# Triple Play

## Version 1.0

August 16, 2006

AdvOSS.com

sales@AdvOSS.com
support@AdvOSS.com

Phone: +1 647 259 8660

# Table of Contents

# Executive Summary

Todays era of technology demands better quality, robustness and cost effectiveness in every service being offered, Triple play is one of these services.

This whitepaper proficiently explains the concept of this emerging service and provides in depth information of various architectures used/considered for its deployment.

It clearly explains different services offered by the service providers and the challenges they have to face regarding the Quality of Service (QoS).

All service providers needs some kind of billing mechanism to monitor service usage and generate bills accordingly. This whitepaper also states different reuirements that a billing system should cater to ensure efficient and error free billing.

# Introduction

As the name implies, Triple Play is something that offers or is related to three services. Particularly, we can define Triple Play as a service that offers “Internet access”, “Television” and “Telephone” over a single broadband connection. Triple Play service is usually provided by Cable Television Operators or Telecom Operators.

Triple play users have an edge of having all these services combined over a single broadband connection that is less costly to them as compared to individual services from same/different service providers.

## Triple Play Architectures

Different architectures can be followed to provide triple play services to the subscribers. It can be offered via DSL, Cable Modem and Fiber to The Home (FTTH) etc. All architectures have some pros and cons as far as cost and speed is concerned.

Triple Play FTTH architecture for long distances is comparatively more costly than Cable Modem/DSL Architecture but it provides almost unlimited bandwidth to the subscribers. It offers 50,000 times more bandwidth than cable modem architecture.

Triple Play DSL architecture transmits digital signals almost at 25 Mbps up to the distance of 3000 feet. The plus point of this architecture is that it utilizes the typical leased lines but it cannot offer as much bandwidth as FTTH. Following figure illustrates Triple Play setup via DSL broadband connection:

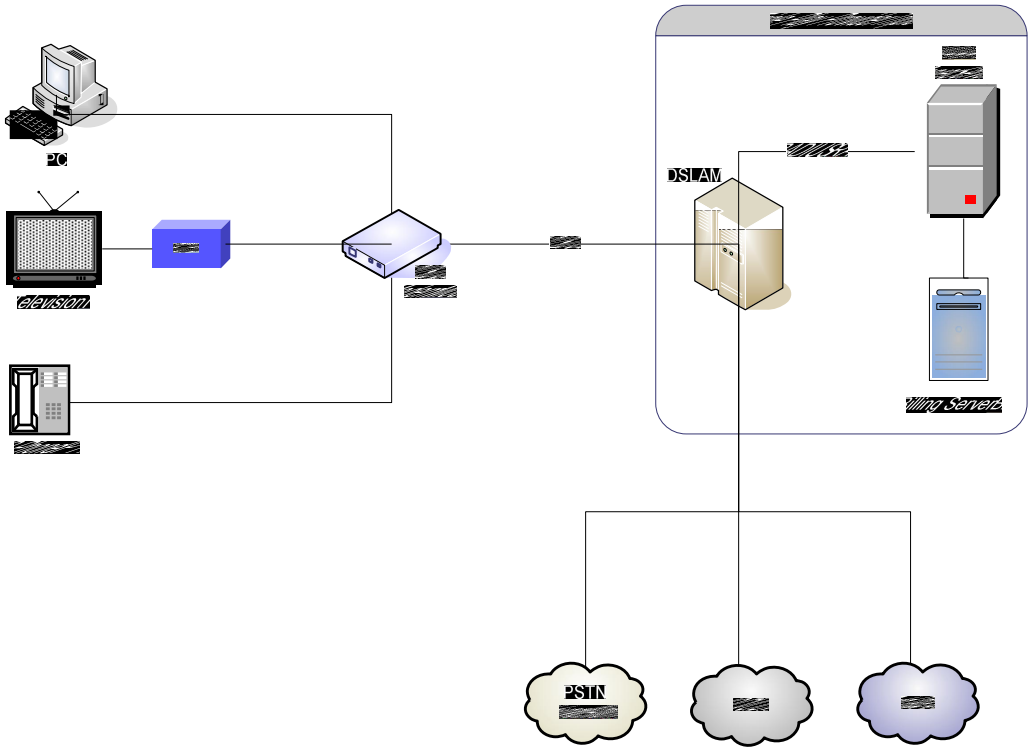


Figure 01: Triple play DSL Architecture

# Services

Triple play service providers provide diverse range of services to their subscribers, some are as follows:

## IPTV

IPTV stands for Internet Protocol Television. A technology that transmits TV programs digitally using IP (Internet Protocol) is well known as IPTV. It can be a separate service offered to the subscribers or it can be a single part of a service known as Triple Play (Telephone, Television and high speed Internet access).

## VOD

VOD means Video on Demand. As it is obvious from its name that this technology allows subscribers to request for videos, hence users can watch the videos online using their broadband Internet connection.

There are two possible scenarios for VOD systems i.e. “Stream” or “Download”. Streamed content can be viewed, heard while the demanded video has not been downloaded completely. It can be viewed in the form of clips (small portion of the data either audio or video). Whereas, Download option first download data (video file) completely and then allows users to view that video.

## Video Conferencing

Video conferencing allows users having broadband Internet connection to communicate with each other, no matter where they are. It allows real-time video and audio transmission between users whether they are office employees or home users.

## VoIP

VoIP stands for Voice over Internet Protocol. IP is the protocol over which the whole Internet is running. It can be assumed that anyone who can get online to Internet is already running IP.

When voice is carried over an IP network (Internet), the whole process is called VoIP. Since Internet is lot cheaper than the conventional telephony (TDM) process, the voice traffic is quickly converting to IP from the old TDM circuits.

# Quality Challenges

Service providers face certain issues regarding quality and speed that can affect overall Quality of Service (QoS). Some of these issues are as follows:

1) Packet Loss
2) Jitter (it is the time taken by data either voice or video to transmit)
3) Delay/Latency
4) Voice Echo

All these above mentioned issues should be kept in mind before establishing/deploying the architecture for triple play service and efficient steps should be taken to minimize their effects on the overall service.

# Billing Challenges

Broadband service providers who are offering various services to their subscribers also need a billing system that should cater to all the billing requirements for this business. Following are some challenges for a billing system that should be fulfilled to ensure accurate and robust billing.

## 1) Multiple Services

As stated earlier that a broadband access provider offers multiple services to their subscribers (like IPTV, VOD, and VoIP etc.) therefore, a billing system should be capable enough to manage different types of services offered to different subscribers. It should also keep track the level of services offered to the subscribers. Service levels are certain limits for charging different customers according to the service they avail.

NOTE: Such type of services like VOD are billed according to the value of data/content and not on the basis of resource utilized.

## 2) Customer Types

Billing system should be capable to differentiate, in case of any service usage that either the subscriber is a prepaid or postpaid customer and then charge accordingly. A billing system should identify the service mode of the subscriber.

### Service Modes

These are two different methods of payment rather than any service or technology. Users can pay in any way either before or after the service used. However there are certain pros and cons of each.

1) Prepaid Service

In case of prepaid, there is no need of any contract or long term commitment. Users do not have to worry about the payment of monthly bills. It allows users to manage their payments efficiently and there are no hidden charges for that. It is best for those whose usage varies from month to month. It is ideal for occasional users and travelers.

2) Postpaid Service

As far as Postpaid is concerned, it provides less per minute charges for its users. Therefore, prepaid users have to pay more for a minute than postpaid users.

## 3) Corporate Accounts

Some subscribers/customers are offered comparatively discounted rates than other subscribers. Hence, a billing system should capable of identifying such type of corporate customers and charge them accordingly.

## 4) Customer Control over Service-Access

Customers are not granted full access/control to the service provided by the service providers. They always impose certain kind of restriction on the customers. The billing system should keep track of the level of control given to the subscribers and should take actions accordingly.

## 5) Customer Control over Payment Options

Service providers mostly offer different payment options to the subscribers (like Authorize.Net, Link Point, PaymenGateway.Net, World pay and Verisign etc.). A billing system should keep record of different payment methods offered to different customers and generate bill accordingly.

## 6) Credit-Risk Assessment and Control

As stated earlier that service providers offers two types of service modes either “prepaid” or “postpaid”. Credit risk is a term mostly related to postpaid customers as users pay after service usage. A billing system, along with tracking service mode of the customers, should also capable of controlling issues related to credit risk.

## 7) Reseller Network Support

Many service providers have their sales channels in various locations or they implement reseller network for their business. A billing system should support such type of network and ensures synchronization between all the locations as far as billing activities are concerned.

## 8) Sources of Revenue Leakage

The revenue generated against the service usage can be easily missed if the billing system is not capable of tracking few things efficiently like:

### Incorrect provisioning

There can be some customers for whom certain part of a service is blocked e.g. a postpaid customer has not paid the bill, therefore all the outgoing calls for that user has been blocked. Here we need a billing system that should be proficient enough to keep track of the status of every subscriber. On the other hand, if the billing system does not block the outgoing calls then it can be a source of revenue leakage for the service providers.

### Unauthorized provisioning

If the billing system is not capable enough to provide secure authorization then any unsubscribed user can access the service. It can also cause revenue leakage.

### Missing CDRs

A billing system generates CDRs (Call Detail Record) for each call generated. If these CDRs are not maintained properly and any of these gets missed then it can also be a source of revenue leakage because CDRs are used in generating bills for the subscribers.

### Improper charge definitions

By improper charge definitions we mean that the charge defined by the service providers are not valid and therefore becomes the source of revenue leakage.

### Improper risk assessments

If the billing system is not efficient enough to assess the risk related factors properly then it can also cause revenue leakage.

### Insecure connection of CPE with service provider

There should be complete synchronization between the billing server and the CPE (Customer Premises Equipment) to avoid possible number of faults and failures. Otherwise, it can be a source of revenue loss.

Another challenge for a billing solution is not only to maintain the required data but also to keep it accurate and absolutely error free. Therefore, the billing system should be efficient enough to keep track of all the services being used and should notify on time about the credit limit of the subscriber.

Conclusively, at minimal a billing system should capable enough to cater to the followings:

1) CPEs Provisioning
2) Customer Self Care
3) Flexible Billing Plans
4) Real-Time Usage Reporting
5) Revenue Assurance
6) Subscriber Management

AdvOSS.com realizes the need of a billing system and offers a comprehensive billing solution that efficiently fulfills all these requirements. For more information regarding the billing system offered by AdvOSS, please visit Advanced Triple Play Billing.

# Summary

Triple Play is a service that offers “Internet access”, “Television” and “Telephone” over a single broadband connection, usually provided by Cable Television Operators or Telecom Operators.

There are different architectures that can be followed to provide triple play services to the subscribers. It can be offered via DSL, Cable Modem and Fiber to The Home (FTTH) etc. All architectures have some pros and cons as far as cost and speed is concerned.

Triple play service providers provide diverse range of services like IPTV (Internet Protocol Television), VOD (Video on Demand), VoIP (Voice over Internet Protocol) and Video Conferencing etc.

Triple Play service providers experience certain types of challenges regarding Quality of Service (QoS). They need a billing system that is capable enough to cater to the requirements for this business model like Advanced Triple Play Billing.

## Contact Information

In case of any ambiguity regarding the concept, explained in the whitepaper, please feel free to contact us at support@AdvOSS.com or please, visit http://www.AdvOSS.com/voip_contact.html

For further information please, visit www.AdvOSS.com

## We welcome your suggestions

Thank You for reading this whitepaper. We will be pleased to receive your response and suggestions.