SysMaster™

COMPREHENSIVE SOLUTION

- Largest VoIP Customer Base
- Global Installations
- Module Based
- Highly Customizable
- Cost Control
- Managed Services and Outsourcing
- Integrated Hardware and Software
- Broad Manufacturer and Telco Interoperability

TYPICAL APPLICATIONS

- VoIP Billing for Second and Third Tier Telco Providers
- Reseller Billing Services for Calling Cards
- Wholesaler Billing Services for Route Management
- Managed Service for Billing Outsourcing

INTEROPERABILITY

H.323 and SIP Gateways/Gatekeepers Interoperability

SysMaster™ · Cisco Systems · Quintum Technologies, Inc. · Clarent · AudioCodes · VocalTec · Lucent Technologies Bell Labs Innovations · NexTone Communications · Cirilium

Network Interoperability

MCI · primus. · Dentel Netzwerk Telefonie · ITXC · thexchange arbinet Optimize Your World · iBasis · Qwest Spirit of Service™

VOIP BILLING FEATURES

KEY FEATURES

- ANI/PIN Authentication
- DNIS Authentication and Call Redirect
- Time Peak On/Off Billing
- Number Surcharge
- Unlimited Routes and Number Portability
- Customer Specific Custom Routes
- Unlimited Number of Custom Batches
- Advanced Rate Switching

- High Throughput
- FlagFall and Progressive Billing
- Dual Credit Time Support
- Unlimited Rate Tables
- Multi-Lingual IVR and Custom Prompts
- Managed Service Support
- Four Layer Billing Structure (Provider/Owner/User/Agent)

VoIP Integrated Billing System

The VoiceMaster VoIP Integrated Billing Platform is an optimized platform designed to simplify VoIP traffic management and billing at a dramatically reduced cost, enabling the enterprise to do "more with less."
The platform provides five layers/levels of modularity. Each level provides further sets of capabilities that make the framework extremely flexible and scalable. This approach provides you with the ability to respond faster to customer demand and market opportunities and take advantage of reduced costs and speed of deployment.
The solution offerings below also allow for easy maintenance and upgradeability, and hence reduce the Total Cost of Ownership (TCO) in the long term.
You can enhance your business as follows:

General VoIP infratsructure setup
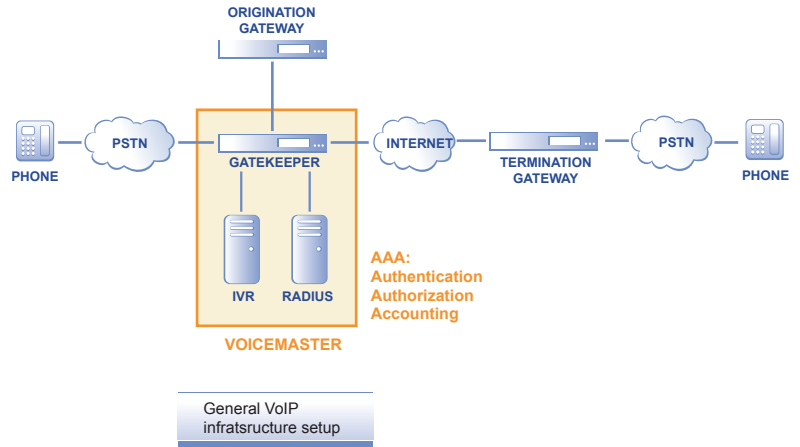
VoiceMaster Billing and Routing Platform						
	CPU	DB	Call Capacity			Number of Users
			Static Mode	Routed / Softswitch Mode	Proxy Mode	
Level 1	Pentium® 4 Processor		1000	500	350	up to 1.5M
Level 2	Dual XEON		2000	1000	700	up to 1.5M
Level 3	Pentium® 4	Dual XEON	3000	1500	1050	1M - 5M
Level 4	Dual XEON	Dual XEON	8000	4000	2800	1M - 5M
Level 5	Quad XEON	Quad XEON	20000	10000	7000	Unlimited

VOIP BILLING FEATURES

ANI / PIN Authentication

SysMaster VoIP Billing solution supports both ANI and PIN based authentication of pre-paid and post-paid user accounts. Utilizing PIN validation for pre/post paid calling card accounts ensures the implementation of a flexible, easy and secure authentication technique.

Caller ID (ANI) authentication allows a stand-alone user account validation based on Caller Id of the caller. In this case the caller does not have to enter any PIN The method is recommended to be used for individual terminals (IP phones) or gateways.

DNIS Authentication and Call Redirect

DNIS Authentication support allows a destination number authorization for recipient (1-800) service billing. The platform is capable of redirecting numbers based on VM Gatekeeper DNIS authentication on the number dialed by the user. In response, calls could be redirected to a pre-specified number allowing a cost-effective control of calls.

Time Peak On/Off Billing

SysMaster incorporates a peak on/off billing model allowing customization of reseller/wholesaler charges or/and discounts based on peak on/off time intervals. The procedure is designed to give more value to promotional business decisions taken by the Management Company.

High Throughput

SysMaster guarantees a high industrial throughput by the utilization of a powerful database platform featuring SQL Server integration on Linux platform, and support capability for over 50 new calls per second, 5 thousand concurrent calls, and over 4,000,000 calls per day.

FlagFall and Progressive Billing

FlagFall and Progressive billing allow additional charges and/or discounts to be imposed on calls depending on the length of their duration. Specified charges/discounts are based on session time and not on maximum charges.

Dual Credit Time Support

Dual Credit Time Support offers the ability for customized IVR credit time announcements and, in addition, calls could be billed based on pre-defined criteria. The function opens the way for conducting refined billing based on the needs of the enterprise.

Unlimited Rate Tables

SysMaster VoIP Billing solution supports the creation of unlimited number of rate tables. Thus, each rata table could be assigned to a particular provider allowing closer differentiation among provider rates.

Unlimited Routes and Number Portability

SysMaster utilizes a powerful SQL database running on UNIX to facilitate its routing functionality. In such away, the system can virtually support millions of routes. The high number of supported routes allows per user based routing (required by the new Telco number-portability standard) to provide individualized and very scaleable route management.

Customer Specific Custom Routes

SysMaster supports a custom route structure to assign specialized routes to wholesale providers and resellers. The custom route functionality ensures route flexibility based on reseller/wholesaler account and/or type of service.

Gatekeeper Traffic Routing

VoiceMaster offers a full scale H.323/SIP compliant gatekeeper. This is the only gatekeeper in the industry that allows dynamic call control through a proprietary calling time authorization mechanism.

Four-layer Billing (Provider/Owner/Agent/User)

The four-layer billing structure extends the flexibility of VoIP Billing by adding an additional Owner entity to the model. Such a structure establishes a clear hierarchy among the separate billing layers and facilitates better profit distribution.

Comprehensive Reporting

The system provides customers with comprehensive generation of reports including data for:

- Accounting Reports
- Revenue reports
- Expenses reports
- Detailed call history reports for agents like Resellers, Corporate accounts,
- Wholesalers and Billing Providers

Wholesale Billing

Wholesale Billing through the integration of the Managed Service Module allows an easy entry for service providers to outsource the calling card functionality to wholesalers on their own. The enterprise can simply create managed service account to allow their wholesalers to offer services directly to businesses, thus providing calling card services without the need to directly sell to businesses. The profit of the enterprise is based on platform utilization and usage fees, as well as, long-distance rate margins.

VOIP BILLING FEATURES

Multi-Lingual IVR and Custom Prompts

SysMaster offers a state of the art multi-lingual IVR server implementing support for over 10 languages, and multi-language prompts. The IVR server supports selectable language retrieval based on the IP address of the requesting party. In addition, custom prompts could be implemented as to allow a customized language and prompt type selection based on reseller batches.

Advanced Rate Switching

Advanced Rate Switching encompasses a dynamic rate plan re-assignment of customer batches based on their threshold balance usage. When a customer exceeds the allocated amount of threshold balance, the system will automatically switch from one rate plan to another, and, in the process, charging the customer the most appropriate fee.

Optimized Routing Call Management

Optimized Routing call management is used when the company wants to optimize the call termination costs in real time. The algorithm allows dynamic call handling and call routing to select the most cost efficient termination point or provider. It requires the dialing plan management and gatekeeper functionality to be highly integrated to allow all dialing plan changes to be propagated to the underlying gatekeeper in real-time.

Unlimited Number of Custom Batches

The system supports an unlimited number of custom batch instances. Administrators could create as many custom batches as needed, thus not harming own or partners' business needs
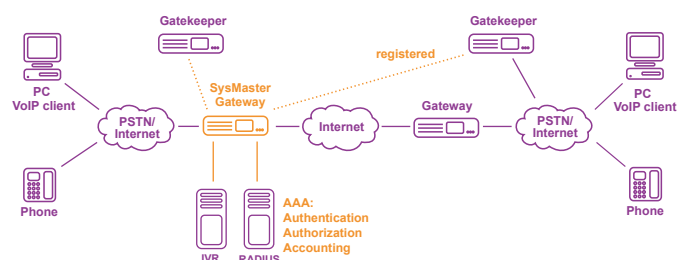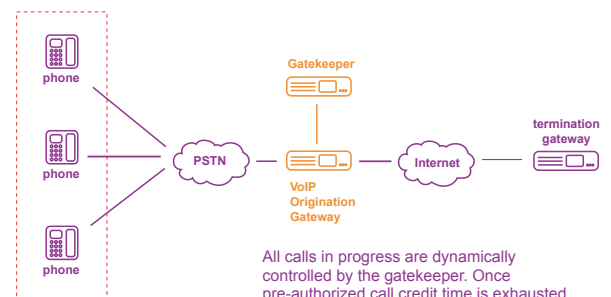
Managed Service Support

Managed Services Support makes the interaction between the Management Company and its resellers as smooth as possible. Through its use, resellers are provided with access and administrative privileges to create their own PINs, rate tables or manage users.

Dynamic Call Management

VoiceMaster offers the only gatekeeper in the industry that will disconnect a call after its predefined time has elapsed. This unique dynamic call management functionality quarantines that all wholesale and user accounts are billed dynamically against calls in progress.

Number Surcharge

SysMaster incorporate a peak on/off billing model allowing customization of reseller/wholesaler charges or/and discounts based on peak on/off time intervals. The procedure is designed to give more value to promotional business decisions taken by the Management Company.

Dynamic Call Credit Time

SysMaster Dynamic Call Credit Time functionality enables pre-authorization of calls for particular call time in seconds. Once the allowed call duration has been reached, all calls will be dynamically disconnected. The function is controlled on a gatekeeper level and adds an unmatched level of efficiency to wholesale service providers for dynamic call disconnection upon balance limit depletion.

All calls in progress are dynamically controlled by the gatekeeper. Once pre-authorized call credit time is exhausted, calls will be dynamicallydisconnected.

Static/Direct Gatekeeper Mode (H323 v.1) Support

VoiceMaster Gatekeeper supports a traditional call routing mode of operation, also known as a static/direct gatekeeper mode of operation.
In its static state of mode the gatekeeper routes calls to a gateway or a second gatekeeper from its routing tables, and in the process allows flexible authentication and call routing to be performed.
Termination translation for origination terminals and gateways, as well as, number re-write is also fully supported by the processing of RAS (H.225) signals, only.
Gateways recognizing DRQ signals are handled by the means of dynamic call control.
SysMaster does not recommend static/direct mode for use of wholesale call processing due to its limited call control functionality and inability to dynamically disconnect and timeout calls.

VOIP BILLING FEATURES

Multiple Authentication Methods

SysMaster VoIP Billing Platform comes with an integrated state-of-the-art gatekeeper. The platform is flexible enough to perform numerous call authentication methods, including but not limited to:

PIN Authentication
PIN Authentication is best suited for the service of pre-paid calling cards, or H.323 distributed consumer IP phones services. PIN Authentication encompasses the entry of only a single pre-generated personal identification number. The method ensures a level of easiness and secure authentication.

Tech-Prefix Authentication
Authentication by a tech-prefix allows the creation of a limited number of accounts for authentication purposes. Tech-Prefix authentication is conducted by a single wholesale account for a group of VoIP gateways. The very process authenticates terminals and gateways by the tech-prefix pre-pended to the called station id.

Caller ID (ANIT) Authentication
Caller ID or ANI authentication, as the name suggests, permits a gateway or stand-alone account authentication based on the Caller ID of the caller. The method allows the enterprise to offer the customer the luxury of not remembering multiple PINs. The authentication procedure is mostly used by individual terminal (IP Phones) or gateways.

IP Address Authentication
Provides authentication of endpoints based on their IP Addresses. The process ensures that only authorized devices in participate in call distribution.
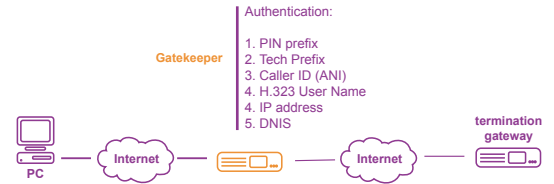
H.323 (User Name) Authentication
Provides authentication of endpoints based on their IP Addresses. The process ensures that only authorized devices in participate in call distribution.

DNIS Authentication
Authentication by a DNIS number is designed for recipient billing services or typical debit card VoIP services. The method allows all 1-800 calls from a trusted network element to be authenticated and authorized by the gatekeeper.

Routed Gatekeeper Mode (H323 v.3) Support

For taking full advantage of termination and origination routes as well as dynamic control calls, SysMaster supports a routed gatekeeper mode of operation. In such a mode, the gatekeeper in addition to processing RAS (H.225) signals, also provides support for H.245 signals (Q.931 and Call Setup) to allow dynamic call control.
SysMaster recommends using gatekeeper routed mode of operation for wholesale providers, for RTP traffic (voice traffic) will still directly flow between the origination and termination end points without going through the gatekeeper. The process guarantees a complete call control and greater bandwidth cost efficiency. The VM Level 1 Gatekeeper throughput in routed mode is approximately 500 concurrent calls.
In addition, in routed gatekeeper mode all calls are pre-authorized to a specific call credit time and could be disconnected by the gatekeeper at any given time.

The call is dynamically routed through gateway B as it provides the lowest cost route per call.
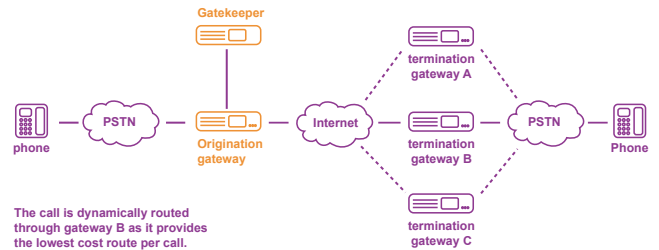
Proxy Mode (H323 v.4) Support

In addition to static/direct and routed gatekeeper mode, SysMaster supports proxy mode of operation. Gatekeeper proxy mode of operation guarantees complete call control. All call signals (H.225, H.245, and RTP) flow through the gatekeeper. Such a way of operation ensures a full network isolation and separation of the origination and termination provider networks, although it is the most intensively bandwidth consuming mode of operation.
The approximate VM Level 1 Gatekeeper throughput in proxy mode is 350 concurrent calls.

SysMaster Gatekeeper as a proxy H.323 entity in IP-to-IP-to-IP calls
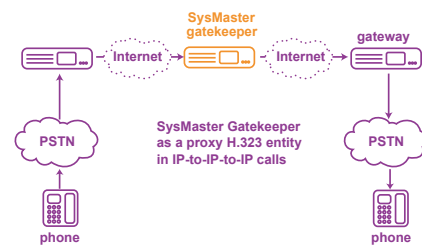
VOIP BILLING FEATURES

SoftSwitch Mode Support

SysMaster Gatekeeper is capable of emulating a H.323 gateway for call routing purposes.

Through the use of the SoftSwitch functionality the VoiceMaster gatekeeper can receive calls from gateways not registered with it, and route these calls to other H.323 gateways or gatekeepers. Gatekeeper SoftSwitch mode of operation completely separates the origination and termination gateway and gatekeeper networks, and fully supports routing transparency.

The SoftSwitch solution offers greater level of flexibility and allows complete wholesale service for middle-ties Telco providers.

The approximate call throughput of the VM Level 1 Gatekeeper using the SoftSwitch functionality is 500 concurrent calls.
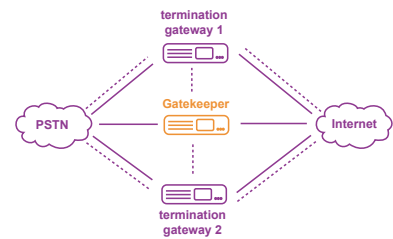
SysMaster Gatekeeper emulating H.323 Gateway by using Softswitch technology, and receiving, and transferring calls from gateways not registered into it.

## Dynamic Route Failover (H.323 extension) Support

Dynamic Route Failover supports advanced port overflow and route failover functionality on a gatekeeper level. The system allows transparent port overflow by measuring the port assignment of all destination gateways and gatekeepers. If required, an instant route failover to alternative termination endpoints by monitoring call error messages and ASR values.
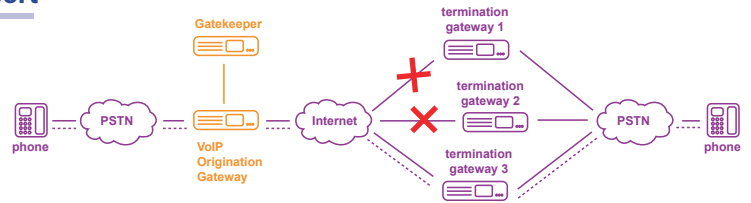
Termination gateways 1 and 2 are overloaded or the connection to them has failed. All routes are dynamically rerouted to the available termination gateway 3.

## OSP Token Authentication (extended H.323) Support

SysMaster Gatekeeper offers support for non-encrypted token-based call routing. SysMaster Gatekeeper can manage and control calls even if it acting as an intermediate (between two other gatekeepers) gatekeeper. The approach, utilizing an OSP technology, is a propriety solution allowing the SysMaster Gatekeeper to become a border controller and process calls for large gateways and gatekeepers sitting behind it. In addition, the procedure allows dynamic call control to be achieved as well as advanced call tagging and routing to be performed.
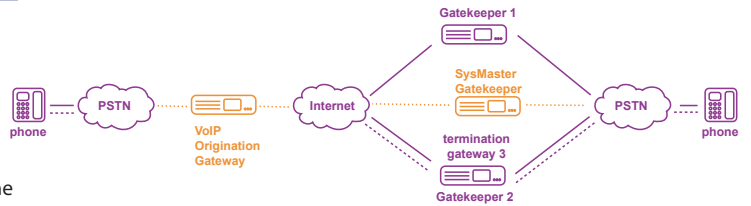
SysMaster Gatekeeper using a proprietary OSP technology to manage and control calls, as anintermediate gatekeeper

Millions of Custom Routes

The VoiceMaster Platform offers support for unlimited number of routes by the utilization of a powerful UNIX based SQL database. The facilitation of unlimited number of routes guarantees a separate route for each user within the system (a requirement introduced by the new Telco number-portability standard). The process provides individualized and very scalable route management functionality, where custom route (assigning specialized routes to wholesale providers and resellers) could be also implemented. The custom route functionality ensures route flexibility based on reseller/wholesaler accounts and/or type of service.
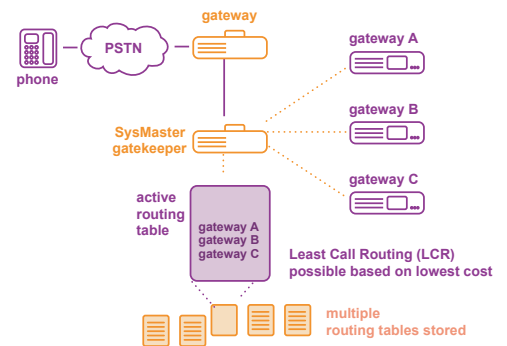
VOIP BILLING FEATURES

Managed Services & Advanced Billing Interface

SysMaster Gatekeeper can be used by providers to offer call routing and billing services to third-parties. The process, known as Managed Services, incorporates easy partitioning to allow a multitude of clients to manage their own routes and call traffic. A maximum level of flexibility is offered by further separation between gateways, gatekeepers, routes and rate tables for third-party clients.

In addition, the SysMaster Gatekeeper allows advanced billing and reporting functionality for optimal service scalability and call provisioning.
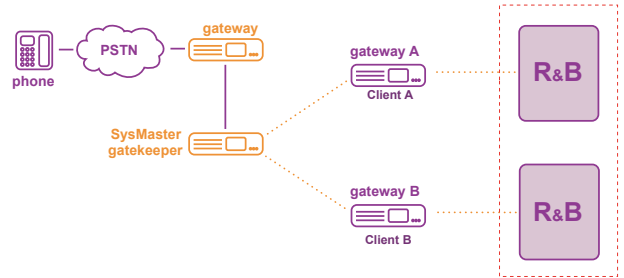
SysMaster Gatekeeper providescall routing and billing servicesto third-party clients.

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