



PELICAN

- ✓ Applications include Live or File Transcode, Content Contribution, Distribution and Surveillance
- ✓ VLSI decode/encode modules provide scalable capacity as needed
- ✓ 95% OPEX savings at only 3 Watts per stream
- ✓ Almost 10:1 reduction in data centre footprint
- ✓ Product models include single module compact 1RU system Pelican XS, and the data centre grade Pelican, which can be fitted with up to eight modules
- ✓ Elastic, dynamic configuration allows over 100 streams in 1RU
- ✓ Supports resolutions up to UHD 4Kp60
- ✓ JSON Web API easily integrates with existing workflows

Pelican Live Transcode

The Pelican transcode platform supports full VLSI hardware accelerated mass decode-encode functionality of up to 4K UHD resolution of H.264/AVC as well as H.265/HEVC. The product supports both live IP transcode (UDP/RTP/HTTP) and file-based transcode workflows. Operators with FFmpeg-based workflows can benefit from the increase in coding density while scaling back the number of servers needed.

This platform also presents an easy-to-use web-based GUI for direct control, along with a straightforward REST API for integration into other control systems.

PELICAN DESIGNS

The Pelican is available in two models: the affordable 1RU platform for cost-sensitive applications and a data centre grade slot-based model.



Each slot features unique elastic configuration from 8 full HD to 32 low resolution encoders, offering up to 256 encoders per Pelican.



Both models leverage the unique NetInt Codensity™ hardware codec technology, which offloads intensive operations to highly parallel VLSI compute elements.

THE GROWTH OF ONLINE VIDEO

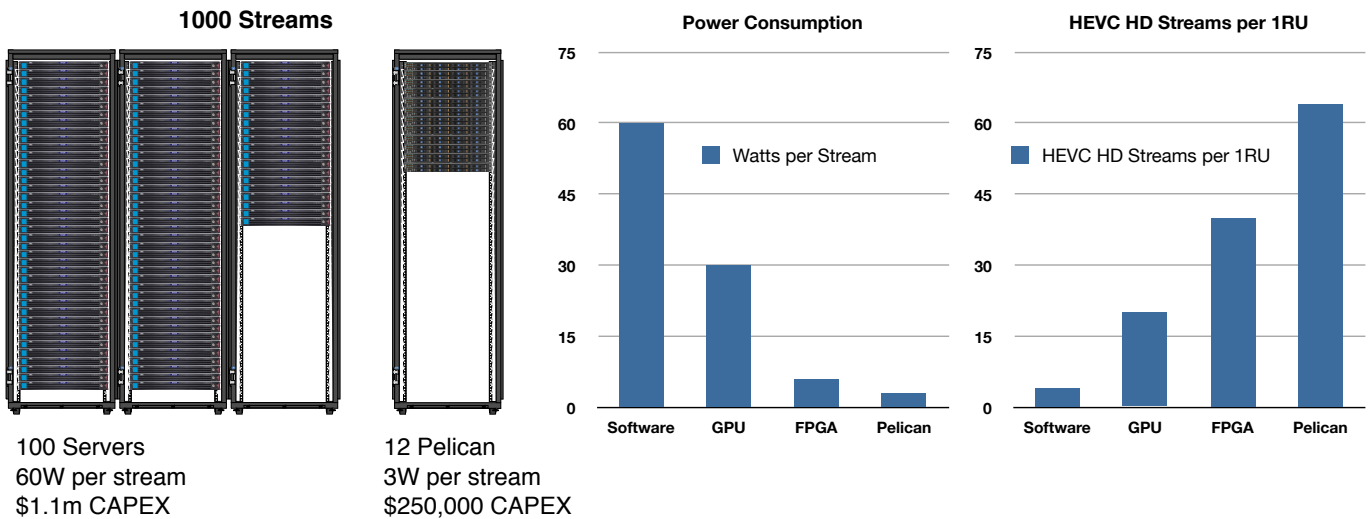
The explosive growth in OTT services, live video streaming, the move to file-based workflows and the adoption of streamed video in corporate and security environments, have resulted in an ever-increasing demand for encoding and transcoding capabilities. This is especially true for OTT services which require multiple profiles spanning a very wide range of bit rates, in order to reach devices ranging from low speed mobile phones all the way to high-end 4K TV sets.

The Pelican transcode platform overcomes these challenges by providing an economical, flexible and high-density transcoding solution that fits a wide variety of applications.

By deploying Pelican at sporting events, concerts or other live production venues, the high cost of contribution links can be lowered by encoding with high-quality HEVC before sending to the studio.

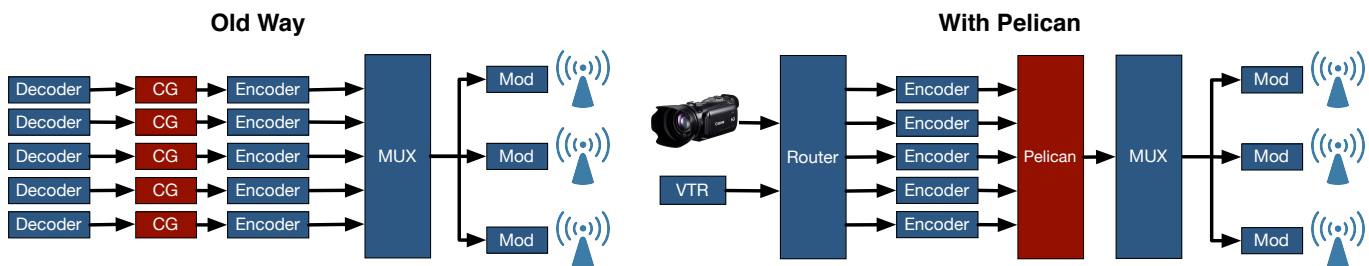
As most OTT transcode workflows are using off-the-shelf commercial servers running software encoders, it is not uncommon to see data centres with hundreds, if not thousands, of Dell or HP servers. Operating such a massive number of servers is an expensive proposition because software/GPU encoding is a complex process requiring heavy compute and memory resources. Furthermore, even after the initial capital cost, there is ongoing power, cooling and maintenance expenses.

Deploying Pelican in your data centre provides almost a 10:1 reduction in rack space combined with a 95% reduction in operating costs (OPEX).



TEXT/GRAPHICS OVERLAY

Government health and safety/security alerts, public service information or other emergency notifications can be deployed across many channels simultaneously with the Pelican multi-channel graphic and text overlay feature. Custom graphics, text or RSS feeds can be simply superimposed onto live content in the compressed domain.



Overlays consist of an image, text or both. The text can either be static, as entered by the user, or it can be dynamically sourced via an RSS feed. RSS feeds are scrolled across the screen like a stock ticker. Multiple font styles, sizes and colors are available, including non-latin fonts (Japanese, Cyrillic, etc) which can be easily added via an expansion pack. This live content overlay operating in the compressed domain, leads to significant cost savings compared to traditional baseband graphics generators: less equipment, eased rack space and reduced power consumption.



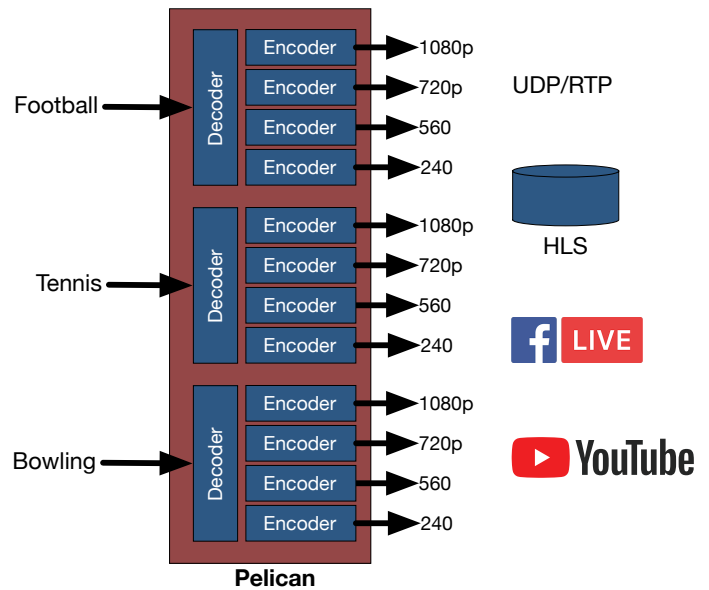
LIVE CONTRIBUTION

Long-distance transmission via fiber or satellite links continues to be a major cost factor for live production operators. Pelican can help operators optimize costs by encoding contribution content into high-resolution HEVC streams, thus lowering the bit rate without sacrificing quality.

LIVE OTT & eSPORTS

Pelican provides a compact and economical alternative to expensive CPU and/or GPU server solutions when creating the multiple output bit rates needed for OTT streaming. Reading a high-resolution input stream, Pelican easily creates multiple output bit rates. Chunk files are written to an external origin server for each output, or the built-in web server within Pelican itself. Manifest files are automatically created.

Additionally, the player page of the internal server can be customized to accommodate personalized branding – making it perfect for corporate, community or house of worship applications.



Live OTT Transcode Built-in Server & Player

Hot Link

Engine Instance Inspector

torque VIDEO SYSTEMS

PELICAN

Master playlist: <http://192.168.2.193/ottWebRoot/sintel/master.m3u8>

Video Information:
 Engine Sintel (Instance 1)
 Source UDP:xx:1234
 Source Format HEVC 1920x818 @ 24 fps
 Targets HLS SIF @ 1 Mbps
 HLS 640x360 @ 2 Mbps

EASY CONFIGURATION

To quickly configure live transcoding, simply create a new instance, select an input source, add output streams (each with IP destination, encoding format and bit rate), then click go.

Configurations can be saved or cloned as presets and applied to new instances.

KTV HD

Source UDP HTTP

Port: 6666 Probe

[168] KTV HD HEVC 1920x540 50 fps

Saved Service Loaded

Targets

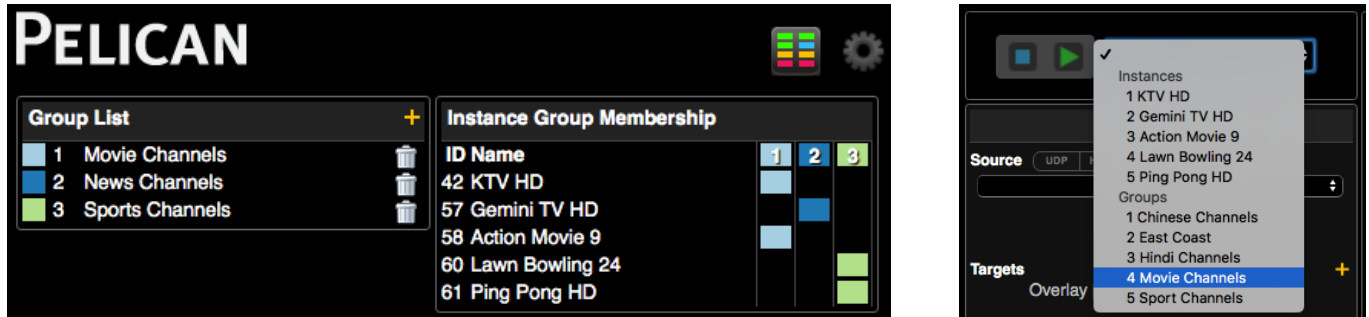
AVC	192.168.88.222:1111	5.00 Mbps
HEVC	16:9 PAL 1024x576	[4] IBPBP
AVC	192.168.88.222:2222	3.00 Mbps
HEVC	1080p 1920x1080	[2] IBPBP
AVC	192.168.2.63:1505	5.00 Mbps
HEVC	720p 1280x720	[4] IBPBP

Buttons: Delete Save as Default Clone Save

INSTANCE GROUP

While transcoding instances may be started/stopped individually, manually starting or stopping tens or hundreds of instances one by one can be time-consuming.

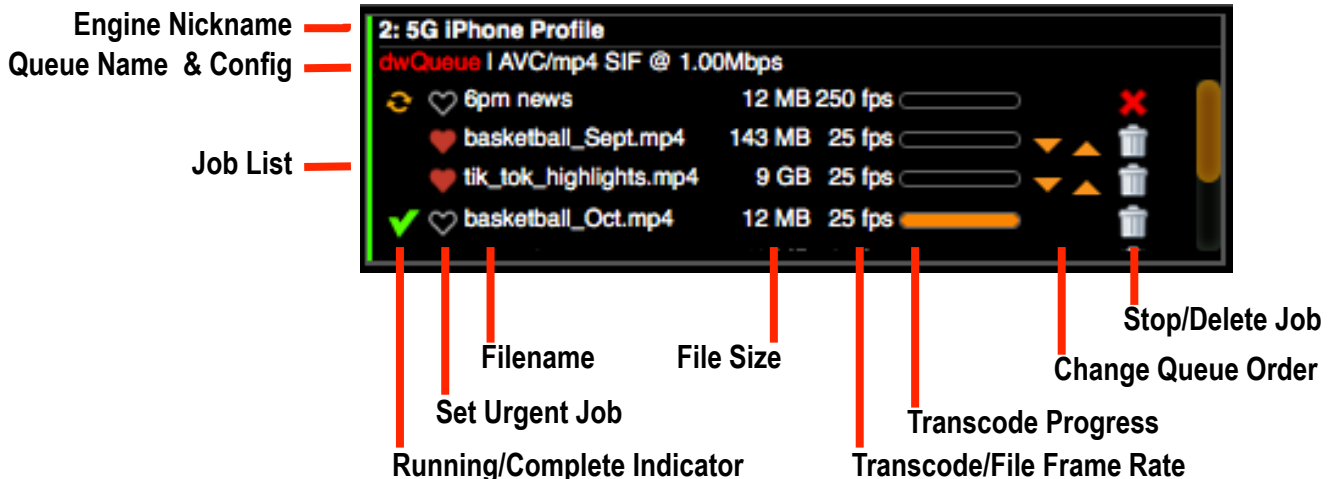
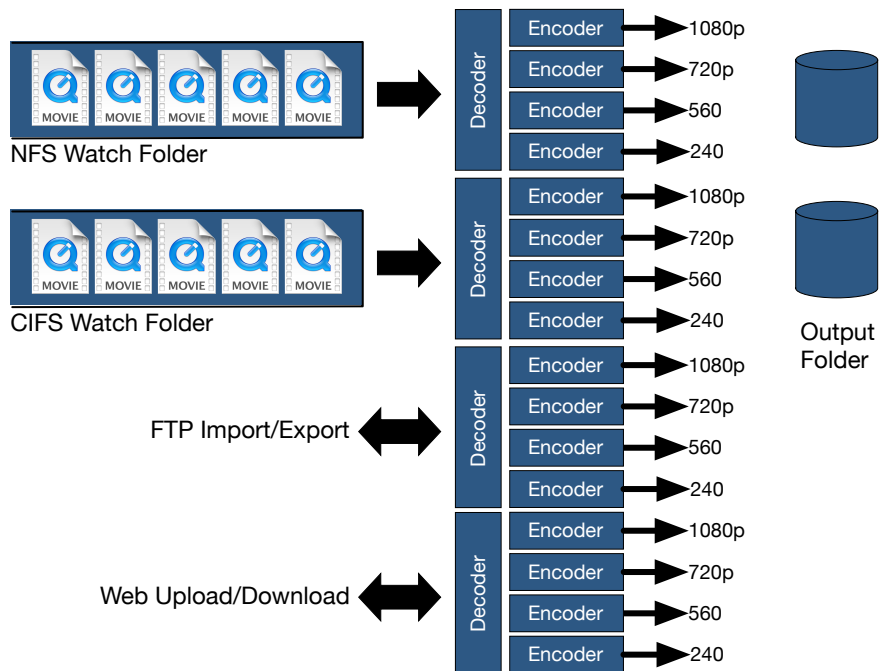
The Pelican group control feature enables creating user-definable transcoder groups and assign transcoder instances to a group. Easily start/stop all transcoders within the group with a single click.



FILE WORKFLOWS

Pelican supports flexible file-based workflows with a wide array of input/output formats. Content can be fed via network share drives (watch folders) using industry standard protocols. Content can also be submitted via FTP or simple web upload. For content submitted via FTP, transcoded files are, in turn, transferred out via FTP.

Each file workflow input queue provides fine user control and management of job execution. Typically, jobs are processed in the order they are received. Now, with a simple click, urgent jobs can jump to the front of the queue.



HIGH DENSITY, LOW POWER

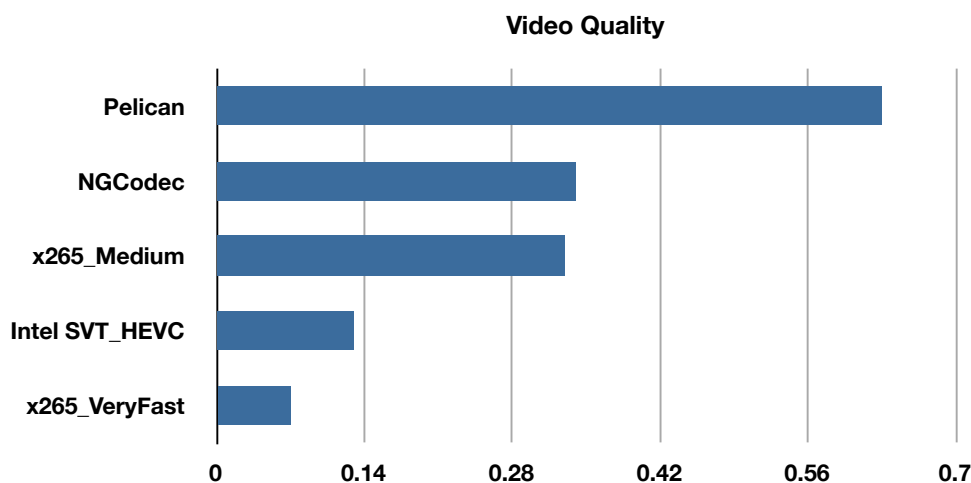
The Pelican full VLSI implementation provides significant savings in both power and rack space when compared to existing approaches.

In recent years, there has been a movement towards COTS (commercial off-the-shelf) computing platforms for many video applications. However, the demanding nature of video transcoding requires very high specification servers, with dual high-end CPUs and a lot of RAM. Even with this expensive, high-spec hardware, software-only solutions remain limited by the number of streams per server which can be supported; resulting in data centres with hundreds of power-hungry servers. Of course, such a large number of servers comes with an equally extensive job of managing and maintaining them.

To mitigate the cost, rack space and power consumption, some operators have moved to accelerated platforms using GPUs or FPGA-based solutions. Due to its full VLSI implementation, the Pelican provides 80 times improvement in rack space and a 170 times improvement in power consumption. Less rack space used in the data centre directly leads to lower costs and simpler systems management.

EXCEPTIONAL VIDEO QUALITY

Pelican provides density, ease of use and energy efficiency all without sacrificing anything in terms of video quality. An extensive subjective analysis by the Streaming Learning Centre using the *Crowd Bradley-Terry* model performed multiple pairwise evaluations of video quality against four competitive technologies: Intel DVT_HEVC, NGCodec FPGA-based encoder and FFmpeg x265 using the medium and very fast settings. The results speak for themselves.



REST API

While most users choose to control and configure the Pelican via its intuitive HTML5 GUI, the system can also be fully managed remotely via the built-in REST API. Using straightforward HTTP commands, key encoder and system parameters can be queried and/or modified, making it a snap to integrate Pelican with third party automation or management systems.

SPECIALTY APPLICATIONS

Built using highly modular components, the Pelican can be adapted and extended to meet specialized customer applications – whether that is a special input or output format, support for third party devices or support for customer-specific workflows.

FOR MORE INFORMATION

Regardless of your customized requirements, our Torque professional services team is on standby, ready to assist. For further details, please contact your local sales rep or drop a line to our Torque sales team (sales@torquevideo.tv) today.

LIVE TRANSCODING

Input Transport Formats	
TS-over-UDP	✓
TS-over-RTP	✓
Output Transport Formats	
TS-over-UDP	✓
TS-over-RTP	✓
HLS to local server	✓
HLS to origin server (HTTP PUT)	✓
Real Time Overlay	
Graphic formats	png, jpeg
Text	UTF-8
RSS Feed	v1.1, v2.0

FILE TRANSCODING

Input Container Formats	
TS, MP4, MKV, MXF	✓
Output Container Formats	
TS, MP4, MKV, MXF, HLS	✓
File Transcode Throughput	
4K	60 fps
1080p	240 fps

COMMON SPECIFICATIONS

Video	Availability
MPEG-2 4:2:0 8-bit	✓
H.264/AVC 4:2:0 8-bit	✓
H.264/AVC 4:2:0 10-bit	✓
H.265/HEVC 4:2:0 8-bit	✓
H.265/HEVC 4:2:0 10-bit	✓
HDR10, HDR10+, HLG	✓
Max Resolution	8192 x 5120
Min Resolution	32 x 32
Audio	
Pass through, AAC, MP3, AC3, FLAC	✓
Subtitles & Captions	
SEI embedded captions	✓
EIA CEA-708 closed captions	✓
Subtitle stream	✓

System	Pelican XS	Pelican
Transcoder modules	1	1 to 8
Gigabit Ethernet Ingest/Streaming Port	1	1
10G Ethernet Streaming Port	NA	option
Gigabit Ethernet Management Port	1	1
CentOS Enterprise Linux	✓	✓
CPU	1 x Core i7	2 x E5-2620
RAM	8 GB	32 GB
Power Supply	Single, built-in	Dual, removable
Power Consumption	150W	500W
Input Voltage	88 - 250V	100 - 240V
Operating Temperature Range	10° - 30°C	0° - 40°C
Dimensions	19-in rack 250mm deep	626 x 430 x 44mm
Control Interfaces		
HTML5 GUI	✓	✓
REST API	✓	✓

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