MORPHEUS

World-leading automation for simple server playout to complex, presented / reactive channels.

FEATURES

- Multi-channel playout
- Scalable & flexible architecture
- Real-time frame accurate control
- Resilient & fault-tolerant design
- Dynamic device allocation & management
- Complex event support with Media Ball™ technology
- Powerful and intuitive user interfaces

Device control has for long been **the** vital factor in broadcast automation. Today, it is no longer the main point of focus, despite an increase in the number and type of devices required in the transmission process. Users are increasingly aware of the need to synchronise metadata and other business-related information between key parts of their operation. Revenues from advertising and other sources have to be managed more dynamically, and consequently greater flexibility in playout schedules is required. Morpheus steps up to these challenges and continues to push the boundaries in reliable device control with uncompromised flexibility.

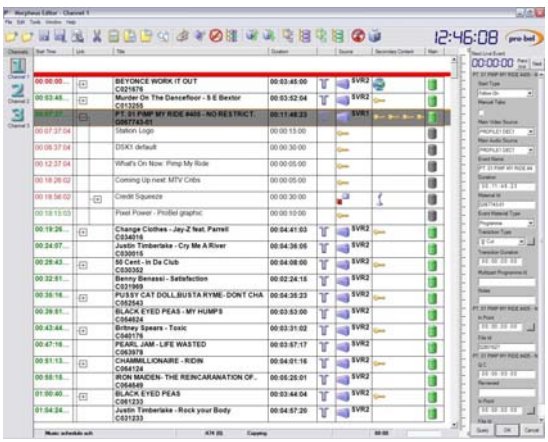
The Morpheus **suite** of solutions has the ability to manage and control devices, move media from location to location, track content and metadata, manage and schedule playout and log any and all relevant data.

Morpheus Automation

A powerful and scalable database engine is at the heart of Morpheus. This utilises the full feature set of MS-SQL in order to provide resilience and redundancy on **many** levels. From this central core, known as the Eventstore, applications and services are run to provide the most flexible automation system available today. Morpheus's unrivalled power can be applied to simple single channel applications and large multi channel environments with equal ease.

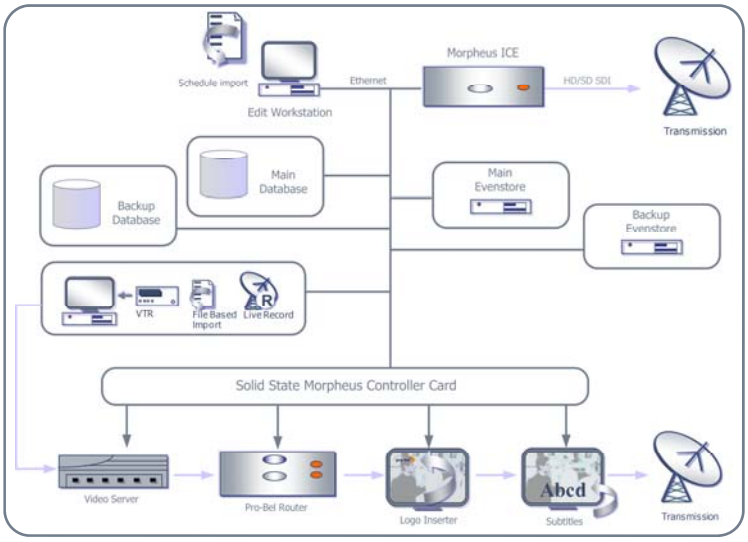
Intuitive User Interface

Operating a multi-channel playout environment is a complex affair, and Morpheus' Edit Workstation application is designed to make it easy while still offering powerful capabilities. Clear, easy-to-understand icons show users the status of the overall system at a glance. This includes the health of the devices under control, as well as the location and movement of the content to be delivered. (For more information on media movement and management please see the Morpheus Media Management information sheet). Frame accurate time data is displayed for all events as well as for the system overall. Commercial break durations are shown in the GUI along with countdown times to aid with delivering live events.



Growth

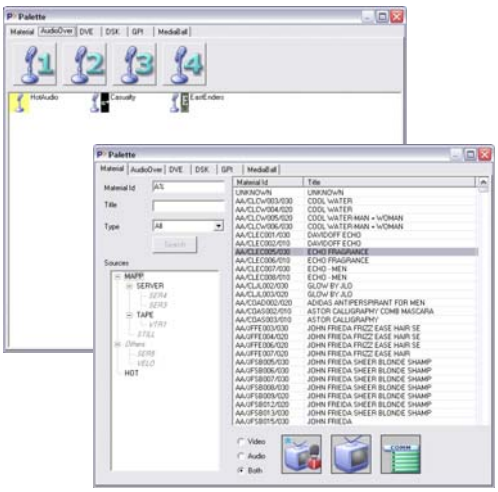
Planning for growth is a significant business requirement for all enterprises, and broadcasters are no different. Morpheus is highly scalable, and can be easily expanded when a need is established. Playout channels are managed via
channel licenses, additional licenses and hardware can be added to the system if required. This hardware can include the Morpheus Integrated Content Engine (ICE), Pro-Bel's own self-contained playout platform. Alternatively this could include discrete third party devices such as mixers, video servers, graphics engines and subtitling systems. Morpheus ICE supports a limitless mixture of these devices within the same channel configuration.



Morpheus ICE with existing Morpheus system

Schedule Creation and Management

Morpheus can import schedules in numerous file formats from third party scheduling systems, including Broadcast Exchange Format (BXF). Morpheus can convert any schedule format as long as the event types are consistent throughout. After material is played out an As-Run log is generated and can either be translated into the same file format that was originally imported or stored in a local database. Using the Morpheus Edit Workstation the user can load, edit, save and append schedules. Schedules can be built from scratch and in off-line mode checked for material availability. Program events and secondary content can be easily organised by dragging and dropping. Place-holders can be added for commercial breaks in advance of the commercial content being ingested into the system. For live events where the exact placement of breaks in a schedule is unknown, Morpheus offers a 'hot list' approach to playing out commercials at late notice. Powerful search tools allow the user to locate specific content as well as browse the content database for more generic media.



Content Browsing from the Morpheus Edit Workstation

Media Balls

This capability, unique to Pro-Bel, allows a collection of sub-events to be grouped together and managed as a single entity. Graphics, subtitles, DVE's, and voiceovers can all be linked, and there is no limit to the number and type of sub-event that can be included in a in a Media Ball. Among the advantages that the Media Ball concept delivers is the ability to manage a complex sequence of events from an external scheduling system, which may not even support secondary events. Media Balls can be scheduled as if they were timed program events or triggered at any point using simple GPI's. Users can create their own icons for each media ball or select one of the many supplied.

Preview

Morpheus allows the configuration of a spare playout channel with either the Integrated Content Engine or all the necessary discrete devices attached to provide transmission previewing. A single mouse click from the Morpheus Edit Workstation allows either the whole or part of the schedule to be played out on the preview channel as if it were on air. Timings can be rehearsed and adjusted accordingly. Alternatively it may only be necessary to view the transition or junction between two events. In this case the Edit Workstation can run a Junction Preview in the same way but for only ten seconds before and after the junction of each selected event. Like most features in Morpheus the duration of preview is fully configurable.

Morpheus Hardware Control Interface

Morpheus does not rely solely on software when it comes to device control. Mission-critical device interfaces are handled by a real-time embedded operating system, sourced from the aerospace industry where accuracy is literally a matter of life and death. This platform has built-in resilience as well as frame-accurate control. Each controller card is linked via LAN to the core software, enabling all the benefits of modern network topologies. Frame-accurate control is ensured with a black and burst reference input as well as station timecode to each card.

Hardware Resilience

Each controller has its own internal store, used to hold hours of device specific events. Should a problem arise these cards will continue to operate frame-accurately even in the event of a complete LAN failure. Controllers can be paired to provide active failover operation as well. Playout devices can be distributed across any number of controllers. Equally multiple and diverse (in terms of physical connection and protocol) devices can be controlled from a single card.

Hardware Redundancy

In addition to its redundant device controllers, Morpheus offers the possibility of parallel running playout devices that can be switched at any time by the operator. These “guard” sources are permanently synchronised by Morpheus to ensure that when a device is switched there is absolutely no interruption to the playout stream.

“N+1” Redundancy

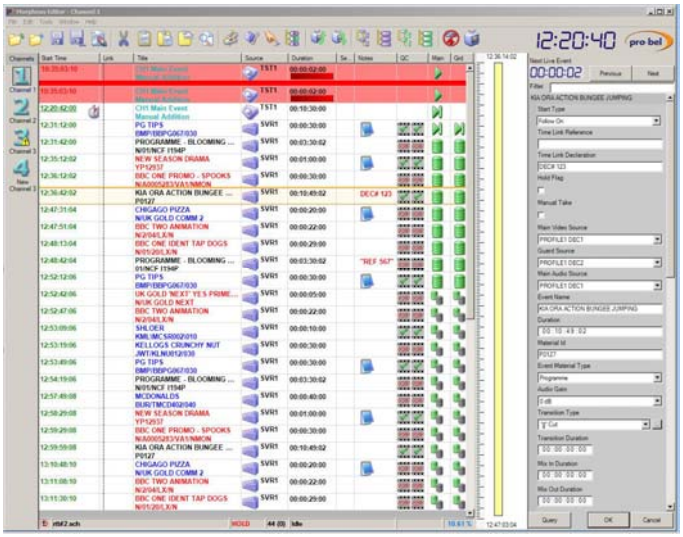
Not all systems (or budgets) have the luxury of 100% redundancy across all channels, all of the time. To solve this problem Pro-Bel has created an “N+1” redundancy engine. This allows the user to have a complete channel that is used as a back-up for multiple on-air channels. If a problem should occur with one of the on-air channels the N+1 sync allows all the events on that on-air channel to be replicated on the back-up channel. The switch to the back up is made. Once the fault has been rectified the previously on-air channel is re-synchronised and switched back.

Software Redundancy

Not only does Morpheus provide a hardware resilient architecture, but software features like Panoplay provide mirroring of channels across multiple automation Eventstores. This sophisticated application constantly monitors any changes to a schedule and ensures that master/slave channels are always up to date. One obvious application for this is disaster recovery.

Regional Flexibility

For those applications that require the playout of region specific content Morpheus has several versatile solutions. With full support for Regions and Opt outs a schedule may contain specific headers to trigger cross channel events. Alternatively the more flexible Event Start Time Linking feature can be used. This allows the user to add a declaration into any event at any time that references an event on a regional channel. This ensured that the start time of the regional events are synchronised with the main channel.



Event Time Linking

Dynamic Device Allocation

Flexibility does not stop with the schedule. Some users want the luxury of being able to dynamically allocate devices to specific channels at specific times, or for specific events. For example there may be a live event scheduled in the near future that requires the use of two DVEs. One could be ‘borrowed’ from another channel while it is not in use and then handed back at the end of the live event. All of this is handled automatically by the Morpheus Device Manager. Rules can be set up to prevent certain channel specific devices from ever being re-allocated. In the event of a device failure a temporary replacement can be automatically allocated. Also scheduled maintenance on certain devices can be planned using the Device Manager.

Device Diversity

Morpheus is about a lot more than device control. Pro-Bel has developed an ever increasing array of device interfaces, from VTRs and video server platforms, to complex graphics devices with numerous layer elements. Communication to these devices is monitored constantly in order to provide an overall health check for the playout system.

Dynamic Device Feedback

Interaction between Morpheus and a playout video server does not stop at load, cue and play. For some broadcasters playout of extremely short (less than a second) clips forms part of the channel branding process. These short clips can be scheduled and played out with ease under Morpheus control. Similarly human interaction from a mixer for a live or unscheduled event is instantaneously feed back to the automation system. Controls built into the Pro-Bel mixer panels allow control of the automation system remotely. This includes operations like take next, hold, take guard and re-cue.

Ingest, file movement, archive control and metadata exchange features are covered in the Morpheus Media Management information sheet.