

VoIP, Embedded Gatekeeper System

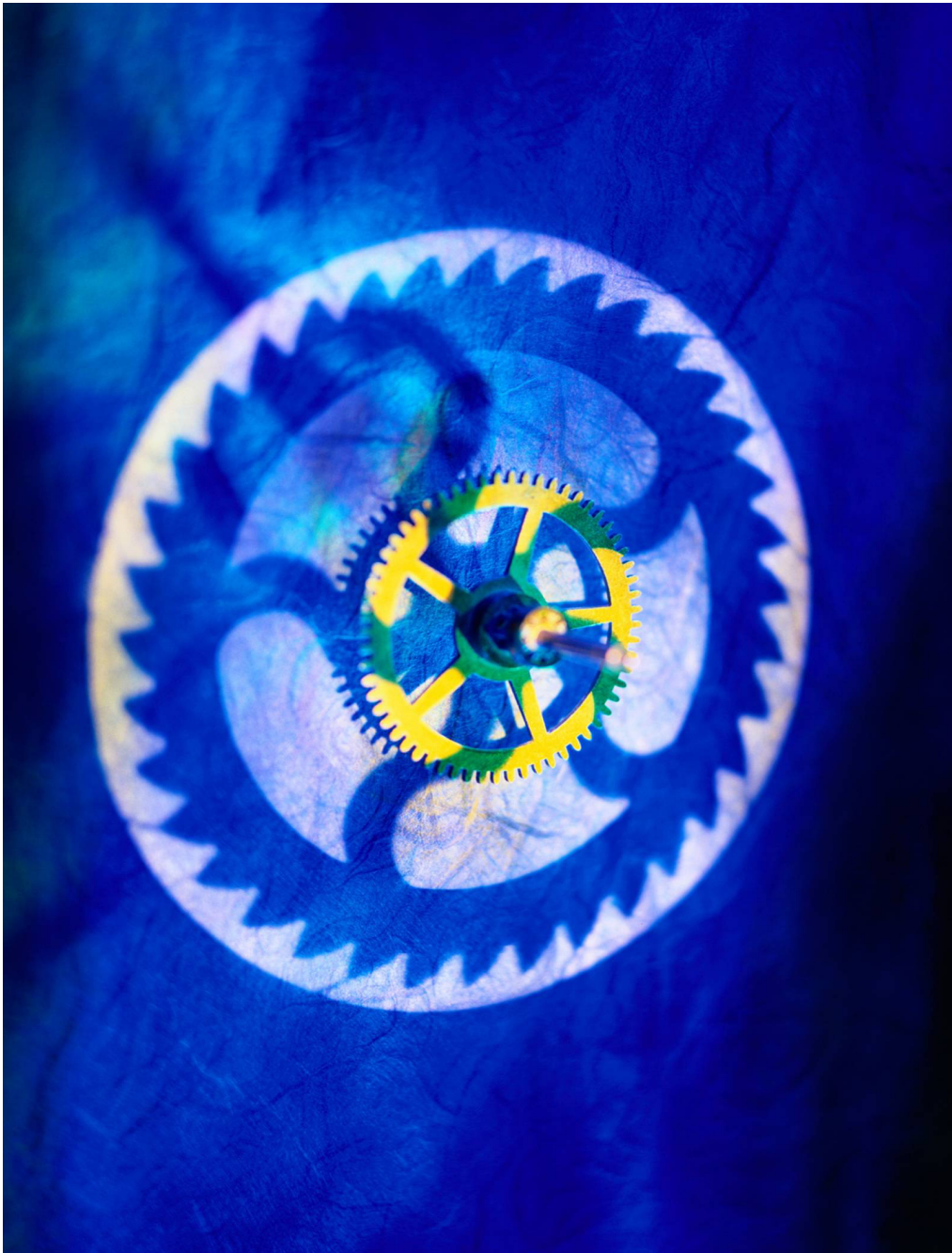
AP-GK1000



February 2004

AddPac Technology

www.addpac.com



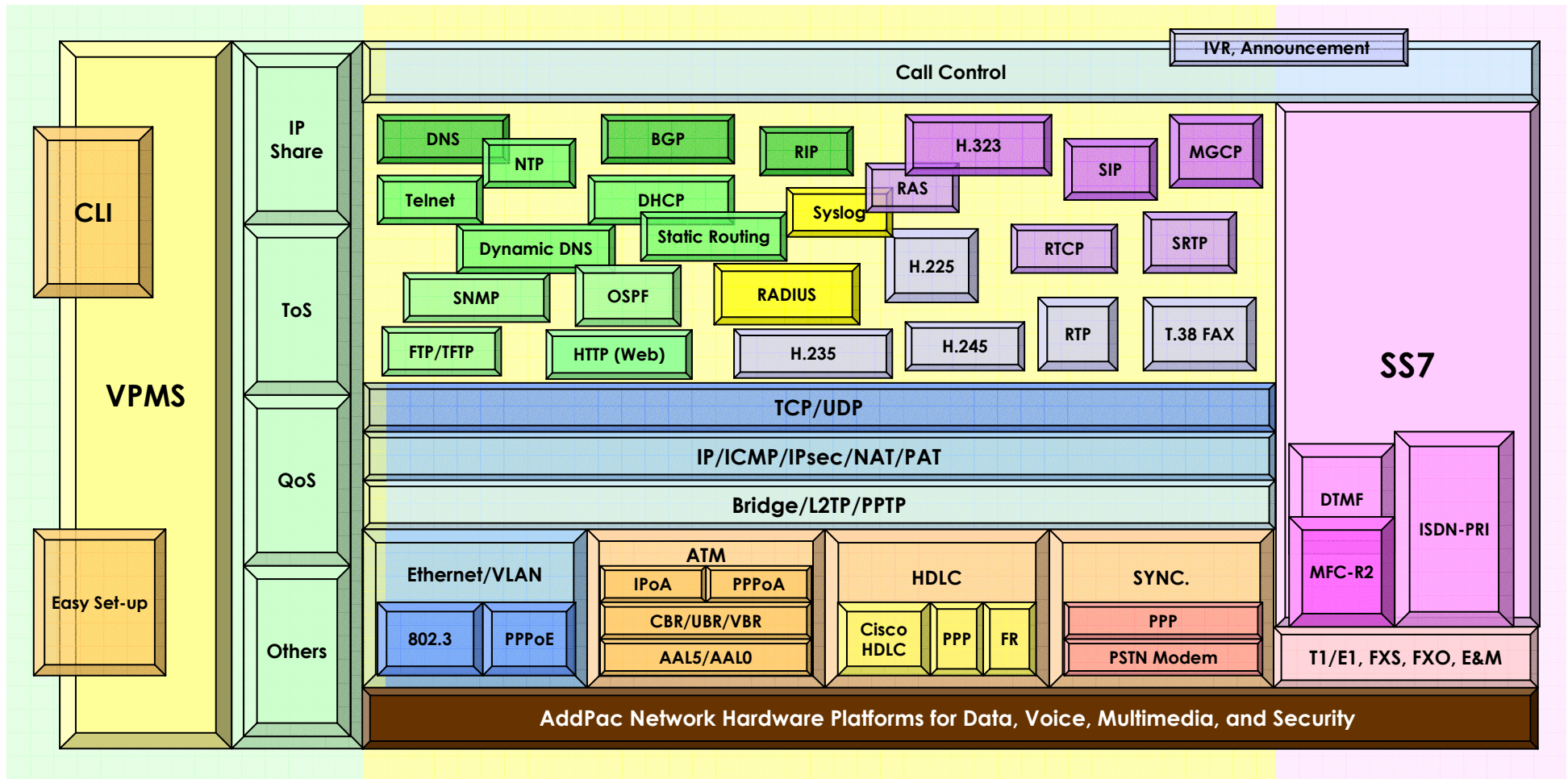
AddPac VoIP Products

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 | Secure VoIP Gateway | | IP Broadcasting, FoIP Broadcasting | | VoIP Gatekeeper |
| AP200D | AP1100B | AP-KMS (Key management System) | | VBMS (IP Broadcasting Management) | | AP-GK1000 |
| AP200E | AP1100C | E1/T1/8 ports | E1/T1/8 ports | IP Broadcasting | FoIP Broadcasting | AP-GK2000 |
| AP300B | AP1100F | *AP500S | AP-MG3000S | AP3120 | AP3220 | AP-GK3000 |
| AP300C | | *AP2120S | | AP1601 | | |
| | | AP2520S | | AP-PSB | | |
| | | | | | | VoIP Router |
| | | | | | | AP2520R |

AddPac VoIP Gateway Product Overview

APOS Internetworking Protocol Stack

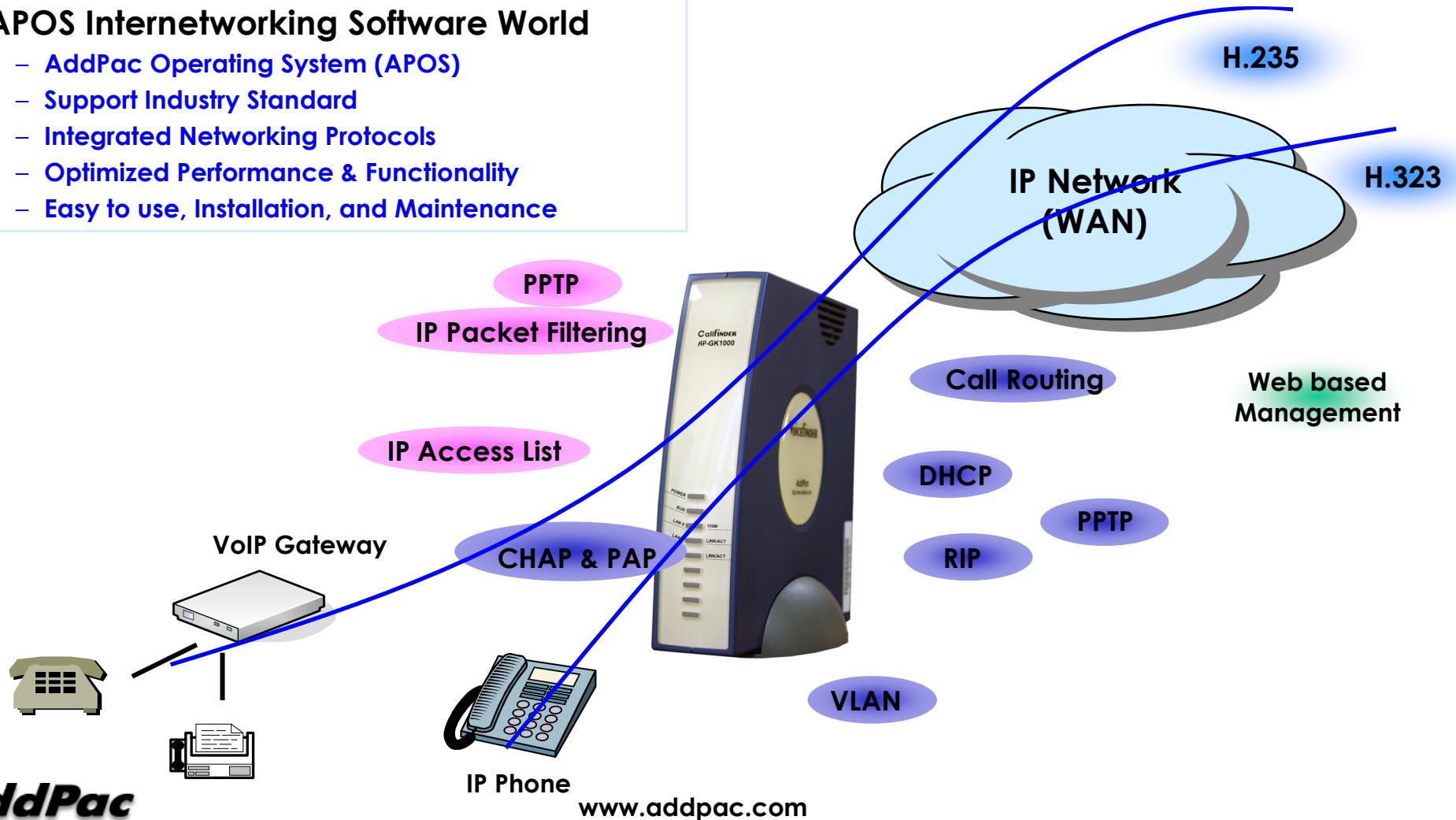


AP-GK1000 Gatekeeper Product Overview

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

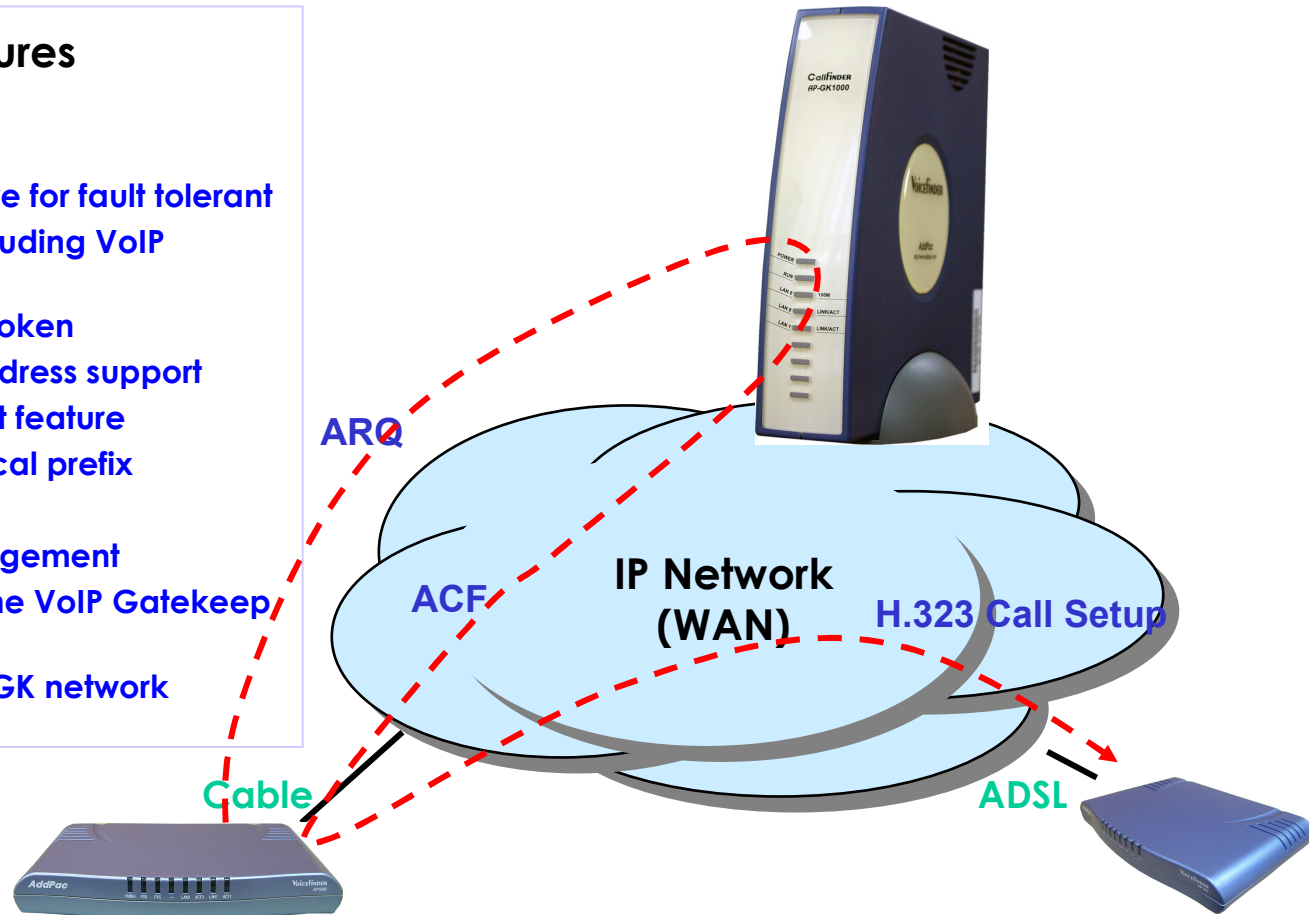


AP-GK1000 Gatekeeper Product Overview

AP-GK1000 VoIP Gatekeeper Service

• VoIP Gatekeeper Service Features

- All embedded System
- H.323 VoIP Gatekeeper service
- Primary & Secondary GK Architecture for fault tolerant
- Supports various VoIP endpoints including VoIP Gateway
- Security function with H.235 crypto-token
- VoIP call routing and dynamic IP address support
- RAS port change 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-GK1000 Gatekeeper Product Overview

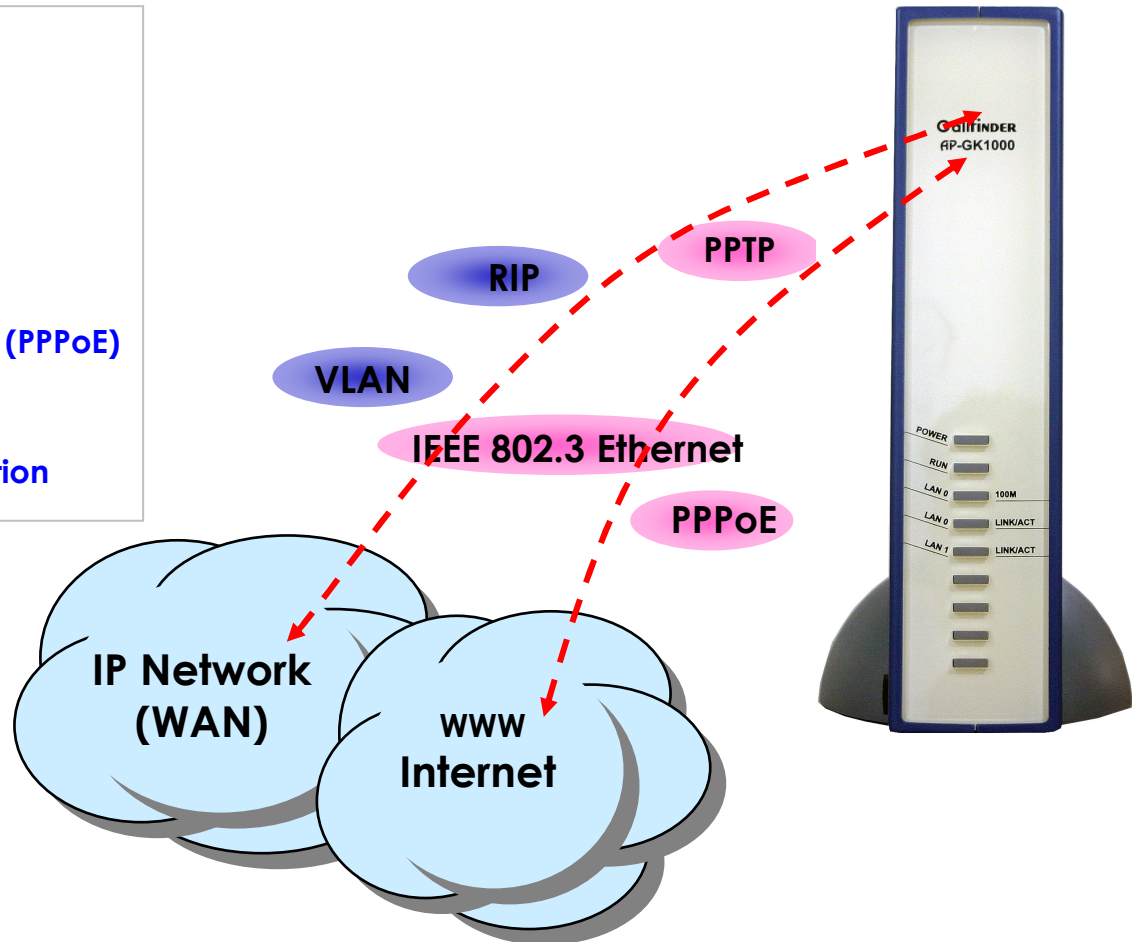
IP Routing and Network Protocols

- **IP Routing Protocols**

- Static and default Routing
- RIP v1/2
- IEEE 802.1Q VLAN Routing

- **WAN Protocols**

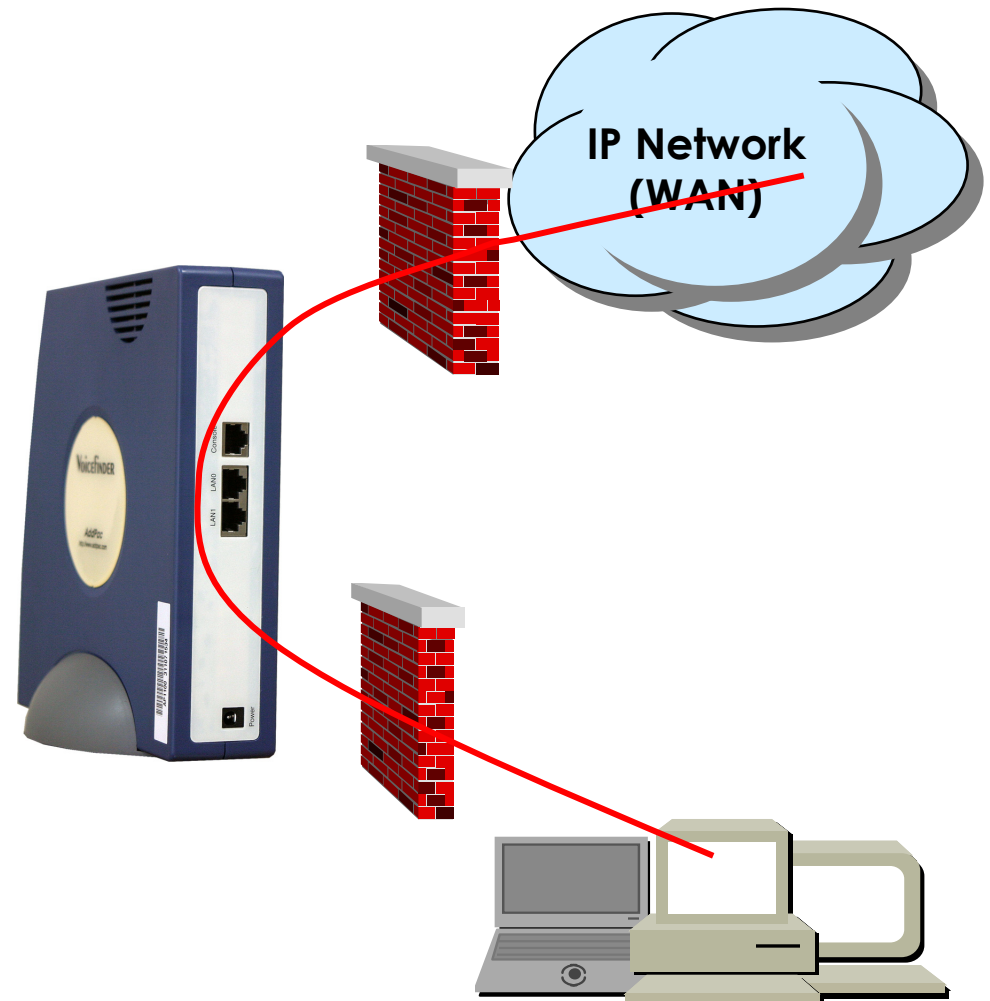
- Point-to-Point over Ethernet Protocol (PPPoE) for ADSL
- IEEE 802.3 Ethernet
- PPTP support for secure communication



AP-GK1000 Gatekeeper Product Overview

Security Management

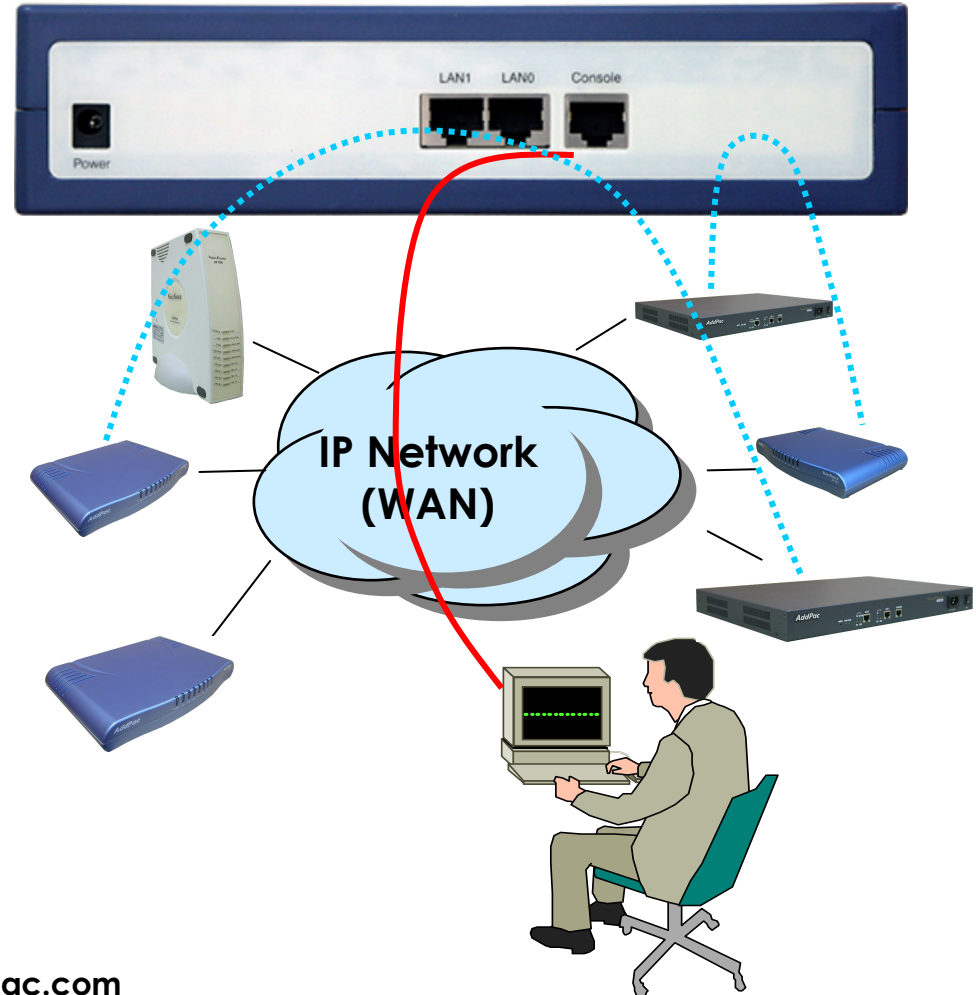
- IP packet filtering
- Access list
- PPP User authentication function
 - Password Authentication Protocol (PAP)
 - Challenge Handshake Authentication Protocol (CHAP)
- Enable/Disable specific protocols
- Auto-square connect of console and Telnet session
- Account Management function for multi-level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



AP-GK1000 Gatekeeper Product Overview

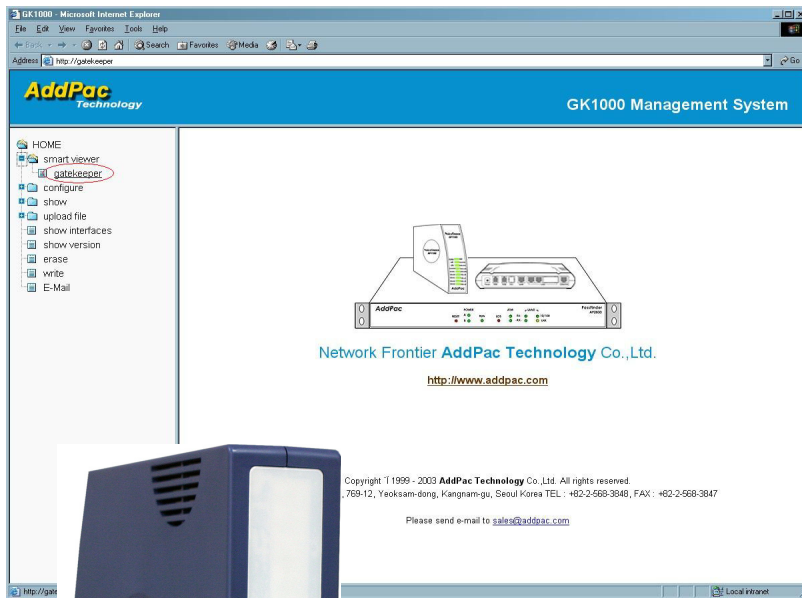
Network Managements

- **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-GK1000 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-GK1000 Gatekeeper Product Overview

SmartViewer 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 shows the SmartViewer application window. At the top, there are tabs for 'Active Calls', 'History Calls', and 'Statistics Graph'. Below these are dropdown menus for 'EP_Type' (set to 'All') and 'EP_Status' (set to 'All'). A table displays a list of endpoints with columns for Menu, Type, Status, EP_ID, SigID, Sig Port, RAS Port, H323ID, Tech Profile, Alias, Items, and Values. The 'Items' column is expanded to show a detailed view of endpoint information.

| Items | Values |
|-------------|---------------------|
| 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 |
| Alias[3] | 1004 |

| Category | All | Severity | Warning | Code | | | |
|----------|---------------------------|-----------------|----------------|------------|-------------|-----------|---|
| ObjectID | | | | | | | |
| Notice | Time-Stamp | Event-Category | Event-Severity | Event-Code | Object-Type | Object-ID | |
| | 44242:2003.10.01-15:35:53 | GK-System | Minor | 1006 | | | Management channel |
| | 38438:2003.10.01-15:21:21 | GK-Registration | Major | 2001 | GK-Regist. | 37ae556 | Remove an endpoint |
| | 38437:2003.10.01-15:21:21 | GK-Registration | Major | 2005 | GK-Regist. | 37ae556 | Endpoint will be removed |
| | 37960:2003.10.01-15:20:11 | GK-Registration | Minor | 2004 | GK-Regist. | 37ae556 | No response on RRO |
| | 37491:2003.10.01-15:19:00 | GK-Registration | Warning | 2003 | GK-Regist. | 37ae556 | No RRO within TTL |
| | 244:2003.10.01-14:32:15 | GK-Registration | Major | 2000 | GK-Regist. | 37ae556 | GW: Normal: 37ae556 |
| | 241:2003.10.01-14:32:15 | GK-Registration | Minor | 2112 | GK-Regist. | | +RRO* from 172.17.202.211 rejected by fullRegistrationRequired |
| | 149:2003.10.01-14:32:05 | GK-Registration | Major | 2000 | GK-Regist. | 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-Regist. | | +RRO* from 172.17.202.210 rejected by fullRegistrationRequired |
| | 143:2003.10.01-14:32:04 | GK-Registration | Major | 2000 | GK-Regist. | 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-Regist. | | +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) |
| | 136:2003.10.01-14:32:03 | 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-GK1000 Gatekeeper Product Overview

AP-GK1000 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-GK2000 Gatekeeper Product Overview

AP-GK2000 Performance Report (2)

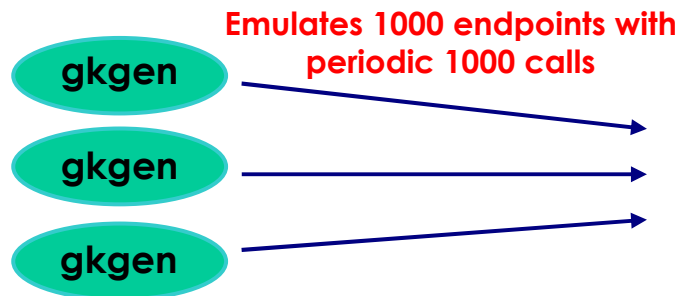
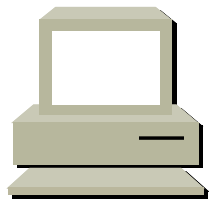
• Gkgen

- 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

Linux PC




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

-GK CPU load : Max 80%
-200 endpoints, 400 aliases
-200 concurrent calls


AP-GK1000 Gatekeeper Product Overview

AP-GK1000 Hardware Specification

| | |
|---|--|
|  | AP-GK1000 GateKeeper |
| ▶ Microprocessor | 32bit High-End RISC Microprocessor |
| ▶ Network Interface | Fixed 1-Port 10/100Mbps Fast Ethernet Interface(RJ45, LAN1), Fixed 1-Port 10Mbps Ethernet Interface(RJ45, LAN0) |
| ▶ Console Ports | Fixed 1-Port RS-232C Interface (RJ45) |
| ▶ Boot Memory for Loader/ Flash Memory | 512Kbyte/ 4Mbyte |
| ▶ Main Memory | 32Mbyte High-Speed SDRAM |
| ▶ Power Requirement | VAC 110~220V, 50/60Hz, 30Watt, Dual Power |
| ▶ Internetworking OS | APOS |
| ▶ Support VoIP Protocol | H.323 |
| ▶ PPPoE, PPTP Network Protocols | YES |
| ▶ Enhanced QoS Management Feature | YES |
| ▶ IP Routing Protocols Including NAT | YES |
| ▶ Network Management Protocols | YES |
| ▶ Support Network Environments | ADSL, VDSL, Cable Modem, Leased Line, ATM, Frame-Relay, Including Conventional Broad Band Networking |

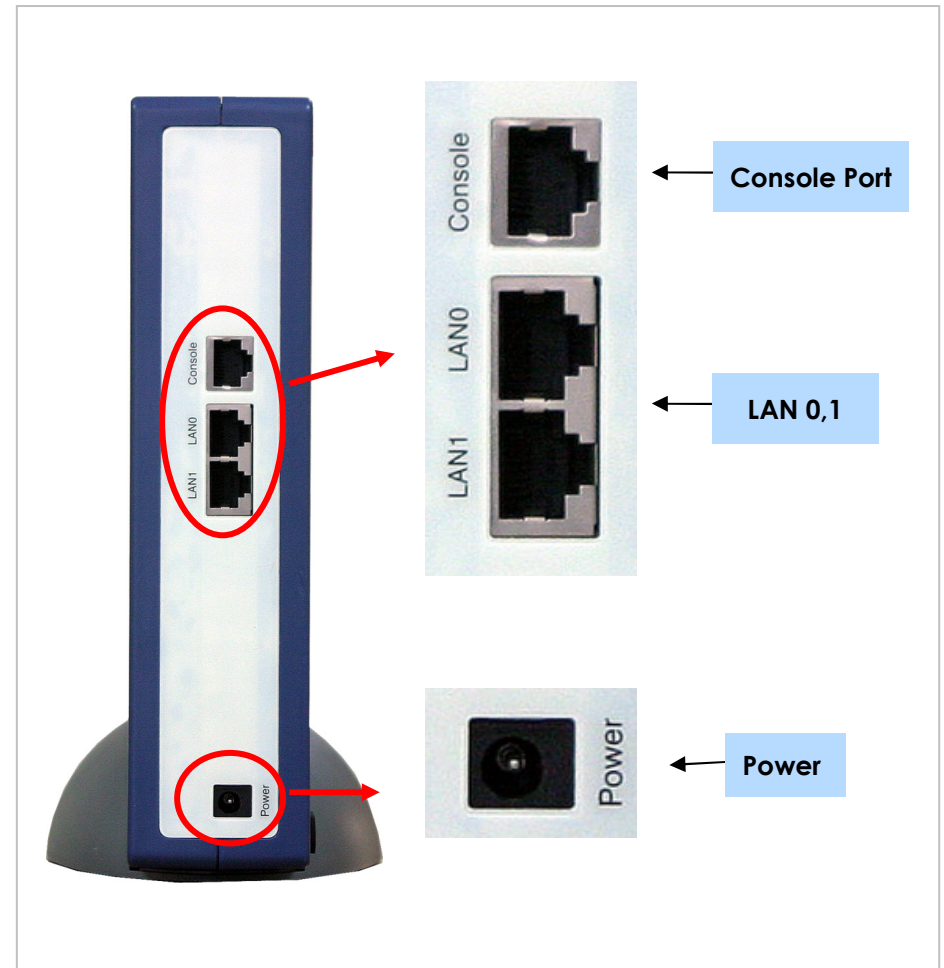
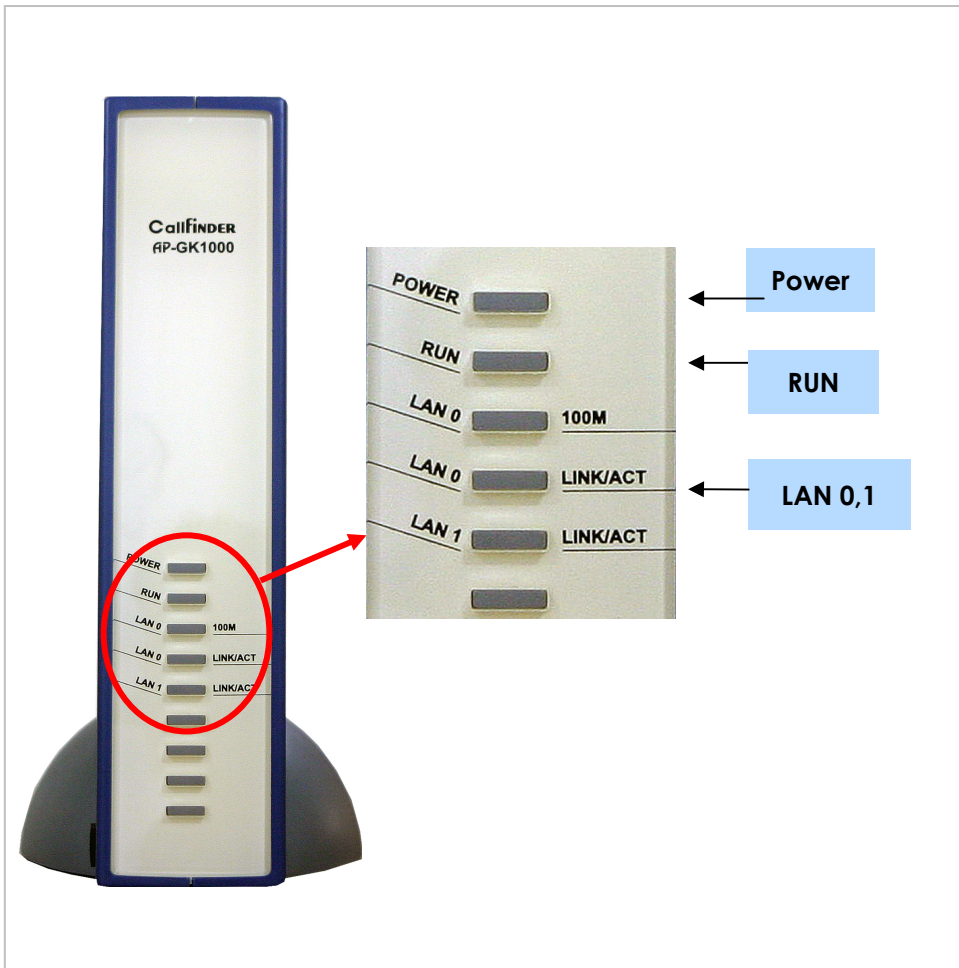
AP-GK1000 Gatekeeper Product Overview

AP-GK1000 Support Protocols & Service

|  | AP-GK2000 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> |

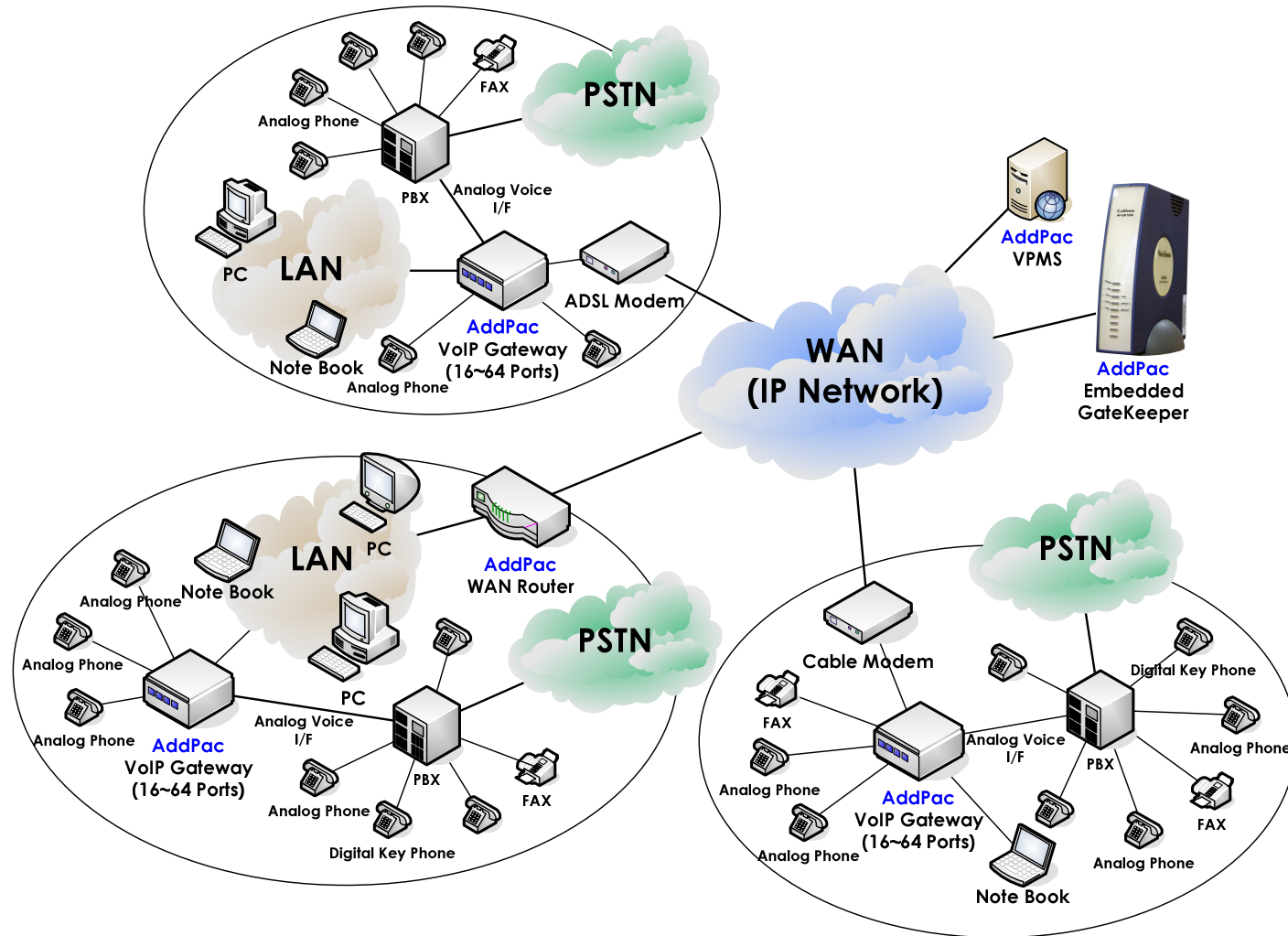
AP-GK1000 Gatekeeper Product Overview

AP-GK1000 Exterior Parts



AP-GK1000 Gatekeeper Product Overview

AP-GK1000 Network Diagram



AP-GK1000 Gatekeeper Product Overview

Ordering and Pricing Information

• AP-GK1000 Ordering Information

Order No :

AP-GK1000 Gatekeeper

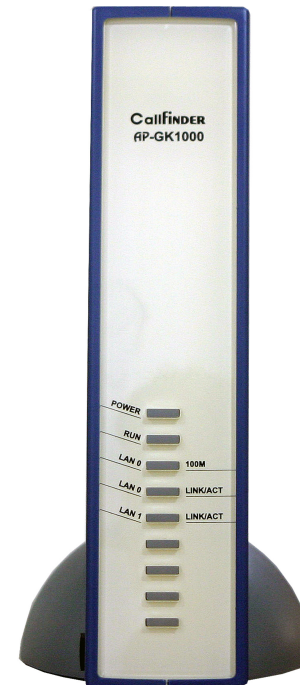
- 1-Port 10/100Mbps Fast Ethernet Interface(LAN1)
- 1-Port 10Mbps Ethernet Interface(LAN0)
- One(1) Console Port
- High-Performance 32bit RISC CPU
- 512K Boot Loader
- 4MB Flash Memory, 32MB SDRAM, etc
- APOS v7.xx with Operation Manual
- Including CAB-LAN, CAB-CON

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