

ENTERPRISE GRADE IPTV & DIGITAL SIGNAGE PLATFORM



STREAMING TO
MOBILE DEVICES



SITUATIONAL
AWARENESS
AND FMV



DIGITAL
SIGNAGE



TV OVER CORPORATE
NETWORK



UPGRADING RF CABLE TV
TO AN IPTV SYSTEM

EZ TV

Enterprise Grade IPTV and Digital Signage Platform



EZ TV combines broadcast quality IPTV distribution with powerful Digital Signage capabilities into an all-in-one integrated platform. Designed to seamlessly integrate with any IT environment and run on all types of networks: LAN, WAN and Wireless - EZ TV can be rapidly deployed and is intuitive to operate and maintain for any sized project.

The award winning EZ TV platform offers the most advanced IPTV experience with live streaming, on-demand video, digital recording, mosaic player, time-shifted TV and customizable look-and-feel. EZ TV content security and user-access controls are certified by military units and broadcasters for local and multi-site applications.

The EZ TV Digital Signage module uses hardware-based powerful End-Points to deliver eye-catching digital content with dynamic data and full HD IPTV content - all managed from a centralized server.

Applications

- Corporate TV and company communications
- TV over IP - distributing Cable / Satellite TV / local channels
- Situational Awareness video and dissemination of Tactical Full-Motion-Video (FMV)
- RF Cable Replacement - cost-effective transition to TV over IP with VOD and Desktop Playback
- Sports Arenas and Stadiums - management and distribution of live camera feeds, TV content
- VOD assets and Digital Signage to TV's, mobile devices and PCs
- Video Confidence and Real-Time Monitoring
- Training and Education
- Distribution of private content, live TV, 3rd party streams with virtual DVR and VOD features at Broadcast Centers



Advanced, Versatile IPTV+Signage Solution For Any Network

IP Streaming and Digital Signage are now well established methodologies for delivery of live TV and on-demand assets as well as corporate messaging and marketing content. With EZ TV's modular architecture, video teams, corporate IT and service providers can reduce capital expenditures (CAPEX) by deploying the ideal feature set for their project and grow its capabilities over time. The on-premise Platform's scalable centralized design delivers cutting-edge video viewing experience, dynamic and engaging Digital Signs, IPTV archiving and mobile streaming capabilities, on any device - all with no user seat licensing and no annual usage fees contrary to traditional digital signage systems that require an up-front investment and a re-occurring cost creating high operating expenses (OPEX).

Deployed in hundreds of sites around the world and with more than 450,000 users - EZ TV has been field-proven to be the most flexible IPTV Solution for simple or complex environments. Applications include a variety of video related use-cases as well as IP streams from a mix of providers and sources.

Best-in-Class combination of Reliability, Performance and Security

EZ TV is the primary video distribution and playback solution for most cable and TV broadcast centers, military units, government agencies, fortune-100 companies as well as arenas and stadiums of colleges and professional sports teams.

Designed to ensure 100% up time for an organization's critical IPTV and Signage services - EZ TV uses VITEC's cutting edge video playback and security engines to deliver the lowest latency playback on any device. The hardware-based IPTV set-top-boxes and Signage End-Points cost a fraction of the price of PC-based media players while consistently delivering a smooth, secure, uninterrupted viewing experience for the most demanding graphics and video applications. These ASIC-based decoders guarantee longer service life and less time spent troubleshooting problems during major events.



The powerful User Management engine provides operators with a visual topology view of all local Domains, Trusted Domains, Organizational Units (OUs), Groups and Users that exist on the network. A revolutionary drag-and-drop interface is used for assigning live video, recorded content and application features to groups or individual users - eliminating the need to use complex routing filters, networks access lists and firewall rules to regulate access to IPTV and FMV content.

Redundancy, Clustering, Multi-site synchronization and Backup features are also available through the EZ TV Administration Portal:

Advanced capabilities designed to help organizations and IT teams to achieve 99.999% availability of critical video services 365x24x7.

EZ TV System also monitors user's actions and content consumption, offering the Administrators valuable data about content consumption, user trends, network bandwidth utilization statistics and event logging for operator's and/or users actions for traceability, billing or other needs.

EZ TV Main Modules include:

EZ TV IPTV Portal - Administration interface for configuring IPTV services such as live TV channels, programming guides, uploading VOD content, managing users and permissions, monitoring all system components using real-time dashboards and tracking system usage. EZ TV Portal Server is available as a rack-mount server or as a virtual machine.

EZ TV Browser Player - Powerful yet intuitive install-free IPTV Player provides one-stop-shop for playback of all streaming formats. Advanced experience includes user-defined mosaic grids, programming guide (EPG), display of KLV metadata, 608/708 Closed Captions support, personal and network DVR functions, seamless integration with Microsoft Active Directory w/ single-sign-on support and AES 128/256-bit decryption.

IPTV Set-Top-Boxes / Signage End-Points - Compact hardware appliances that connect to displays and deliver TV experience for personal users or used to display dynamic, content-rich Digital Signs using a schedule defined by the administrator. Highly robust, fan-less, 100% quiet. End-to-end content security using VITEC AES encryption. Advanced features include remote management, control of TV's via serial connection, PoE, non-compromised playback performance with up to two 1080p streams / files decoded simultaneously for the most impressive combination of signage and live video.

EZ TV Mobile Player - VITEC's IPTV player for iOS and Android devices integrates with EZ TV Portal server to receive channel lineups, programming information and user permissions. It delivers best-of-class mobile streaming experience with under 500ms end-to-end delay for live video, support for up to 1080p content, network-efficient multicast UDP TS decoding and support for VITEC's AES content protection / DRM for fully-secure delivery of any content on any WiFi network.

EZ TV Personal TV Middleware - State-of-the-art TV middleware software that allows users equipped with VITEC's IPTV set-top-boxes to interact with their TVs, tune into live TV streams, view local feeds, watch on-demand videos, browse through up-to-date programming information, record shows and manage DVR saved content.

EZ TV VOD/NDVR Server - Video-on-Demand and recording add-on that provides the ability to upload video assets or record programs streaming on the network. Admins and Users can trigger recordings based on privileges and quotas configured in the EZ TV Portal. EZ TV VOD is available as a rack-mount server or as a virtual machine.

EZ TV Sign Creator - Digital Signage authoring application that makes design and creation of engaging digital signs a breeze. An intuitive application supports a broad range of assets including videos, pictures, IPTV streams, social elements, sports scores, Integration with food catering providers and multiple layers of graphics - all meshed into highly dynamic signage content to be displayed on VITEC's IPTV/Digital Signage End Points.

EZ TV Signage Director - EZ TV's Administration interface for Digital Signage services is a centralized web-based tool for managing signage content, creating schedules for different type of events and venues, integration with 3rd party data sources, real-time monitoring of all deployed end points and comprehensive logging and analytics.

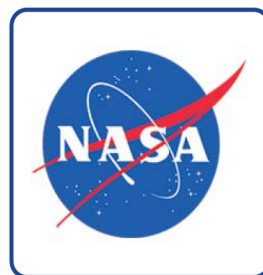
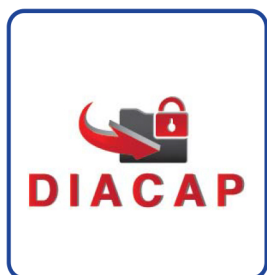
EZ TV IP Monitoring - Real-time monitoring and analysis of IPTV streams on the network. This add-on capability provides 365x24x7 deep analysis of MPEG video streams for detection of quality of service issues and service interruptions that could impact viewers. Identify and get notified about video or audio problems and networking issues that compromise user's experience. EZ TV IP Monitoring offers real-time dashboards, unlimited seats of visual multi-view monitoring players and email alerts.

Security and ATOs

To ensure full compatibility with civilian and federal secure environments, EZ TV has been designed to conform to the most stringent network and information assurance security standards. Specific accreditations can be provided by VITEC upon request.

Format-agnostic IPTV Player

The VITEC IPTV Player is the most flexible, codec-rich IP Video Player with support for all major MPEG standards including the new HEVC (H.265) compression technology. Use EZ TV as your one-stop-shop for all video streams your organization uses from any encoder vendor and any MPEG format including legacy systems such as Cisco IPTV and VBrick.





IT-Centric Architecture for Rapid Deployment and Effective Operation of IPTV and Signage Services:

Whether for locally generated content that is encoded by VITEC's IPTV Encoders or for using with third-party encoders/IP Streams - the EZ TV IPTV System gives corporations, government agencies, military units, broadcasters, educational institutions, sports arenas and stadiums the capability to rapidly deploy an advanced IP video delivery service:

Connect to Network: EZ TV IPTV Portal software is deployed as a Web Server on the network (as a Virtual Machine or Physical Server instance).

Select Content: Administrators map all digital video streams and files to a simple channel lineup with user-friendly channel names, numbers and optional metadata description.

Organize and Classify: Content is organized and grouped by type, origin, genre, classification or security level. This allows different groups to have their own access rights.

Define Access Rights and Control Features: VITEC's Smart integration with Microsoft Active Directory establishes the EZ TV System as a secure network resource allowing the operator to select, using a visual interface, which domain groups or individual users will have access to what content and system features. Additionally, EZ TV allows administrators to selectively turn on/off playback and recording features for specific users/groups.

Go Live: Send your users a link to your local IPTV Portal. Users open URL with their browser, sign-in with their regular network credentials and they can now search, view, record and collaborate on TV over IP and locally-generated content.



Service Provider Experience on Your Enterprise Network

Do your users want more than a video window?

EZ TV packs the best user experience in an enterprise-grade professional IPTV System. The powerful browser-based EZ TV Player includes advanced Digital TV capabilities:

Personal Video Recorder (PVR): Allows users to record, manage and playback content on their local computers.

Network Digital Video Recording (NDVR): Can be used by administrators or users to record content on a centralized server with network storage (eliminating the storage and security challenges of local recording).

Video On Demand (VOD): Enables local and remote users instant access to recorded content. Users can take advantage of "Trick-Play" features such as Fast Forward, Rewind, Play/Pause/Resume.

Client Mosaic Playback: Each user can select their own mosaic layouts for watching up to 25 videos simultaneously on the screen. This feature utilizes the existing streams on the network and generates the resized mosaic videos for each user on-the-fly, without using additional bandwidth on the network.

Electronic Programming Guide (EPG): EZ TV can be configured to receive programming information for all major Cable, Satellite and Local Off-Air Channels and show current and future programming data on TV's and PC's for users to search and use to schedule their recordings.

KLV and CC Metadata Support: EZ TV Player automatically detects the existence of Closed Captions and MISB KLV metadata. Users can select to view CC on screen on any PC's and TV's. KLV information is displayed on a dedicated window in sync with the ISR video it is associated with - all within the client seat free browser-based players.

Analytics and Reports: View real-time dashboards measuring content consumption, user activity, network bandwidth utilization and other insights. Generate reports with graphs that can be used to optimize user's experience or to bill individuals or groups for usage.



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EZ TV for Televisions and Public Displays

Need to distribute content to televisions around your building?

EZ TV's Set-Top-Box extension enables full control of your live and recorded videos from personal TVs and displays installed in public areas. Using standards-based IP set-top-boxes with our integrated middleware - individual users enjoy the ultimate TV experience on their personal screens with EZ TV's intuitive on-screen graphic interface. Advanced features include navigation through a channel guide with programming information and locally injected metadata, viewing live streams, recording content from present and future shows and VOD playback - all using professional yet cost-effective IP set-top-boxes.

Want to remotely control displays?

EZ TV's Remote Control application provides you with full control of any display or group of displays around your building or in remote sites - all from your computer's browser or handheld device. Simply map your displays onto EZ TV's Remote Control database, assign logical names and optional descriptions to each TV and start commanding your TV monitors remotely, over IP. Push new content to specific displays, tune in to any stream, control volume levels, turn TV power on/off and view real-time status of each TV monitor on one visual interface, accessible from anywhere using a browser.



Integration-friendly SDK and API

The EZ TV software suite offers Developer Kits and API for integration with 3rd party systems. Manage, control and interact with VITEC's IPTV and Signage End-Points from devices such as Crestron and AMX panels, Tablets and other custom software.

EZ TV for Mobile Users - TV over WiFi or 3G/4G Networks

With a comprehensive suite of mobile applications, VITEC is re-defining the way organizations distribute videos on campuses and to remote users:

- Use EZ TV to provision which streams should be available for mobile users and configure access rights for individual users or groups of users.
- Download VITEC's free EZ TV Player for iOS™ or Android™, login to EZ TV from your mobile devices using your network credentials and immediately access live streams using the corporate WiFi network or via cellular connection.
- Use VITEC's Enterprise Mobile Streaming Blades as distribution servers in case you need to scale your mobile delivery service to support large number of users or would like to limit traffic between your HQ and remote sites by establishing local distribution nodes in each remote site.

Eye-Catching Dynamic Digital Signs

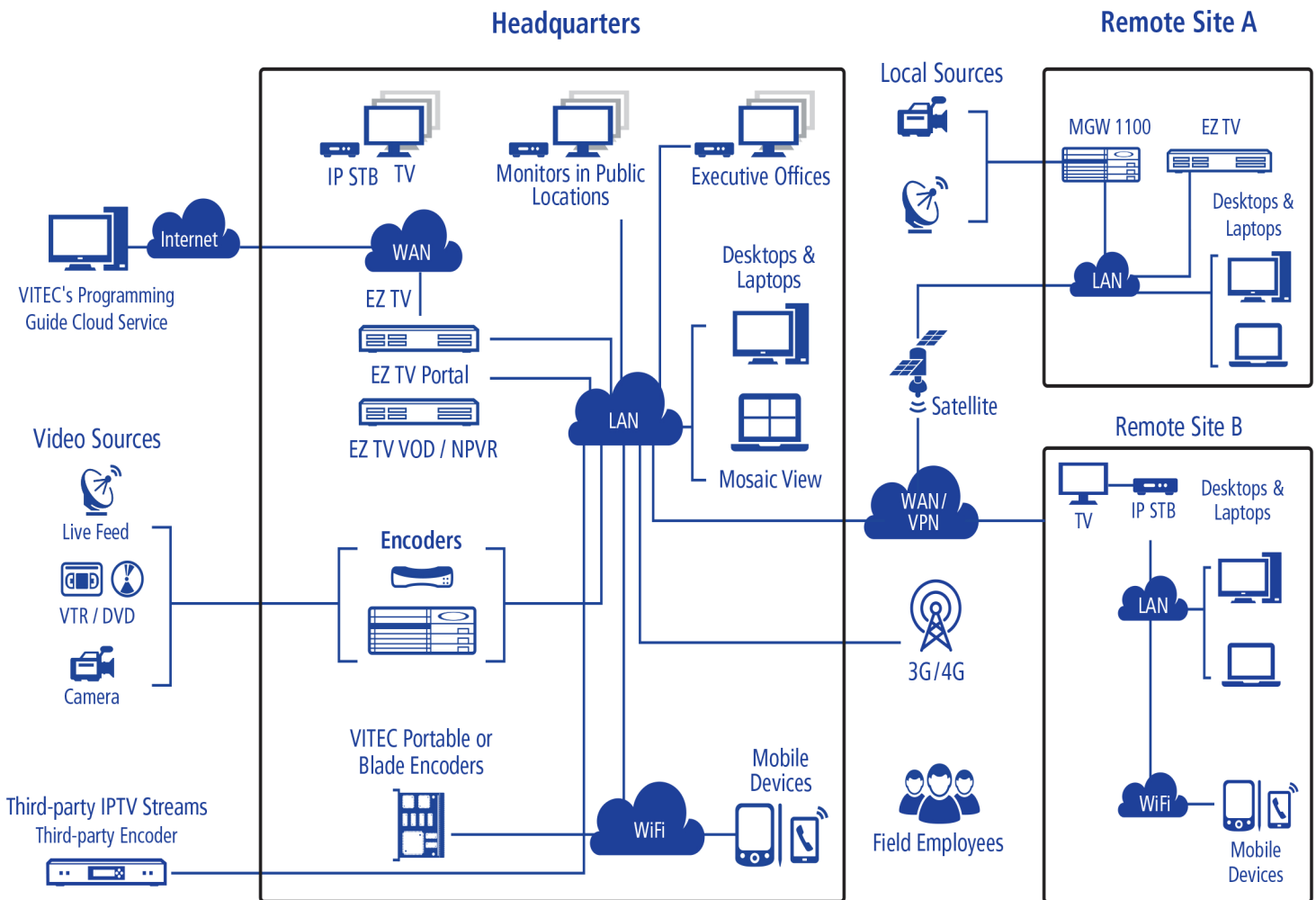
Unlike other Signage solutions designed as stand-alone systems - EZ TV's Digital Signage software suite is tightly integrated with the IPTV Portal to form a powerful all-in-all platform that streamlines video and Signage work-flows, simplifies configuration and management and allows the operator to mix IPTV content with Signage on any display while maintaining highest broadcast quality and lowest latency.

VITEC's Digital Signage End-Points feature dual discrete hardware processors for the ultimate TV experience combining Full-HD videos, live IPTV streams, picture playlists, social media content, dynamically updating data such as Sports scores, meeting rooms and food catering databases - all using a small, PoE-enabled cost effective video player appliance.





Flow Diagram - Enterprise Grade IPTV & Digital Signage Platform

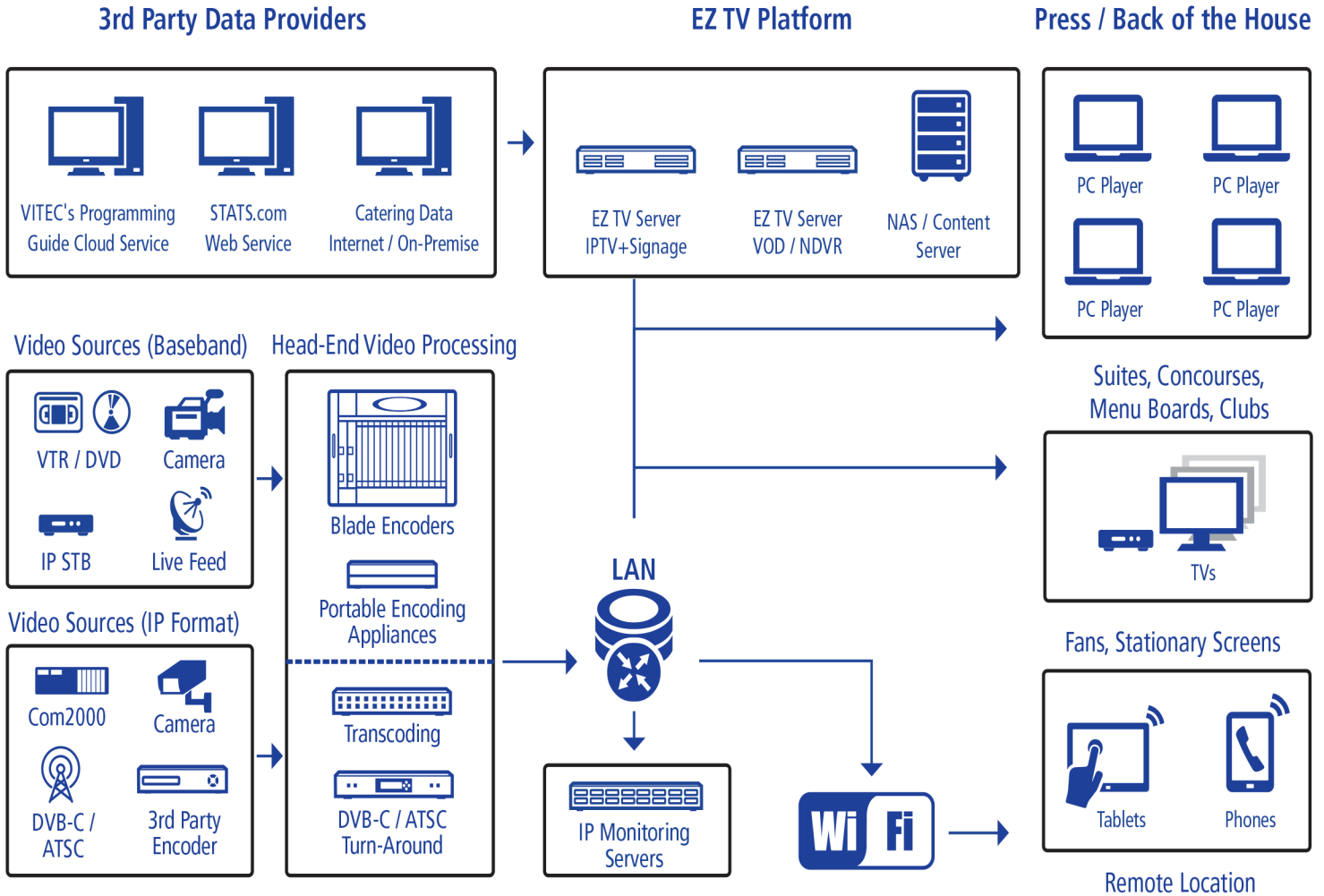


EZ TV IPTV & Digital Signage Platform distributes live video content from various sources including cable, satellite, off-air TV channels and locally-generated private video. Baseband content is encoded to MPEG streams or transcoded / turned around directly to the IP network when sources are already available in IP format. The EZ TV Server Administration interface is used to map all available streams and for establishing customizable channel lineups for different users and groups within the organization.

Users enjoy a professional TV experience with VITEC's IPTV set-top-boxes and are able to access content with the EZ TV browser player from any laptop or desktop computer, or with the EZ TV Mobile Player app for iOS and Android devices.

The System Administrator can record and access video-on-demand assets with the powerful EZ TV Portal Management interface. Content security and comprehensive analytics insights are also available to appropriate personnel. The organization can also create eye-catching digital signs on monitors in public areas and other locations in the campus using the same set-top-boxes which can act as powerful Digital Signage content end-point players. Remote employees and users in satellite offices can access EZ TV IPTV services with VITEC's secondary stream EZ TV Clustering capabilities.

Flow Diagram - IPTV and Digital Signage Solution for Arenas and Stadiums



The EZ TV IPTV & Digital Signage Platform serves as the central point for managing TV channels, live game-day streams, menu boards with dynamically updating pricing, Digital Signage content and schedules for all monitors throughout the facility.

Using best-in-class TV middleware, fans enjoy live streams being displayed in the lowest latency and in perfect sync throughout the venue. Premium seat-holders in suites, lofts and clubs can easily choose live action footage, video-on-demand movies or game highlights with a user friendly interface. The engaging experience includes a powerful channel selection guide that automatically updates all the latest cable and satellite TV programming, featuring up-to-date sports games schedules.

EZ TV's unique mobile IPTV player app allows teams to offer live streaming to mobile devices with less than 500ms delay using VITEC's efficient multicast over WiFi technology. The Digital Signage solution makes creating marketing and sponsorship content and smart scheduling different scenarios for different types of events simple. Open platform architecture makes EZ TV easy to integrate with 3rd party systems for creation of unique workflows that enhance engagement and automate actions that repeat frequently.



Technical Specifications

EZ TV Portal Server

- Up to 5,000 concurrent IPTV Browser Players, Mobile Device Players, IPTV Set-Top-Boxes or Digital Signage End-Points for TVs from a single server instance
- Digital Rights Management (DRM) - management of AES 128/256-bit keys based on user access rules
- Clustering capability to support HQ server with multiple edge servers serving remote users

Footprint

EZ TV IPTV System is offered on a 1-RU physical server and as a software package that is installed on any third-party machine or as a Virtual Machine.

Physical server specifications:

- Windows 2012 R2 Standard 64-bit operating system
- 1-RU IBM x3250 M5 Server w/ 1 x Quad-Core XEON CPU
- 16GB RAM
- 2 x 1Gbps network interfaces
- 2 x Power supply 460W AC 110/230V (Enterprise and Pro)
- Physical: 17" W x 22" D x 1.7" H (10.5Kg / 23.15 Lbs)

Minimum Requirements for installation on third-party servers or as a Virtual Machine:

- Windows Server 2012 R2 Standard operating system
- 1 x Intel Quad Core CPU 2.4Ghz CPU
- 16GB RAM
- 1 x 1Gbps network interface
- 250GB disk space (local or network or network installation)

Advanced Capabilities

- Automatic data replication between EZ TV Servers - High Availability redundant configuration
- Integration with Windows 2003/2008/2012 Microsoft Domain Controllers for users and content access management
- Integration with Gracenotes (Tribune™) electronic programming data syncs up-to-date information for all major satellite, cable and local channels
- Automatic discovery of available IPTV streams on the network using Session Announcement Protocol (SAP)
- Centralized web-based interface for content management, scheduling Events and Signage Campaigns and control of TV displays
- Unlimited number of unique Digital Signs layouts and scheduled events (macros)
- Certificates of Net Worthiness, DIACAP, documentation for use on classified networks provided upon request

EZ TV VOD/NDVR Server

- Supports streaming to desktops, laptops, TV's and mobile devices
- Support recording and streaming of AES-256/128-bit encrypted streams
- Streaming / Recording Capacity - 400Mbps input + 400Mbps Output
- Built-in storage 2TB (Raid-5) + support for network attached storage (NAS)

Footprint

EZ TV VOD / NDVR is offered on a 1-RU physical server or as a Virtual Machine.



Physical server specifications:

- Linux Red Hat 6.7
- 1-RU IBM x3550 M5 Server w/ 1 x Six-Core XEON CPU
- 8GB RAM
- 2 x 1Gbps network interfaces
- 2 x Power supplies 550 W AC 110/230 V 50/60 Hz
- Physical: 17" W x 29" D x 1.7" H (14.8Kg / 32.6 Lbs)

Minimum Requirements for installation on third-party servers or as a Virtual Machine:

- 1 x Intel Quad Core 2.4Ghz CPU
- 8GB RAM
- 2 x 1Gbps network interfaces
- 200GB Disk Space (OS only) – user defined (CIFS/NFS)

Video Formats

Video: MPEG-1, MPEG-2, MPEG-4 part 2, MPEG-4 part 10 H.264, HEVC H.265 - ITUT H.265 / ISO IEC 23008-2

Audio: MPEG 2 AAC-LC, MPEG 2 AAC-HE, MPEG 4 AAC-LC, MPEG 4 AAC-HE, Dolby AC-3, MPEG-1 Layer 2 (ISO/IEC 11172-3)

EZ TV Desktop Player

Operating systems:

- Microsoft Windows 7, 8.0, 8.1, 10 (32-bit and 64-bit for all)
- Mac OS X 10.8 and higher

Internet browsers:

- Windows Internet Explorer 10 and 11 (32-bit and 64-bit)
- Mac Safari 8.0.x, 9.0.x, 9.1.x and 10.0

Performance:

- Up to 25x SD/HD channels on single screen

Supported Streaming Protocols:

- UDP, RTP/RTSP, MPEG-2 Transport Stream, HTTP progressive download, HLS, Multicast / Unicast, VITEC TurboVideo™

Supported Video Formats:

- MPEG-1, MPEG-2, MPEG-4 part 2, MPEG-4 part 10 H.264, HEVC (High Efficiency Video Coding) H.265 - ITUT H.265 / ISO IEC 23008-2, WMV, Quick Time, HTTP live streaming HLS
- All resolutions from QCIF up to 4K

Supported Audio Formats:

- MPEG 2 AAC-LC, MPEG 2 AAC-HE, MPEG 4 AAC-LC, MPEG 4 AAC-HE, Dolby AC-3, MPEG-1 Layer 2 (ISO/IEC 11172-3)

Metadata:

- Line 21: SCTE-20/21 Closed captioning, CEA-608/708 (user configurable enable/disable + captions position)
- DVB subtitles (ESTI EN 300 743) supported on IPTV End-Points
- MISB KLV/STANAG input over UDP
- NGA Motion Imagery Standard Profile (MISP) Compliant; EG 0104.5, EG 0601.6, MISB STD 0604.2, MISB EG 0904, MISB STD 0601.6, STANAG 4609 (Edition 3), SMPTE 336M/335M



Advanced Capabilities

- On screen text overlay and real-time parsing and display of KLV / STANAG metadata
- Carousel player mode - automatic channel playback rotation based on user-defined channel lists
- Security classification tagging - real-time color coding of displayed video based on classification
- Auto detection and enumeration of multiple audio tracks
- HEVC / H.265 decoding engine for HD and SD content
- Backup channel automatically directs player to alternate IP stream when primary stream fails
- Built-in content security / DRM using AES 128/256-bit

IPTV / Digital Signage End-Point Specifications

- Rugged, fan-less and 100% silent compact appliance with IR, IP and SDK control system options
- Discrete hardware processors for video decoding and signage graphics playback
- AES decryption and Active Directory support fully integrated with VITEC's IPTV encoders
- VESA compatible integrated mounting brackets and RS-232 serial interface for TV control (H series only)
- Decoding of up to two HD IPTV streams or files simultaneously / Picture-in-Picture*

Interfaces:

- 1 x 10/100 Ethernet
- 1 x HDMI 1.4a with embedded audio and CEC support
- 2 x USB 2.0
- 1 x multi-pin breakout w/ composite and component video and unbalanced audio

Supported Video Formats:

- Codecs: MPEG-2, MPEG-4 H.264, WMV (VC1)
- Aspect Ratio: 4:3, 16:9, 9:16 (vertical TV placement)
- Resolutions: QCIF - Full HD 1920x1080p60*

Supported Audio Formats:

- Codecs: MPEG-1 L2, MP3, Dolby Digital AC3, Dolby Digital Plus, AAC/AAC-HE, WMA

Compliance:

- Operating Temp: 0°C - 40°C (32°F - 104°F)
- Humidity 5% to 95% (non-condensing)
- EMC Standards: FCC part 15 class A and CE

Power and Physical:

- Included Power Supply 5V/3A, 12W Max
- 102mmW x 97mmD x 44mmH (4.01" W x 3.81" D x 1.73" H)
- Weight: 400g (0.88 lb)
- Built-in PoE capability version IEEE 802.3af - 2003**

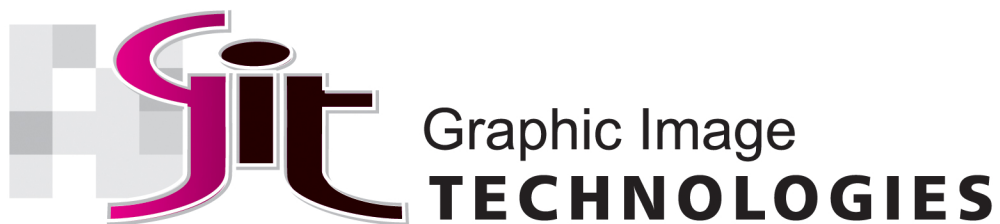
* Available only on the A150 and H150 models.

** Available only on the H150 model



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