Triple Play Setting

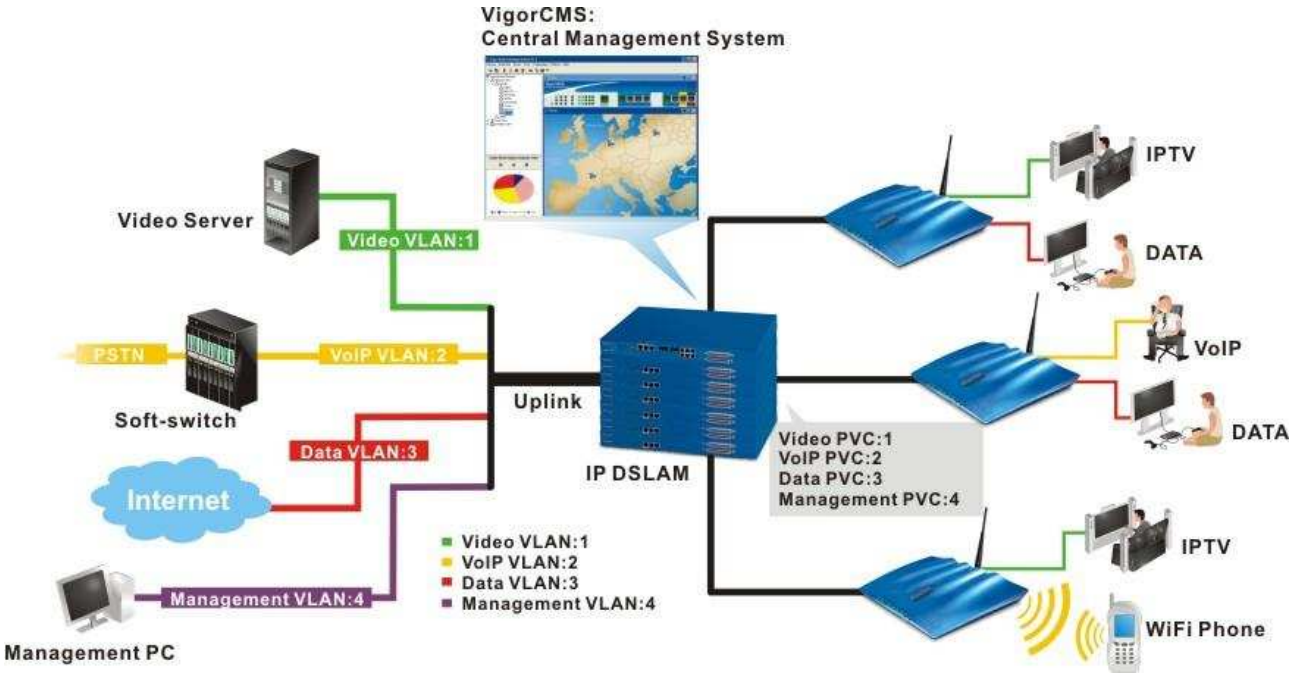
7.1 Introduction

Triple-Play service is the service that integrates data, voice and video services on IP network.

More and more ISPs are preparing this service for home users.

For adapting the trend, Draytek provides the solutions on Vigor2700, Vigor2820, Vigor2110 and Vigor2910 series (with special firmware).

Below is the figure displaying the triple play environment.



Users can use Internet, IPTV and VoIP services through the same adsl line that ISP offered at the same time.

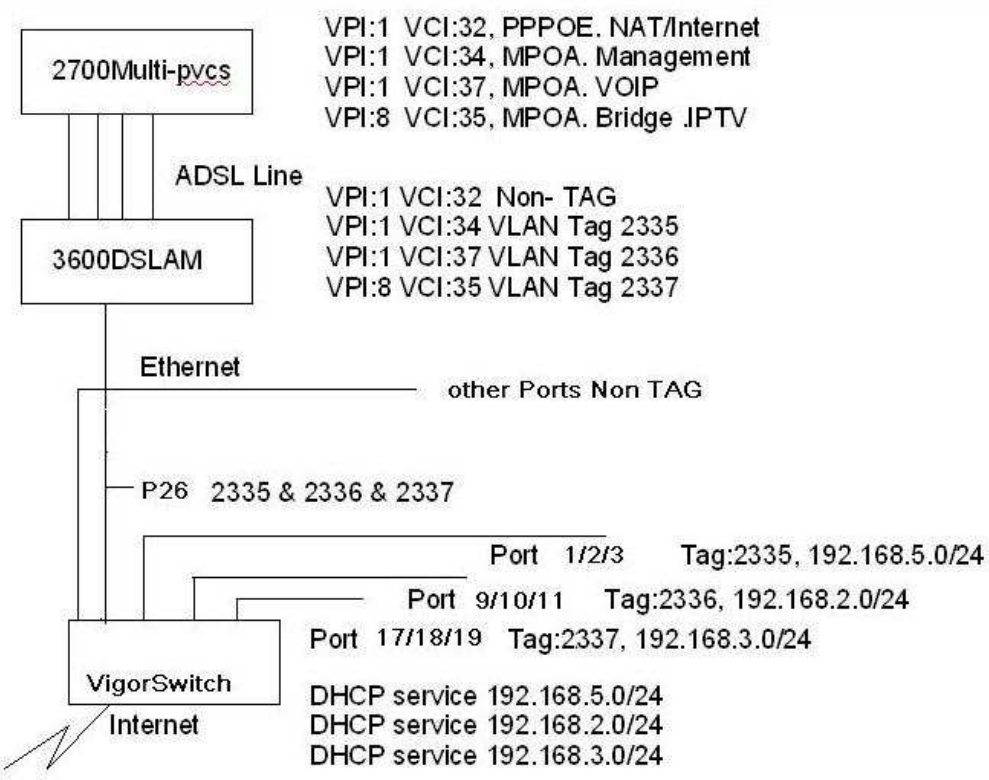
CPE sends the IPTV, Data and VoIP packets through specific PVCs.

Then IPDSLAM tag the packets with different VLAN IDs to the switch that all servers connected.

And the switch will separate and untagged the packets to the specifics port that server connected by the VLAN settings.

We'll take Vigor2700, VigorAccess and VigorSwitchP2260 as an example to configure triple-play environment in this document.

Below are the PVC and VLAN settings.



7.2 Configure CPE

1.Configure Multi-PVC.

Different services are going through different PVC, so DSLAM can separate the traffics.

In this example,

Data/Internet service will go through PVC 1/32.

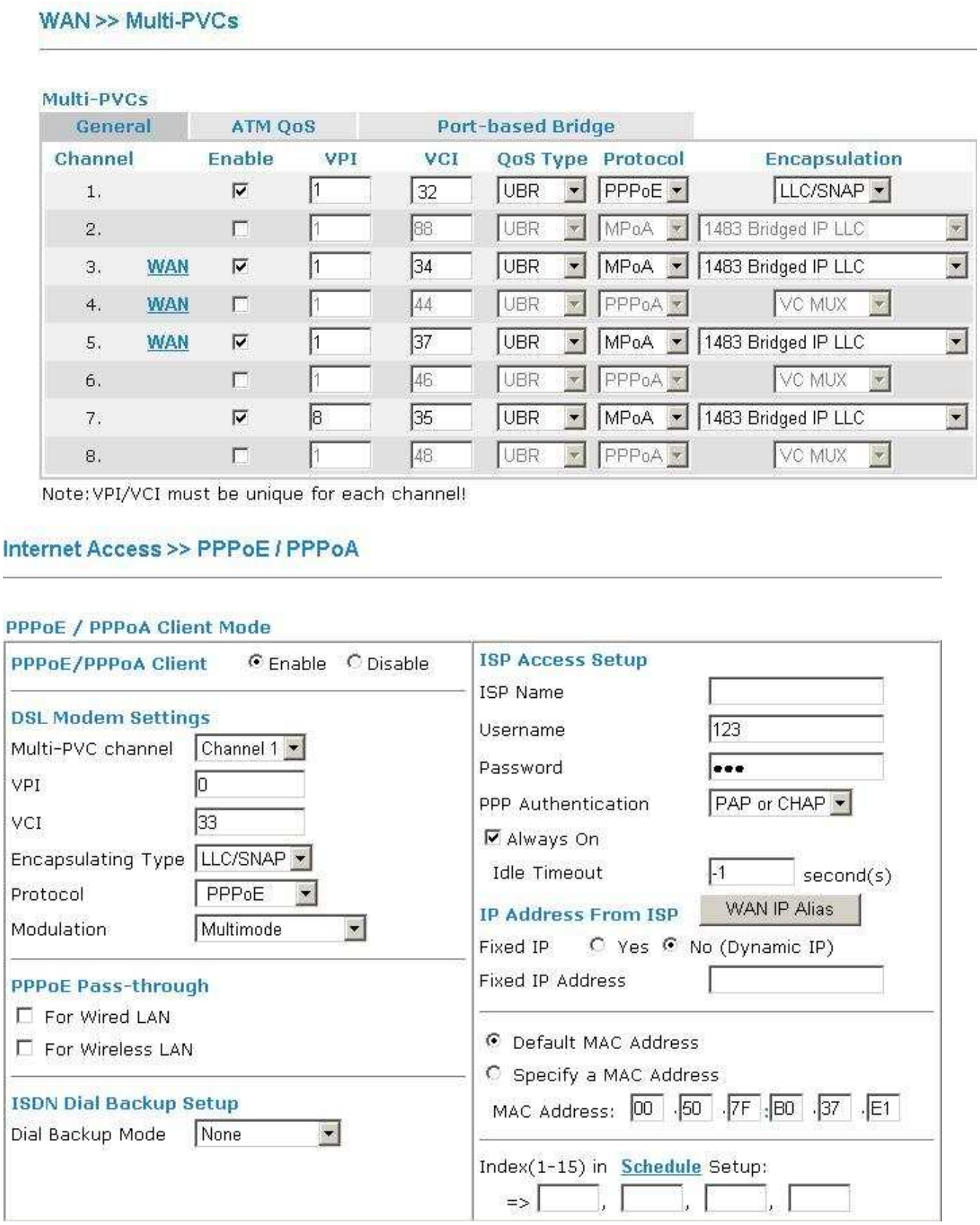
VoIP service will go through PVC 1/37.

Management (TR069) service will go through PVC 1/34.

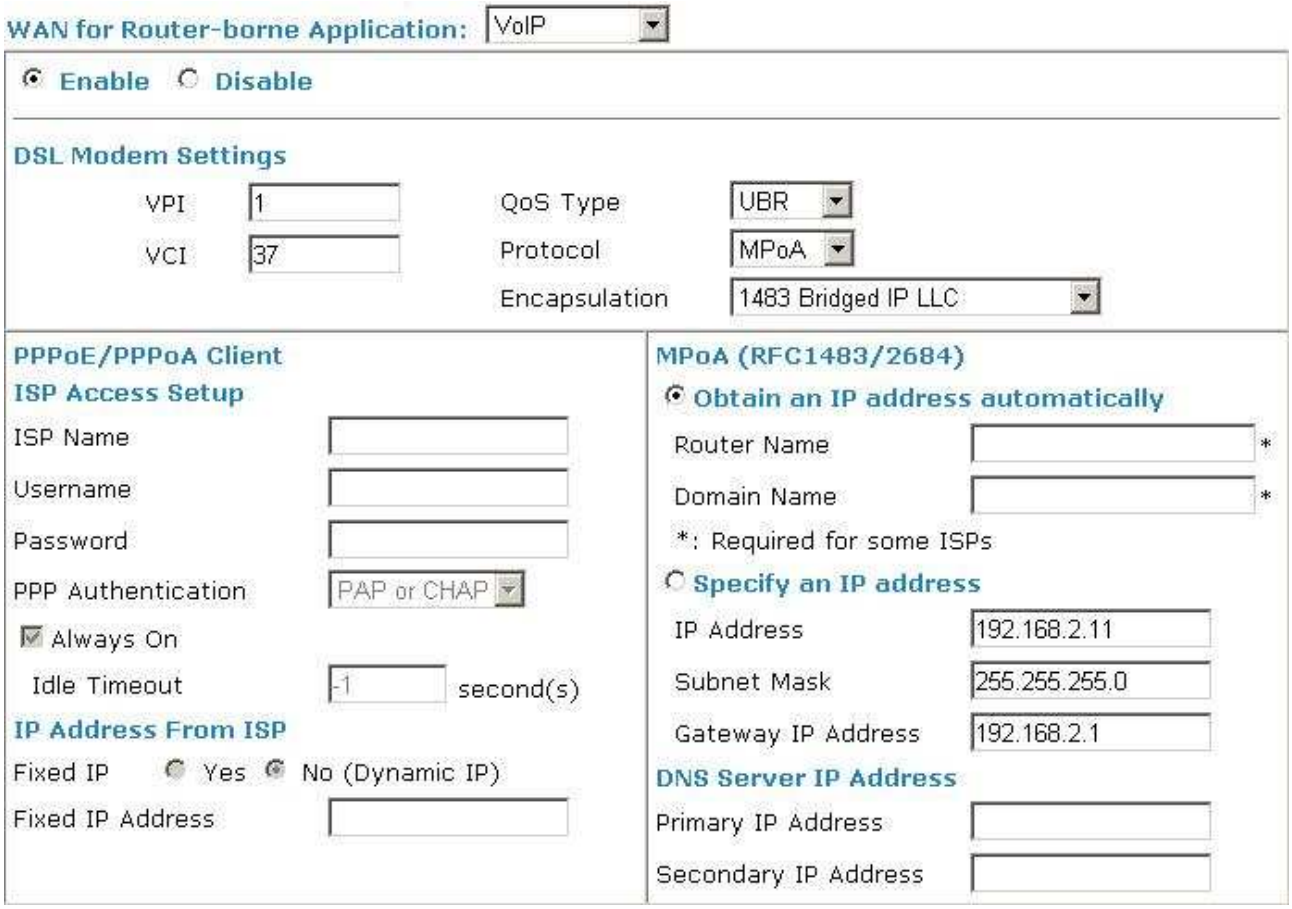
IPTV service will go through PVC 8/35.

The PVC and access mode(PPPoE or MPoA) settings are decided by ISP.

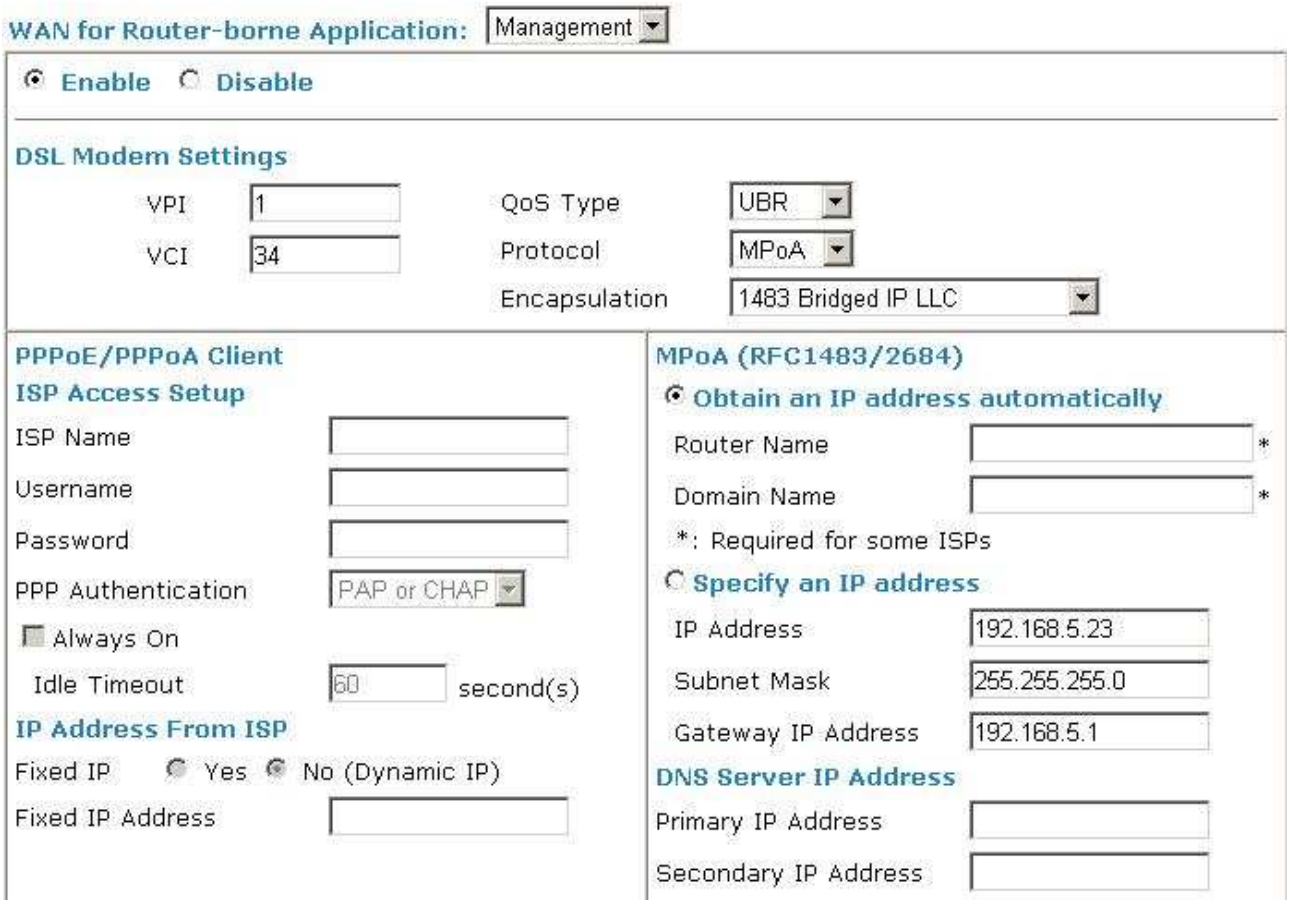
(1) Go to WAN>Multi-PVCs page, configure Channel 1 for Internet Access.



(2)Select Channe5/WAN5 then configure the PVC for VoIP service.



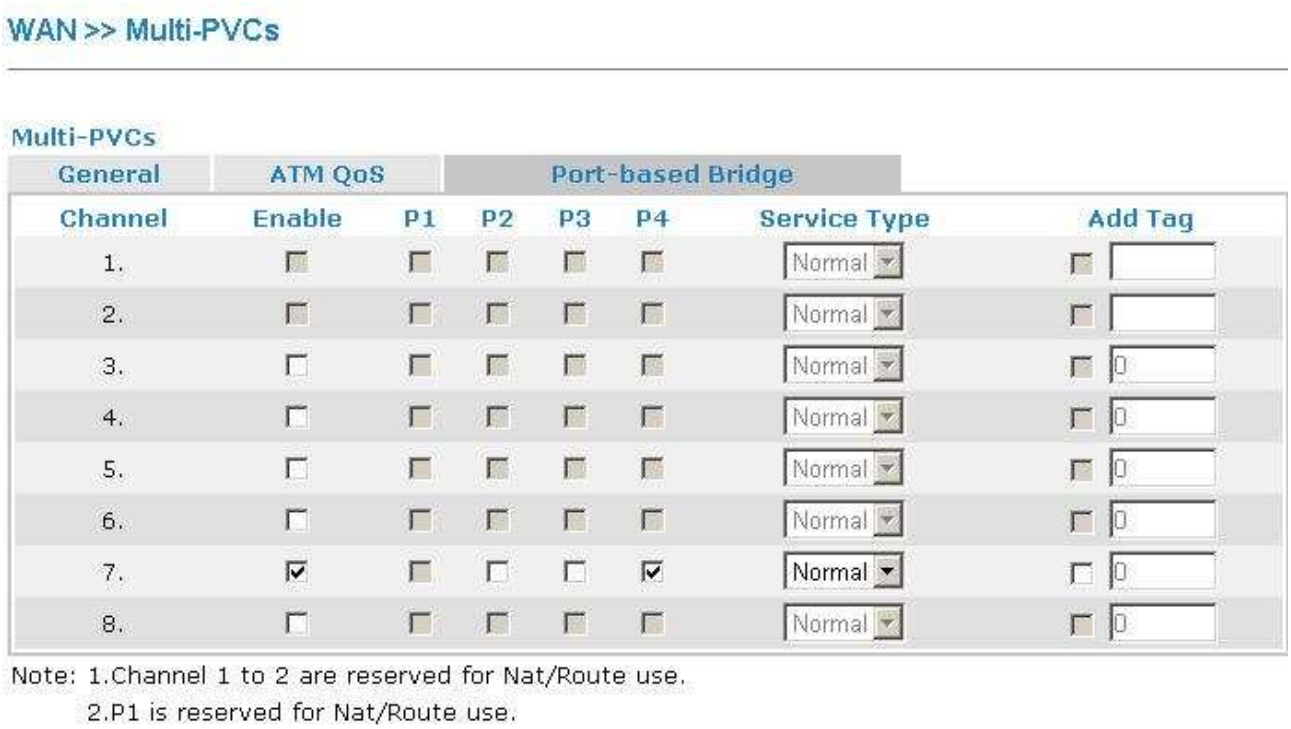
(3)Select Channe3/WAN3 then configure the PVC for Management service.



Note: while using VigorACS server to manage Vigor2700, there are still two configurations should be enabled, one is to specify the URL for VigorACS server and the user name/password for authentication.

The other is to enable the Remote management ability in Vigor2700.

(4)Configure one PVC for IPTV service then map the PVC to one LAN port of Vigor2700.



When the above settings are configured well, we can check the connection status via Online Status page.

Internet, VoIP and Management services' status can be checked via Online Status because they are the services that Vigor2700 provides itself.

For IPTV service, we have to turn on the setop box to check if the IPTV packets are bridged to ISP without problems.

Online Status

System Status — System Uptime: 43:41:41

Primary | Secondary

LAN Status — Primary DNS: 168.95.1.1 — Secondary DNS: 168.95.1.1

IP Address	TX Packets	RX Packets
192.168.1.1	381327	39360

WAN 1 Status — >> Drop PPPoE

Enable	Line	Name	Mode	Up Time	
Yes	ADSL		PPPoE	32:23:13	
IP	**GW IP**	**TX Packets**	**TX Rate(Bps)**	**RX Packets**	**RX Rate(Bps)**
202.211.100.171	202.211.100.170	23659	7	25065	10

ADSL Information (ADSL Firmware Version: 1311302_B)

ATM Statistics	TX Blocks	RX Blocks	Corrected Blocks	Uncorrected Blocks
	360209	9799015	0	27175

ADSL Status	Mode	State	Up Speed	Down Speed	SNR Margin	Loop Att.
	ADSL2+ (G.992.5)	SHOWTIME	1020000	23992000	12	0

Online Status

System Status — System Uptime: 43:42:5

Primary | Secondary

WAN 3 Status

Enable	Line	Name	Mode	Up Time	Application
Yes	ADSL		DHCP Client	43:41:18	Management
IP	**GW IP**	**TX Packets**	**TX Rate(Bps)**	**RX Packets**	**RX Rate(Bps)**
192.168.5.23	192.168.5.1	23111	1248	15263	579

WAN 4 Status

Enable	Line	Name	Mode	Up Time	Application
Yes	ADSL		---	00:00:00	Management
IP	**GW IP**	**TX Packets**	**TX Rate(Bps)**	**RX Packets**	**RX Rate(Bps)**
---	---	0	0	0	0

WAN 5 Status

Enable	Line	Name	Mode	Up Time	Application
Yes	ADSL		DHCP Client	43:41:18	VoIP
IP	**GW IP**	**TX Packets**	**TX Rate(Bps)**	**RX Packets**	**RX Rate(Bps)**
192.168.2.11	192.168.2.1	0	0	0	0

7.3 Configure IPDSLAM

1. Scenario Introduction

When user completes configuration in IPDSLAM device, user needs to configure four PVC groups on CPE side. The values of VPI and VCI must be mapped with IPDSLAM side.

For example, if user would like to manage IPDSLAM device, the management traffics would be sent to IPDSLAM with VLAN tag vid 2335. Then, IPDSLAM would parse the traffics as for management function.

If user would like to use Video application, when Video server gets the video request from user client, it would send out video traffics to IPDSLAM with VLAN tag vid 2337. IPDSLAM would parse the traffics as for video application and send traffics to video client.

The other two applications are as same as the way. However, the most important point is priority function within these four applications. If user runs Video, VoIP, Internet and management at the same time, these four kinds of traffics would follow priority to ensure the best quality and reliability for special application like Video and VoIP.

If the priority of Video is set as “Highest”, this kind of traffics would get the first priority to be sent on a single high-capacity digital circuit at the same time.

2. Scenario Description and Environment

There are three VLAN groups as below -

VLAN1(Vid 2335) as Management
VLAN2(Vid 2336) as VoIP PBX
VLAN3(Vid 2337) as Video Server

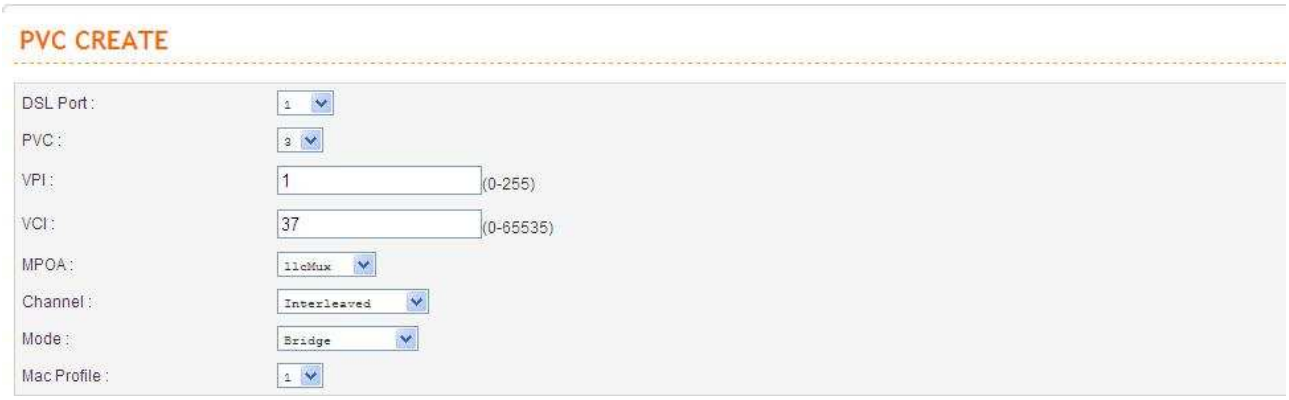
There are four PVC groups which are mapped to each VLAN group as below -

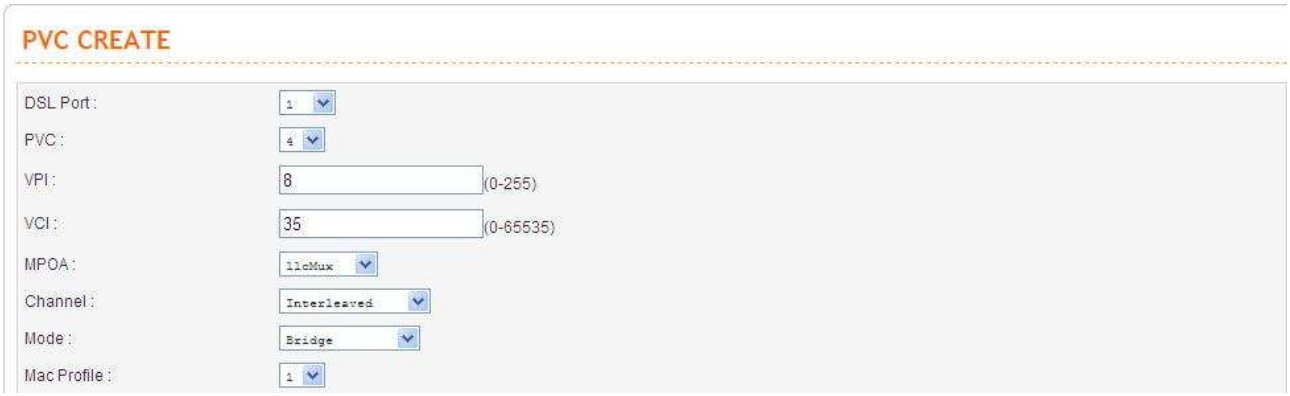
PVC1(vpi 1, vci 32) is for PPPoE as Internet traffic (mapped to default VLAN)
PVC2(vpi 1, vci 37) is for VoIP PBX (mapped to VLAN2)
PVC3(vpi 1, vci 34) is for management (mapped to VLAN1)
PVC4(vpi 8, vci 35) is for Video Server (mapped to VLAN3

3. Configuration Steps

3.1 Configure PVC groups in one DSL port

Add new four PVC groups (1:32; 1:34; 1:37, 8:35) in single DSL port sequentially via PVC Create page. Remember to click “Apply” to finish the configuration.





Finally, please check four PVC groups as below –

four PVC groups created in DSL port1.
PVC1 (1:32)
PVC2 (1:34)
PVC3 (1:37)
PVC4 (8:35)

3.2 Create three VLAN groups configuration
Add a new VLAN including VLAN id and VLAN name.
For example, we create a VLAN1 with Vid 2335.

For VLAN1, egress port includes PVC 1-2/ 25 (the second PVC of the first DSL port) and uplink interface in IPDSLAM. DSL port must be as untagged mode. Uplink interface must be as tagged mode.
Remember to click “Apply” to finish the configuration.

Then, we create the other three VLAN groups (VLAN2 and VLAN3) one by one as the same way.

There are four VLAN groups changed Egress Port and Untag Port automatically after we configure proprietary PVC mapped to the VLAN as below –
PVC1-1 (1:32) Default VLAN
PVC1-2 (1:34) VLAN1 2335
PVC1-3 (1:37) VLAN2 2336
PVC1-4 (8:35) VLAN3 2337

7.3 Configure VigorSwitchP2260

1.Configure VLAN mode to Tagged mode.

-IPDSLAM uplink port connects to port 26.

-VigorACS server connects to port 1, 2 or 3.

-VoIP server connects to port 9, 10 or 11.

-Video server connects to port 17, 18 or 19.

-Internet Gateway/DHCP/PPP server connects to one of the rest ports.

Since port 26 receives all VLAN tagged packets, port 26 needs to configure as a member of each VLAN.

The servers in the test environment don't support VLAN tagged so we set p1/2/3, p9/10/11 and p17/18/19 as untagged.

While port 26 receives tagged packet with VLAN ID2335, it will untag it then send it to port 1/2/3.

While port 26 receives tagged packet with VLAN ID2336, it will untag it then send it to port 9/10/11.

While port 26 receives tagged packet with VLAN ID2337, it will untag it then send it to port 17/18/19.

Tag-based VLAN

VLAN name	2335_manage							
VID	2335							
Member	1. ☑	2. ☑	3. ☑	4. ☐	5. ☐	6. ☐	7. ☐	8. ☐
	9. ☐	10. ☐	11. ☐	12. ☐	13. ☐	14. ☐	15. ☐	16. ☐
	17. ☐	18. ☐	19. ☐	20. ☐	21. ☐	22. ☐	23. ☐	24. ☐
	25. ☐	26. ☑						
Untag	1. ☑	2. ☑	3. ☑	4. ☐	5. ☐	6. ☐	7. ☐	8. ☐
	9. ☐	10. ☐	11. ☐	12. ☐	13. ☐	14. ☐	15. ☐	16. ☐
	17. ☐	18. ☐	19. ☐	20. ☐	21. ☐	22. ☐	23. ☐	24. ☐
	25. ☐	26. ☐						

Apply

Tag-based VLAN

VLAN name	2336_voip							
VID	2336							
Member	1. ☐	2. ☐	3. ☐	4. ☐	5. ☐	6. ☐	7. ☐	8. ☐
	9. ☑	10. ☑	11. ☑	12. ☐	13. ☐	14. ☐	15. ☐	16. ☐
	17. ☐	18. ☐	19. ☐	20. ☐	21. ☐	22. ☐	23. ☐	24. ☐
	25. ☐	26. ☑						
Untag	1. ☐	2. ☐	3. ☐	4. ☐	5. ☐	6. ☐	7. ☐	8. ☐
	9. ☑	10. ☑	11. ☑	12. ☐	13. ☐	14. ☐	15. ☐	16. ☐
	17. ☐	18. ☐	19. ☐	20. ☐	21. ☐	22. ☐	23. ☐	24. ☐
	25. ☐	26. ☐						

Tag-based VLAN

VLAN name	2337_iptv							
VID	2337							
Member	1. ☐	2. ☐	3. ☐	4. ☐	5. ☐	6. ☐	7. ☐	8. ☐
	9. ☐	10. ☐	11. ☐	12. ☐	13. ☐	14. ☐	15. ☐	16. ☐
	17. ☑	18. ☑	19. ☑	20. ☐	21. ☐	22. ☐	23. ☐	24. ☐
	25. ☐	26. ☑						
Untag	1. ☐	2. ☐	3. ☐	4. ☐	5. ☐	6. ☐	7. ☐	8. ☐
	9. ☐	10. ☐	11. ☐	12. ☐	13. ☐	14. ☐	15. ☐	16. ☐
	17. ☑	18. ☑	19. ☑	20. ☐	21. ☐	22. ☐	23. ☐	24. ☐
	25. ☐	26. ☐						

Tag-based Group

No	VLAN NAME	VID
1	default	1
2	2335_manage	2335
3	2336_voip	2336
4	2337_iptv	2337

2. Set PVID for the mapped ports.

PVID

Port No	PVID	Default Priority	Drop Untag
1	2335	0	Disable
2	2335	0	Disable
3	2335	0	Disable
4	1	0	Disable
5	1	0	Disable
6	1	0	Disable
7	1	0	Disable
8	1	0	Disable
9	2336	0	Disable
10	2336	0	Disable
11	2336	0	Disable
12	1	0	Disable
13	1	0	Disable
14	1	0	Disable
15	1	0	Disable

14	1	0	Disable
15	1	0	Disable
16	1	0	Disable
17	2337	0	Disable
18	2337	0	Disable
19	2337	0	Disable
20	1	0	Disable
21	1	0	Disable
22	1	0	Disable
23	1	0	Disable