

Video Solutions



Multi Generation TV

Making IPTV and OTT
One Turnkey Solution



InnoStream™
AN INNOVATIVE SYSTEMS PLATFORM

 **Innovative
Systems**

www.innovsys.com

IS Video Solution

Video Solution from Innovative Systems

The InnoStream™ hardware system provides a turnkey video service supported exclusively by Innovative Systems.

Multi Generation TV

Powered by the InnoStream™ platform, MG-TV is a complete solution with everything required for an integrated OTT and video solution that is easy to deploy, support, and use! See pages 9-11 for more information.



Multiple Video Solutions - On One Platform

InnoStream™ gives you a carrier grade system with software that is written, developed, and supported by Innovative Systems.

- Video Middleware
- Restart TV
- cDVR
- Video on Demand
- Subscription VOD
- C3 VOD
- HLS OTT Packaging
- InnoCryption Encryption Service
- Forward Error Correction
- Channel Guide Data

Extensive Live Testing Lab

We test our video services in a live central office and then deploy them to company employees in their homes. With 150 streams of live video from a regional headend, our solution receives the ultimate test – our families!

MG-TV Customer Experience

- Restart TV
- Whole Home DVR
- Local Weather App
- Virtual Remote™ for Customer Care
- Universal Search
- Subscriber Adjustable Program Guide
- Integrated Caller ID Screen Pop
- Binge Mode Playback
- Video on Demand

MG-TV Live Streaming

- Live encrypted and unencrypted channels on popular devices, smartphones, tablets, and PCs.
- Lower entry cost than traditional subscription video
- Timeshifted viewing options available

Video Monitor

- Monitors Video Streams from the headend to detect video and audio issues

Video Streaming

- Stream local videos to your Linear and HLS channels
- Program Scheduling

Customer Quotes

"Having the ability to quickly ramp up an app-based HLS video streaming product without more vendors and equipment makes the most sense, and that is why we chose the Innovative MG-TV solution as a replacement for our legacy cable system."

**Jarrold Hardin, Director of Customer Relations,
Foothills Communications, Staffordsville, KY**

"The switch to the Middleware from Innovative Systems has given us more tools to reduce operational costs than our previous solution."

**John Smith, Director of Operations,
Blue Valley Telecommunications, Home, KS**

"The 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 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 Middleware solution from Innovative Systems. 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

Support Tools

Integrated Subscriber Management Tools Improve Support Efficiency

This single-vendor solution efficiently addresses 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.

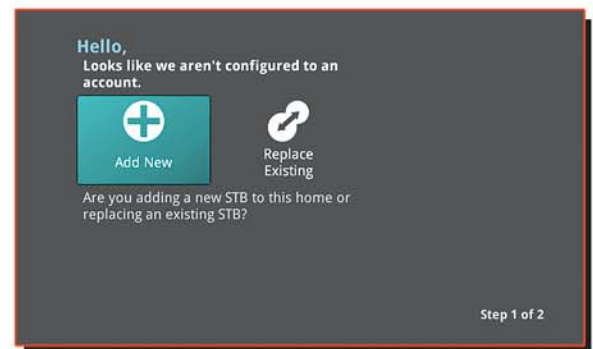


Easy Report Creation

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

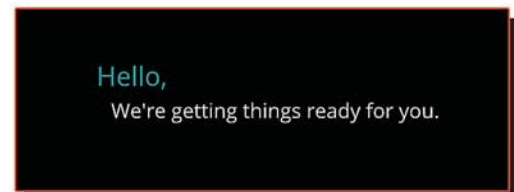
Backup/Restore STB Settings

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



Boot-up Trouble Screens

These screens will only appear if trouble occurs. Potential problems could be waiting for address (no network connection or no DHCP server), no time server or no SI stream, or incorrect DHCP parameters.



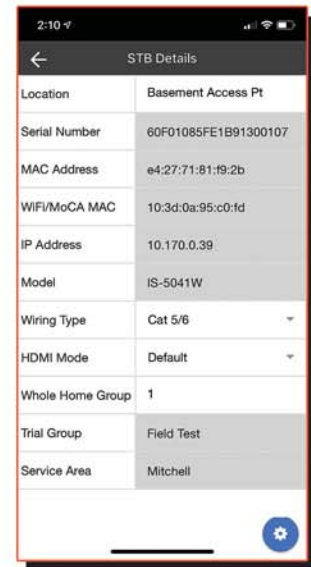
Channel Stats

This tool is used to determine peak times and days that your customers are viewing channels. Statistics are exportable to spreadsheets and graphs and useful for content negotiations and future channel additions or removals.

Support Tools

STB Monitor and Control Web/Mobile App

These applications allow technicians to view STB information, monitor metrics, and control STB WiFi operation remotely in order to save operator time, expenses, and resources.



STB Audit

This 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.



System Messaging

Operator messages (pop-up or crawl format) can be sent to all STBs or a specific group to let your customers know about outages and channel lineup changes. Use System Messaging to market new features, or use it on a single channel for channel outages or content negotiations.

User Features

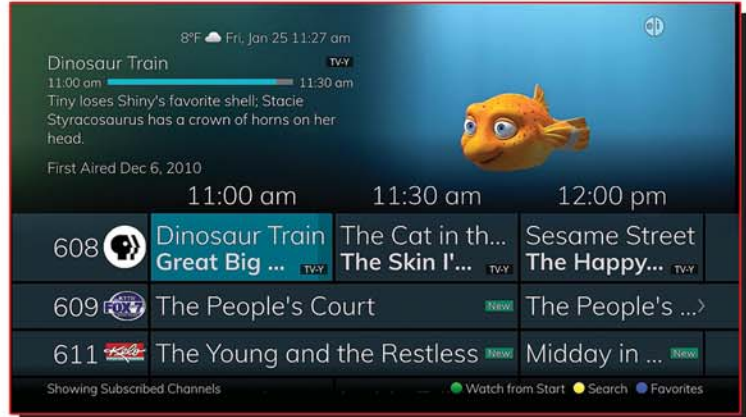
Restart TV

Your subscribers will have flexibility in their TV viewing with Restart TV. It allows them to restart programming already in progress. Pause Live TV is an added feature that provides DVR functionality on every STB.



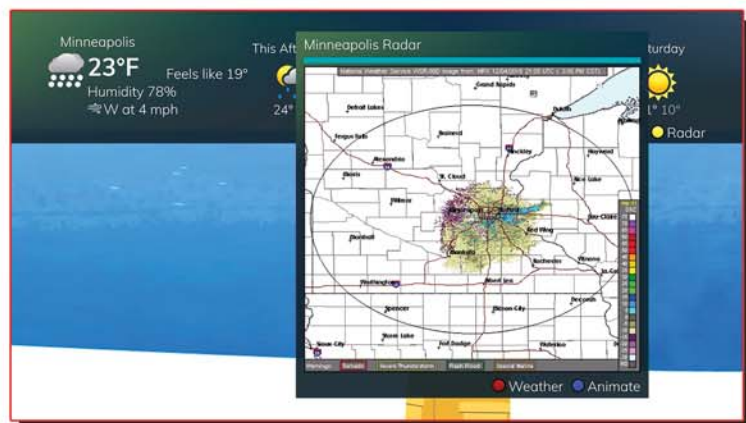
Customers Can Customize the Program Guide

Subscribers can control the number of rows, columns, and text size of their program guides. 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.



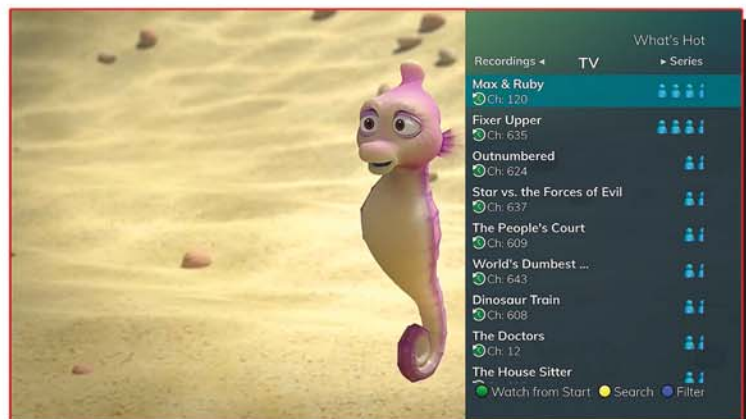
Weather App

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



What's Hot App

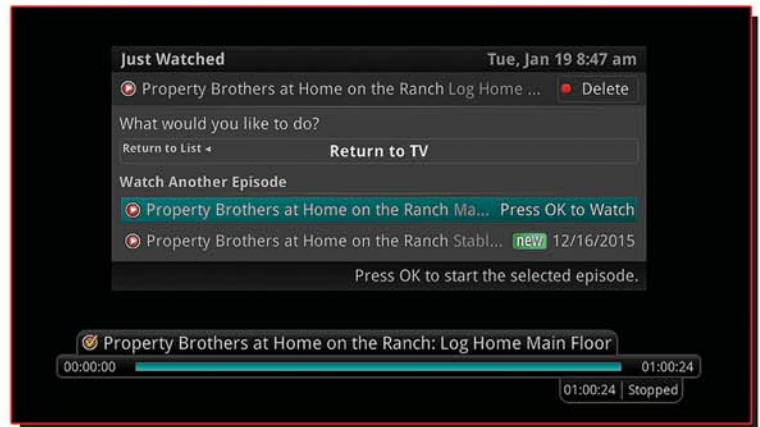
The What's Hot app gives users real time information about what others in their area are watching. Use Restart TV to view or record the most watched TV programs, Recorded Programs, and Series Recordings in their service area.



User Features

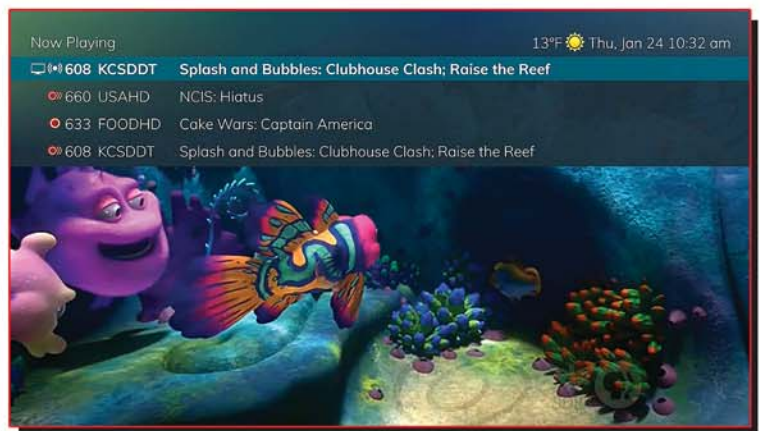
Binge Mode Playback

Subscribers have 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.



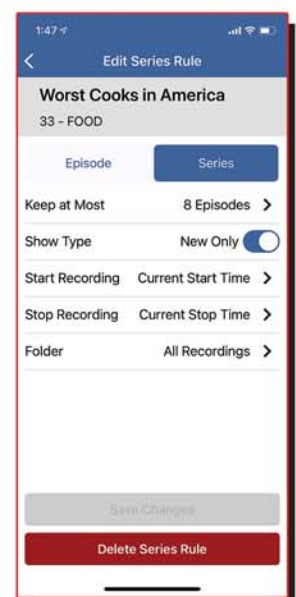
Now Playing Feature

Give your subscribers a quick snapshot of what's happening on their video service; all they have to do is press OK on the remote.



MyTVs Application

With the MyTVs app, subscribers can view guide data, search programming, manage recordings, or use their iOS and Android devices as a remote control. They can manage their linear programs or watch available streaming channels. Available in the Google Play Store and Apple App Store.



User Features

Universal Search

Users can click on a program in the Guide and hit the Search (Yellow) button to see a listing of the same show from Recordings, On-Demand, and TV Airings. 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 and actors as well as save your favorite searches for future use.



Advanced Closed Captioning Settings

Users can change the look of the Closed Caption display on their TV.

"The video hardware and software from Innovative Systems does a great job of bringing OTT centric features into our subscription video service, and when they have a new feature for us to deploy, it just works."

Jason Miller, General Manager, DTC Telecom, Delhi, NY



Restore Deleted Recording

Subscribers have the ability to restore deleted recordings from a Cloud DVR.

Video Monitor

Monitor Video Quality

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

How It Works

Specific parameters that affect 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. This service 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 Video Monitor gives you the ability to create exportable channel reports with a couple of mouse clicks.

Video Streaming

Stream Video to Your Channels

Deliver video streams efficiently with a user-friendly interface that allows you to load Transport Stream files and stream them to specific channels. The service will automatically convert most video file types to the required TS format.



How It Works

Transport Stream videos can be uploaded to the Video Library, and then single or multiple video files can be assigned to a specific video channel. These videos can be scheduled to play at a specific time on their designated channel. With the Video Middleware Solution from Innovative Systems, the video title and description will appear in the on-screen Program Guide.

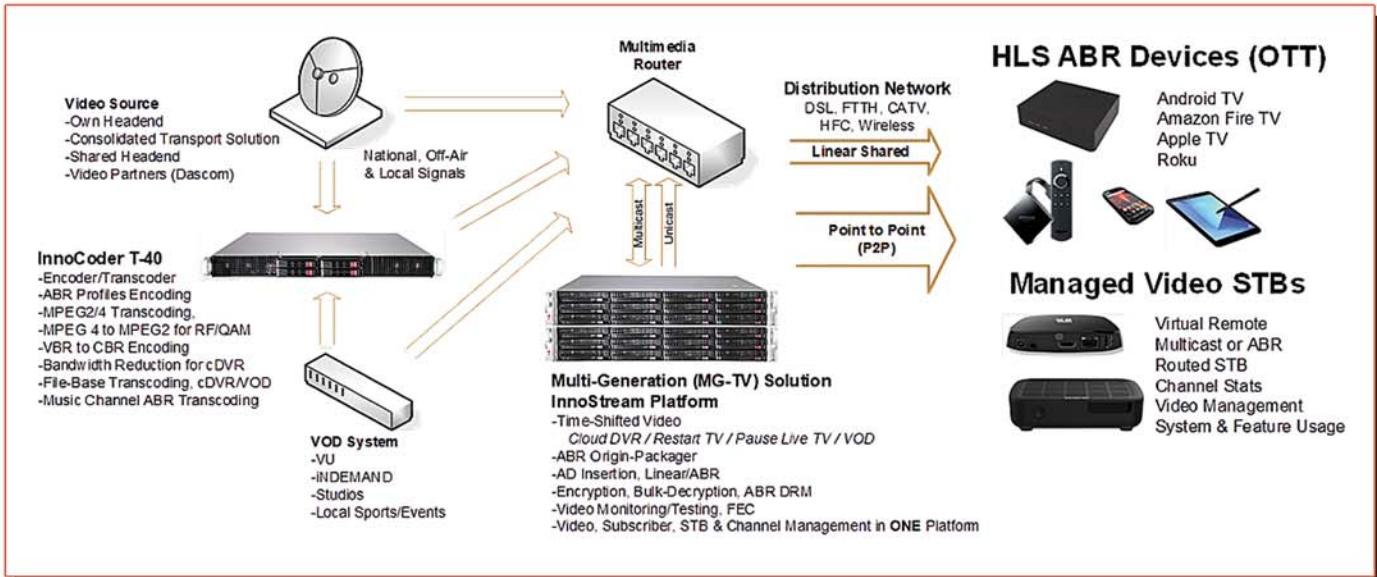
Application Examples

- Help videos from Innovative Systems
- Governmental meetings
- Local sports
- Local events
- Service provider promotions
- Service provider board meetings
- Community access content

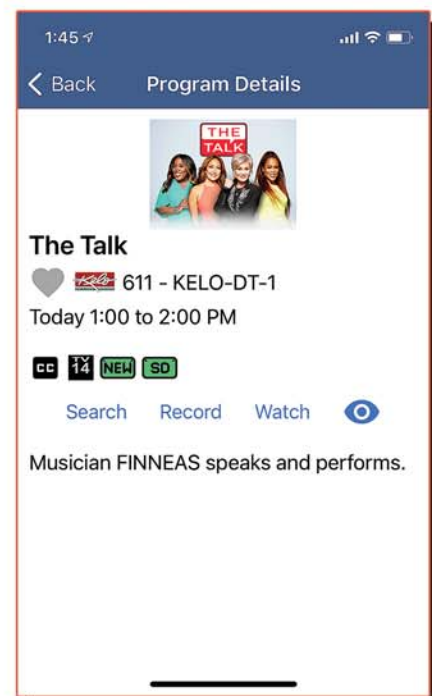
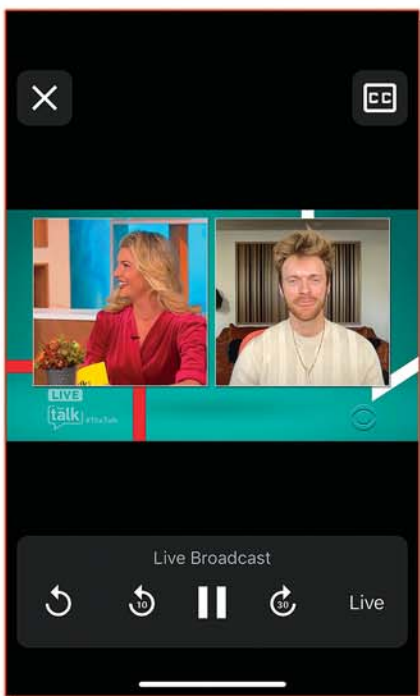


Multi Generation TV (MG-TV)

MG-TV provides the functionality desired by consumers today without alienating end-users that desire a more traditional interface and remote controls. It includes a conventional video solution and streaming video components in one integrated platform.



The MyTVs application brings the MG-TV linear video and HLS streaming into one app and is designed to meet CVAA requirements.



MG-TV Live Streaming

Live Encrypted and Unencrypted Channels over Your Managed Data Connection - without a Set Top Box!



Devices Supported:

Monetize the number of devices that can be provisioned for specific subscribers.

- Roku
- Apple TV
- iPhones
- iPads
- Android Phones
- Android Tablets
- PCs
- Amazon Fire
- Android STBs



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.

Live Streaming - What You Need

- Content Agreements
- Guide Data
- Adaptive Bit Rate Encoders
- Origin/Package Server to capture and store HLS streaming video (part of the InnoStream Solution)

Easy to Deploy Solution

Give a live-streaming package to your customers who want skinny bundles without a Set Top Box. The service includes subscriber, device, and location management as well as options for encryption and guide data.



Restart TV Option

In conjunction with the InnoStream hardware platform, you can give StreamingTV subscribers the ability to restart in-progress programming.



InnoStream Server Platform

The one-platform InnoStream™ from Innovative Systems provides more critical services than any other video vendor.

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 216 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.
- Disks can be hot swapped without system outages.

Intelligent Replication

- Multiple options for customer content duplication and protection



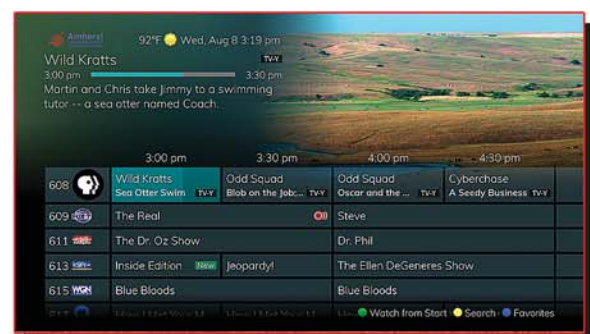
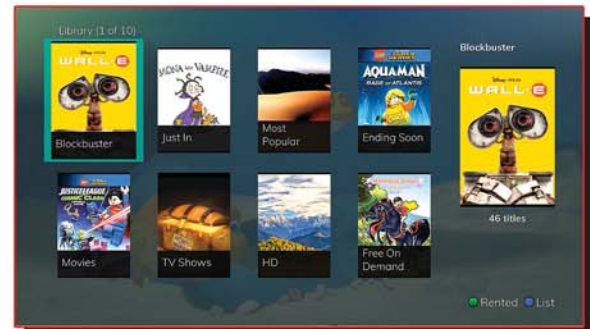
"The video solution from Innovative Systems with the Restart TV and Network DVR has helped us win back customers who had previously dropped our cable service, and we've received numerous commitments from satellite customers once their contracts expire."

Robert Paden, General Manager, Stanton Telecom, Stanton, NE

InnoStream Server Platform

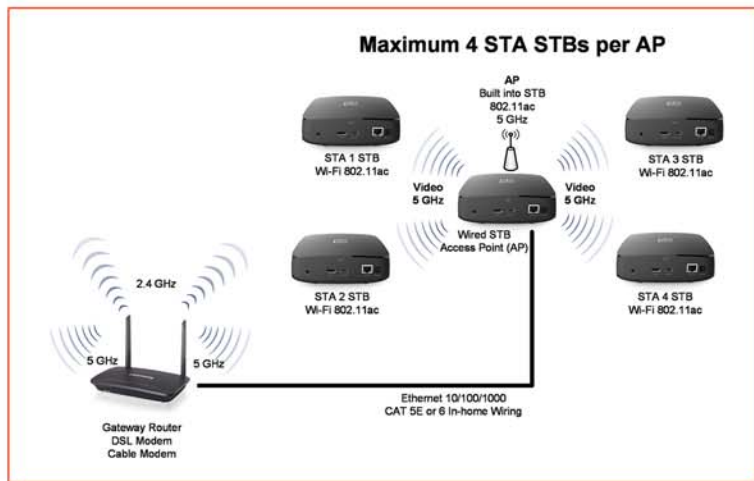
Services Available on the InnoStream Server Platform:

- **Video Middleware** – The best customer experience in the industry includes guide data, apps, recordings, and mobility.
- **Restart TV** – Subscribers can restart live programming already in progress. Pause Live TV is an added feature that provides DVR functionality on every STB. The Restart feature also integrates with the Live Streaming service from Innovative Systems.
- **Video on Demand** – VOD provides your viewers a Netflix-like experience and further differentiates your VOD service with local content.
- **C3VOD** – The operator records live content without a catcher and makes it available to subscribers in your OD library for the time allowed by your content provider.
- **Cloud DVR (cDVR)** – This network-based storage does not require a home DVR. Save on DVR expenditures, reduce truck rolls, and eliminate STB installation expenses. Teamed with Restart TV, recordings can be started at the beginning that allows DVR watchers to not miss a second of the show.
- **HLS Packager** – This service is necessary if you want to provide your subscribers live TV streaming over your managed data connection.
- **Forward Error Correction** – FEC counts packet errors and reduces or removes Tiling and Freezing, which is beneficial for xDSL, Wi-Fi, MoCA, or other in-home networking solutions.
- **InnoCryption** – This systematic approach to Conditional Access (CA) and Digital Rights Management (DRM) for digital media uses the foundation of Secure TV and integrates into our Middleware product by using the InnoStream platform.
- **Enhanced Guide Data Processing** – Enhanced Guide Data Processing provides greater poster coverage, advanced guide data, reduction of a vendor relationship, and a simple, straightforward pricing model.
- **Video Monitor and Video Streaming** – See pages 9.
- **Ad Insertion**



IS-5041W STB

The entry of Innovative Systems into the STB marketplace was generated by customer demand for additional options and increased reliability in Wi-Fi deployments. Building on the success of the IS-5112W, Innovative Systems is now offering a powerful new STB that has a much smaller footprint with numerous added benefits.



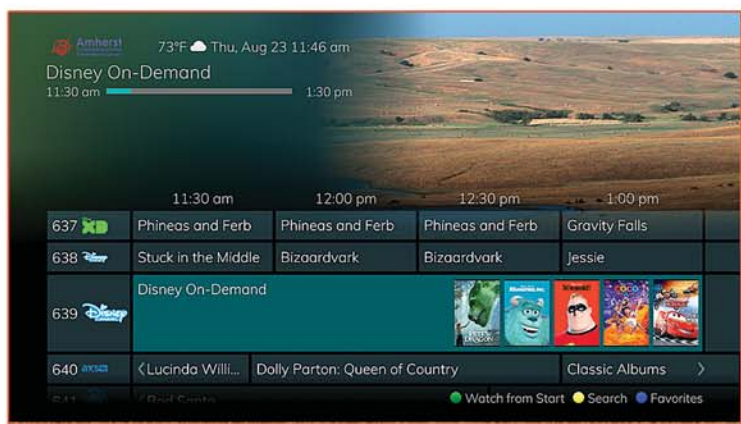
“The Innovative Set Top Box gives us more flexibility at a competitive price point. Having one STB in our trucks that we can install wired or wirelessly just makes good sense for us.”

Steve Swanson, United Communications, Langdon, ND

Features of the IS-5041W

- Routed Mode supported for HLS Live Streaming deployments
- Access Point Mode for Wireless Deployment
- Smaller Form Factor Compared to other STBs
- Built in Support for RF Remote Controls
- High Performance at a Lower Price than Previous Generations of STBs
- Many existing IS Middleware features Supported - Restart TV, cDVR, VOD, and more

STB Features*

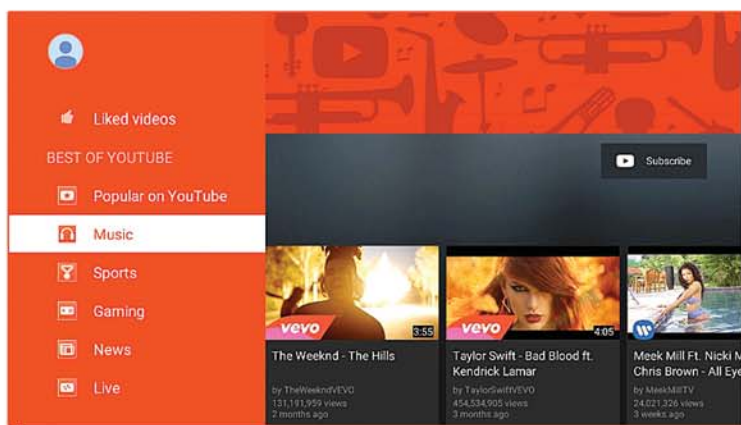


On Demand features are integrated into the on-screen program guide.



STB Features

- Deliver 4K content with supporting STBs
- Integrated WiFi for OTT Applications



Browse YouTube right from your STB or watch Google Play purchased content through the YouTube App.

STBs Supported

- Innovative Systems: IS-5112W, IS-5041W
- Amino (Entone): 110, 125, 130, 530, 140, 540, 150, 550, and 5050 (LIVE), Kamai 500, Amulet 505, Kamai/Amulet 65X, Kamai/Amulet 45X, Kamai 7B and 7X
- ADB: 3800, 2721W, 2721WX, 3721, 5721, 1720W, 1761W, and 1761WF

STB Compatibility

- STBs currently supported by Innovative Systems will maintain functionality with software upgrades.

"This project has been one of the smoothest conversions of this size for Consolidated, the current pandemic did not affect our conversion timeline."

Paul Schuetzler, Consolidated Telecom, Dickinson, ND

* These features are not available on all STB models.

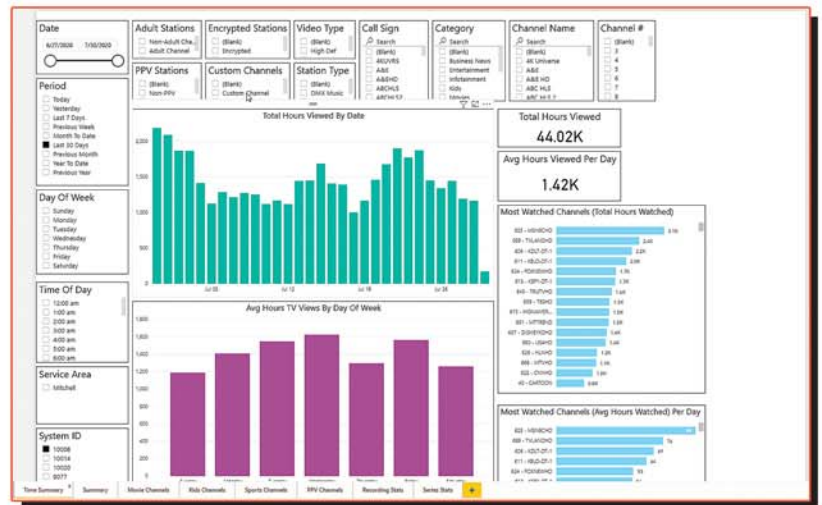
Optional Video Features

Central Reporting Server

This Windows-based service automatically downloads and preprocesses log files and delivers e-mailed reports at scheduled times.

Why do you need Central Reporting Server?

- Makes the Report Viewer work faster so there is no waiting for files to download, and log files are already preprocessed for reporting needs
- Delivers reports at defined intervals



With Microsoft Power BI, your data can be made into rich visuals.

User Experience Monitor (UEM)

Service providers can view data from the STBs in their network that pertain to different events or feature utilization.

Potential Data and use-case scenarios:

- View the number of times applications or other features are used on STBs in a specific area.
- View problems that customers are having but not reporting.
- Run reports to show
 - Hard drive health
 - Disk drive errors
 - SI discontinuity errors
 - Number of reboots and last reboot details

Message Code Name /	MAC	Date	TIMESTAMP	Total Applications	Rea
Message Code Name: App - Weather Displayed (Count=2)					
Message Code Name: App - What's Hot Displayed (Count=5)					
Message Code Name: Home - Peer Responsive (Count=2)					
Message Code Name: Home - Peer STB Timeout (Count=5)					
Message Code Name: Home - Peer Unresponsive (Count=1)					
Message Code Name: Info - Recording Audit Error (Count=1)					
Message Code Name: Message Box - User Error (Count=1)					
Message Code Name: Network - Audit Excessive Discontinuity Errors (Count=3)					
Message Code Name: Network - SI Stream Discontinuity Error(39) (Count=139)					
Message Code Name: Network - SI Stream Discontinuity Error(439) (Count=2)					

InnoSafe

Do you have a backup plan?

- 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 e-mail with the backup status



Additional Video Features

Voice Activation

Integration with Alexa, the Amazon Echo device, as well as the Google Home device allows subscribers to use voice activation to request a channel change or search for programming through smart home speakers.

Through the MyTVs app on iOS and Android Smartphones, subscribers are able to request a channel change, search programming, play a recording, or complete many other important remote control functions.

- Voice Commands

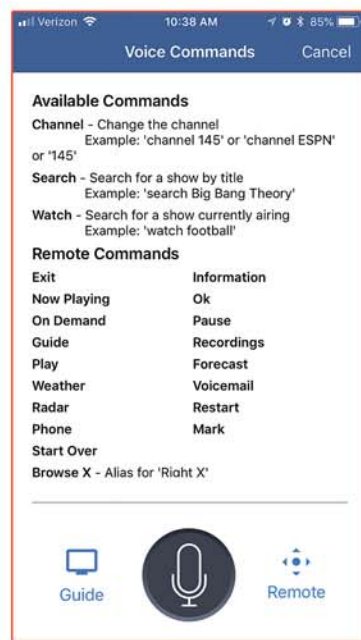
- Change Channels
- Search Programming
- Recording Control



"Hey Google..."



"Alexa..."



Marketing Materials Included at No Extra Cost

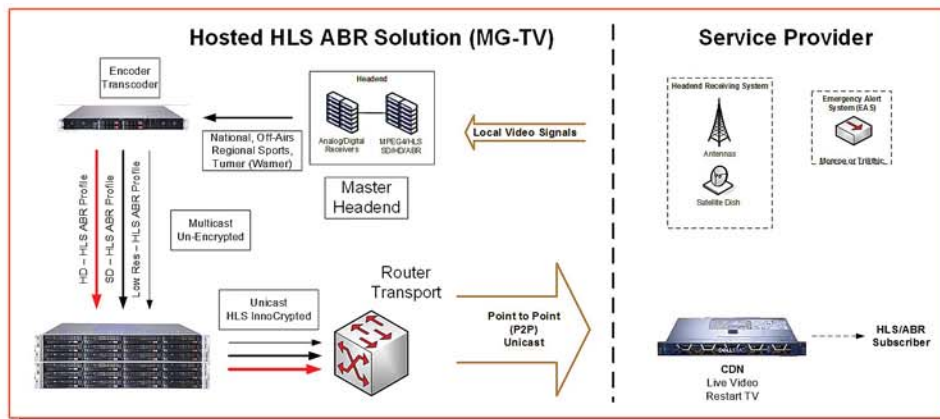
- Tutorial Videos for your website or an Educational Channel
- Remote Control Tri-Fold Brochures
- DVR Tri-Fold Brochures
- User Guides



MG-TV Hosted Live Streaming

The MG-TV Live Streaming solution designed for service providers interested in eliminating headend costs while providing a competitive go-to market streaming video solution for your customers.

In a partnership with two experienced and respected national headend providers, Aureon and MVS, Innovative Systems provides the middleware solution without the expense of operating a headend.



InnoCoder T-40 Encoder/Transcoder

Commercial grade platform offering real-time encoding and transcoding into industry standard formats.

The InnoCoder T-40 is designed to support all IPTV Middleware and HLS streaming platforms, as well as other video applications.

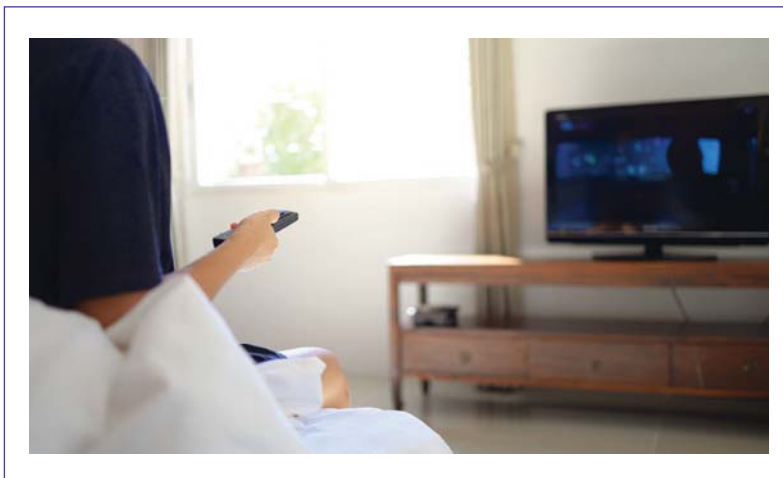
Linear & ABR Encoding/Transcoding

- Encode/Transcode
- IPTV & ABR Solutions simultaneously
- ABR Profiles (Maximum 6 Profiles)
- Bandwidth Consolidation DTA-VBR to CBR
- Music Channel Encoding to ABR Formatting



The Innovative Systems Difference

Proven Track Record in Converting Service Providers from Other Vendors



Our hardware and software is deployed in a live IPTV headend located in our building which allows real-world testing on new software before it is ever released to our service providers!

Compare for Yourself

Subscriber / Service Provider Benefits	Innovative Systems Middleware	The Competition
Single Vendor Support For your Middleware, STBs, Restart TV, VOD, nDVR, Encryption, Live Streaming, and Guide Data	YES	NO
Virtual Remote™ Remote control troubleshooting performed from your office	YES	LIMITED
Channel View Stats With no additional equipment or vendor	YES	NO
What's Hot App Real time info on the most-watched programs in your service area	YES	NO
Local Weather Integrated into Browser, Guide, and full App View with no extra Hardware or Vendor	YES	NO
Configurable Guide By STB for size of fonts to fit the user's needs	YES	NO
High Reliability Fully redundant hardware	YES	NO
Fast Deployment Many cases have been documented where providers had working STBs the first day of middleware installation without onsite vendor support!	YES	???
Free Marketing Materials Plug and play tutorial videos as well as DVR and Remote Control tri-folds to educate your customers	YES	NO



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