

2019

 BitRouter
Signals

4K AND
ATSC 3.0

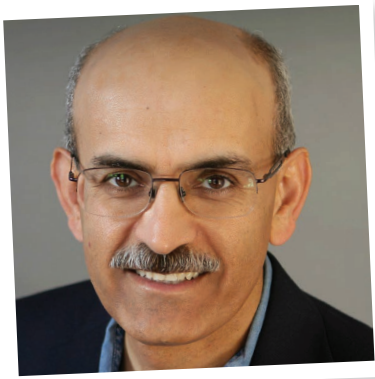
**BITROUTER'S
ATSC3PRO**

**DEPLOYED IN
PHOENIX WITH
HTML5 APP DEV APIS**

SEE IT AT CES 2019



EXCEED CONSUMER EXPECTATIONS FOR 4K TECHNOLOGY



CES 2019

APPOINTMENTS

BitRouter will be exhibiting at the Westgate Resort in suite 312. Please see <https://meetme.so/GopalMiglani> to reserve a meeting slot or [email Gopal Miglani](#). Our demos will include ATSC 3.0, ATSC 1.0, DTAs and HDMI sticks.

WHAT'S CURRENT

Our ATSC 3.0 solution aka ATSC3pak is operational in Phoenix. It already works with three demodulator solutions and we hope to add two more soon. We are about 50% complete towards production ready software. We hope to be at NAB 2019 with the following additional features:

- ATSC 3.0 Gateway
- DRM integration
- Perhaps even Dolby® AC-4 and SHVC integration... Let's see.

For a complete 2019 roadmap see:

<https://bitrouter.com/products/atsc3pro/>



The Future of TV



Meet BitRouter

The Crew: This September we had the rare occasion of having the entire crew in one location. Back row, from left: Alex, Thomas, Rick, Gopal. Front row, from left: Kazem, Pam, Paul, Ric and Daryl.

PRODUCT UPDATES

LINK

ATSC3pak

ATSC3pak is BitRouter's software package that implements ATSC 3.0 standards, which introduce better picture and sound quality, interactivity, and mobility to the TV watching experience. ATSC 3.0 blends broadcast and broadband experience for the viewer. Details about [ATSC3pro](#), a professional TV receiver that uses ATSC3pak, can be found [here](#). ATSC3pak integrates ATSC 1.0 and ATSC 3.0 standards into a single software product that features:

- Portability via a SoC porting layer
- Plug-in support for third party HTML5 user agents
- Support for third party OTT apps
- Integration with BitRouter's ATSC 1.0 stacks – PSIPstack and CAPstack
- Support for gateway, set-top box and television devices.

LINK

ATSC3Pro

ATSC3pro is a Linux based ATSC 3.0 professional receiver. It can run on a desktop or laptop PC with several different demodulators. ATSC3pro makes an ideal platform to develop ATSC 3.0 applications, test new features, develop new software, and test broadcast reception. We plan to add Android support in 2019.

LINK

DVB-Cpak

DVB-Cpak is a turnkey software solution for DVB based cable set-top boxes. It includes:

- SI & EPG table processing for DVB-C
- DVB subtitles
- APIs to integrate various conditional access systems
- Customizable XML based GUI

LINK **DTApak**

DTApak has been used to implement Digital Transport Adapters. These include:

- uDTA
- uDTA with User Agent
- HD-uDTA
- HD-uDTA with User Agent

DTApak has been also been used to implement HD-DTA devices made by Technicolor and Arris for several MSOs. DTApak is a product suite consisting of:

- Slstack for SCTE 65 and SCTE 18 (EAS)
- CAPstack for EIA-708-B and CEA-608-B
- SCTE27stack for Latin America
- FONTstack
- DCstack for DSM-CC data carousel
- TVgui
- TVgui skin per Comcast® uDTA and HD-uDTA DIGs
- BitRouter proprietary TVgui skin for other MSOs
- Mode Manager for Comcast® and other MSO deployments

LINK **CBpak**

CBpak implements ATSC 1.0 standards to meet the National Telecommunications and Information Administration's (NTIA) final "Rules to Implement and Administer a Coupon Program for Digital-to-Analog Converter Boxes" 47 CFR Part 301.

LINK **TVgui**

TVgui is an XML driven GUI for televisions and set-top boxes. It is based on BitRouter's patented XSM technology and used for embedded devices such as Converter Boxes, Connected Home devices and TVs.

LINK **PSIPstack**

PSIPstack implements Terrestrial and Cable SI data standards A65/C, SCTE 65 & SCTE 18 2002 and some features of SCTE 18 2007 required for Cable DTA.

LINK **CAPstack**

CAPstack implements closed captioning standards EIA-708-B and CEA-608-B.

LINK **DVB-Cstack**

DVB-Cstack implements ISO/IEC – 138181 , EN 300 468 for DVB cable systems.

LINK **DVB-STstack**

DVB-STstack implements decoding of DVB subtitles per ETSI EN 300 743.

LINK **DCstack**

The DSM-CC Data Carousel is a middleware product which implements the Data Carousel protocol as defined in ISO IEC 13818-6. It provides APIs for connecting to a carousel on a particular PID, retrieving the list of modules available on the carousel, and loading individual modules into memory.

LINK **PODstack**

PODstack implements the CableCARD interface as per SCTE 28 and SCTE 41. M-CARD support will be made part of PODstack v2.0.

LINK **FONTstack**

The BitRouter Graphics Library provides common layer, surface, color, event, font and image APIs for all products using the display device.

BitRouter Graphics

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KAL

BitRouter's Kernel Abstraction Layer consists of 53 calls. Porting the KAL to a new operating system enables all products to work seamlessly on any target OS. Ports exist for Linux, microC/OS-II, VxWorks and Win32.

TVAL

TV Abstraction Layer is a set of API calls for controlling TV and STB features like volume, brightness, sharpness, tint, color, etc.

MPS

Managed Persistent Storage is a sub-system for managing objects in persistent storage like disk, file, Flash, NVRAM or code image. It is used for storing user preferences, XML skins, channel maps, authorization codes and keys.



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