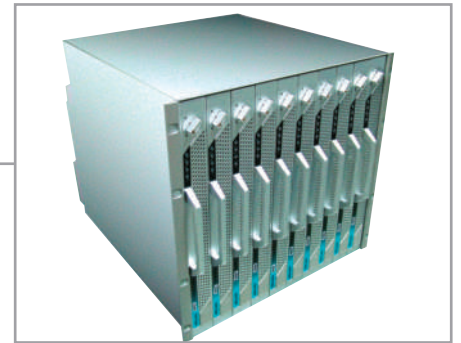


RollingStream® MediaStation

CARRIER GRADE IPTV STREAMING PLATFORM

DELIVERING BROADCAST QUALITY ENTERTAINMENT-ON-DEMAND SERVICES OVER EXISTING xDSL & FTTx NETWORK INFRASTRUCTURES



APPLICATIONS

- LIVE TV
- TIME-SHIFT TV
- VIDEO ON DEMAND (VOD)
- PAY PER VIEW (PPV)
- NEAR VOD (nVOD)

KEY FEATURES

- MULTI-FORMAT STREAMING: MPEG-2, MPEG-4 AND H.264
- UP TO 1 TB STORED CONTENT PER SERVER BLADE; 10 TB PER CHASSIS
- DYNAMIC SWITCHOVER BETWEEN MULTICAST AND UNICAST BASED ON SUBSCRIBER BEHAVIOR
- UP TO 15,000+ CONCURRENT STREAMS PER TELCO RACK (2MB), LINEAR SCALABILITY
- BMDP PROTOCOL ENSURES HIGH CONTENT AVAILABILITY WHILE MINIMIZING NETWORK CONGESTION
- FLEXIBLE ARCHITECTURE ALLOWS FOR CENTRALIZED, DISTRIBUTED OR HYBRID DEPLOYMENTS
- HIGHLY RELIABLE SERVER WITH BUILT-IN REDUNDANCY AND FAILOVER CAPABILITIES
- INSTANT PLAYBACK, FAST FORWARD, PAUSE AND REWIND FOR ANY PROGRAM
- ROBUST AUTHENTICATION AND AUTHORIZATION PROCESS
- FULLY INTEGRATED DIGITAL RIGHTS MANAGEMENT SUPPORTING PRE-ENCRYPTION AND ON-THE-FLY ENCRYPTION FOR LIVE TV

Designed to securely deliver broadcast quality streaming to a large subscriber base across wide area networks, MediaStation is a cost-effective carrier class platform within the RollingStream total IP solution that combines performance, scalability, reliability, and network efficiency.

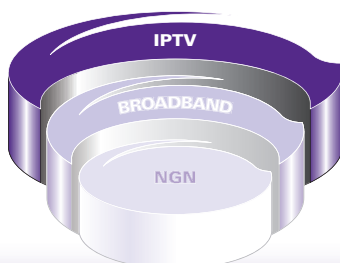
KEY BENEFITS

Bandwidth Efficient. Powered by UTStarcom's patent-pending Broadband Media Distribution Protocol (BMDP), MediaStation intelligently caches content on network edge servers based on prior viewing demand and operator specified policies. Every piece of content is stored in at least two locations within the server cluster. Content distribution is implemented using both scheduled push and on-demand pull, ensuring high content availability and quick streaming delivery to any subscriber at any location.

Fault Tolerant. MediaStation features redundant server controllers (Media Directors) and a cluster of streaming and storage servers (Media Engines). In the event of a failure, video streams automatically fail over to a working module within the server cluster, making the process entirely transparent to subscribers.

Cost-Effective Scalability. To minimize operator startup costs, server modules are designed with industry standard, off-the-shelf hardware components. The chassis-based clustered architecture enables operators to economically scale the system commensurate with subscriber uptake and storage requirement growth.

Easy Installation and Operation. Tightly integrated with UTStarcom's Network Management System (NMS) and Operations Support System (OSS), MediaStation simplifies back-office operations and large-scale server management – media assets, subscribers, billing, streaming and storage allocation are administered remotely via web-based interfaces.



MediaStation Technical Specifications



OPERATING SYSTEM

- Linux 2.4.20

PROTOCOL SUPPORT

- Streaming Control Protocols: UTSI Streaming Protocol and RTSP
- Streaming Data Protocols: RTP/UDP/IP

STREAMING FORMAT SUPPORT

- MPEG-2, MPEG-4, Windows and H.264

STREAMING DELIVERY MODES

- Unicast and Multicast (live capture and multicast, on demand unicast of stored TV/VOD content, automatic multicast/unicast switch over for live and time-shift TV.

STREAMING PERFORMANCE

- Up to 600 Mbps per Media Engine blade
- Dynamic load balancing across streaming servers
- Variable bit rate support from 500K to 20Mbps

CONTENT STORAGE

- UTStarcom Hyper Media File System (HMFS) technology
- Over 10,000 Hours of contents per chassis (@2Mbps)

CONTENT DISTRIBUTION

- Patent-pending Broadband Media Distribution Protocol (BMDP)
- Dynamic content distribution via content popularity classification or user-defined policy

CONTENT MANAGEMENT

- Metadata and media assets managed via web based Media Asset Management system (part of UTStarcom OSS)

AUTHENTICATION/AUTHORIZATION

- Kerberos based authentication
- Periodic subscriber re-authentication
- Instant access revocation

CAS/DRM

- UTStarcom DRM
- Supports pre-encryption and live content encryption
- Media format and delivery mode independent
- Supports 3rd party DRM/CAS solution from:
 - * Widevine™
 - * NDS™

SYSTEM MANAGEMENT AND ADMINISTRATION

- Managed by UTStarcom Network Management System (NMS)
- Remote system software upgrade
- Chassis management
- HTML server administration and SNMP v2

PHYSICAL (SERVER BLADE)

- 42.6 cm(W) x 53.6 cm(D) x 4.3 cm(H) - per blade
- Media Director weight: 11 kg
- Media Engine weight: 12.5 kg

CHASSIS ARCHITECTURE

- Standard telco rack: 48.3 cm(W) x 58.4 cm(D) x 44.5 cm(H)
- 10 slots total
- 2 slots for Controller Modules (Media Director)
- 8 slots for Streaming Modules (Media Engine)
- Server modules connected using Ethernet Switch

SERVICEABILITY

- All server modules are hot swappable and field replaceable
- Redundant controller modules supporting hot standby
- Media Engine streaming modules support automatic stream fail-over

SERVER MODULE

- Processor: 2.4GHz Pentium 4 CPU
- Memory: 2 x 512 MB RAM
- Storage: 1TB (with 4x250GB Drive) per blade / 1TB per chassis
- Interface:
 - 2 Gigabit Ethernet ports
 - 1 Fast Ethernet port
 - 1 RS232 Serial port

POWER

- Blade: -40V ~ 72V DC, 3.0 Amps
- Chassis: -40V ~ 72V DC, 30.0 Amps
- Media Director: 110W per blade
- Media Engine: 140W per blade
- Chassis: 1400W

ENVIRONMENTAL

- Temperature: 0° to 40°C (operational)
- Humidity: 5% to 85% RH, non-condensing

REGULATORY

- Safety: IEC60950
- EMI and EMC: VCCI Class A, FCC Part 15, Class A
- ESD: IEC61000-4-2
- Surge Protection: ITU-T K.21

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About UTStarcom, Inc.

UTStarcom is a global leader in IP-based, end-to-end networking solutions and international service and support. The company sells its broadband, wireless, and handset solutions to operators in both emerging and established telecommunications markets around the world. UTStarcom enables its customers to rapidly deploy revenue-generating access services using their existing infrastructure, while providing a migration path to cost-efficient, end-to-end IP networks. Founded in 1991 and headquartered in Alameda, California, the company has research and design operations in the United States, China, Korea and India. UTStarcom is a FORTUNE 1000 company. For more information about UTStarcom, visit the company's Web site at www.utstar.com

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