IPNext50
Small, Powerful IP-PBX

Next Generation IP-PBX System for the Small Business and Home Office

Product Overview

AddPac Technology

Sales and Marketing

www.addpac.com

Contents

- Product Overview
- Hardware Specification
- APOS Technology
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- RTP Proxy Function for Private IP solution
- Advanced QoS Features
- Network Protocols, Network & Security Management
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- IP Multimedia Telephony Terminals
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Product Overview

- SIP Application Server, Proxy, Registrar and Location Server
- Multiple ITSP Trunk with SIP & H.323 Accounts Support
- High Performance RISC & Programmable DSP Architecture
- Two(2) 10/100Mbps Fast Ethernet (IP Share ,etc)
- One(1) USB Port for USB Memory and Wireless LAN
- Up to Four(4) PSTN FXO VoIP Interface
- High Performance LAN-to-LAN Routing Capability
- VoIP Gateway : G.711/G.726/G.723/G.729, T.38 Fax , VAD, etc
- Powerful Network Protocols (PPPoE, DHCP, Static Routing, etc)
- IPv4/IPv6 Dual Stack
- RTP Proxy Function Embedded for Private IP and IPv6 Address Interworking
- Presence Service Features for Smart Multimedia Messenger and Smart IP Phone
- IVR Scenario Editor, Voice Mail, Third Party Conference (G.711)
- Firmware Upgradeable Architecture
- Smart Multimedia Manager for IP-PBX Management
- Smart Messenger Service for UC
- VPMS (VoIP Plug&Play Management System) for Large Scale Deployment
- Advanced Voice QoS Mechanism
- Small, Light and Compact Design
- Power Switch for Stability and Status LEDs

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Product Highlights

IPNext50 Next Generation IP-PBX

Advanced IP-PBX Features

**VPMS Large Scale VoIP
Gateway Management Support**

**Small, Light and
Compact Design**

**Excellent Voice Quality
G.729/G.723/G.726/G.711**

**High Performance RISC CPU
& Programmable DSP**

Smart Multimedia Manager

**Two(2) 10/100Mbps
Fast Ethernet,
One(1) USB Interface**

**APOS™Technology
Firmware Upgradeable Architecture**

**High Performance
LAN-to-LAN Packet Processing**

Powerful Network Protocol Support
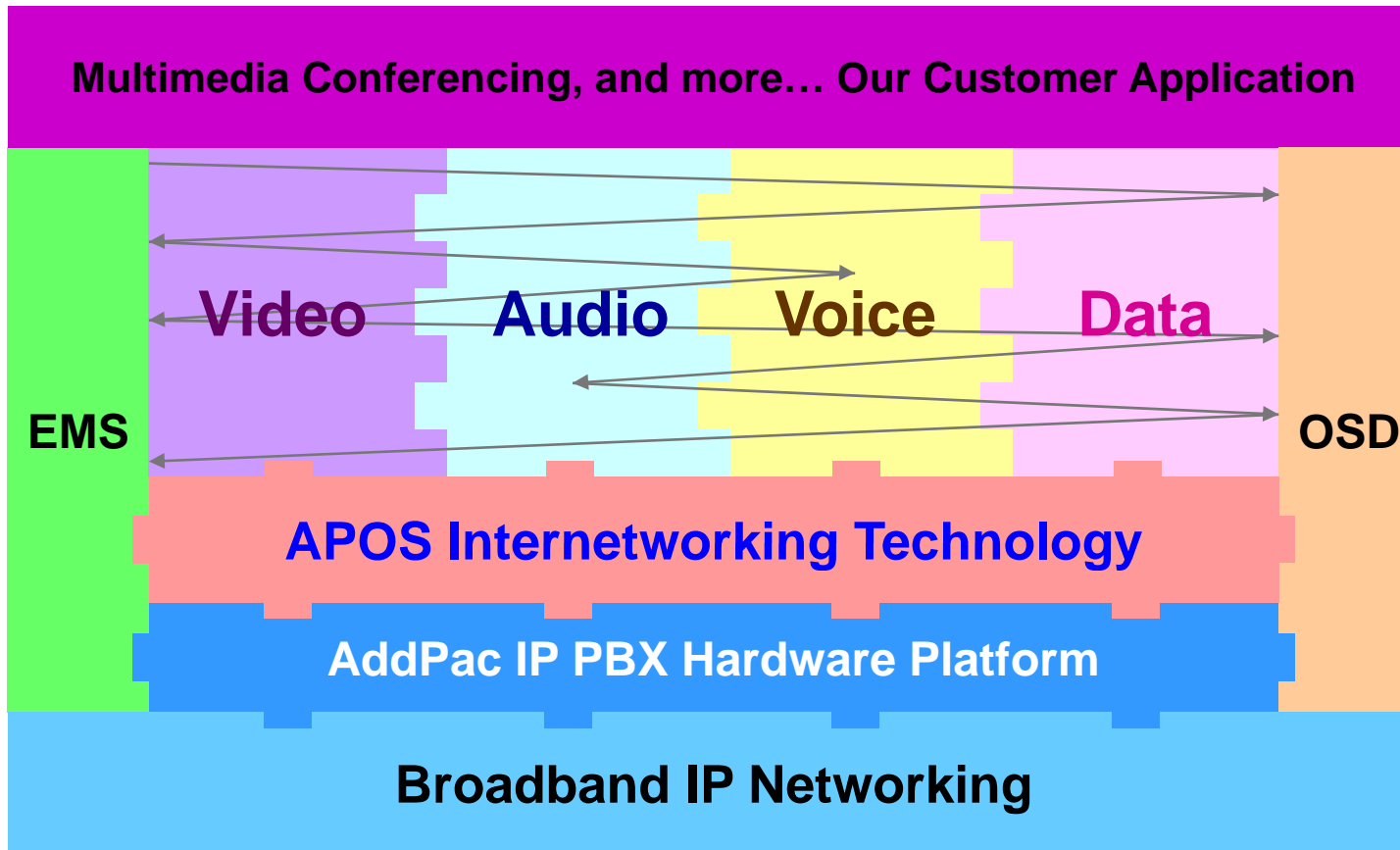
RTP Proxy for Private IP and IPv6

**Advanced Voice
Traffic QoS Mechanism**

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APOS Technology

IPNext50 Next Generation IP-PBX

Multimedia Conferencing, and more… Our Customer Application

EMS

Video **Audio** **Voice** **Data**

OSD

APOS Internetworking Technology

AddPac IP PBX Hardware Platform

Broadband IP Networking

- APOS : AddPac Internetworking Operating System
- OSD : On- Screen Display
- EMS : Element Management System

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Hardware Specification

IPNext50 Next Generation IP-PBX

RISC
CPU

High-end
DSP

- **RISC Microprocessor Computing Power**
- **+ High End Programmable DSP**
- **VoIP Gateway Interface**
    - IPNext50   Model A: Basic Configuration
    - IPNext50 Model B: Two(2) FXO Port
- **Network Interface**
    – Two(2) 10/100Mbps Fast Ethernet (RJ45)
- **USB Interface**
    – One(1) USB Host Mode Interface for USB Memory and Wireless LAN
- **Power Supply**
    – External Power Adaptor
- **Power On/Off Switch**
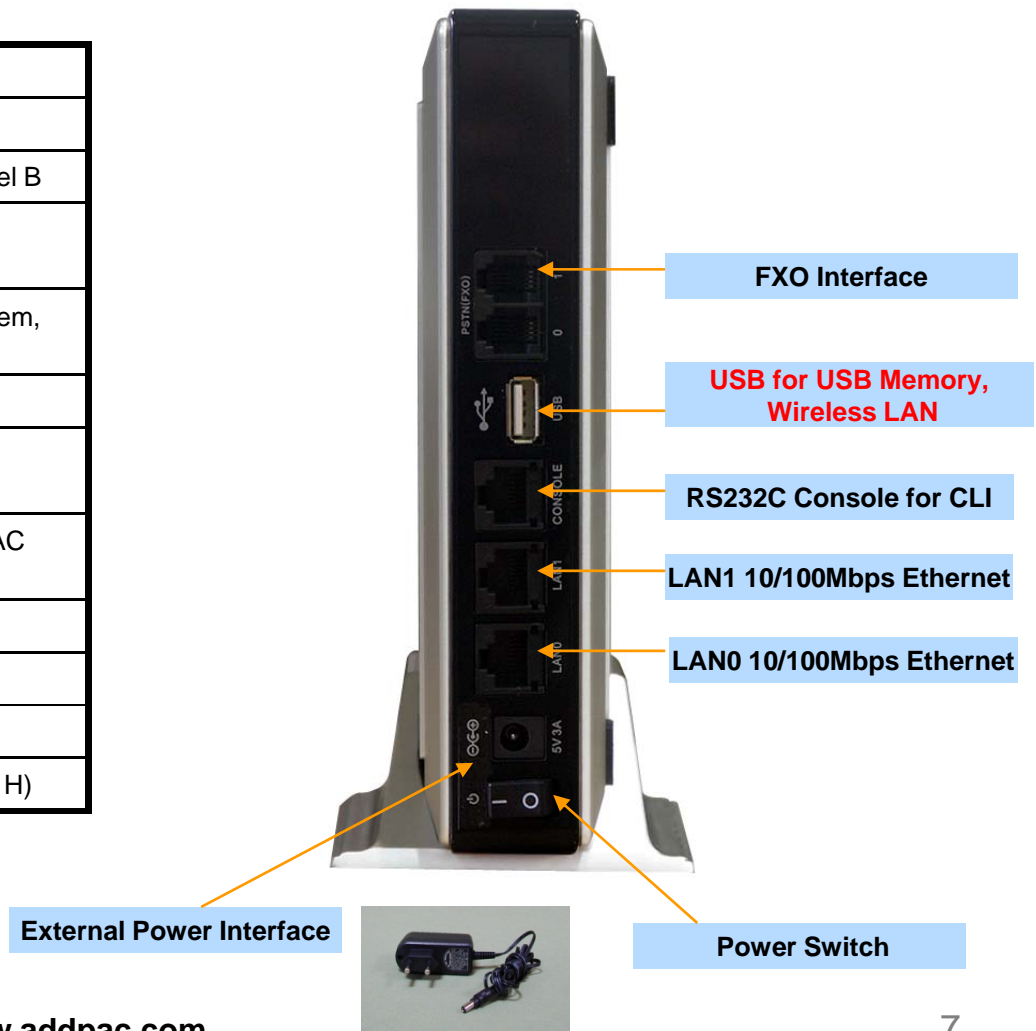- **Power LED, LAN LEDs, FXO Port LEDs**

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Hardware Specification

IPNext50 Next Generation IP-PBX

Hardware Specifications

IPNext 50 Series	Basic Specifications
CPU	High End RISC Microprocessor
Voice Interface (Option)	2 FXO Voice Interface(RJ-11) :Model B
Ethernet Interface	2-Ports 10/100Mbps Ethernet Interface(RJ-45)
Flash Memory	High-speed Flash Memory for System, Voice Mail, etc
System Main Memory	128Mbyte High-speed SDRAM
USB Interface	USB Host Mode Interface for USB Memory, Wireless LAN, USB Hub.
Power Requirement	External Power Supply Adaptor / VAC 110~220V, 50/60Hz, 5V 3A
Operating Temperature	0ºC ~ 45ºC (32 ºF ~ 122ºF)
Storage Temperature	-40ºC ~ 85ºC (-40ºC ~ 185ºF)
Relative Humidity	5% ~ 95% (Non-condensing)
Dimensions	182mm x 182mm x 38mm (W x D x H)

Network interface Configurations

FXO Interface

USB for USB Memory, Wireless LAN

RS232C Console for CLI

LAN1 10/100Mbps Ethernet

LAN0 10/100Mbps Ethernet

External Power Interface

Power Switch

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IP-PBX Features

IPNext50 Next Generation IP-PBX

- **Signaling Server**
  - SIP Application Server, Proxy, Registrar and Location Server (RFC3261)
  - Multiple ITSP Trunk with SIP & H.323 Accounts Support
    - **IP UA Client Role for Registering to ITSP SIP Server**
    - **H.323 Gatekeeper Client Role for Registering to ITSP H.323 Gatekeeper Server**

- **IVR & Auto Attendant**
  - Default Auto Attendant Support
  - Interactive Voice Response (IVR)
    - **Provides with GUI-based Smart IVR Scenario Editor**
    - **Upload/Download Scenario by Smart IVR Scenario Editor**
    - **Supports Multiple Concurrent Scenarios**
    - **Supports Recordable IVR Prompts**

- **Voice Mail**
  - Support Voice Mail with IVR
  - Access from Remote Site via Trunk Support
  - Voice Mail Notification Support

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IP-PBX Features

- **Conference**
  - G.711 u-law, G.711 a-law Internal 3-Party Audio Conference Support
  - Ad-hoc Conference
  - Dial-Out Conference
  - Meet-me Conference
  - Multiple External MCU support(Video, Audio, etc) : AddPac AP-MC1000, etc
  - Conference Chair and Participants Management

- **Music & Announcement**
  - Music on Hold
  - Replaceable Announcements
  - Dialing Music / Tone Service

IP-PBX Features

IPNext50 Next Generation IP-PBX

- **Number & Call Routing**
  - Trunk Hunting by Preference or Sequential
  - Call Hunting by Preference, Simultaneous, Random
  - Call Hunting by Chained Hunting Group
  - Partition for Address Grading
  - Call Class for Call Access Control
  - Number Translation Rule for Inbound/Outbound Call
  - Centrex with Prefix Support
  - Multiple Shared Devices with One Number
  - Multiple Numbers on One Device
  - Individual Call Park within Park Number Pool
  - Group Call Park within a Group or Other Group
  - Call Pickup of Ringing Call of Same Group or Other Group
  - Call Pickup of Parked Call
  - Call Transfer - Blind, Consult
  - Call Forwarding - Unconditional, Busy, No Answer, Voice Mail
  - Call Waiting
  - Call Swapping
  - Call Hold

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IP-PBX Features

- **IP-PBX Advanced Features with AddPac IP, Video Phones**
  - Multiple Call Handling with Call Status and Calling Line Number and Name
  - Plug and Play with Auto Discovery Function
  - Softkey Map Download and Control
  - Time and Date Setting
  - Voice Mail List View
  - Parked Call List View
  - Call Forward Setting
  - Recent Call List View
  - Calling Number and Name Identification
  - Individual Call Park within Park Number Pool by Softkey
  - Group Call Park within a Group or Other Group by Softkey
  - Call Pickup of Ringing Call of Same Group or Other Group by Softkey
  - Call Pickup of Parked Call by Softkey
  - Call Transfer - Blind, Consult by Softkey
  - Call Waiting Indication
  - Call Swapping by Softkey
  - Call Hold by SoftKey
  - Conference Control

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IP-PBX Features

IPNext50 Next Generation IP-PBX

- **User & Device Management**
  - LDAP (Lightweight Directory Access Protocol) Support
    - Supports Hierarchical Organization
  - Auto Discovery of IP Phones & Video Phones
  - Monitoring Status of Phones

- **Miscellaneous***
  - Distinctive Ring by Calling User
  - Auto Config & Upgrade
  - Intercom
  - Personal Directory
  - Downloadable Ring
  - Do not Disturb

RTP Proxy Function
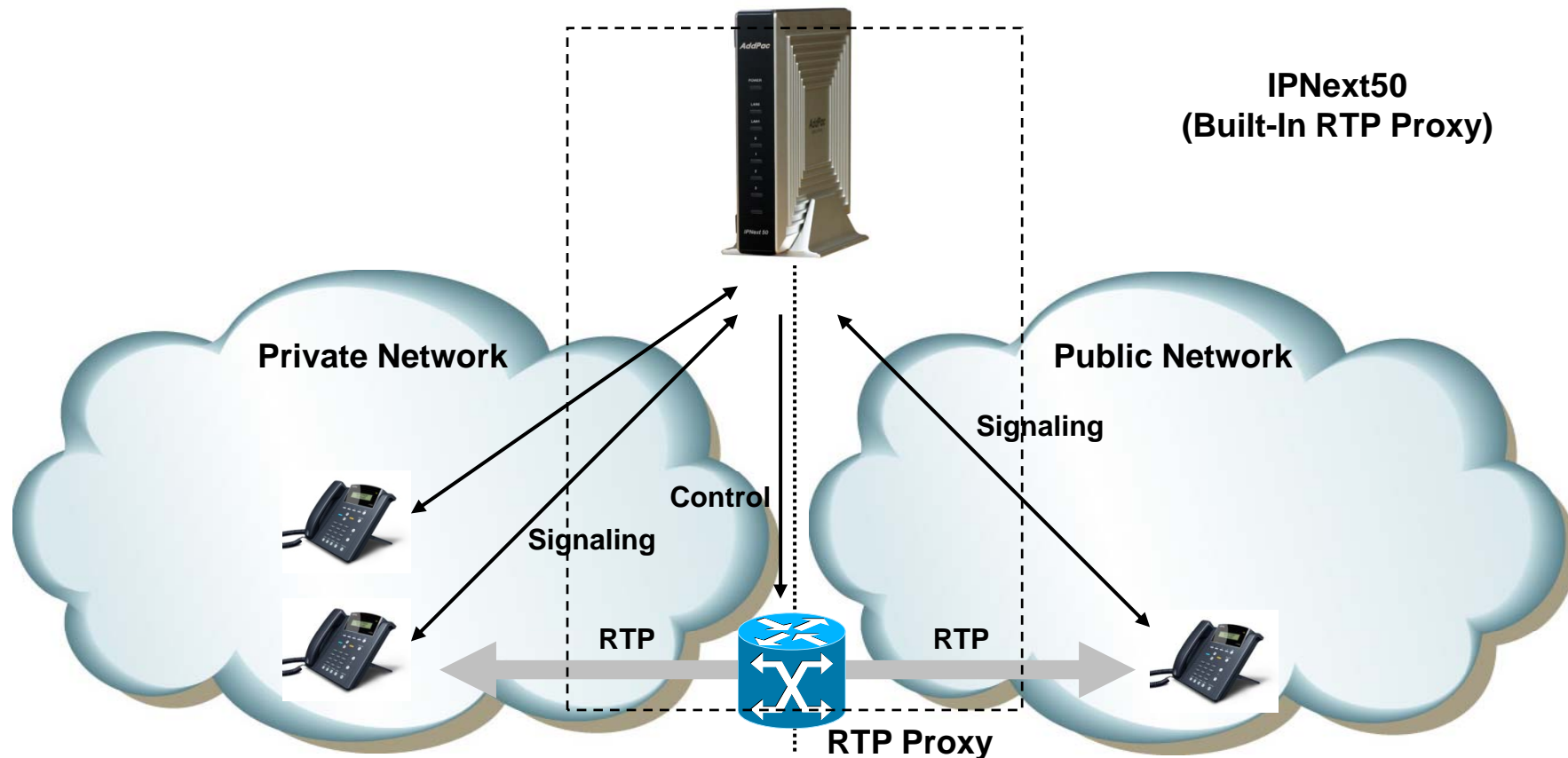
IPNext50 Next Generation IP-PBX

- Protocol Independence (H.323, SIP)
- Built-In RTP Proxy for Small Office
- Support RTP Proxy without NAT
- Support Symmetric / Asymmetric NAT
- Support IPv4/IPv6 RTP Proxy
- Support RTP Broadcast
- Support RTP Conference

RTP Proxy Features

IPNext50 Next Generation IP-PBX

Public/Private RTP Proxy without NAT Router

IPNext50
(Built-In RTP Proxy)

Private Network

Public Network

Signaling

Control

Signaling
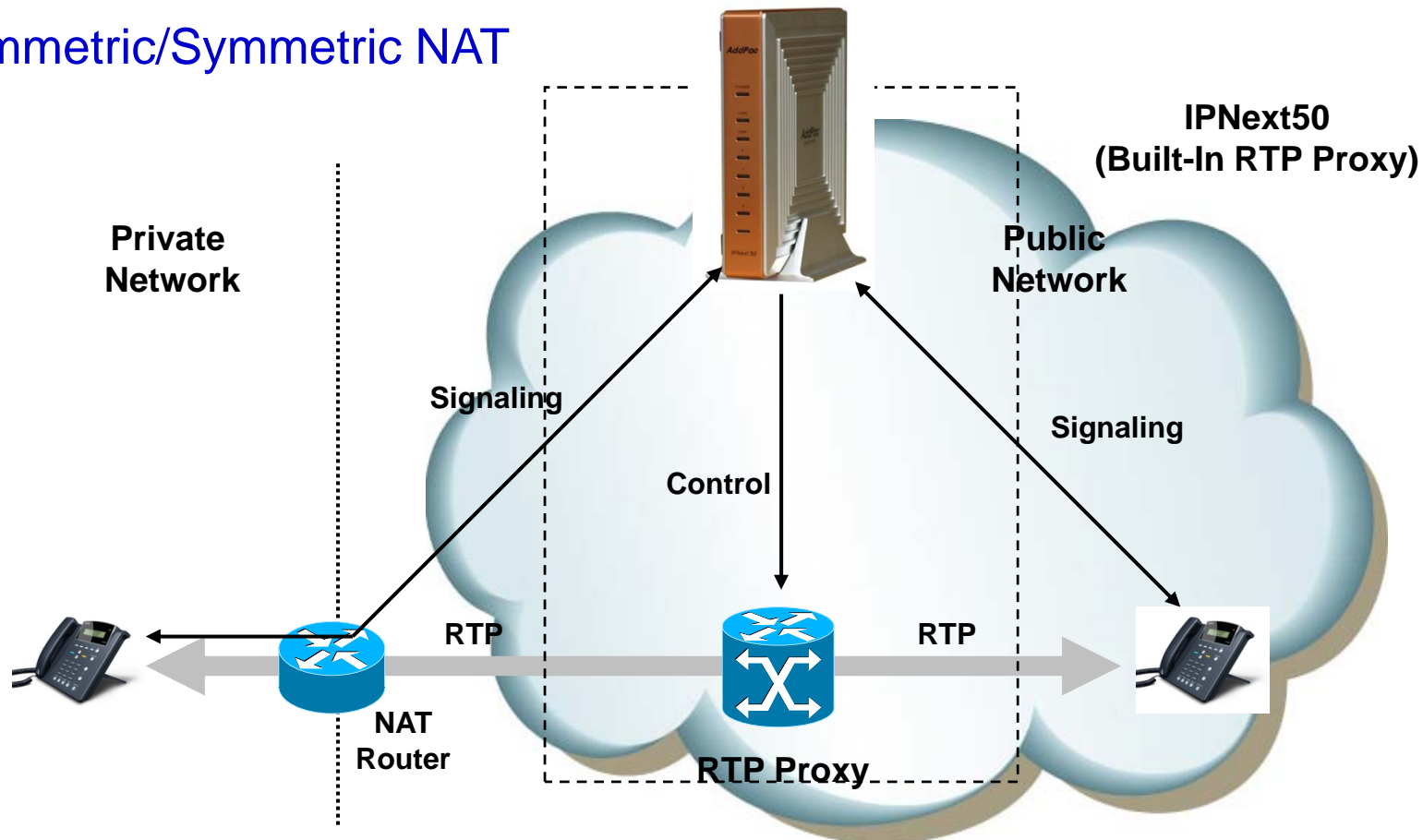
RTP

RTP

RTP Proxy

- Located between public and private network
- Call manager and RTP proxy has public and private address
- Call manager determine that the call is internal or external

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RTP Proxy Features

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Asymmetric/Symmetric NAT

IPNext50
(Built-In RTP Proxy)

Private
Network

Public
Network

Signaling
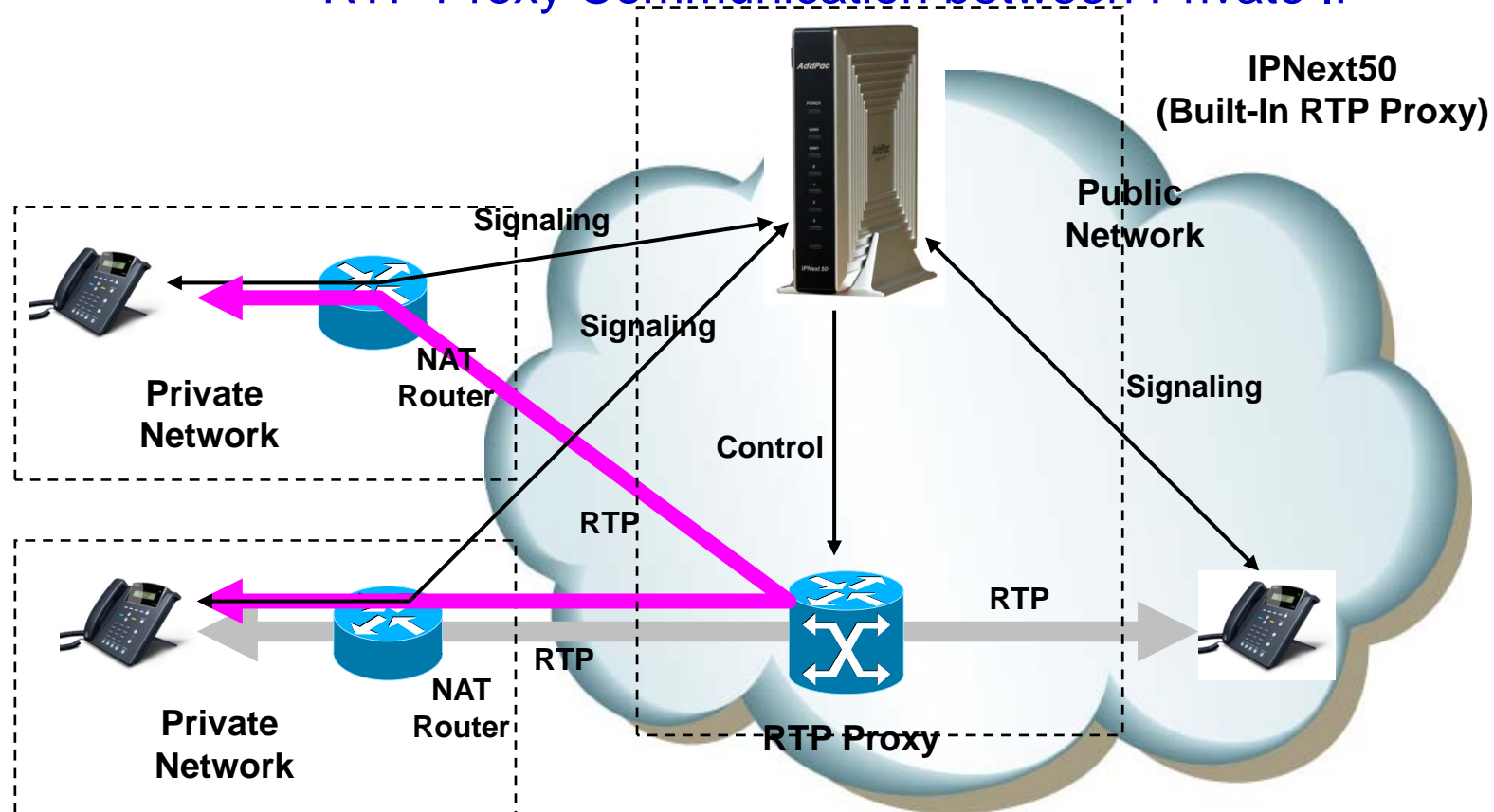
Signaling

Control

Private
Network

RTP
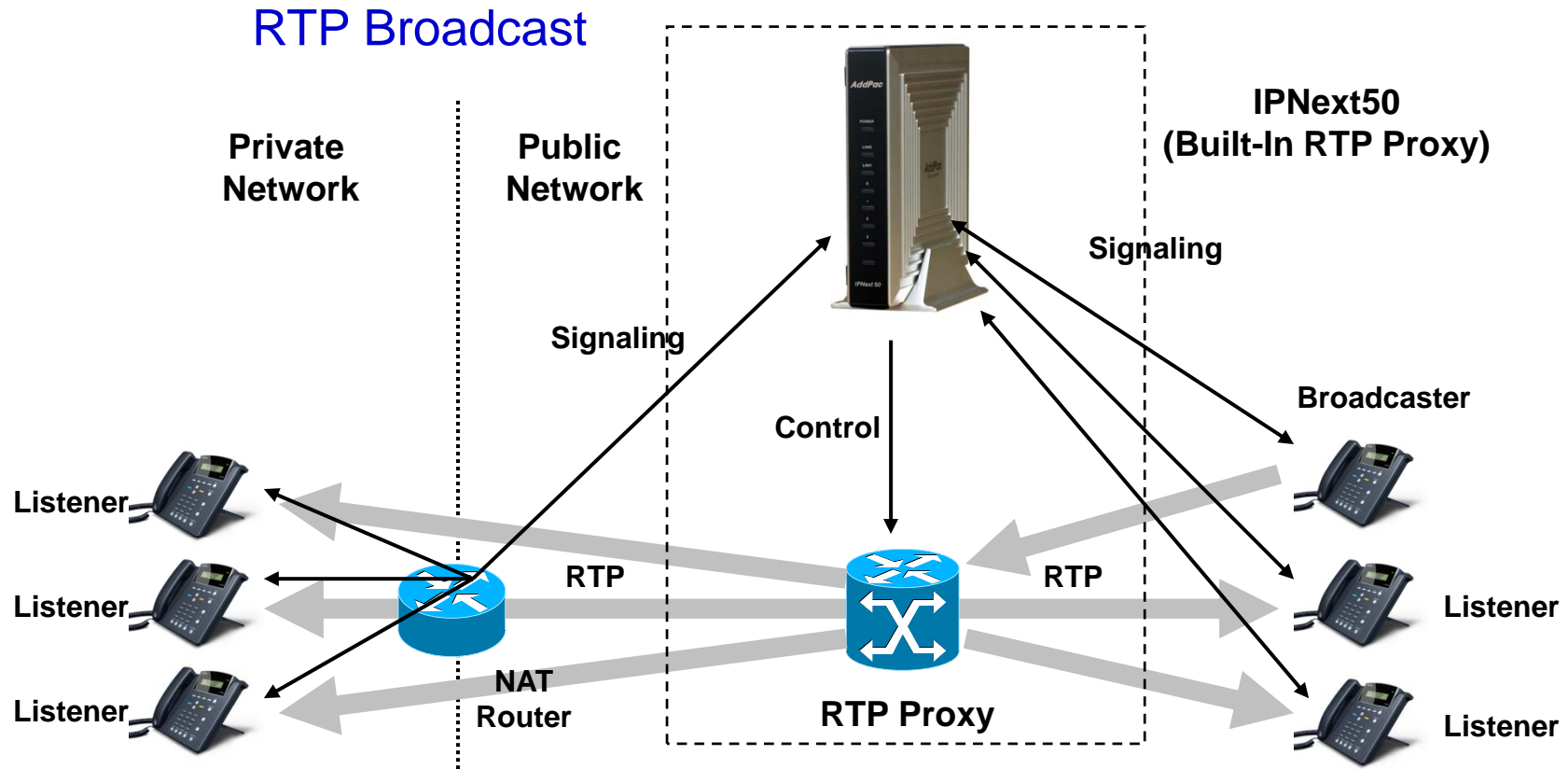
RTP Proxy

RTP

NAT
Router

RTP Proxy

- Located in public network
- RTP Proxy has single public address
- Auto detect for asymmetric NAT via incoming RTP packet

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RTP Proxy Features

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RTP Proxy Communication between Private IP

IPNext50
(Built-In RTP Proxy)

Public Network

Signaling

Signaling

Signaling

Private Network

NAT Router

Control

RTP

RTP

Private Network

NAT Router

RTP

RTP

RTP Proxy

- Located in public network
- RTP Proxy has single public address
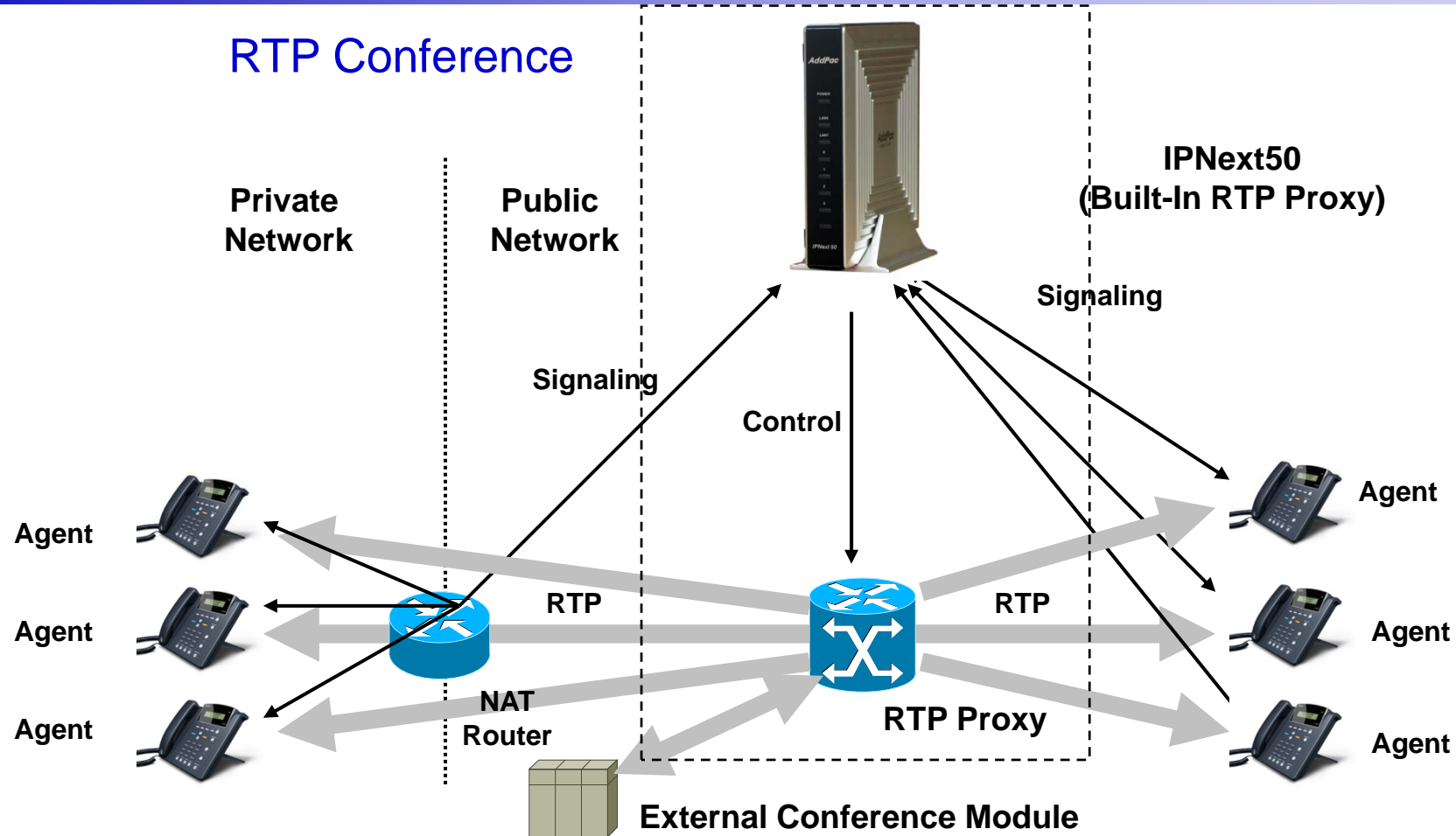- Auto detect for asymmetric NAT via incoming RTP packet

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RTP Proxy Features

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RTP Broadcast

Private Network

Public Network

IPNext50 (Built-In RTP Proxy)

Signaling

Signaling

Broadcaster

Control

Listener

Listener

Listener

RTP

RTP

Listener

Listener

NAT Router

RTP Proxy

Listener

- Call Manager set the broadcaster and listener via control message
- One broadcaster and multiple listener
- RTP proxy relay for broadcaster RTP traffic
- RTP proxy never relay for listener traffic

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RTP Proxy Features

IPNext50 Next Generation IP-PBX

RTP Conference

IPNext50
(Built-In RTP Proxy)

Private
Network

Public
Network

Signaling

Signaling

Control

Agent

Agent

RTP

RTP

Agent

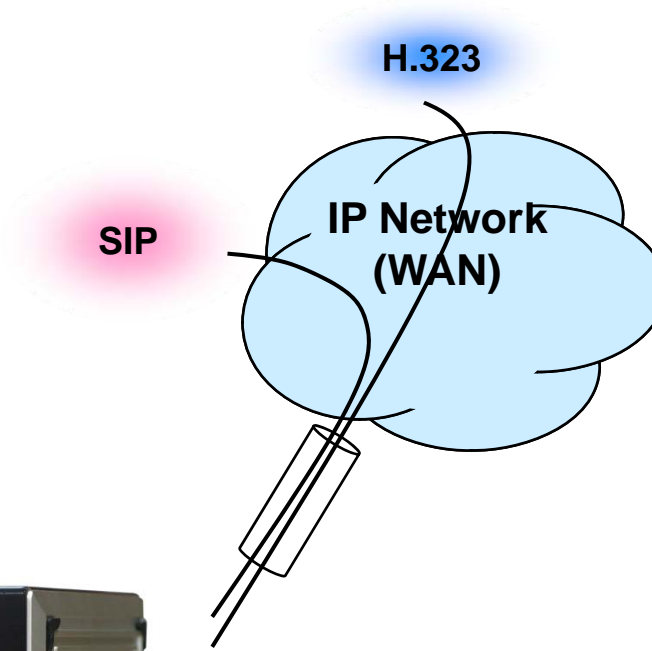Agent

NAT
Router

RTP Proxy

Agent

Agent

External Conference Module

- RTP Proxy communicate with external/internal conference module (mixer)
- Conference support for private address, asymmetric NAT

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VoIP Gateway Service

IPNext50 Next Generation IP-PBX

- **H.323, SIP Dual VoIP Signaling Stack**
- **H.323**
  - **ITU-T Standard H.323 v3 Support**
  - **Support H.245 Tunneling**
  - **Including H.235 Security Features**
- **SIP**
  - **IETF RFC3261 or RFC2543 SIP Standard**

H.323

SIP

IP Network (WAN)

Concurrent Dual VoIP Stack

Voice

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VoIP Gateway Service

IPNext50 Next Generation IP-PBX

- **H.323**
    - **Fast connect, normal connect support**
    - **H.245 tunneling support**
    - **Q.931 response message setting for inbound VoIP calls**
    - **H.245 logical channel open timing selection function**
    - **Start H.245 procedure support**
    - **DTMF / Hook flash relay with H.245 alphanumeric / signal**
    - **Secondary gatekeeper support**
    - **Gatekeeper assignment according to the domain name**
    - **Gatekeeper discovery with multicast**
    - **Lightweight RRQ support**
    - **Signaling TCP port assignment**
    - **Resource threshold setting with RAI**
    - **H.235 clear-token, crypto-token support**
    - **canMapAlias support**
    - **Technical prefix (supported prefix) support**
    - Public IP assignment in NAT environment

- **SIP**
    - **Gateway-based / Endpoint-based registration support**
    - **Secondary proxy-server assignment function**
    - **SIP signaling port change function**
    - **SIP proxy server assignment according to the domain name**
    - **T.38 real-time fax relay support**
    - **DTMF relay support with RFC2833 / OPTION message**
    - **Re-INVITE support**

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VoIP Gateway Service

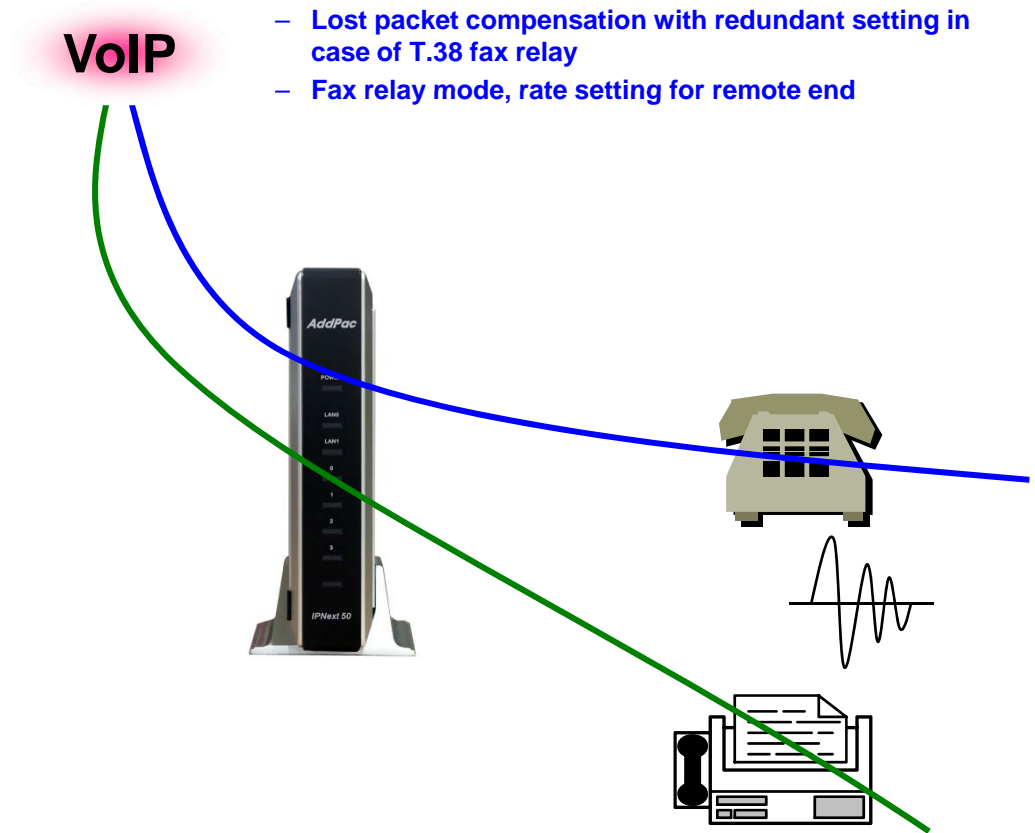## IPNext50 Next Generation IP-PBX

- **Voice Codec**
  - **G.711 A-Law, G.711 U-Law**
  - **G.726 r16, G.726 r32**
  - **G.729A**
  - **G.723.1 r63, G.723.1 r53**
  - **VAD (Voice Activity Detection) function support**
  - **DTMF relay support (H.323, SIP, MGCP common) based on RFC2833**

- **RTP**
  - **Redundant RTP packet transmission in case of severe packet loss**
  - **Dynamic jitter buffer management and RPT packet jitter and loss compensation with heuristic & DSP error concealment**
  - **Static jitter buffer setting support**
  - **Voice frame per RTP packet number control for each codec**
  - **In-band ring-back tone support**
  - **Virtual ring-back tone support**
  - **Tone parameter change support**

- **FAX**
  - **Fax relay mode supporting T.38, inband-T.38, bypass mode**
  - **Lost packet compensation with redundant setting in case of T.38 fax relay**
  - **Fax relay mode, rate setting for remote end**

VoIP

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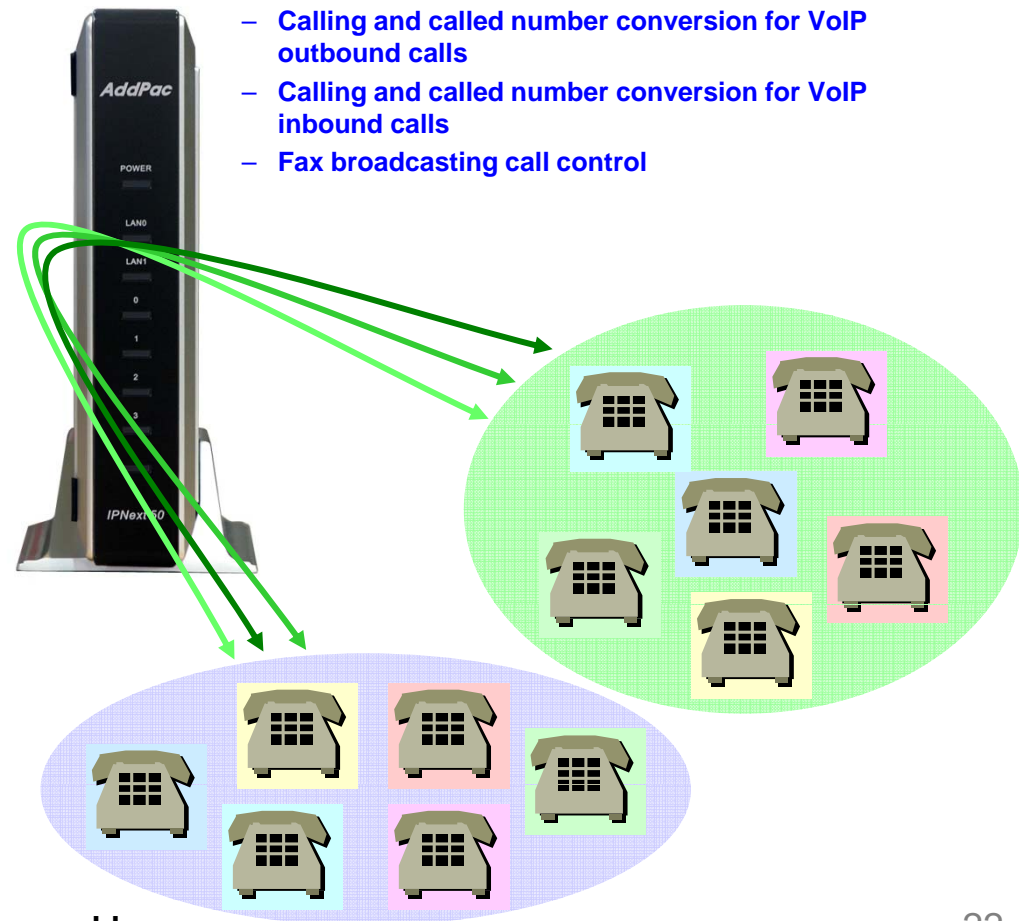# VoIP Gateway Service

IPNext50 Next Generation IP-PBX

- **VoIP Call Controls**
    - Hot line connection function with PLAR (Private Line Auto Ring Down)
    - Leased line emulation function
    - Connection monitoring function
    - Fault tolerant with Redundancy and Call Distribution among Gateways for load balancing
    - Call attempt with IP address
    - H.323, SIP, MGCP inbound call connection for each voice port
    - Multiple E.164 setting for one voice port
    - One E.164 or digit pattern can be assigned to more than one voice port
    - Hunting with Longest match/ priority/ sequence/ random
    - One stage call setup by Digit forwarding
    - Call barring with specific digit patterns
    - Calling and called number conversion for PSTN outbound calls
    - PSTN rerouting in case of VoIP call attempt failure
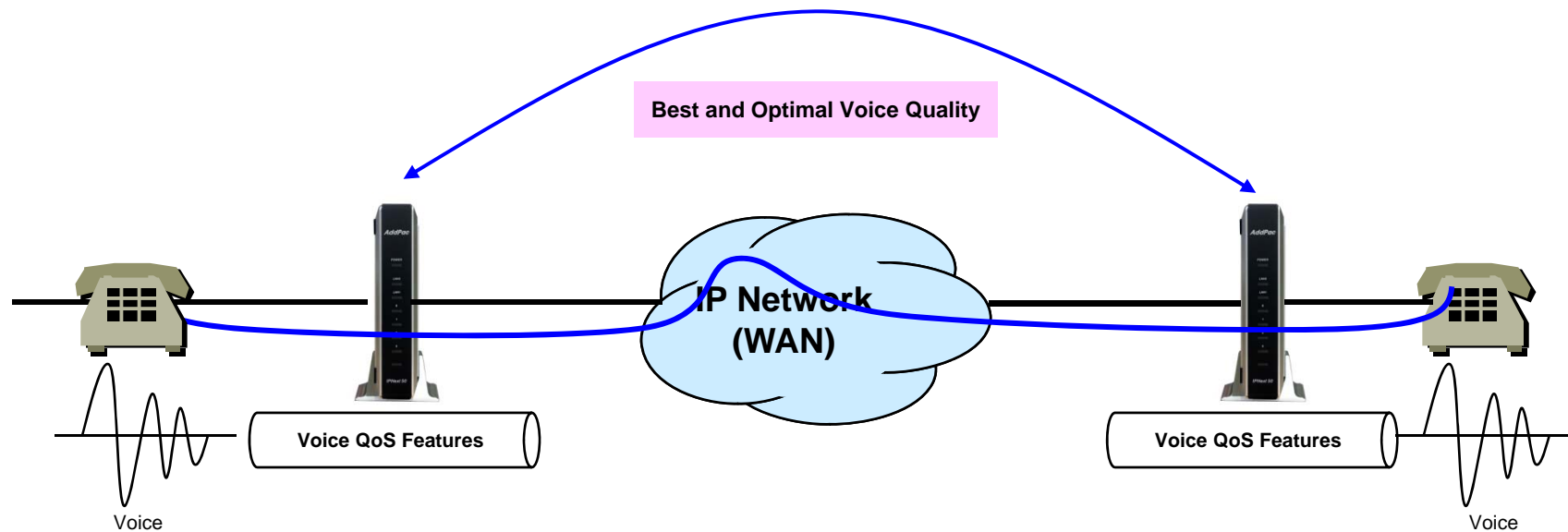
- **VoIP Call Controls (cont.)**
    - Call transfer for internal calls
    - Call pickup for internal calls
    - Calling and called number conversion for VoIP outbound calls
    - Calling and called number conversion for VoIP inbound calls
    - Fax broadcasting call control

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Advanced QoS Features

IPNext50 Next Generation IP-PBX

- **Enhances Transmit Voice QoS Features**
  - Voice Traffic Priority Queuing
  - QoS Service Profiling
  - Providing Virtual Network Transmit Algorithm
  - Real-time Voice Traffic QoS Support
  - RTP Packet Transmit Interval Control
  - Supporting RTP Packet Redundancy Scheme
  - IP Header Control such as ToS, Diffserv

- **Enhances Receive Voice QoS Features**
  - Dynamic Jitter Buffer Management
  - Error Concealment
  - Support T.38 FAX Data Error Recovery Scheme

Best and Optimal Voice Quality

IP Network (WAN)

Voice QoS Features

Voice QoS Features

Voice

Voice

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Network Protocols (Cont.)

IPNext50 Next Generation IP-PBX

Basic Network Protocols

- ARP, IPv4, TCP, UDP, ICMP, SCTP, IGMP, MLD
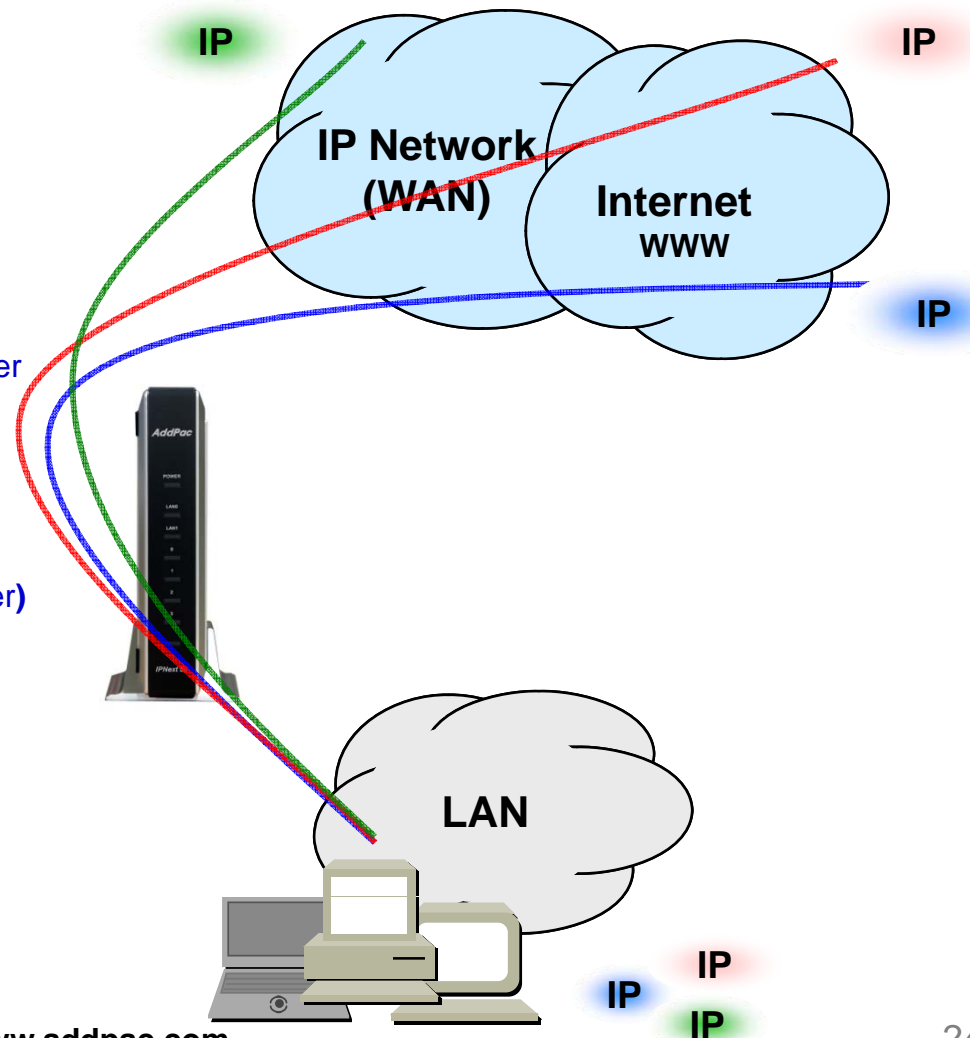
Routing Protocol

- IPv4 : Static
- IPv6 : Static

Service Protocol

- FTP, Telnet, TFTP, DHCP Server/Relay, SNMP Server
- CDP (Cisco Discovery Protocol)
- DNS Resolver , DDNS(nsupdate)
- Bridge
- Syslog
- IP/IPv6 policy control (QoS)
- VPDN (Virtual Provate Dial-up Network : L2TP Server**)**

Miscellaneous

- Cisco Style CLI
- Standard & Extended IPv4 Access List
- Multi-level User Account Management
- IP accounting
- STUN Client

IP

IP

IP Network (WAN)

Internet WWW

IP

IP

LAN

IP

IP

IP

IP

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Network Protocols

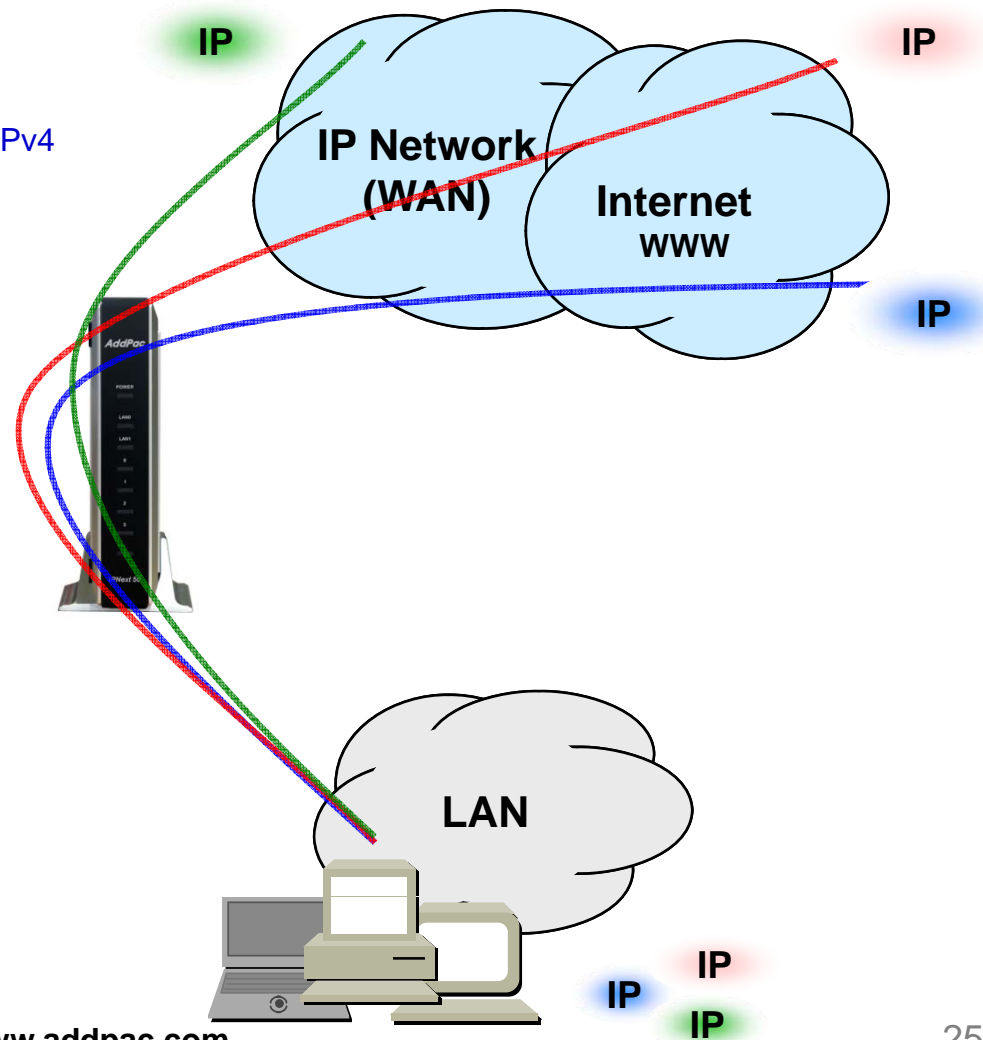IPNext50 Next Generation IP-PBX

IPv4/IPv6 Interworking
- NAT/PAT for IPv4
- IP connect (formerly ip-share) and device cascade for IPv4
- IP/IP, IP/GRE tunneling
- NAT-PT
- 6to4, Autoconfig tunneling

IPv4 Address Configuration
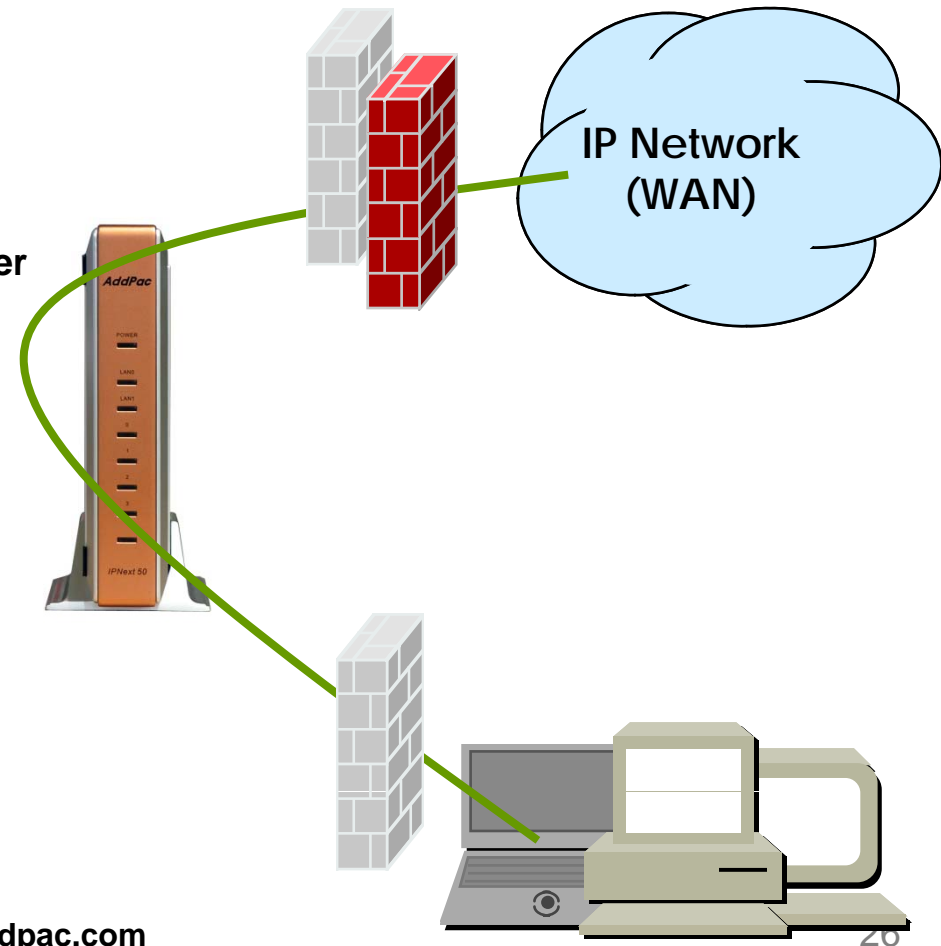- Fixed (Static)
- DHCP
- PPPoE

IPv6 Address Configuration

- Fixed (Static)
- EUI-64
- Autoconfig (Neighbor Advertisement and Solicitation)

IP

IP

IP Network (WAN)

Internet
www

IP

IP

LAN

IP

IP

IP

IP

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Security Management

IPNext50 Next Generation IP-PBX

- **IP packet filtering**
- **IP access list**
- **User authentication function**
  - Password Authentication Protocol (PAP)
  - Challenge Handshake Authentication Protocol (CHAP)
- **Enable/Disable specific protocols**
- **Auto-square connect of Telnet session**
- **Account Management function for multi-level user**
- **SNMP/TELNET/FTP/HTTP/TFTP port assignment function**
- **SNMP/TELNET/FTP access list management**
- **Boot mode security checking function**

IP Network (WAN)

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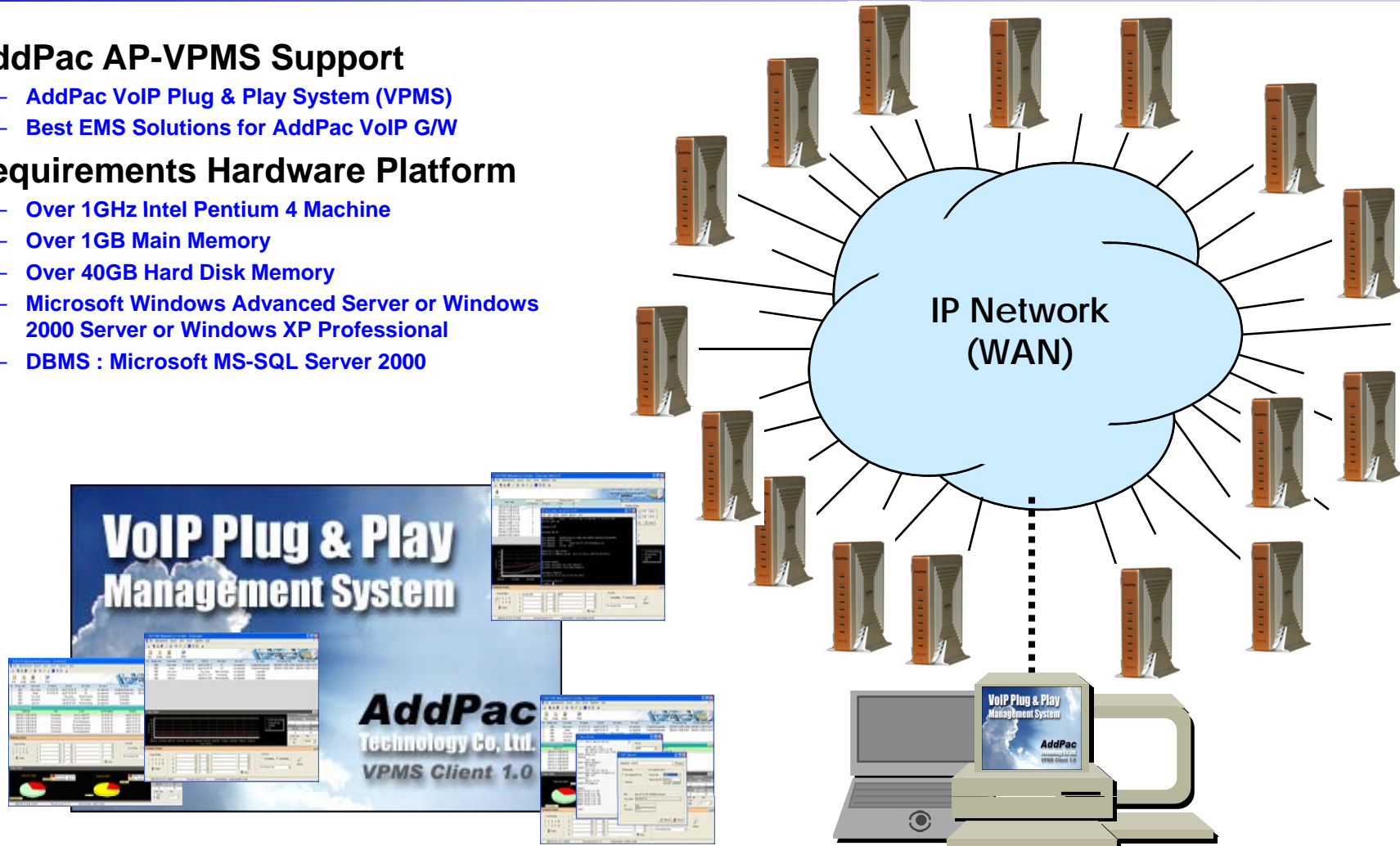www.addpac.com

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Smart Multimedia Manager

IPNext50 Next Generation IP-PBX

- **Web based Smart and Easy Management Tool Support**
- **User, Device, Call, Conference Management with Intuitive User Interface**
- **Built in Event Manager or External Event Manager Support**
    - Event Configuration with Event Source Filter and Event Logging Filter
    - Event Monitoring with Colorful Format
    - Debug Level Syslog Monitoring Support
    - Event Analysis by Smart Event Analyzer
- **Active Call Monitoring Support**
- **Call Tracing Support**
- **Active Conference Monitoring Support**
- **Call History Viewer Support**
- **Backup, Restore and Initializing of Database Support**
- **Export and Import of Database to Excel File Support**

VPMS(VoIP Plug&Play Management System)
IPNext50 Next Generation IP-PBX

- **AddPac AP-VPMS Support**
  - **AddPac VoIP Plug & Play System (VPMS)**
  - **Best EMS Solutions for AddPac VoIP G/W**

- **Requirements Hardware Platform**
  - **Over 1GHz Intel Pentium 4 Machine**
  - **Over 1GB Main Memory**
  - **Over 40GB Hard Disk Memory**
  - **Microsoft Windows Advanced Server or Windows 2000 Server or Windows XP Professional**
  - **DBMS : Microsoft MS-SQL Server 2000**

IP Network (WAN)

VoIP Plug & Play Management System

AddPac Technology Co., Ltd. VPMS Client 1.0

IP Multimedia Terminals

IPNext50 Next Generation IP-PBX

- AP-VP500 Video Phone
- AP-VP350 MCU Video Phone
- AP-VP300 Video Phone
- AP-VP280 Video Phone
- AP-VP150 Video Phone
- AP-VP120 Video Phone
- AP-IP300 Premium IP Phone
- AP-IP160 IP Phone
- AP-IP120 IP Phone
- AP-WP100 WiFi Phone
- AP-SMP100 Soft Phone

AP-VP300

AP-VP120

AP-VP280

AP-IP300

AP-IP120

AP-IP160

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Smart Messenger
IPNext50 Next Generation IP-PBX

– Support Messenger Service

– Support Various Address Book

– Support User Presence Information

– Support User Search Feature

– Interoperation with Address Book and Smart Phone

– Support Smart Phone Control and Setup

  • Call Control and Forward Setup

– Support Unified Message Box

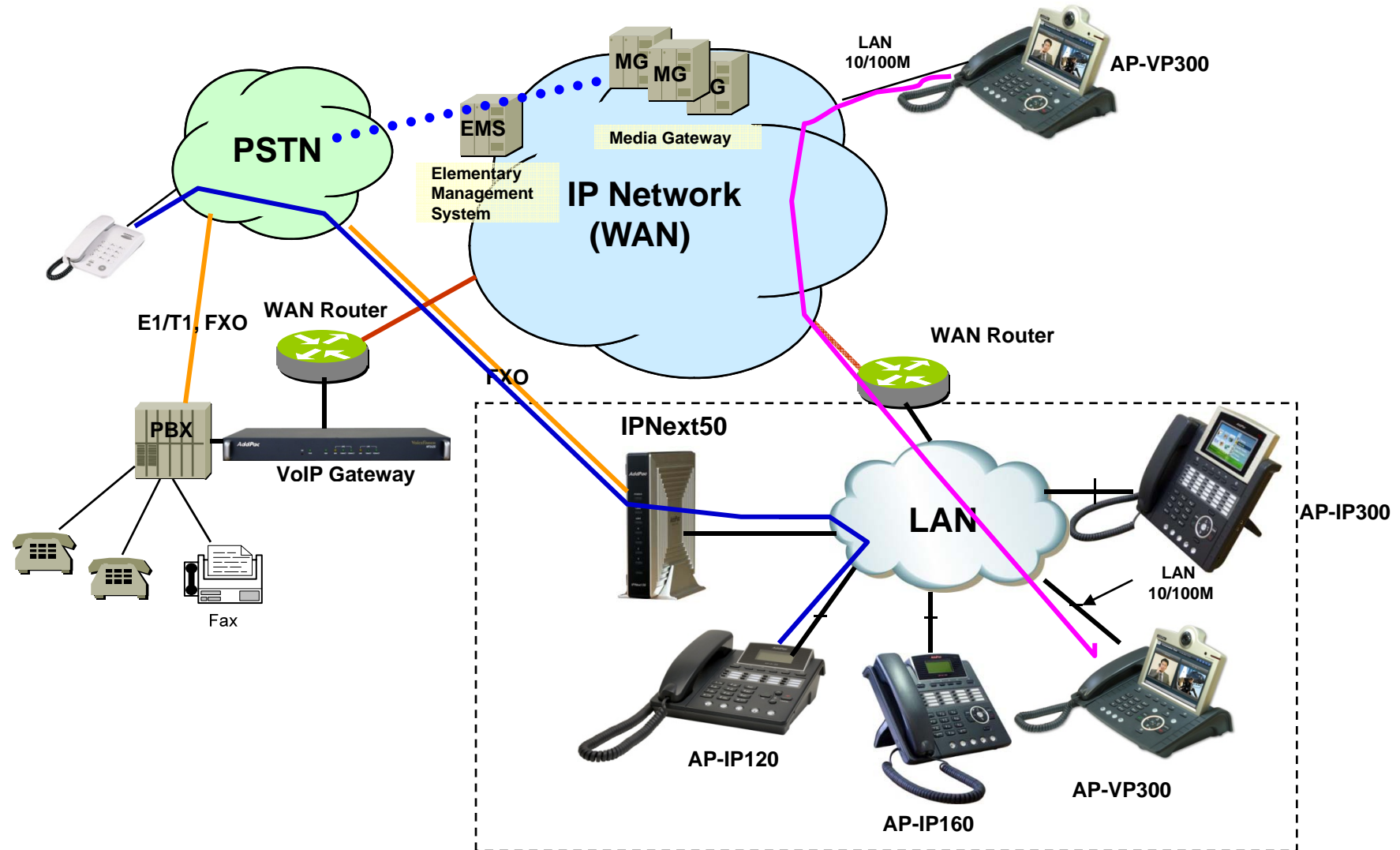 • Voice Mail Box

  • Short Message Box

IPNext50
IP-PBX

AddPac Smart Messenger

Standard IP-PBX Application

IPNext50 Next Generation IP-PBX

Ordering Information

- **IPNext50 IP-PBX Hardware**
  - RISC Microprocessor with High-end Programmable DSP Architecture
  - 2-ports 10/100Mbps Fast Ethernet(RJ45)
  - 1-Port USB Host Mode Interface
  - 1-Port RS232C Interface for Command Line Interface
  - VoIP Gateway Interface
    Two(2) FXO Ports (IPNext50 Model B)
  - Including Network Cable & Ext. Power Supply, etc.
- **Built-in APOS Internetworking Software for IPNext50**
- **Including 1 Year Hardware Warranty**
- **Product Documents**
  - Install and Operation Guide (PDF)
- **Pricing**
  - AddPac Technology Regional Sales Manager
  - Authorized Sales and Marketing Representatives
  - Please Contact www.addpac.com

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Thank you!

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Sales and Marketing

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