

Launch of i-dio Broadcasting (V-Low Multi-media broadcasting)



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1. Introduction

With the end of analog television broadcasting in Japan, new V-Low multimedia broadcasts in the VHF band are being introduced under the name “i-dio”, with pre-broadcasts in Tokyo, Osaka and Fukuoka in March, 2016, and a grand opening in July of that year, which will expand into the Tokai region (Parts of Aichi, Gifu, and Mie Prefectures). This article gives an introduction to this service from the author, who is from Tokyo Multimedia Broadcasting Co. Ltd., the authorized core i-dio broadcaster for the Kanto and Koshinetsu regions. For descriptions of the i-dio system and infrastructure please also refer to the January 2015 issue of the ITU Journal (New Breeze Winter 2015 issue).

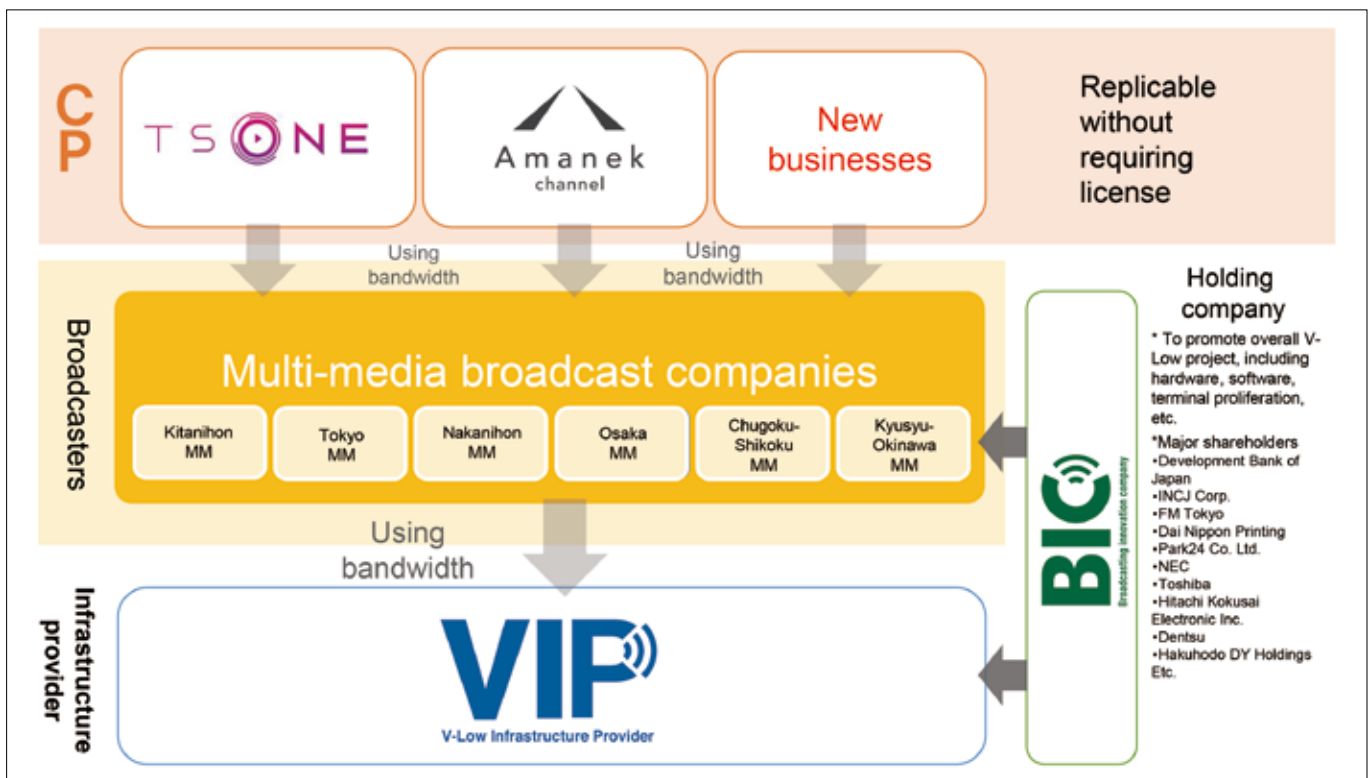
2. Operator structure

Infrastructure providers and broadcasters are separated for

i-dio, with VIP Co. Ltd. establishing and operating national broadcast facilities and promoting the reception environment, and six multimedia broadcasting companies, handling the use and programming of the V-Low bandwidth in regional broadcasting blocks. Production of actual broadcast content is done by content provider (CP) companies that contract with the multimedia broadcasting companies to use bandwidth. Currently, Tokyo Smartcast Inc. (TS Inc.) and Amanek Telematics Design Inc. (Amanek Inc.) have joined as content providers (CP) for all of Japan, and additional CPs will be joining to provide regional and national content in the future.

The current broadcast area includes four regions, the metropolitan areas of Tokyo, Osaka, Fukuoka, and the Tokai region (Aichi, Gifu, Mie, and parts of Shizuoka prefectures), but VIP Co. Ltd. is planning to complete facilities throughout the country by 2019.

■ Figure 1: Operator roles and structure



3. Evolving infrastructure and receiver environment for broadcasting

i-dio is a broadcast platform that differs from conventional broadcasting in that it is not limited to video and audio, but can distribute various types of content on the broadcast signal. Content providers can also join with programs for a variety of uses and from industries other than broadcasting. For these reasons, both broadcast facilities and the receiver environment must be very flexible.

3.1 Broadcast infrastructure

A master facility established in each regional block is able to handle a mix of audio, video and data. The regional master facilities are controlled from the center facility through the network, and the center performs all submission, monitoring and operations work for the network. CP companies connect to the

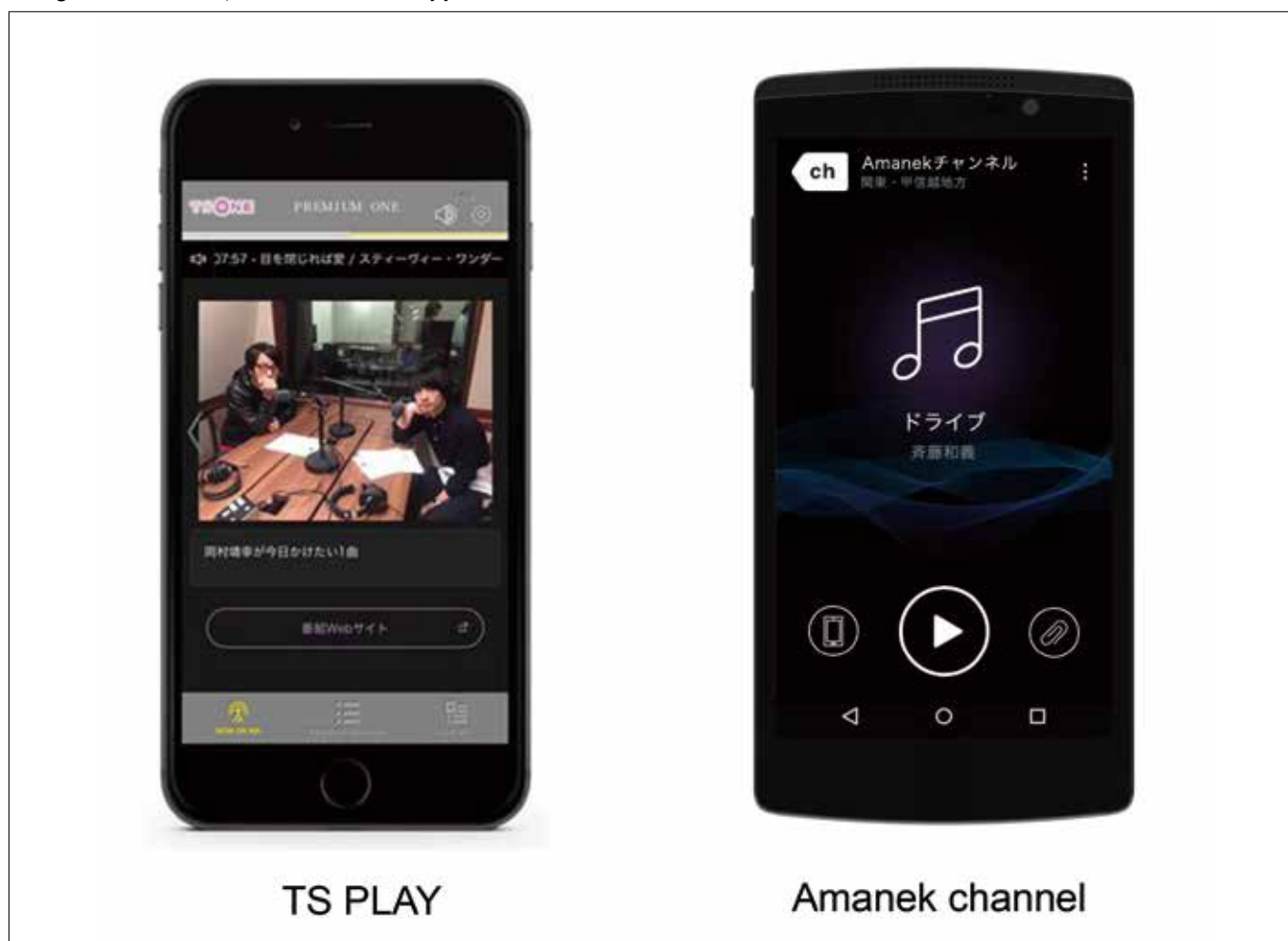
center facilities through private networks and submit broadcast content daily. The center facility performs frequent updates, adds broadcast channels, and supports changes in content composition.

3.2 Receiver applications

The receiver environment for i-dio mobile broadcasts consists mainly of dedicated compact and rechargeable receiver devices called “i-dio Wi-Fi tuners” on existing smartphones, providing 100,000 free-of-charge monitors as of when the Wi-Fi tuner station began operation. SIM-free smartphones with an on-board i-dio tuner have also entered the market. VIP Co., Ltd. is also offering free, public receiver applications for iOS and Android and individual CPs are offering specialized receiver applications to support data broadcasts and advanced services that use their own formats.

TS Inc. is providing its TS PLAY application specialized for

■ Figure 2: TS PLAY, Amanek channel application overview



its channel and enhanced with features such as music purchasing. Amanek Inc. is providing its Amanek Channel applet, optimized for listening while driving a vehicle and providing information with automatic text-to-speech. Each company's applications update independently, always evolving with the broadcasts.

3.3 Simultaneous IP complementary broadcasts

As a temporary measure until broadcast facilities are established and dedicated receivers have become widespread, VIP Co., Ltd. is providing a free-of-charge IP simulcast complementary service called "Internet Reception Mode", in each broadcast block. This enables users to experience the services through the Internet, even in regions where the reception environment has not yet been completed.

4. Broadcast services provided to the public

The main services currently being provided to the public are described below. All of these broadcasts are provided free-of-charge.

"TS ONE"

This is a high-quality radio channel provided by TS Inc. The channel provides original content, with music programming from the highest quality 320 kbps AAC sources, and data broadcasts of studio photographs and music purchase information, providing new opportunities to explore music. As interest increases in high resolution audio sources ("Hi-Res Audio"), programs featuring quality live broadcasts and environmental sound are becoming popular.

"Amanek Channel"

Amanek Inc. is providing a digital radio channel for drivers. It provides "Big data" on topics such as weather, traffic, and tourism. The receiver selects suitable content by linking with GPS, and uses text-to-speech (TTS) to provide a fine-tuned service. It is attracting attention from the automotive industry as a car radio of the future that adjusts content to suit the user.

Tokyo multimedia broadcasting Co., Ltd. is also producing channels for jazz, classical and foreign music selections, and a simple video channel is provided nation-wide. Regional multimedia broadcasting companies are also providing audio channels linked with local FM stations, and regional information utilizing the advantages of broadcasting over wide-area blocks.

5. Broadcast services for local governments and business use

Evolution of i-dio is not limited to digital radio, and it can broadcast data in various forms to all of Japan. In the IoT era, the explosive increase in devices connecting to the Internet is expected to over-run communications infrastructure, so as IoT develops

in Japan, it will be essential to strengthen the broadcasting infrastructure, which does not become congested. From past experience, it is also important for disaster mitigation after a large-scale disaster.

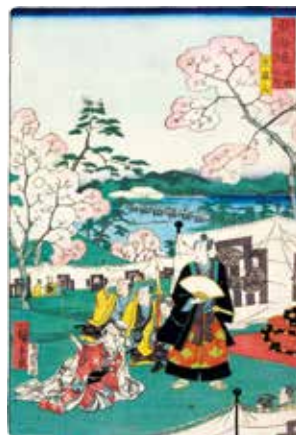
Currently, i-dio has begun providing the V-ALERT® service, which issues disaster prevention information for local governments to dedicated disaster radios and is able to remotely turn on these radios. Local governments have increasingly begun using this service. There are also everyday applications, such as distribution of updates to digital signage, and broadcast of firmware updates to devices in vehicles. Collaboration in field testing with enterprises planning to enter this area is also progressing.

6. Future prospects

i-dio is maximizing the features of V-Low multimedia broadcasting, meeting the needs of the IoT era with broadcast signals that do not become congested, and continually pursuing flexible content distribution. Examples that have already been implemented include technologies to distribute content to digital signage terminals, and provide information specific to small regions during disaster through the V-ALERT® service.

This format is also attracting attention from outside of Japan, as a new mobile broadcasting format that inherits know-how gained from ISDB-T digital terrestrial broadcasting. We will continue to advance this technology as an unprecedented model integrating communications and broadcasting.

Cover Art



**Tokaido meisho no uchi
Kyo Arashiyama
(Kyoto Arashiyama, a
famous place along the
Tokaido Road)**

Utagawa Hiroshige II (1826-1869)

Collection of the Art Research Center
(ARC), Ritsumeikan University
Object number: arcUP3257