

APOSd™

Audio/Video DSP Codec Solution
APOSd : AddPac Operating System for DSP





AddPac

AddPac Technology

Sales and Marketing

www.addpac.com

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APOSd Overview

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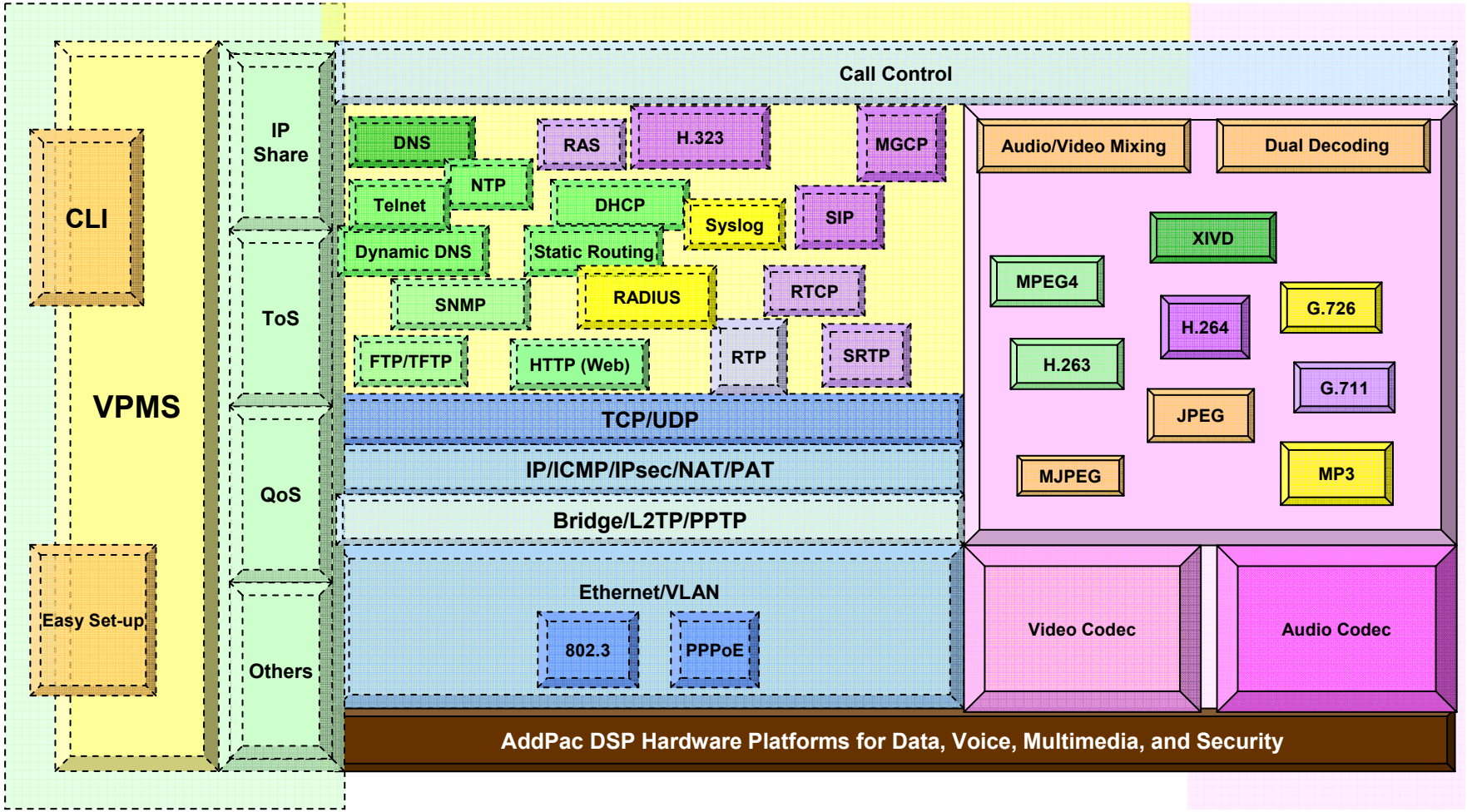
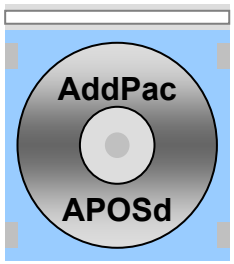


APOSd Software Service

- **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

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

JPEG/M-JPEG Video Codec

- **Variable Size Support**

Audio & Voice Service and Features

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 lsf)
  - 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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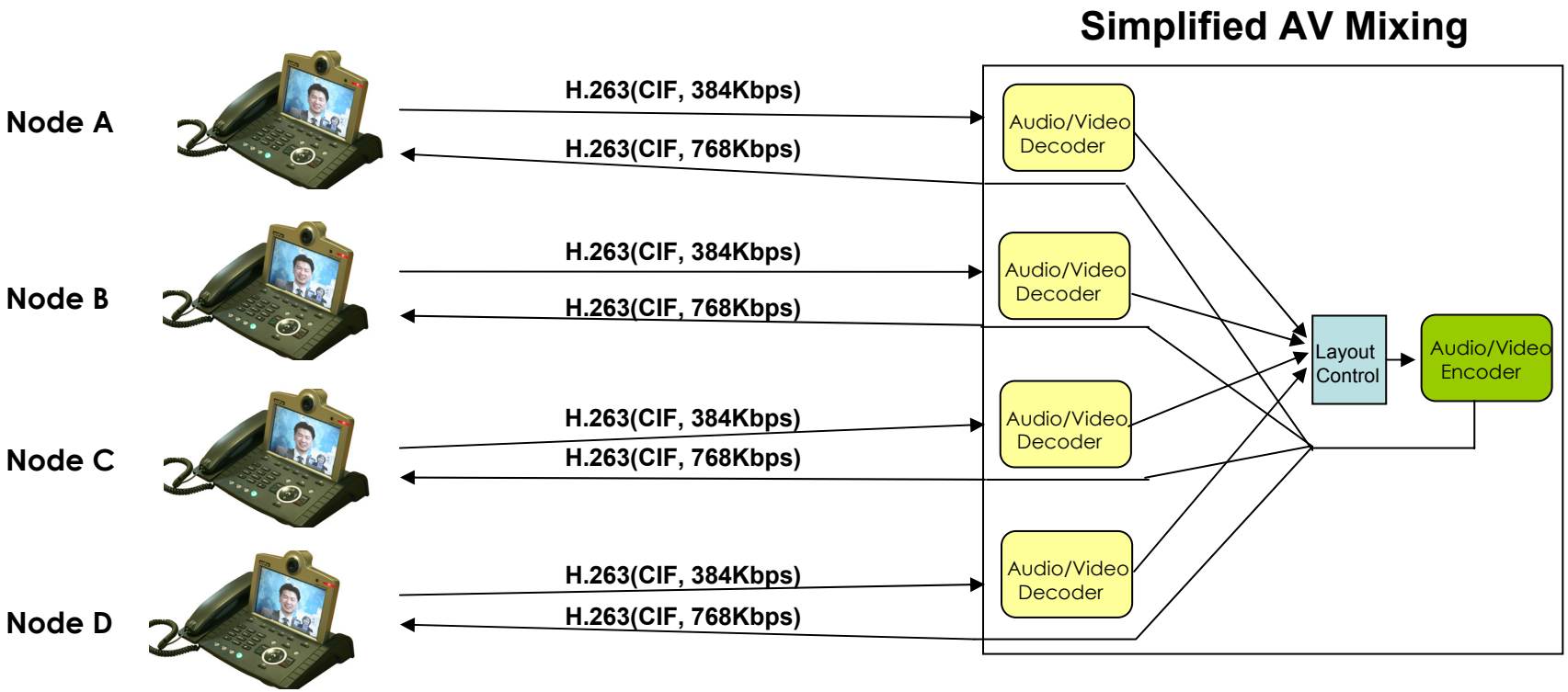
Simplified Audio/Video Mixing Model

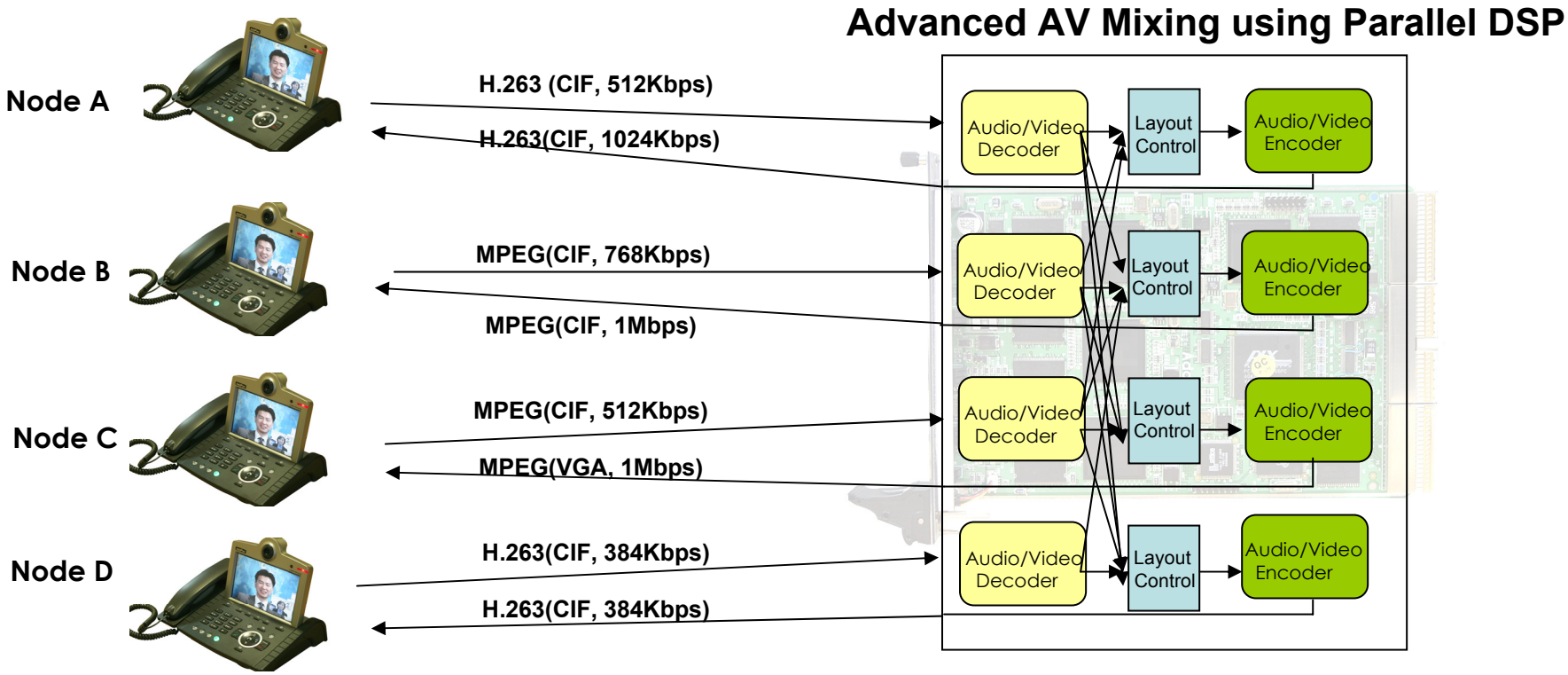
- Single Codec : H.263 or MPEG4
- Single Rate Control
- Asymmetric Rate Control between Encoder & Decoder
- Same Conference Layout for All Party



AV Mixing Feature for MCU App.

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



AddPac AP5840
Video Broadcasting Server

Video Broadcasting (MPEG4)

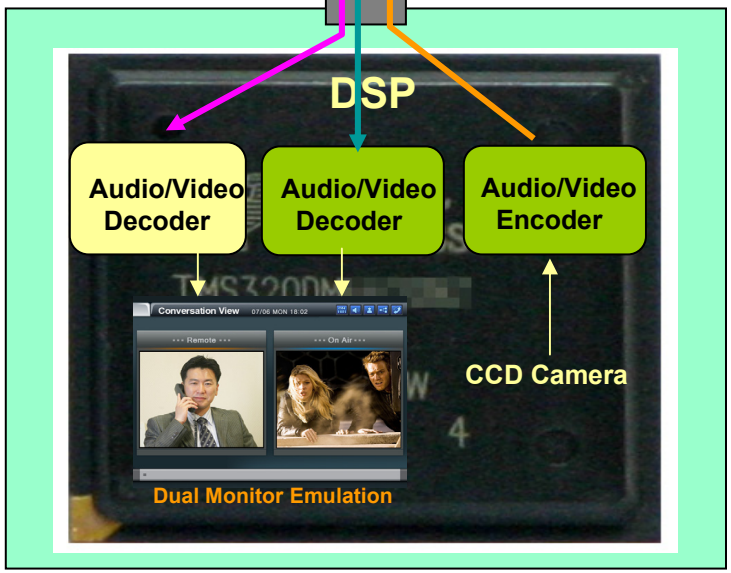


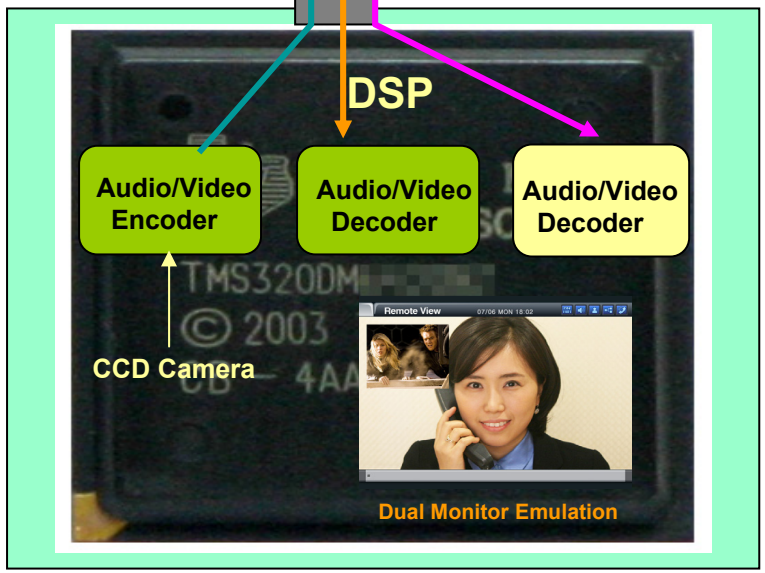
IP Network

LAN Port

LAN Port

Video Communication
(H.263,MPEG4,etc)



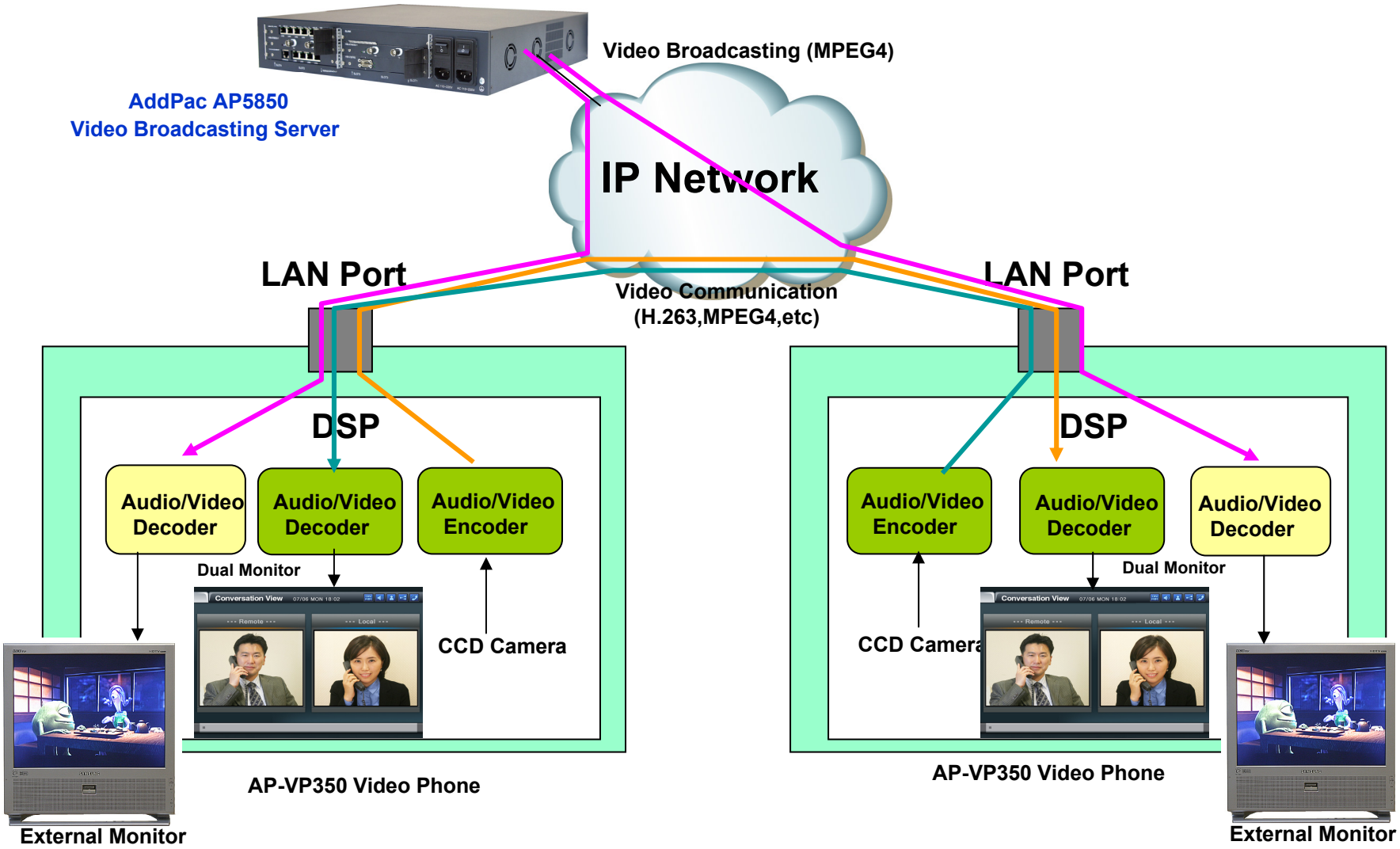


AP-VP300 Video Phone

AP-VP300 Video Phone

Dual Monitor Service

Independent Dual Monitor Service



Dual Decoder & Single Encoder

Video Broadcasting + Communication Service Model

- **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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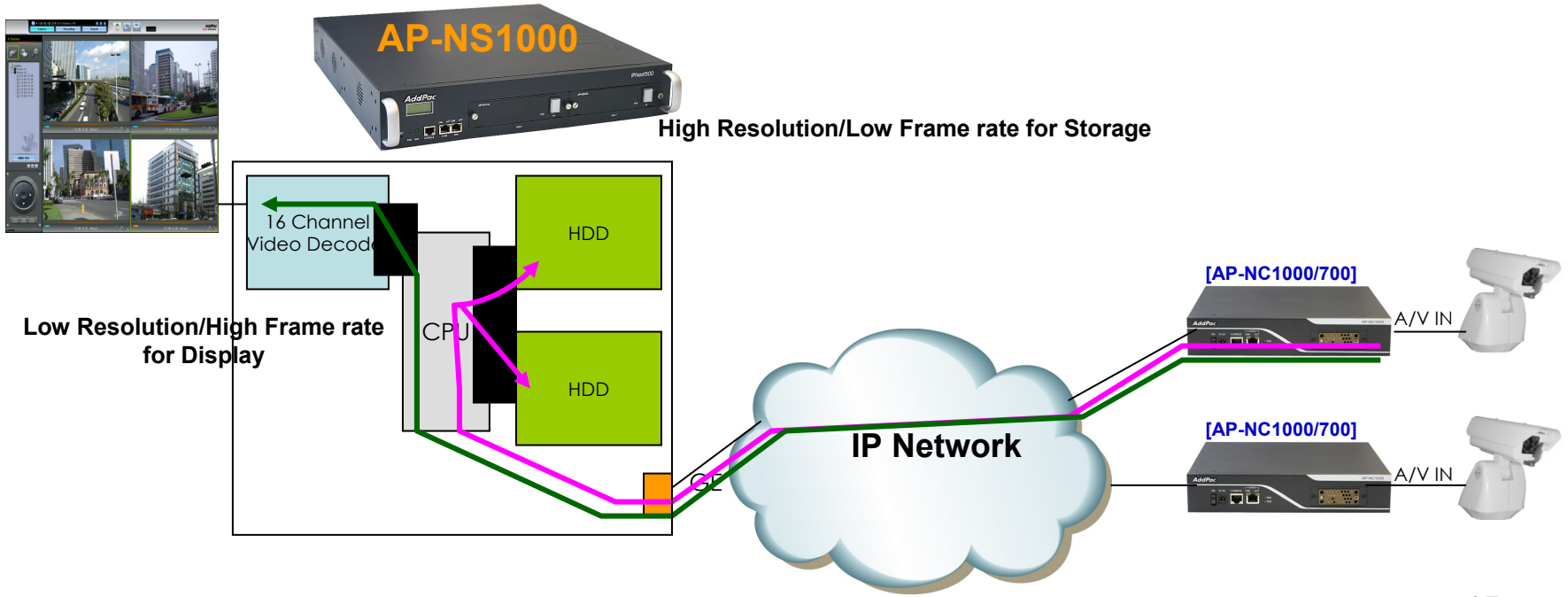
Network Camera Service

- **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



Network Protocols

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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 Provate Dial-up Network : L2TP Server)

IPv4/IPv6 Address & Interwork

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

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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

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SNMP MIBs

- MIB-II
- RMON MIBs (Statistsics, 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



OSD Software Features

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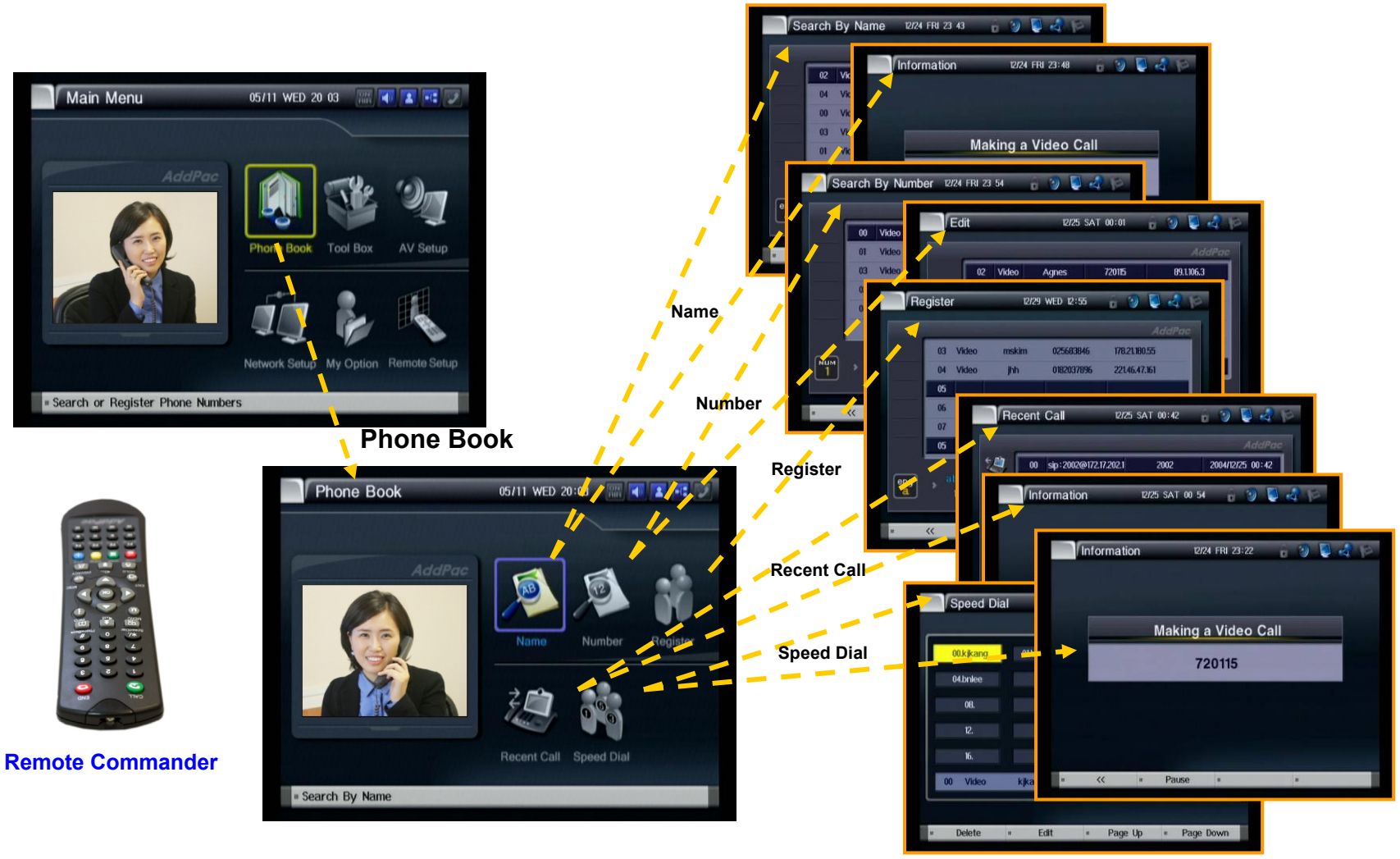

OSD Software Features

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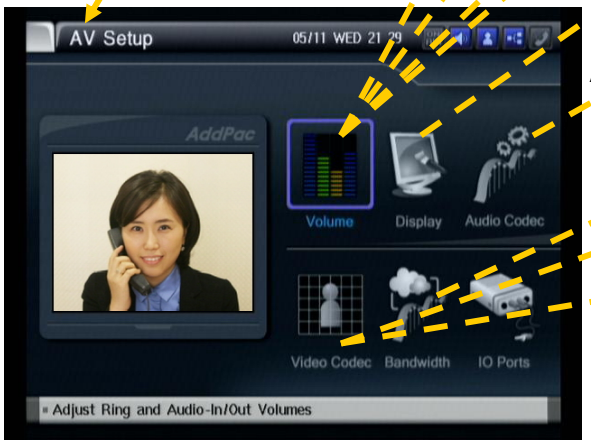
AV Setup





Remote Commander

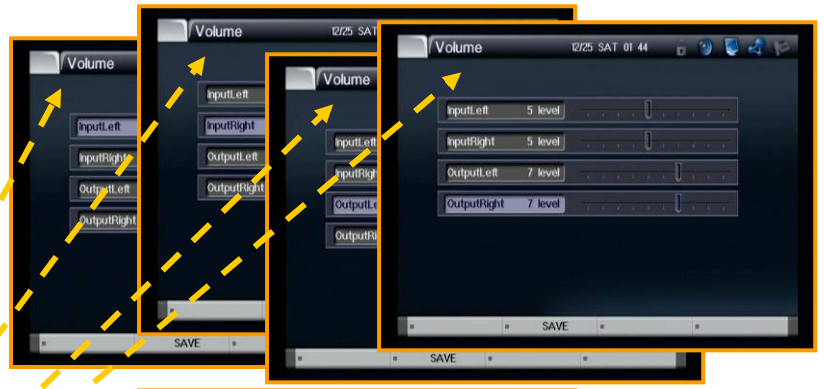
Volume

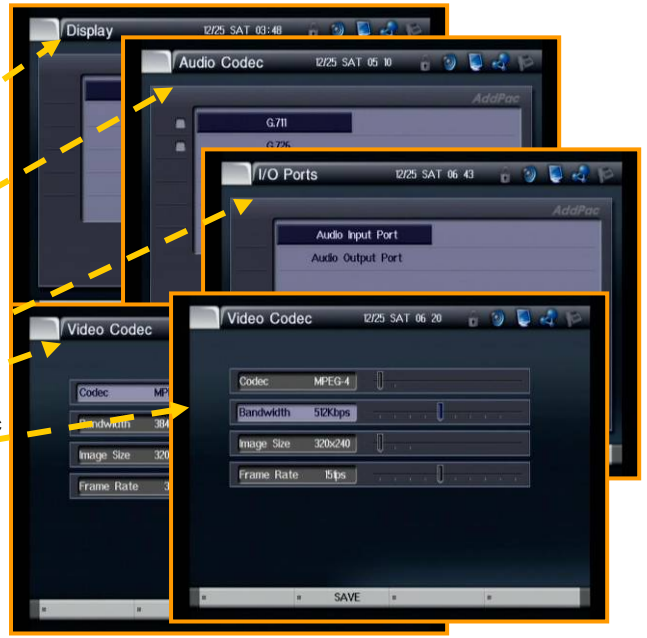
Display

Audio Codec

I/O Ports

Video Codec





OSD Software Features

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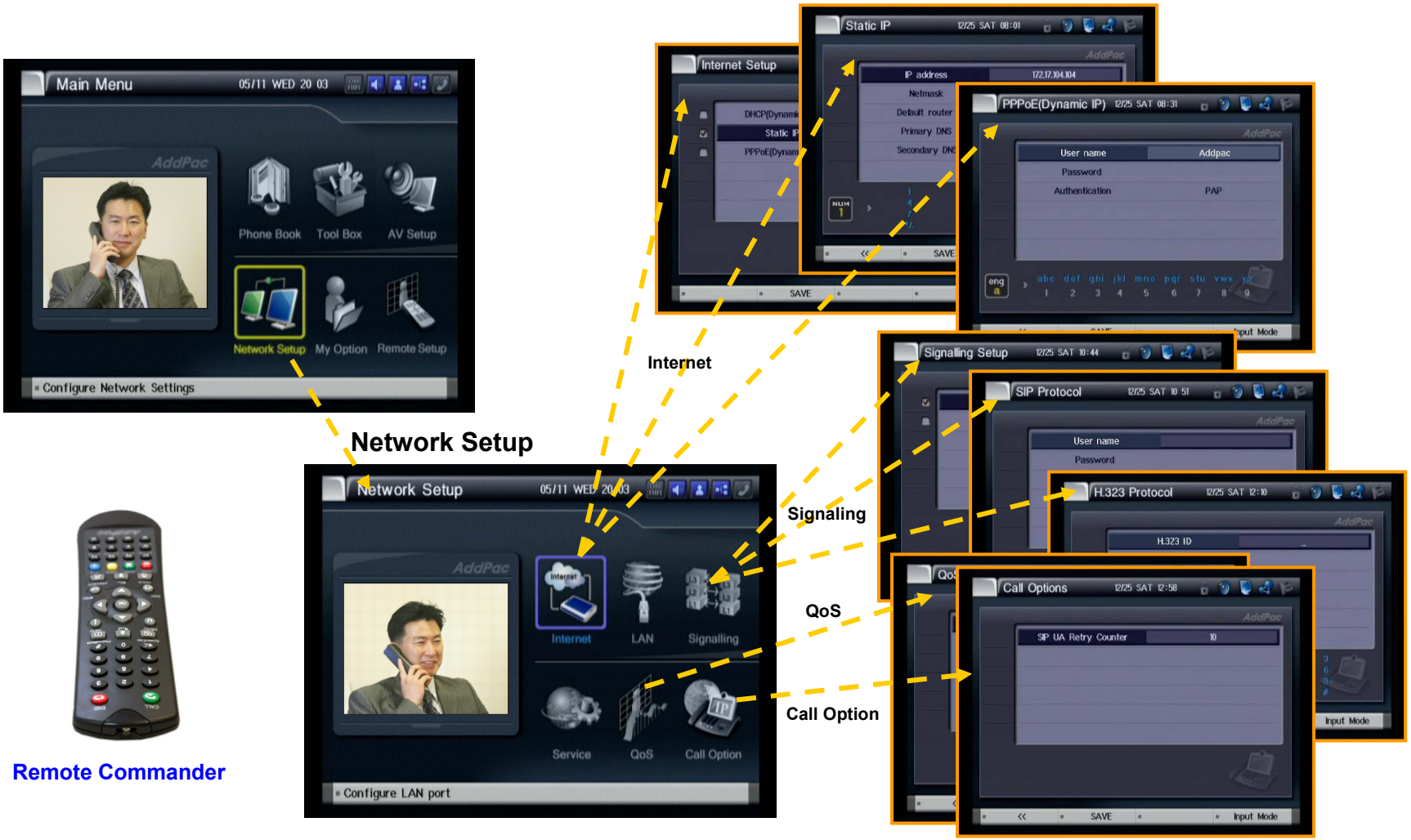

Remote Commander

Thank you!

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