WIDEVINE®

CYPHER FOR DIGITAL MEDIA

LIVE (LINEAR) STREAMING

ENCODING SPECIFICATION

VERSION: 1.1

WIDEVINE®

Revision History

Version	Date	Description	By
1.0	10/24/2010	Initial release	Alex Lee
1.1	1/14/2011	Video and audio specification clarification	Alex Lee

CONTENTS

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1. PURPOSE

The purpose of this document is to describe the encoding requirements for live streaming content using the Widevine Segmenter.

The scope of this document is highlighted in red, in the diagram below.
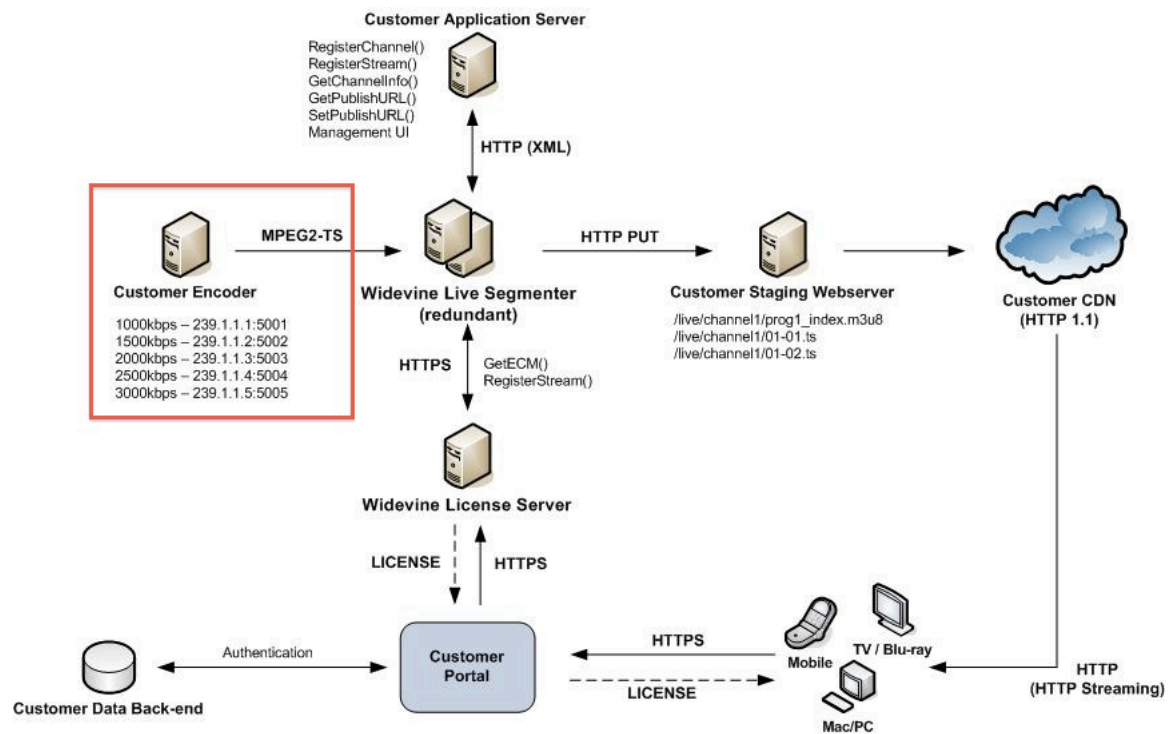
FIGURE 1 – LIVE STREAMING OVERVIEW

2. INPUT CONTAINER

- MPEG-2 Single Program Transport Stream (SPTS) over UDP multicast or unicast

  o One stream for each bitrate that will be used for adaptive streaming

  o Encodes will be one video and one audio component including PAT and PMT

- All encodes are time locked or synchronized sharing PTS

- All encodes share the same closed GOP structure and the IDR frame boundaries are synchronized

- 7 transport packets per UDP packet

  o No RTP headers

- All encodes will share identical PIDs

3. Video Requirements

- Format:

    1. H.264

        - profile or level based upon applicable support of target devices

- Encoding method, options are:

    1. Constant bitrate

        - Avoid H.264 padding NALUs

        - If padding is required, MPEG2-TS NULL packets preferred

    2. Variable bitrate

        - Must be able to limit peak bitrate.

- No VBI or private data

- All streams must have the same dimensions (height, width) and frame rate

4.   AUDIO REQUIREMENTS

- Format, options are:

    1. AAC-LC with ADTS encapsulation

        ▪ Example specifications:

            - Sample rate at 48Khz

            - Encoded data rate is 96Kbps

- Audio must be identical on all input streams