

PiXiE *in action*

MPEG-4 AVC Video Transmission *Simplified*

HD-SDI



MPEG-DASH::MPEG-4 AVC HD



HD-SDI



PiXiE & MPEG-DASH



1080i/29.97



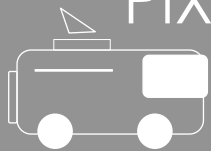
t_n \circ \circ \circ t_2 t_1 t_0

MPEG-4 HD in ISO BMFF over HTTP

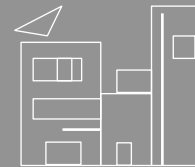
PiXiE encoders create several synchronized representations, at different bit rates, of your real-time video program. These representations are immediately available on its internal web server.

PiXiE decoders request an MPD, or manifest file, which is a list of available representations. Then, PiXiE requests the highest quality representation for the network conditions it detects.

PiXiE is Easy to Configure



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PiXiE encoders input **HD-SDI** (SMPTE-292M) with embedded audio. You may set an upper network bandwidth limit, e.g., 12Mbps, for IP output. PiXiE will create several representations (see below) of the video at different bit rates. You may also encode audio in HE-AAC format.

PiXiE conforms to the **MPEG-DASH** standard for live H.264/MPEG-4 program delivery.

Input: 1080i – 29.97, MaxBandwidth: 12Mbps

Representation 1(R1): 10Mbps

R2: 7.6Mbps

R3: 5.3Mbps

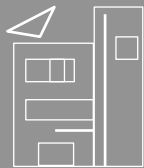
R4: 2.9Mbps

R5: 512Kbps

On your PiXiE decoder simply enter the IP address of the PiXiE encoder. The intelligent decoder will adjust to network conditions by requesting the highest quality representation for the available bandwidth. PiXiE adjusts rapidly, ensuring continuity of video.

The PiXiE decoder will output HD-SDI with embedded audio.

Encoder to Decoder latency = ~6 seconds



PiXiE is Smart



HeadEnd /
Teleport

E

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Input: 1080i – 29.97, MaxBandwidth: 12Mbps

Representation 1 (R1): 10Mbps

R2: 7.6Mbps @ 1080i

R3: 5.3Mbps @ 1080i

R4: 2.9Mbps @ 820i

R5: 512Kbps @ 340i

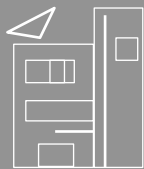
In the event that Internet/Network links are heavily congested, or lossy, your **PiXiE decoder** is optimized to preserve video quality. For example, a High Definition video (1080i) that is compressed too much (4Mbps or below) will produce a poor Quality of Experience. To reduce the heavy compression artifacts a **PiXiE decoder** may select a video representation that is scaled to a lower resolution.

340x620



1080x1920

Your **PiXiE decoder** will scale the video back to 1080i for delivery via HD-SDI port. For most content, subjective quality metrics indicate this method will produce a better video experience than maintaining the original resolution, while reducing the bit rate.



PiXiE is Smart



HeadEnd /
Teleport

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Your PiXiE decoder monitors the bandwidth of the network each second. If the available bandwidth is reduced, PiXiE will select a less demanding representation from the PiXiE encoder.

In some cases, network bandwidth may reduce partially, and PiXiE will attempt to accommodate this fluctuation by choosing a slightly lower representation (e.g., 10Mbps {R1} to 5.25Mbps {R3}). PiXiE will always attempt to select the highest quality representation available, but is prepared to select a very low bandwidth representation, if required to maintain continuity (note the rapid R5 selection below).

Input: 1080i – 29.97, MaxBandwidth:
12Mbps

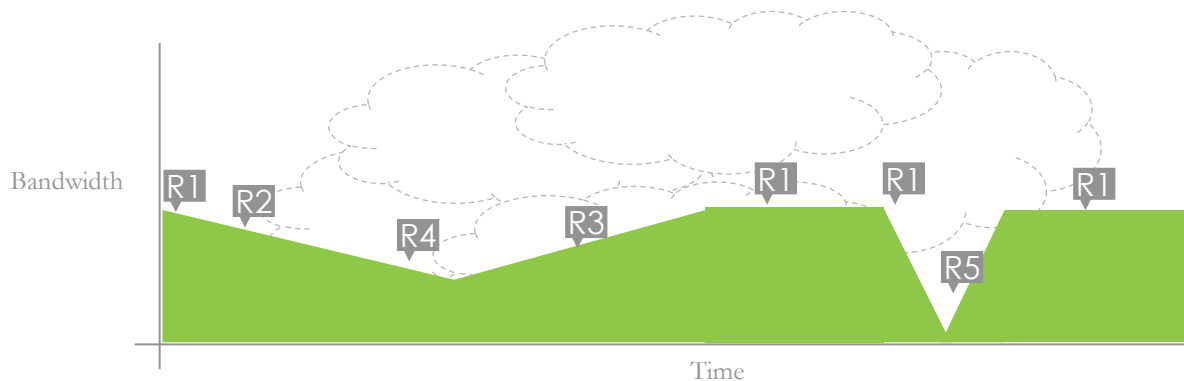
Representation 1 (R1): 10Mbps

R2: 7.6Mbps @ 1080i

R3: 5.3Mbps @ 1080i

R4: 2.9Mbps @ 820i

R5: 512Kbps @ 340i



Encoder **OR** Decoder

Inputs and Outputs

Video Interface: HD-SDI/SDI (Single Port)

Formats: 1080i 29.97/25, 720p 59.94/50,

Audio Interface: Embedded HD-SDI

Formats: PCM

External Reference: Tri-level Sync/Genlock

Gigabit Ethernet: RJ-45

Encoding/Decoding/Transmission

Video CODEC: MPEG-4 AVC/H.264 - High Profile@L4 (up to 16Mbps)

Audio CODEC: HE-AAC v1

MPEG-DASH: ISO Base media live profile(up to 5 levels)

PIXiE-E1: Encoder, single HD-SDI channel
PIXiE-D1: Decoder, single HD-SDI channel

Management

HTTP (*Simple, Delightful* Web User Interface)

Front Panel IP identification

Physical

Power: 100W, 120/240v AC

Physical Dimensions: 1RU (19") x 14"



Perfect Video Over IP