|tdm-vcl<K>|transparent<K>|vdsl<K>|vlan<K> }**vlan**

    { untag<K>|vlan-id<U><0,4095> }:**10** customer vlan

    { <cr>|flow-car<K>|priority<K>|transparent<K> }:

    commit

Create ONT Line Profile(4/4)

- Set QoS mode
  - huawei(config-gpon-lineprofile-66)#**qos-mode**

    { flow-car<K>|gem-car<K>|priority-queue<K> }:**priority-queue**
- Commit configuration
  - huawei(config-gpon-lineprofile-66)#**commit**
  - huawei(config-gpon-lineprofile-66)#**quit**

Remark:The configuration will take effective after commit.

Create ONT Service Profile(1/3)

- Add an ont service profile with profile name-hg8245

  - huawei(config)#**ont-srvprofile gpon profile-id 88**

    { <cr>|profile-name<K> }:**profile-name**

    { profile-name<S><Length 1-32> }:**hg8245**

  - huawei(config-gpon-srvprofile-88)#

Create ONT Service Profile(2/3)

- Set the port capability of ont (necessary step)
  - huawei(config-gpon-srvprofile-88)#**ont-port**
    { catv<K>|eth<K>|moca<K>|pots<K>|tdm-srvtype<K>|tdm-type<K>|tdm<K> }:**eth**
    { eth-port<U><0,24> }:**4** ethernet port
    { <cr>|catv<K>|moca<K>|pots<K>|tdm-srvtype<K>|tdm-type<K>|tdm<K> }:**pots**
    { adaptive<K>| pots-port<U><0,32> }:**2**
    { <cr>|catv<K>|moca<K>|tdm-srvtype<K>|tdm-type<K>|tdm<K> }:
- Set the service vlan on ont port (necessary step)
  - huawei(config-gpon-srvprofile-88)#**port vlan**
    { eth<K>|iphost<K>|moca<K> }:**eth**
    { ont-portlist<S><Length 1-128> }:**1** 1-4 is in any
    { downstream<K>|q-in-q<K>|translation<K>|transparent<K>|vlanid<U><0,4095> }:**10** zelfde als bij gem mapping
    { <cr>|TLS<K>|priority<K>|prival<U><0,7> }:

Create ONT Service Profile(3/3)

- Commit configuration

```
huawei(config-gpon-srvprofile-88)#commit

huawei(config-gpon-srvprofile-88)#quit
```

Remark:The configuration will take effective after commit.

ONT Register-Query Ont Serial Number

- Enable ont autofind function
  - huawei(config-if-gpon-0/1)#**port 0 ont-auto-find enable**
- Query ont serial number
  - huawei(config-if-gpon-0/1)#**display ont autofind 0**

dispay ont autofind all

copy is dubble click to select
paste is recht klik to paste

```
Command:
      display ont autofind 0
 ------------------------------------------------
Number                : 1
 F/S/P                : 0/1/0
 Ont SN               : 48575443BF656E04
 Password             : 0x00000000000000000000
 Loid                 :
 Checkcode            :
 VendorID             : HWTC
 Ont Version          : 130C4400
 Ont SoftwareVersion  : V1R002C00S203
 Ont EquipmentID      : 245
 Ont autofind time    : 2021-03-16 19:22:08+08:00
-------------------------------------------------
```


HUAWEI

ONT Register-Add/Confirm ONT

display ont info 0 all

- Add or confirm ONT

  - huawei(config-if-gpon-0/1)#**ont add** *// or ont confirm*

    { portid<U><0,7> }:**0**

    { loid-auth<K>|ontid<U><0,127>|password-auth<K>|protect-side<K>|sn-auth<K> }:**1**

    { loid-auth<K>|password-auth<K>|sn-auth<K> }:**sn-auth**

    { sn<S><Length 13-16> }:**48575443BF656E04**

    { omci<K>|password-auth<K>|snmp<K> }:**omci**

    { <cr>|desc<K>|ont-lineprofile-id<K>|ont-lineprofile-name<K>|ont-srvprofile-id<K >|ont-srvprofile-name<K> }:**ont-lineprofile-id**

    als eerder defined

    { profile-id<U><0,8192> }:**66**

    {<cr>|desc<K>|ont-srvprofile-id<K>|ont-srvprofile-name<K> }:**ont-srvprofile-id**

    { profile-id<U><0,8192> }:**88**

    in my case 98

HUAWEI

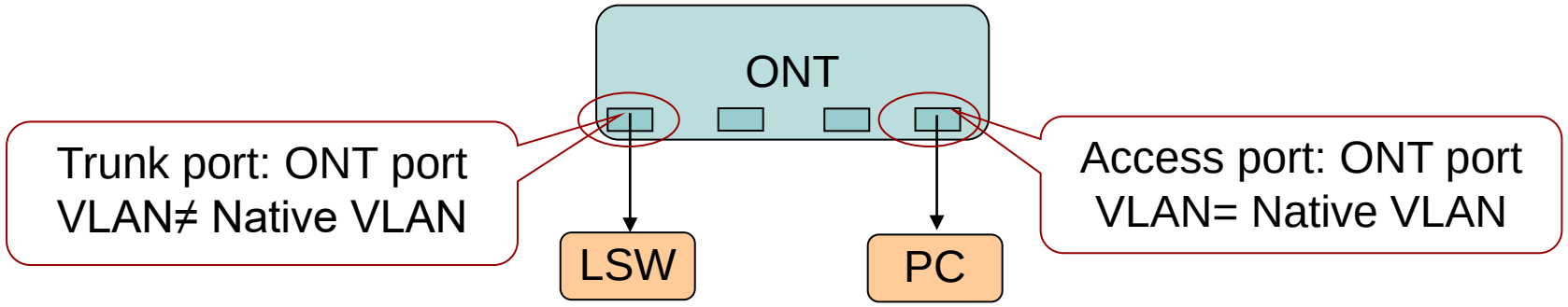
Set ONT Port Native VLAN

- Set ont port native vlan

gpon port ont

  - huawei(config-if-gpon-0/1)#**ont port native-vlan 0 1 eth 1 vlan 10**

When the user’s terminal can’t identify VLAN Tag, then please configure native-vlan.



Create a traffic table

- huawei(config)#**traffic table ip** display traffic table ip from index 0

  { cir<K>|index<K>|modify<K>|name<K> }:**index** traffic table 14 gbr

  { row-index<U><0,1023> }:**7** ont id

  { cir<K>|name<K> }:**cir** pik is at least 2maal cir

  { cir<U><0,10240000>|off<K> }:**1024**

  { car-threshold<K>|cbs<K>|color-dei<K>|color-mode<K>|color-policy<K>|coupling-flag<K>|fix<K>|pbs<K>|pir<K>|priority<K> }:**pir**

  { pir<U><64,10240000>}:**2048**

  { car-threshold<K>|cbs<K>|color-dei<K>|color-mode<K>|color-policy<K>|coupling-flag<K>|fix<K>|pbs<K>|priority<K> }:**priority**

  { prival<U><0,7>|user-cos<K>|user-inner-cos<K>|user-tos<K> }:**0**

  { inner-priority<K>|priority-policy<K> }:**priority-policy**

  { priority-policy<E><Local-Setting,Tag-In-Package,Tag-In-Ingress-Package> }:**local-Setting**

Provision VLAN(1/3)

- Add VLAN

  service vlan

  smart can support several service and uplink port

  vlan 8000

  - huawei(config)#**vlan 2000**

    in the olt

    { <cr>|to<K>|vlantype<E><mux,standard,smart,super> }:**smart**

- Set VLAN attribute
  - huawei(config)#**vlan attrib 2000**

    { common<K>|q-in-q<K>|stacking<K>|to<K> }:**q-in-q**

- Add uplink port into VLAN

  uplink port can be activated in any the service slot or in the control board

  - huawei(config)#**port vlan 2000 0/2 0**

geeft error bij test

in are case tcon and gem number are the same

HUAWEI

Provision VLAN(2/3)

- **Add service port**
  - huawei(config)#**service-port vlan 2000** vlan already created in the olt
    { adsl<K>|atm<K>|epon<K>|eth<K>|gpon<K>|port<K>|shdsl<K>|vdsl<K> }:**gpon**
    { frameid/slotid/portid<S><Length 5-18> }:**0/1/0**
    { ont<K> }:**ont**
    { ontid<U><0,127> }:**1**
    { eth<K>|gemport<K>|iphost<K> }:**gemport**
    { gemindex<U><0,1023> }:**20** als bij gem mapping
    { <cr>|bundle<K>|inbound<K>|multi-service<K>|rx-cttr<K>|tag-transform<K> }:**multi-service** to connect servise en customer vlan
    { user-8021p<K>|user-encap<K>|user-vlan<K> }:**user-vlan** service vlan
    { other-all<K>|priority-tagged<K>|untagged<K>|user-vlanid<U><1,4095> }:**10** cutomer vlan
    { <cr>|bundle<K>|inbound<K>|rx-cttr<K>|tag-transform<K>|user-encap<K> }:

Provision VLAN(3/3)

{ <cr>|bundle<K>|inbound<K>|rx-cttr<K>|tag-transform<K>|user-encap<K> }:**inbound**

{ traffic-table<K> }:**traffic-table**

{ index<K>|name<K> }:**index**

{ index<U><0,1023> }:**7**

{ outbound<K> }:**outbound**

{ traffic-table<K> }:**traffic-table**

{ index<K>|name<K> }:**index**

{ index<U><0,1023> }:**7**

display service port all

all

// Inbound indicates the transmit direction (from the subscriber side to the network side).

Outbound indicates the receive direction (from the network side to the subscriber side).

Questions

at the moment not registered

- How to query the onu found by OLT but not registered?

  A. display ont info B. display ont autofind

- While creating a line-profile , which 3 steps you should care more?

tcont, gemport and vlan

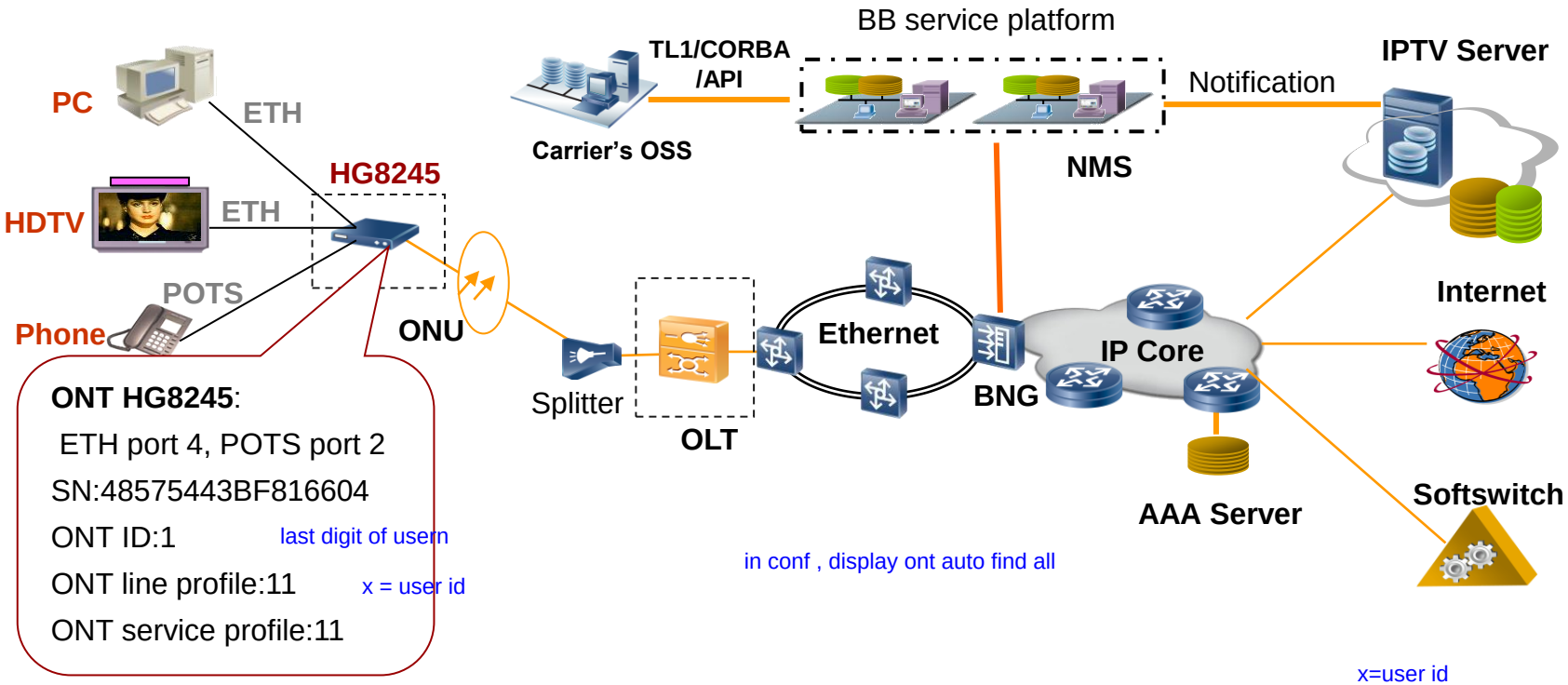
- When do we need to set Native VLAN?

customer vlan as native vlan

Contents

HUAWEI

GPON FTTH Case



Type	ONU Port	C-VLAN	GEM	DBA	TCONT	Traffic table	S-VLAN	OLT port
HSI	ETH1	20 same	1 same	11 1x	1	11: 10M/20M 10 megabits /s 20mebts /s	2000 of common QinQ	GPON: 0/1/0 Uplink: 0/2/0

HUAWEI

ONT HG8245:
ETH port 4, POTS port 2
SN:48575443BF816604
ONT ID:1
ONT line profile:11
ONT service profile:11

Configure Procedure (2/3)

- Configure ONT service profile
  - huawei(config)#**ont-srvprofile gpon profile-id 11** dba
  - huawei(config-gpon-srvprofile-11)#**ont-port eth 4 pots 2**
  - huawei(config-gpon-srvprofile-11)#**port vlan eth 1 20**
  - huawei(config-gpon-srvprofile-11)#**commit**
- Add ONT
  - huawei(config)#**interface gpon 0/1**
  - huawei(config-if-gpon-0/1)#**port 0 ont-auto-find enable**
  - huawei(config-if-gpon-0/1)# **ont confirm 0 ontid 1 sn-auth 48575443BF816604 omci ont-lineprofile-id 11 ont-srvprofile-id 11**

Configure Procedure (3/3)

- Configure ONT native VLAN (Optional)
  - huawei(config)# **interface gpon 0/1**
  - huawei(config-if-gpon-0/1)#**ont port native-vlan 0 0 eth 1 vlan 20**
- Provision VLAN
  - huawei(config)#**vlan 2000 smart**
  - huawei(config)#**vlan attrib 2000 q-in-q**
  - huawei(config)#**port vlan 2000 0/2 0**
  - huawei(config)# **service-port 2 vlan 2000 gpon 0/1/0 ont 1 gemport 1 multi-service user-vlan 20 inbound traffic-table index 11 outbound traffic-table index 11**

Configure Procedure (1/3)

- Configure traffic table
  - huawei(config)#**traffic table ip index 11 cir 10240 pir 20480 cbs 20480 pbs 40960 priority user-cos 0 priority-policy local-Setting**
- Configure DBA profile
  - huawei(config)#**dba-profile add profile-id 11 type4 max 20480**
- Configure ONT line profile
  - huawei(config)# **ont-lineprofile gpon profile-id 11**
  - huawei(config-gpon-lineprofile-11)#**tcont 1 dba-profile-id 11**
  - huawei(config-gpon-lineprofile-11)#**gem add 1 eth tcont 1**
  - huawei(config-gpon-lineprofile-11)#**gem mapping 1 1 vlan 20**
  - huawei(config-gpon-lineprofile-11)#**commit**

Questions

- What’s the attribute of SVLAN in the double vlan tags mode?
  - A. Common B. QinQ C. Stacking
- How many management modes are there for onu?

omci

snmp

HUAWEI

Contents

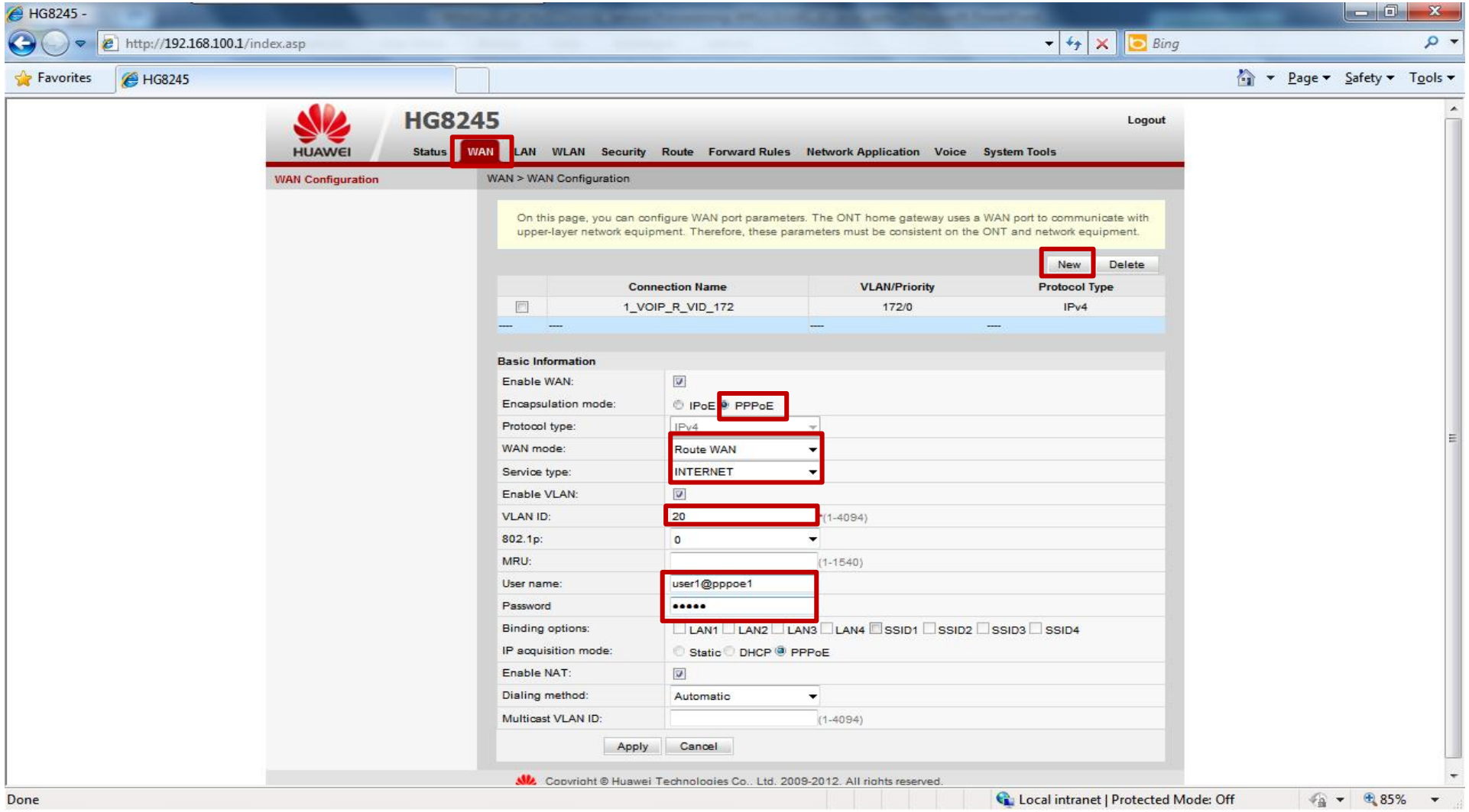
HUAWEI

Config ONT by Web-login

to monitor en configr

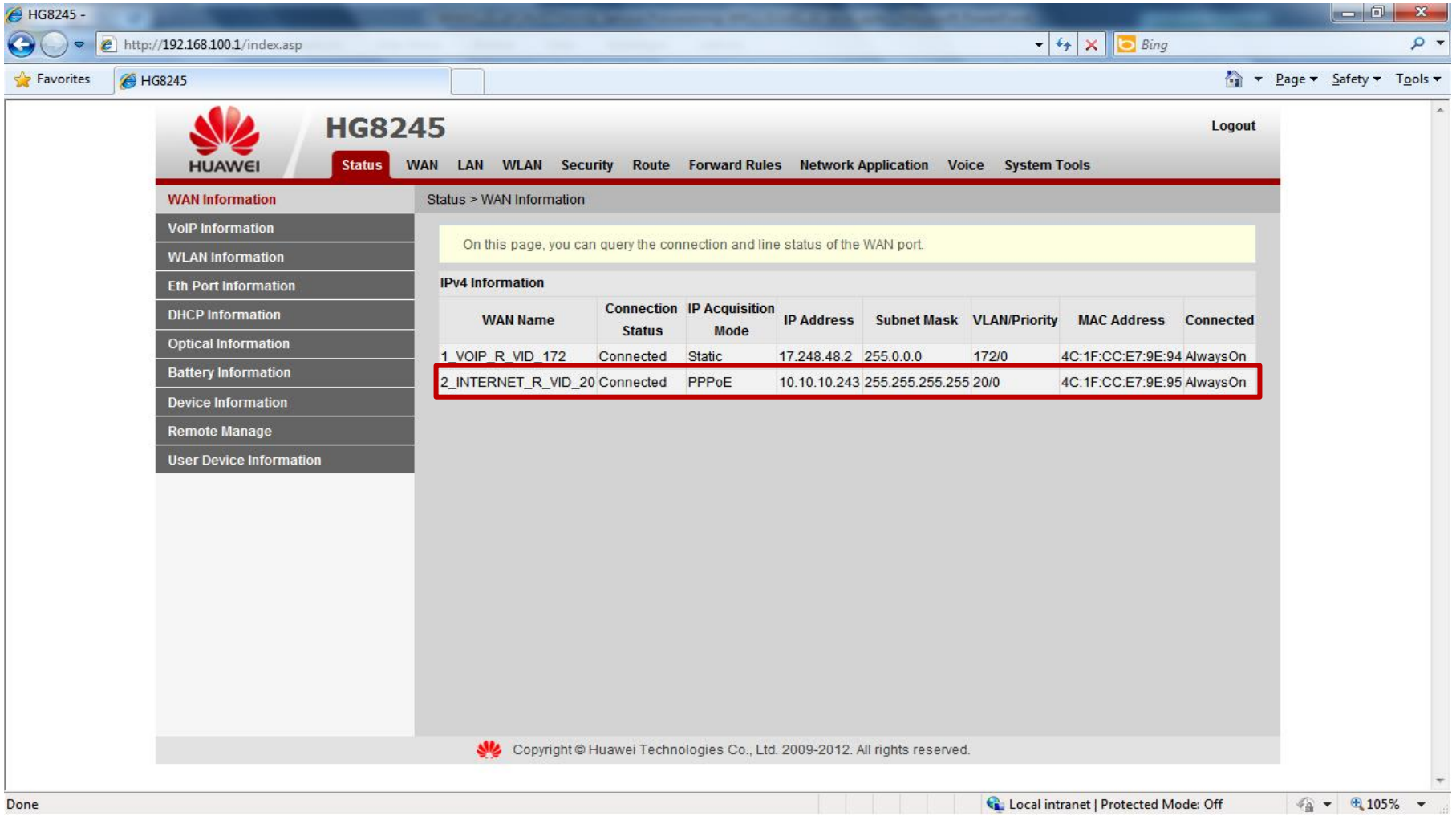
HUAWEI

WAN Configuration

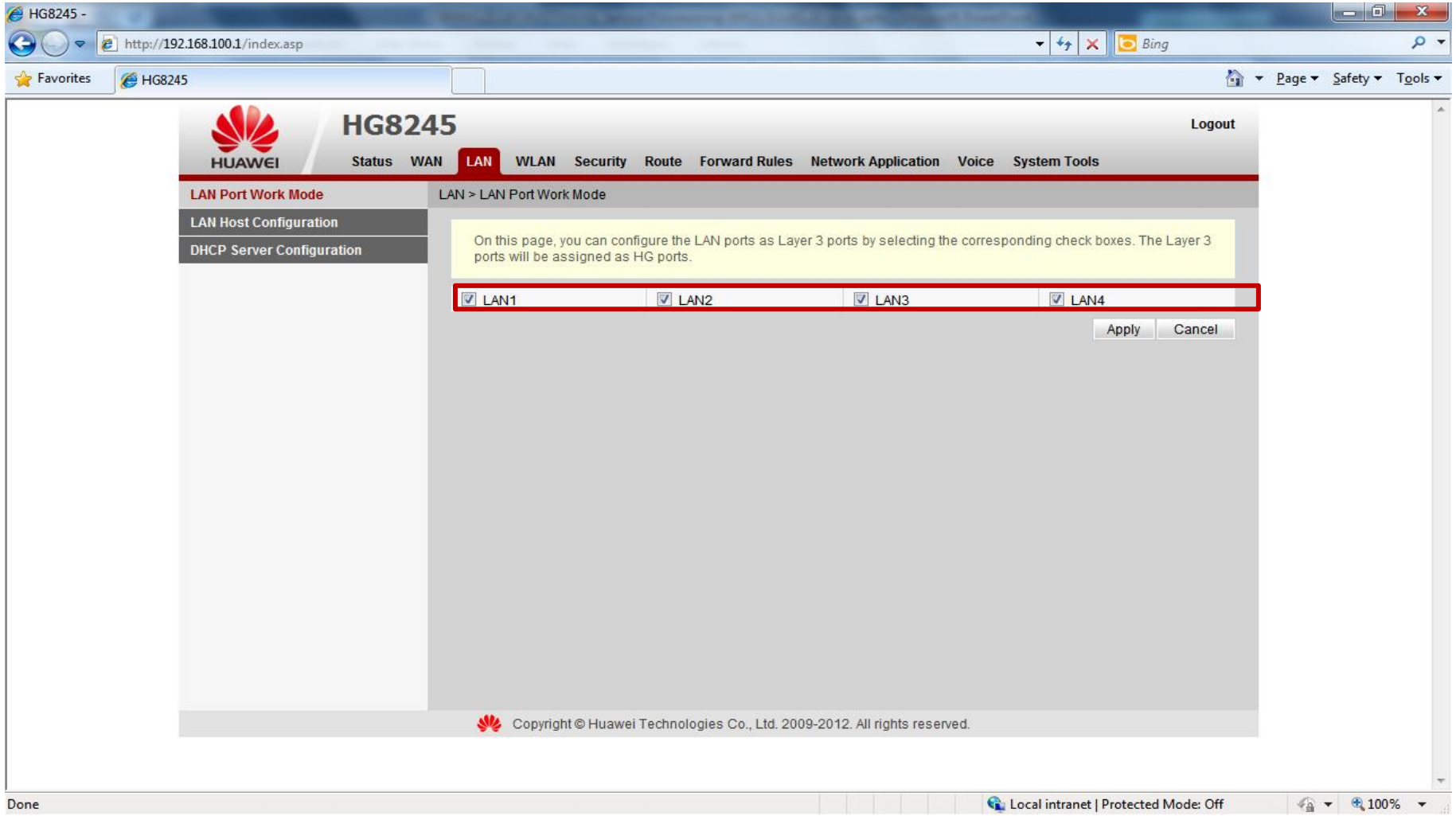


HUAWEI

Show WAN Configuration

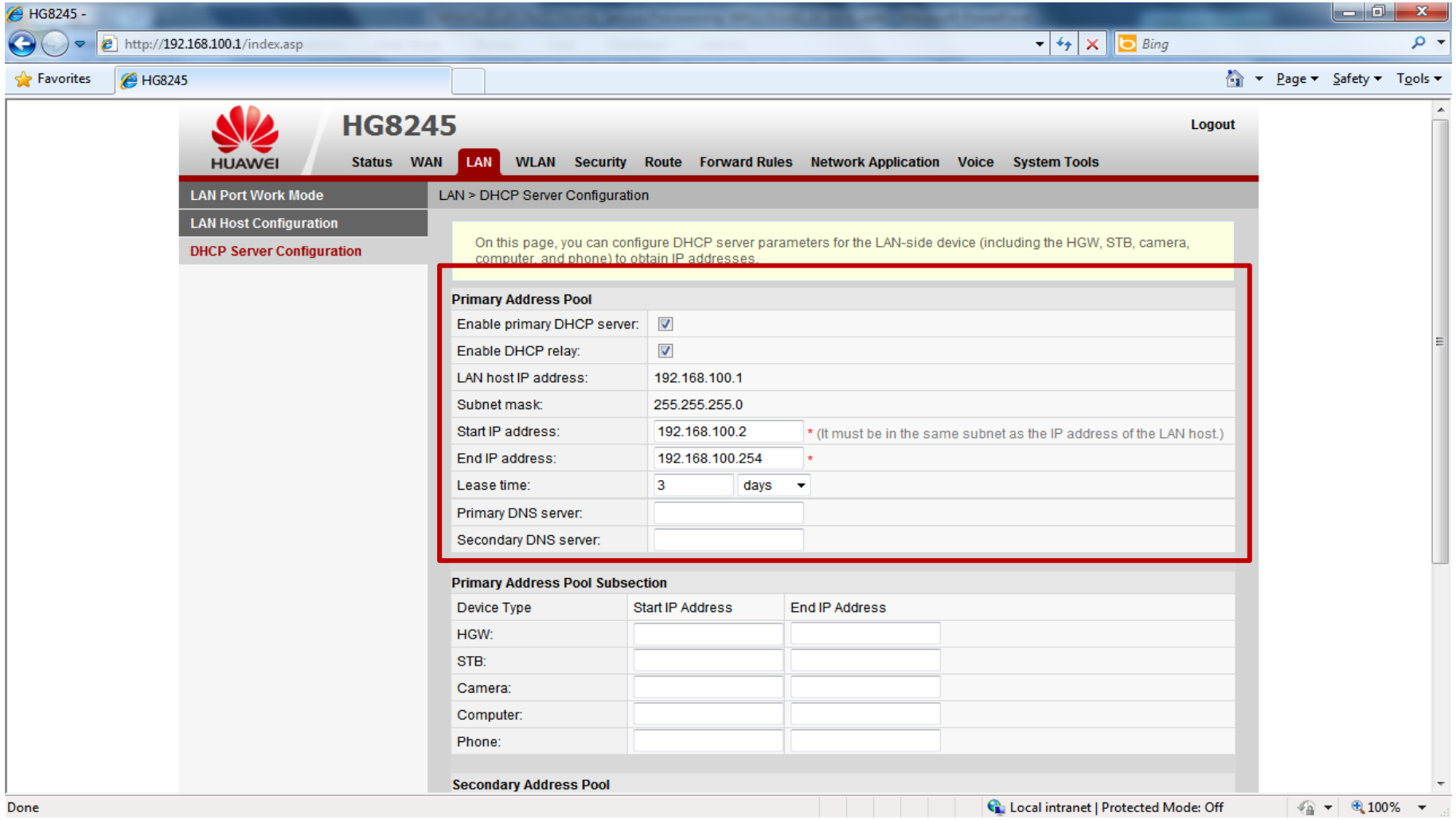


LAN Configuration 1/2



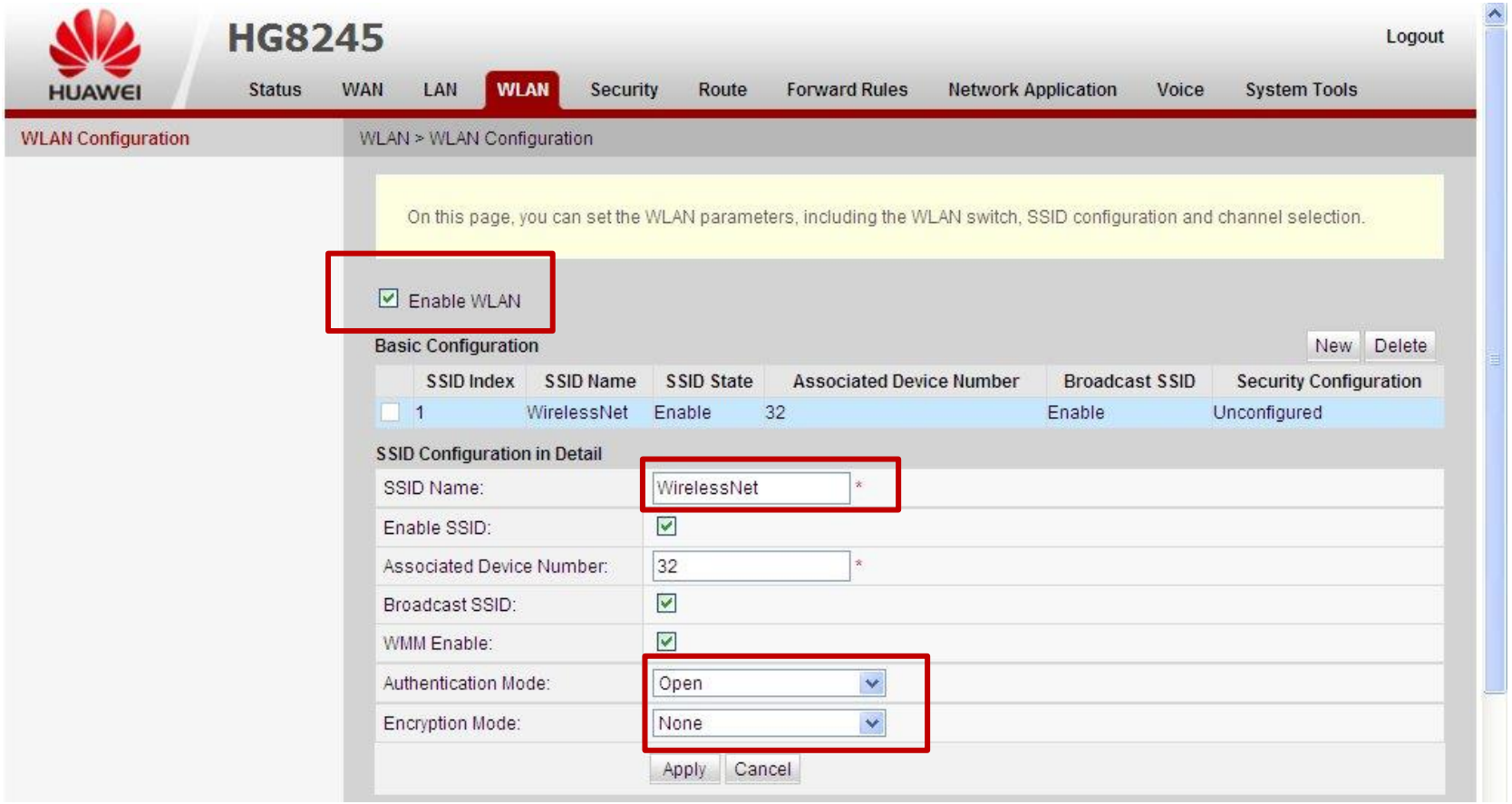
HUAWEI

LAN Configuration 2/2

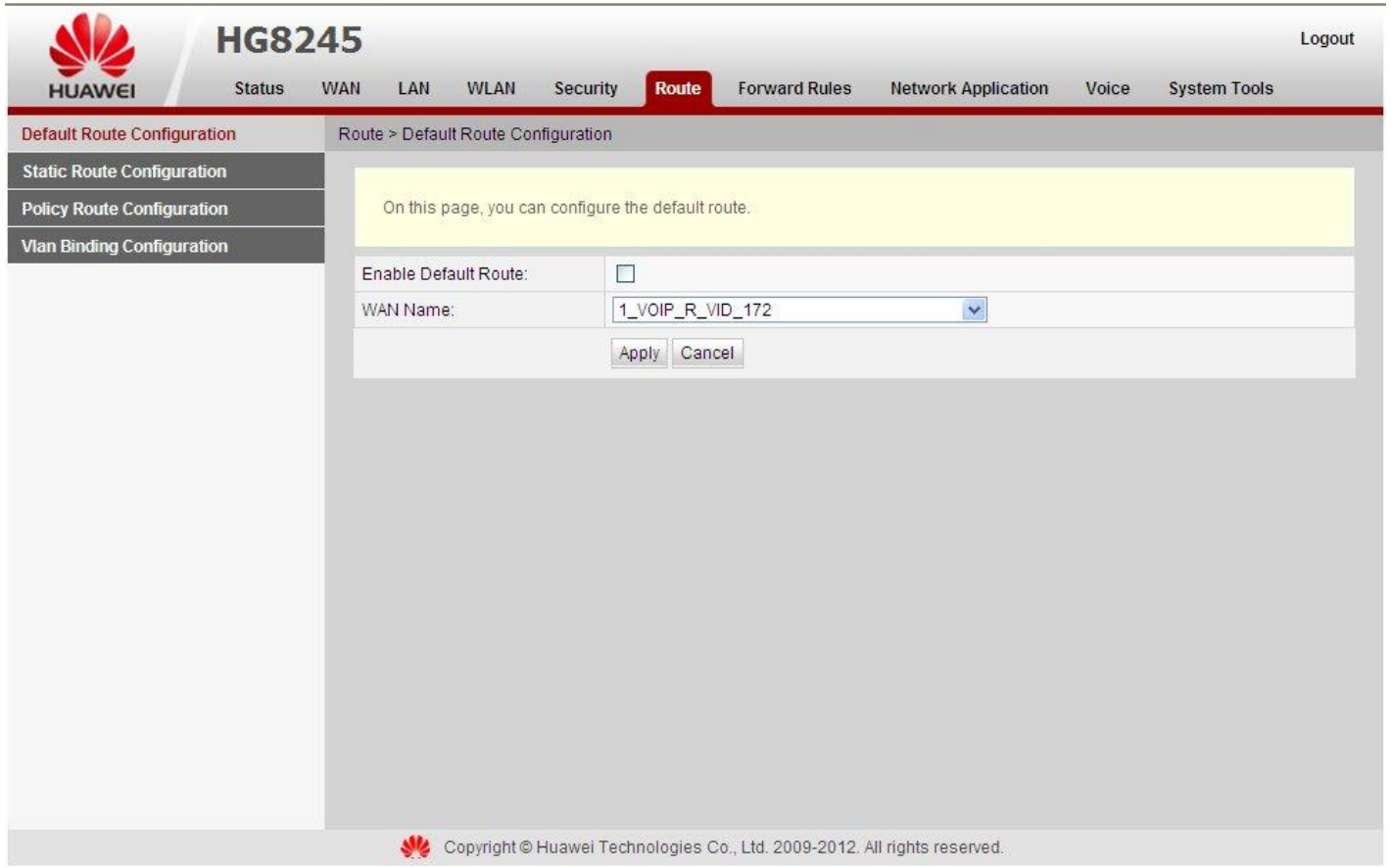


HUAWEI

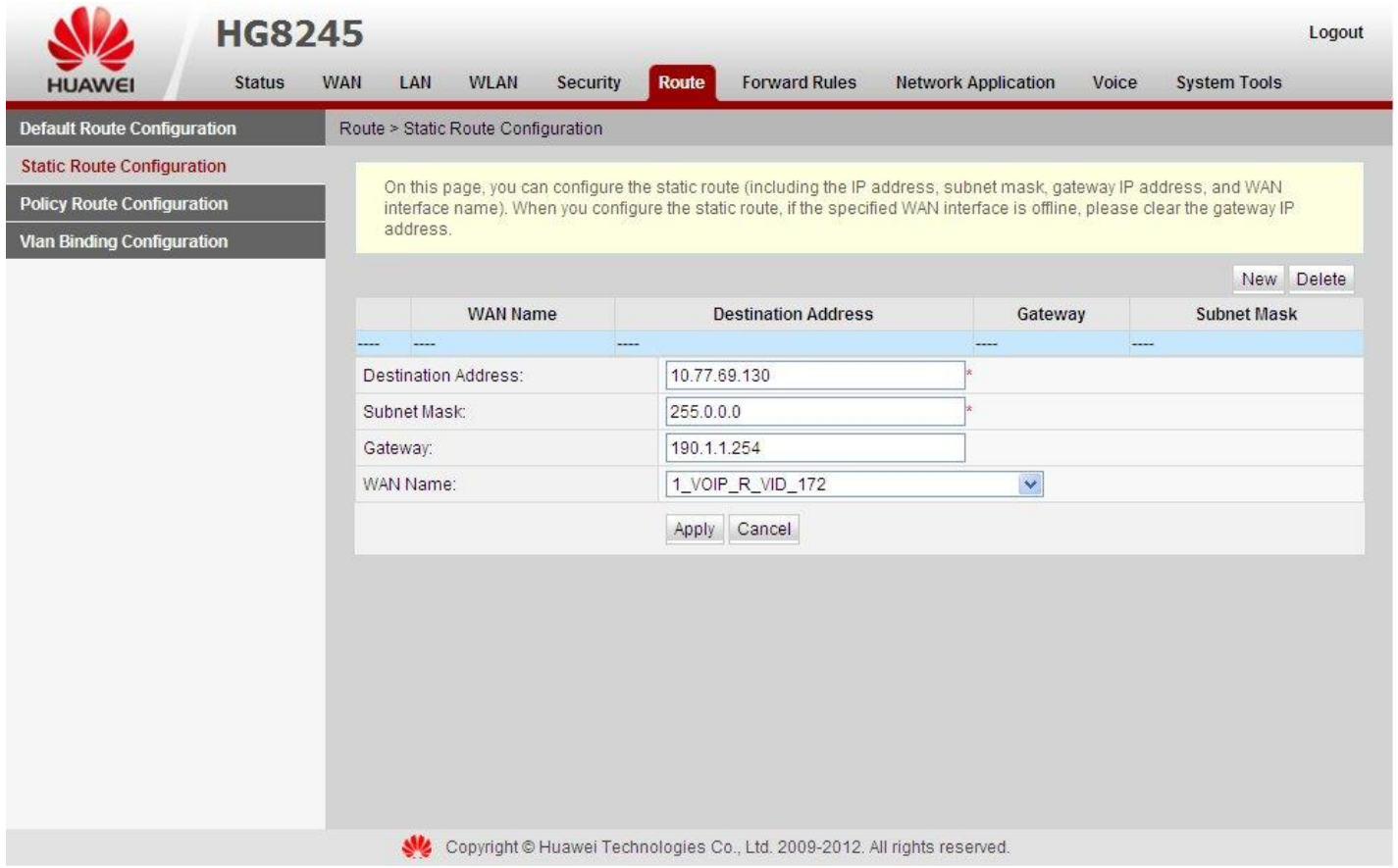
WLAN Configuration



Route Configuration 1/4

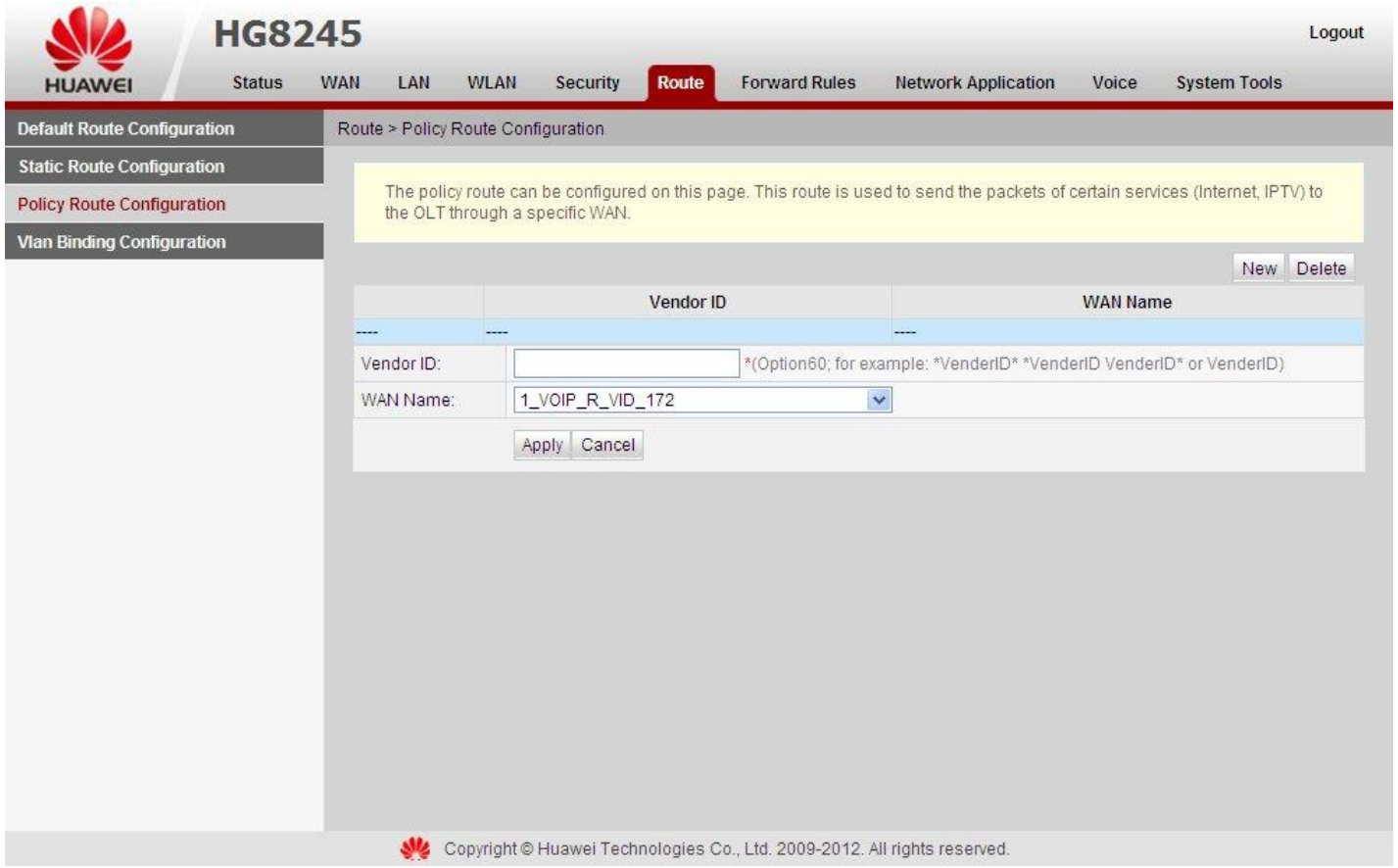


Route Configuration 2/4

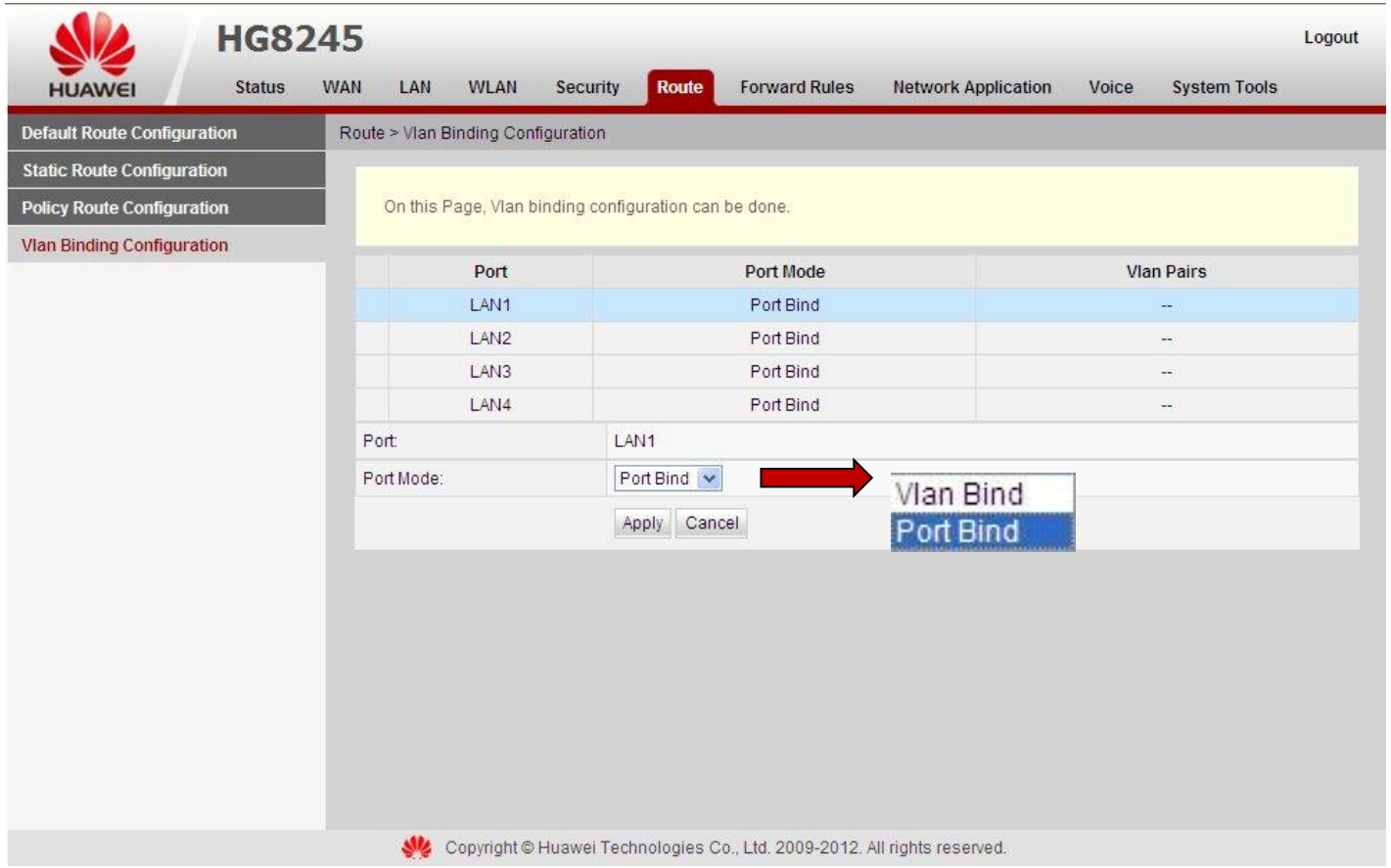


HUAWEI

Route Configuration 3/4



Route Configuration 4/4



Contents

Query Board

- huawei(config)#**display board 0**
  - ----------
  - SlotID BoardName Status SubType0 SubType1 Online/Offline
  - ----------
  - 1
  - 2 H901GPHF Normal
  - … …
  - 4 H901OGHK Failed
  - … …
  - 9 H901MPLB Active_normal
  - … …
  - ----------

to find subscribers on the board

status of all board

service dusturbance

Query Auto-find ONT

- huawei(config)#**interface gpon 0/1**
- huawei(config-if-gpon-0/1)#**port 0 ont-auto-find enable**
- huawei(config-if-gpon-0/1)#**display ont autofind 0**

display ont autofind all

```
---------------------------------------------------
  Number              : 1
  F/S/P               : 0/1/0
  Ont SN              : 48575443BF816604
  Password            : 123456
  Loid                : 0000000000
  Checkcode           :
  VenderID            : HWTC
  Ont Version         : V1R1C01B035
  Ont SoftwareVersion : V1R1C01B035
  Ont EquipmentID     : EchoLife:HG850
  Ont autofind time   : 2021-01-25 16:26:19
---------------------------------------------------
```

Query ONT Status

- huawei(config-if-gpon-0/1)#**display ont info 0 all**

```
-----------------------------------------------------
 F/S/P   ONT   SN         Control     Run      Config   Match    Protect
       ID      flag       state       state    state    side
-----------------------------------------------------
 0/ 1/0  1   48575443BF816604  active  online   normal   match    no
 0/ 1/0  2   48575443A7FE3705  active  offline  initial  initial  no
-----------------------------------------------------------------
 F/S/P   ONT-ID   Description
-----------------------------------------------------------------
 0/ 1/0      1   ONT_NO_DESCRIPTION
 0/ 1/0      2   ONT_NO_DESCRIPTION
-----------------------------------------------------------------
 In port 0/ 1/0 , the total of ONTs are: 2, online: 1
```

all the ont that are working on the olt

Query ONT Information

- huawei(config-if-gpon-0/1)#**display ont info 0 1**

```
-----------------------------------------
F/S/P : 0/1/0
ONT-ID : 1
Control flag : active
Run state : online
Config state : normal
Match state : match
DBA type : SR
ONT distance(m)      : 18
ONT battery state    : support but invalid
Memory occupation    : -
CPU occupation       : -
Temperature          : -
Authentic type       : SN-auth
-----------------------------------------
Ont-servprofile: 11
Ont-line profile: 11
-----------------------------------------
```

When the ONT is normal and online, the status is "up".

After the ONT is normal and online, such status indicates whether the configuration restoration is enabled and whether the configuration restoration is complete

It indicates whether the ONT actual capability is the same as the service profile bound to the ONT.

Query DBA-profile

- huawei(config)#**display dba-profile all**

```
-------------------------------------------------------------
Profile-ID  type   Bandwidth    Fix    Assure  Max      Bind
                   compensation(kbps)(kbps)  (kbps)    times
-------------------------------------------------------------
    1       1       No        5120     0       0
    2       1       No        1024     0       0          0
    3       4       No        0        0       32768      0
    4       1       No        1024000  0       0          0
    5       1       No        32768    0       0          1
    6       1       No        102400   0       0          0
    7       2       No        0        32768   0          3
    8       2       No        0        102400  0          0
    9       3       No        0        32768   65536      0
   10       4       No        0        0       1024000    1
-------------------------------------------------------------
```

Remark: There are 9 default dba-profile,ID:1-9.

Query Traffic Table

- huawei(config)#**display traffic table ip from-index 0**

```
------------------------------------------------------------------------
 TID CIR(kbps) CBS(bytes) PIR(kbps) PBS(bytes) Pri Copy-policy Pri-Policy
 ------------------------------------------------------------------------
 0  1024    34768      2048     69536       6     -    tag-pri
 1  2496    81872      4992     163744      6     -    tag-pri
 2  512     18384      1024     36768       0     -    tag-pri
 3  576     20432      1152     40864       2     -    tag-pri
 4  64      4048       128      8096        4     -    tag-pri
 5  2048    67536      4096     135072      0     -    tag-pri
 6  off     off        off      off         0     -    tag-pri
11  10240   20480      20480    40960       0     -    local-setting
------------------------------------------------------------------------
Total Num : 8
```

Query ONT Line Profile (1/2)

- huawei(config)#**display ont-lineprofile gpon profile-id 11**

```
-----------------------------------------------
Profile-ID          :11
Profile-name        :hg8245
Access-type         :GPON
-----------------------------------------------
FEC upstream switch :Disable
OMCC encrypt switch :Off
Qos mode            :PQ
Mapping mode        :VLAN
VoIP config method  :Default
-----------------------------------------------
```


HUAWEI

Query ONT Line Profile (2/2)

```
 <T-CONT 0>         DBA Profile-ID:1
 <T-CONT 1>         DBA Profile-ID:10
 <Gem Index 1>
  ----------------------------------------------------------------
 |Serv-Type:ETH |Encrypt:off |Cascade:off |Priority:0  |GEM-CAR:-   |
  ----------------------------------------------------------------
  Mapping-index  VLAN   Priority   Port-type   Port-ID   Flow-CAR
  ----------------------------------------------------------------
    1            20     -          -           -         -

  ----------------------------------------------------------------
  Binding times       :1
 ----------------------------------------------------------------
```

Query ONT Service Profile (1/4)

- huawei(config)#**display ont-srvprofile gpon profile-id 11**

```
-------------------------------------------
Profile-ID  : 11
Profile-name: hg8245
Access-type : GPON
-------------------------------------------
Port-type     Port-number
-------------------------------------------
POTS          2
ETH           4
TDM           0
MOCA          0
CATV          0
-------------------------------------------
```

Query ONT Service Profile (2/4)

```
-  ------------------------------------------------------------------------
 -  TDM port type                  : E1
 - TDM service type                : TDMoGem
 - MAC learning function switch    : Enable
 - ONT transparent function switch : Disable
 - Multicast forward mode          : Unconcern
 - Multicast forward VLAN          : -
 - Multicast mode                  : Unconcern
 - Upstream IGMP packet forward mode : Unconcern
 - Upstream IGMP packet forward VLAN : -
 -  Upstream IGMP packet priority   : -
 -  Native VLAN option              : Concern
  ------------------------------------------------------------------------
```

Query ONT Service Profile (3/4)

```
-----------------------------------------------------
Port-type Port-ID QinQmode  PriorityPolicy Inbound outbound
-----------------------------------------------------
 ETH      1    unconcern unconcern   unconcern unconcern
 ETH      2    unconcern unconcern   unconcern unconcern
 ETH      3    unconcern unconcern   unconcern unconcern
 ETH      4    unconcern unconcern   unconcern unconcern
 -----------------------------------------------------
 Port-type Port-ID Dscp-mapping-table-index
 -----------------------------------------------------
 ETH      1      0
 ETH      2      0
 ETH      3      0
 ETH      4      0
 IPHOST   1      0
 -----------------------------------------------------
```

Query ONT Service Profile (4/4)

```
-----------------------------------------------------------------
Port   Port Service-type Index S-VLAN S-PRI C-VLAN C-PRI ENCAP   S-PRI
type   ID                                  POLICY
-----------------------------------------------------------------
ETH    1    Translation  1     20     -     20     -     -       -
-----------------------------------------------------------------
 Notes: * indicates transparent attribute of the vlan
-----------------------------------------------------------------
 Port-type  Port-ID    IGMP-mode       IGMP-VLAN  IGMP-PRI  Max-MAC-Count
-----------------------------------------------------------------
 ETH          1    -              -       -     Unlimited
 ETH          2    -              -       -     Unlimited
 ETH          3    -              -       -     Unlimited
 ETH          4    -              -       -     Unlimited
 ----------------------------------------------------------------
 Binding times : 1
 ----------------------------------------------------------------
```

Query VLAN

- huawei(config)#**display vlan all**

```
--------------------------------------------------------
VLAN   Type     Attribute  STND-Port NUM   SERV-Port NUM
--------------------------------------------------------
  1    smart     common        2              0
 10    smart     common        1              1
 2000  smart     QinQ          1              1
--------------------------------------------------------
```

- huawei(config)#**display vlan 2000**

```
---------------------------
F/S /P Native VLAN State
---------------------------
0/2/0    1      up
---------------------------
```

uplink port in de service port

HUAWEI

Query Service Port

- huawei(config)#**display service-port vlan 2000**

```
---------------------------------------------------------
 INDEX VLAN VLAN PORT F/ S/ P VPI VCI FLOW FLOW RX TX STATE
       ID   ATTR TYPE              TYPE PARA
---------------------------------------------------------
1   2000 QinQ  gpon   0/1/0   1  1  vlan 20   11 11  up
---------------------------------------------------------
```

Query ONT Port Attribute

gpon port ont id

- huawei(config-if-gpon-0/1)#**display ont port attribute 0 1 eth**

```
-------------------------------------------------------------
ONT ONT  ONT  Auto-neg Speed  Duplex Port   Flow
    port port-type       (Mbps)       switch control VLAN
-------------------------------------------------------------
1   1    ETH  enable   auto   auto   on    off    20     0
1   2    ETH  enable   auto   auto   on    off    1      0
1   3    ETH  enable   auto   auto   on    off    1      0
1   4    ETH  enable   auto   auto   on    off    1      0
-------------------------------------------------------------
```

Questions

display service port and id

display ont info

- How to check the HSI service configuration succeeds ?

- If the connection failed and it prompts error 678,how to check the HSI service configuration?
  - A. Display onu info (including line-profile etc.)
  - B. Display onu autofind
  - C. Display service port
  - D. Display vlan D

HUAWEI

Summary

- GPON Concepts and functions:
  - TCONT, GEM Port, ONU, VLAN, Uplink Port
  - ont-lineprofile, ont-srvprofile, dba-profile, traffic table
- Service Configuration procedure:
  - Ont Profiles
  - Ont Register
  - VLAN provision

Thank You

www.huawei.com