

Medusa CSS3

Encoder/Packager
Service Announcements
Signaling
Broadcast Gateway



Preliminary Product Overview & Features



A Turnkey ATSC 3.0 Solution

Medusa CSS3 is a **Complete Station Solution** for ATSC 3.0 transmission comprising an encoder/DASH packager, service announcements/signaling generator & broadcast gateway within a single server providing broadcasters with the ability to cost effectively launch an ATSC 3.0 transmission. It meets all FCC requirements, supports ATSC Recommended Practices and even provides ATSC 1.0 PSIP.

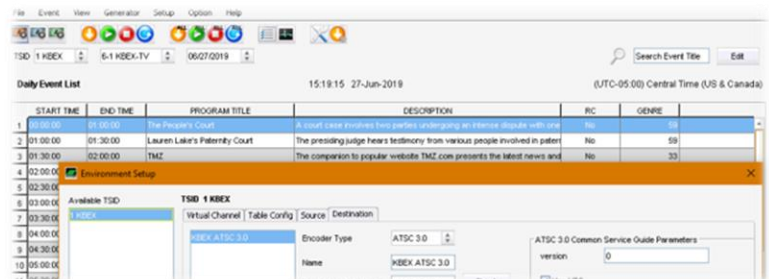
Medusa CSS3 eliminates the need to integrate applications and hardware from multiple vendors, thereby minimizing the required investment while expediting your time to market and monetization.

Key Features

- ATSC A/331, A/332, & A/330
- Audio & Video encoding
- DASH packaging
- MPEG-TS packaging
- ROUTE media encapsulation
- ESG & NRT ROUTE encapsulation
- SLT, SLS, & LMT creation
- RRT & AEAT table creation
- ATSC 3.0 Metadata
- STLTP output
- ATSC 1.0 PSIP

Applications

- ATSC 3.0 Lighthouse
- ATSC 1.0 to ATSC 3.0 Flash cut
- ATSC 3.0 Lab Testing



Sound Business Decision

Over the air television broadcasting is currently in a transformation phase. Television stations can now convert their broadcast to the new ATSC 3.0 technology, which offers the benefits of more services with better audio and video quality with personalization based upon the viewer's location and preferences. This new, IP-centric, delivery method is already deployed in many DMAs.

But legacy televisions do not natively support ATSC 3.0 reception, thus a separate set-top-box or a new television is required to receive these transmissions. History shows that without subsidizing this type of change, such change does not come quickly. With such a small - but growing - potential initial audience, the ROI for investing hundreds of thousands of dollars in the best encoding/compression equipment isn't economically sound at this early phase of the NextGen TV deployment cycle.

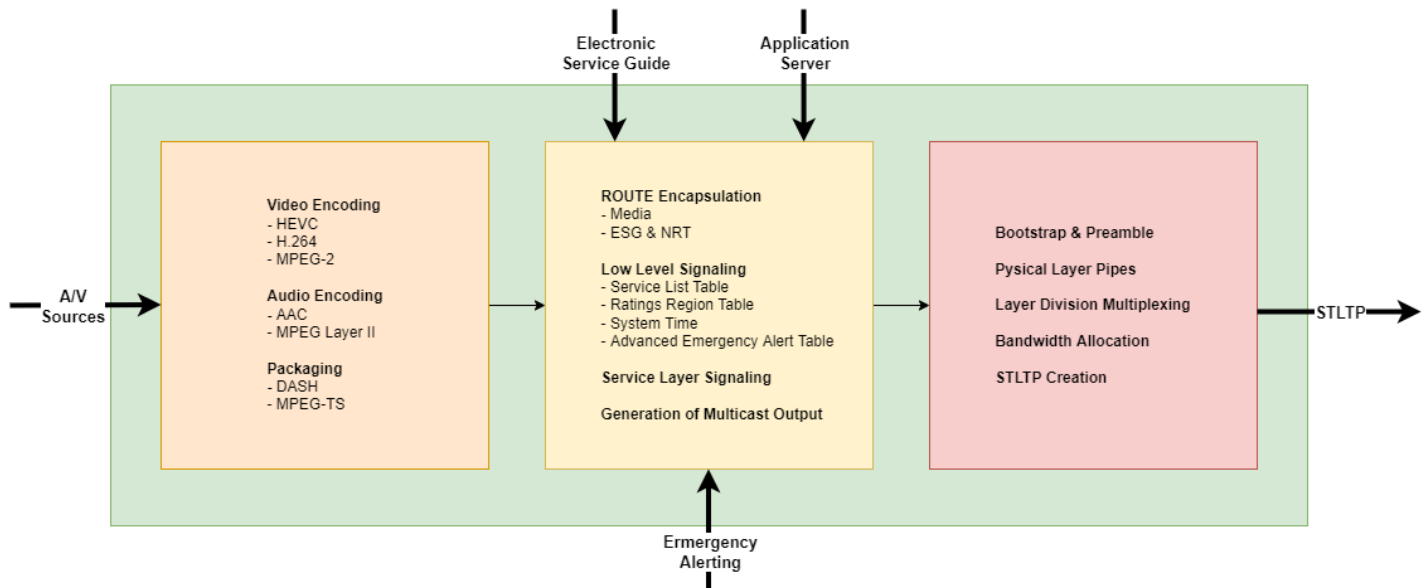
DTV Innovations developed its **Medusa CSS3** to provide an ATSC 3.0 compliant broadcast service in a cost-effective manner, thus allowing broadcasters to walk before they run into the NextGen TV marketplace. Our decades of television broadcasting experience enable us to provide a complete solution comprising the encoding, DASH packaging, signaling, and scheduling of an ATSC 3.0 transmission at a fraction of the cost of competing solutions.

Moreover, since **Medusa CSS3** is a one server solutions accepting SDI/HD-SDI as inputs and providing an ATSC 3.0 STLTP output, you won't have to worry about subsystems from different vendors not working together.



Fully Integrated Solution

Medusa CSS3 FUNCTIONAL SIGNAL FLOW



DTV Innovations' **Medusa CSS3** provides a Complete Station Solution incorporating most of the core software functionality and hardware architecture necessary to lite up a NextGen TV signal.

Medusa CSS3 performs the following required or recommended ATSC 3.0 functions:

- Hardware and software video and audio encoding
- DASH Packaging
- AEAS & NRT interfaces
- ROUTE Encapsulation
- Low Level Signaling
- Service Layer Signaling
- Bandwidth assignment, PLP & STLTP creation

All functionality is provided through a single energy and space efficient high-availability server incorporating hot swappable redundant power supplies.

Benefits of Medusa CSS-3

Competing solutions typically consist of 3 - 4 separate servers connected through a complex IP network to provide the same functionality provided by **Medusa CSS3**.

Deploying a solution based upon subsystems from 4 different vendors translates to 4 x the complexity, 4 x the number of system updates and backups, 4 x the likelihood of something not interfacing correctly, 4 x the number of vendors to manage, 4X the investment and 4 x the headaches of deploying and operating a fully internally integrated solution.

DTV Innovations' **Medusa CSS3** provides broadcasters the following key benefits:

- **Lowest CAPEX**
- **Lowest OPEX**
- **Single vendor accountability**
- **Lowest physical space and power requirements**
- **Fastest time to market**

Medusa CSS3 provides the *lowest CAPEX* because the entire solution is tightly integrated within a single commercial off-the-shelf server versus competing solutions requiring a separate encoder/DASH packager, a separate signaling encoder/encapsulator, and a separate broadcast gateway, each operating on their own server and interconnected through a complex IP network requiring a myriad of cabling, switches, and firewalls...which must be integrated by yet another vendor.

Medusa CSS3 provides the *lowest OPEX* through a combination of a single support agreement and a reduction in hardware thereby reducing the potential points of failure and maintenance. A single Linux-based server simplifies keeping your system securely operating at its full potential.

Medusa CSS3 eliminates all “finger pointing” and accountability shifting since the entire solution is provided and supported by a leading USA-based broadcast solutions vendor with nearly 20 years of history serving the broadcast industry.

Medusa CSS3 requires the *lowest physical space and power requirements* since the entire solution is contained in a single energy efficient 1 RU server.

Medusa CSS3 provides the *fastest time to market* – and therefore, the fastest ROI – since the solution is already internally integrated and is as close to plug-and-play as you can achieve.

Focus on Growing Your Business

Implementing a turnkey solution provides up front as well as ongoing savings. Since **Medusa CSS3** provides everything required to launch a NextGen TV service except the content and integration with an ATSC 3.0 compliant exciter and transmitter, you won't have to invest resources in managing disparate vendors or worrying about whether vendor A's equipment will play nicely with vendor B's equipment.



Instead, invest the manpower and financial savings towards developing a strategy to maximize your return on investment in NextGen TV.

Since your business will no longer be constrained by the restrictive ATSC 1.0 standard, you'll have the capacity to offer additional revenue generating and customer enhancing services including:

- **Additional advertising supported programs**
- **Pay-per-view services**
- **Data distribution services**
- **Content and advertising tailored to your audience's zip code**
- **Interactive applications with potential for additional advertising sales**

Let DTV Innovations and our distribution partners focus on getting you on the air so that you and your Team can focus on monetizing the new features provided by NextGen TV.

*Serving the
technology
requirements of TV
stations, cable
companies,
outside
broadcasters and
system integrators
since 2002*



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Software, Hardware & Services

For ATSC 1.0 and ATSC 3.0 Transmission

- **ATSC PSIP for Single Station**
 - Terrestrial & Cable
- **Centralized ATSC PSIP for Station Group**
- **ATSC 3.0 Signaling & Service Announcement**
- **ATSC 3.0 Broadcast Gateway**
- **ATSC 3.0 Exciter**
- **Transport Stream Redundancy (ASI/310/TSoIP)**
- **Transport Stream Processing**
- **Transport Stream Conversion (ASI/310/TSoIP)**
 - Throw Down/Mini
 - Rack Mounted
 - High Density Rack Mounted
- **Video & Audio Encoding/Decoding/Transcoding**
 - MPEG-2
 - AVC/H.264
 - HEVC/H.265
- **Secure & Reliable IP Streaming (SRT/RIST/Zixi)**
- **DVB-S/S2/S2X Satellite Modulators & Redundancy Switch**
- **Distribution Amplifiers**
- **Custom Development**
- **After Sales Service & Support**
- **System Integration**