

## Integrated Suite of Playout and Control Solutions.



Life for operations and engineering staff in today's broadcast technology world is more and more complex, as the convergence of systems and infrastructures presents them with a bewildering array of interfaces to perform everyday tasks. A profusion of separate and unconnected workstations and operating systems are commonplace in most operational departments. Pro-Bel's **Morpheus** range of solutions is designed to consolidate and simplify the operational environment in broadcasting. From ingest and media management, to playout automation, to the configuration and control of glue and routing products, Morpheus provides a common approach, based on a consistent software framework with a common database engine at its heart.

### Morpheus Automation

Best-of-breed functionality, unrivalled resilience and true scalability make Morpheus Automation the most powerful and flexible playout solution available today. It offers an unmatched set of features and functions:



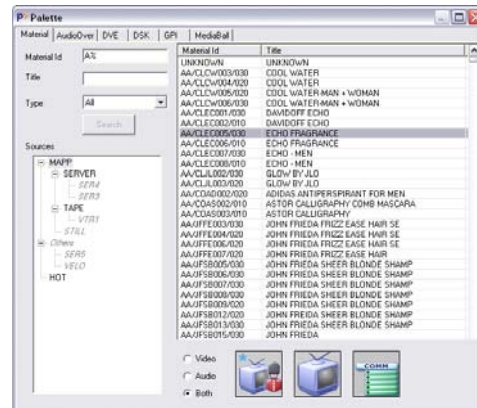
- Schedules can be loaded, edited and appended either on- or off-line with content availability checks performed automatically.
- Database search tools allow users to quickly identify and locate content.
- Events can be changed within seconds of going to air using easy drag-and-drop tools. Even unpredictable events like live sports are catered for, with tools to further enhance the ease with which commercial breaks, of different durations, can be inserted.
- Pro-Bel's unique Media Ball™ technology offers leading-edge, unrivalled flexibility. Media Ball allows the aggregation of secondary content items into one easy-to-manage entity, that can be manually added to the on-air schedule, scheduled automatically from a third party system, or triggered using a GPI.



Flexibility is not enough though, and the Morpheus core architecture offers built-in resilience which goes far beyond the usual 'add another backup device' approach. Morpheus' database engine can synchronise local backup databases as well as remote disaster recovery sites automatically. Real-time controller modules hold advanced event lists for many hours regardless of the scale of the system. Devices can be distributed across a network for additional resilience as well as in 'active-active' redundant pairs.

The Morpheus Integrated Content Engine (ICE) is just one such device. This intelligent platform does not require a controller card because it is integrated into the heart of Morpheus. It can play video, audio and graphics content from it's own local storage which can be managed by standard Morpheus Media Management tools. With a built in mixer the ICE system can perform video mixer transitions as well as providing voice over capabilities from any of the discrete AES audio inputs.

The list of devices that can be controlled by Morpheus is constantly growing. In many cases the interface amounts to far more than just control, and provides full integration, and even interoperability, as in the case of Pro-Bel's mixed control panel which provides two-way status information, essential when dealing with live events. The ability to play out video of any duration, from 3 hrs to 12 frames, seamlessly, back to back and frame accurately is one of the trade marks of the thorough development and testing that Pro-Bel carries out.



Content Browsing from the Morpheus Edit Workstation

## Morpheus Media Management (M<sup>3</sup>)



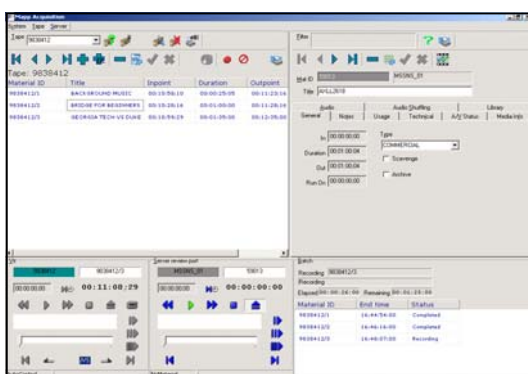
Media Management is not just about the movement of files and metadata. In a live production and playout environment, a vital factor is knowing precisely when as well as where the content is required, and the ability to make sure it is in the right place at the right time. Linked directly into the same database engine as the automation system, Morpheus M<sup>3</sup> has a system-wide awareness of time-to-air. This means that for larger systems with on-line and near-line storage, the content closer to air time takes priority, as opposed to content bound for the archive. Morpheus M<sup>3</sup> has utilities that move content from one video store to another while also managing the available free space on all connected servers including those on-air. Rules are applied to ensure that nothing scheduled for air can be deleted. When content needs to be archived, rules can be applied to the 'house keeping' tasks to ensure that copies of the correct content are stored in the archive before being deleted anywhere else in the system.

Pro-Bel has many years of experience in dealing with archive systems. From simple tape streaming devices to full Hierarchical Storage Management (HSM) solutions, Morpheus M<sup>3</sup> can fully manage the flow of content data to and from many different near-line storage device types. The Morpheus Archive Manager has the ability to process archive commands and where necessary prioritise them based on air-time data.

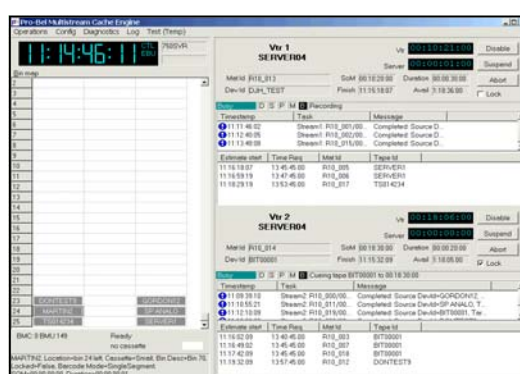
In the case of 'ingest once – play many' environments Morpheus can automatically replicate media to different storage systems and archives. For example, movie content may be located in a DVD archive, but commercial content with a limited life span may require faster access. All this can be handled automatically by Morpheus M<sup>3</sup>.

Metadata exchange is an area of very rapid development in media management. Pro-Bel is at the leading edge in this field, and has developed a range of Gateway interfaces which range from simple metadata extraction tools for database management (in the case of MXF file-based playout) to automated metadata-oriented workflow processes. Based on data derived from third-party systems, Morpheus can make intelligent decisions about where content should go and how it should be processed. This is not restricted by the type of content: it can relate to video, audio, graphics, subtitles or any other type of content.

These Gateway solutions can be dynamic. For example, the Media Object Server (MOS) protocol commonly used for news applications is bi-directional, and the Morpheus MOS interface allows newsroom systems to manage an on-air schedule and publish media content at any time, with the Morpheus user interface providing precise status information as content is changed and stories take shape.



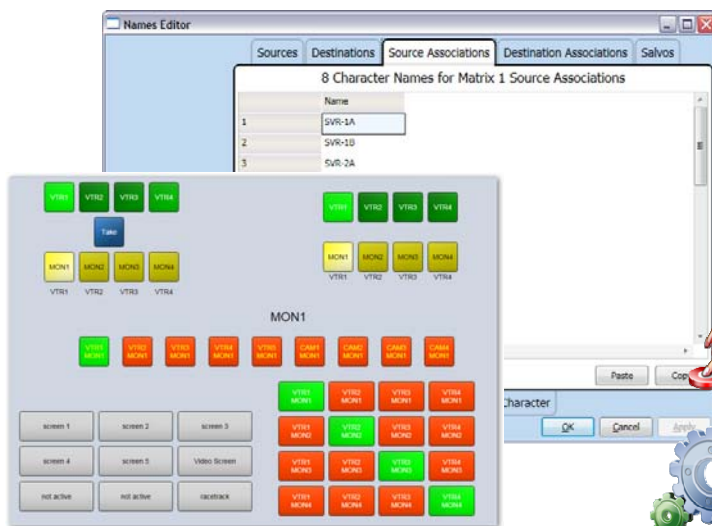
Acquisition Station - Material Form Mode



M<sup>3</sup> Multi Stream Cache Engine

## Morpheus Control & Monitoring

The convergence of infrastructure elements, and the creation of an end-to-end content chain from creation to consumption, has hugely added to the complexity of the technical environment in broadcasting. In many cases the need to manage multiple systems concurrently has created what in many cases is a bewildering array of diverse user interfaces which provide operational staff with considerable challenges. Pro-Bel's Morpheus Control and Monitoring solution, MCM, has been designed to allow a single point of contact for the user regardless of the device or subsystem being controlled. Based on the same database engine as M<sup>3</sup> and Automation, MCM has a system-wide awareness that is unrivalled, offering resilient, scalable and flexible configuration, control and monitoring of almost any product in the broadcast industry. Starting with Routers and Pro-Bel's own Vistek range of conversion products, third party system support is increasingly being added.



Greater operational efficiency can be achieved with user-designed custom GUI's for any function or collection of functions. These can be based on specific user rights and access privileges if necessary.



MCM offers router soft-panel design and control as well as master control interfaces and extensive multi matrix configuration.

Complete workflow processes can be built up to automate complex and labour intensive tasks. Linked to an automation system this could involve the ingest, transcode and archive of content, as well as the management of any necessary tie-lines and booking of incoming feeds.



The powerful monitoring capability of MCM allows operators to home in quickly on any problem areas within a system. Alarms can be filtered and logged for later diagnosis. Monitoring is not restricted to single hardware devices and monitoring directly into the Morpheus Automation system is also possible. This not only shows the status of the playout devices but the status of the media as well. MCM is a network based client/server system which offers the same resilience as Morpheus Automation with additional features such as SNMP interfacing.

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