



**VoIP, Embedded
Gatekeeper System**

AP-GK3000



February 2004

AddPac Technology

www.addpac.com

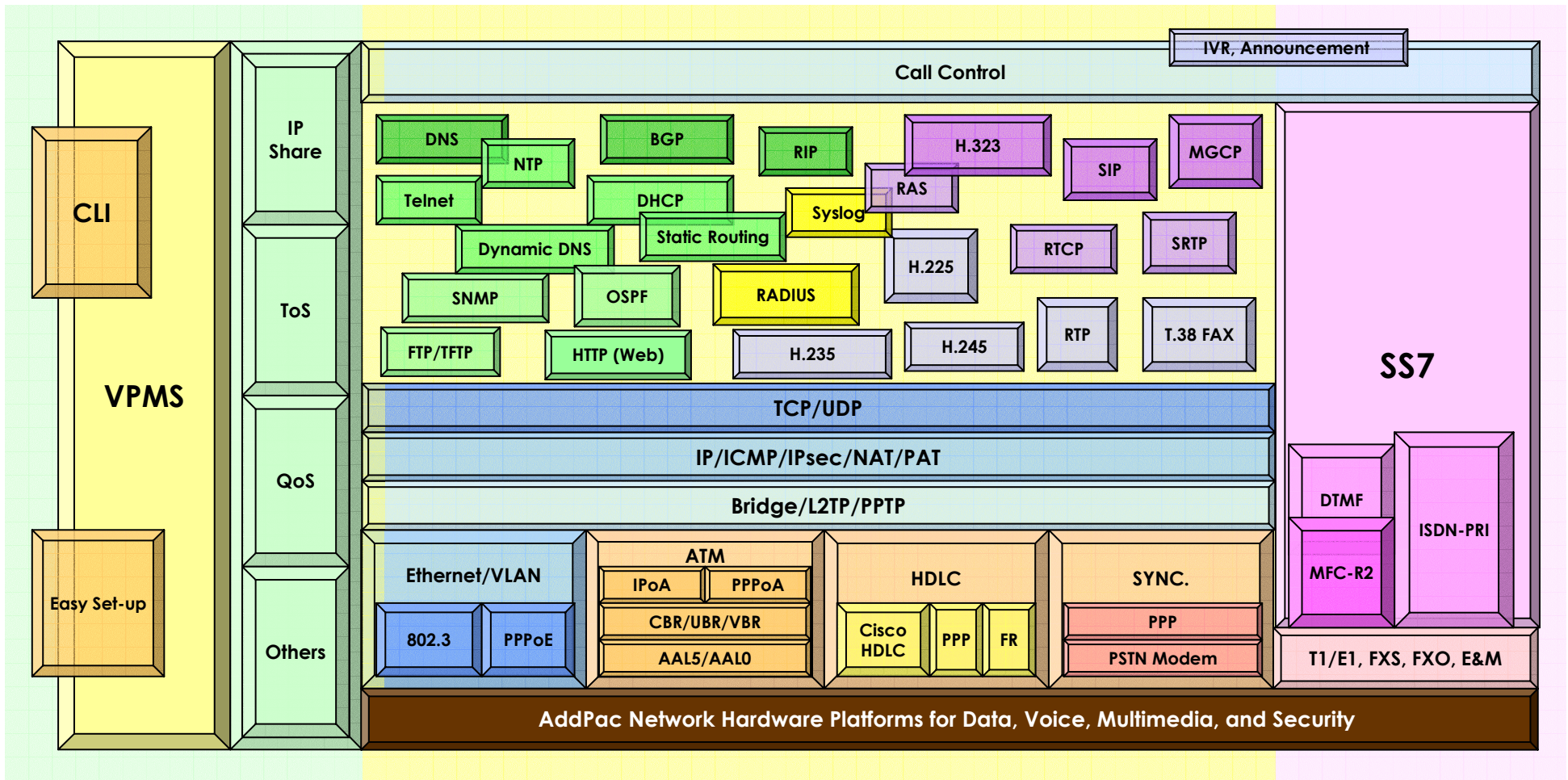
AddPac VoIP Products

AP-VPMS (VoIP Plug & play management system)

VoIP Gateway	VoIP Gateway	VoIP Gateway	VoIP Gateway	VoIP Gateway	Multi-service VoIP	Media Gateway
1~2 ports	4~8 ports	8~16 ports	16~64 ports	E1/T1/8 ports	N x E1/T1/8/16 ports	Triple E1/T1
AP160	AP1000	AP2120	AP3100	AP2110	AP2830	AP-MG3000
AP200A	AP1002	AP2120N NGN	AP3100N NGN	AP2520G	AP2850	*AP-MG5000
AP200B	AP1005					*AP-MG6000
AP200C	AP1100A					
AP200D	AP1100B					
AP200E	AP1100C					
AP300B	AP1100F					
AP300C						
		Secure VoIP Gateway		IP Broadcasting, FoIP Broadcasting		VoIP Gatekeeper
		AP-KMS (Key management System)		VBMS (IP Broadcasting Management)		AP-GK1000
		E1/T1/8 ports	E1/T1/8 ports	IP Broadcasting	FoIP Broadcasting	AP-GK2000
		*AP500S	AP-MG3000S	AP3120	AP3220	AP-GK3000
		*AP2120S		AP1601		
		AP2520S		AP-PSB		
						VoIP Router
						AP2520R

AddPac VoIP Gateway Product Overview

APOS Internetworking Protocol Stack

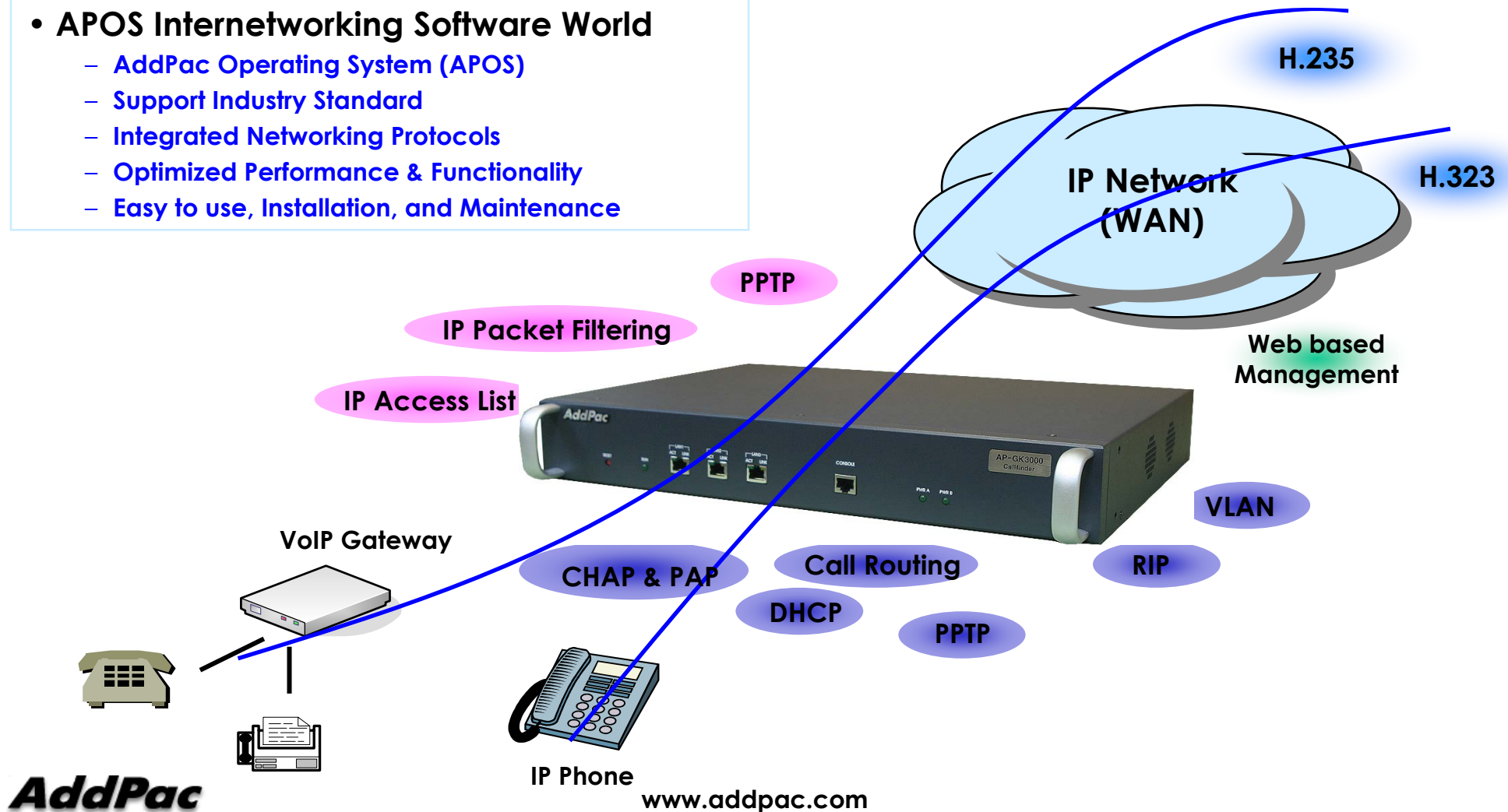


AP-GK3000 Gatekeeper Product Overview

APOS Internetworking S/W World

- APOS Internetworking Software World

- AddPac Operating System (APOS)
- Support Industry Standard
- Integrated Networking Protocols
- Optimized Performance & Functionality
- Easy to use, Installation, and Maintenance

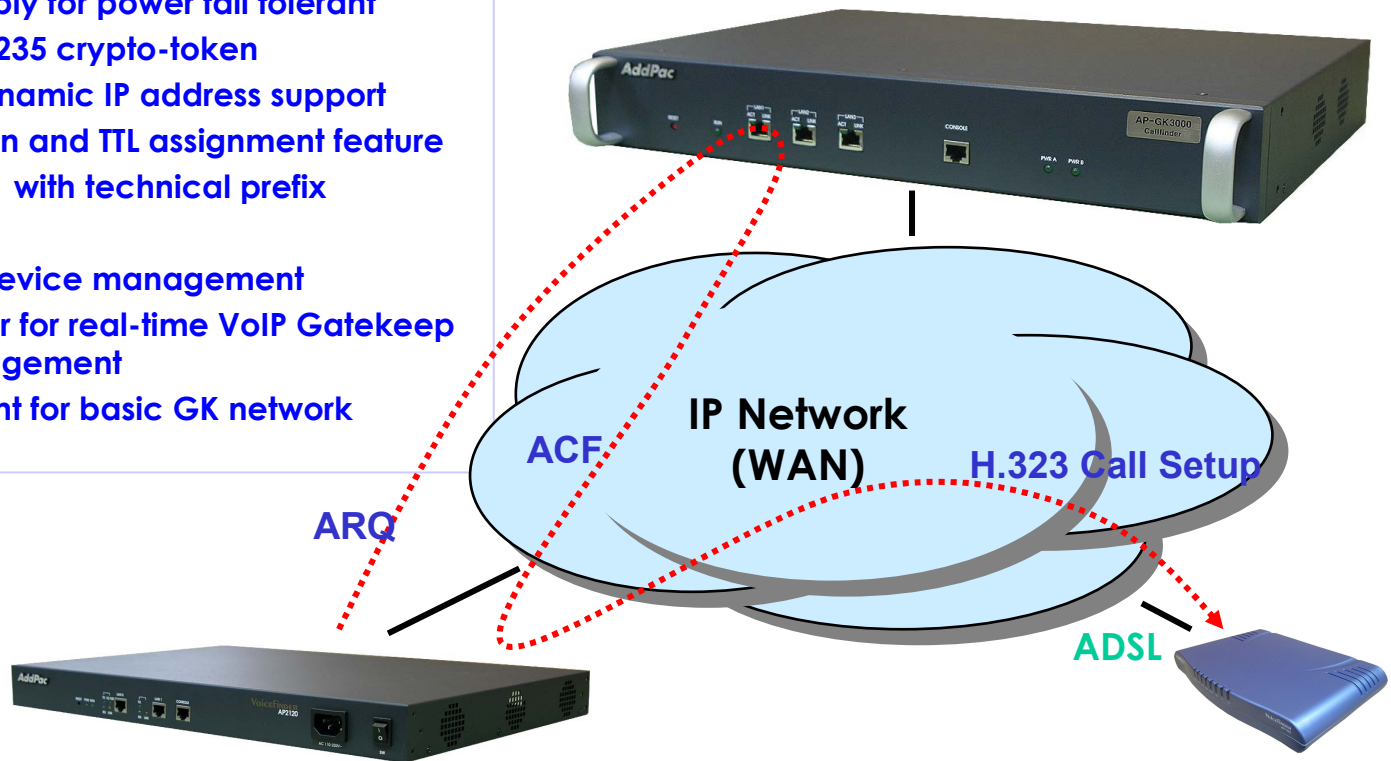


AP-GK3000 Gatekeeper Product Overview

AP-GK3000 VoIP Gatekeeper Service

• VoIP Gatekeeper Service Features

- High-End PowerPC based Embedded System
- Primary & Secondary GK Architecture for fault tolerant
- Redundancy Power supply for power fail tolerant
- Security function with H.235 crypto-token
- VoIP call routing and dynamic IP address support
- RAS port change function and TTL assignment feature
- Digit map management with technical prefix
- Remote S/W Upgrade
- Standard SNMP for GK device management
- Java based SmartViewer for real-time VoIP Gatekeeper monitoring and management
- Web based Management for basic GK network configuration



AP-GK3000 Gatekeeper Product Overview

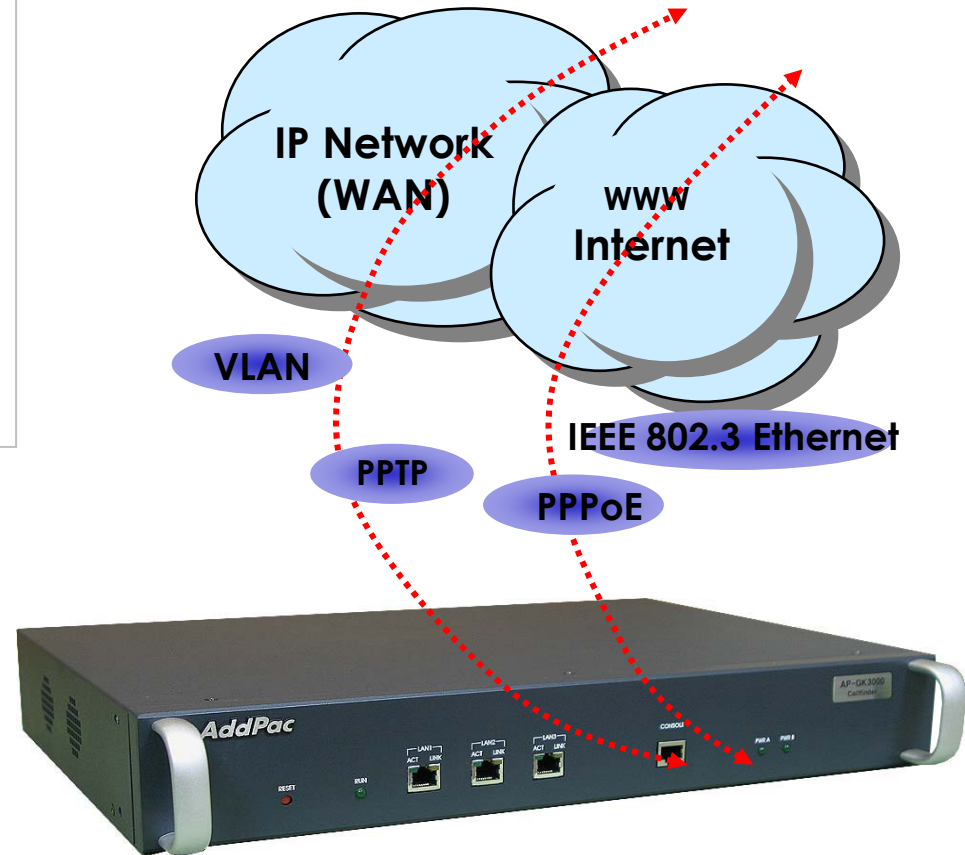
IP Routing and Network Protocols

- **IP Routing Protocols**

- Static and default Routing
- IEEE 802.1Q VLAN Routing

- **WAN Protocols**

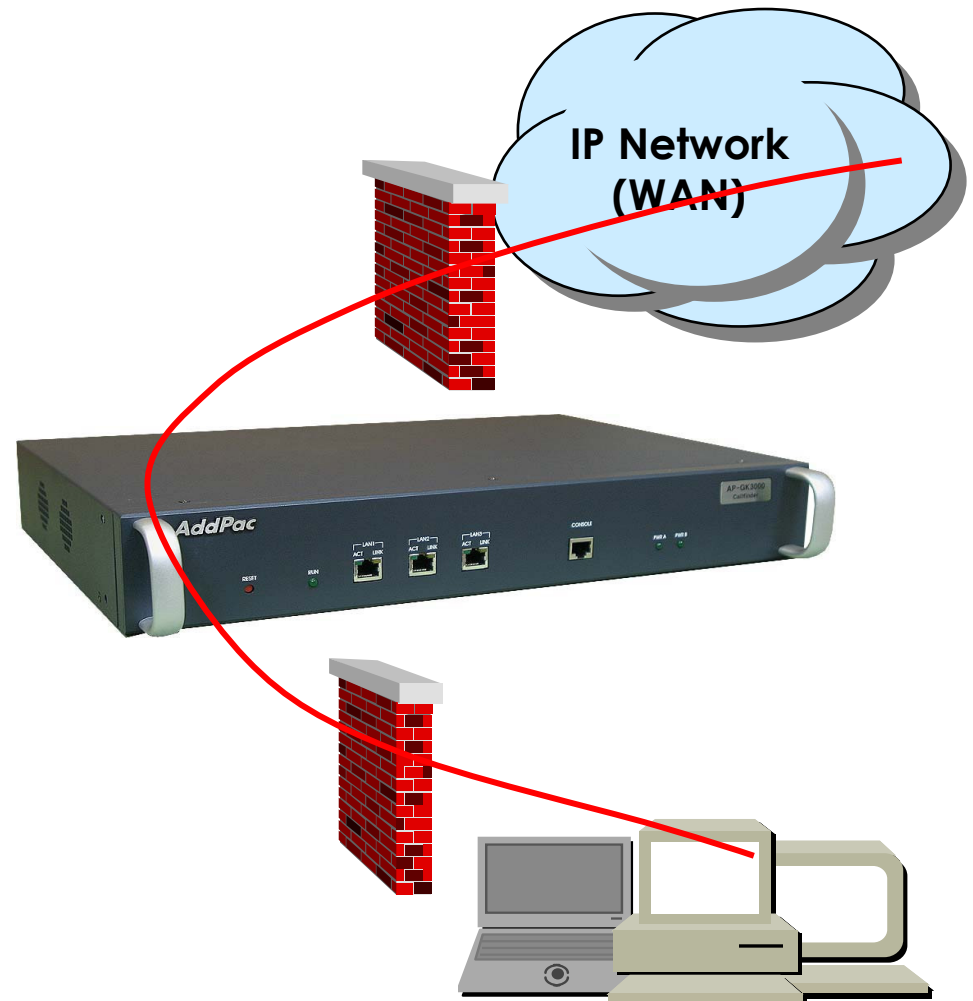
- Point-to-Point over Ethernet Protocol (PPPoE) for ADSL
- IEEE 802.3 Ethernet
- PPTP support for secure communication



AP-GK3000 Gatekeeper Product Overview

Security Management

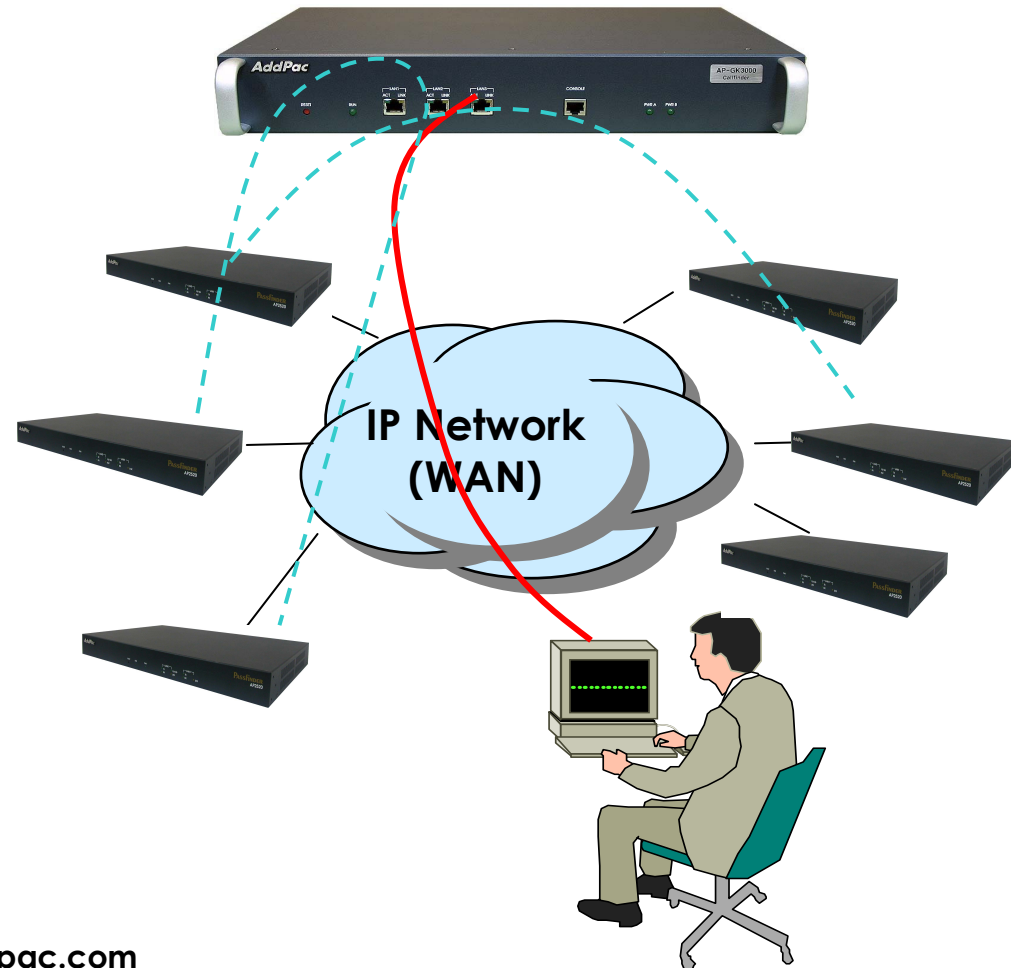
- IP packet filtering
- Access list
- PPP User authentication function
 - Password Authentication Protocol (PAP)
 - Challenge Handshake Authentication Protocol (CHAP)
- Enable/Disable specific protocols
- Auto-square connect of console and Telnet session
- Account Management function for multi-level user



AP-GK3000 Gatekeeper Product Overview

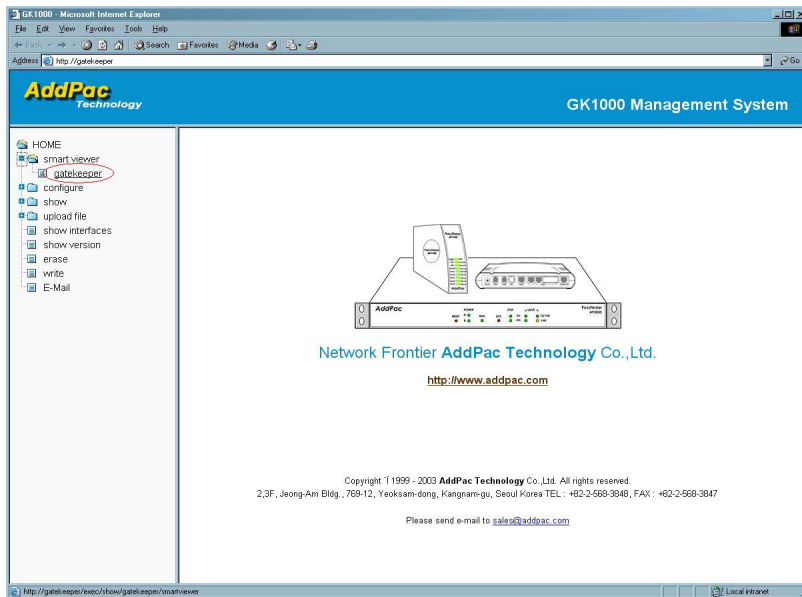
Network Managements

- **SNMP**
 - Standard Simple Network Management Protocol(SNMP) Agent support
 - MIB v1 and v2 Support
- **Web-based Management using HTTP Server**
- **Watch-dog Function**
 - Hardware, Software watch-dog services
- **Remote Management**
 - Telnet
 - Rlogin
 - Console
- **Auto Upgrade Service**
 - HTTP server based APOS image and configuration file auto-upgrade support
- **Batch Job Function**
 - Text based script downloading



AP-GK3000 Gatekeeper Product Overview

Web-based Management



- **Web based Management**
 - Web based management using HTTP Server interface
 - Easy Setup
 - Graphic User Interface (GUI)



<http://172.x.x.x...>

AP-GK3000 Gatekeeper Product Overview

Java based Smart Viewer Program

• Smart Viewer Program

- Easy monitoring of endpoints registered at the GateKeeper and call status
- Offers statistical information of the endpoints' status and active calls
- Easy-to-use Graphic User Interface
- Easy search function of VoIP gateway's call history and events
- Sort function

• System Requirement

- CPU: Intel Pentium II 300Mhz or higher system
- Memory: 128MB or higher
- Hard Disk: 10GB or more
- OS: MS Windows 2000 / XP / Server 2003
- Java 2 Runtime Environment SE v 1.4.2
- Web browser

The screenshot displays the 'Smart Viewer' application window. At the top, there are tabs for 'End Points', 'Active Calls', 'History Calls', and 'Setup Viewers'. Below these are search filters for EP_Type, EP_Status, EP_ID, RAS ID, RAS Port, Alias, and Signal ID. A table lists registered endpoints with columns for Name, EP_Type, Status, EP_ID, Sig Port, RAS ID, RAS Port, and Signal ID. Below this is a table for 'Active Events' with columns for Number, Time Stamp, Event Category, Event-Severity, Event-Code, Object-Type, Object-ID, and Event-Prfx. On the right side, a 'Items Values' panel shows details for a selected endpoint: EndpointID: 37ae55600002, RegTime: Oct 1 14:31:54, Type: GW, Status: Normal, SigIP: 172.17.202.200, SigPort: 1720, RasIP: 172.17.202.200, RasPort: 22000, CountryCode: 97, ExtCode: 0, MfnCode: 22, ProductID: AddPac VoIP, VersionID: 6.20, H323ID: voip.172.17.202.200, Alias[1]: voip.172.17.202.200, Alias[2]: 1000, and Alias[3]: 1001.

Category	All	Severity	Warning	Code			
Notice	Time-Stamp	Event-Category	Event-Severity	Event-Code	Object-Type	Object-ID	Event-Prfx
	44242:2003.10.01-15:35:53	GK-System	Major	1006			Management channel
	38438:2003.10.01-15:21:21	GK-Registration	Major	2001	GK-Registr.	37ae556	Remove an endpoint
	38437:2003.10.01-15:21:21	GK-Registration	Major	2005	GK-Registr.	37ae556	Endpoint will be removed
	37980:2003.10.01-15:20:11	GK-Registration	Minor	2004	GK-Registr.	37ae556	No response on RQ
	37491:2003.10.01-15:19:00	GK-Registration	Warning	2003	GK-Registr.	37ae556	No RQ within TTL
	244:2003.10.01-14:32:15	GK-Registration	Major	2000	GK-Registr.	37ae556	GW Normal: 37ae556
	241:2003.10.01-14:32:15	GK-Registration	Minor	2112	GK-Registr.		+RRO> from 172.17.202.211 rejected by fullRegistrationRequired
	149:2003.10.01-14:32:06	GK-Registration	Major	2000	GK-Registr.	37ae556	GW Normal: 37ae556000005,172.17.202.210,1720,172.17.202.210...
	148:2003.10.01-14:32:05	GK-Registration	Minor	2112	GK-Registr.		+RRO> from 172.17.202.210 rejected by fullRegistrationRequired
	143:2003.10.01-14:32:04	GK-Registration	Major	2000	GK-Registr.	37ae556	GW Normal: 37ae556000004,172.17.202.50,1720,172.17.202.50,2...
	142:2003.10.01-14:32:04	GK-Registration	Minor	2112	GK-Registr.		+RRO> from 172.17.202.50 rejected by fullRegistrationRequired
	140:2003.10.01-14:32:04	GK-Call	Warning	3100	GK-Active	56e57a3f	+ARQ> rejected by unregistered destination (5678)
	138:2003.10.01-14:32:03	GK-Call	Warning	3100	GK-Active	56e57a3f	+ARQ> rejected by unregistered destination (5678)
	133:2003.10.01-14:32:03	GK-Call	Warning	3100	GK-Active	56e57a3f	+ARQ> rejected by unregistered destination (5678)
	131:2003.10.01-14:32:03	GK-Call	Warning	3100	GK-Active	56e57a3f	+ARQ> rejected by unregistered destination (5678)
	129:2003.10.01-14:32:03	GK-Call	Warning	3100	GK-Active	56e57a3f	+ARQ> rejected by unregistered destination (5678)
	127:2003.10.01-14:32:02	GK-Call	Warning	3100	GK-Active	56e57a3f	+ARQ> rejected by unregistered destination (5678)
	125:2003.10.01-14:32:02	GK-Call	Warning	3100	GK-Active	56e57a3f	+ARQ> rejected by unregistered destination (5678)
	123:2003.10.01-14:32:02	GK-Call	Warning	3100	GK-Active	56e57a3f	+ARQ> rejected by unregistered destination (5678)
	121:2003.10.01-14:32:02	GK-Call	Warning	3100	GK-Active	56e57a3f	+ARQ> rejected by unregistered destination (5678)
	118:2003.10.01-14:32:02	GK-Call	Warning	3100	GK-Active	56e57a3f	+ARQ> rejected by unregistered destination (5678)
	114:2003.10.01-14:32:01	GK-Call	Warning	3100	GK-Active	56e57a3f	+ARQ> rejected by unregistered destination (5678)
	112:2003.10.01-14:32:01	GK-Call	Warning	3100	GK-Active	56e57a3f	+ARQ> rejected by unregistered destination (5678)
	110:2003.10.01-14:32:01	GK-Call	Warning	3100	GK-Active	56e57a3f	+ARQ> rejected by unregistered destination (5678)
	108:2003.10.01-14:32:01	GK-Call	Warning	3100	GK-Active	56e57a3f	+ARQ> rejected by unregistered destination (5678)

AP-GK3000 Gatekeeper Product Overview

AP-GK3000 Performance Report (1)

• Gkburst (Gatekeeper Burstness Test)

- Measures the burstness of the gatekeeper call handling ability
- The number of RRQ messages per seconds by sending a lot of RRQ messages to gatekeeper
- The number of ARQ messages per seconds by sending a lot of ARQ messages to gatekeeper

• gkburst -gk <GK's IP address> -n 1000

- The iteration number of RRQs, ARQs call load generation messages is one thousand(1000)



AP-GK3000 Gatekeeper Product Overview

AP-GK3000 Performance Report (2)

• Gkgen

- measures maximum number of endpoints and maximum concurrent calls supported by a gatekeeper.
- Single Gkgen process can register 1000 endpoints with 2000 aliases
- After register endpoints, single Gkgen process generate 1000 ARQs and DRQs periodically

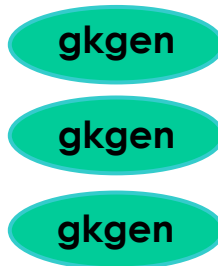
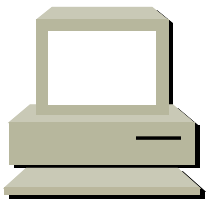
• gkgen -gk <GK's IP address> -n 1000 -b 1000 -arq- 2 -ttl 120

- -gk : gatekeeper IP address
- -n : number of endpoints and calls to generate
- -b : base number for distinguishing multiple Gkgen processes
- -ttl : Time to live timer value.
- -arq- : number of TTL period per one call

Condition : TTL = 60 sec,
Call period is 120 sec

-GK CPU load : Max 100%
-5000 endpoints, 10000 aliases
-5000 concurrent calls

Linux PC




Emulates 1000 endpoints with
periodic 1000 calls




AP-GK3000 Gatekeeper Product Overview

AP-GK3000 Hardware Specification

	<p align="center">AP-GK3000 GateKeeper</p>
<p>▶ Microprocessor</p>	<p align="center">64bit High-End RISC Microprocessor</p>
<p>▶ Network Interface</p>	<p align="center">Fixed 3-Ports 10/100Mbps Fast Ethernet Interface(Rj45)</p>
<p>▶ Console Ports</p>	<p align="center">Fixed 1-Port RS-232C Interface (RJ45)</p>
<p>▶ Boot Memory for Loader</p>	<p align="center">512Kbyte</p>
<p>▶ Flash Memory</p>	<p align="center">8Mbyte</p>
<p>▶ Main Memory</p>	<p align="center">128Mbyte High-Speed SDRAM</p>
<p>▶ Power Requirement</p>	<p align="center">VAC 110~220V, 50/60Hz, 30Watt, Dual Power</p>
<p>▶ Internetworking OS</p>	<p align="center">APOS</p>
<p>▶ Support VoIP Protocol</p>	<p align="center">H.323</p>
<p>▶ PPPoE, PPTP Network Protocols</p>	<p align="center">YES</p>
<p>▶ Enhanced QoS Management Feature</p>	<p align="center">YES</p>
<p>▶ IP Routing Protocols Including NAT</p>	<p align="center">YES</p>
<p>▶ Network Management Protocols</p>	<p align="center">YES</p>
<p>▶ Support Network Environments</p>	<p align="center">ADSL, VDSL, Cable Modem, Leased Line, ATM, Frame-Relay, Including Conventional Broad Band Networking</p>

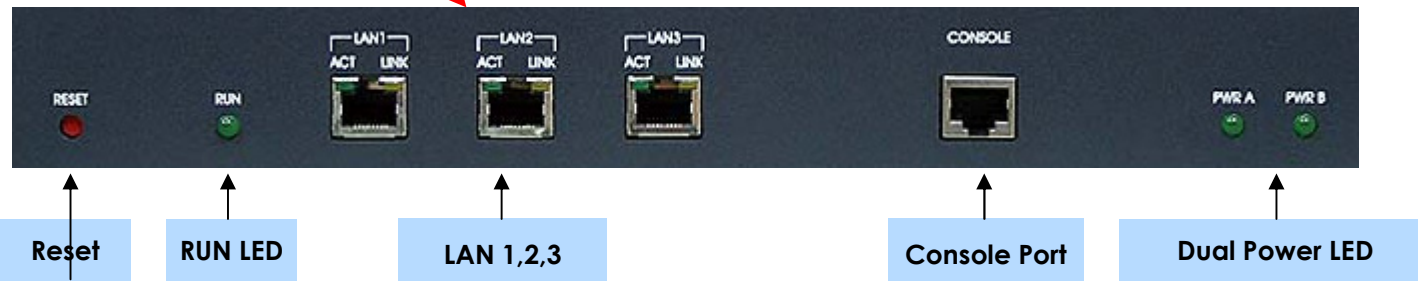
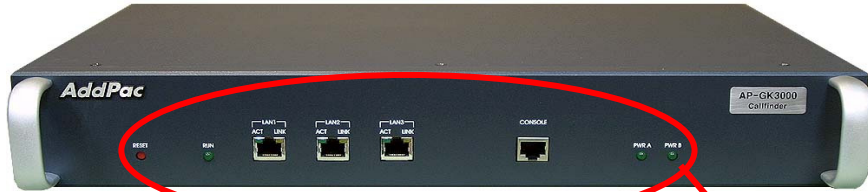
AP-GK3000 Gatekeeper Product Overview

AP-GK3000 Support Protocols & Service

	AP-GK3000 Support Protocol and Service
<p>▶ Routing Protocol</p>	<p>Static and Default Routing RIP v1/v2, OSPFv2, etc IEEE 802.1Q VLAN Routing</p>
<p>▶ WAN Protocol</p>	<p>Point-to-Point over Ethernet Protocol For ADSL IEEE 802.3 Ethernet PPTP support for secure communication</p>
<p>▶ GateKeeper Function</p>	<p>Primary GK & secondary GK setting for fault-tolerant Digit map management with technical prefix TTL assignment function Security function with H.235 crypto-token RAS port change function</p>
<p>▶ Operation & Management</p>	<p>System Performance Analysis for Process, CPU, Connection I/F Configuration Backup & Restore for APOS Management Debugging, System Auditing and Diagnostics supports System Booting and Auto-rebooting with Watchdog Feature System Management with Data Logging IP Traffic Statistics with Accounting</p>
<p>▶ Additional Features</p>	<p>DHCP Server & Relay Functions IP Accounting Function Transparent Bridging (IEEE Standard) Function CISCO Style Command Line Interface (CLI) Network time Protocol (NTP) Support Remote Upgrade for APOS Management using FTP / TFTP ITU-T H.323 v3 VoIP Protocol Compatibility, ITU-T H.235 Security Feature</p>

AP-GK3000 Gatekeeper Product Overview

AP-GK3000 Exterior Parts

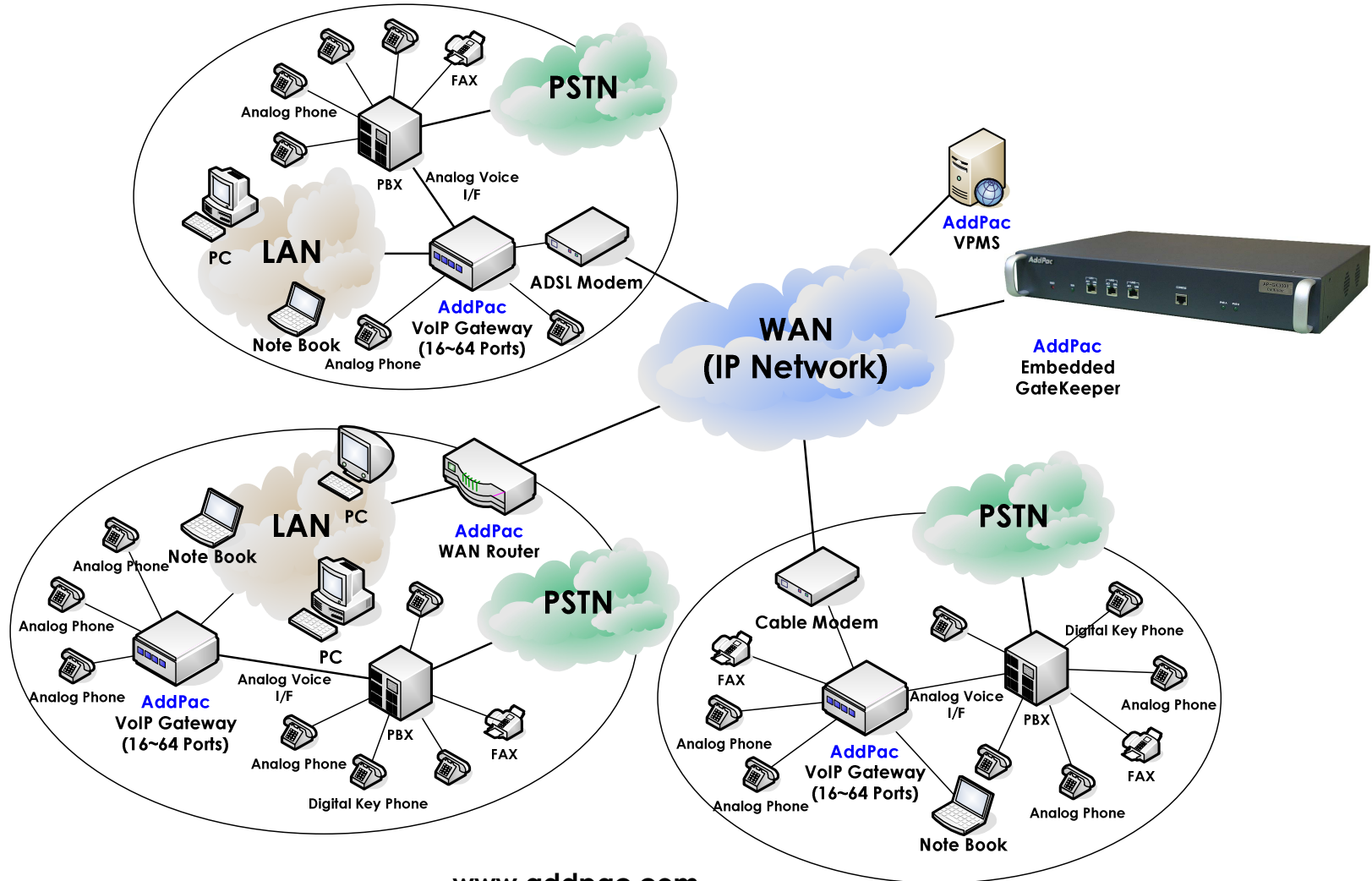


Switch

Power Plug

AP-GK3000 Gatekeeper Product Overview

AP-GK3000 Network Diagram



AP-GK3000 Gatekeeper Product Overview

Ordering and Pricing Information

• AP-GK3000 Ordering Information

Order No :

AP-GK3000 Gatekeeper

- Three(3) 10/100BaseT Fast Ethernet
- One(1) Console Port
- High-Performance 32bit RISC CPU
- 512K Boot Loader
- 8MB Flash Memory, 128MB SDRAM, etc
- APOS v7.xx with Operation Manual
- Including CAB-LAN, CAB-CON

CAB-LAN

- RJ45 Ethernet Cable

CAB-CON

- RJ45 RS-232C Console Cable



For detailed pricing info:

Contact

- AddPac Technology Regional Sales Managers
- Authorized Sales and Marketing Representatives
- www.addpac.com

AddPac Technology Co., Ltd.

Thank you !

www.addpac.com

Technical Sales and Marketing

Phone : +82 2 568 3848

Fax : +82 2 568 3847

sales@addpac.com

AddPac

www.addpac.com