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Heynen works for innovators

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HERO IS...

THE MOST **FLEXIBLE** AND **RELIABLE** MULTI-SCREEN TRANSCODING SOFTWARE WITH THE **HIGHEST VIDEO QUALITY** ON **OUR** SCALABLE HARDWARE OR **YOURS**



Media Excel defines the adaptive bitrate, multi-device transcoding standard for multi-screen video delivery. The company's hybrid solution of software and hardware transcoding solutions power the most demanding deployments worldwide, including more than 18 million mobile/tablet TV viewers daily in the US alone. Across the head-end, cloud, or edge video distribution, the company's solutions are used in a variety of markets including broadcast, telecom, MSO, enterprise and government.

PRODUCT LINES

> HERO LIVE - HERO FILE

A truly flexible transcoding solution that scales with business growth and eliminates frequent rip & replace of equipment.

> HERO CLOUD

HERO virtualized software running on your hardware for Live and VoD cloud transcoding services.

> NETWORK MANAGEMENT SYSTEM (HMS)

Central configuration, management and monitoring of Live & VoD transcoding/encoding farms.

APPLICATIONS

> MOBILE/TABLET/WEB TV

> BROADCAST & OTT

> IP/CABLE/SATELITE TV

> LIVE & ON DEMAND

KEY FEATURES

- > Up to 4K Real-Time Encoding
- > MPEG-DASH Live/VoD Output
- > Unified Live & VoD Transcoding
- > Native Playout Support (Playlist & ClipCasting)
- > Enhanced Pre-processing (up to 20% bitrate savings)
- > 8 HD-SDI/DVB-ASI Inputs (HERO LIVE)

UNIQUE ADVANTAGES

> RELIABILITY

- 99.999% Proven Uptime in 24/7 Operations
- Robust DSP & Embedded Real-Time Software
- Individual Channel Failover (N+1, N+M, 1:1)
- Evergreen Feature-set for Enhanced Service Availability
- Carrier-grade chassis with redundant PSU, HDD, NIC

> FLEXIBILITY

- File or Live Transcoding on ONE Unified Platform
- Playlist Production & Ingestion
- Workflow Management and DRM/CDN Integration
- Fully Field-Upgradable
- HEVC Support through Software Update

> QUALITY OF SERVICE

- Superior Broadcast-Quality Video
- Enhanced Pre-processing Logic
- Adaptive Multi-rate n-Screen Delivery

> DENSITY

- Up to 16 HD Outputs per 1RU Platform
- Native ASI, HD-SDI and UDP/IP Ingestion
- Simultaneous Delivery for All Adaptive Technologies

> RACK SPACE AND POWER CONSUMPTION

- 8x Less Rack Space
- 12x Less Power Consumption

HERO CLOUD


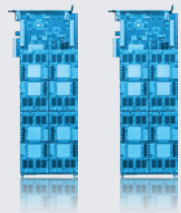



HERO VIRTUALIZED SOFTWARE RUNNING ON YOUR HARDWARE FOR CLOUD TRANSCODING SERVICES

- INCLUDES ALL HERO FEATURES
- INSTALLS ON X86 PROCESSING BLADES OR STANDALONE SERVERS
- SCALES AUTOMATICALLY BASED ON AVAILABLE CPU / MEMORY RESOURCES
- ALLOWS FOR RAPID DEPLOYMENT OF TRANSCODING SERVICES, FILE OR LIVE BASED
- INTERACTS WITH MAJOR NMS AND CMS PLATFORMS
- SUPPORTS NATIVELY:
 - FILE & LIVE TRANSCODING
 - ALL ADAPTIVE DELIVERY TECHNOLOGIES
 - AD SIGNALING/INSERTION
 - SOAP API AUTOMATION
 - ENCRYPTION
 - CDN PUBLISHING

HERO LIVE

A TRULY FLEXIBLE TRANSCODING SOLUTION THAT SCALES WITH BUSINESS GROWTH AND ELIMINATES FREQUENT RIP & REPLACE OF EQUIPMENT

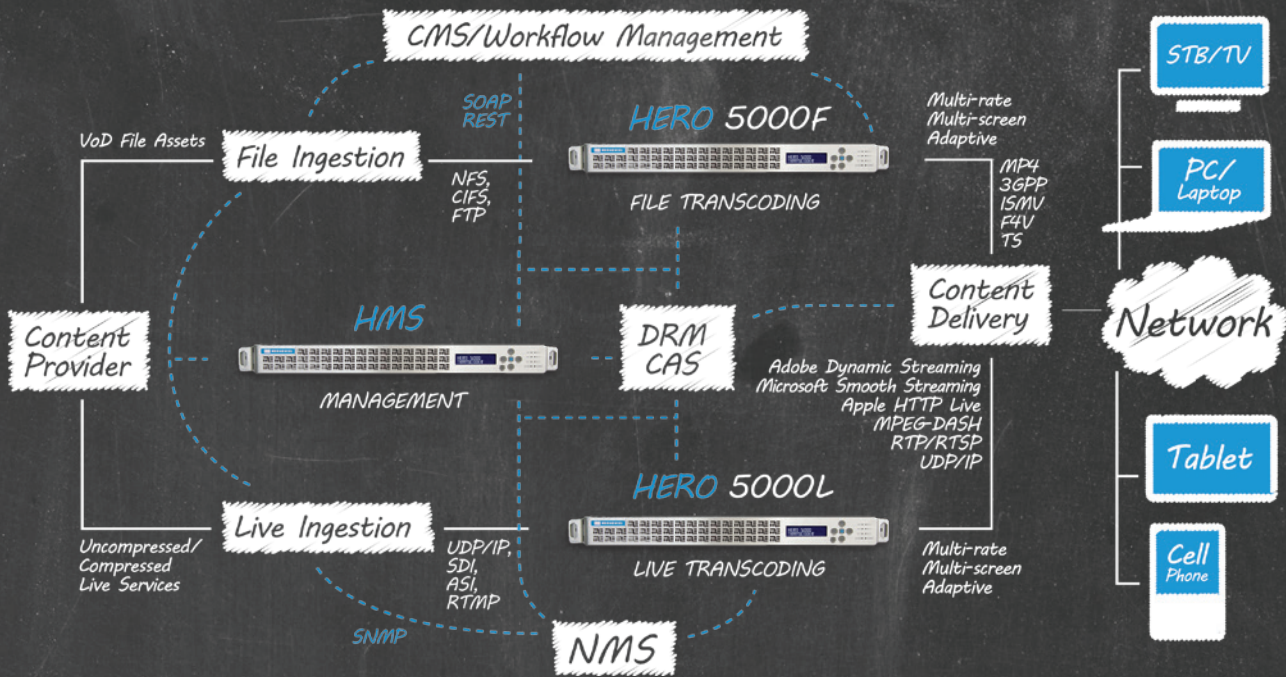
INPUT & OUTPUT DENSITY >

16	<p>HERO 5404</p> <ul style="list-style-type: none"> • 2X DSP ACCELERATION MODULES • 128 CORES  	<p>INPUTS: UP TO 8 SDI OR ASI, IP</p> <p>MAXIMUM OUTPUTS: 1080P (1) 1080I (4) 720P (16) 480P (32) 240P (128)</p> <p>MULTI-RATE OUTPUT: 3 CHANNEL INPUT – 24 CHANNEL OUTPUT (1280x720, 960x540, 720x576, 512x288, 336x192, 256x144, 176x96, 112x64)</p>	SOFTWARE UPGRADE FOR 4K-HEVC AND HEVC (H.265)
8	<p>HERO 5400</p> <ul style="list-style-type: none"> • 1X DSP ACCELERATION MODULE • 64 CORES, 1 GHz EACH  	<p>INPUTS: UP TO 8 SDI OR ASI, IP</p> <p>MAXIMUM OUTPUTS: 1080P (1) 1080I (3) 720P (8) 480P (16) 240P (64)</p> <p>MULTI-RATE OUTPUT: 2 CHANNEL INPUT – 16 CHANNEL OUTPUT (1280x720, 960x540, 720x576, 512x288, 336x192, 256x144, 176x96, 112x64)</p>	SOFTWARE UPGRADE FOR MPEG-DASH AND 4K-H.264
4	<p>HERO 5000 INTEL XEON SERVER</p> 	<p>INPUTS: UP TO 8 SDI OR ASI, IP</p> <p>MAXIMUM OUTPUTS: 1080P (1) 1080I (2) 720P (4) 480P (8) 240P (32)</p> <p>MULTI-RATE OUTPUT: 1 CHANNEL INPUT – 8 CHANNEL OUTPUT (1280x720, 960x540, 720x576, 512x288, 336x192, 256x144, 176x96, 112x64)</p>	

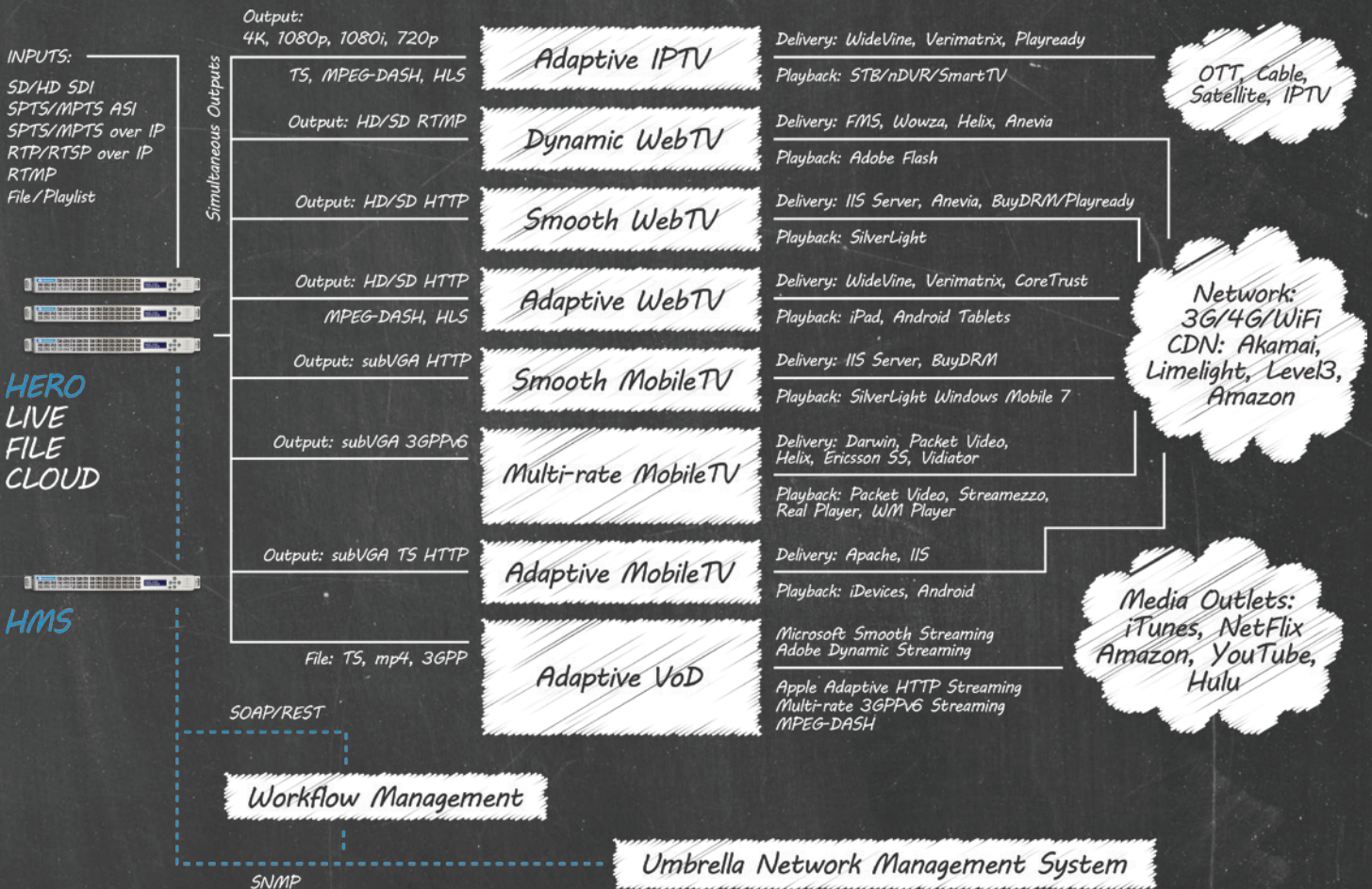
OF HD CHANNELS

HIGH-LEVEL ARCHITECTURE & USE-CASES ✓

OVER THE TOP & MULTI-SCREEN IP/WEB/MOBILE TV



MULTI-SCREEN ADAPTIVE DELIVERY ARCHITECTURE



HERO TECHNICAL SPECIFICATIONS ✓

LIVE ENCODING

INPUTS (with embedded audio)

- SD-SDI (SMPTE 259M) 625/525
- HD-SDI (SMPTE 292M)

LIVE TRANSCODING

INPUTS (ASI/BNC or GigE/RJ-45)

- MPEG-2 TS (ISO/IEC 13818-1) via DVB-ASI
- MPEG-2 TS (ISO/IEC 13818-1) via RTP/UDP
- RTP/RTSP via RTP/UDP
- RTMP via TCP

MODULES (1 per slot; 2 slots max)

- 4 x SD/HD-SDI (SMPTE 259M)
- 4 x DVB-ASI (EN50083) 75Ω

CODECS

- H.264/AVC SD/HD (ISO/IEC 14496-10)
- MPEG-2 SD/HD (ISO/IEC 13818-2)
- H.263, MPEG-4 (ISO/IEC 14496-1)
- AAC/AAC-HE (MPEG-2, MPEG-4)
- MPEG-1 Audio Layers I & II
- AC3 (DD), AC3 Plus (DD+) - 5.1, Stereo

ASSET-BASED TRANSCODING

FILE TYPES

- AVI (Divx, Xvid, .AVI)
- F4V (ISO/IEC 14496-12:2008)
- MPEG-2 TS (ISO/IEC 13818-1) (.TS)
- MPEG-2 PS (ISO/IEC 11172-1) (.VOB)
- MPEG-4 and 3GPP (.MP4, .3GP)
- MFX OP1A
- QuickTime (.MOV)
- Windows Media (.WMV)

NETWORK AND TRANSMISSION

NETWORK

- HTTP
- ISMA
- IGMPv3
- RTP/RTSP
- RTCP
- RTMP
- TCP/IP, UDP/IP

TRANSMISSION

- 3GPP (v2, v6)
- ATSC-MH
- DVB-ASI (SPTS/MPTS)
- DVB-S/T (ETSI 101 154)
- IMB
- ISDB-T
- eMBMS

OUTPUTS

FORMATS

- 3GP2, 3GPP (.3GP)
- AAC/AAC-HE, v.1 & 2
- Flash 9 H.264 RTMP
- H.263 (ITU-T H.263)
- H.264/AVC (ISO/IEC 14496-10) BL/MP/HP
- MPEG-2 TS/PS (ISO/IEC 13818-1, 11172-1)
- MPEG-4 (.MP4) (ISO/IEC 14496-1)
- Windows Media 9 (.WMV)
- Unicast and Multicast
- HTTP (TS, MP4) segmented
- SAP/SDP announcements

RESOLUTIONS

- 4K, 2K
- 1080p/i
- 720p
- Android HD (854x480)
- PAL/NTSC
- VGA (640x480)
- iPad, iPhone
- WQVGA (416x240)
- SIF/CIF (352x240/288)
- QVGA (320x240)
- QCIF (176x144)
- Custom sizes/resolutions

ENCODING & TRANSCODING FEATURES

AUDIO

- Sample Rates (KHz): 8, 11, 16, 22, 32, 44, 48
- Bit rates (kbps): 8 – 384
- Pass-through option
- Re-sampling, down-mix options
- High frequency inclusion option
- ADTS/LATM packetization options
- Multiple audio tracks/languages
- Dynamic audio normalization

VIDEO

- Dual-pass encoding
- Bit Rates: 8 Kbps – 50 Mbps
- Frame rates (Hz): 1 – 60
- Bit rate control: CBR, VBR, ABR
- Statistical rate control
- CAVLC / CABAC entropy modes
- Interlaced encoding support
- Low latency mode

PRE-PROCESSING

- Automatic & manual PID selection
- Aspect ratio detection (AFD, V-Index, WSS)
- VBI black-out control
- Contrast/Brightness/Gamma control
- Audio gain control
- Error concealment logic
- De-blocking & noise reduction filters
- Content adaptive de-interlacing
- Frame scaling with anti-aliasing options
- Smoothness/Sharpness control
- Cropping per output
- Graphic overlay (4 layers)
- Playlist video loop support
- SCTE-35 ad signal pass-through
- DVB-Teletext pass-through
- EIA 608/708 closed caption conversion
- SAMI, SRT & TTML subtitle conversion

POST-PROCESSING

- Adaptive/multi-rate output
- 3GPPv6 multi-rate support
- Adobe RTMP/HTTP Flash
- Apple HTTP adaptive (HLS)
- Microsoft Smooth Streaming
- MP4 & TS segmented (HTTP)
- MPEG-DASH (Live & VoD)
- Multiple audio tracks/languages output
- NTP-synced, GOP-aligned outputs
- MP4 hinting
- Aspect ratio conversion
- Multiple publishing points for redundancy
- Auto-generation/retrieval of DRM keys
- Network traffic shaping/smoothing
- SimulMUX for multiple output formats
- MISP KLV metadata preservation

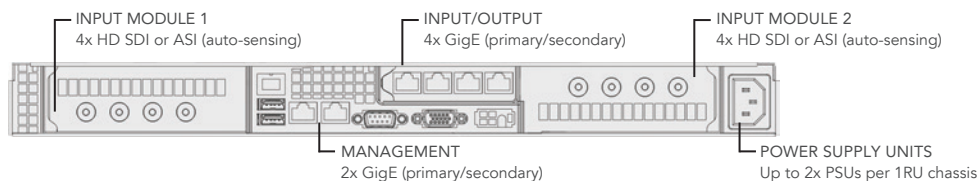
AUTOMATIONS - MANAGEMENT

AUTOMATION TOOLS

- Asset-type auto-detection
- Playlist ingestion support
- Watchfolder automation
- Customizable file naming options
- MP4 & TS archival automation
- WebDAV/FTP/HTTP support
- R-sync/reverse-proxy support
- Source replacement automation
- Recording automation
- Output quality reports
- CDN publishing options
- PlayReady, AES & CFF encryption support
- DRM/CAS integration: BuyDRM, CoreTrust, Verimatrix, Widevine

MANAGEMENT/CONTROL

- Central management of Live & File tasks
- Web-based management console
- LDAP-based user authentication
- SOAP/XML API
- Batch, secure remote firmware upgrade
- Auto-load balancing
- SNMP v.2 traps/alerts
- Configurable audio/visual alarms
- NMS/CMS integration hooks
- N+M, N+1, 1:1 redundancy options
- Service and platform level failover options
- Integration with SDI/ASI switches
- NIC bonding/teaming & VLAN support
- Task scheduler



STREAMING SERVER SUPPORT

- Adobe Flash Media Server
- Alcatel-Lucent pvServer
- Anevia ViaMotion
- Apple Quicktime Server (Darwin)
- Cisco Videoscape
- Microsoft Windows Media Server (IIS)
- MobiTV O.D.S.
- Real Networks Helix Server
- Vidiator Xenon Streamer
- Wowza Streaming Server

PLAYBACK DEVICES

SET-TOP BOXES (partial list)

- Amino
- Boxee
- Motorola
- Netgem
- PeerTV

HANDSETS / TABLETS (partial list)

- Apple iOS (iPad, iPhone, iPod touch)
- Google Android (Motorola, Samsung, et al)
- Symbian OS (Nokia)
- RIM OS (Research In Motion)
- Windows 7 Phone OS

CHASSIS

FORM FACTOR

- 1U standard 19" wide (rack mount)
- 1.75" (44mm) high x 27" (67cm) deep
- 29lb (13kg)

POWER SUPPLY

- Auto-switch AC 90-264V (47- 63Hz)
- 400w

ENVIRONMENTAL

- Operating temp: 0 to 50° C (32 to 122° F)
- Storage temp: -20 to 65° C (-5 to 150° F)
- Humidity: 5 to 90 %
- Shock: 10G / 11ms in all axis
- Vibration: 0.8G / 5 to 100 Hz

REDUNDANCIES

- Redundant HDD
- Dual hot-swappable power supply
- Up to 6 GigE ports (teaming/bonding)

DISPLAY & INTERFACE

- 32-character liquid crystal display (LCD) control panel (2x16) with backlight

CERTIFICATIONS & COMPLIANCE

- FCC Class A
- CE/RoHS 5-compliant
- WEEE-compliant
- EN61000-6-2 EN55022/24 EN60950:2000
- UE 89/336/EEC, UE 73/23/EEC

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