IEEE

Broadcast Technology

Latest ATSC 3.0 News

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BTS IEEE

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President's Message

Bill Hayes, BTS President

Greetings BTS members.

I hope that 2018 has begun well for you, I know it has for me. I had the pleasure of attending the ceremony at the Consumer Electronics Show announcing the completion of ATSC 3.0. While to many of you reading this column, this may appear to be big news only in North America, but many BTS members from all over the globe actively participated in the writing of this standard. The original use cases that were used to create the framework were developed under the banner of the Future of Broadcast Television (FoBTV), an international organization of which BTS is a founding member. Part of the vision for FoBTV was to promote a global terrestrial broadcast standard, and while ATSC 3.0 doesn't currently hit that goal, it does move our industry one step closer.

Inside

I see two fundamental major improvements in ATSC 3.0 that make me think it moves us closer to a global standard. The first is the use of orthogonal frequency division modulation (OFDM) which enables true receiver mobility. One of the dreams of those working on ATSC 3.0, or any new distribution technology that targets mobility, is getting receiver access to handheld devices such as smartphones. In the United States this is a significant challenge because of the close partnerships between the wireless service providers and the device manufacturers. The service providers' revenue stream is directly tied to controlling the flow of data to and through their devices through their network infrastructure, and the ATSC 3.0 receiver circumvents that infrastructure. In current terminology, it is really an over-the-top (OTT) service. The only way I see this changing is either customer demand for the service or a government requirement based on emergency alerting requirements. Another issue for the handheld device is basic on-board real-estate for the receiver and the antenna required to enable reception.

This may be why many who are looking at ATSC 3.0 are looking at markets such as the automobile industry. On-board real-estate limitations are significantly less of a challenge for vehicular applications, which could include in-vehicle reception of mobile television services for back seat entertainment, as well as IOT-type connectivity for pushing out software updates and applications for the systems within the vehicle itself. There are a myriad of other IOT-type devices that could benefit from a constant capacity push technology that is indifferent to the number of devices accessing the data stream at the same time. These types of services can be implemented using the ATSC 3.0 broadcast infrastructure with little or no impact on the broadcaster's traditional business operations. My only concern about the IOT application are the security questions, which is outside of what this column is addressing. I suggest reading this article (*http://www.zdnet.com/article/an-internet-of-things-crime-harvest-is-coming-unless-security-problems-are-fixed/*) as a starting point regarding IOT security.

The other fundamental change that I see that ATSC 3.0 enables is the use of internet protocol (IP) data packets rather than fully formed transport streams. The use of IP transport allows for the broadcaster to transport a myriad of content types within the same broadcast. Some may be real time streaming services, some may be non-real time services stored at the receive device, and some may be for completely new and different uses unrelated to anything that broadcaster have traditionally done. As I noted above, delivery of software updates and applications to automobiles is one potential target that is getting a lot of interest.

At the same time that ATSC 3.0 is being released, our colleagues and friends at the Society of Motion Picture and

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From The Editor

A Big False Alarm, ATSC 3.0 At The CES (Or Not), And Some Acknowledgements

By James E. O'Neal, Editor-in-Chief, BTS Life Member

Breaking News!

While your editor was putting the final touches on this issue of **Broadcast Technology**, a major news story broke. Seems an incoming missile alert had sounded in Hawaii, appearing as a crawl on TV screens, as well as text messages sent to smart phones, and a warning appearing on highway message boards. The alert carried the words "this is not a test." As well may be imagined, pandemonium broke loose with people fleeing for basements, crawling into the nearest tunnel, running to bomb shelters; some parents even placed their children in storm drains while others literally "headed for the hills." The alert was rescinded—some 40 minutes after it was issued. The event was later chalked up to "human error" occurring during a shift change at a state emergency command center.

Incredible!

Shades of both the classic 1938 "War of the Worlds" CBS radio broadcast that triggered a nationwide panic, and the Feb. 20,1971 "test" of the Emergency Broadcast System (EBS) in which a less than alert person at the National Warning Center at Cheyenne Mountain pulled and loaded the wrong Teletype punched tape, triggering a "this is not a test" message across the country.

The latter "cry wolf" episode triggered the demise of the EBS, with work being initiated on the current U.S. Emergency Alert System (EAS). This system was given the green light by the FCC in 1994, with EBS finally being retired and EAS replacing it in 1997. While this may not seem that long ago to some of us, a quick count on the fingers indicates that it's been more than a quarter-century since FCC approval cane for the system, and as most of us know, it has been a "work in progress" ever since, with numerous modifications, add-ons, and patches being applied.

Your editor has long been critical of this and other such engineering "patchwork quilts." Can any system that has seen extensive mods and add-ons really be reliable? Does everyone really know where all of the splices and Band-Aids exist in such a complex and complicated system?

Fallout is still raining down from this Jan. 13 big-time "goof" in Hawaii, and all the facts likely won't be in for some time. However, it appears that the event was triggered when a state command center operator who mistakenly thought the event was real and not a routine drill (even though it's reported that it had been prefaced by the word "exercise"). It's also been reported that the software developer had foreseen an unintended mouse click and included an on-screen prompt worded something like: "Do you really want to do this?")

I suppose the good news here is that the system basically worked (as mentioned, initial reports indicate that broadcasters did their part by airing the warning, and it was pushed to mobile phones and roadside electronic signs), but it's reported that for some reason the warning sirens didn't go off.

The bad news is that the warning was totally bogus and frightened Hawaiian citizens unnecessarily.

The bad news also is that such a "wolf cry" may well cause some people not to take the alert system seriously, and in the future disregard a real warning.

And if this weren't enough, just as proofreading was taking place for this issue of **BT**, another false warning/scare occurred (Feb. 6), this time in the mainland United States. In this case, an errant warning of an imminent tsunami was pushed to citizens' cell phones in some coastal cities. From what is known at this point in time, the U.S. National Weather Service (NWS) dispatched a routine tsunami test alert via the EAS infrastructure which was only supposed to have gone to state agency headquarters. However some news and weather services apparently picked it up and distributed it via their own apps and social media. What is very curious here is why the message was not recognized as a "test" and why it apparently didn't make it to radio or TV distribution. (In a situation involving either ballistic missiles or a massive wall of water, every second counts when it comes to getting the word out through every possible communications channel.)

Just as was done with the original 20-something-year-old ATSC 1.0 DTV standard, maybe it's time to think about scrapping the present-day EAS and bringing together some of the best minds in the emergency alerting business to develop a complete, comprehensive, and fresh approach to the very critical and essential enterprise of providing warning to the public of potential dangers and threats.

And whatever happens in the aftermath of the unfortunate Hawaii incident, the "system" should at least be modified to necessitate the simultaneous action of two individuals at command centers for launching either a test or a "real thing" alert. This would be in line with the protocol developed a long time ago for U.S. defensive missile launches in which two keys have to be turned at the same time by two operators, thus "voting" that a launch order was valid and eliminating the possibility of an individual acting on his or her own initiative could initiate an irreversible action.

The 2018 CES And ATSC 3.0

The 2018 Consumer Electronic Show (CES) is now history. If you weren't there, you missed a really big event for our industry—