# REAL-TIME H.264 TRANSCODING

Groom IP Video Streams for Your Audience

Haivision's Kraken delivers performance IP video transcoding. The Kraken is designed for Transport Stream to Transport Stream fuelling enterprise or satellite video distribution challenges. The base model securely redistributes digital video broadcasts over enterprise networks. The Kraken ISR (with ISR firmware option) provides extreme low latency transcoding for metadata-rich applications, such as within military intelligence, surveillance, and reconnaissance (ISR) full motion video applications.

Kraken – Distributing DVB Streams for the Enterprise

The Kraken grooms high bandwidth broadcast streams for enterprise distribution and consumption. Many IP video deployments rely on capturing digital video broadcasts for redistribution over the LAN to enterprise viewers, eliminating the need for encoder head ends. Combining Haivision's Torpedo DVB to IP gateways with the Furnace IP video system satisfies such challenges. However, DVB signals are very high in bandwidth (up to 18 Mbps for HD MPEG-2), congesting enterprise networks and over-taxing computers that try to decode such large streams. With the Kraken, the heavy inbound stream can be groomed for the various destinations on the network. For example, a set-top box such as the Stingray may consume 6 Mbps HD H.264 multicast streams, whereas a desktop computer only 1 Mbps H.264 streams at a lower resolution. The Kraken satisfies these various challenges while maintaining the end-to-end security for the Torpedo to Furnace pipeline (using VF Encrypt) in order to preserve the secure multicast framework demanded by content providers.
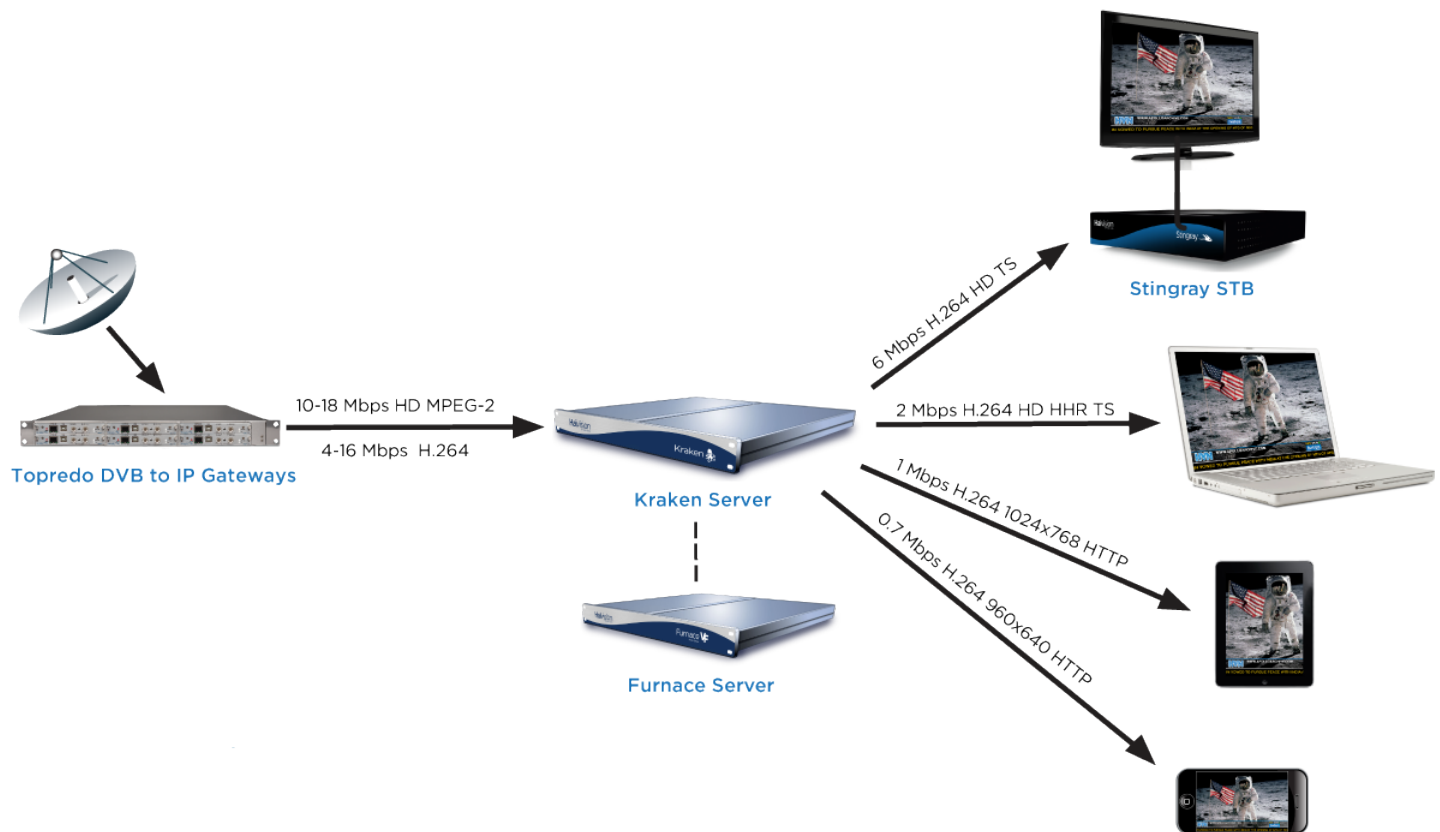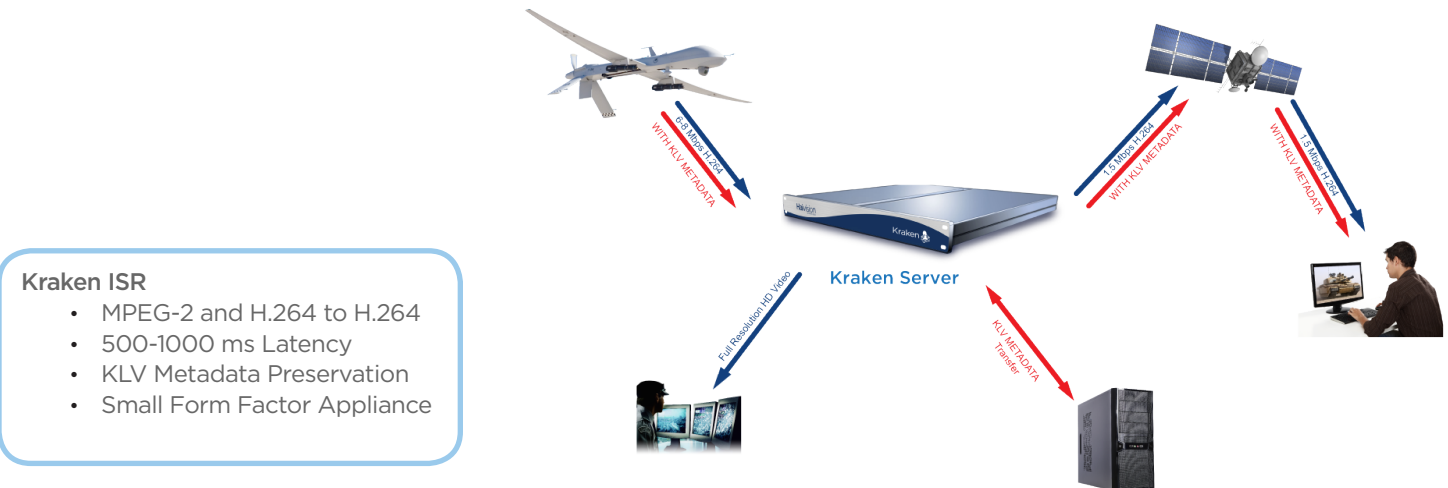

Kraken Enterprise
- MPEG-2 and H.264 to H.264
- Resolution scaling
- Multiple bitrate output
- Stream re-encapsulation
- Stream replication

Kraken ISR

In the world of Intelligence, Surveillance, and Reconnaissance (ISR) systems are designed to collect, process, and disseminate information. For most full motion video applications, additional information is bundled together with the video as metadata, typically in KLV (Key-Length-Value) format. The Kraken ISR is optimized specifically for the exact task of disseminating information in a format that is required by downstream systems, networks, and viewers, with the lowest possible delay (500 to 1000 milliseconds latency), while preserving any required metadata with frame accurate synchronization.

The Kraken ISR is designed to have a flexible pipeline architecture. This enables base station systems to extract full motion video with KLV metadata for viewing by real-time monitoring systems and allows additional base station exploitation systems to extract and re-inject metadata into the live video stream.

Kraken ISR
- MPEG-2 and H.264 to H.264
- 500-1000 ms Latency
- KLV Metadata Preservation
- Small Form Factor Appliance

Kraken Server

SPECIFICATIONS

Transcoding Specifications

Sources:	Makito, Piranha Encoders 3rd Party Encoders Digital Video Broadcast	Output H.264:	Baseline, Main, High Profile Up to Level 4.2 (1080p60) Transport Stream 0 kbps - 20 Mbps Transport Stream Shaping, VBR	

Input MPEG-2: MainProfile@MainLevel (SD)
MainProfile@HighLevel (HD)
Transport Stream
0 kbps - 15 Mbps
CBR, VBR

Audio: AAC 2 channel
Audio Sync Preserved

Metadata: KLV Preserved with Sync
Time Code Preserved with Sync
CC Preserved with Sync (EIA-608)

Input H.264: Baseline, Main, High Profile
Up to Level 4.2 (1080p60)
Transport Stream
0 kbps - 20 Mbps
CBR, VBR

MISB: IETF RFC 2250 - Video over IP using MPEG-2 systems (TS mode)
MISB Engineering Guideline 0601.1 - UAS Datalink
Local Metadata Set, Section 5
MISB Recommended Practice 0604 - Time Stamping
Compressed Motion Imagery
SMPTE 336M-2007 Data Encoding Protocol using Key-Length-Value

Input Audio: MPEG1 layer 2
  AAC 2 channel and 5.1

Video Processing
De-interlacing
Down Scaling
Region Cropping
Aspect Ratio Conversion
Frame Rate Decimation

Networking
Single Program Transport Stream
Unicast/Multicast
TS over UDP

Management
Web User Interface (HTTPS only)
ReST API

Ordering Information (please obtain complete system quotations from Haivision or an authorized Haivision integration partner)

S-KR-HD1-K4-1U   **Kraken Quad Channel HD Transcoding System -** Kraken Quad-Channel HD Transcoding System - Low latency, transport stream, up to 4 HD IP stream input. Half depth, 1U, Quad Core Xeon Server.

S-KRISR-HD1-K4-1U   **Kraken ISR Quad-Channel SD Transcoding System -** Low latency, transport stream, up to 4 SD IP stream input. Half depth, 1U, Quad Core Xeon Server.

S-KR-HD4-K12-1U   **Kraken 8 Channel Transcoding System -** Low latency, transport stream, up to 8 HD IP stream input, multiple output. Full depth, 1U, Dual Six Core Xeon Server, with redundant power supply and redundant hard drives.

S-KRISR-HD4-K12-1U **Kraken ISR 8 Channel Transcoding System -** Low latency, transport stream, up to 8 HD IP stream input, multiple output. Full depth, 1U, Dual Six Core Xeon Server, with redundant power supply and redundant hard drives.