



Multiple channel encoding system

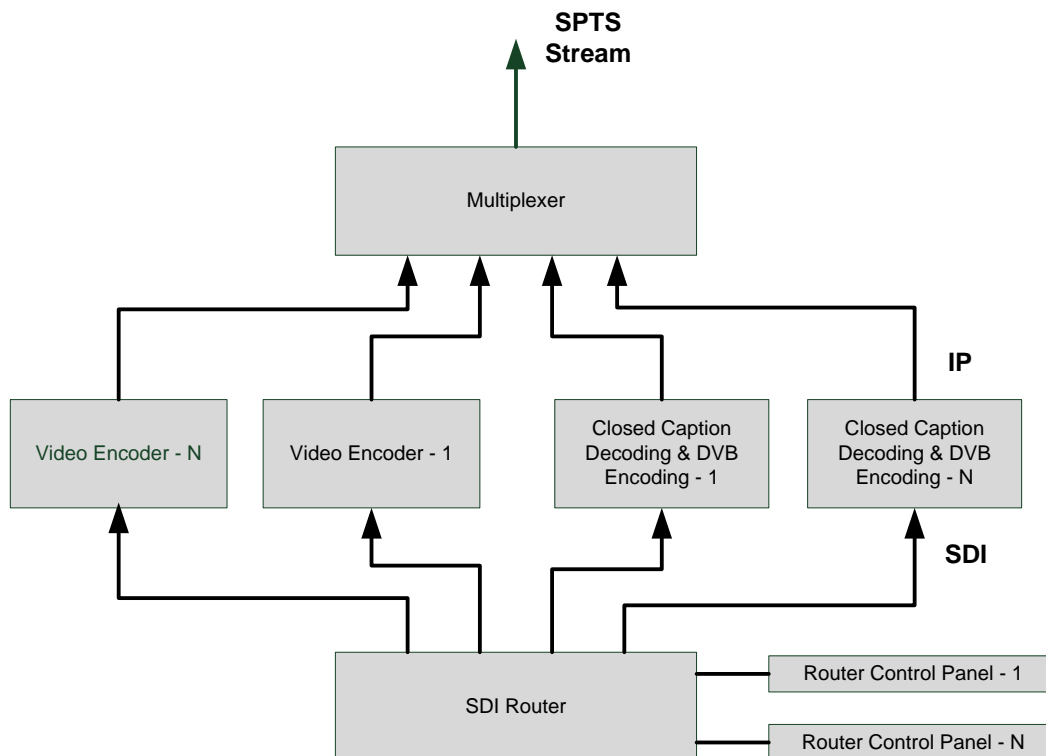
TTNET is the largest Internet service provider in Turkey and has around 7 million subscribers. It is a subsidiary of Türk Telekom Group.

In February 2010, TTNET launched a new service called Tivibu, which combines television and cinema. This service allows users to access both television and a library of movies via mobile devices and computers.

TTNET wanted to expand its service and build a system for encoding a number of HD and SD TV channels for IP distribution within Turkey. The requirement included the ability to extract Closed Captions from the incoming video feeds and transmit these, along with the encoded media, in a single transport stream output signal.

The initial system design involved using separate media encoders, Closed Caption extraction and re-encoding systems with a downstream multiplexer, plus independent router control for each encoder.

Initial System Concept



Working with its local representative, AVKOM Teknoloji A.Ş. Starfish proposed a solution where the media encoding, subtitle processing, and router control, were all integrated into a multiple channel encoding system. The system is based on generic enterprise grade IT server hardware supplied through Starfish’s HP OEM agreement.

This solution dramatically reduced the number of separate hardware units, rack space, and power consumption, to significantly reduce system cost. The system complexity was also reduced to help increase reliability and maintainability.

A customised version of the Starfish remote monitoring system was included to add sophisticated web based monitoring and remote management of hot spare switching.

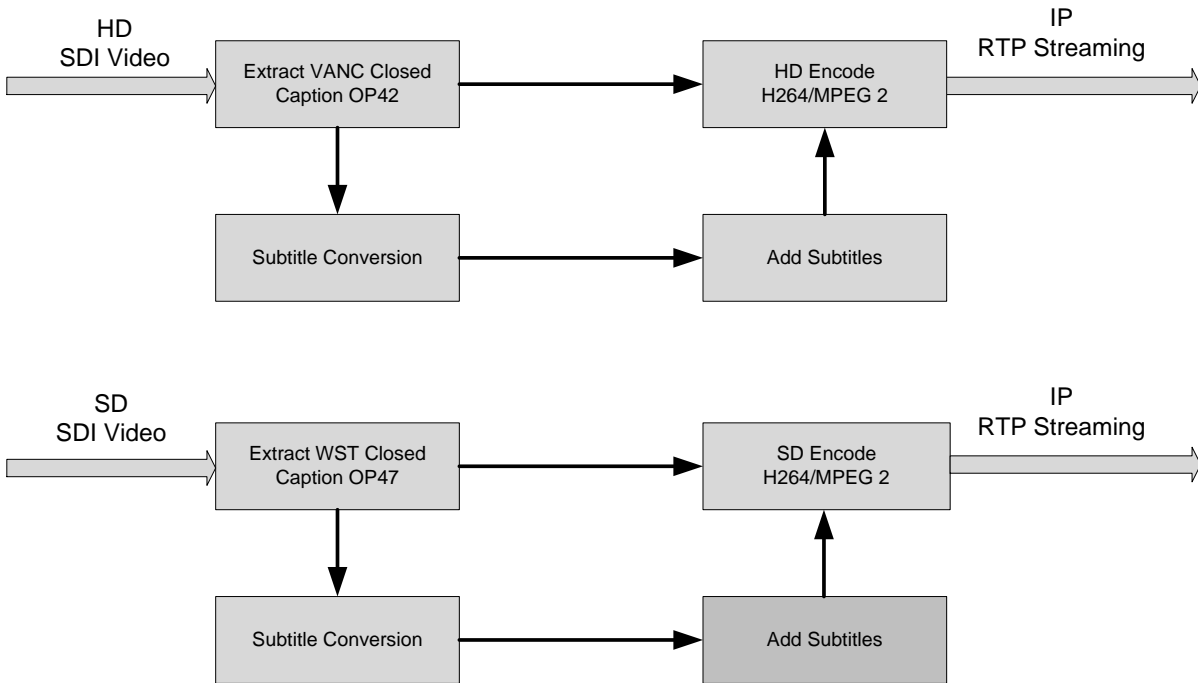
An N+1 encoder architecture was implemented with a separate Encoder Manager system that includes integrated router control, so that the hot spare can be brought on-line remotely, and signal routing is automatically controlled as part of an encoder switch.

StarEncode

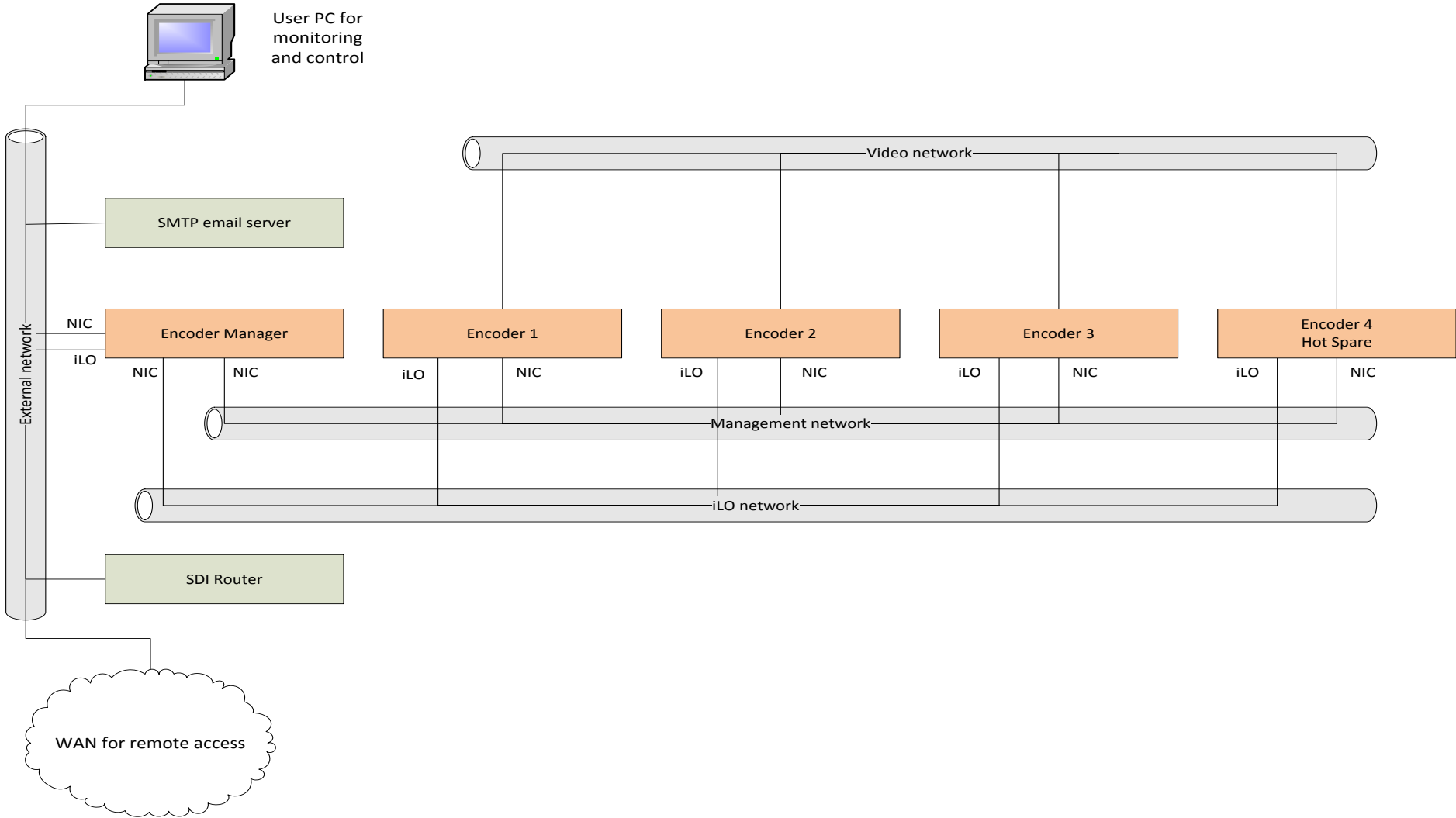
The Starfish encoders were configured to support 4 independent channels – with 2 HD and 2 SD video inputs. They incorporated the Closed Caption decoding and re-encoding as DVB subtitles, plus multiplexing these subtitles into the encoded media stream. The video input signals contained 2 languages of Closed Captions and both are processed and added to the H264 encoded output stream.

The system router control is also integrated into the encoders so failover switching is simple. Router control is also available manually from the Starfish Encoder Manager for system configuration and maintenance.

StarEncode Architecture



Network layout with iLO and single management network



Customised Web based Monitoring GUI

TT-NET MONITOR

Home About

Summary

Web Server: Connected

Select Region or Edition

- TT-Net
 - TT-Net 2 SD
 - TT-Net 2 HD
 - TT-Net 1 HD
 - TT-Net 5 HD
 - TT-Net 3 HD
 - TT-Net 4 HD
 - TT-Net 4 SD
 - TT-Net 6 HD
 - TT-Net 5 SD
 - TT-Net 3 SD
 - TT-Net 1 SD
 - TT-Net 6 SD

TT-Net Region - Connected

