



APOSd™

Audio/Video DSP Codec Solution

APOSd : AddPac Operating System for DSP



AddPac

AddPac Technology

2007, Sales and Marketing

www.addpac.com

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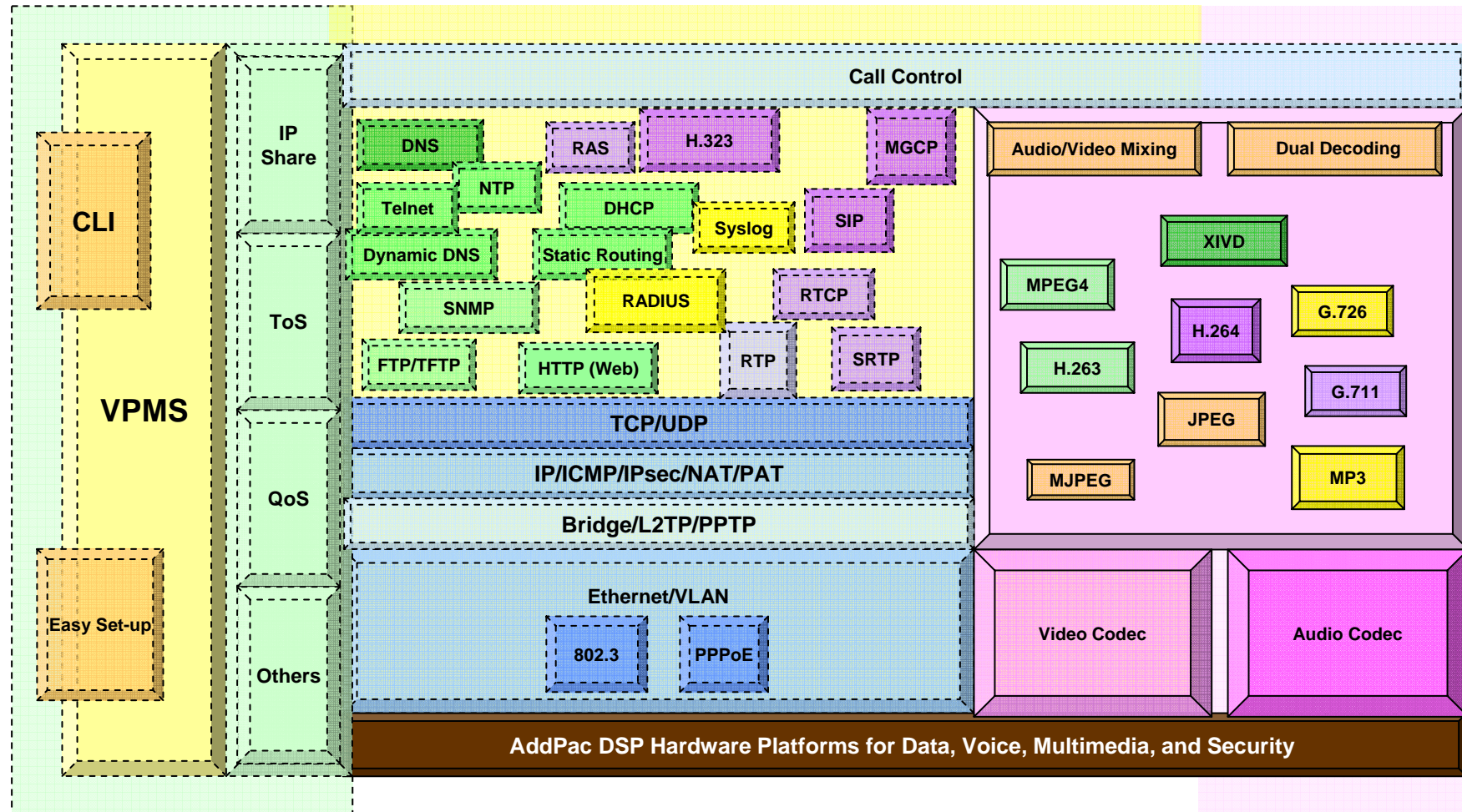
APOSd Solution

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APOSd Overview

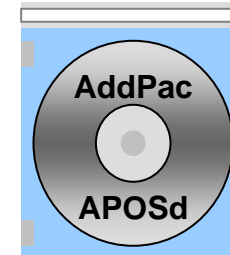
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APOSd Software Service

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- **Built-in AddPac APOSd Internetworking Software**
 - Scalability, Functionality, and Stability Features
 - Video Traffic QoS Control
- **Programmable Video, Audio, and Voice Services**
 - Video Codes, Audio, and Voice Codec
- **Firmware Upgradeable DSP Architecture**
- **OSD (On-screen Display) Function Support**
- **Industry Standard IP based Network Protocol Features**



Video Codec Features & Service

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H.263 Video Codec

- **Baseline H.263**
- **Half Pixel Motion Estimation**
- **Variable Size Support**
 - QCIF(176x144), CIF(352x288), QVGA(320x240)
- **Advanced Rate Control**
 - 32kbps ~ 4Mbps , 1frame ~ 30frame
 - VBR / CBR / Hybrid CBR
- **User Control Interface**
 - Frame rate, Picture size, Target rate, Intra refresh interval
- **Motion Detection**
- **Multi Channel Encoding**
- **Multi Channel Decoding**
- **High-end Error Resilient Against Various Packet Error**

Video Codec Features & Service

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MPEG-4 Video Codec

- **Simple Profile MPEG4**
- **AC/DC Prediction**
- **Half Pixel Motion Estimation**
- **Variable Size Support**
 - QCIF(176x144), CIF(352x288), QVGA(320x240), and VGA(640x480), HVGA(640x240)
- **Advanced Rate Control**
 - 32kbps ~ 4Mbps , 1frame ~ 30frame
 - VBR / CBR / Hybrid CBR
- **User Control Interface**
 - Frame rate, Picture size, Target rate, Intra refresh interval
- **Motion Detection**
- **Multi Channel Encoding**
- **Multi Channel Decoding**
- **High-end Error Resilient Against Various Packet Error**

Video Codec Features & Service

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H.264 Video Codec

- **Baseline Profile**
- **All 9-Direction Intra-Prediction Modes with 4x4 Block Size**
- **Integer Pel Motion Estimation with 16x16 Block Size**
- **CAVLC (Context-Adaptive Variable Length Coding)**
- **In-Loop Deblock Filter**
- **Variable Size Support**
 - QCIF(176x144), CIF(352x288), QVGA(320x240) : Encoder/Decoder
 - VGA(640x480), HVGA(640x240) : Decoder Only
- **Advanced Rate Control**
 - 32kbps ~ 4Mbps , 1frame ~ 30frame
 - VBR / CBR / Hybrid CBR
- **User Control Interface**
 - Frame rate, Picture size, Target rate, Intra refresh interval
- **High-end Error Resilient Against Various Packet**

Video Codec Features & Service

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JPEG/M-JPEG Video Codec

- **Variable Size Support**

Audio & Voice Service and Features

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MP3 Audio Codec

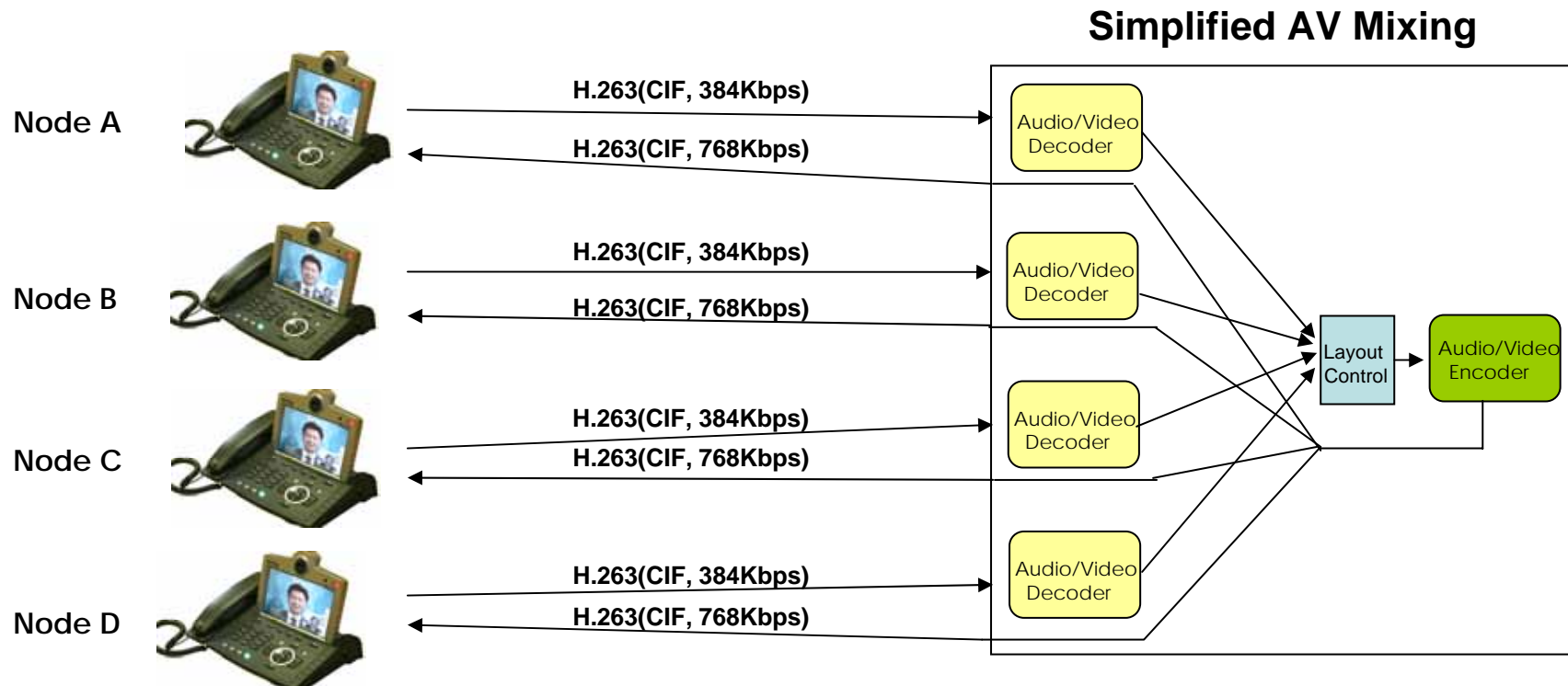
- **MPEG1 / MPEG2 layer-3(LSF) encoding support**
- **MPEG1 / MPEG2 layer-2, 3 decoding support**
- **Bit rates support**
 - 32kbps ~ 192kbps
 - CBR
- **Sampling rates support**
 - 16kHz, 22.05kHz, 24kHz (for MPEG2 Isf)
 - 32kHz, 44.1kHz, 48kHz
- **Joint-stereo, stereo, mono Channel mode**
- **Apply Psycho-acoustic model II**

AV Mixing Feature for MCU App.

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Simplified Audio/Video Mixing Model

- **Single Codec : H.263 or MPEG4**
- **Single Rate Control**
- **Asymmetric Rate Control between Encoder & Decoder**
- **Same Conference Layout for All Party**

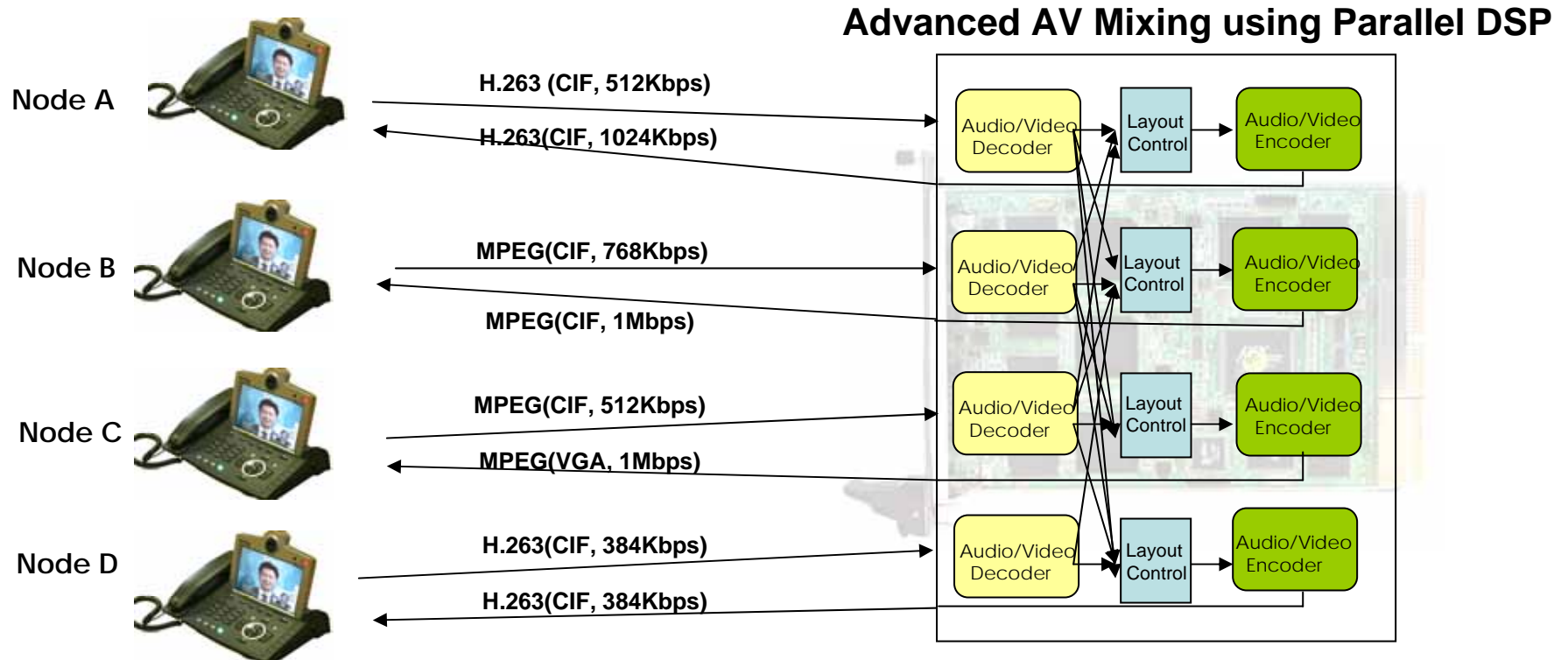


AV Mixing Feature for MCU App.

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Advanced Audio/Video Mixing Model

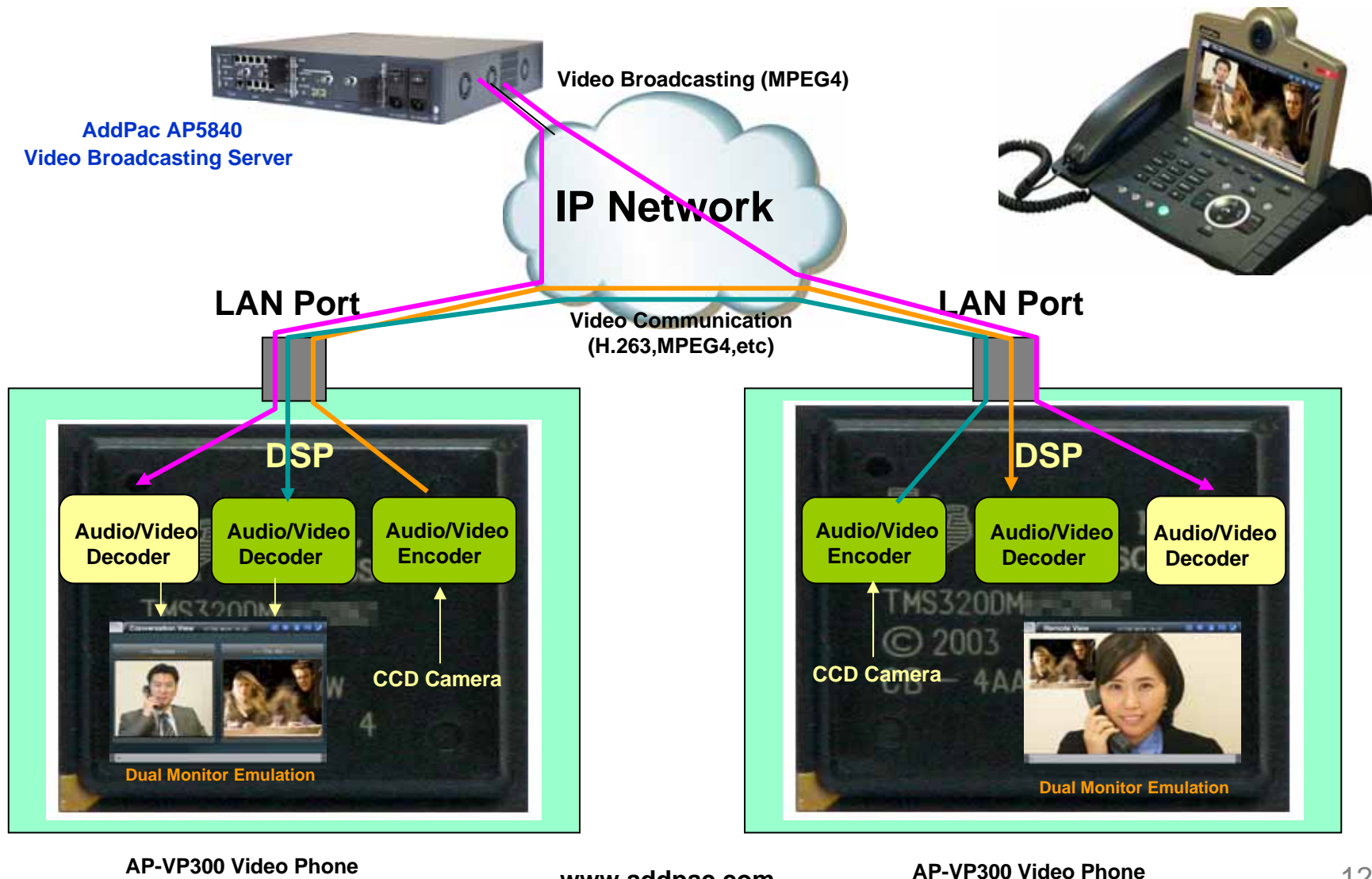
- **Multiple Codec : H.263 and MPEG4**
- **Independent Rate Control**
- **Asymmetric Rate Control Between Encoder & Decoder**
- **Independent Conference Layout Control**



Dual Decoder & Single Encoder

Dual Monitor Emulation Model

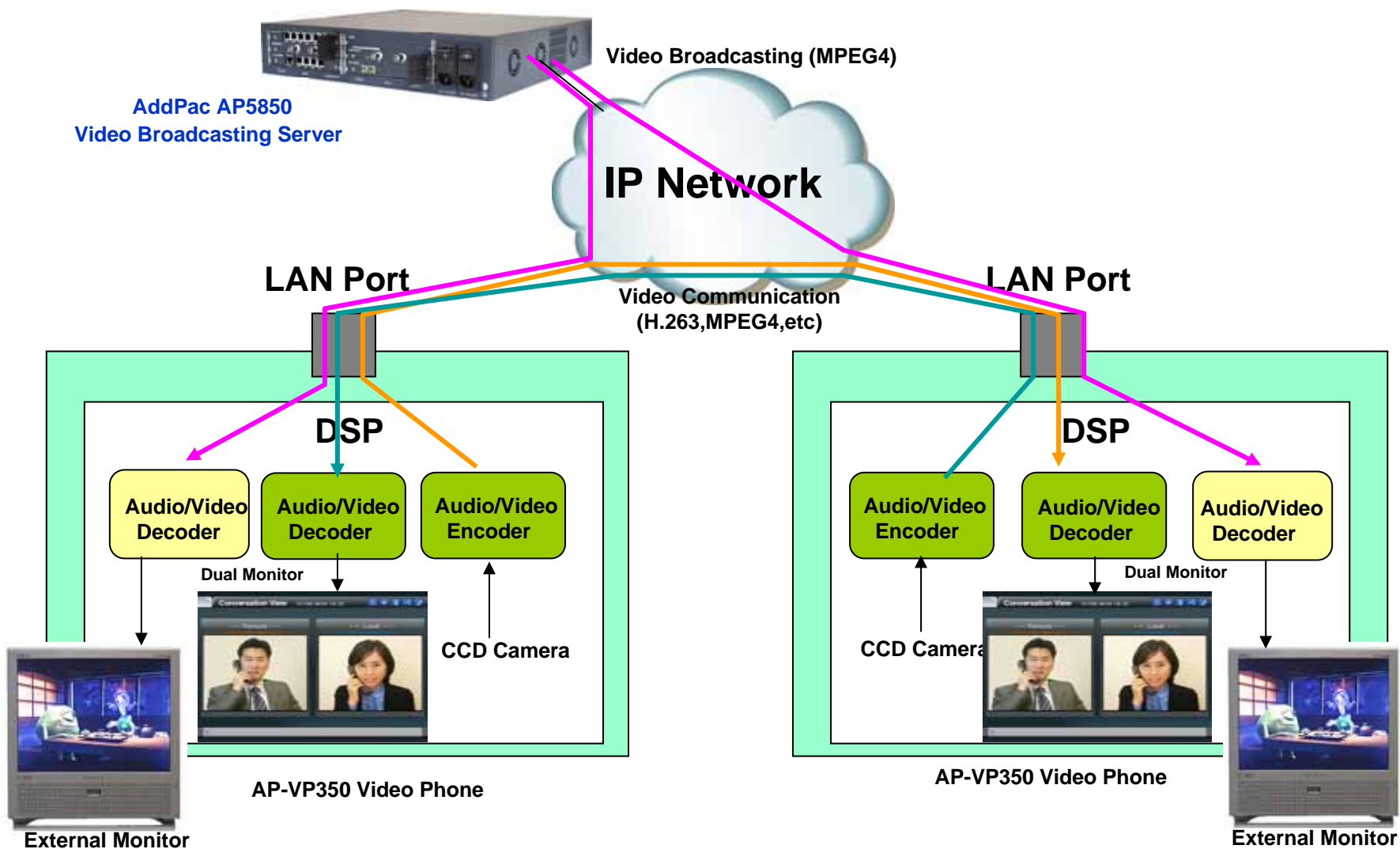
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Dual Monitor Service

Independent Dual Monitor Service

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Dual Decoder & Single Encoder

Video Broadcasting + Communication Service Model

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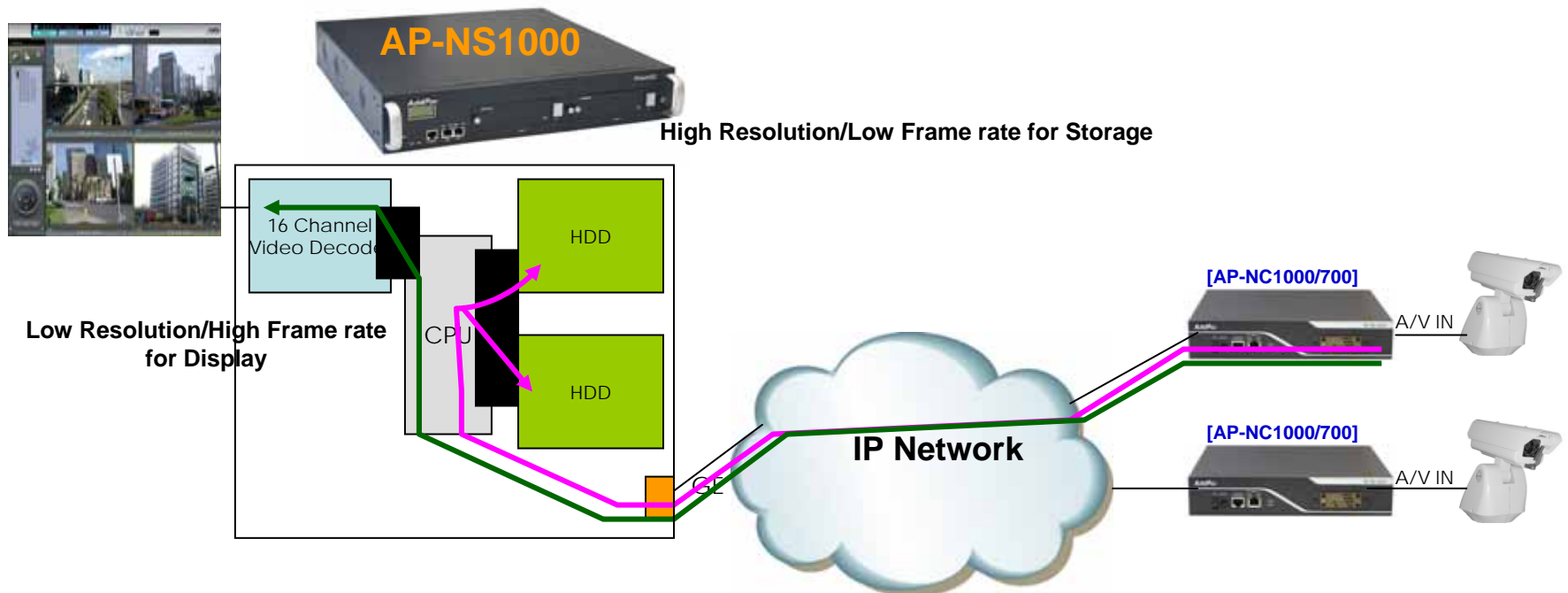
- **Video Codec for AV Broadcasting :**
 - MPEG4
- **Audio Codec for AV Broadcasting :**
 - MP3, G.711, G.726, etc
- **Video Codecs for Visual Communication :**
 - H.263, MPEG4, H.264

Dual Encoding Feature & Service

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Network Camera Service

- **Dual Video Encoding for Network Camera**
 - High Quality, Low Frame Rate for Storage (Ex : VGA, 10Frame)
 - Low Quality, High Frame Rate for Real time Display (Ex: CIF, 30 Frame)
- Video Codec : MPEG4
- Service Architecture



Basic Network Protocols

- ARP, IP, IPv6, TCP, UDP, ICMP, ICMPv6, 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 Private Dial-up Network : L2TP Server)

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)

Miscellaneous

- Cisco Style CLI
- Standard & Extended IPv4/IPv6 Access List
- Multi-level User Account Management
- IP accounting
- fsh (Embedded file system shell)
- STUN Client

SNMP MIBs

- MIB-II
- RMON MIBs (Statistics, History, Alarm, Hosts Group)
- RFC2465 Management Information Base for IP Version 6: Textual Conventions and General Group
- RFC2466 Management Information Base for IP Version 6: ICMPv6 Group
- RFC2452 IP Version 6 Management Information Base for the Transmission Control Protocol
- RFC2454 IP Version 6 Management Information Base for the User Datagram Protocol
- AddPac Enterprise MIBs
- etc

OSD Software Features

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Menu Status

Information & Status



OSD Software Features

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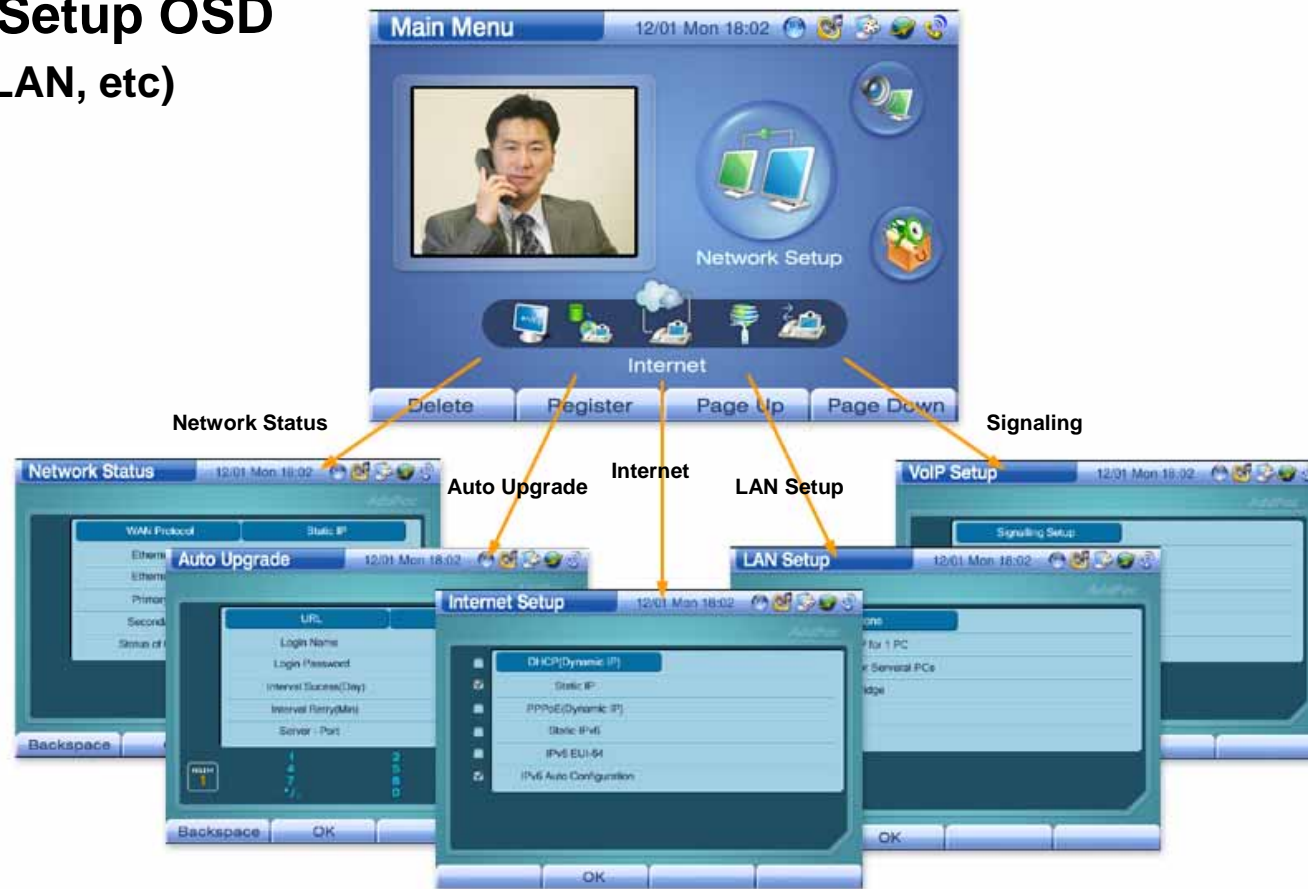
AV Setup OSD



OSD Software Features

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Network Setup OSD (VoIP, LAN, etc)



OSD Software Features

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Tool Box OSD (Ring Type, Language Setup, etc)



OSD Software Features

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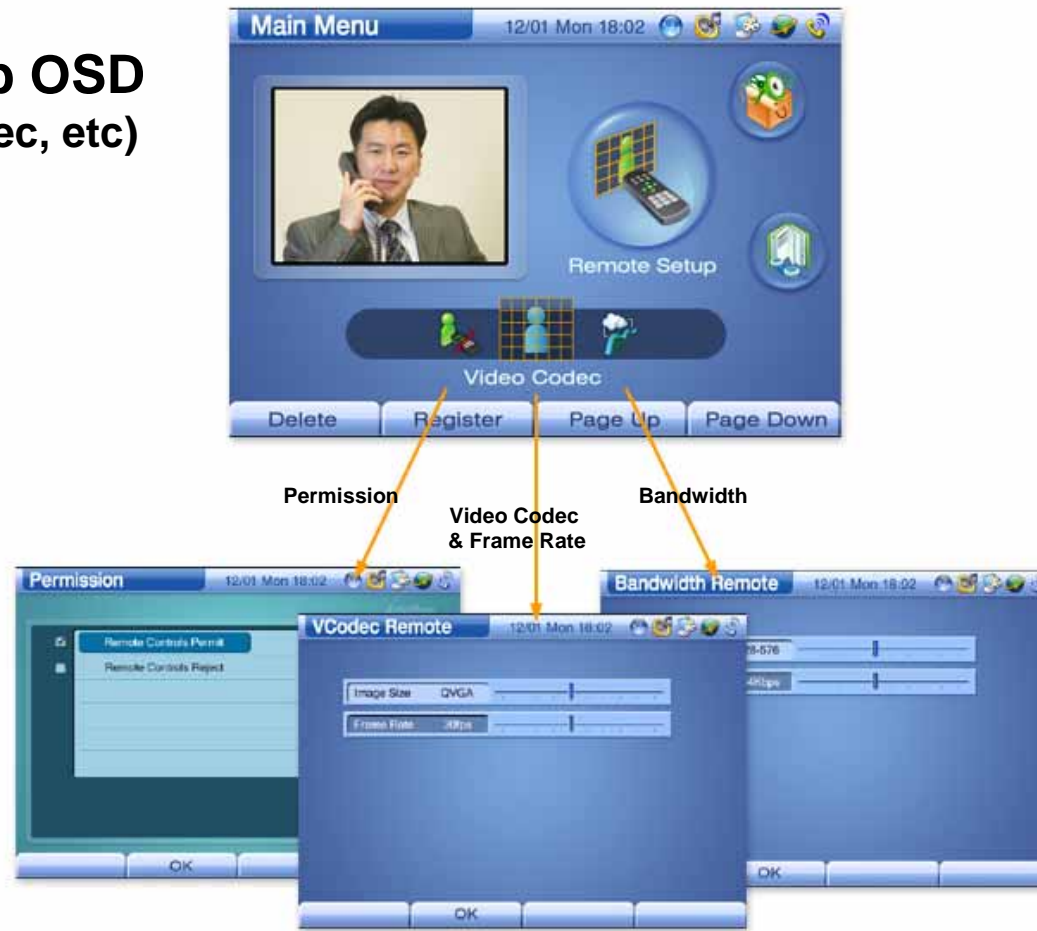
Application OSD
(VoD, IPTV, Network Camera, File Browser, etc)



OSD Software Features

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Remote Setup OSD (Bandwidth, Codec, etc)



Thank you!

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