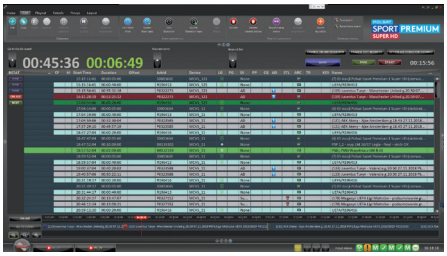
Product Data Sheet

Master Control Automation



ASTRA MCR provides master control automation in the cloud, in racks of discreet devices or in a box. ASTRA MCR controls ingest, playout, graphics, switchers/mixers, audio servers, stream splicers and a variety of ancillary devices. It manages multi-screen output and supports all major traffic systems, including those with dynamic schedule exchange. Uniquely, ASTRA MCR integrates with ASTRA Studio 3 production automation providing cue automation from MCR-PCR-MCR, ensuring each transition is frame accurate every time – no need for verbal cues and their common small switching errors. ASTRA MCR makes it easy to manage multiple channels while still responding to breaking news. The integrated media asset management speeds making schedule changes. Aveco maintains the largest library of broadcast hardware and software interfaces, facilitating selection of the best-of-class products across all parts of the broadcast chain. ASTRA MCR is easy to use and versatile in managing multiple channels, multiple screen types and multiple locations.

ASTRA MCR

Understanding that one model doesn't fit all users, ASTRA's flexible architecture offers a variety of designs with various levels of redundancy. Systems can start small and scale to 100 or more channels in one location or across a wide geography. ASTRA MCR runs on a real-time mission-critical operating system, QNX, used in carrier-grade Cisco switches, in aircraft, satellites, tanks and other applications that, like on-air broadcast, require extreme reliability. Software clients are on Windows, OSX and Linux. ASTRA MCR is enterprise-grade client-server software that has been accomplishing "cloud-like" deployments long before it was called a "cloud." This pioneering experience makes ASTRA MCR especially well suited for IT-networked master control deployments. An important safeguard, QNX has till now never had even a single virus, in sharp contrast to other platforms. This resiliency from attacks is also important as tools proliferate to allow hackers easier intrusion and as broadcasters become increasingly reliant on IT networks.

Traffic Interface

ASTRA MCR since 1992 has provided dynamic traffic exchange, facilitating on-going schedule updates from traffic to reflect changing conditions (airline ad cancellations after crashes, revenue optimization, priority changes during breaking news etc.) A tight integration between ASTRA MCR and your traffic system enables the sales department to sell spots throughout the day and be assured that they will play flawlessly at the right time.

ASTRA MCR's user interface also allows operators to manually make last minute changes in the playlist to delete or replace any item.

Interfaces are available for most traffic systems on the market or a new interface can be easily created.

- Distributed architecture for easy expansion and control
- Multi-path architecture for flexible control and redundancy options
- Various redundancy options from full mirroring to "N+1" models

24/7/365 redundancy

Mistakes in master control are expensive. ASTRA is unique in its core design. Built on a powerful Real-Time Operating System, QNX, which is widely deployed in mission-critical applications, ASTRA MCR provides robust hardware and software module failures protection with switch-over times typically only one frame of video time. ASTRA MCR provides many redundancy options, from complete mirroring to N+1. Options include perfectly synced remote site operation for seamless failover in case of catastrophic fires, earthquakes etc.

Device Control

Since 1992, Aveco has built the TV industry's largest library of interfaces and implemented API's. As the only independent production and master control automation provider, Aveco is well known for working with all industry manufacturers. Additional interfaces are routinely added as new equipment and new software sub-systems are developed.

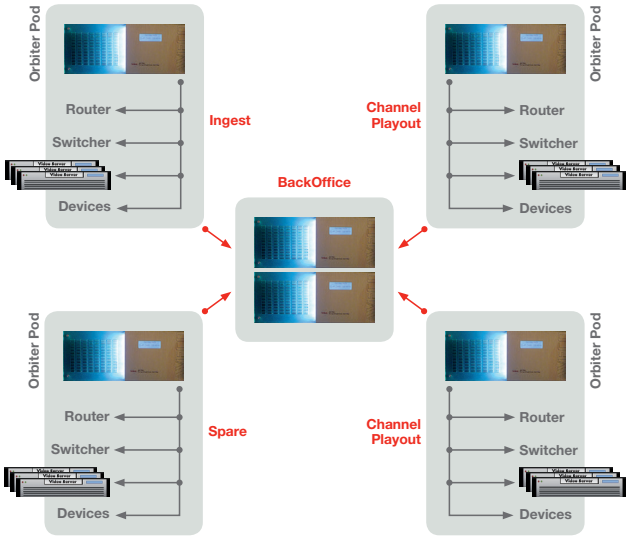
Stand-alone MCR systems – in a rack or in a box

A basic ASTRA MCR system consists of an ASTRA server running all ASTRA applications on a robust industrial grade server. It includes the ability to control up to 48 devices under serial control and a nearly unlimited number of IP-controlled devices. From eight-to-ten playlists can be run per ASTRA server, depending on channel complexity. ASTRA MCR also is part of Aveco's Redwood Play, the integrated playout

platform with the industry's highest-end branding. Redwood Play includes an internal video switcher, a four-channel HD video player, multiple DVE's, 32 layers of real-time graphics, two stereo channels of audio server, audio mixer, integrated Media Asset Management, multi-viewer, and ASTRA MCR software. There is a range of redundancy options.

Multi-site Operation

ASTRA provides support for various multi-site operations. From a fully centralized operation to a Hub & Spoke design, ASTRA can customize each channel for localized news and commercials. Control can either come from the central site for all channels or remote sites can control their own channels. This applies for discreet-device master control as well as for Redwood Play integrated playout.



Orbiter distributed architecture with "N+1" redundancy and selective mirroring

Orbiter Distributed Architecture

The Orbiter design is a distributed model in which functions are separated into application specific modules. Orbiter facilitates the control of high channel count systems and provides various levels of redundancy. Sharing resources between servers without jeopardizing reliability can save costs. Additional channels can usually be added while the rest are still on-air.

BackOffice – Contains the centralized database and system functionality. This is generally mirrored to provide absolute protection of the database and the system.

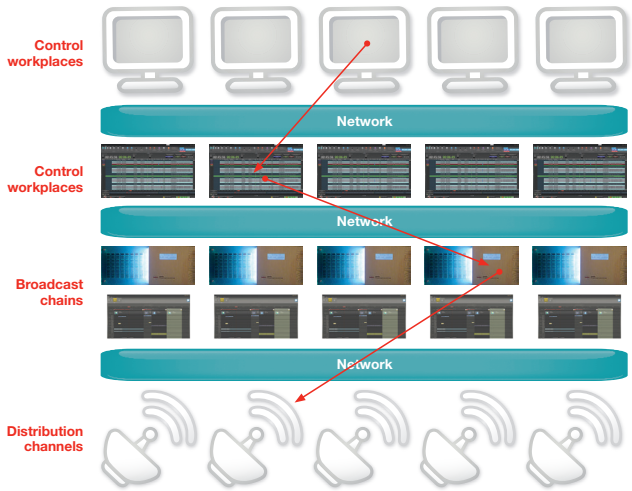
Playout Orbiters – These pods control the broadcast chain for playout. They can be mirrored as needed with seamless switchover in case of failure.

Ingest Orbiters – Since ingest is often separate from playout, a dedicated Orbiter can be used for this purpose and shared by all Playout Orbiters.

"N+1" redundancy – A spare Orbiter pod can be used to replace another Orbiter in case of a failure, for testing or for occasional use as additional playout or ingest channels.

SHS Multi-path Architecture

For larger systems, SHS offers another cost effective redundancy option. In this design, any control room can use any set of equipment that may be assigned to another control room. This "Network Transparency" provides many options for channel control, facility upgrades, and device failures.



SHS Multi-path Architecture

Disaster recovery sites

ASTRA offers various options for a Disaster Recovery site. Both Orbiter and SHS architectures can be used depending on requirements, budget and workflow. Aveco system engineers are available to consult with you for the most cost-effective solution.

ASTRA Suite of Tools

ASTRA MCR is one key module of the Suite of Tools. Other modules include production automation, news live-assist, media asset management, ingest management and disaster recovery. All modules include a common database and set of tools for all ASTRA applications. Having all your tools tightly integrated around a common content management system enables better interoperability, lower costs and simpler workflows.

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