IPTV Video Solutions

Innovative Systems

www.innovsys.com
Two Proven Video Hardware Systems
The APMAX™ and InnoStream™ hardware systems provide turnkey video solutions supported exclusively by Innovative Systems.

Extensive Live Testing Lab
With an in-house Central Office and 150 streams of live video from a regional headend, Innovative Systems IPTV service are deployed in our employees’ homes, thus receiving the ultimate test - our families.

Two Platforms Offering Multiple Video Solutions
APMAX and InnoStream give you redundant carrier grade systems with software that is written, developed and supported by Innovative Systems.

- IPTV Middleware
- Cloud DVR
- Local VOD
- Subscription VOD
- C3 VOD
- HLS OTT Packaging
- Forward Error Correction And MORE!

IPTV Middleware
- Restart TV
- Whole Home DVR
- DVR & Channel Control Using Smartphones and Tablets
- Local Weather App
- Virtual Remote™ for Customer Care
- What’s Hot App
- Subscriber Adjustable EPG Display
- Integrated Caller ID Screen Pop
- APMAX Voice Message Waiting Indicator
- Binge Mode Playback

StreamingTV
- Your local channels over Roku™ products, smartphones, and tablets
- Lower entry cost than traditional subscription video

Video Monitor
- Monitors IPTV Streams from the headend to detect video and audio issues
- Real Time Customer Support Monitor App & Technical Interface
- Works with all IPTV Middleware Vendors
- Alarm E-mail Alarm Notifications

Video Streaming
- Program Scheduling
- Stream Videos to your IPTV Channels
- Works with all IPTV Middleware Vendors
- Automatic Video Converter Tool
"The switch to APMAX Middleware has given us more tools to reduce operational costs than our previous solution."
John Smith, Director of Operations, Blue Valley Telecommunications, Home, KS

“The APMAX solution was by far easier than our three previous middlewares to install and also to deploy. We had video up and running in our office the same day - about a three-hour process.”
John Hoskins, Network Administrator, Pembroke Advanced Communications, Pembroke, GA

“The UEM feature of the APMAX IPTV Middleware allows us to monitor STBs, seeing an issue that a customer may be having. We can proactively address it before they know they are having a problem.”
Brian Kettman, MTCO, Metamora IL

"70% of our video trouble calls are handled using the Virtual Remote™, and when you have over 7000 set top boxes to manage, that is a huge money saver."
Andy Hulscher, Technical Supervisor, Alliance Communications, Garretson, SD

“Being built from the hardware side forward was the main reason we chose the APMAX™ Middleware solution. The majority of the middleware vendors, while being visually appealing, lacked a lot of stability on the back-end; the more things that we can administer from our central office, the better it is for us.”
Rob Petruk, Gosfield North Communications CEO, Cottam ON, Canada
Integrated Subscriber Management Tools Improve Support Efficiency

With the Innovative Systems IPTV Middleware solution, no extra hardware or software is needed to quickly address customer service questions. Account management and diagnostic screens allow for quick provisioning and deployment of services with minimal training time.

Most subscribers have multiple set top boxes in the home, and the subscriber management system can automatically “ping” the subscriber’s STBs to quickly identify a STB that isn’t able to respond to the ping.

Virtual Remote™

The majority of video issues your customers have involve the remote control. With the Virtual Remote™, your support team can take control of a customer’s remote and walk them through the program guide or help them change their settings, thus eliminating the need for a costly service call.

Easy Report Creation

A drag and drop feature in the APMAX UI allows administrators flexibility in creating custom reports. The search parameters can be saved for future use.

Backup/Restore STB Settings

Give service providers the ability to back up or restore all STB settings in the case of a DVR/STB swap out.

STB Audit

Assists operators in knowing the health of their deployed STBs. STB Audit confirms channel package authorization, verifies MAC address, reports versions and counts, and reports on health status of the hard drive, available space, viewing time, and more.

Boot-up Trouble Screens

Will only appear if trouble occurs. Potential problems – waiting for address (no network connection or no DHCP server), no time server or no SI stream, or incorrect DHCP parameters.

Channel Stats

Use this tool to determine peak times and days that your customers are viewing channels watched and not watched. Statistics are exportable to spreadsheets and graphs.
Industry Leading Features
Innovative Systems IPTV Middleware gives the user features they do not want to live without.

Binge Mode Playback
Feature that gives subscribers the option of playing the next episode of a series recording without having to go back to the recording list. This can be used with both VOD and DVR features.

Weather App
Current weather conditions and forecasts as well as animated radar are one button away with the Weather Plus Option. (Supports Canadian weather metrics)

Whole Home DVR
Standard STBs in the home can take advantage of the record and play functionality of the home’s DVR STB. Now you can move a Series Rule from one DVR to another in the same Whole Home Group.

What’s Hot App
The What’s Hot App gives users real time information about what others in their area are watching. Users can view, record or Restart most watched TV programs, Recorded Programs, and Series Recordings in their service area.

Restart TV
Give your subscribers flexibility in their TV viewing with Restart TV. It allows them to restart programming already in progress.
Requires InnoStream server and approval from content owners for implementation on channels.
Customers can Customize the Program Guide

The Innovative Systems IPTV Middleware solution allows subscriber control of the number of rows, columns, and text size. They can also set their default guide to a full screen guide or a corner screen guide. This differentiating feature allows for guide sizing which accommodates different size TV screens.

Now Playing Feature

If a subscriber wants to get a quick snapshot of what’s happening on their IPTV service, all they have to do is press OK on the remote. A popup will display on the screen showing the channel that’s on live TV, the channel they are watching, and the channel(s) that their DVR is recording.

System Messaging

Send operator messages (pop-up or crawl format) to all STBs or a group based on STB model, service area, trial group, IP address, FIPS, package, list of MAC addresses, and GPS region. The service provider can also import a list of contacts. Lets your customers know about outages and channel lineup changes, or use it to market new features.

ManageMyTVs Application

With the ManageMyTVs app, users can search programming and manage their recordings from their iOS and Android devices. Turn your device into a remote control or view guide data remotely. ManageMyTVs app will also play HLS content if available through your system.

Available in the Google Play Store and Apple App Store.
Voice Services on TV
Add value to your wireline phone service with the integration of Caller ID Screenpop, Voice Message Waiting Indicator*, Recent Callers List, and voicemail playback as well as Voice to Text on the TV*.

*Requires APMAX Unified Messaging and Voice to Text Option

Games
Solitaire, Spider Solitaire, Minesweeper, Memory, and Sudoku available through your STB for a complete User Experience.

Easy Guide Search
Allows users to click on a program in the Guide and hit the Search (Yellow) button to see a listing for the future availability of the same show. You can even go back in time in the Guide to search for a program you just missed. The Title Search feature allows users to search for programming based on key words in titles as well as save your favorite searches for future use.

Pay Per View
With proper promotion, PPV can be the differentiator in making your video service a profitable one.
Move Series Rule to Another DVR in Whole Home Group

As part of editing a series rule, users are able to move that rule to another DVR in the whole home group. This feature is especially useful when replacing a DVR or moving to Cloud DVR because the users do not have to re-enter all of their series rules.

Whole Home Bandwidth Management

Make IPTV manageable with Whole Home Bandwidth Management. It is great for homes with multiple TVs but limited bandwidth, and intelligently supports DVR recordings without exceeding available bandwidth.

DVR Folder Management

Management of DVR recordings has never been easier and can be done from one screen with the whole family having their own folders for recorded programs. This feature is even more valuable with Whole Home DVR.

DVR Trick Play Features

Customers can use slow motion on that great play, or take advantage of the settable skip forward and skip back. Pause, rewind or fast forward live TV.

Parental Controls

Give your subscribers control of their children’s viewing times and what they are allowed to watch with Innovative’s Parental Controls. Users can set restricted viewing times by “Time of Day” and “Day of Week.” They can also set Programming Limits based on Motion Picture ratings or TV ratings. Users can also restrict display of program titles at or above the rating limit in the guide.
Enhances Time Shifted Viewing and Improves Quality of Service –
With Industry Leading Software and Support by Innovative Systems

It is more than just a server…it gives you

Redundancy
- Dual Control Servers
- Media Content Diversity
- Redundant Power Supply per Server

Scalability
- An InnoStream System includes two units with integrated control and up to 96 TB of Storage
- Additional System shelves can be added as you grow

Fault Resilient
- No single failure takes the system down
- Expansions can happen on live servers
- Hot swap disks without system outages

Intelligent Replication
- Multiple options for customer content duplication and protection

Services Available on the InnoStream Server Platform:
- Restart TV* – Subscribers can restart live programming already in progress.
- Video on Demand – Provide your viewers a Netflix-like experience and further differentiate your VOD service with local content.
- C3VOD* – The operator records current on-demand content with no catcher and makes it available to subscribers in your VOD library.
- Cloud DVR (cDVR)* – Network based storage with no home DVR required, and with the Restart TV option allows for Pause Live TV on every STB. Save on DVR expenditures, reduce truck rolls and eliminate STB installation expenses.
- HLS Packager – This service is necessary if you want to provide your subscribers live local TV streaming over your data connection. This solution supports APMAX StreamingTV and other similar products.
- Forward Error Correction (FEC)* – Counts packet errors and reduces or removes Tiling and Freezing. Beneficial for xDSL, Wi-Fi, MoCA or other in home networking solutions.

* Must have an APMAX and the APMAX IPTV Middleware solution for this service.

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Optional STB Features

- Offer the option to have the latest technology in 4K TV with a STB that supports it.
- Integrated WiFi for Internet and Over the Top Applications.
- Picture in Picture which allows the subscriber to adjust the location of the second picture and toggle between the audio of the two programs.

STBs Supported

- Amino (Entone): 110, 125, 130, 530, 140, 540, 150, 550, and 5050 (LIVE), Kamai 500, Amulet 505, Agora 555, Kamai/Amulet 65X and Kamai/Amulet 45X
- ADB: 3800, 2721W, 2721WX, 3721, 5721, and 1720W

“When we started looking at the middleware vendors out there, what impressed us the most about Innovative was the fact that they weren’t offering “vaporware” which is quite common in this industry. Everything that APMAX brought to the table worked, and we saw a long-standing commitment to the independent market that fits well to the scale of our business.”

Rick Tidwell, CEO ValuNet, Emporia KS

* These features are not available on all STB models.
Central Reporting Server
The Central Reporting Server is a Windows-based service that automatically downloads and preprocesses log files from the APMAX and e-mails reports at scheduled times.

Why do you need Central Reporting Server for your IPTV Middleware?
• Makes the APMAX Report Viewer work faster - no waiting for files to download and log files are already pre-processed for reporting needs.
• Delivers reports at defined intervals - convenient access to APMAX data, easier to monitor APMAX service activity, and no need to remember to collect data.
• Allows for a larger time span of data available

User Experience Monitor (UEM)
Allows service providers to view data from the STBs in their network pertaining to different events or feature utilization.

Potential Data and use-case scenarios:
• View the number of times the Weather App, What’s Hot App, or other features were invoked on the STBs in a specific area.
• View problems that customers are having but not reporting.
• Correlate network problems to trouble reports.
• Runs reports to show:
  - Hard drive health
  - Disk drive errors
  - SI discontinuity errors
  - Number of reboots and last reboot details

InnoSafe
Do you have a backup plan?
• Protect your data with this backup plan that provides a checkpoint backup to aid recovery from a catastrophic system loss.
• Benefits of InnoSafe
  - Backs up both APMAX and InnoStream units automatically each week.
  - Runs in the background.
  - Stores the backup off-site to a secure global cloud infrastructure.
  - Automatically sends an email with the backup status.
Stream Video to your IPTV Channels

The APMAX can deliver video streams efficiently with a user friendly interface that allows you to load Transport Stream (TS) files and stream them to specific IPTV channels regardless of your other video providers. The service will automatically convert most digital video files to the required TS format.

How it Works

TS videos can be uploaded to the APMAX Video Library, and then single or multiple video files can be assigned to a specific IPTV video channel. These videos can be scheduled to play at a specific time on their designated channel. With Innovative Systems’ IPTV Middleware Solution, the video title and description will appear in the onscreen Program Guide. With the use of generally available production software, service providers have the option of adding advertisements or other pertinent information to the videos before they are uploaded to the APMAX.

Streaming Videos on your IPTV Channels is an easy process:

1. Select videos and add them to the APMAX Video Library.
2. Choose Video Library selections for specific channels.
3. Add Channels to the APMAX Video Streaming.

Application Examples

- Help videos from Innovative Systems for your voice and video services
- Governmental meetings
- Local sports
- Local events
- Service provider promotions
- Service provider board meetings
- Community access content
Use the APMAX to Monitor Your IPTV Video Streams

This solution monitors your IPTV video channels in real time. With a technical interface and a CSR/Support facing dashboard, Video Monitor keeps you aware of the quality of your video service. Innovative Systems Middleware customers can easily import their channel lineups into the Video Monitor. This service will work with any IPTV Middleware vendor.

How it Works

Specific parameters that effect the quality of your video streams can be selected by your technical group, and if a video stream falls below any of these parameters, an alarm will display in both the technical and CSR/Support interfaces. It can also be configured to e-mail notifications regarding alarms. The system will check every “x” minutes and e-mail any alarms that are active at the check interval.

Historical Technical Data Search

The likelihood of short intermittent video issues can be problematic, and the APMAX Video Monitor gives you the ability to create exportable channel reports with a couple of mouse clicks.

CSR Interface

The Video Monitor provides snapshot info to the CSRs to assist with customer issues. This interface will give your front line staff important information including:

- Computer tray warning icon
- Channel history snapshot
- Quick look-up feature
- Read only interface
- Graphic display of alarm segments
- 24-hour data reference
Use Your APMAX to Deliver Live Local Channels With Your Managed Data Connection

Easy to Deploy Solution
This APMAX service includes built in Lineup, Subscriber, Device and Location Management. StreamingTV e-mails subscribers simple instructions on how to find the private Roku® channel and information on how to activate their Roku devices.

Works on Tablets and SmartPhones
StreamingTV can be provisioned to add specific numbers of mobile devices to a subscriber account for added revenue options. StreamingTV app is available in the Google Play Store and the Apple App Store.

Adaptive Multiscreen Streaming
Headend content can be transported in HLS format into an Adaptive Bit Rate domain in traditional IP Multicast traffic. Each stream can be compressed into different bandwidth profiles to allow for multiple options serving subscribers who have varying degrees of data consumption within their home networks.

StreamingTV Requirements
- Content Agreements
- Guide Data
- Adaptive Bit Rate Encoders
- Roku Devices, Tablets, SmartPhones and PCs using Windows 10.
- Origin / Package Server to capture and store HLS streaming video (part of the InnoStream Solution)

Guide Info
Provides subscribers information for the current and the next two scheduled programs. Providers can brand the guide with their logo.
Innovative Systems Has a Positive Track in Converting Service Providers From Other Middleware Vendors.

Take a look at the past six years:

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Service Providers Converted</th>
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<tbody>
<tr>
<td>2011</td>
<td>12</td>
</tr>
<tr>
<td>2012</td>
<td>10</td>
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<tr>
<td>2013</td>
<td>8</td>
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<td>2014</td>
<td>6</td>
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<tr>
<td>2015</td>
<td>10</td>
</tr>
<tr>
<td>2016</td>
<td>19</td>
</tr>
<tr>
<td>TOTAL</td>
<td>65</td>
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</tbody>
</table>

Innovative Systems has a live IPTV headend in the building that allows real world testing of new software BEFORE it is ever released to our service providers!

Innovative Systems Middleware Head to Head

<table>
<thead>
<tr>
<th>Subscriber / Service Provider Benefits</th>
<th>Innovative Systems Middleware</th>
<th>The Competition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Vendor Support</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>Virtual Remote™</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>Channel View Stats</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>What’s Hot App</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>Local Weather</td>
<td>YES</td>
<td>NO</td>
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<tr>
<td>Configurable Guide</td>
<td>YES</td>
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<tr>
<td>High Reliability</td>
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<td>NO</td>
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<tr>
<td>Fast Deployment</td>
<td>YES</td>
<td>???</td>
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</table>

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