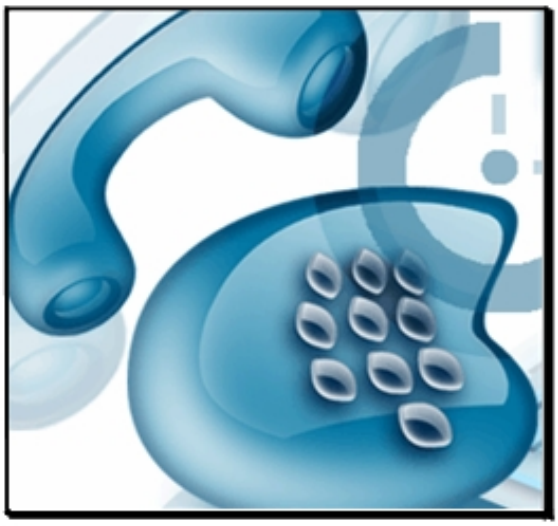
White Paper

AdvancedVoIP.com
Billing for YOUR business model

How to run a chain of VoIP Callshops?



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ABSTRACT

There are millions of call shops in the world and they can be found in each street corner. Most of them are conventional PSTN based and carry a very high cost of operation compared to VoIP based phones.

This white paper provides the required details that a person must know in order to open or convert a chain of call shops to VoIP. It also mentions how the operator can consolidate the traffic generated by those call shops and deliver them himself. It mentions the basic structure of the windows based software required to be run at all individual call shops which manages individual booths and prints basic call price activity on individual calls coming out of booths.

It then introduces the concept of a SIP server running at the call shop which takes the calls from individual booths and sends them to the traffic consolidator i.e. the operator of the call shops chain. It mentions the rate management required by the Call Shop owner to setup his individual rates or be restricted by the rates provided by the operator.

Whitepaper also mentions the basic hardware and software setup required by the operator in order to be able to receive the traffic from all these shops and distribute them to different A-Z terminators. It introduces sample rates that call shops charge and it also contains a full list of common A-Z termination rates currently available.

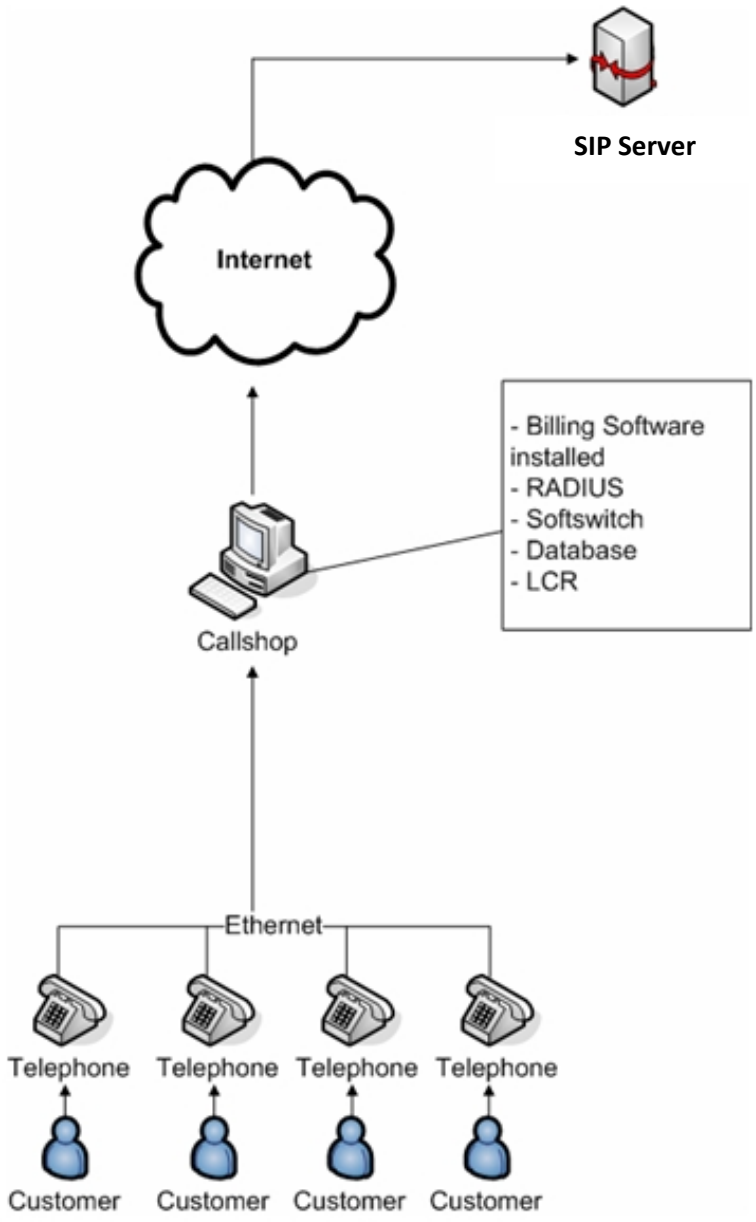
The white paper mentions the use of different types of hardware by the callshops and compares the use of Gateways with normal phones to use of IP phones instead. It ends with the introduction of the new and upcoming technologies in IP phones which can be used on Call shops.

INTRODUCTION

VoIP Callshop is another name given to Public Call Offices (PCOs) that employs VoIP (Voice over IP) technology. IP stands for Internet Protocol, on which the whole Internet is based. Anyone who can access the Internet is assumed to be running IP and when voice is transferred on that IP Network (Internet) then the entire process is called VoIP. Since Internet is a lot cheaper than the usual telephony process, the voice traffic is quickly converting to IP.

In this era, VoIP Callshops are given preference over conventional PCOs as they are less expensive and provides improved functionality. It allows customers to make phone calls (International and Nationwide) and generates a receipt against each call. Following figure illustrates working of a standalone VoIP Callshop:

Figure 01: VoIP callshop



All VoIP Callshops must have a PC on which a billing software is installed to keep track of all the calls originated from that callshop. Customers make phone calls from different booths provided by the callshop. That call is originated by the SIP Server and is monitored by the billing software installed like Advanced Callshop Billing

Gateways are capable of supporting analog or digital lines. A typical low end gateway will support 4 analog lines. A typical gateway supports 4 digital lines (96 to 120 PSTN lines).

Figure 02: A Gateway

Software called SIP server is also required to find out the destination of the call and route the call to the proper gateway that can handle the delivery of that call. Gateway hardware by some manufacturers has most of the SIP server functions built into them.

SIP server generates all the detail records of all the calls made. These are called CDRs (call detail records) and are used by the billing server for billing. CDRs are either generated online through the RADIUS protocol and are billed then. Alternately CDRs can be .csv text files which can be processed by the billing server later.

Once a call is initiated someone has to account for the authentication of that call and see if the calling party has enough credit to make the call. Typically software called a RADIUS Server is used for this purpose. Radius server is linked with SIP server that performs authentication and accounting. After authentication, the call is directed to its terminating SIP server and from there towards its required destination number.

HARDWARE REQUIRED

VoIP Callshop requires the followings:

- Linksys/Sipura gateways or routers

It is a small device that connects to ISPs (Internet Service Providers) and is used at a specific data rate, e.g. 64k, 128k, 256k. This data rate depends upon the number of booths in a callshop.

- VoIP Gateway

  VoIP Gateway is a device, which is connected to SIP server, which in turn is connected with the internet world. This SIP server connects IP traffic to PSTN traffic and PSTN traffic to IP traffic. Mostly, small gateways having 4, 8, 16 ports are used in the callshop. One port is used for one calling booth.

- Telephone Booth

  Telephone booth is a small cabin with one telephone set (normally PSTN). This telephone set is directly connected to one port of the gateway. The number of booths depend on the number of ports in a gateway.

- Operator's computer

  It is a normal computer which is connected to SIP server through LAN. The billing software is installed and accessed from this computer. It is connected to the printer as well. All the payment receipts are generated from this computer and printed as required.

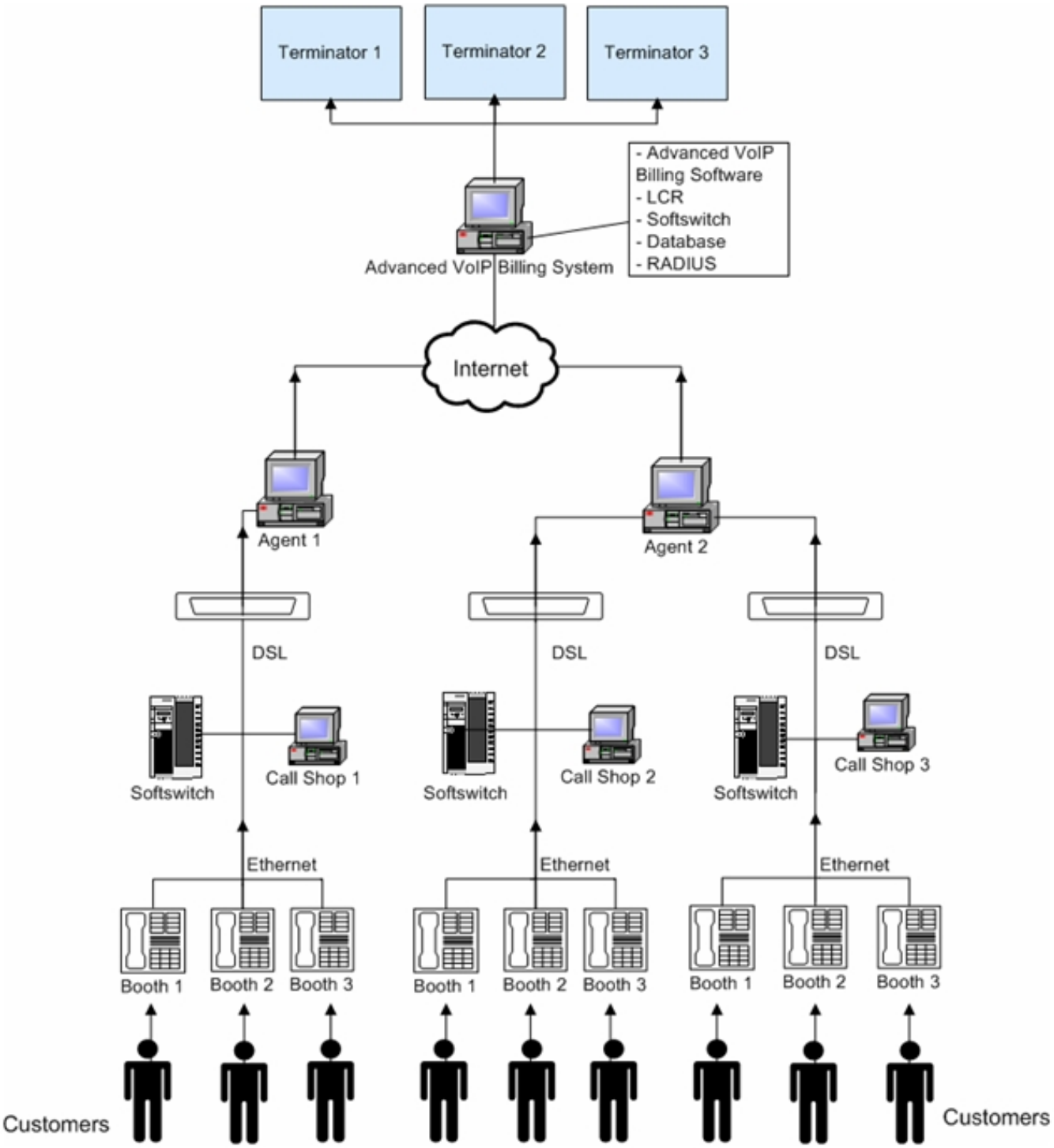
CHAIN OF CALLSHOP

Comparatively, it is easy to handle a single/standalone VoIP Callshop than to cope with the chain of VoIP Callshops. To manage multiple callshops accurately, there should be a centralized control for all the callshops.

AdvancedVoIP.com offers a billing solution that is best suitable for such type of business model.

To precisely deal with multiple VoIP Callshops, "*AdvancedVoIP Billing System*" uses a certain hierarchy that includes an "Administrator (Owner of AdvancedVoIP Billing)", an "Agent (Callshop Owner, who needs a centralized control to manage chain of VoIP Callshop)" and "Subscribers/Users ". Following Figure illustrates working of multiple VoIP Callshops:

Figure 03: Working of chain of VoIP Callshop



The entire process of call transferring in multiple VoIP Callshops is also like single VoIP Callshop. The only difference in chain of VoIP Callshops is that it follows a certain hierarchy.

Administrator is the owner of billing system (like AdvancedVoIP Billing System) and is allowed to create as many agents as required. Agents are the owner of multiple callshops and those who allows end users/customers to make phone calls, are the subscribers.

Customers make phone calls from different booths connected with the PC (Personal Computer) via Ethernet. Their call is then transferred to the Agent (Owner of the callshops) and after that to the Administrator (Owner of the billing system). Finally, from there the call reaches to the required destination/terminator and the customer is charged accordingly. Customers make phone calls and collect the receipt generated against each call.

CHARGING POLICIES

Voice or any other traffic can be charged according to different policies. One of the common charging policies is ***Destination Based Billing*** (based on area code prefix of the destination). In this case, separate rates are assigned to each destination and the interconnect billing calculates charges on the basis of destination.

In this type of billing, service is charged on the basis of termination point and irrespective of the origination point or distance covered.

RATE MANAGEMENT

Rates are defined by the Administrator and rate plans are maintained in the central database of the billing system. Rates depend on the charging policy, if it is destination based billing then rates is specified according to the area code in the supported destinations.

Sometimes rates can be simple like flat per minute billing but sometimes they can be more complex like peak and off-peak rates for some destinations and there can be special rates for different holidays or vacations for some specific area.

Rounding off is also an issue related to rates. Rates can be rounded off to the nearest second or sixth second or minute etc. One more thing that is considered during billing is the minimum chargeable duration that can be six seconds, thirty seconds or sixty seconds etc. To provide accurate and reliable billing, a billing system should be capable enough to manage these rounding issues effectively.

To manage all the callshops accurately there should be a centralized control that can keep track of all the calls originated from different callshops and to generate CDRs (Call Detail Records) accordingly. CDRs give runtime information about the Call Duration, Call Time, Caller, Callee, Termination Cause and QoS (Quality of Service) etc.

The billing system installed on the PC (at VoIP Callshop) should offer customizable rate plans so that agents can specify rates according their requirements. Following figure shows the sample rate plan: