

# SeaChange® Broadcast MediaLibrary and MediaClient

The foundation of “all media, on line, all the time”

The SeaChange® Broadcast MediaLibrary™ and MediaClient™ architecture maintains SeaChange’s excellence in multi-channel transmission video servers. With the industry’s only single copy storage redundancy, multi-format HD & SD playback support and highly expandable balanced architecture — television operators can be confident their future needs are covered.

SeaChange Broadcast Play-to-Air and Storage solutions deliver several key building blocks to Broadcasters and more choices for architecting storage-efficient, highly reliable and scalable playout systems. With SeaChange, you can build systems that can bridge the gap between Standard Definition and High Definition playout and empower you with tapeless efficiencies.

- The versatile MediaClient 6000 Series (MCL) offering increased channel densities and an easy upgrade path from SD to HD support
- The revolutionary Flash Memory Library FML200 with the highest reliability level of the industry in Multi-Channel Broadcast servers
- The proven Broadcast MediaLibrary (BML) 24000ex and 6000ex with higher bandwidth support for MediaClient connection and file transfers
- The Production Archive Library (UML) offering unified and high performance storage for ingest, edit-in-place, browse and business continuity playout
- Management Tools for central monitoring of content and system status
- More solutions for easy integration between production and playout

## SEACHANGE INTERNATIONAL: CORE COMPETENCY

For over a decade the SeaChange name has been synonymous with large, reliable, multi-channel transmission video servers. Even today, SeaChange International remains the only video server manufacturer to deliver digital storage solutions that offer complete fault resilience using only a single copy of the media. Broadcasters facing the challenges of reliably storing and delivering multi-channel television, naturally turn to the SeaChange® MediaCluster® solution. This unique architecture of RAID<sup>2</sup>® storage elegantly solves the challenges of providing reliable yet efficient storage and rock solid transmission, while at the same time allowing for simple future expansion.

SeaChange International media storage and distribution solutions are unchallenged as the most storage-efficient in the television industry. In a SeaChange MediaCluster, only a single copy of media is required, yet it is stored and delivered with the reliability of a mirrored system. With ever increasing channel-count and storage requirements, the inefficiency of mirroring media becomes a heavy overhead burden for any television facility. Furthermore, the simplicity of the MediaCluster design results in more simple controlling systems for playout and archiving. Since SeaChange's core MediaCluster architecture is based on distributed storage and distributed bandwidth, MediaCluster solutions scale easily and gracefully, while providing uninterrupted online service. As SeaChange storage systems grow from hundreds of online gigabytes to hundreds of terabytes, the incremental costs remain linear – which translates into significant cost savings.

These core strengths have made SeaChange International a strong leader in the delivery of large multi-channel transmission video servers and it is upon these strengths that SeaChange has built the next generation of the MediaCluster – a multi-format, multi-channel transmission server to meet the current and future needs of every television facility.

This white paper examines some of the common architectures employed by SeaChange customers to take advantage of this unique technology in building cost-effective, yet reliable and expandable playout systems.

SeaChange International understands that customers have varying objectives and face differing challenges when designing and building their playout systems. For example, a system built from the ground up, will have to be significantly different from one that is expanding on an existing playout infrastructure. Some facilities are purely playout-only, while others need tight integration to production. Some TV channels play the same core programming to multiple regions in their area, whereas others have unique programming on every channel. Some facilities are full steam ahead on HD playout, whereas others may just need the comfort of a guaranteed HD upgrade path.

And usually competing with all of these varying needs are the eternal issues of cost versus reliability.

At SeaChange we are innovating and delivering the most powerful and reliable Broadcast servers for our customers and enabling sophisticated system architecture.

## FLASH MEMORY LIBRARY FML200

SeaChange International is showcasing a cost-effective flash memory-based ingest and play-to-air server to the Broadcast community. The Flash Memory Library FML200 is a radical, new and innovative approach to dramatically improve reliability and drastically reduce operational costs for broadcasters.

With flash memory and flexible SeaChange® MediaClient™ ingest and playout support, the FML200 is designed to eliminate spinning hard disk drives from the most critical part of a broadcaster's on-air infrastructure. The FML200 is the ideal solution for media companies who want an environmentally friendly, ultra-reliable and yet economical ingest and playout solution.



## BROADCAST MEDIALIBRARY™ (BML 12000EX AND BML 24000EX)

The core building block is the Broadcast MediaLibrary (BML). Based on our Emmy® award-winning RAID<sup>2</sup> MediaCluster® technology, the MediaLibrary offers the same reliability of storage – and of playout – as a mirrored system, yet without the costly overhead of two copies for every piece of program material. MediaCluster is unique in the TV Industry, and has proven to be particularly advantageous for multi-channel broadcasters.

The BML 12000ex is the latest MediaLibrary systems boasting new ultra-fast Infiniband 4X inter-connections providing 8Gb/s bidirectional from one node to another (the original MediaCluster from 1997 had 100Mb/s bidirectional node-to-node links). In addition, the Gig-E I/O FSI cards have doubled in performance.

This overall increase in cluster-internal and FSI-external bandwidth allows the MediaLibrary to easily handle the demanding bit-rates of multi-channel I-Frame HD encoding and playout, or even higher SD channel counts, as well as the timely transfer of material to and from nearline or tape archives.



## MEDIACLIENT™ — MCL 6000 SERIES

The latest MediaClient (MCL) 6000 series solves the headaches of TV Operations on the cusp of providing HD services. For some countries, HD services are in full flight. However in other countries, HD is still something in the future than needs to be anticipated. Simple software updates ensures that a MCL 6000 purchased today for Standard Definition (SD) services can be easily repurposed for future High Definition (HD) use.

There are four MCL 6000 series models available:

- MCL 6012 provides 1 input and 2 outputs
- MCL 6024 provides 2 inputs and 4 outputs
- MCL 6002 provides 2 inputs
- MCL 6004 provides 4 outputs



These MediaClients I/O platforms are powered with flexible software codec kits for SD encoding and decoding. The MCL 6000 includes broadcast quality encoders supporting frame accurate encoding in MPEG-2, IMX or DV25/DV50 in SD and DV100, DNxHD and XDCAM HD422 in HD. Simultaneously, the independent decoders support frame accurate playback of any combination of these formats back-to-back. From the same decoder output, efficient long GOP MPEG-2 program material plays frame accurately back-to-back with locally edited promos or advertisements in DV25/50 or IMX.

All MCL 6000 SD-powered models have clear upgrade paths to one or multiple of the 9 HD codec kits, including single or dual encoder only models, triple HD decoders, dual SD-HD Simulcast decoders as well as the 1-input, 2-output HD MediaClient.

## SEACHANGE MEDIAGATEWAY (SMG)

The SeaChange MediaGateway (SMG) is an optional building block only required to deploy a tapeless workflow without the expense of a Media Asset Manager or Archive Manager. SMG is an application framework with modules such as Ingest, Conversion, Transcoding, and Audiomux.

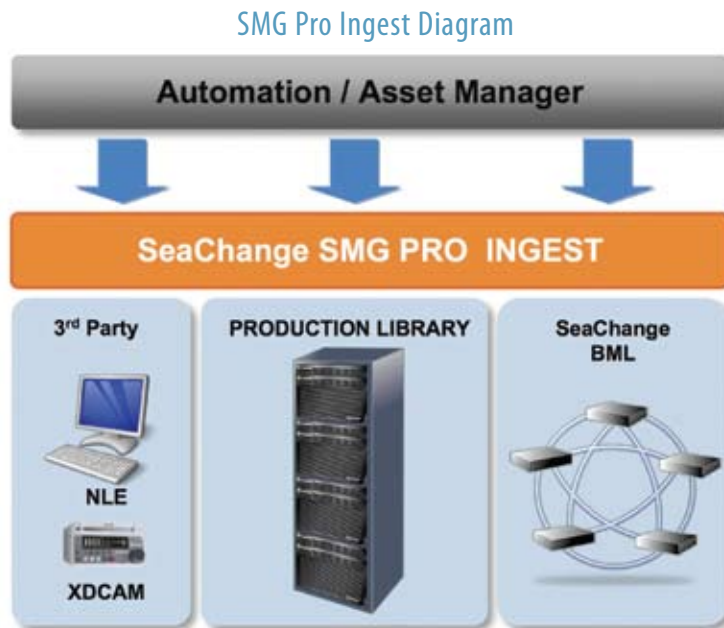
Multiple policies can be set up on the SMG server(s) to fulfill basic workflow requirements such as moving media from Avid, Apple FCP or Canopus NLE systems to SeaChange MediaLibraries. Migrating from legacy servers such as Avid/Pinnacle Mediasystem, Omneon Spectrum, Harris Nexio or Thomson GVG K2 can be set up with SMG Conversion or Transcoding.



SMG Application Server comes with a Web Services API that helps develop more advanced workflows with 3rd party applications like Automation or Media Asset Manager.

The SMG approach makes it simple to integrate SeaChange into a tapeless environment.

For high traffic applications, multiple SMG-Pro servers are clustered to increase parallel processing for faster tapeless workflow.



### SeaChange MediaGateway Transfer Utility



## SUMMARY

SeaChange International's extensive experience and commitment to innovation offer the best of both worlds – providing Broadcast solutions that both make sense now, and can scale to meet the demands of the future.

Hundreds of broadcasters are using SeaChange's play-to-air solution on thousands of broadcast channels worldwide. With SeaChange's "Full HD Now" solution, which includes MediaClient codecs, Flash and Standard MediaLibrary play-to-air and archive servers, and value-added software tools, the television enterprise can cost-effectively migrate to the new world of HD.

## ABOUT SEACHANGE

SeaChange International is a leading provider of software applications, services and integrated solutions that deliver a high-quality television experience across TVs, PCs and mobile devices. By partnering with leading cable and telco companies, SeaChange enables in-home and mobile entertainment, as well as advanced advertising solutions, allowing broadband operators to differentiate their offerings and create strong customer loyalty.

Visit [www.schange.com](http://www.schange.com) today.



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