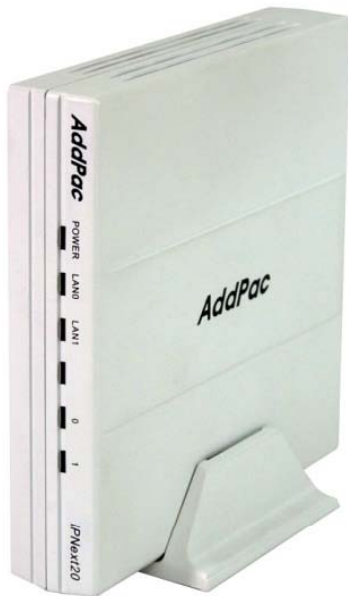# IPNext20
Small, Powerful IP-PBX

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

Preliminary Product Overview

AddPac

AddPac Technology

2009, Sales and Marketing

Contents

- Product Overview
- Hardware Specification
- APOS Technology
- IP-PBX Features
- IP-PBX Advanced Features with AddPac IP, Video Phones (AP-VP300, AP-VP150, AP-IP150, etc)
- VoIP Gateway Service Features
- RTP Proxy Function for Private IP solution
- Advanced QoS Features
- Network Protocols, Network & Security Management
- Smart Multimedia Manager (SMM)
- VPMS VoIP Management
- IP Multimedia Telephony Terminals
- Application Service
- Ordering Information

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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)
- 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

IPNext20 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/G726/G.711

High Performance RISC CPU & Programmable DSP

Smart Multimedia Manager

Two(2) 10/100Mbps Fast Ethernet

APOS™ Technology Firmware Upgradeable Architecture

High Performance LAN-to-LAN Packet Processing

Powerful Network Protocol Support
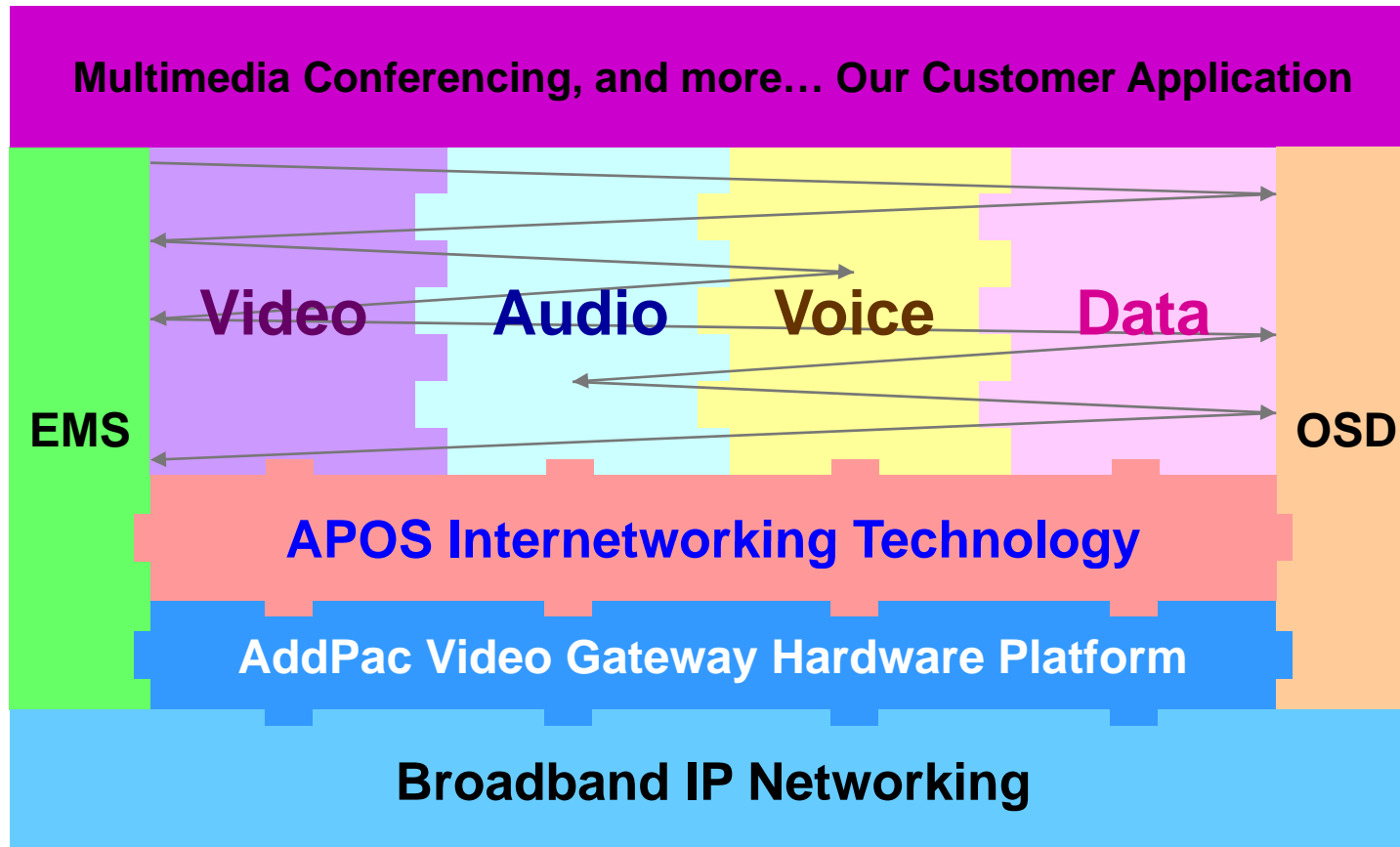
RTP Proxy for Private IP and IPv6

Advanced Voice Traffic QoS Mechanism

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APOS Technology

IPNext20 Next Generation IP-PBX

Multimedia Conferencing, and more… Our Customer Application

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

EMS

OSD

APOS Internetworking Technology

AddPac Video Gateway Hardware Platform

Broadband IP Networking

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

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Hardware Specification

IPNext20 Next Generation IP-PBX

RISC CPU

High-end DSP

- **RISC Microprocessor Computing Power**

   + High End Programmable DSP

- **VoIP Gateway Interface**

   - IPNext20   Model A: Basic Configuration

   - IPNext20   Model B: Two(2) FXO Port

   - IPNext20   Model C: Two(2) FXS Port

- **Network Interface**

   – Two(2) 10/100Mbps Fast Ethernet (RJ45)

- **Power Supply**

   – External Power Adaptor

- **Power On/Off Switch**

- **Power LED, LAN LEDs, FXO, FXS Port LEDs**

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Hardware Specification

IPNext20 Next Generation IP-PBX

Hardware Specifications

IPNext20 Series	Basic Specifications
CPU	High End RISC Microprocessor + Voice DSP Processor
Voice Interface (PSTN)	None :Model A
	2 FXO Voice Interface(RJ-11) :Model B
	2 FXS Voice Interface(RJ-11) :Model C
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
Power Requirement	External Power Supply Adaptor / VAC 110~220V, 50/60Hz, 5V 2A
Operating Temperature	0ºC ~ 45ºC (32 ºF ~ 122ºF)
Storage Temperature	-40ºC ~ 85ºC (-40ºC ~ 185ºF)
Relative Humidity	5% ~ 95% (Non-condensing)
Dimension	142mm x 142mm x 28mm (H x W x D)
Weight	0.42kg

Network interface Configurations

FXO Interface

RS232C Console for CLI

LAN1 10/100Mbps Ethernet

LAN0 10/100Mbps Ethernet
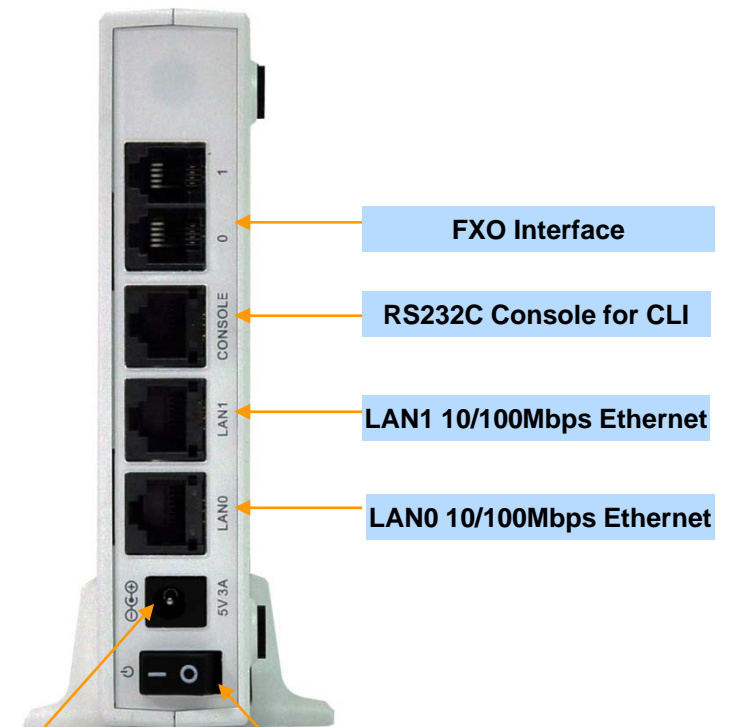
External Power Interface

Power Switch

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IP-PBX Features

IPNext20 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

IPNext20 Next Generation IP-PBX

- **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

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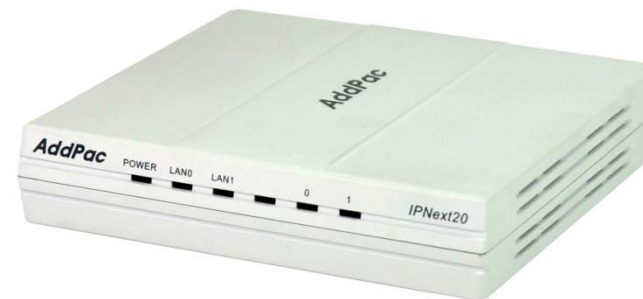
IP-PBX Features

- **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

IPNext20 Next Generation IP-PBX

- **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

IPNext20 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

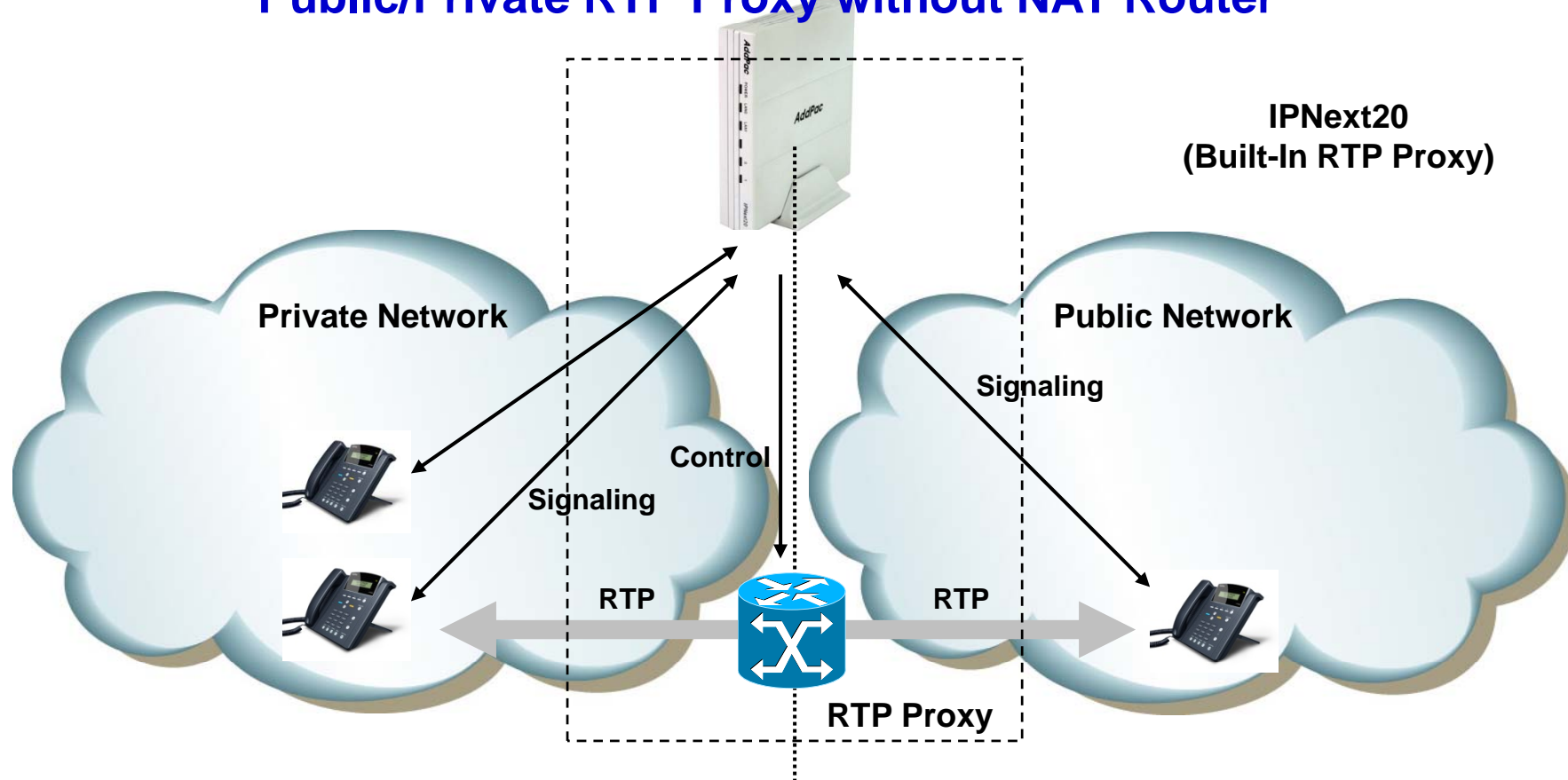## IPNext20 Next Generation IP-PBX

- 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

IPNext20 Next Generation IP-PBX

Public/Private RTP Proxy without NAT Router

**IPNext20
(Built-In RTP Proxy)**

Private Network

Public Network

Signaling

Control

Signaling
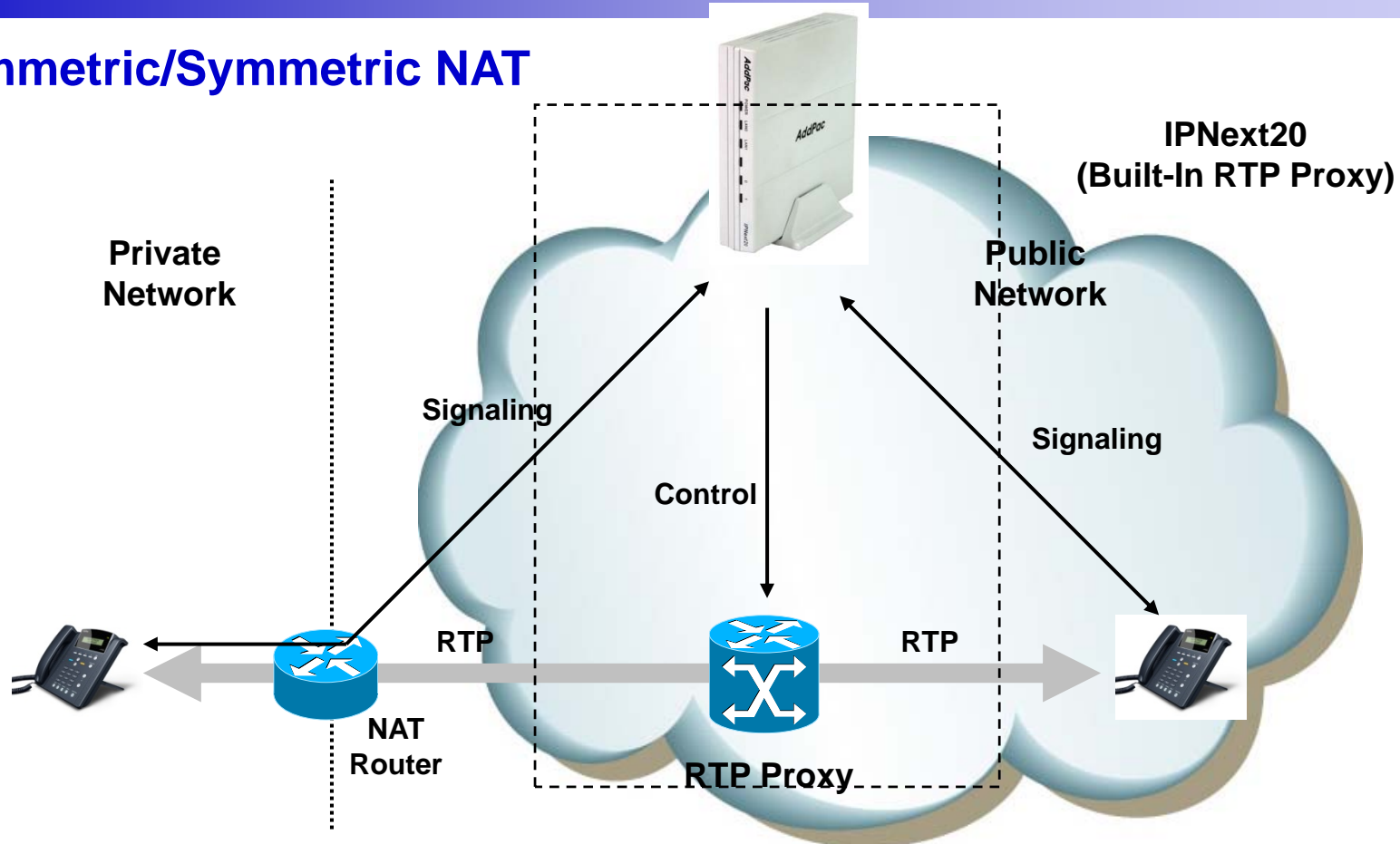
RTP

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

IPNext20 Next Generation IP-PBX

Asymmetric/Symmetric NAT

IPNext20
(Built-In RTP Proxy)

Private
Network

Public
Network

Signaling

Signaling

Control

RTP
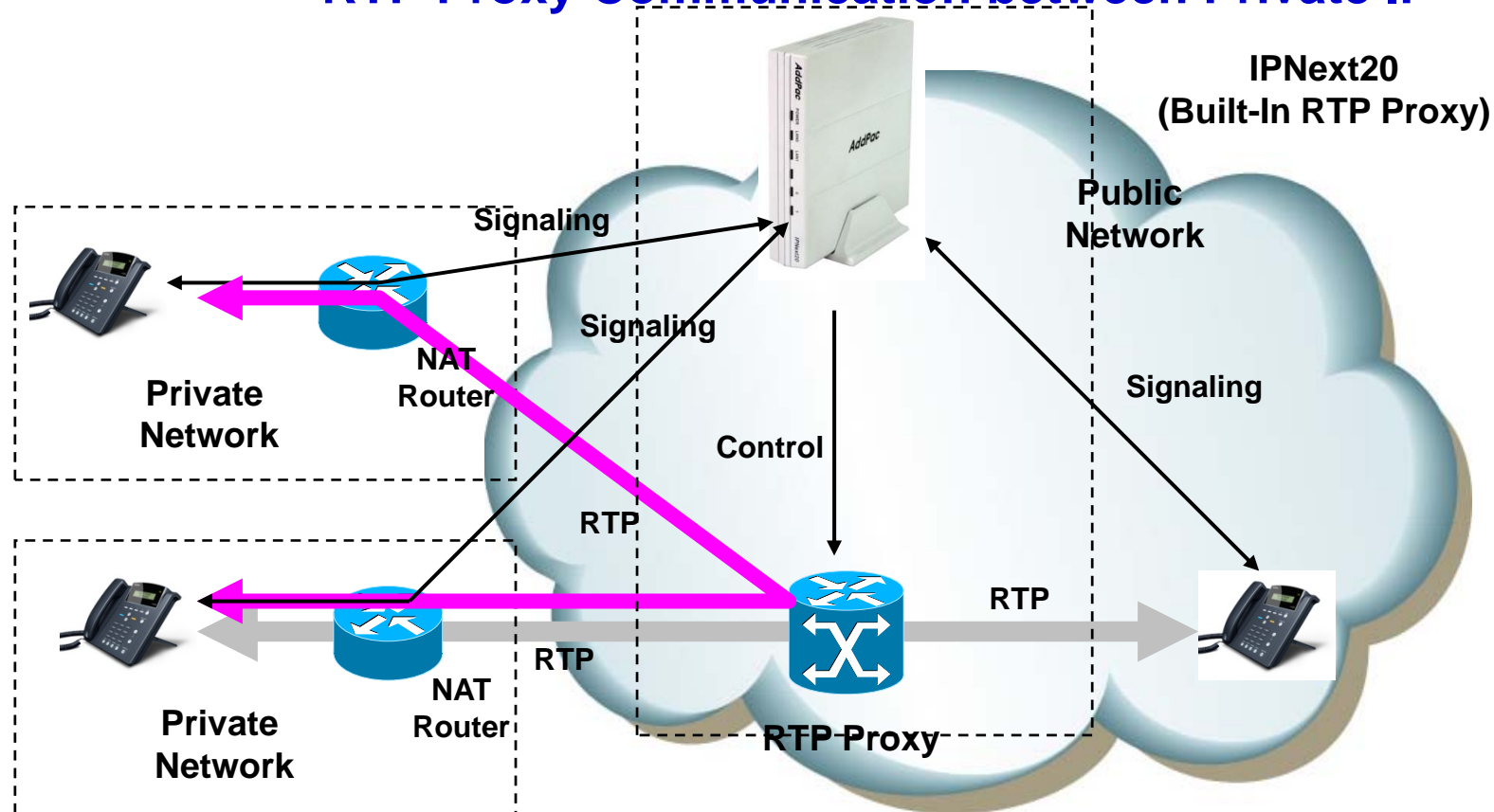
RTP

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

IPNext20 Next Generation IP-PBX

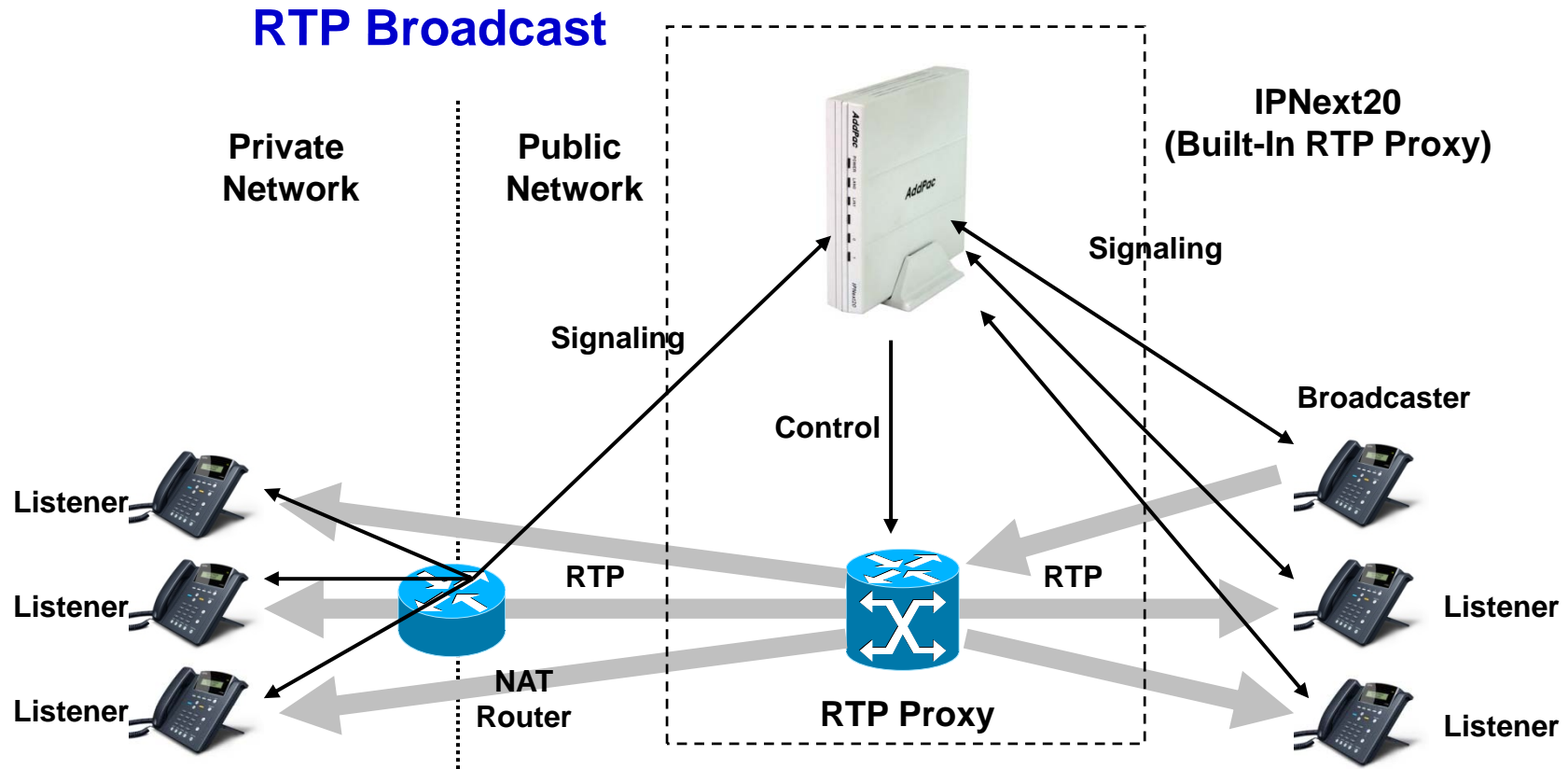**RTP Proxy Communication between Private IP**

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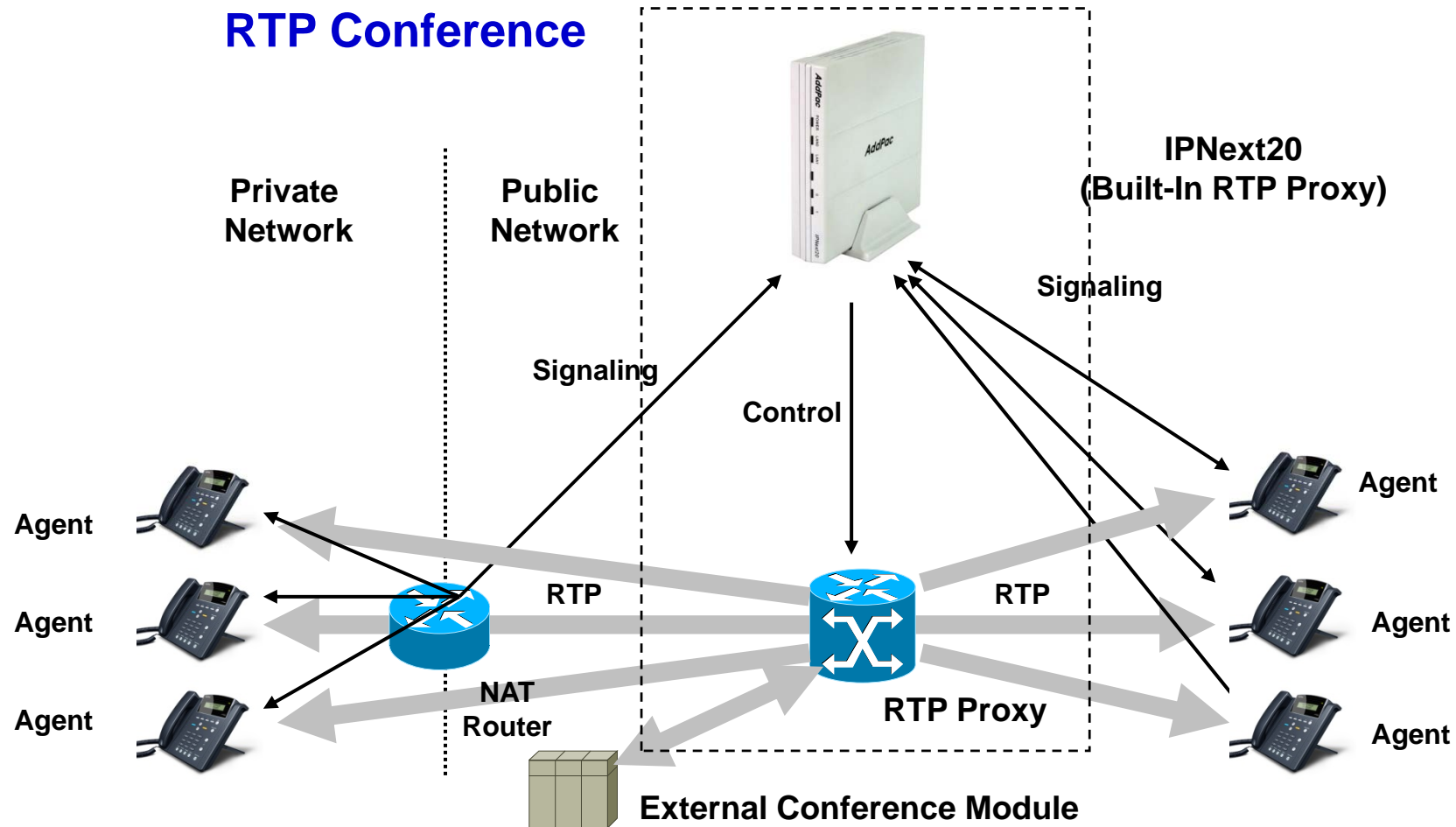- Auto detect for asymmetric NAT via incoming RTP packet

RTP Proxy Features

IPNext20 Next Generation IP-PBX

RTP Broadcast

- 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

IPNext20 Next Generation IP-PBX

RTP Conference

Private Network

Public Network

IPNext20
(Built-In RTP Proxy)

Signaling

Signaling

Control

Agent

Agent

Agent

Agent

RTP

RTP

Agent

Agent

NAT
Router

RTP Proxy

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

- **H.323, SIP, and MGCP Triple 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**
- **MGCP**
  - **IETF RFC2705bis-02 Standard MGCP 1.0**

H.323

SIP

IP Network (WAN)

MGCP
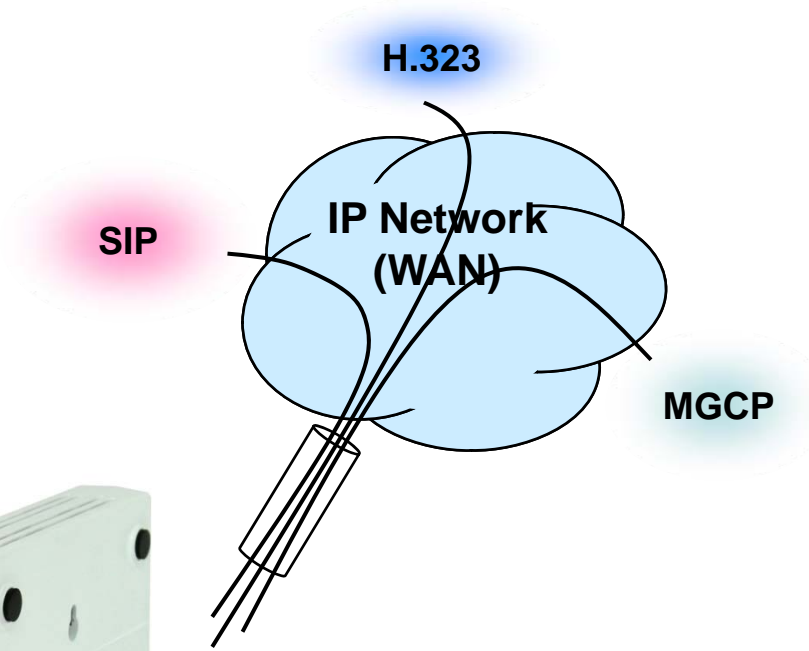
Concurrent Triple VoIP Stack

Voice

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VoIP Gateway Service

IPNext20 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

- **MGCP**
    - Secondary call agent assignment function
    - Default package assignment
    - Announcement Server Package, Generic Media Package, Handset Package, Line Package, Trunk Package support
    - MGCP call agent assignment according to the domain name
    - T.38 real-time fax relay support
    - DTMF relay support based on RFC2833

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VoIP Gateway Service

IPNext20 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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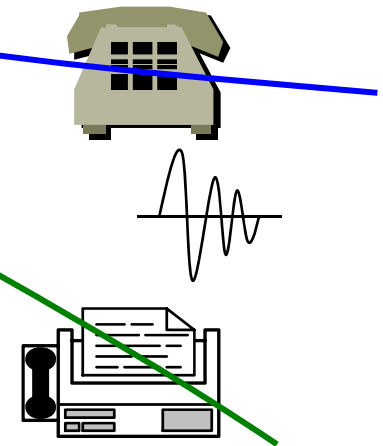
VoIP Gateway Service

IPNext20 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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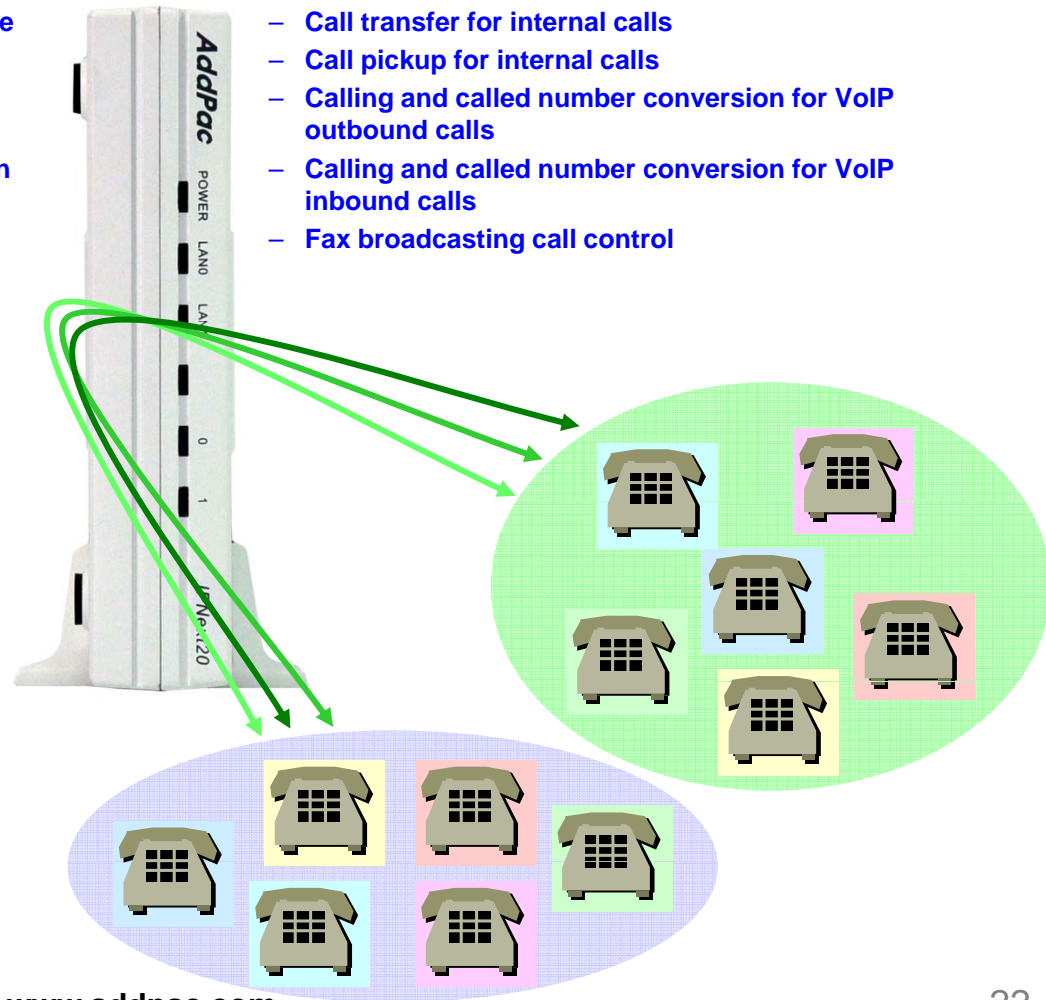
Advanced QoS Features

IPNext20 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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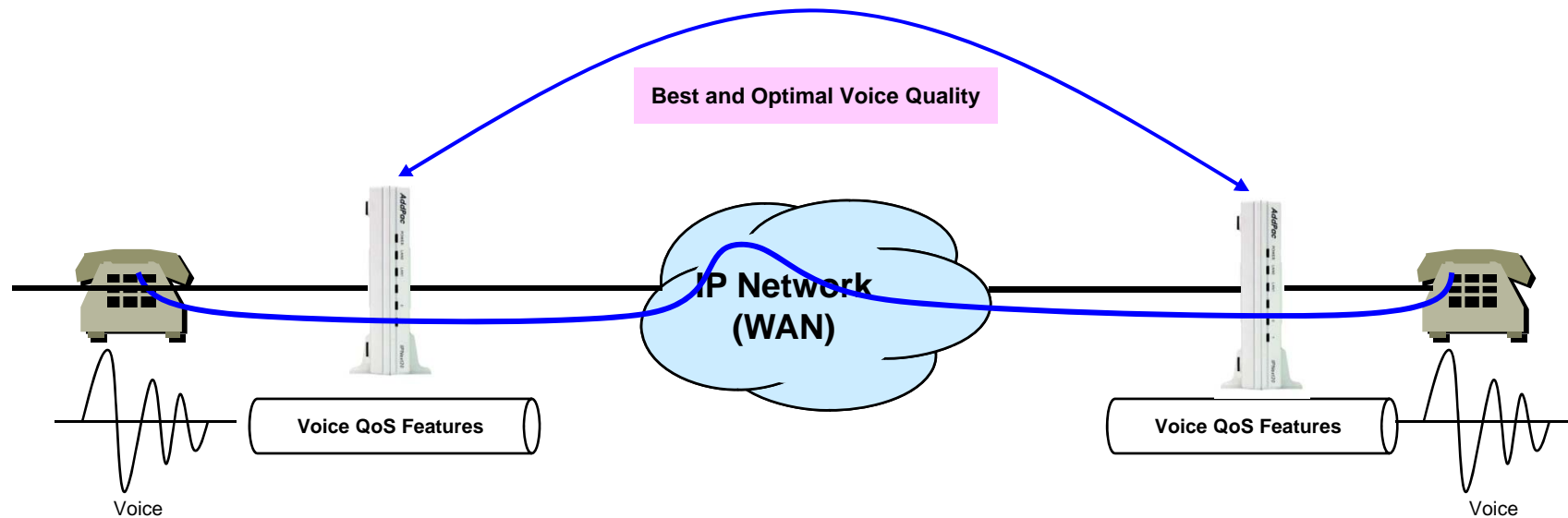
Network Protocols (Cont.)

IPNext20 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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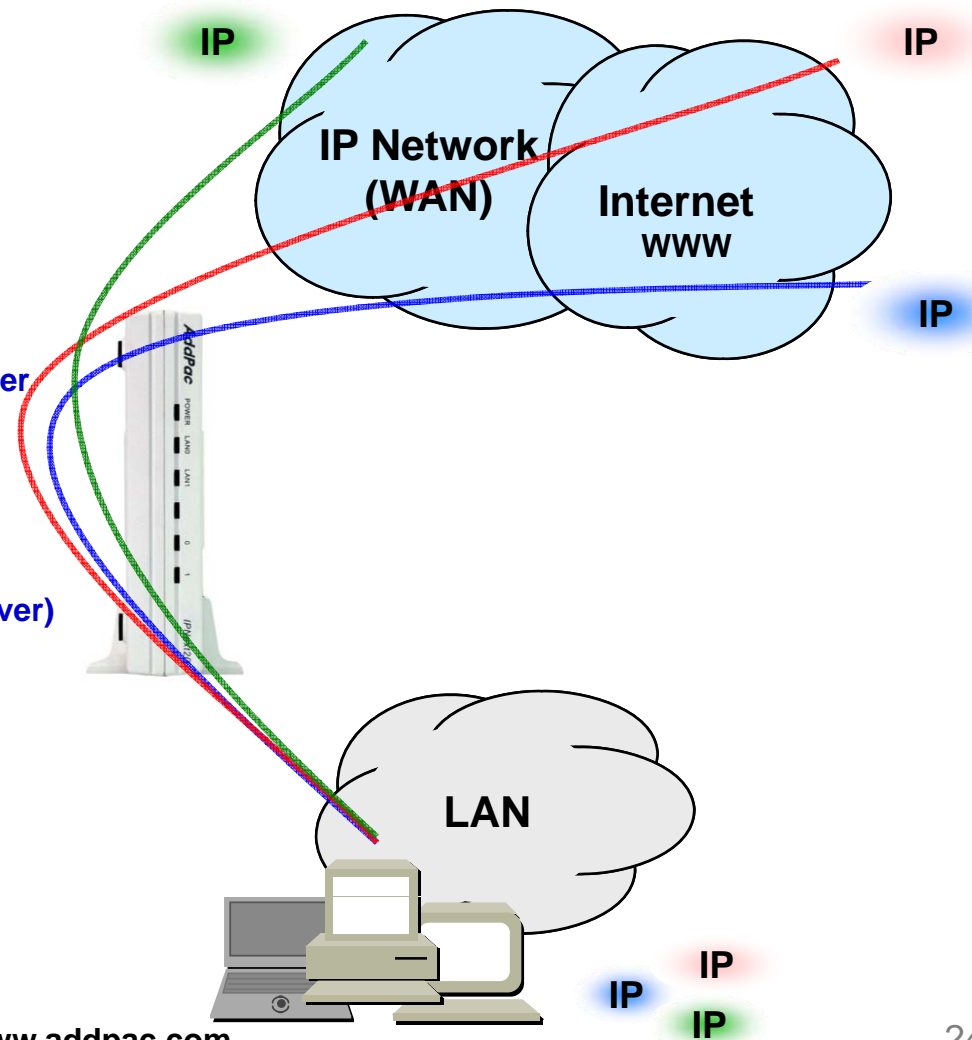
Network Protocols

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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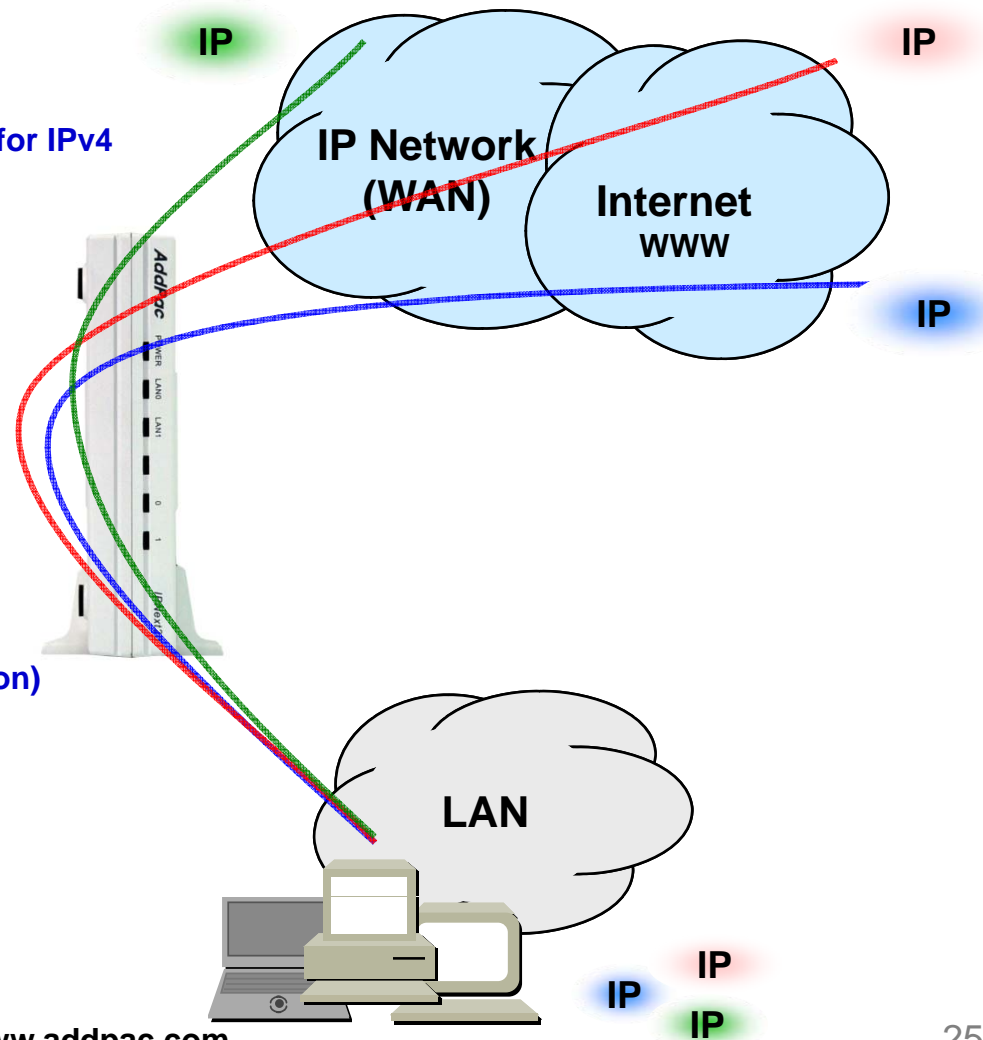
Security Management

IPNext20 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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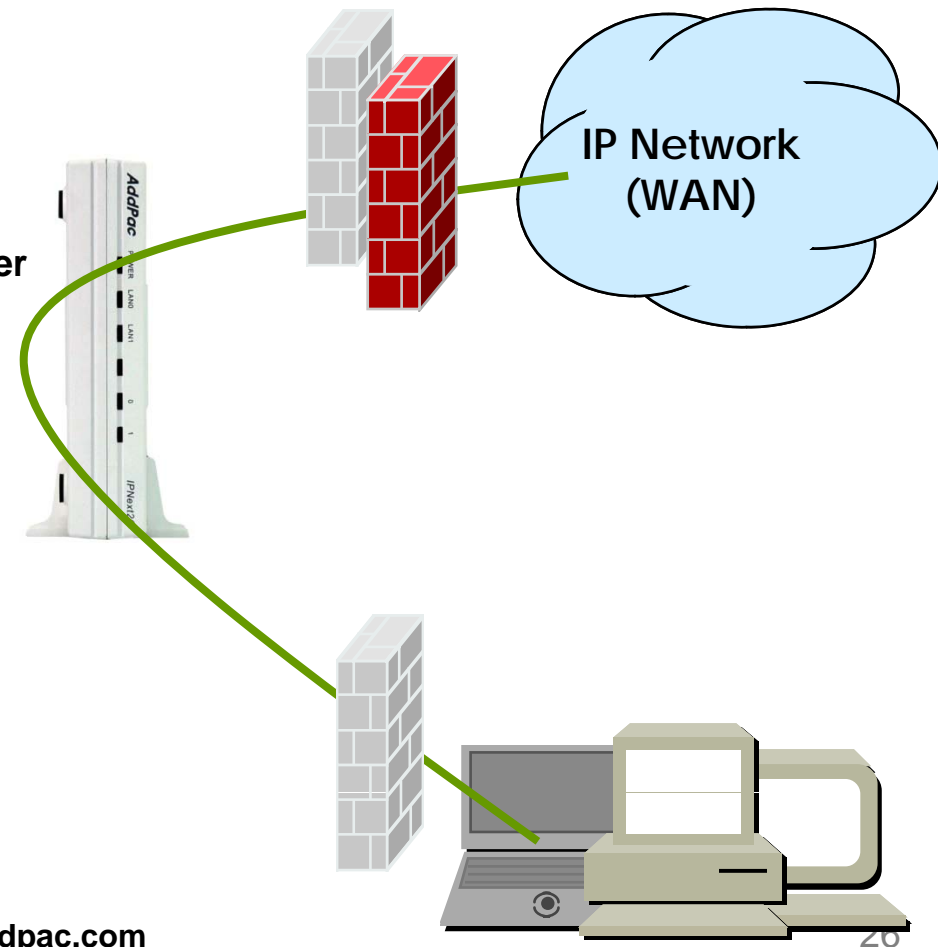
Smart Multimedia Manager

IPNext20 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)

IPNext20 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**

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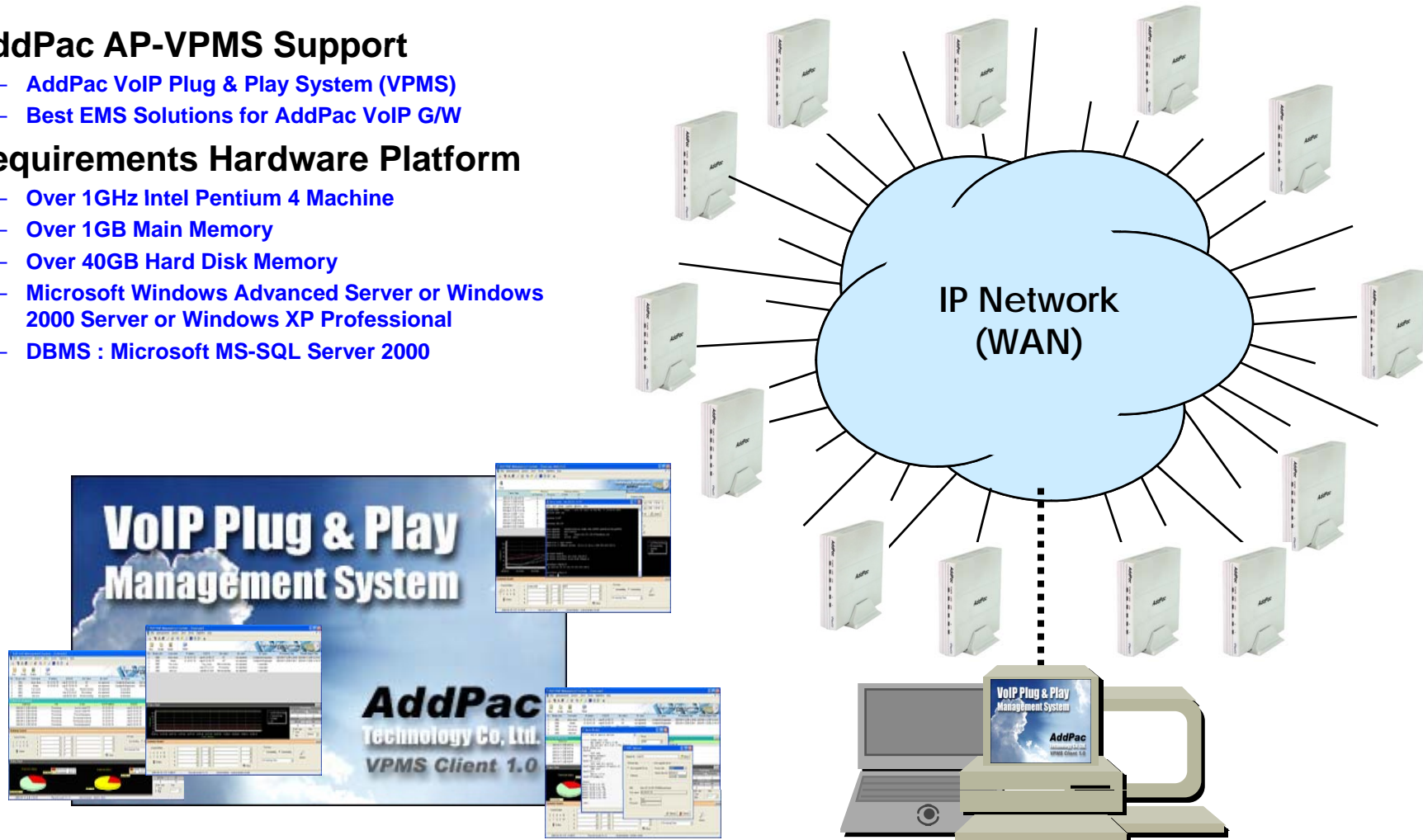
IP Multimedia Terminals

IPNext20 Next Generation IP-PBX

- AP-VP500 Video Phone
- AP-VP350 MCU Video Phone
- AP-VP300 Video Phone
- AP-VP280 Video Phone
- AP-VP250 Video Phone
- AP-VP230 Video Phone
- AP-VP150 Video Phone
- AP-VP120 Video Phone
- AP-IP300 Premium IP Phone
- AP-IP250 IP Phone
- AP-IP160 IP Phone
- AP-IP120 IP Phone
- AP-IP90 IP Phone
- AP-WP100 WiFi Phone
- AP-SMP100 Soft Phone

AP-VP500

AP-VP300

AP-VP150

AP-VP120

AP-IP300

AP-WP100

AP-IP160

AP-IP120

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Smart Messenger
IPNext20 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

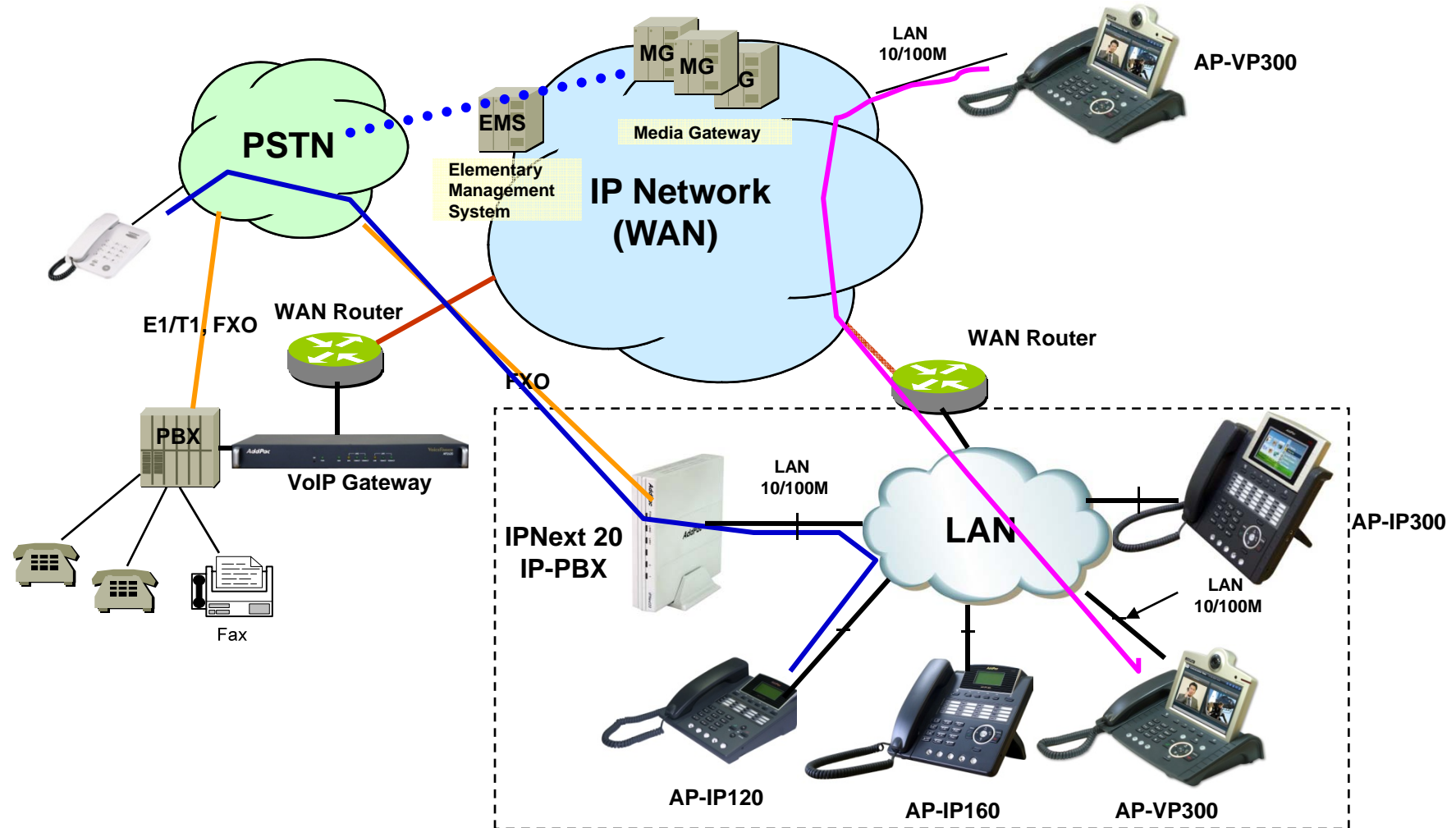**AP-VP300**

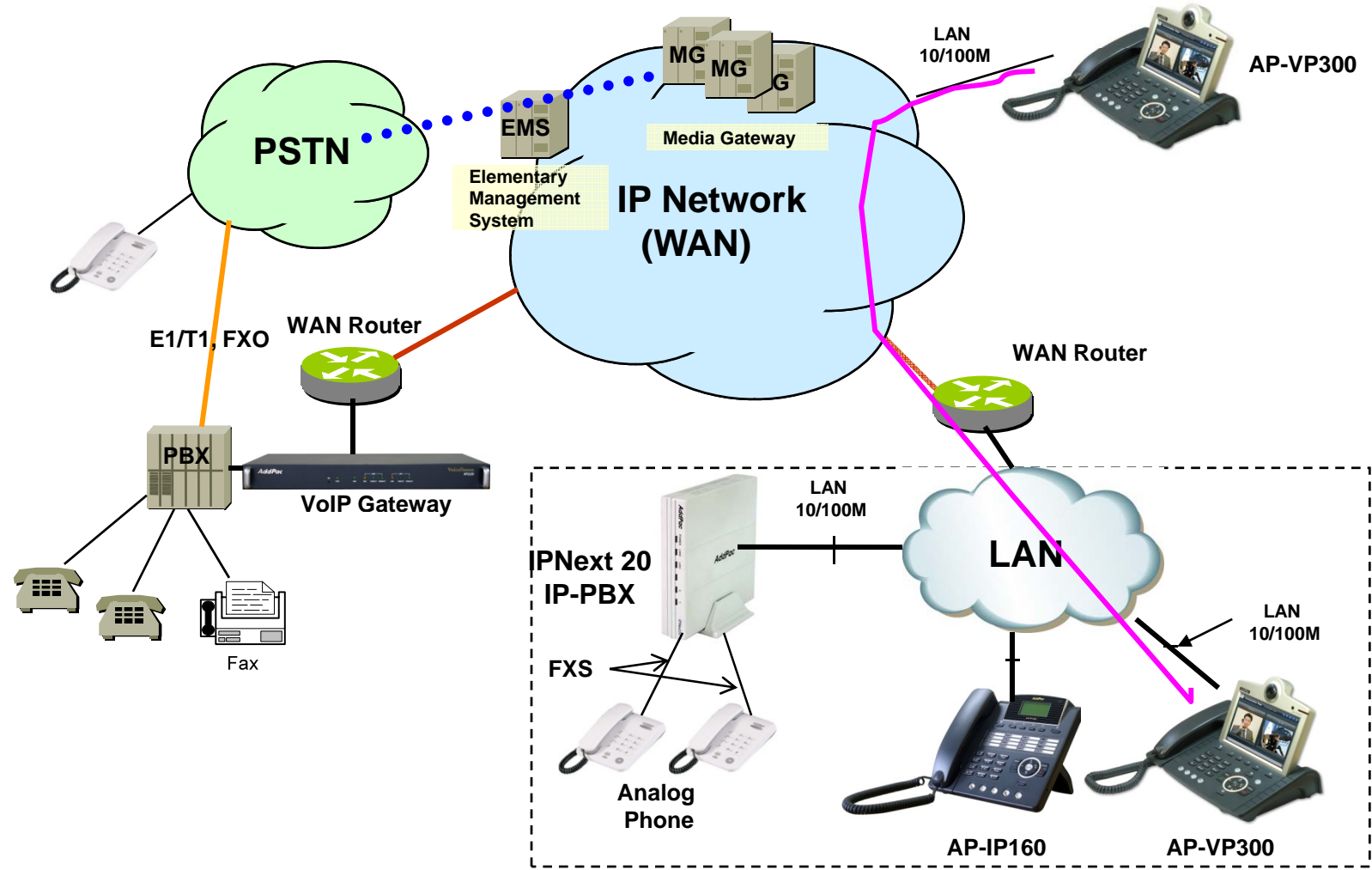**AP-VP280**

**IPNext20
IP-PBX**

AddPac Smart Messenger

Standard IP-PBX Application (Model B)

IPNext20 Next Generation IP-PBX

Standard IP-PBX Application (Model C)

IPNext20 Next Generation IP-PBX

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Ordering Information

- **IPNext20 IP-PBX Hardware**
  - RISC Microprocessor with High-end Programmable DSP Architecture
  - 2-ports 10/100Mbps Fast Ethernet(RJ45)
  - 1-Port RS232C Interface for Command Line Interface
  - VoIP Gateway Interface
    Two(2) FXO Ports (IPNext20 Model B)
    Two(2) FXS Ports (IPNext20 Model C)
  - Including Network Cable & Ext. Power Supply, etc.
- **Built-in APOS Internetworking Software for IPNext20**
- **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

AddPac

Thank you!

AddPac Technology Co., Ltd.
Sales and Marketing

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