For Immediate Release

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Open Source CAP (Common Alerting Protocol) broadcast application developed in Canada

OpenBroadcaster occupies a unique space in the marketplace as the only company in North America that offers a full suite radio automation and media asset management software package equipped with its own emergency messaging system adhering to the Common Alerting Protocol (CAP)

CAP-CP History

Aug 29, 2014 the Canadian Radio and Telecommunications Commission (CRTC) made it mandatory for all Canadian broadcasters to participate and connect to the National Alert Aggregation and Dissemination (NAAD) System operated by The Weather Network for emergency broadcasting announcements on Radio and TV. The cost for hardware and hook up to comply would fall on the stations.

Emergency NAAD Provider

The Weather Network, owned and operated by Pelmorex Communications Inc. (a privately held company) acts as Canada's national distributor of public safety messages. The NAAD System receives and redistributes alert messages issued by emergency personnel and first responders free of charge to radio & TV stations all across Canada. This NAAD system issues and relays alerts for fire, flood and chemical spills including weather related and environmental advisories such as Alaska highway closures.

Where does it work?

All of Canada is covered from the southern border with the United States up to the far north Arctic coast. CAP alerts are delivered by conventional TCP/IP socket feeds via fibre and from a C Band satellite and on 2 KU Band transponders.

How does it work?

Most radio and TV stations usually have a proprietary hardware device that is connected to the internet, monitoring NAAD system feeds that are hooked up to the broadcast chain using a number of different methods, from inline to external relay controlled. Most of these hardware solutions come out of the US and range in price between $2,100 - $3,750 USD.

Standard Geographical Classification (SGC) region codes are available using Canadian Census data. SGC codes are are entered into these devices to set the location of the alerting area. When a valid CAP message is received, and the region code matches, the emergency message consisting of audio/video content will be forwarded to the radio/TV station(s) and play unattended.

The NAAD system has the capability so that authorized responders can issue MP3 audio files with Image files as attachments. These are typically higher resolution images and audio quality. If the audio files arrive corrupted or missing, the local emergency receiver has a TTS (Text To Speech) as a backup. Canada is fully bilingual, requiring support for French language characters, so Canadian emergency messages must be broadcast in both French in English with the option to set language for regions.

Challenge of the Yukon

OpenBroadcaster worked with the Yukon Research Centre and Computerisms to develop an exportable solution for the Canadian and international broadcast sector. An open source solution was developed utilizing local IT talent and expertise, we created a hardware neutral web application not requiring a proprietary device to integrate with the CAP emergency broadcasting system. This investment provided employment to Yukoners with local emergency expertise as an added benefit to the community.

The solution had to be secure and stable while running on commodity hardware recycled from the local dump, and, at the same time, being energy efficient enough for Arctic locations where electricity can cost upwards of $2.00/Kw hour.

This was achieved using the the Common Look and Feel Guidance planning document as a blue print to create a CAP-CP alerting application. The specifications were so complete that we did not have to ask any technical questions of The Weather Network or the CRTC in replicating the functionality of available industry standard alerting boxes as a disruptive open source web application.

Our Solutions using Open Source

We created a CAP ITU x.1303 compatible system using HTML5, PHP with a Python3 application and sync connector at the playout box with GPIO triggering with RS-232 DTR. We fully support audio and video emergency messaging in both official languages for Canadian operation. There are 4 on board modes of internal testing systems for all types of CAP alert emergency messages.

In a translation framework we support Unicode UTF-8 English, French, Estonian, German, Chinese Simplified, Thai including over 40 more international and indigenous languages.

Accessibility features allow the use of screen readers and selectable user theme allow creation of custom high contrast interfaces including a dyslexic font.

CFRC

A former local student at Queens University in Kingston, Ontario was hired to install our open source system on a unused decommissioned computer box. We mentored and worked with the integrator and faculty and, in return, received some really useful feedback while assisting each other in developing a GPIO relay solution, extending our system's functionality to work with modern digital mixing boards. This collaborative effort, in turn, resulted in code made available upstream to other stations and users to freely utilize.

Nuxalk Radio

In 2013, the Nuxalk Nation of Bella Coola BC contacted OpenBroadcaster to help set up a radio station in their community, resulting in the creation of Nuxalk Radio. Nuxalk Radio a not-for-profit indigenous community radio station operated by volunteers, and managed by the Nuxalk Radio Committee Nuxalk Radio uses the OpenBroadcaster platform to run its service, including management of precious Nuxalk language media assets. Emergency messaging in this remote community is important because of its proximity to the Pacific Ocean and the danger of Tsunami and other extreme coastal weather.

Conclusion

OpenBroadcaster went on to create a supported standalone broadcast appliance and published the completed web application's source code free and open-source software (FOSS). In the spirit of open source, we shared this code with the international development community so that other stations and broadcasters are free to use this solution in their communities to make them safer.

For more info please contact,

Rob Hopkins – Radio Enthusiast

Bio

The day in 1982 that Rob Hopkins arrived in the Yukon via the Whitepass & Yukon Railway it was shut down. Rob took this as a sign that his drifting days were over, the Yukon was where he was meant to be, and settled down in Tagish.

Ten years later, he built a private mountain top wireless communication link connecting Tagish to Whitehorse 120 kilometres away, in order to send and receive faxes for purchase orders from Southeast Asia, and then setup up an "under regulated" broadcast radio station from his home there.

During the licensing process, while struggling to describe how he would make this station accessible using community access programming, "Radio Rob" began to envision a web based "radio station in a box" prototype. This lead to creating a

simple to use, web based inclusive system for community run radio stations with emergency messaging, while listening to music and receiving a residual income doing what he loves to do. The rest, as they say, is history.

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