

# InfiNET Softswitch Platform Technical White Paper

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## 1 Overview

The recent deployment of optical networks along with breakthroughs in digital transmission technologies has finally eliminated "bandwidth" as the Internet's biggest deterrent to "Real-Time" applications. Bandwidth and improved Quality of Service (QoS) implementation have resulted in IP Telephony finally becoming a viable option. IP Telephony, using the Internet as a transmission medium for telephony oriented applications, can greatly reduce your internal implementation costs, and dramatically reduce long distance charges. In addition, using the Internet as the transport medium, it opens new opportunities for combining voice, video, and data into reliable applications.

The combining of Voice, Data and Video along with other applications onto the Internet has resulted in the creation of unified platforms and networks. Unlike traditional regulated telephony, there are no national or regional requirements since the Internet is the same worldwide. PSTN connections are handled by gateways allowing manufacturers to create same terminals for the worldwide markets. The new IP Telephony terminals have increased functionality, make use of the existing internet wiring, bandwidth connections and can be implemented very quickly. This means faster development and deployment of applications and functions by using a single unified network within an organization.

IP Telephony or Voice Over IP (VoIP) is the new direction of communications. Worldwide communication experts are rallying to the cry of "Everything over IP" for all forms of communication, primarily telecommunications. According to Frost & Sullivan, 75% of call volume by 2007 will be VoIP traffic.

There are three primary protocol standards for VoIP, Media Gateway Control Protocol (MGCP), International Telecommunications Union's H.323 and Session Initiation Protocol (SIP). In 2001 Koncept International introduced the GK1010 Gatekeeper soft-switch based on the ITU H.323 standard. In less than 3 years over 100 VoIP carriers are successfully using the system to create Internet based telephone companies and applications.

The SIP protocol is quickly gaining acceptance as the new Internet Telephony standard because it is easier to scale, integrates easier with other protocols and is more "Internet like". Today more and more manufacturers are moving from H.323 to SIP based products and services. Our Design team has learned a great deal over the past 3 years using H.323 and have applied that knowledge to help in their year and a half development of the InfiNET Softswitch a SIP based switch.

Compared to other VoIP platforms the InfiNET Softswitch has some significant advantages:

1. All functions run within the same system. From support for terminals, authentication, calling cards, credit cards, virtual numbers, etc.

2. Can connect to PSTN and Cellular networks worldwide, so callers are not restricted just to IP to IP calling. Either use your own connections or use our A to Z worldwide network.
3. Integrated solution, all OSS, billing, user account management, and operational features are all included in the basic system.
4. Highly reliable system architecture: designed in redundancy of the system assures the entire system can be configured with no single point failure. Reliability matches the telecom standard level of 99.999% uptime.
5. Completely Scalable. The system can grow to run on up to three servers and can grow without replacement, so the switch can grow with your subscriber base.

## **2 Brief Introduction of InfiNET Softswitch System**

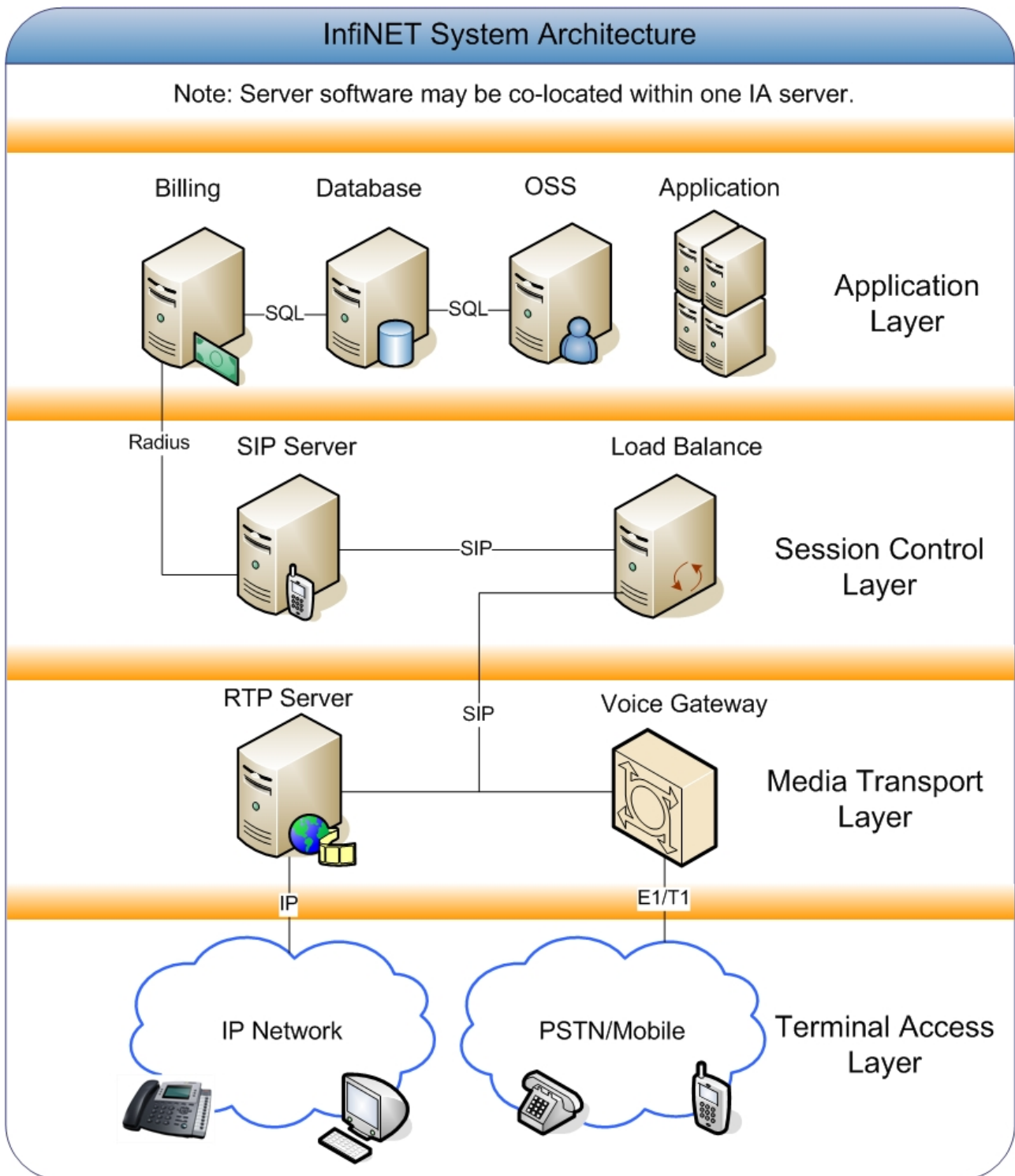
InfiNET Softswitch is a powerful SIP based next generation platform, which enables virtual service providers (VSP) to deploy converged IP voice/video/data services on their existing data networks. The InfiNET platform performs call control and switching for multimedia network traffic including voice, video and IM for true collaborative applications.

Integrating OSS, Billing, Customer service applications as well as advanced application services in Carrier network architecture, the InfiNET can dramatically decrease a VoIP Carrier's infrastructure costs and is the core component of a Carrier's network.

The InfiNET Softswitch is modular in design. Every software component can run on the same server hardware or it can run on the different servers for each component. This flexible architecture makes InfiNET more cost effective, reliable, and scalable and can be configured for fully redundant performance.

The open platform is SIP based, and is compatible with industry standard SIP devices terminals. InfiNET is our next generation carrier-grade VoIP system and is scalable to over one million subscribers. Our standard API enables the VSP to customize their own services and application to cater to their unique market requirements.

## 2.1 InfiNET Software Architecture



Picture 2-1 InfiNET system architecture

Here we will try to gain a better understanding the architecture of the InfiNET Softswitch and how all of the servers inter-work as well as the functions of each. As in the above picture, understanding the architecture is best done by separating the system into layers. There are

4 major layers within the system: Application, Session Control, Media Transport and Terminal Access.

### **2.1.1 Application Layer**

Application layer is responsible for the "Service" application as well as the feature applications of the service; this includes the management of all data associated with the users and their accounts, including authentication, billing as well as user applications such as voicemail and conferencing. Functions include:

- **Billing:** Real time billing for all services and usage fees, automatic update of account balance for prepaid customers. Provides access to online statements. Built on the industry standard Radius protocol. This application supports clusters.
- **OSS:** This application supports Configuration, Authentication, management, as well as HTTPS (encrypted) access to the user MyAccount web pages. This application supports clusters.
- **Database:** Provides the storage of all operational data, system parameters, and user account and configuration information. This application supports many database types including, MySQL (Default), Oracle and others. This application supports clusters.
- **User Applications:** Provides any and all user based applications beyond telephony, such as Voicemail, Conference calling, unified messaging or any other applications you wish to provide to your users.

### **2.1.2 Session Control Layer**

Session control level is the heart of the call processing of the switch, acting as the protocol control center of InfiNET system. All SIP protocols are analyzed, processed and transferred here. This layer is made up of the following types of servers:

- **SIP Server:** The core component of InfiNET system, which provides basic features such as call forwarding, call waiting, call transfer, 3-way calling, enhanced features such as call routing (DID & ANI), calling card, fax transmit and receive. This application manages call routing and transferring routing, determines logged in accounts, it maintains all call and online information of SIP terminals. This server will support clusters.
- **Load Balance:** This application manages traffic flow between gateways, RTP servers and passes it to the appropriate SIP server.

### **2.1.3 Media Transport Layer**

The Media transport layer is the transport (normally over the internet) of all of the SIP traffic between terminals and the Softswitch. At the same time, it also manages the connections from PSTN and Mobile networks to allow users to connect with existing telephone networks

around the world.

- **RTP Server:** Responsible for the high speed transferring for multimedia including audio, video and data. RTP servers can be placed in those areas where the Internet quality is poor to act as a concentrator and provide geographically local switching.
- **Voice Gateway:** Provides the connection between IP network and PSTN/Mobile networks. It does the translation and transfer of voice traffic data and signaling. This device unit provided by the third party factory, we advise you use CISCO 5300/5350.

### 2.1.4 Terminal Access Layer

This is the physical connection to the switch, not only for SIP telephones, but also through the use of inbound gateways, all PSTN phones, cell phones and IP telephones from other services. Terminals that can be connected to the InfiNET Softswitch include:

- **SIP terminal:** support terminals using the standard SIP protocol, such as broad band IP phones, voice gateways, USB phones, SoftPhone, and WEB phones.
- **PSTN/Mobile terminal:** Traditional fixed phones and mobile phones can connect to VoIP terminals through inbound gateways.

## 2.2 System Standard Configuration

The modular design of the InfiNET Softswitch allows for fast configuration to get the system up and operational. Software modules will operate on independent servers but they may also be configured to run on a single server.

The standard configuration of the InfiNET Softswitch is shown below:



Table 2-1 Software modules

Server Type	Software Module	Purpose	Notes
InfiNET MS	OSS Module	B/S Mode	Required
	Billing Module	Radius enabled	
	Database Module	Multi-vendor support	
	Operation System	Embedded Linux by KonceptUSA	
InfiNET AS	SIP Server Module	Supports Cluster & Load Balancing	Required
	RTP Server Module	Supports IP connection resources and local switching.	
	Operating System	Embedded Linux by KonceptUSA	
InfiNET RS	RTP Server Module	Supports IP connection resources and local switching.	Optional

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Server Type	Software Module	Purpose	Notes
	Operating System	Embedded Linux by KonceptUSA	
InfiNET AppServ	Application Server	Conference & Voice Mail	Optional
	Operating System	Microsoft 2000 professional	
Voice Gateway	3 <sup>rd</sup> Party Equipment	Converts from TDM or other telephony connection standards to SIP	Optional

Table 2-2 Hardware Elements

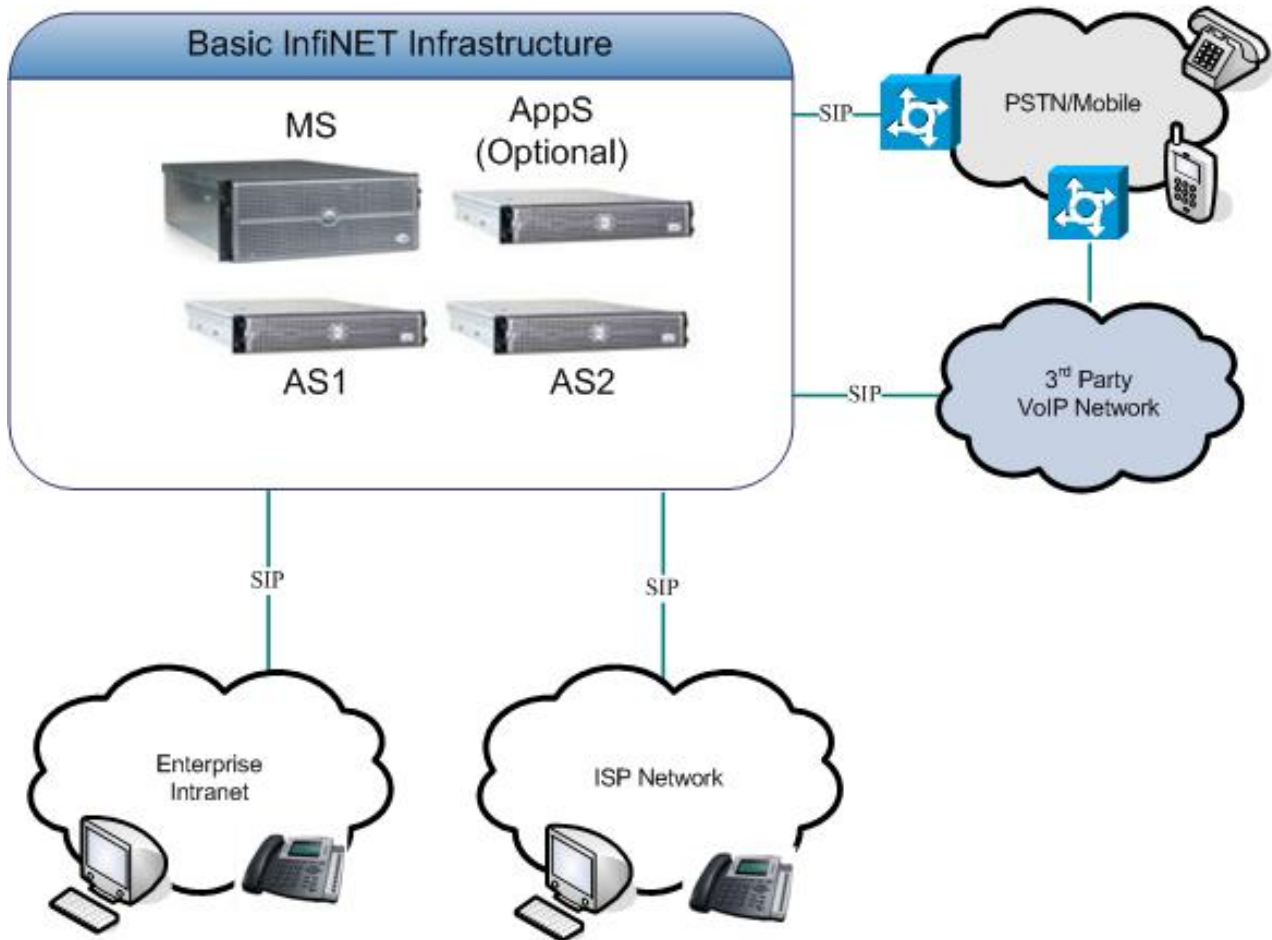
Hardware Specifications:		
 <p><b>InfiNET MS</b></p>	<b>Model</b>	<b>SUPERMICRO 7043P8R 4U server</b>
	<b>CPU</b>	2 x 2.4GHz Xeon CPU with 512K cache, 533FSB
	<b>RAM</b>	2GB ECC REG RAM
	<b>HDD</b>	2* 73GB SCSI U320 10K RPM Hard disk (Seagate)
	<b>Raid</b>	Raid controller (Adaptec 2010S, Raid 1)
	<b>CD-ROM</b>	Standard
	<b>Floppy</b>	Standard
	<b>Network Controller</b>	2 Embedded Ethernet ports (Broadcom 5702 Gigabit LAN controller + Intel 82551 LAN controller)
	<b>Spare part</b>	72G SCSI U320 10K RPM 80PIN Hard Disk
 <p><b>InfiNET AS</b> <b>InfiNET RS</b> <b>InfiNET AppServ</b></p>	<b>Model</b>	<b>SUPERMICRO 5013S8 1U server</b>
	<b>CPU</b>	2.4GHz Xeon CPU with 512K cache, 533FSB
	<b>RAM</b>	1GB ECC REG RAM
	<b>HDD</b>	2*36GB SCSI U320 10K RPM Hard disk (Seagate)
	<b>Raid</b>	Raid controller (Adaptec 2010S, Raid 1)
	<b>CD-ROM</b>	Standard
	<b>Floppy</b>	Standard
	<b>Network Controller</b>	2 Embedded Ethernet ports (Broadcom 5702 Gigabit LAN controller + Intel 82551 LAN controller)
	<b>Spare part</b>	72G SCSI U320 10K RPM 80PIN Hard Disk

## 2.3 Basic InfiNET Softswitch Implementation

Basic structure

Picture of basic system implementation as follows:

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Picture 2-2 Basic system implementation

- **Basic Implementation:** The most basic Softswitch system can be constructed using one MS type server and two AS type servers. In the standard hardware configuration, it can provide capacity for up to 100,000 registered users and up to 400 simultaneous calls.
- **Load balancing:** Load balance is implemented automatically between AS1 (host access server) and the AS2 (backup access server). The user request for service arrives at AS1. AS1 will then assign all or a portion of the request to the AS2 server to perform. This operation is transparent for the end users.
- **PSTN interconnection and Mobile network connection** is achieved via a Network Gateway. (There is an option of using the Koncept A-Z worldwide terminations)
- **Terminal access:** The InfiNET Softswitch provides a transparent penetrating NAT function for SIP terminal access. Users can penetrate NAT and firewalls without having to make settings changes. (Firewalls may request authorization to allow traffic).

## 2.4 Optimized Network Configuration

In the event that you have users that are within a specific geography, and especially one with poor connectivity to the rest of the world, you can optimize your InfiNET system. This

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achieved by deploying remote RS (RTP Server) essentially taking the switch to the users. For IP to IP calling within the server, the main switch only requires signaling bandwidth since switching is within the RTP server.

The RS is a media flow transmission server, which can improve your system in many ways. Here are some examples:

- Improve voice quality markedly

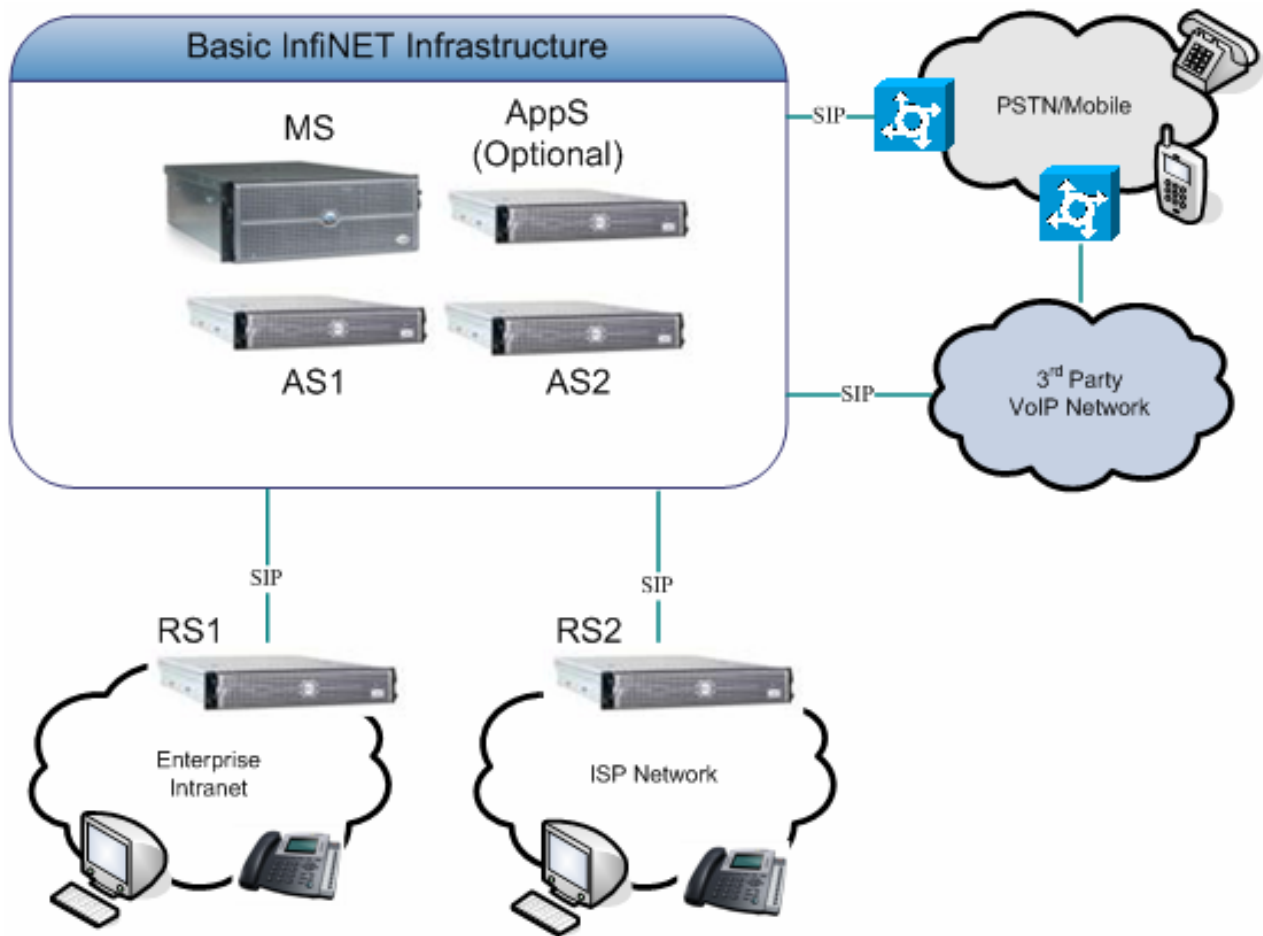
By using more local switching, there is less bandwidth required for conversations between parties on the RTP server. So for areas with limited outside bandwidth, the voice quality is substantially better. For example, although the carrier's InfiNET system is located in USA, by putting an RTP server in Canada, calls between Canada users will stay within Canada and do not require the full bandwidth to USA.

You can deploy as many RS nodes as you would like, the main switch does not care where they are located. Through the centralized management and sophisticated routing options, you can easily improve voice quality on even the most dispersed system.

- Decrease the bandwidth pressure on the machine room

Since the RS actually switches the calls locally, the only required bandwidth is to inform the main switch of the activity and status. The actual voice transmission does not actually get passed through to the system. This gives you options to help you preserve main installation in fast growing operations.

Below is a diagram of how RS deployment effects configurations.



Picture 2-3 RS deployment effects configurations

### 3 Softswitch Function

InfiNET Softswitch is a carrier class SIP switching system that supports IP and PSTN/Mobile networks. Unlike the “Free” IP-to-IP soft switches the InfiNET system integrates billing and OSS functionality to reduce the capital and expense of integration with 3rd party applications to build a carrier operation. By integrating all of the key services into the basic system, along with APIs to develop custom applications, a carrier can be operational in as little as 45 days.

Other advantages of the InfiNET Softswitch include:

#### 3.1 Excellent Compatibility

By designing the InfiNET system to industry standard protocols, it possesses excellent compatibility. By adhering to protocol standards the switch supports most SIP compatible terminals, either from Koncept or third party manufacturers, giving you flexibility to meet

user demands.

Table 3-1 Sustaining protocol table

Protocol	Description
<b>RFC 3261</b>	SIP protocol standard
<b>RFC 2976</b>	SIP protocol standard (extended)
<b>RFC 3263</b>	SIP addressing protocol standard
<b>RFC 2327</b>	SIP multimedia protocol standard
<b>RFC2543</b>	SIP: Session Initiation Protocol
<b>RFC2778</b>	A Model for Presence and Instant Messaging
<b>RFC3428</b>	Session Initiation Protocol (SIP) Extension for Instant Messaging
<b>RFC3265</b>	Session Initiation Protocol (SIP)-Specific Event Notification

## 3.2 Feature Rich Terminal Operation

Koncept InfiNET offers support for the following advanced features:

- IP to IP calling
- IP to PSTN/Mobile calling
- PSTN/Mobile inbound to IP
- Caller ID display
- Call forwarding (Off-line, Busy, No Answer and Always)
- Three-way calling
- Call Hold
- Call Transfer
- Call Waiting
- Speed Dial Numbers
- Call Out Restriction
- Video call
- ANI
- Calling Card Support

For a more detailed list of functions, please see «InfiNET Feature List»

The following features are available with our standard application server:

- Conferencing (up to 100 parties)
- Voice mail – (Mailbox, Personal Greeting, Notification)
- SMS Call Back- uses SMS services to authenticate user and calls them on any phone. (Coming Soon)
- E-FAX (Coming Soon)
- Unified Messaging (Coming Soon)
- Instant Messaging (Coming Soon)

### **3.3 Intelligent Routing Management**

InfiNET allows for multiple levels of routing for cost efficiency and fail over. Through our comprehensive package, cost containment can be achieved while offering users flexible and inexpensive call plan options.

- Routing basing on user groups: carrier can group different users and setup different routing strategies and call plans for every group.
- Routing basing on priorities: InfiNET supports 5 levels of priority for routing. The carrier can set priorities for every outbound gateway based on different conditions such as cost, call quality and calling capacity.
- By careful management of routing tables, the system can be configured to re-route calls in case of outage, over capacity, to achieve the equivalent of a warm standby fail-over system.

### **3.4 Designed to Meet 99.999% Uptime**

#### **3.4.1 Continuous Service for 7x24 Operation**

All of the software components of the InfiNET Softswitch support clustering provide warm standby and Load Balancing to ensure service operation, management and network performance to achieve 7 x 24 hour continuous operation.

#### **3.4.2 Network Safety**

The InfiNET management systems operate independently from the voice data streams. Built in firewalls can resist attacks and scans. Strict user authentication requires human input, and encryption on all active sessions protects the network from outside intervention.

#### **3.4.3 Operation Safety**

The InfiNET Softswitch also manages administration access, using strong authentication, encrypted sessions, and operational logging of all changes to ensure secure operations. Administrative sessions are automatically logged out when inactive and can have their sessions terminated by their supervisors.

## **4 Billing System**

The InfiNET billing system does not only maintain accurate real-time billing but can maintain

up to 3 years of billing data for analysis and management.

The system supports the Radius Standard protocol with a precision of 0.1 seconds. It also provides an HTTPS based encrypted API (Application Programmers Interface) to allow carriers to securely create applications or integrate with existing billing services or analytical systems.

**Koncept InfiNET billing system allows Carriers to set and manage:**

- Usage fees
- Service/ Subscription fees
- Call plan fees (based on packaged services)

**Koncept InfiNET support the following user payment classes:**

- Prepaid fee
- Postpaid fee

**User payments can be made via:**

- Recharge by recharge card
- Recharge by credit card
- Recharge by ATM / bank card
- Cash payment
- Online payment
- Paper Billing

**Key features of the Koncept InfiNET billing system:**

- Group Segmentation

InfiNET supports grouping of users so that every group can have different billing rules and strategies.

- Real time billing

InfiNET billing system supports real time billing. For example, when a user's account balance reaches a minimum, the system will shut down the call automatically.

- Multilevel billing

InfiNET system allows for multilevel billing for every call. Allowing you to set rates for billing carriers, VSPs and agents. Thus allowing for compensation based on usage.

- Support for Multiple Rate Tables

InfiNET can support a different rate table for every group. A single system can support up to 999 rate tables and every rate table can be activated in real time or via timed activation.

- Support of World Currencies

InfiNET can support a different currency for different groups, and has built-in support for all the world's different currencies.

- Discount System

The system allows the VSP to set discount calling periods based on the time of day, day of week, and on annual holidays. Each discount structure is assigned to the group, so every group can have their own discount plans.

- Automatic Statement and Invoice Creation

The InfiNET can create a statement or invoice for every user, on a daily, monthly or annual basis. The invoices can include these can be searched, printed or presented to the user via

the secure website. Previous statements and payment records are available on-line or automatically archived for easy consultation.

## 5 System Management

The system management interface of InfiNET allows for the management of remote and local components without the need for separate Network Management software packages. The logins and Administrator sessions use HTTPS encryption.

### System Management components of the Koncept InfiNET include:

- System account code management
- Termination routing management
- Voice gateway management
- Payment gateway management
- Number segment management
- Dialing rule management
- System log management
- System warning management

### Business management modules of the Koncept InfiNET include:

- Open, modify and logout users, administrators and VSPs.
- Billing rule management
- Business charge control
- User management
- Recharge card management
- Statement and invoice management
- Statistic management for System income

### Management tools of the Koncept InfiNET:

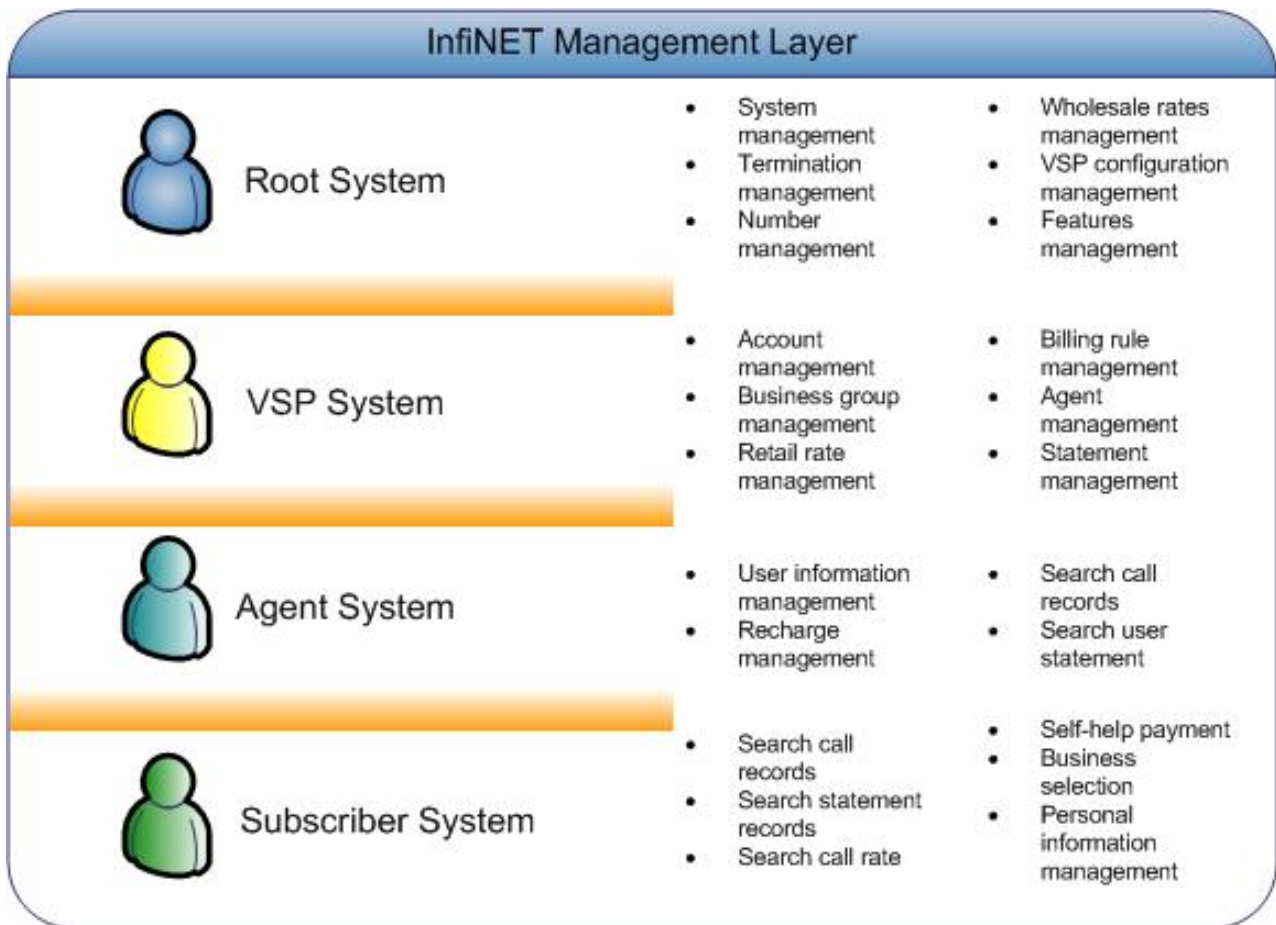
Configuration:

- Web Browser, supports HTTPS encryption
- Configuration/Debug Interface based on CLI, supports SSH

Monitor:

- The supports third party SNMP network management tools
- Syslog server

The structure of the InfiNET management system is outlined in the graphic below:



Picture 5-1 InfiNET system management

## 5.1 Root System

Root system is the topmost management level of InfiNET system and maintains the system. It is responsible for the management of global system parameters including number resources, termination resources, call routing rules and administrator accounts. Indirectly the Root manages the lower levels by assigning resources.

## 5.2 Virtual Service Provider System

VSP System is the core management level of InfiNET system and is the practical operator of InfiNET system. It is responsible for the management of business rules, billing, user groups and agents. VSP can directly manage agent and subscriber.

VSP=Virtual Service Provider. InfiNET system supports many VSPs and every VSP can operate under the support of Root. In order to assure information safety, different VSP can't see each other's information.

### 5.3 Agent System

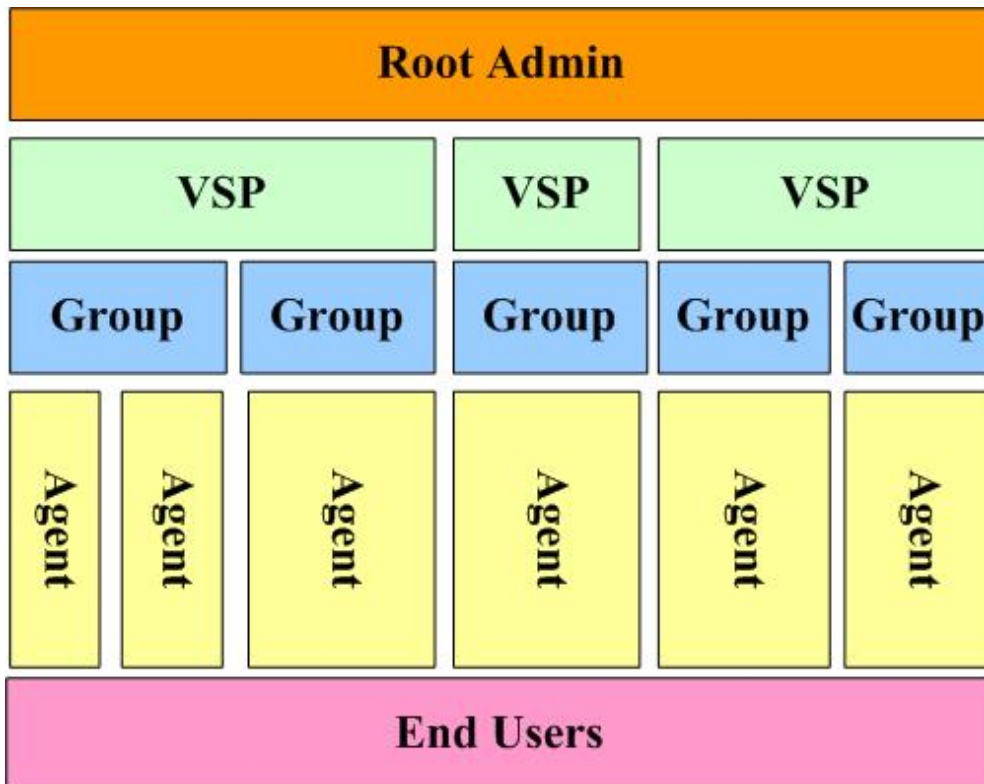
Agent system is the subsystem of VSP system and management authorization assigned by VSP administrators. Groups are assigned to agents to manage each group's user base.

### 5.4 Subscriber System

Subscriber system is the online user service system of InfiNET. End user can login the system and via the MyAccount web pages, essentially manage their accounts for themselves, if this is the offering the VSP wishes.

### 5.5 Administration Levels

The Administrative architecture of the InfiNET Softswitch is based on levels of responsibility and privileges. While the administrative accounts are hierarchical each layer in fact has core responsibilities that really define its purpose. The Graphic below outlines these layers. It should be noted the "Business Group" layer is not an administration level, but a grouping of user accounts that form a service offering. The Agent layer is an option to allow for separate management of certain business groups and optional compensation plans based on usage. We will now discuss each of these layers.



Picture 5-2 InfiNET administrative architecture

## **Root Admin**

The Root Administrator is responsible for creating the environment for the VSPs to create their businesses. This includes assigning the number segments for the VSPs IP Phone numbers, connections to Gateways, and that all servers involved with the Softswitch are operational and maintained, this includes any remote RTP servers. The Root also monitors the system on an ongoing basis.

This position is also responsible for the creation and maintenance of the Wholesale Rate Table. This is the rate that the VSP is charged for carrier usage and is based on obtaining carrier rates to all markets that the VSP businesses are allowed to connect to. The VSP will be billed on a monthly basis for their usage of the wholesale rates.

The Root Administrator also acts as the consultant to the VSP allowing them to help the VSP set up the required environment for the VSP's desired service offerings.

## **Virtual Service Providers**

The VSP is the source of the service offering. To be a VSP you need 3 things, a source of Users, first line support, and a plan for the services you wish to offer. Your source of users can either be an existing group of subscribers or members to some other related service or community of interest. The first line support is the group that will help the users with their problems and determine the source of the problem. If the source of the problem is the service, the terminal or something that cannot be fixed by the VSP, this group will alert Koncept and we will then work on the problem.

The core of the VSP responsibilities is the definition of the service for the users. This service can be divided into "Groups" where all the members of a group will have identical features and rates. The VSP can have as many groups as they wish. The group definition includes the Recurring Fee, which is the subscription fee, the Usage Fees based on a VSP defined Rate Table, and the features available based on the features either chosen or supplied.

One of the options that a VSP can create for their users is Call Plans; these allow you to create "Flat Rate" plans, to any areas you wish. You can also determine how your users will pay for the service, pre-pay, post-pay, credit card, and /or self managed. All aspects of the service are defined by the VSP.

## **Groups**

The VSP can set up as many business Groups or "Groups" as they would like, the Group includes the Payment Method, Rate Table, Recurring Fee, Feature suite, Call Plans, Special rates for holidays, evenings, etc. The VSP could for example have a flat rate plan for 20.00 per month for unlimited U.S. calling, on a post paid monthly basis. They could additionally have another group that is pre-paid, for 2.00 per month, with good rates and 50% off nights and

weekends, along with Voicemail and Conferencing. All of this is very easily possible with the flexibility of the InfiNET Softswitch.

The VSP can assign employees Administrator accounts and their access and responsibilities to help them provide, customer service, billing support or technical support.

### **Agent**

The VSP can also assign an Agent to any groups that they want. An Agent position is one where the Agent is responsible for the performance of the groups assigned. To compensate the Agent, the VSP can assign a Rate Table to the Agent who can then mark it up and collect the profit on usage of the group on that rate table.

The Agent will have access to billing and traffic information to help them manage and motivate their groups.

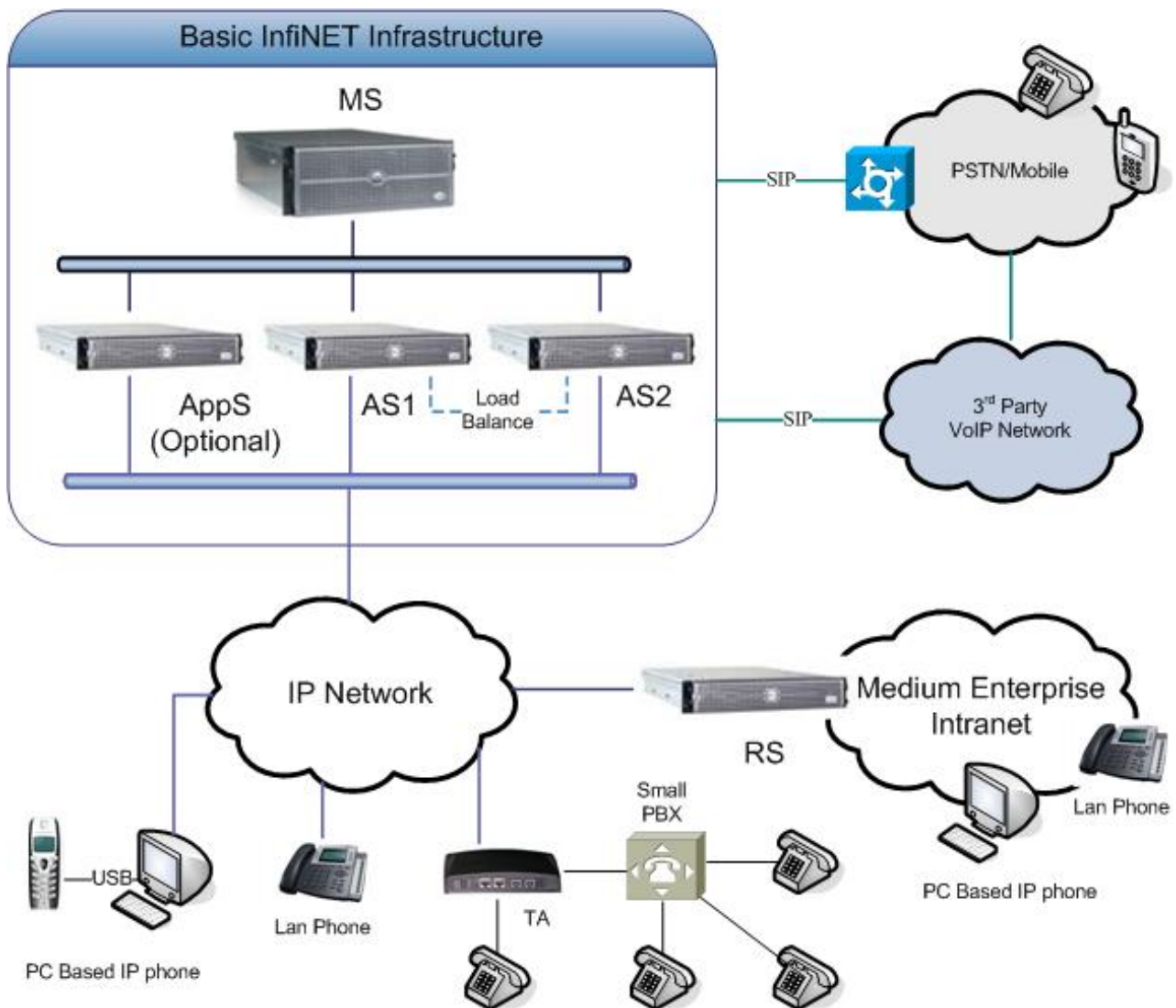
### **End User**

The Users have the responsibility to honor their service agreement with the VSP. They also have access to a Web Portal called "MyAccount". Through this web portal they can enable and program several features and services. They can also review their call history, their current account balance, pay their bill via credit card (if the Payment Gateway is enabled), they may even change call plans (based on the VSPs discretion).

## **6 System Applications**

Powerful call management functions and billing mechanisms allow for multiple applications to be achieved on one platform. The basic application is to provide competitive, high quality IP communication service for broadband, PSTN and mobile users on an IP network.

## 6.1 Broadband Phone Application



Picture 6-1 Broadband phone application

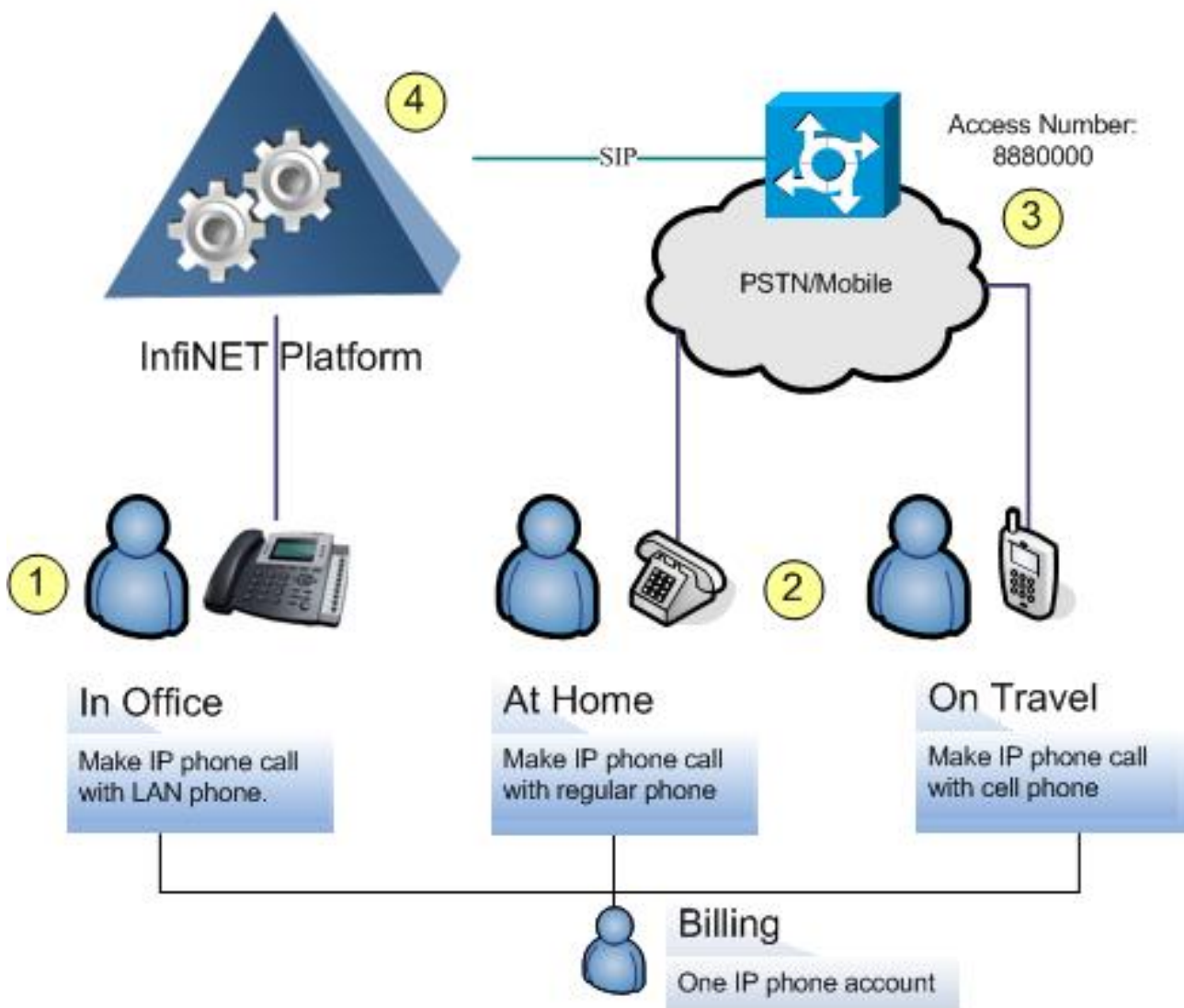
**Note:**

The third-party SIP terminals working on InfiNETSoftswitch should

1. Support SIP protocol
2. Support T.38 protocol if using fax
3. DTMF require to support FRC2833, PAYLOAD=101
4. Support RFC3261
5. Support G.729 CODEC
6. DIGEST Authentication

If these terminals can't meet above requirements, they may not be used or may not use voicemail, conference, fax etc business or features

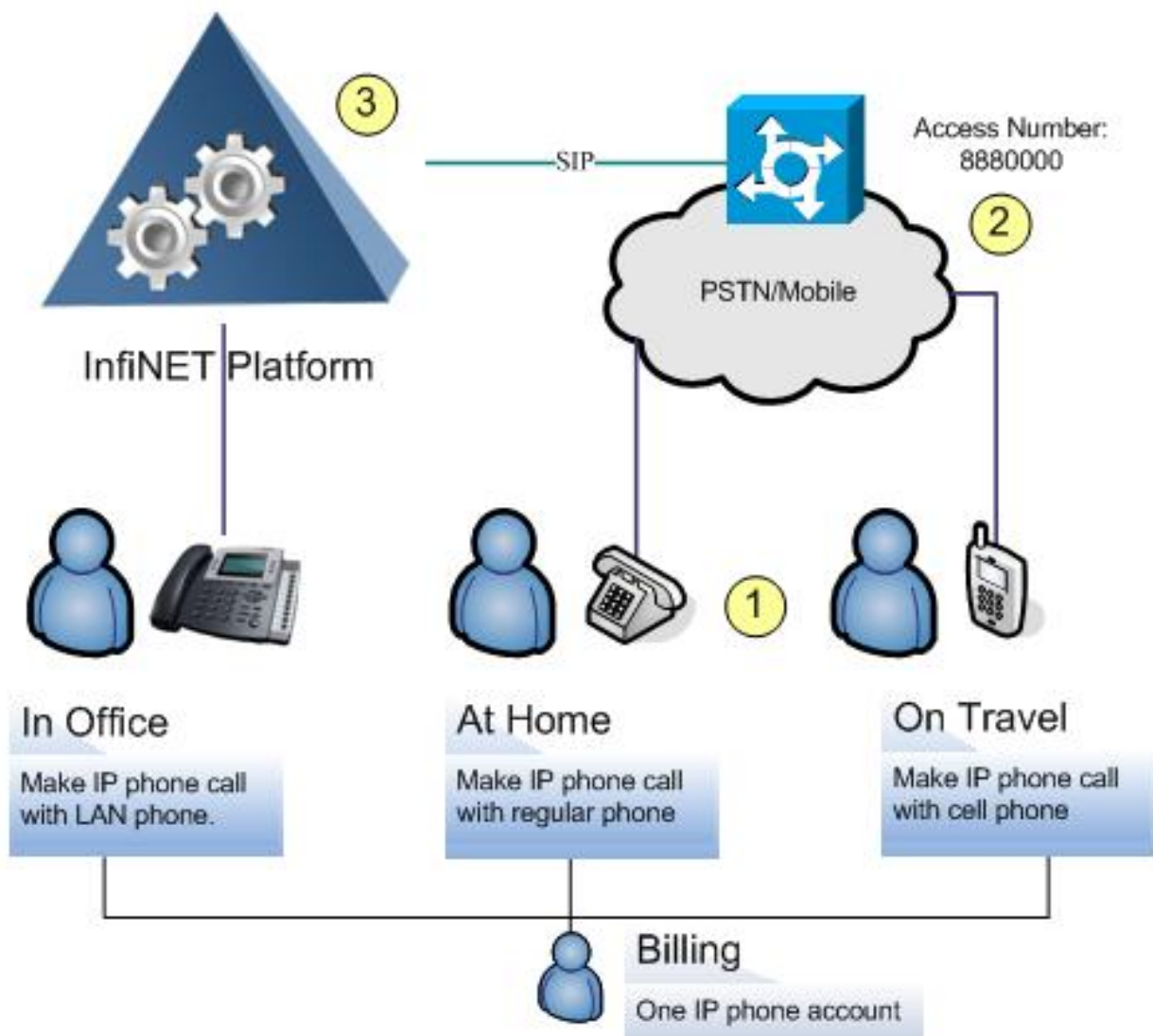
## 6.2 ANI Authentication Application



- 1 Binding home number and cell phone number with IP phone service online.
- 2 Call to access number 8880000 with PSTN/Mobile terminal.
- 3 Dial the IP phone call following the IVR instruction.
- 4 InfiNET authorizes the Calling number with user account setting.

Picture 6-2 ANI authentication

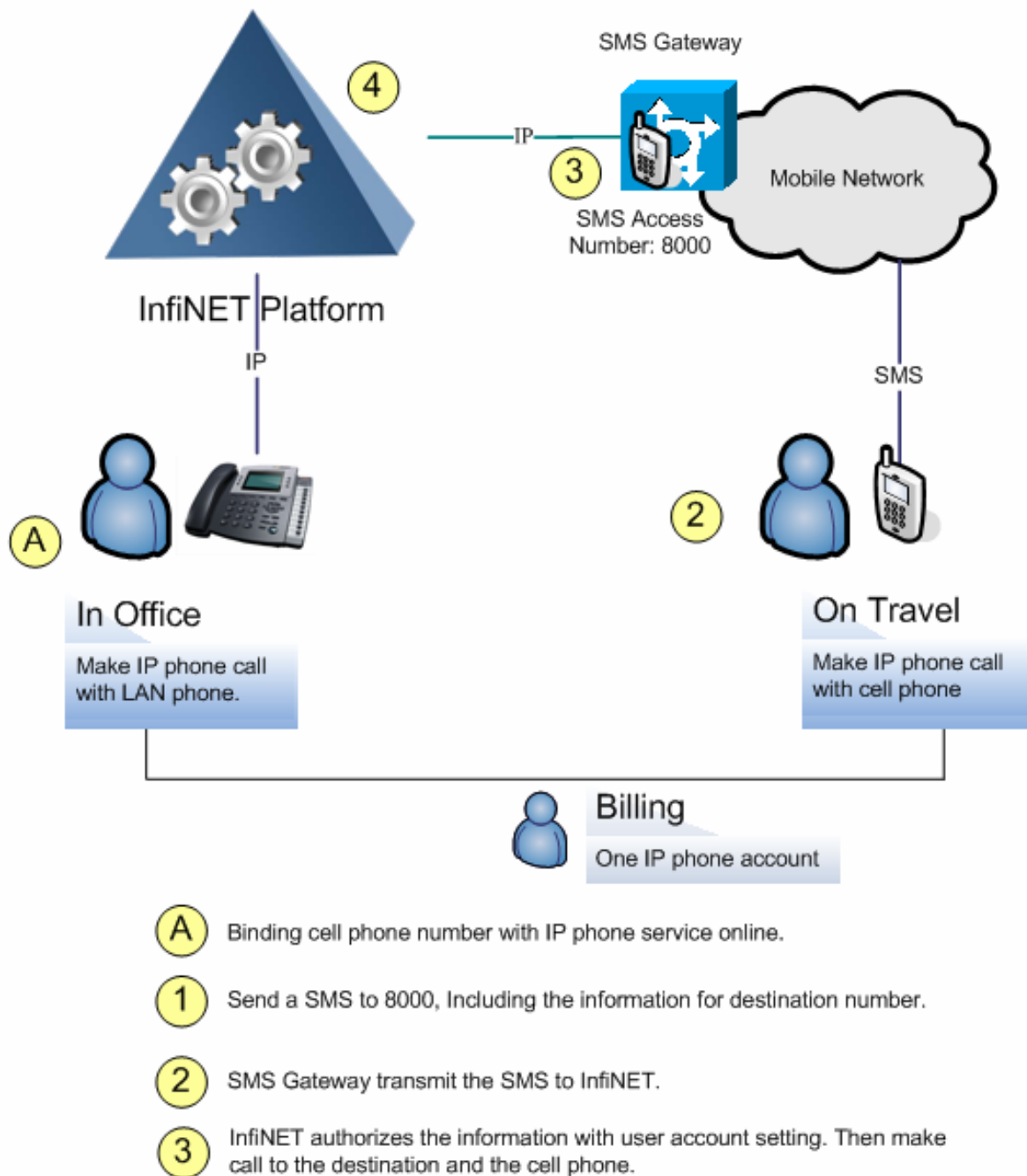
## 6.3 Calling Card Application



- 1 Call to access number 8880000 with PSTN/Mobile terminal.
- 2 Input the IP phone account and password information following the IVR instruction.
- 3 InfiNET authorizes the information with user account setting.

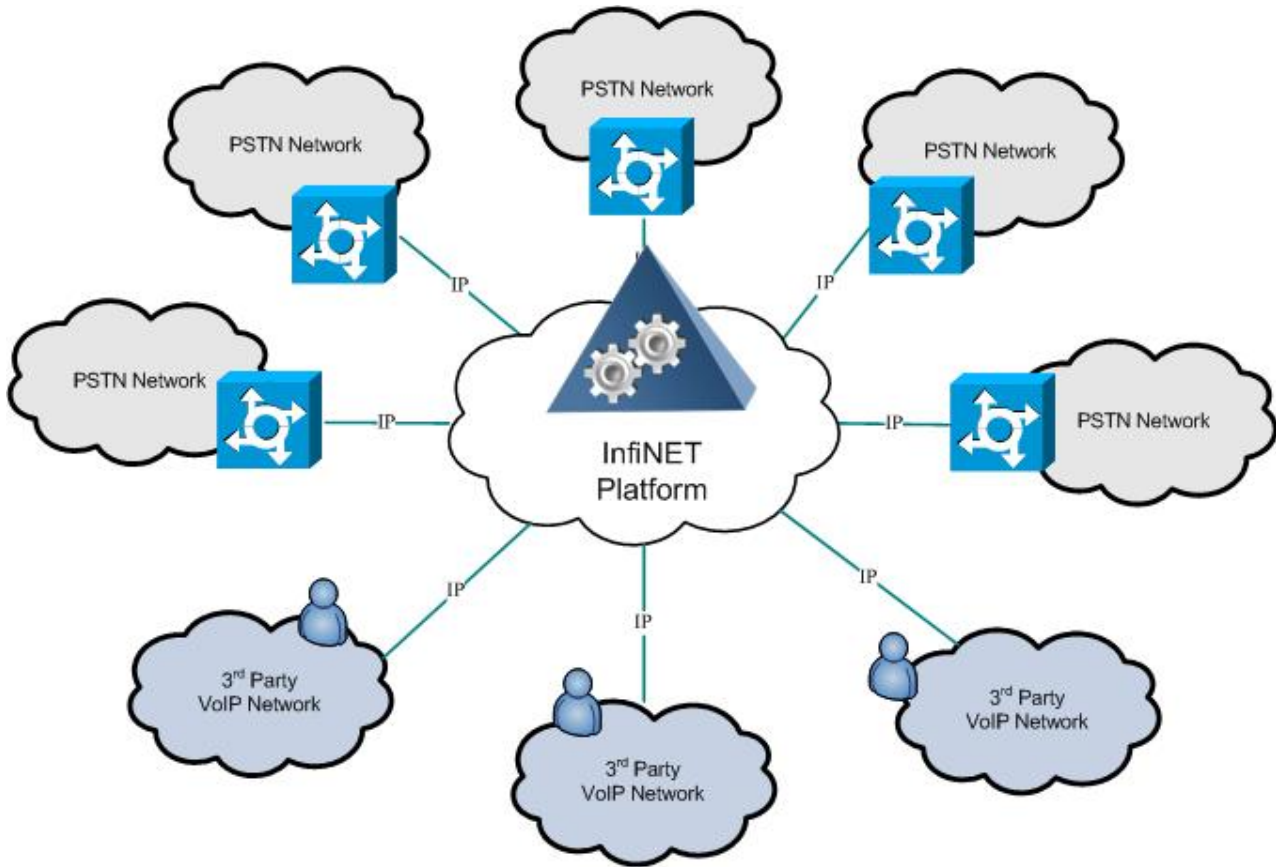
Picture 6-3 Calling card application

## 6.4 Operation project for SMS Call Back



Picture 6-4 SMS call back application

## 6.5 Wholesale Termination Application

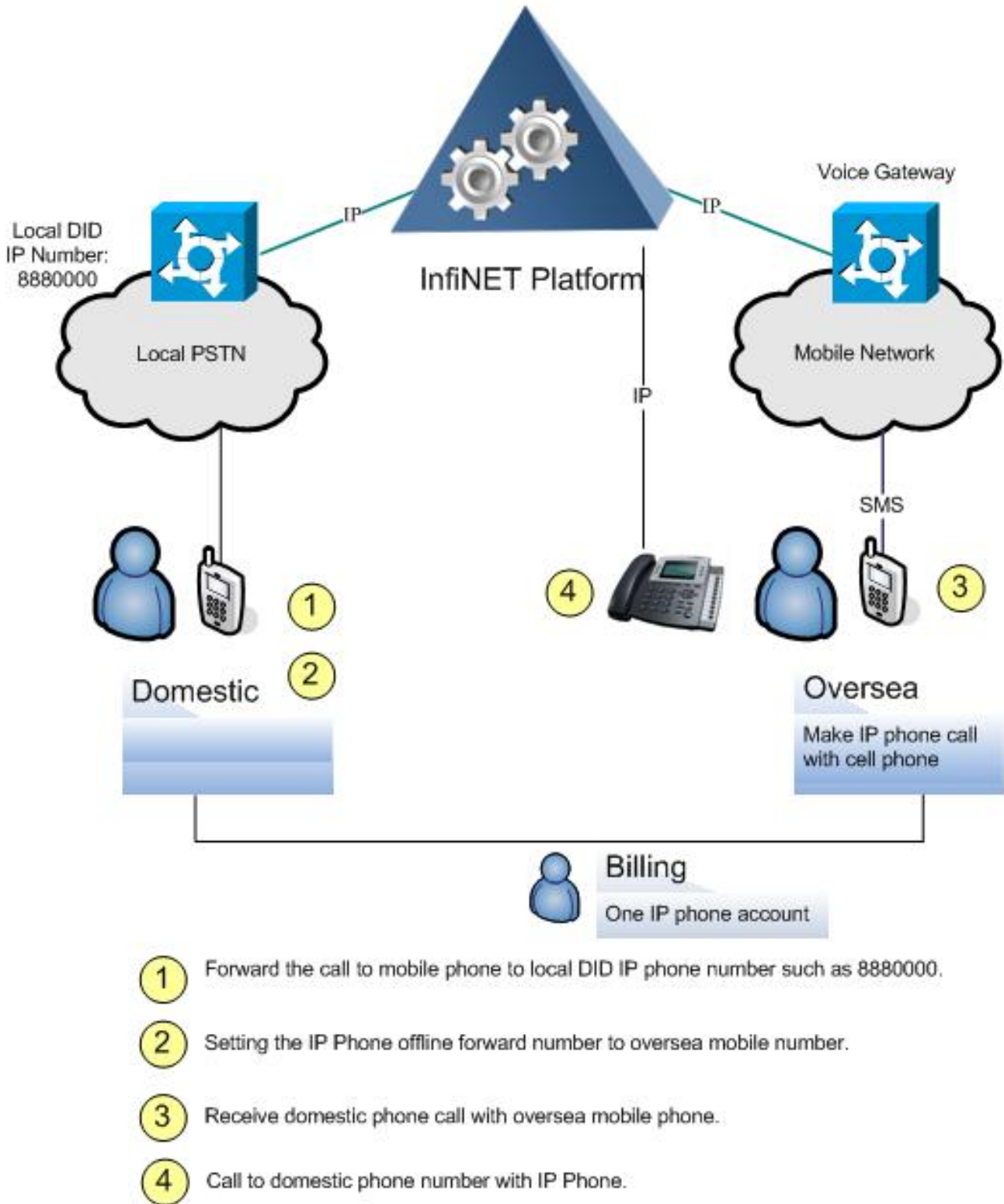


InfiNET can create wholesale user account and set the following parameter:

- Credit
- Balance
- Maximum Simultaneous Call
- Wholesale Rate

Picture 6-5 Wholesale termination application

## 6.6 International Roaming Application for Mobile Phone Users (Follow Me)



Picture 6-6 Follow Me application

## 7 Specifications

Table 7-1 Koncept InfiNET system software specifications

Parameter	Description
BHCA	1080k
CAPS	300
Max capacity for fixed users	2000K Users
Call off-line frequency	<=0.01%
Carrying Network Support	IP
Standard signaling protocol support	SIP, SNMP, RADIUS, RTP/RTCP, RFC2833, G.723.1/G.729, TCP/UDP/IP
Maximal Signaling bandwidth calling out	4×100 M bit/s

Table 7-2 Koncept InfiNET MS hardware specifications


	<b>InfiNET MS</b>
Parameter	Description
Uniprocessor maximal user capacity	2000K
Cluster maximal user capacity	4000K
Maximal Cluster servers number	2

Table 7-3 Koncept InfiNET AS hardware specifications


	<b>InfiNET AS</b>
Parameter	Description
BHCA	20k
CAPS	55
Call off-line frequency	<=0.01%
Carrying Network Support	IP
Standard signaling protocol support	SIP, SNMP, RADIUS, TCP/ UDP/IP etc

Table 7-4 Koncept InfiNET RS hardware specifications



 <b>InfiNET RS</b>	
Parameter	Description
Uniprocessor maximal user capacity	200 paths G.729
Cluster maximal media concurrency number	3,000+
Call offline frequency	<=0.01%
Carrying Network Support	IP
Standard signaling protocol support	RTP/RTCP, ITU-T T.38、T.30, RFC2833, TCP/ UDP/IP etc

Table 7-5 Koncept InfiNET application server hardware specifications

 <b>InfiNET AppServ</b>	
Parameter	Description
Uniprocessor maximal conference concurrency number	100 parties
Uniprocessor maximal voice mail concurrency number	100 paths
Cluster maximal conference concurrency number	200 parties
Cluster maximal voicemail concurrency number	200 paths
Carrying Network Support	IP
Standard signaling protocol support	H.323, SIP, RTP/RTCP, RFC2833, TCP/ UDP/IP etc