



## Web over DTV

### Internet data distribution system

Web over DTV is the realization of an interactive Internet-based service that covers the sending, controlling and management of as well as access to Internet data.

- **DTV IP Inserter**  
inserts Internet data in the IP Internet format into the DVB MPEG-2 data stream by way of multiprotocol encapsulation. IP Unicast and Multicast services with static and live data can be inserted.
- **DTV Web Carousel™**  
is a tool for cyclical transmission of Internet resources. With the DTV Web Carousel™ server service selected site contents can be downloaded automatically and transmitted via DVB to stationary and mobile subscribers.
- **DTV Web Proxy**  
DTV Web Proxy stores the Web contents received via DVB locally on the computer of the subscriber where they can be called by means of a standard browser.



**ROHDE & SCHWARZ**

# Web over DTV – Internet data distribution system

The Web over DTV system is the realization of an interactive Internet-based service via DVB. It covers all functions from sending data through data control and management to access to Internet contents. Internet data are thus made available to user groups of any size (Multicast).

The number of users does not influence system functionality and users without a conventional Internet connection can be addressed. Users with an Internet connection can rapidly access all the Web resources they frequently use. This considerably reduces the number of accesses to the Web server with the respective resources and thus channel loading.

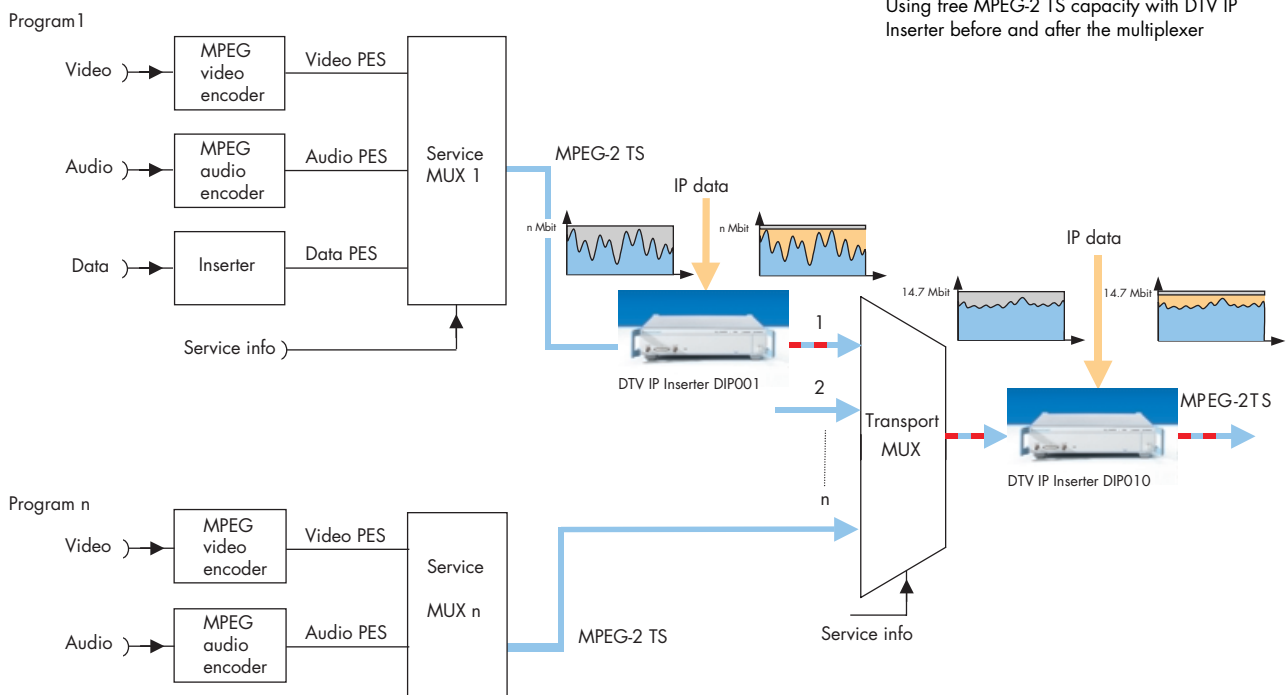
## DTV IP Inserter

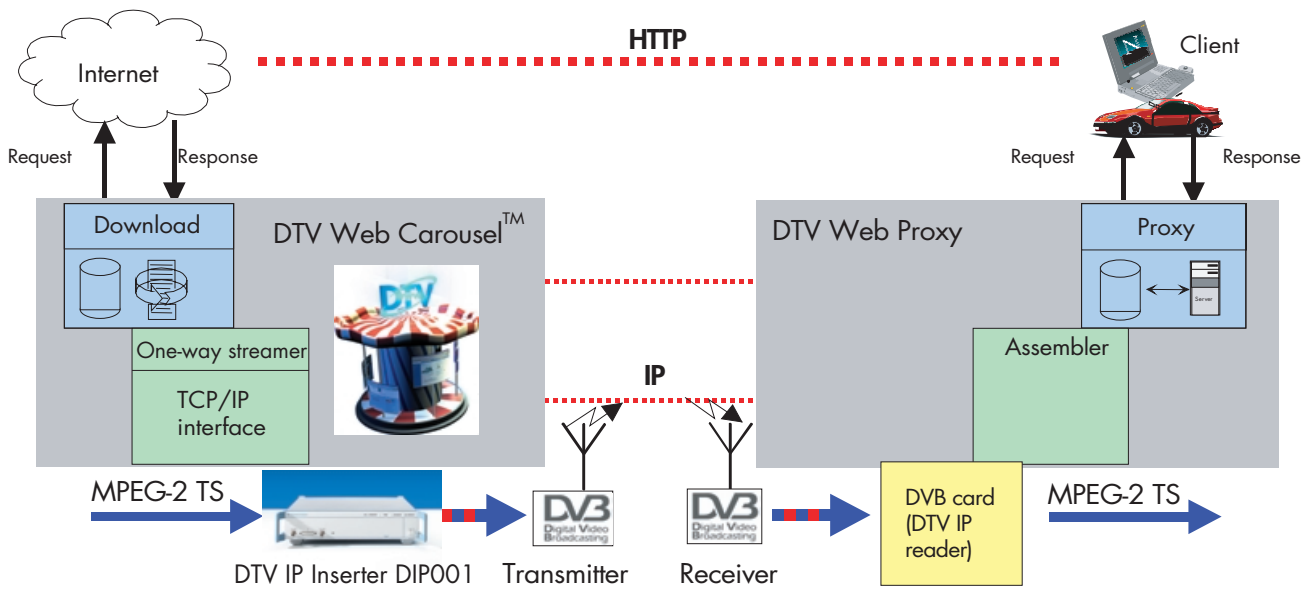
The DTV IP Inserter allows additional data to be transmitted in the DVB MPEG-2 data stream. The additional data are inserted into the data stream in the IP Internet format. The multiprotocol encapsulation method defined for DVB is used for this purpose.

Additional data are transmitted without altering the available data rate of video/audio programs or service information items contained in the data stream. A packet detector identifies all null packets inserted in the data stream for stuffing and makes these assigned but not utilized resources (null packets) available for use. The null packets identified in the data stream by the detector are exchanged for IP packets.

Additional data can be inserted either after the MPEG encoder or after the transport stream multiplexer. If the available transmission data rate is constant, the DTV IP Inserter should be used after the MPEG encoder. In this case the additional data are appended to the variable part of the video and audio data so that a fixed data rate is obtained. The benefit for the program provider is the optimal utilization of the data rate. When the DTV IP Inserter is connected after the transport stream multiplexer, the resources available in the data stream are fully utilized.

By combining different types of information the broadcaster can supply additional data to a large number of subscribers. Such connections can be set up without constraint for the transmission of video and audio information.





#### DTV Web Carousel™ functionality

The inserted Internet data can be read with the aid of a standard DVB PC receiver card.

Rohde & Schwarz offers two different versions of the DTV IP Inserter.

DIP001 has an ASI input and output for the MPEG-2 transport stream. The data of the transport stream are processed by an external PC and transferred to DIP001 via data interface.

DIP010 comprises also a PC in addition to the ASI input and output, which provides the necessary interface for connection to an Ethernet network. This version is particularly suitable for compact use in normal operation.

#### DTV Web Carousel™

The DTV Web Carousel™ server service transmits selected sites to stationary or mobile subscribers.

Additional data for DVB are transferred as a distribution channel for the documents. The documents are sent by

means of the push technique. In contrast to a conventional online connection, transmission is unidirectional. Communication is possible from the transmitter to the receiver.

The DTV Web Carousel™ server service sends its data without being requested to do so. This corresponds to the push principle used for transmitting teletext, for example. A pool of information is provided and then sent cyclically to a specific subscriber group. This system can be used for all applications using unidirectional transmission.

The information is transmitted cyclically because it should be available to every subscriber round the clock. The data can also be updated. The information transmitted via DTV Web Carousel™ is made available by means of a list of Internet addresses (URLs). The Internet resources are downloaded and updated automatically. A complete domain can be downloaded with a single URL directive. The addresses are sent to the Carousel in the form of a text file which is also

downloaded from Internet. Switchover to new contents is possible independently of the current transmission.

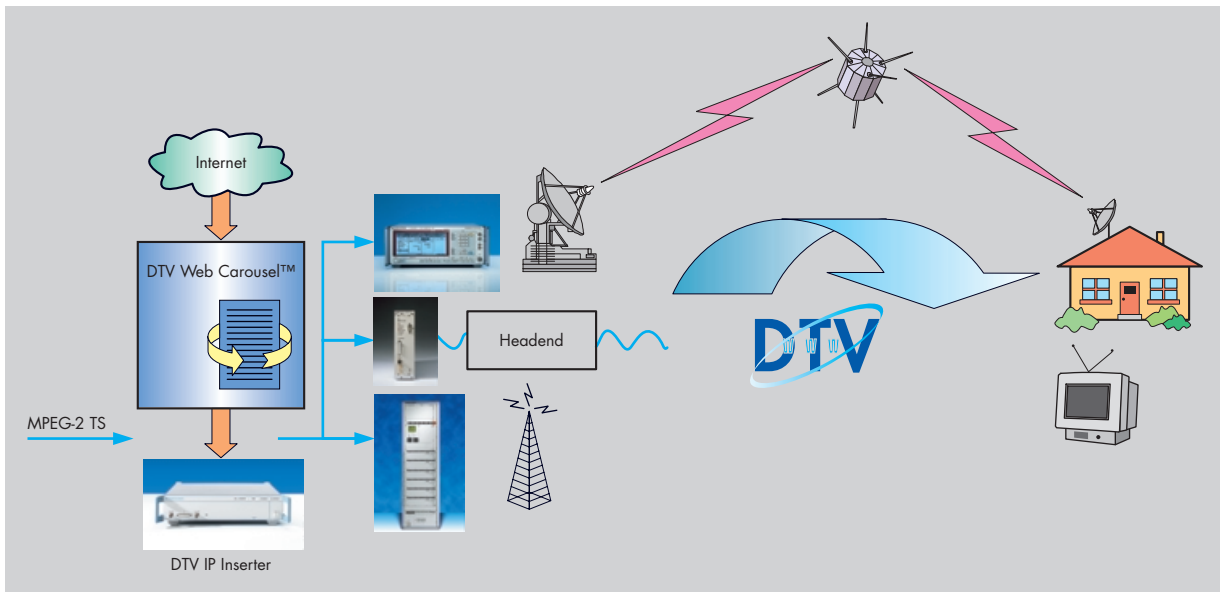
The data in the buffer of the DTV Web Carousel™ are transmitted cyclically to the DTV IP Inserter and thus to the DVB transmitter. When the end of the buffer is reached, transmission starts again from the beginning.

#### DTV Web Proxy

DTV Web Proxy stores the Web contents received via DVB on the user's local computer. It provides all the conditions required for accessing the locally stored Web resources. Known Internet addresses can be used for the access. Switching to the user's Internet input is possible to call Web pages that are not locally stored.

## Web over DTV (Multicast)

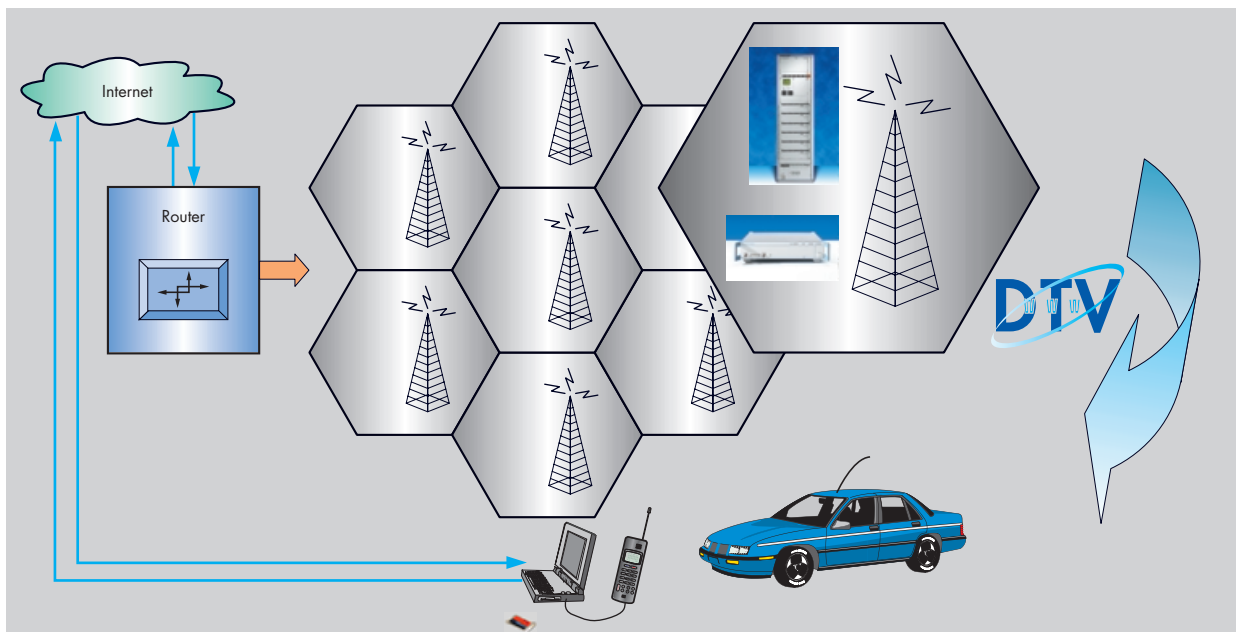
## DTV Web Carousel™



Multicast application with DTV IP Inserter, DTV Web Carousel™ server service and DTV Web Proxy

## Web over DTV (Unicast)

## Wireless high-speed Internet



Unicast application for mobile reception using DTV IP Inserter



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