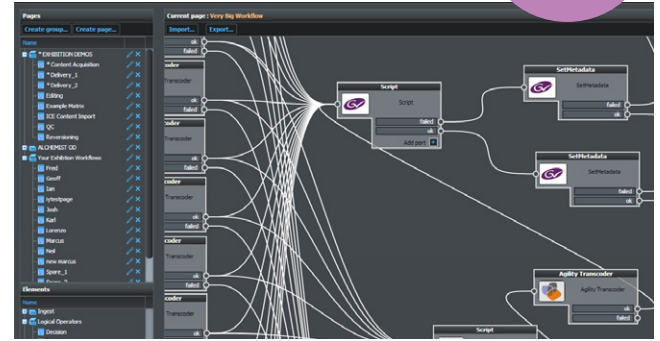# Momentum

Media Asset Management and Workflow Automation

Grass Valley's powerful MAM allows anyone access to any version of your assets, dramatically improving the efficiency of your media operations.

Momentum's MAM functions, such as metadata entry and revision, proxy file playback and content reversioning, are built on top of a hugely flexible and simple to use workflow automation tool from Grass Valley.

Mapping your current business processes into a Momentum workflow is a simple task, and it is just as easy to modify them when your business needs change. With Momentum you remain in charge of your workflows and can choose to rearrange them at any time.

As you reversion your assets through the workflows that you define, your media is fully accessible in the Catalog, ensuring your operations have up to the second data on your content, further improving your organization's efficiencies.

KEY FEATURES

- Catalogs and secures valuable assets
- Powerful search to keep control of media
- Create new versions of media via editing tools that enable collaboration
- Secures revenue by ensuring process reliability and repeatability
- Lowers operational costs by driving efficiencies
- Minimizes wasteful processes and human waiting time
- Saves operational cost by eliminating setup time for new projects

Catalog

- Asset management of all versions of your media
- View proxies of all versions of your assets with selectable caption and audio tracks
- User-defined categories to group your media types

- Extensible database schema for unlimited descriptive metadata
- Automatically populate technical metadata from workflow file analysis
- Browse proxy versions of your media from any web client
- Scan through media using automatically created thumbnails

Statistics

- Analysis tools display essential system performance data visually:
  – Waiting time
  – Processing time
  – Bottlenecks
  – Peak usage
  – Improve your business by focusing on inefficiencies

Editing

- Use proxy media to produce EDLs and export to XML

Workflow Automation

- Link together your automatic QC, manual review and transcode functions
- Create paths for success or fail of each function
- Unlimited nodes for multiple output paths for each function
- Monitor your media processing in real time
- Mix human and automated processes in the same workflow
- User tasks lists populated by automated workflows
- Large library of drivers for third-party devices
- 22 device drivers for third-party devices
- Add email alerts to any stage
- Unlimited converging and diverging workflow paths
- Link multiple workflows together
- Add video editing to your workflows
- Automatically add or extract metadata
- Publish to social media
- Send content to S3 storage in the cloud

The front end for your MAM operators is the Catalog, where all the delivered content and the reversions you create are brought together and presented through an easy to use interface.

The Catalog has an extensible metadata schema allowing you to log all the metadata that is important to your organization. Technical metadata is populated automatically upon receipt of the asset, with descriptive metadata able to be added at any time either via external delivery, manually or by traveling through workflows.

Your operators can see both primary (video) and secondary (audio, captions) assets, with the text of the captions being searchable. Multiple tracks of both audio and captions are supported. After selecting the caption or audio language of interest, it is played back along with the video in the proxy player.

Use any modern HTML5-compatible web browser to view all versions of your assets directly from your desktop in any location.

Audio tracks can be delivered separately to your main asset, then merged later, reviewed and checked using standardized EBU criteria (Tech 3363) to log any faults found.

Momentum's Catalog allows unlimited versions of the same asset to be created and grouped together for easy retrieval.

Select material to browse, then play, jog or shuttle, or jump to points of interest using the thumbnail timeline.

Momentum's Admin page allows you to craft how all levels of your business — from operators to supervisors to managers — interact with system and access the assets stored within it.
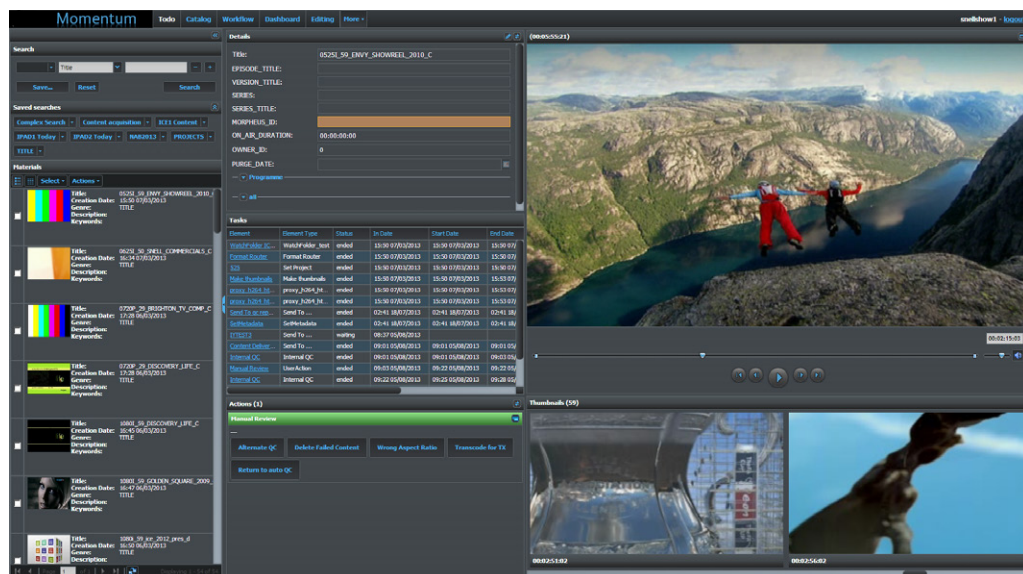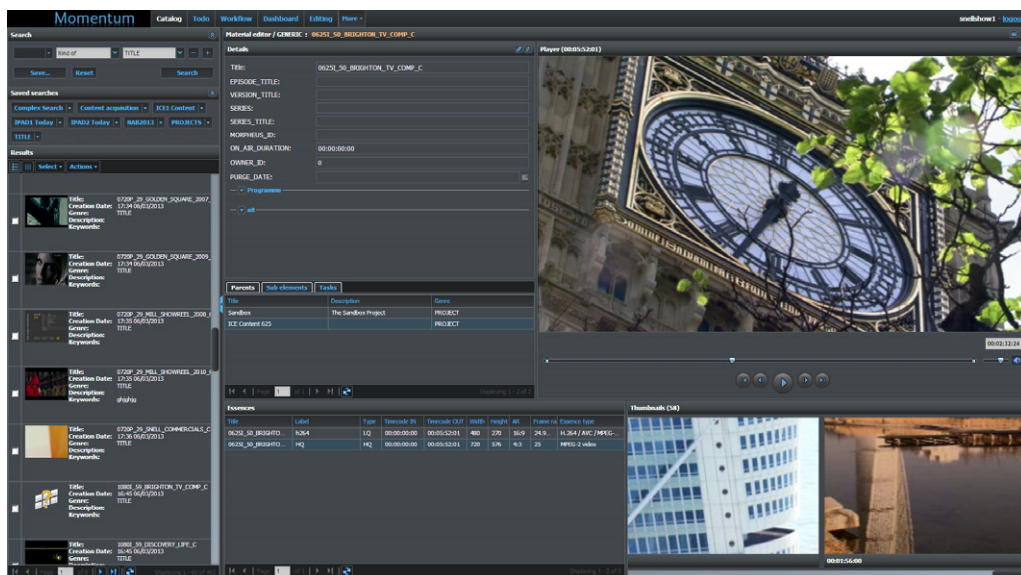
Users individual operators can be given their own login and be assigned one or more Roles.

Roles can be given access to one or more pages and permissions will restrict the set of functions available.

Scopes restrict which projects Users have access to view.

Catalog Features

- Extensible metadata schema
- Technical metadata
- Descriptive metadata
- Multiple versions of the same media
- Segment creation
- Track selection of both audio and captions
- Play video proxies from any web browser
- Timeline thumbnails
- Comprehensive search functionality

To Do Features

- Tasks allocated according to the defined workflow
- Manual review of proxy media and QC report
- Predefined options to advance the material as built in the workflow
- Carry out detailed QC work and categorize using standardized EBU (DPP) QC criteria

Intuitive drag-and-drop interface to connect your devices and functions into coherent workflows.

Easily add extra ports to each Element and then drag the link to the next process in your workflow.
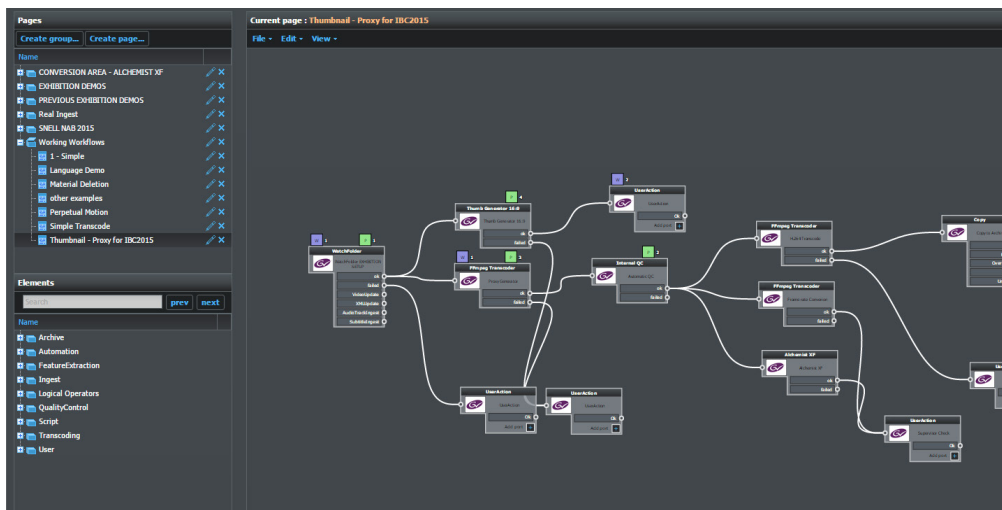
Many different types of Elements are available to support every type of workflow, encompassing automatic functions and human processes.

Supported Element functions include:

- Automated QC
- Manual QC
- Transcoding
- Rewrapping
- Audio track shuffling
- Merge new audio tracks to existing assets
- Subtitle and Caption delivery and proxy playback
- File copying
- Technical metadata extraction
- Video file analysis
- Thumbnail creation
- Key frames creation
- Email sending
- Automatically edit alternate Top and Tail versions
- Speech to text (multilingual)
- Playout automation interface
- BXF interface
- Metadata export
- FIMS (Transform API)

A powerful bonus feature is the script Element. This allows custom functions to be built either by Grass Valley, or by the user. Various programming languages are supported:
- Visual Basic, Python, Jscript

Pools and Farms

As your workflows increase in scale, you can build devices such as transcoders into pools so that media can be farmed out and load balanced more evenly.

Grass Valley is experienced in writing new drivers for new projects. If you would like a new driver added for your project, please contact Grass Valley.

Supported Devices

Company	Product
QC	
Dalet	ICR UQC
Digimetrics	Aurora
Emotion systems	eFF
Interra systems	Baton
Tektronix	Cerify
Telestream	VantageQC VidChecker
Venera	Pulsar
Transcoders	
Capella Systems	Cambria
Dalet	iCR Transcoder
EEG	CCPlayFilePro
Ffmpeg	FFmpeg Transcoder
Harmonic	Rhozet ProMedia Carbon Rhozet WFS
Grass Valley	Alchemist XFTM Quasar XF FileFlow Kronos Media Biometrics
Minnetonka	AudioTools

Company	Product
Telestream	Agility includes EDL export Flip Factory Vantage
Wohler	Audio Morph Omneon Consolidator
Archive	
Telestream	DIVA Archive DIVA Delete DIVA Partial Restore DIVA Restore
MassTech	FlashNet Archive FlashNet Delete FlashNet Partial Restore FlashNet Restore
Metadata Exchange	
Grass Valley	BXF Metadata Exchange
Social Media	
Facebook	Facebook
Twitter	Twitter
Google	YouTube

AUTOMATED AND MANUAL STEPS

Often media companies do not want to have a completely automatic workflow — what is really needed is a repeatable workflow that includes manual processes.

By adding user action Elements, you can ensure human decisions are always made at the correct point in your processes. An operator will be presented with the jobs that have been allocated to them, either by the system, or by a supervisor who can select which operator should receive the next task.

If there are time pressures on a certain job, it is still possible to force an asset to skip through to the next Element immediately — subject to the correct level of authority.

Manual Actions

Build into your workflows essential human checks such as manual review, QC and editing.

Lights Out Operation

Alternatively build a completely operator-free workflow that will report any failures automatically and pass data and content onwards through your business in the way that you define.

Automatic

QC Momentum supports seven of the most highly regarded automatic QC tools for completely hands-off processing. If human oversight is still required, simply add a notification branch to alert an operator to any rejected files and maintain human decision making.

Assets moving through the workflow are illustrated with simple colored blocks that can be interrogated at any time for detailed feedback.

Dashboard view gives further detail on your assets and the workflow that processed them.

MOMENTUM SCALES

In the customer example below, you'll find some Elements with 18 inputs and others with multiple output paths. This workflow is an excerpt from a real customer installation. The same source points can also go to multiple destination elements. You can build as complex a workflow as you need to match your requirements.

This example is running on the standard infrastructure. The system's core components can be scaled as necessary to meet other system sizes.

Grass Valley's System Architects will be happy to discuss your requirements.

A standard system will scale to 40+ users, and higher quantities can be accommodated by scaling the core components.
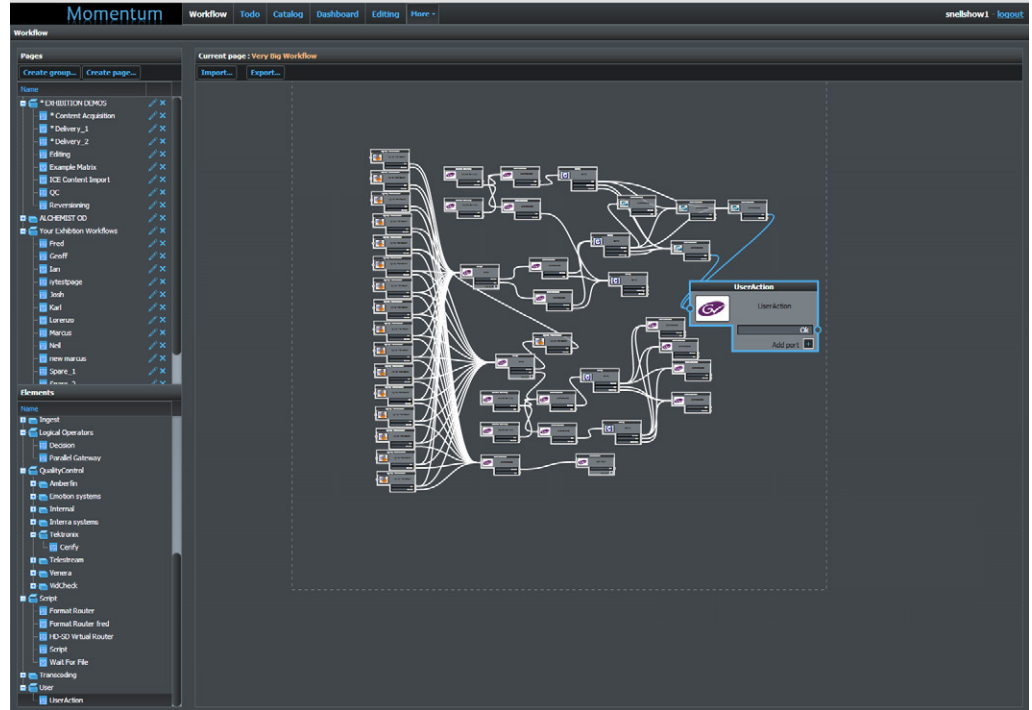
A Momentum system will support multiple workflows and multiple pages so you can exactly map your entire organization's processes.

Link your Momentum workflows together to more easily manage your most frequently shared processes.
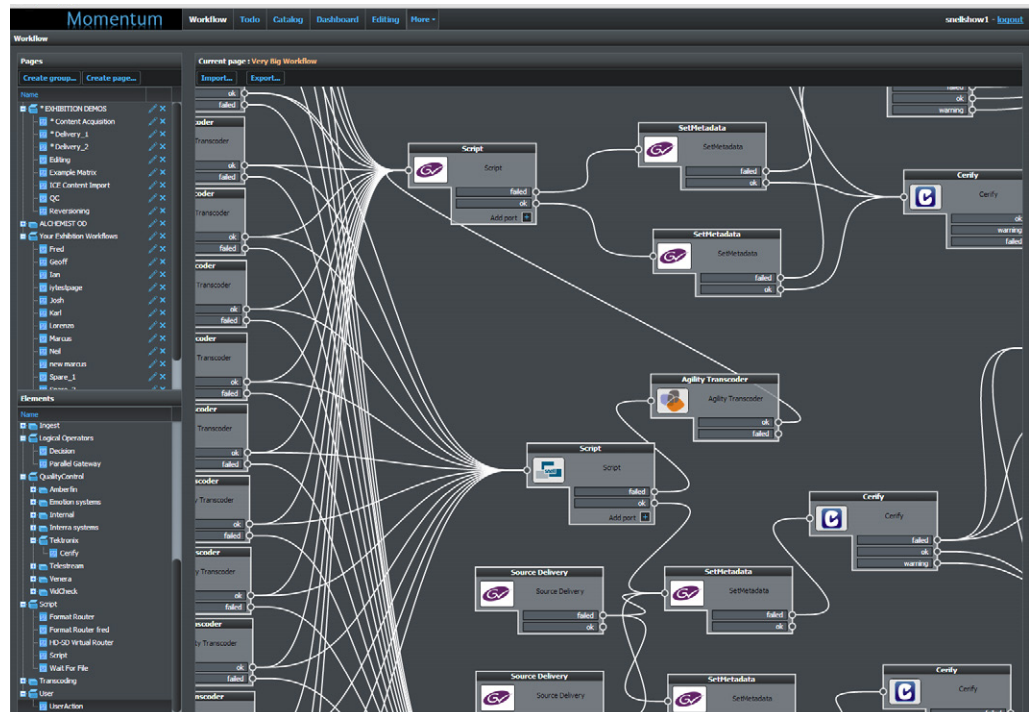
The ability to edit workflows can be locked down, giving you security that your processes will remain unmodified except by authorized staff.

Some example workflows and functions that can be enabled by using Momentum:
- Reversion your assets with different audio configurations for different markets
- Send content through different workflows depending on any metadata, for example, aspect ratio
- Automatically add default metadata into the catalog every time an asset passes through a specific workflow
- Interrogate your video files and automatically add technical metadata to the database
- Automatically edit alternative platform specific openers and closers of your content, for example, delivery to VOD or smart phone platforms

A complex workflow that is zoomed out, except for a single selected element. This allows the whole workflow to be viewed at once.

The same workflow as above, but zoomed in to display the connections in more detail.

STATISTICAL REPORTING

With complex workflows that control many devices and people around the clock, it can be hard to be sure exactly how much workload each part is under. Is the workload too much and a bottleneck to increased productivity? Or is there an underused resource that you could make better use of if only you knew?

Momentum's statistical reporting provides detailed analysis of individual functions, workflows and users, allowing you to make informed decisions about your business.

Visualize how long media is sat waiting to be processed — and justify increased investment in your hardware resources.

Easily identify where your peak load is over a given period of time — per hour, day or week — and better schedule your jobs to even out workloads.
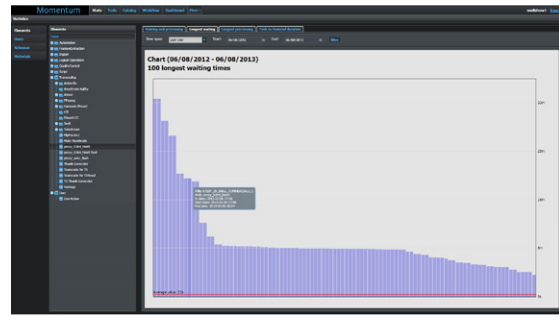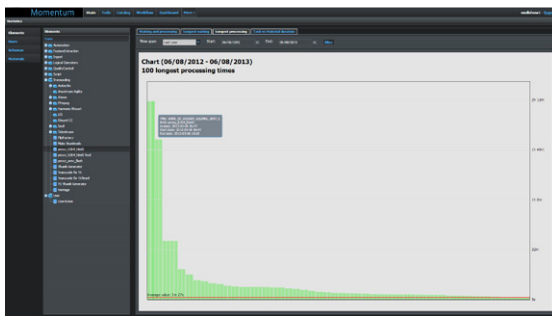
Investigate the top 20 worst transcoder performances to identify system constraints or underlying system bottlenecks.

The Momentum system is built on a web services API that allows external systems to interrogate devices and workflows for their current status. Momentum can become an integrated extension of your existing corporate workflows and business systems.
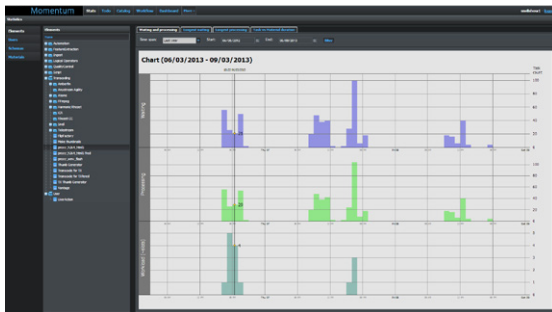
System Integration

In addition to the web services API, Momentum supports BXF metadata exchange with compliant third-party systems.
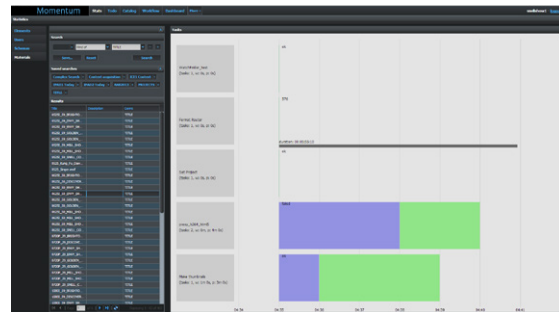
Grass Valley's Morpheus and ICE automation playout systems can also exchange metadata and video assets with Momentum for a complete end-to-end solution — from production to playout.
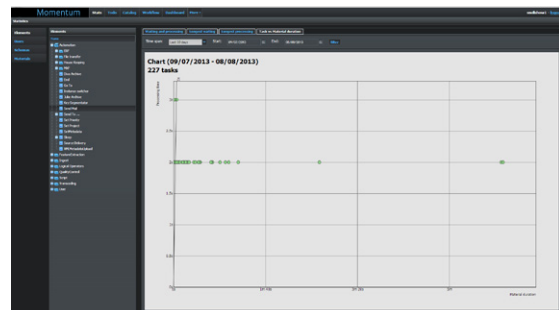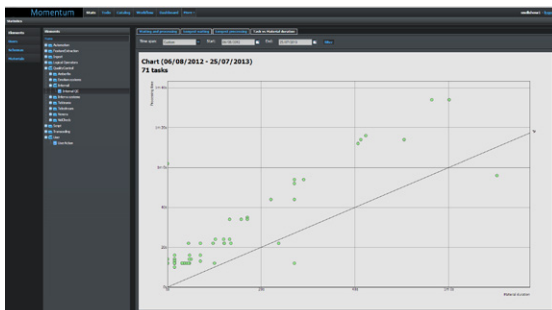

Graphs showing the longest waiting and processing times on a selected element. Click on any bar for details on the media.

Numbers of tasks shown against a calendar to display peak use and bottlenecks.

An individual piece of media shown with waiting and processing durations against each element is passed through. Also shows the media duration bar as a comparison.

Material duration vs processing time for all media within a defined period of time. In the left hand example, which shows a file QC element, there is a defined even distribution and most media was processed slower than real time. Whereas in the right hand example we see that the email element always processes a task in 2 or 3 seconds and is not related to the material's duration.

SYSTEM ARCHITECTURE

Momentum utilizes a SOA (Service Orientated Architecture) and web services approach to its internal design, ensuring a more agile platform that can easily adapt to future developments.

Momentum Web Services use WSDL to ensure easy interoperability with clients systems. This approach accelerates development and ensures new features can be added quickly and easily.

The user interfaces are written in HTML5 to ensure cross-platform browser support. Using reduced resolution devices, such as tablets, is possible but should be discussed to ensure operational effectiveness.

The core database runs on Oracle 11g with embedded licenses. Oracle was selected as the most optimized solution for an enterprise-scale workflow and asset management system. Its RAC clustering technology allows multiple clients to reference the same database in order to meet the scaling needs of the most demanding systems.

The Application and Web Servers can also be run in a clustered configuration, and it may be possible for them to share the same hardware depending on the scale of your system. Grass Valley's System Architects will be able to advise further.

Momentum supports deployment in a virtualized environment. Grass Valley's System Architects will be able to advise when this is a preferred system design.

Grass Valley is experienced in writing drivers for new projects and typically uses the native API to ensure the tightest integration. Please contact Grass Valley if you need to control a device that is not listed in the supported devices list.

Grass Valley's implementation teams will commission the system and carry out an agreed acceptance test.
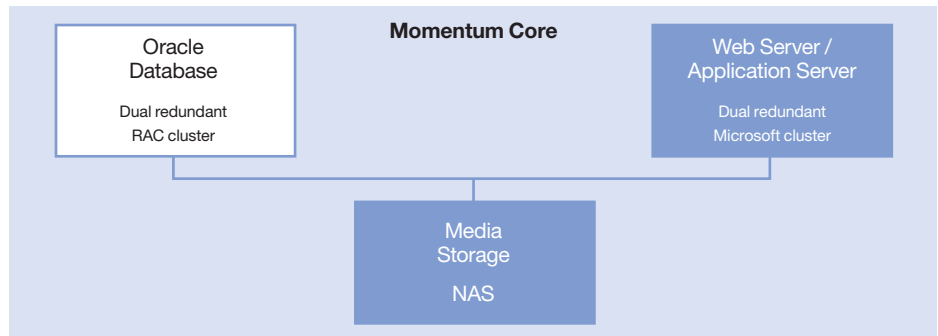
Once commissioned, you are free to modify the workflows as your business evolves. Momentum is designed to be simple and intuitive to use, allowing you to keep cost of ownership low.

If your changes require additional licenses for new device drivers or workflows, you can choose whether to commission these yourself or to engage Grass Valley's Implementation teams.

Momentum is a sister product to Grass Valley's Morpheus playout automation and its ICE "Channel-in-a-Box" systems. If you would like to discuss a complete end-to-end solution from production through to TV Everywhere for content delivery on any platform — please discuss your requirements further with Grass Valley.

Multiple Operators, Range of HTML5 Browsers, Choice of Viewing Device

Momentum Core

Oracle Database		Web Server / Application Server
Dual redundant RAC cluster		Dual redundant Microsoft cluster

Media Storage

NAS

Devices and Functions

Transcode / Rewrap	Automatic QC	Manual Review	Loudness	Speech to Text
Archive	Metadata Extraction	Audio Shuffle	PSE / Flash Pattern	Edit / EDL Export
Audio Delivery & Merge	Subtitles / Caption Review	BXF	Metadata Export	FIMS

ORDERING

Full ordering information, including PC requirements, is available from your Grass Valley representative.