

Omneon ContentDirector

Omneon MediaGrid™ is a highly scalable content storage system that plays an active part in the broadcast workflow. More than just high-performance shared storage for all users within a facility, MediaGrid constantly adapts to the changing resiliency and bandwidth requirements of the broadcast workflow and can actively process stored media. The ContentDirector component of MediaGrid acts as the intelligent file system controller for both client requests and internal system communications.



INTELLIGENT

ContentDirectors manage and direct the overall operation of the Omneon MediaGrid. By creating, managing and presenting a single virtual file system constructed from MediaGrid's many individual ContentServer storage devices, ContentDirectors provide the information needed by clients to interact with the system.

All clients initially contact one of the clustered ContentDirectors for file access requests (e.g. open, read, write, etc.). The selected ContentDirector responds with a list of target ContentServers for the transaction, enabling clients to then connect directly to a set of individual ContentServers for data access.

During write operations, ContentDirectors determine the distribution of file data to be stored across multiple ContentServers in a MediaGrid system. ContentDirectors use a heuristic algorithm weighing dynamic usage factors including ContentServer load and capacity to allocate file data to individual ContentServers. For subsequent read operations, this distribution enables the ContentDirector to actively load-balance the available storage and bandwidth of the system in order to ensure reliable, high-performance operation. With multiple ContentServers serving an individual client's read/write request, this approach eliminates any bandwidth bottlenecks commonly found in NAS storage systems that pass content through a single controller.

RELIABLE

The MediaGrid is a highly reliable, highly available storage platform with no single points of failure. Multiple ContentDirectors are typically deployed within a single MediaGrid system to enhance system reliability, with the specific number tailored to match individual customer requirements.

ContentDirectors connect to each other in a redundant dedicated ring topology, and monitor each other's health. Each ContentDirector has four Gigabit Ethernet ports. Two are used for communication to the pool of ContentServers, and two are used for the dedicated ContentDirector network.

ContentDirectors within a single MediaGrid system remain fully synchronized with each other through constant communication. In the event of a single unit failure, the remaining active ContentDirectors continue processing client requests in a round robin fashion without any need for a state transfer or re-initialization. No file system rebuild is required to maintain the integrity of the system as a whole, and the transfer is completely seamless. A replacement ContentDirector can be quickly added to the MediaGrid while the system is online.

SECURE

ContentDirectors provide secure protection of content in two ways. First, all users must be authenticated using a Windows primary domain controller. Second, file and directory access requests are checked against administrator-configurable access control lists (ACL) to validate user permission levels. This file-level security applies to both human users and automation systems.

› BENEFITS

- Simplified file management via global name space that provides a single view of the entire file system
- Dynamic assignment of direct client-to-storage connectivity to eliminate performance bottlenecks
- Intelligent load balancing of client requests among ContentServer storage devices provides faster and more reliable access to content
- Integrated authentication and file permissions ensure that content is protected from accidental or unauthorized access
- No single points of failure: system and component level redundancy ensures reliable operation
- Quick and simple addition of new components can be accomplished while the system is online

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The Omneon ContentDirector includes 4 Gigabit Ethernet ports. Two ports provide communication between ContentDirectors and allow for database distribution across multiple ContentDirectors. This allows MediaGrid systems to scale to very large configurations without sacrificing performance. The other two connectors are used for network connectivity and communications with the ContentServers. This communication link allows the ContentDirectors to gather file information from the ContentServers which they use to build the database. These ports also support client requests for file system access. The ContentDirector responds to these requests with file location information.

Specifications	
Capacity:	2 x 146 GB drives in mirrored configuration, hot swappable (for file system database)
I/O:	4 x Gigabit Ethernet Ports
Power Supply & Cooling:	Dual redundant hot-swappable power supplies with integrated fans. Fan speed automatically controlled based on on-board temperature monitoring.
Field Replaceable Units:	Hard Drives, Power Supplies

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