



**PRASAR BHARATI
(INDIA'S PUBLIC SERVICE BROADCASTER)
CENTRAL ARCHIVES
AKASHVANI BHAWAN, NEW DELHI-110001**

No. CA/IT-MAM/2023-24

Dated: 28/07/2026

Subject: Industry Feedback on technical specifications for the design, supply, installation, integration, testing and commissioning (DSIITC) of cloud native hybrid media asset management (mam) system at central archives, Prasar Bharati

Reference: Specification No.PBCA/MAM/2026-27, Dated 28/07/2026

Feedback is invited from OEMs, CSPs and their authorized dealers/sellers/bidders on the technical specifications for the design, supply, installation, integration, testing and commissioning (DSIITC) of cloud native hybrid media asset management (mam) system at central archives, Prasar Bharati. A copy of technical specifications is enclosed herewith for reference.

Prospective bidders/OEMs are requested to provide the following:-

- a) Comments/feedback on the technical specifications
- b) Budgetary quote
- c) Ratio/percentage of Make In India (MII) components in their prospective offer

Response along with the details a, b and c above, may be furnished through email by the bidders by 10/08/2026 on to the following e-mail address:

To: *ravikantsingh@prasarbharati.gov.in*
Cc: *archives@prasarbharati.gov.in*

Encl. : Technical Specifications


(Ravi Kant Singh)
Asstt. Director (Engg)
For DDG(Engg)/HoO
Central Archives

TECHNICAL SPECIFICATIONS FOR THE DESIGN, SUPPLY, INSTALLATION, INTEGRATION, TESTING AND COMMISSIONING (DSIITC) OF CLOUD NATIVE HYBRID MEDIA ASSET MANAGEMENT (MAM) SYSTEM AT CENTRAL ARCHIVES, PRASAR BHARATI

1. Introduction

Prasar Bharati, India's Public Service Broadcaster, through Doordarshan (DD) and Akashvani (All India Radio), preserves one of the country's largest collections of audio-visual heritage. To modernize its archival infrastructure, Prasar Bharati proposes the Design Supply, Installation, Integration, Testing and Commissioning of Hybrid Media Asset Management (MAM) system at Central Archives, Prasar Bharati, New Delhi.

The project envisages deployment of a cloud-native hybrid MAM platform integrated with the existing WAVES OTT ecosystem, migration of legacy media assets and metadata, and establishment of a secure, scalable and standards-based digital archive. The solution shall support end-to-end media lifecycle management, including ingest, cataloguing, metadata enrichment, proxy generation, storage, archival, search, retrieval, workflow automation, and controlled content distribution across Prasar Bharati's network.

2. Definitions

Term	Definition
MAM	Media Asset Management platform for managing media throughout its lifecycle.
Hybrid MAM	Integrated on-premises and cloud-based MAM deployment.
Media Asset	Video, audio, image, document or related digital object managed by the system.
Proxy	Low-resolution derivative used for browsing and editorial operations.
High-Resolution Master	Original broadcast-quality media file.
Metadata	Descriptive, technical, administrative and rights information associated with media assets.
WAVES OTT	Prasar Bharati's cloud-hosted OTT platform.
RBAC	Role-Based Access Control.
API	Application Programming Interface.
DSIITC	Design, Supply, Installation, Integration, Testing and Commissioning.
Purchaser	Prasar Bharati
PB	Peta Byte

3. Background

Prasar Bharati is undertaking modernization of its Central Archives to establish a secure, scalable Hybrid Media Asset Management (MAM) platform for preservation and lifecycle management of national audio-visual heritage.

The project shall consolidate legacy archives, integrate with WAVES OTT, enable AI-assisted metadata enrichment, improve discoverability, and support future digital services. Key drivers include preservation, operational efficiency, interoperability, cloud readiness, cyber security, and business continuity.

4. Objectives

- a) Deployment of an enterprise-class Cloud native Hybrid Media Asset Management platform.
- b) Provide end-to-end ingest, cataloguing, workflow automation, archive, retrieval and distribution.
- c) Enable AI-assisted indexing, transcription, translation, OCR and semantic search.
- d) Ensure high availability, disaster recovery, scalability, standards compliance and secure access.

5. Scope of Work

- a) Design, supply, installation, integration, testing and commissioning (DSIITC) of the complete solution.
- b) Supply all hardware, software, cloud resources, licenses and third-party components.
- c) Migration of media assets and metadata available in existing MAMs of AIR and DD Archives with integrity verification.
- d) Integration with existing broadcast systems, archive storage and WAVES OTT.
- e) Provide training, documentation, warranty, and technical support.
- f) The bidder shall be responsible for project management and User Acceptance Test.

6. Technical Specifications and Feature Requirement

The bidder shall comply following technical specification and features for the proposed solution towards the implementation of the project :

- a) Cloud native hybrid Media Asset Management(MAM)system
- b) Migration of data from existing MAM systems (AIR/DD)
- c) Integration with the WAVES OTT MAM system
- d) Access to DD Kendra's and All India Radio stations across India
- e) Backup and Disaster Recovery Setup

6.1 CLOUD NATIVE HYBRID MAM SYSTEM

- 6.1.1 The MAM system should support file based ingest. It should support natively (without re-digitizing/ trans-coding) XDCAM HD422 {MPEG-2 long GOP (12 frames) 4:2:2@HL} 50Mbps with 8 bit quantization data in MXF Op1a file format and for SD: DVCPRO 50 (8-bit, 4:2:2) in MXF Op1a or MXF Op Atom file format or IMX 50 (8-bit, 4:2:2), in MXF Op1a file format.
- 6.1.2 The upgraded system should facilitate MXF File format. Necessary hardware and software should be offered with the system.
- 6.1.3 The upgraded system should support multiple broadcast quality codecs and MXF wrappers.
- 6.1.4 The offered system should support following Inputs/Outputs and Video & file formats:-

	Video formats	HD: 1920x1080/50/I (16:9 aspect ratio) conforming to SMPTE 292M and ITU-R BT. 709 (CIF) (HD-SDI: 1.485 Gb/s) SD: 625 line (4:3/16:9 aspect ratio) conforming to SMPTE 259M and ITU-R BT 601 (SD SDI: 270 Mb/s).
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	MXF formats	HD: Sony XDCAM HD422 {MPEG-2 long GOP (12 frames) 4:2:2@HL} 50Mbps with 8 bit quantization data in MXF OP1a file format SD: DVCPRO 50 (8-bit, 4:2:2), in MXF Op1a or MXF Op Atom file format or SD: IMX 50 (8-bit, 4:2:2), in MXF Op1a file format
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- 6.1.5 The proposed solution shall work under Media Asset Management (MAM) system.
- 6.1.6 Upgraded Media asset management should take care of File based ingest operations, baseband ingest, metadata creation, media analysis browsing, search, proxy generation, multilayer video editing , file based QC ,Near Line storage and should have feature to integrate with disk based archive solution , Cloud archive , HSM and end to end content management.
- 6.1.7 The proposed solution shall allow creation, viewing and modifying the metadata of all the media file to be archived.
- 6.1.8 Metadata should include at least title, ID, source, media number, date, Time Code etc. Metadata fields should be customizable. Metadata should be added automatically and also manually.
- 6.1.9 The proposed solution shall provide powerful metadata management capability for effective cataloguing, search and retrieval.
- 6.1.10 Indexing of clips should be systematic for easy searches.
- 6.1.11 The proposed solution shall create low resolution copy and thumbnail of all the media file to be archived. The low-resolution copy should be frame accurate and time code synchronized with the high-resolution content. The low-resolution copy should have data rate up to 1 - 5 Mbps.
- 6.1.12 The proposed solution shall be able to link the metadata, low resolution copy, full resolution Video file stored on a Storage and disk based deep archive Library.
- 6.1.13 The proposed upgraded MAM solution shall have the facility to upload & restore of the content on cloud from/to near line storage
- 6.1.14 The proposed solution should provide means to run all media related operation in a back office server farm in a way that does not disrupt user work i.e., users should not be blocked from continuing their work while the system runs process such as rendering, transfer, transcoding of copying of media.
- 6.1.15 All of these back office operations should be monitored and the user should have a special monitoring application that will enable him to view his jobs and to monitor their status and progress of workflow in real time.
- 6.1.16 The proposed MAM solution shall have its own secure, conversational cloud based Artificial Intelligence (AI) assistant based on a Large Language Model (LLM). The AI assistant shall integrate with the MAM through secure APIs and industry-standard authentication mechanisms, enabling authorized users to interact with the system using natural language queries for content discovery, metadata retrieval, workflow assistance, and system operations. The service shall be available as SAAS so that it can be plugged in as required in future , A demo during evaluation process is mandatory .
- 6.1.17 The offered MAM should have ability to manually delete a media essence (high resolution, proxy resolution)
- 6.1.18 The offered MAM system shall support thesaurus type metadata
- 6.1.19 The proposed Media Asset Management (MAM) system shall provide a configurable taxonomy management framework to enable hierarchical

classification of media assets using controlled vocabularies. The taxonomy structure shall be fully configurable by authorized administrators and support creation, modification, import, and management of multi-level hierarchical categories without requiring custom software development.

6.1.20 The offered MAM should have ability to manually delete an asset with its media essences.

6.1.21 The offered MAM shall have built in semantic search capabilities.

6.1.22 The offered MAM should have ability to set purge policies to automatically delete essences and or assets.

6.1.23 ARCHITECTURE OF MAM

6.1.23.1 The proposed solution should run on Linux servers, docker based with auto-scaling on Kubernetes.

6.1.23.2 The solution should be compatible with MeitY empaneled cloud environments.

6.1.23.3 The client should be fully web based, and a dedicated application on mobile phone should be available.

6.1.23.4 The proposed solution shall be integrated with Active Directory for users and group management.

6.1.23.5 The proposed solution should run on Linux/Windows server operating system to match the existing environment.

6.1.23.6 The system should rely on a Microsoft MSSQL or similar open database LIKE MONGO DB, MARIA DB ETC to match the existing environment.

6.1.23.7 The system should rely on 'open storage' (native CIFS) and open protocols to handle multiple type of storage solutions.

6.1.23.8 The proposed solution should have international reputed standard generic IT hardware as required for hybrid setup.

6.1.23.9 The proposed solution should provide comprehensive web based administration module that enables administrators to control every aspect of the system from a centralized user interface.

6.1.23.10 The proposal upgraded mam solution should have their native transcoding to produce proxy content.

6.1.23.11 Any additional user licenses, if required by Prasar Bharati for MAM operation shall be provided by the bidder on pro rata basis.

6.1.23.12 Bidder may offer any other hardware, software, tools etc. as per line item 24 of Appendix-II, in order to meet the Archive work flow requirement.

- 6.1.23.13 The Hybrid and Upgraded MAM solution should have 8 numbers of HD/SD SDI ingest ports & 4 numbers of play out ports in 2 or more video servers. The server should have a facility to ingest NDI/SRT feeds so bidder should offer necessary hardware & software.
- 6.1.23.14 The offered software for MAM in the proposed solution should be with perpetual license along with 5 years support and maintenance or 5 years subscription. All the licenses should be issued in the name of Prasar Bharati.
- 6.1.23.15 The system should be capable of storing not only media files (such as Video and Audio) but also other kinds of documents as standard assets; these documents should include at least office documents, stills, zip, and graphics.
- 6.1.23.16 The system should allow for metadata to be assigned to these non-media assets in the same manner that it is assigned to media-oriented assets.
- 6.1.23.17 System should be able to automatically detect the scene change in the video and add marker to optimize work done by archival team.
- 6.1.23.18 Core MAM client functionality requirements of the proposed solution shall be as follows:
 - a. Ingest/Browser/Admin/Archival User can create their own workspace based on his or her role and this workflow can be shared among users.
 - b. User should be able to do normal search but also can make a search profile that can contain any metadata field which is indexed, this search criteria can be saved as a profile and can be shared among users.
 - c. MAM Client should provide the capabilities of dragging and dropping the asset like Video, Audio, PDF, and Image asset for file based ingestion apart from Watch folder.
 - d. Search result view should be customized, and results should be saved as CSV or print option for various purposes.
 - e. System should provide automatic media analysis while import of media.

6.1.24 USER MANAGEMENT

- 6.1.24.1 There shall be a dedicated module for user management in the MAM System.
- 6.1.24.2 The proposed system should provide a centralized configuration of users and groups information (that is added on top of the information provided from Active Directory). The information should include at least:
 - a. Personal information
 - b. Access right information to different areas in the solution
 - c. Layout (Screens, shortcuts, colors, fonts etc.)

- d. Metadata access rights
- e. Specific module preferences (for example editor module preferences)
- f. Users activities shall be recorded as logs and shall be available as users wise report.

6.1.25 WORKFLOW MANAGEMENT

- 6.1.25.1 The proposed solution should propose a BPM (Business Process Management) workflow engine based on standard BPMN 2.0
- 6.1.25.2 The proposed solution should include a BPM designer to create and update custom workflows, as well as support custom scripting.
- 6.1.25.3 The BPM workflow engine must be natively integrated within the MAM so as to leverage the metadata stored in the MAM.
- 6.1.25.4 The proposed workflow engine should be able to mix user tasks, performed by human operators, with services tasks like file based ingest, edit, metadata tagging, archiving etc.
- 6.1.25.5 The application should have graphically designed workflows, combining and organizing the simple workflow activities.
- 6.1.25.6 The workflow engine itself should be Open Source and remain for third party developers to integrate with.
- 6.1.25.7 The workflow management should be done from the MAM interface.
- 6.1.25.8 Whenever media is ingested, uploaded, or transferred into the Media Asset Management (MAM) system, the system shall automatically perform the following actions without requiring any manual intervention:
 - 6.1.25.9 Generate proxy media in the configured viewing format immediately upon successful ingest, enabling users to browse, search, preview, and perform editorial operations without requiring access to the high-resolution media.
 - 6.1.25.10 Store the original high-resolution media file in the designated cloud storage bucket as the primary online master copy.
 - 6.1.25.11 Support lifecycle management of the cloud storage, whereby the high-resolution media shall automatically transition from online cloud storage to lower-cost archival/deep archive storage classes based on configurable business rules, retention policies, or media age, without impacting the associated metadata or proxy accessibility within the MAM
 - 6.1.25.12 Simultaneously create and maintain an additional backup copy of the original high-resolution media on the on-premises storage system (2 PB usable capacity) through a secure connection between the cloud environment and the on-premises infrastructure

- 6.1.25.13 The MAM system shall support different media synchronization workflows based on the source of media ingestion:
- 6.1.25.14 Media ingested at the Central Archive (Main Site): The original high-resolution media shall first be stored on the on-premises central online storage system with copy to 2 PB on prem storage. Upon successful ingest, the MAM system shall automatically upload the high-resolution media to the designated cloud object storage bucket over a secure, connection.
- 6.1.25.15 Media ingested from Regional/Remote Locations: The original high-resolution media shall first be uploaded directly to the designated cloud object storage bucket. After successful upload, the MAM system shall automatically replicate the high-resolution media to the on-premises central storage over a secure connection for backup and centralized archival purposes.
- 6.1.25.16 The proxy media shall remain online and accessible through the MAM irrespective of whether the original high-resolution media resides in online cloud storage or has been migrated to deep archive storage.
- 6.1.26 **INGEST - BASE BAND FOR ON PREMISES SETUP**
 - 6.1.26.1 The proposed solution should support base band media ingest into the cloud native hybrid MAM
 - 6.1.26.2 System should provide various user tools to do following:
 - a) 8 or more VTR Control
 - b) Print to Tape
 - c) Multi-cam Record using Single Button hit, Multi-cam should be able to control multiple Ingest server.
 - d) Crash and Schedule recorder
 - e) Single User interface to control various record and play out port with Preview option of selected media
 - 6.1.26.3 Support record and playback 1080/50i over XDCAM HD (50 Mbps) 4:2:2, Avid (DNxHD 145 Mbps) natively
 - 6.1.26.4 Must support IP feed ingest – NDI, SRT, RTMP
 - 6.1.26.5 Record and playout video with embedded audio up to 16 audio tracks uncompressed at 20 or 24 bits 48K/sample
 - 6.1.26.6 Support for VDCP and RS-422 control or some method to archive remote playback control from 3rd party controller / Automation
 - 6.1.26.7 The licensed version of all ingest and playout software including Operating System, application software etc. are required to be supplied in original media. This software should be licensed in the name of Prasar Bharati.

- 6.1.26.8 The bidder will provide up-gradation of all the offered software free of charge during the guarantee period. The bidder will be required to give undertaking to this effect along with the bid.

6.1.27 FILE BASED INGEST

- 6.1.27.1 The proposed solution should support import automatically any type of content from watch folders from central archive storage
- 6.1.27.2 The solution should provide a web-based application to import content in the system, and the ability to specify a specific metadata schema from various regional & remote locations.
- 6.1.27.3 The solution should provide the ability to import recording data from the traffic system
- 6.1.27.4 The solution should support to schedule baseband ingest in mxf format
- 6.1.27.5 The solution should be able to import growing files and allow real time preview
- 6.1.27.6 Ingested media should be automatically transcoded to low resolution browse quality files which is available to the users
- 6.1.27.7 Ability to notify the users for a new file base ingest
- 6.1.27.8 All ingested material (high resolution, browse quality, etc.) is stored in a centralized production storage that is directly available to all users simultaneously, and managed by the MAM.
- 6.1.27.9 Ability for the metadata to link assets together (e.g. parents and children concept)
- 6.1.27.10 Access right should be configurable to view or modify metadata
- 6.1.27.11 Ability to associate timecoded metadata. Access to timecoded metadata should be subject to user rights
- 6.1.27.12 The solution should be able to perform a media integrity check during the import.

6.1.28 BROWSING AND CATALOGUING SYSTEM FEATURES

- 6.1.28.1 The proposed solution shall able to run a full-text search over all the metadata fields.
- 6.1.28.2 The proposed solution shall able to run an advanced search query combining queries on some specific metadata fields.
- 6.1.28.3 The proposed solution shall be able to select one or multiple files and move them (move, cut, copy) into the folder structure.
- 6.1.28.4 The proposed solution shall able to protect a File from its deletion.

- 6.1.28.5 The Browsing and cataloguing system should be remote accessible with a web-based application.
- 6.1.28.6 The proposed solution shall be able extend the operations across multiple sites using a powerful remote web access tool.
- 6.1.28.7 The web access tool should be an easy-to-use interface to retrieve, preview and select shots of media assets and metadata. It should also provide collaborative media access for storyboarding, rough cut editing, and collaborative clip gathering.
- 6.1.28.8 The proposed solution shall support flexible metadata schemas.
- 6.1.28.9 The required metadata fields can be customized at any time during the project even after the project is running.
- 6.1.28.10 There shall be no restriction on the amount or type of metadata fields and not predefined or fixed metadata schema.
- 6.1.28.11 Metadata can be exported and imported to and from external system using XML in configurable schemas.
- 6.1.28.12 The Migrated metadata and newly file-based ingested metadata should be in the same format and tightly integrated with Video/Audio files.

6.1.29 MAM CLIENT BASIC VIDEO EDITING FEATURES

The proposed solution should provide native editing tools on all ingest and social media mam Clients system that allows for at least:

- 6.1.29.1 The proposed solution shall be able to define per user which media essence the user can access and edit.
- 6.1.29.2 Allow various formats to be rendered within a single EDL.
- 6.1.29.3 Back office rendering, i.e. the edit bay should be available to work on other projects while the EDL gets flattened.
- 6.1.29.4 Provide easy to use shortcuts (JKL) and techniques to ensure fast editing and turnover of material.
- 6.1.29.5 The proposed solution should allow for:
 - a) J-cuts and L-cuts
 - b) Possibility to edit/trim audio and video tracks independently of one another
 - c) Simple transitions (dissolve, wipes, squeeze)
 - d) Simple effects (transparency, contrast/brightness/ colour adjustments)
 - e) Picture in picture and zoom effects
 - f) Aspect ratio management
 - g) Blur Including auto-tracking of faces for blurring

- h) Feathering effect
- i) Close caption editor
- j) Built in Speech to text function

6.1.30 MOBILE APPLICATION

- 6.1.30.1 Platform support: The proposed MAM solution shall provide a dedicated mobile application compatible with both Android and iOS smartphones, available through the respective official app stores.
- 6.1.30.2 Secure user access: The mobile license shall support secure user authentication, role-based access control, and simple user management in alignment with the central MAM system.
- 6.1.30.3 Asset access and search: Licensed mobile users shall be able to access media assets, saved searches, and perform advanced search operations with real-time results.
- 6.1.30.4 Media review and approval: The mobile application shall support media preview, review, annotation, and approval workflows with an intuitive touch-based user interface.
- 6.1.30.5 Workflow operations: Licensed users shall be able to trigger, monitor, and track assigned workflows and processing tasks directly from the mobile application.

6.1.31 INTEGRATED FILE-BASED QC

- 6.1.31.1 The proposed solution should offer broadcast-grade QC software deployed on cloud with minimum 4 concurrent QC process, tightly integrated with the proposed MAM solution, which enables the user to send content automatically for file-based QC and imports back the results of the QC process as metadata attached to the relevant asset.
- 6.1.31.2 The user should be able to follow up on the progress and status of the QC process from a centralized monitoring application embedded within the proposed solution.
- 6.1.31.3 The process of sending media to the QC device should be automatic without any user intervention, as well as provide ad-hoc means for users to send specific assets for QC.

6.1.32 MAM OPERATION MONITORING

- 6.1.32.1 The system should allow monitoring tools to check the media job status of the system.
- 6.1.32.2 The system should allow monitoring of all back-office media operations by authorized users through monitoring application/tool.
- 6.1.32.3 The monitoring tool interface should be customizable and administrator should be capable of adding metadata fields, changing the job priority.
- 6.1.32.4 The monitoring tool should allow administrator to open the log file directly from the interface.
- 6.1.32.5 The monitoring tool should always be synchronized with back-end media process and should be accessible through windows or web client platform.
- 6.1.32.6 The system should allow the automatic email notification in case of job failure or success with set of customizable metadata field.

6.1.32.7 The system should allow the update of the metadata field based on the job failure or success.

6.1.32.8 The system should provide a graphical interface to see the linked or associated assets (Image, audio & Video) and to monitor the relationship between them.

6.1.33 WEB PUBLISHING

6.1.33.1 The proposed solution should be able to send media and metadata to CMS.

6.1.33.2 The proposed solution should allow retrieval and partial retrieval, editing, transcoding and publishing of content to social platforms (Facebook, X, YouTube etc.)

6.1.33.3 The proposed solution should be capable of transcoding content to various formats, frame rates, as per Prasar Bharati publishing rules.

6.1.34 AUDIT TRAIL

6.1.34.1 Any operation (like a title deletion for example) should be logged for reporting purposes.

6.1.34.2 This audit trail database should be accessible.

6.1.34.3 The list of operations logged in this audit trail database should be configurable by super users or administrator.

6.1.34.4 This list of operations that are logged in the audit trail should at least include:

- a) User login
- b) User logout
- c) Asset modification
- d) Title deletion
- e) Title restore etc.

6.1.34.5 In addition, every time an event is logged in this database, it should be possible to also save information about the asset that is concerned by the event, in order to later be able to build statistical reports on asset usage.

6.1.35 STORAGE MANAGEMENT

6.1.35.1 The storage for media assets shall be a multi-tier storage system. Some of the assets/may be stored on on-line storage for quick retrieval and some of the assets shall be stored on near line storage (deep storage) for delayed retrieval. The tiers of the storage shall be implemented in order to make the system cost effective to Prasar Bharati.

6.1.35.2 All the ingested media assets shall be available in two formats viz
i) In Original/High Resolution
ii) in lower resolution (Proxy) on the cloud hosted MAM System.

- 6.1.35.3 The media in high (original) resolution shall be moved to Archival/deep storage. This media shall be made available for access/download to the authorized users.
- 6.1.35.4 The media in low resolution or in proxy format shall be available to the users for browsing, for making request to download.
- 6.1.35.5 Retrieval time from deep storage to online storage shall be **maximum 2 hours**.
- 6.1.35.6 All the Low resolution (proxy) content will be available on hot storage (online) of the cloud. The resolution of proxy shall be configurable by the Prasar Bharati user/system administrator. The configurable bit rate of low-resolution content will as under:
 - a) For Video Content: 512 kbps to 1 Mbps
 - b) For Audio Content: 4 kbps to 128 kbps
- 6.1.35.7 Bidder shall provide the information about transcoding cost of the media content to any other required format.

6.1.36 LIBRARY MANAGEMENT

- 6.1.36.1 There are media libraries operational at each of the AIR stations and Doordarshan Kendra's in order to cater the needs of radio and television broadcast operations.
- 6.1.36.2 The content/media available at these libraries shall be hosted on Media Asset management System. The System shall be customized as per the work flow decided by Prasar Bharati.
- 6.1.36.3 In order to understand the function, two categories of libraries viz 'local library' and 'global library' will be operational to manage the media assets hosted on MAM System.
- 6.1.36.4 A user of a particular station/kendra/library shall have full access to the media operations like search, browse, preview, transfer and download etc. on the content of the library, may be referred to as 'local library' in respect of the user.
- 6.1.36.5 Users of other stations/libraries shall be only allowed to browse, search, preview and make a request for download it from the MAM, where such assets shall be catalogued under common area called as 'Global library'.
- 6.1.36.6 An online indent form(to prescribed by PB) shall be filled by a user of a library through system in order to get the media assets belonging to other libraries(Global Library).
- 6.1.36.7 The request/indent form shall be notified to the users, who have full rights or rights to transfer the media. After approval is granted as per the predefined workflow, a notification shall be sent to the indenter and the media asset could be downloaded.
- 6.1.36.8 The MAM System shall support sharing of media to external users.
- 6.1.36.9 The system shall be able to generate an unique URL, which can be shared to external users so as to download the media asset or a part of it. The validity of the link/URL shall be pre-defined by the authorized user.

6.1.37 ON PREMISE SYSTEM

6.1.37.1 COMPUTING HARDWARE:

For the proposed hybrid deployment architecture, the proposed MAM solution shall be deployed in the cloud and complemented by on-premises servers to manage functions that are best performed locally.

The on-premises servers shall primarily manage Active storage and Archive storage operations, ensuring that all backup copies remain synchronized while maintaining complete asset references and metadata consistency with the cloud-based MAM repository.

The proposed on-premises infrastructure shall also control the Hierarchical Storage Management (HSM) workflow, including seamless integration with the Tape Library to automate archival, retrieval, and lifecycle management of media assets.

The architecture shall incorporate appropriate redundancy to ensure high availability and business continuity for all critical on-premises services.

On-premises servers shall generate proxy media for all content ingested locally, the on-premises servers shall also facilitate content distribution within the central site by serving media directly from the local repository whenever available, thereby avoiding repeated downloads from the cloud. This approach minimizes cloud egress costs, optimizes bandwidth utilization, and improves content delivery performance while maintaining seamless synchronization with the cloud-hosted MAM environment.

The supplied hardware/system shall conform to following technical specifications:

a) MAM Servers-4Nos.

SN	Parameter	Technical Specification
1.	Form Factor	Enterprise-grade 19-inch rack-mountable server (1U or 2U). All necessary rack mounting rails and cable management accessories shall be supplied.
2.	Processor	Dual Intel Xeon Scalable (3rd/4th Generation) or AMD EPYC processors with a minimum of 16 physical cores per processor (32 physical cores total). Processor shall support virtualization and enterprise workloads.
3.	Memory	Minimum 64 GB DDR4/DDR5 ECC Registered RAM, expandable to at least 512 GB without replacing existing DIMMs.
4.	System Drive	Minimum 2 × 240 GB Enterprise SSD configured in RAID-1 for operating system and application installation. SSDs shall be hot-pluggable.
5.	Storage Controller	Enterprise-grade hardware RAID controller supporting RAID 0, 1, 5, 6, 10, 50 and 60 with cache memory and battery/ flash-backed write cache.
6.	Network Interfaces	Minimum 2 × 1 Gigabit Ethernet ports and 2 × 10 Gigabit SFP+ Fibre/Ethernet ports. Network interfaces shall support teaming/bonding and failover.

7.	PCIe Expansion	Minimum two available PCIe Gen4/Gen5 expansion slots for future upgrades.
8.	Power Supply	Dual hot-swappable redundant power supplies (N+1), minimum 80 PLUS Platinum or Titanium efficiency.
9.	Cooling	Hot-swappable redundant cooling fans with automatic speed control.
10.	Operating System	Compatible with Microsoft Windows Server 2022/2025 or Red Hat Enterprise Linux/Rocky Linux/Ubuntu LTS (latest supported version). Required drivers shall be provided.
11.	Remote Management	Dedicated out-of-band management port with web-based GUI supporting remote power on/off, BIOS configuration, hardware monitoring, virtual media, remote console (KVM), firmware updates and event logging.
12.	Security	Support for TPM 2.0, Secure Boot, BIOS/UEFI password protection, role-based management access and digitally signed firmware.
13.	Graphics	Integrated VGA or equivalent for local administration.
14.	USB Ports	Minimum 4 USB ports including USB 3.x.
15.	Firmware	Latest stable firmware and BIOS versions shall be installed at the time of supply.
16.	Compliance	Energy Star/BEE, EPEAT Gold India, FCC or similar certification valid in India, UL/equivalent BIS
17.	High Availability	Components including power supplies, fans and storage drives shall be hot-swappable wherever applicable to ensure high availability.
18.	Warranty	Minimum 5 years comprehensive onsite warranty with 24x7 technical support and next business day (or better) hardware replacement. Firmware and software updates shall be available throughout the warranty period.
19.	Compatibility	Server shall be fully compatible with the proposed Media Asset Management (MAM) application, database, storage, virtualization platform (if used), and archive management solution. The bidder shall be responsible for end-to-end interoperability.
20.	Additional Requirements	i. All servers shall be from the same OEM/model family. ii. Servers shall be supplied with all necessary power cords, rack rails, cable management arms and transceivers (if required). iii. The bidder shall install, configure, integrate, test and commission the servers with the complete MAM solution. iv. The proposed servers shall be new, unused, and from the current product line of the OEM. v. The OEM should provide at least 5 years of support and availability of spare parts

b) Video Servers: 2 Nos.

SN	Parameter	Technical Specification
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1.	Form Factor	Enterprise-grade 19-inch rack-mountable (2U or higher) server complete with rack rails and cable management accessories.
2.	Processor	Dual Intel Xeon Gold Scalable Processors or equivalent AMD EPYC processors, each with a minimum of 16 physical cores, supporting virtualization and high-performance media processing workloads.
3.	Memory	Minimum 64 GB ECC DDR4/DDR5 Registered RAM, expandable to at least 512 GB.
4.	System Drive	Minimum 2 × 600 GB Enterprise SAS SSD/HDD configured in RAID-1 for operating system and application software. Drives shall be hot-swappable.
5.	Media/Data Storage	Enterprise SAS/NVMe storage providing a minimum of 3.3 TB usable capacity after RAID configuration (RAID-5 or RAID-6 as applicable). Drives shall be hot-swappable.
6.	RAID Controller	Enterprise hardware RAID controller supporting RAID 0, 1, 5, 6, 10, 50 and 60 with minimum 2 GB cache and battery/flash-backed write cache protection.
7.	Operating System	Microsoft Windows Server 2022/2025 Standard or Datacenter Edition (or latest available version) with appropriate licensing.
8.	Video I/O	Minimum 8 bidirectional SDI ports supporting SD-SDI, HD-SDI and 3G-SDI standards. Each port shall be configurable independently as input or output. The interface shall support embedded audio, reference/genlock, and timecode.
9.	Supported video formats	Support for SD, HD and Full HD formats including 576i, 720p, 1080i and 1080p at standard broadcast frame rates (23.98, 24, 25, 29.97, 30, 50 and 59.94 fps, as applicable).
10.	Audio Support	Minimum 16 channels of embedded SDI audio with support for 24-bit PCM audio.
11.	Network Interfaces	Minimum 4 × 1 Gigabit Ethernet ports and 2 × 10 Gigabit SFP+ Fibre/Ethernet ports supporting NIC teaming, redundancy and failover.
12.	Graphics Processing Unit	PCIe-based professional graphics card with minimum 4GB dedicated GDDR memory, supporting hardware-accelerated video processing, rendering and transcoding.
13.	Expansion Slots	Minimum two free PCIe Gen4/Gen5 expansion slots after installation of the video I/O and GPU cards.

14.	Power Supply	Dual hot-swappable redundant power supplies (N+1), minimum 80 PLUS Platinum efficiency.
15.	Cooling	Hot-swappable redundant cooling fans with automatic thermal management.
16.	Remote Management	Dedicated out-of-band management interface with remote KVM, virtual media, health monitoring, power control, event logging and firmware management.
17.	Security	TPM 2.0, Secure Boot, BIOS/UEFI password protection and role-based management access.
18.	Compatibility	Fully compatible with the proposed Media Asset Management (MAM), ingest/playout software, editing applications, SAN/NAS storage and archive management system.
19.	Certifications	Energy Star/BEE, EPEAT Gold India, FCC or similar certification valid in India, UL/equivalent BIS
20.	Installation & Configuration	The bidder shall install, configure, integrate and commission the servers with the MAM system, storage, network and SDI infrastructure.
21.	Warranty	Minimum 5 years comprehensive onsite OEM warranty with 24x7 technical support, firmware updates and next business day (or better) hardware replacement.
22.	Additional Requirements	i. The video I/O card shall be a professional broadcast interface supporting real-time ingest and playout with low latency. ii. The server shall support simultaneous multi-channel HD ingest and playout as required by the proposed MAM workflow. iii. All hardware components shall be new, unused and from the OEM's current product portfolio. iv. The bidder shall provide all necessary drivers, firmware, utilities and documentation. v. The proposed server shall be certified by the OEM for continuous 24x7 broadcast operation. vi. The complete solution shall be fully integrated, tested and commissioned with the MAM application, storage subsystem and archive solution to ensure seamless end-to-end workflow.

c) Computer Workstations – 8 Nos

S.No	Parameter	Technical Specification
1.	Form Factor	Enterprise-grade Tower Workstation with tool-less chassis design for easy maintenance and future expansion.

2.	Processor	Intel Core i7 (13th/14th Generation) / Intel Xeon W-Series / AMD Ryzen 7 / AMD EPYC equivalent with minimum 8 physical cores and base frequency of 3.0 GHz or higher.
3.	Chipset	OEM-supported workstation chipset compatible with the proposed processor.
4.	Memory	Minimum 32 GB DDR4/DDR5 ECC or Non-ECC RAM (OEM supported), expandable to at least 128 GB.
5.	System Drive	Minimum 128 GB Enterprise SSD (NVMe preferred) for operating system installation.
6.	Data Drive	Minimum 500 GB SSD (NVMe preferred) for application software and user data.
7.	Graphics	Integrated graphics supporting dual-display operation with Full HD/4K resolution. If required for media applications, provide a dedicated PCIe graphics card with minimum 4 GB GDDR6 memory.
8.	Network Interfaces	Minimum 2 × 1 Gigabit Ethernet (RJ-45) ports supporting PXE boot, Wake-on-LAN and teaming (where supported).
9.	Display	Minimum 1 × HDMI 2.0 and 2 × DisplayPort or equivalent video outputs supporting dual-monitor operation.
10.	USB Port	Minimum 8 USB ports, including at least 4 × USB 3.2, with front and rear accessibility.
11.	Audio	Integrated HD Audio with microphone input and headphone/speaker output.
12.	Expansion Slots	Minimum one PCIe x16 and one PCIe x4/x8 slot available for future expansion.
13.	Operating System	Microsoft Windows 11 Professional 64-bit (or latest available version) with genuine OEM license.
14.	Keyboard	OEM USB wired keyboard with English layout.
15.	Mouse	OEM USB optical wired mouse with scroll wheel.
16.	Monitoring Capability	Shall support at least two Full HD (1920 × 1080) or higher resolution monitors simultaneously.
17.	Security	TPM 2.0, Secure Boot, BIOS/UEFI password protection, chassis intrusion detection (where supported).
18.	Power Supply	High-efficiency power supply (minimum 80 PLUS Bronze certification).
19.	Certifications	Energy Star/BEE, EPEAT Gold India, FCC or similar certification valid in India, UL/equivalent BIS
20.	Software and Drives	Latest OEM drivers, firmware and management utilities shall be supplied.
21.	Warranty	Minimum 5 years comprehensive onsite OEM warranty with next business day (or better) support.

d) **Fiber Switch-1No.**

SNo	Parameter	Minimum Requirement
1.	Type	Layer-2+/Layer-3 Managed Ethernet Switch
2.	Port Configuration	Minimum 12 × 10G SFP+ Fiber Ports
3.	Port Speed	1G/10G Auto-detection on all SFP+ ports
4.	Switching Capacity	Minimum 240 Gbps

5.	Forwarding Rate	Minimum 178 Mpps
6.	Switching Architecture	Non-blocking, wire-speed switching
7.	MAC Address Table	Minimum 32K entries
8.	Packet Buffer	Minimum 2 MB
9.	VLAN	IEEE 802.1Q VLAN, Minimum 4K VLAN IDs
10.	Link Aggregation	IEEE 802.3ad LACP
11.	QoS	IEEE 802.1p, DSCP, 8 Priority Queues
12.	Multicast	IGMP Snooping v1/v2/v3, MLD Snooping
13.	IPv4 Features	Static Routing, DHCP Relay, DHCP Snooping
14.	IPv6 Features	IPv6 Static Routing, IPv6 ACL, MLD Snooping
15.	Security	802.1X Authentication, Port Security, ACL, Storm Control, BPDU Guard, DHCP Snooping
16.	Management	Web GUI, CLI (Console), SSH, SNMP v1/v2c/v3, Syslog, RMON, NTP
17.	Management Port	1 × RJ45 Console or USB Console
18.	Power Supply	Internal AC Power Supply, 100–240 VAC, 50/60 Hz
19.	Redundancy	Support Dual Image and Configuration Backup
20.	Certifications	Energy Star/BEE, EPEAT Gold India, FCC or similar certification valid in India, UL/equivalent BIS
21.	Warranty	Minimum 5 Years Comprehensive Warranty with Technical Support

e) Network Switch-2 Nos.

S.No	Parameter	Minimum Requirement
1.	Type	Layer-2+/Layer-3 Managed Ethernet Switch
2.	Access Ports	Minimum 24 × 10/100/1000Base-T RJ45 Ethernet Ports with auto-negotiation and Auto MDI/MDIX
3.	Uplink Ports	Minimum 4 × 10G SFP+ Fiber Uplink Ports supporting 1G/10G SFP/SFP+ transceivers
4.	Switching Capacity	Minimum 128 Gbps
5.	Packet Forwarding Rate	Minimum 95 Mpps
6.	Switching Architecture	Non-blocking, wire-speed switching
7.	MAC Address Table	Minimum 16K MAC addresses
8.	Packet Buffer Memory	Minimum 1.5 MB
9.	VLAN Support	IEEE 802.1Q, minimum 4094 VLANs
10.	Multicast	IGMP Snooping v1/v2/v3, MLD Snooping
11.	Layer-3 Features	Static IPv4/IPv6 Routing, DHCP Relay
12.	Security Features	IEEE 802.1X Port Authentication, Port Security, Access Control Lists (ACLs), DHCP Snooping, Dynamic ARP Inspection (DAI), IP Source Guard, Storm Control, BPDU Guard, Root Guard
13.	Management Interfaces	Web GUI, CLI (Console), SSH, SNMP v1/v2c/v3, Telnet (optional), Syslog, RMON, NTP
14.	Console Port	RJ45 or USB Console Port
15.	Network Management	Support for SNMP, LLDP, LLDP-MED, Port Mirroring, sFlow (preferred)

16.	Power Supply	Internal AC Power Supply, 100–240 VAC, 50/60 Hz
17.	Compliance	Energy Star/BEE, EPEAT Gold India, FCC or similar certification valid in India, UL/equivalent BIS
18.	Warranty	Minimum 5 Years Comprehensive Warranty with software updates and technical support

f) Video Router-1 No

S.No	Parameter	Minimum Requirement
1.	Router Type	Digital Video Routing Switcher
2.	Video Inputs	16 × SD/HD/3G-SDI Inputs (75 Ω BNC)
3.	Video Outputs	16 × SD/HD/3G-SDI Outputs (75 Ω BNC)
4.	Supported Formats	SD-SDI, HD-SDI, and 3G-SDI
5.	Standards	SMPTE 259M, 292M, 424M
6.	Signal Processing	Automatic input equalization and output reclocking on all ports
7.	Switching	Clean/Glitch-free switching
8.	Control Interface	Ethernet (RJ45) with web/software configuration
9.	Routing Features	Input/output labeling, presets/salvos, and route protection/lock
10.	Power Supply	Redundant AC power supply, 100–240 VAC, 50/60 Hz
11.	Mounting	19-inch rack mountable, 1U or 2U
12.	Cooling	Forced-air cooling
13.	Firmware	User-upgradable via Ethernet or USB
14.	Compliance	Energy Star/BEE, EPEAT Gold India, FCC or similar certification valid in India, UL/equivalent BIS
15.	Warranty	Minimum 5 Years Comprehensive Warranty

g) Remote Control Pannel- 2 Nos

SN	Parameter	Minimum Requirement
1.	Quantity	2 Nos.
2.	Type	Desktop or rack-mount routing control panel

3.	Functionality	Direct source/destination routing with preset/salvo support
4.	Display	Source/destination indication on panel
5.	Connection	Ethernet (PoE preferred) or RS-422
6.	Indicators	LED indication for active route and panel status
7.	Compatibility	Fully compatible with the supplied 16×16 SD/HD/3G-SDI Router

h) Multiviewer- 01 No

S.No	Parameter	Minimum Requirement
1.	Type	Professional Broadcast SD/HD-SDI Multiviewer
2.	Video Inputs	Minimum 16 × SD/HD-SDI Inputs (75 Ω, BNC)
3.	Video Outputs	Minimum 2 × HDMI or DisplayPort Outputs (Dual Head)
4.	Supported Formats	SD-SDI and HD-SDI with automatic format detection
5.	Display Resolution	Full HD (1920 × 1080) on each output
6.	Display Layouts	Configurable layouts supporting up to 16 windows
7.	Window Assignment	Any input assignable to any display window
8.	On-Screen Information	Source labels (UMD), audio level meters, tally indication, and clock
9.	Audio	Display embedded SDI audio meters
10.	Control	Ethernet-based configuration and control through Web GUI
11.	Power Supply	Internal AC Power Supply (100–240 VAC, 50/60 Hz)
12.	Mounting	Standard 19-inch Rack Mountable (1U or 2U)
13.	Compliance	Energy Star/BEE, EPEAT Gold India, FCC or similar certification valid in India, UL/equivalent BIS
14.	Converter	55” 4K display to connect with Multiviewer
15.	Warranty	Minimum 5 Years Comprehensive Warranty

i) Broadcast Monitor- 2 Nos.

SN	Parameter	Minimum Requirement
1.	Display Size	17-inch LCD/LED Professional Broadcast Monitor
2.	Native Resolution	Minimum Full HD (1920 × 1080)
3.	Aspect Ratio	16:9
4.	Video Inputs	Minimum 1 × SD/HD-SDI Input (BNC) and 1 × HDMI Input
5.	Video Output	Minimum 1 × SD/HD-SDI Loop Output (BNC)
6.	Supported Formats	SD-SDI and HD-SDI with automatic format detection
7.	Audio	Embedded SDI audio monitoring with on-screen audio level meters
8.	Display Features	Brightness, Contrast, Colour Temperature, Aspect Ratio Selection
9.	Viewing Angle	Minimum 170° (H) / 170° (V)
10.	Control	Front panel buttons and On-Screen Display (OSD) menu

11.	Power Supply	AC 100–240 V, 50/60 Hz
12.	Compliance	Energy Star/BEE, EPEAT Gold India, FCC or similar certification valid in India, UL/equivalent BIS
13.	Warranty	Minimum 5 Years Comprehensive Warranty

j) Sync Pulse Generator (SPG) -1 No.

SN	Parameter	Minimum Requirement
1.	Reference Inputs	GPS Antenna Input and External Reference Input (Black Burst/Tri-Level Sync)
2.	GPS Receiver	Built-in GPS receiver with supplied outdoor GPS antenna, mounting kit, and minimum 20 m RF cable
3.	Video Reference Outputs	Minimum 6 independently buffered outputs configurable as Black Burst (SD) or Tri-Level Sync (HD)
4.	Supported Standards	PAL (625/50), NTSC (525/59.94), HD formats up to 1080p
5.	Black Burst Outputs	PAL and NTSC Black Burst
6.	Tri-Level Sync Outputs	720p, 1080i, 1080p formats
7.	AES Reference Output	Minimum 1 × AES/EBU Digital Audio Reference Output
8.	Time Code	LTC Output (minimum 1)
9.	Time Display	Internal real-time clock synchronized with GPS
10.	Network Interface	10/100/1000 Ethernet for monitoring and configuration
11.	Compliance	Energy Star/BEE, EPEAT Gold India, FCC or similar certification valid in India, UL/equivalent BIS

k) Digital LTC/NTP Clock – 2 Nos.

S.No	Parameter	Minimum Requirement
1.	Time Synchronization	Support LTC (Linear Time Code) and NTP (Network Time Protocol) synchronization.
2.	Display	Large, bright LED display with HH:MM:SS format, clearly visible from a minimum distance of 10 meters.
3.	Interfaces	Minimum 1 × LTC Input (BNC) and 1 × Ethernet (RJ-45) port for NTP synchronization.
4.	Power Supply	100–240V AC, 50/60 Hz, with continuous operation and automatic recovery after power interruption.

6.2 ON-PREMISEs STORAGE**(ONLINE STORAGE)****6.2.1 Active Storage:**

100 TB usable after RAID-6, with dual RAID controller, should be based on Open technology and should not require any proprietary tools to access the storage. The storage should be scalable for future storage upgrade. Required features are as below:

- a) The storage system shall provide a minimum of 100 TB usable online storage capacity after RAID protection and system overhead.
- b) The storage shall use RAID-6 or an equivalent dual-parity data protection mechanism, capable of tolerating the simultaneous failure of at least two disk drives without data loss.
- c) The storage system shall be equipped with dual active-active redundant storage controllers with automatic failover and no single point of failure.
- d) The solution shall include enterprise-grade SAS/NL-SAS HDDs with SSD/NVMe cache or equivalent technology to optimize metadata and I/O performance.
- e) The storage shall support hot-swappable disk drives, power supplies, cooling fans, and controller modules for uninterrupted operation.
- f) The solution shall support online capacity expansion by adding additional disks or expansion shelves without disrupting ongoing operations.
- g) The storage architecture shall be scalable to at least 500 TB usable capacity without requiring replacement of the existing storage system.
- h) The storage shall provide sufficient throughput to support simultaneous multi-user editing, ingest, playout, and media processing for HD, UHD, and future higher-resolution workflows.
- i) The storage shall support SMB and NFS file-sharing protocols.
- j) The storage shall provide redundant host connectivity using minimum of 10 GbE or higher Ethernet and/or 16/32 Gbps Fibre Channel interfaces.
- k) The solution shall support storage snapshots, volume cloning, background data integrity verification, and automatic RAID rebuild following disk replacement.
- l) The proposed storage solution shall be fully integrable with the proposed MAM workflow environment. The bidder shall provide an OEM certification from the proposed MAM provider confirming support for integration with the proposed storage solution.
- m) The storage shall provide comprehensive health monitoring, fault reporting, performance monitoring, and alerting through a centralized management interface.
- n) The proposed solution shall be supplied with all required software licenses, management utilities, and firmware necessary for full functionality.
- o) The bidder shall provide a minimum five (5) years of OEM warranty and technical support, including software updates, hardware replacement, and technical assistance.

6.2.2 Archive Storage :

Dual chassis in mirror mode. Each storage should have at least 2 PB usable space after RAID-6 and dual RAID controller. The storage should be scalable for future storage upgrade. Required features are as below:

- a) The proposed storage solution must be object storage that enables data to be stored with standard and custom meta-data

- b) The proposed storage solution must be able to ensure authenticity, long life retention, scalability and accessibility
- c) The proposed storage solution must be independent of operating systems, archiving software and applications
- d) The proposed storage solution must support hot-swappable power supplies, fans and hard drives
- e) The proposed storage solution must support expansion with, and simultaneous use of, different types and classes of storage systems to enable long-term data storage
- f) The proposed storage solution must have the ability to integrate with Microsoft Active Directory to apply ACL at the object level to control access levels for each object
- g) The solution must not have any single point of failure end-to-end
- h) The proposed storage solution Must be clustered and load-balanced with no single point of failure in the product.
- i) The proposed storage solution Must provide native support for data and metadata ingestion and retrieval using HTTP, NFS and CIFS without requiring any external devices
- j) The proposed storage solution Must be able to support clients across a broad selection of Operating Systems without requiring client software installations.
- k) Each storage controller/node must have CPU, Memory, NVRAM and Disks to ensure the increase of performance with capacity.
- l) The proposed storage solution shall be fully integrable with the proposed MAM workflow environment. The bidder shall provide an OEM certification from the proposed MAM provider confirming support for integration with the proposed storage solution.
- m) The proposed storage system must support hot-swappable disk replacement, without any performance degradation.
- n) Offered Solution must be based on Object storage which should be supplied with 2 PB Usable capacity with data protection. Each disk drive capacity should be minimum 18TB or higher. The solution shall be scalable to 10PB or more by adding additional nodes
- o) The offered solution should have Enterprise-class Object Storage solution with enterprise grade hardware & disk subsystems. Proposed Object storage solution should be able to store petabytes of unstructured data and to store it over longer periods of time.
- p) Proposed Object storage solution should be fully distributed, symmetrical and scale-out architecture. Minimum 4 numbers of 10G uplink ports should be provided for establishing connectivity to the existing core switches in data centre.

- q) Proposed Object storage solution must have open architecture with support for S3, SCSP, HTTPs, REST APIs and any other object storage protocols.
- r) Proposed Object storage solution should support industry standard APIs such as REST for ingest & retrieval of objects.
- s) Object storage solution should support migration of objects from local disk to external storage tier like S3 compliant storage, Public Cloud etc
- t) Proposed solution should be quoted with 5 years of warranty from OEM.
- u) Object Storage solution should support SNMP and Syslog protocols to provide information related to object storage

6.3 HOSTING OF MAM SOLUTION ON CLOUD

6.3.1 Cloud Hosting, Provisioning, Deployment and management

- 6.3.1.1 The complete computing services, application modules, database and other interfaces that are required for smooth functioning of MAM is to be hosted on MeitY empanelled cloud with adequate resilience. The bidder is to provide required VMs, storage and other cloud services, API hosting etc.
- 6.3.1.2 The Bidder shall be responsible for providing 24*7*365 days support for Prasar Bharati Cloud infrastructure during the contract period. The maintenance and support will include following activities -
 - a. Compliance to the defined international standards and security guidelines such as PCI DSS 3.2 Level 1 certified CSP. ISO 27001 (ISMS), 27017 and 27018 certified for maintaining operations of cloud and ensuring privacy of Prasar Bharati data.
 - b. Ensuring Uptime and utilization of the cloud resources as per SLA's defined in this RFP.
 - c. The Bidder shall develop appropriate policy, checklists in line with ISO 27001 & ISO 20000 framework for failover and fall back to the appropriate DR site. DR drills needs to be performed by the Bidder as and when required by Prasar Bharati or every 6 months to check disaster preparedness.
 - d. The Bidder shall conduct vulnerability and penetration test (from a third party testing agency which may be CERT-IN empanelled) on the Cloud facility every 6 months and reports should be shared with Prasar Bharati. The Bidder needs to update the system in response to any adverse findings in the report, without any additional cost to Prasar Bharati.
 - e. The Bidder shall conduct ISMS audit & PCI-DSS audit. Internal audit and Third Party Certification Audit every Year.
 - f. Upgrades - Any required version/Software /Hardware upgrades, patch management etc. at the Cloud Site will be supported by the Bidder for the entire contract period at no extra cost to Prasar Bharati.
 - g. Bidder is required to provision additional VM's automatically when the utilization exceeds 80%.
 - h. On expiration / termination of the contract, Bidder to handover completes data in the desired format to Prasar Bharati which can be easily accessible and retrievable.

- i. Bidder should manage the Asset Inventory including the license inventory ,monthly report should be generated on the Asset and license inventory and its usage
 - j. MIS Reports - Bidder shall submit the reports on a regular basis in a mutually decided format. The Bidder shall workout the formats for the MIS reports and get these approved by the Prasara Bharati after award of the contract.
- 6.3.1.3 The cloud should be able to offer the solution on a public cloud.
- 6.3.1.4 The cloud service provider (CSP) shall strictly adhere to the Service Level Agreement (SLA) prescribed under MeitY guidelines/specifications while delivering cloud hosted services to the Purchaser.
- 6.3.1.5 The Bidder has to ensure that adequate Internet bandwidth, shall be allocated to the application for accessing, browsing and download and should automatically scale up.
- 6.3.1.6 Computing power (CPU/RAM) shall have adequate elasticity to accommodate load as per the requirement.
- 6.3.1.7 The system shall be accessible from different web browsers including chrome, Firefox, Safari, Edge etc.
- 6.3.1.8 Platform responsibilities such as disaster recovery drills, data replication, backups, system maintenance, security, hardware refresh, power management, network connectivity, cyber security etc. shall be managed as per requirement.
- 6.3.1.9 Bidder shall provide the information of parameters viz time, bitrate etc. for migration of content in a multi-tier storage.
- 6.3.1.10 The Cloud service provider shall follow the MeitY guidelines for service conditions as indicated below:
 - a. Availability
 - b. Performance
 - c. Security
 - d. Audit and Monitoring
 - e. Measurement and Monitoring
 - f. Runtime
 - g. Up-time etc.
- 6.3.1.11 The bidder shall provide expertise, services, technologies that help Prasara Bharati to keep their vital system secure, available, reliable and recoverable.
- 6.3.1.12 The cloud Infrastructure/service provisioned by the Bidder must be scalable and flexible. Prasara Bharati should be able to add/reduce cloud infrastructure / services on demand basis.
- 6.3.1.13 The Cloud service shall be available online, on-demand scalable up or down per request for service from the Prasara Bharati.
- 6.3.1.14 The CSP should have adequate elasticity to provide additional resources as and when required on auto-scale (up and down both). The complete cloud solution should work in full capacity on auto-scale environment.
- 6.3.1.15 The solution should have necessary provisions to enable and define the various parameters like triggers/events to achieve the said auto-scale environment without any human intervention based on the criteria/rules decided by Prasara Bharati
- 6.3.1.16 Cloud infrastructure shall be designed for high availability with adequate redundancy for all solution components to enable reliable auto recovery workflows.
- 6.3.1.17 Cloud platform should support cloud native Infrastructure services, API, and tools to work seamlessly.
- 6.3.1.18 Cloud platform should provide the functionality to protect data from accidental deletion as per MeitY Guidelines

- 6.3.1.19 Service shall allow users to load applications and data securely and remotely onto the computing or virtual machine instance from the SSL VPN clients only as against the public internet.
- 6.3.1.20 Configuration and management of the virtual machine shall be enabled via a Web browser over SSL VPN/Secure tunnel as against the public internet.
- 6.3.1.21 Cloud service architecture should be in such a way that it avoids VM outages or downtime when the provider is performing any kind of hardware or service maintenance at the host level.
- 6.3.1.22 CSP should have the below services to support content and its management but not limited to:
 - a) Compute as a Service (VM / containers service)
 - b) File, Block and object Storage
 - c) Database service
 - d) Backup & Recovery as a Service
 - e) Network and security
 - f) Next gen Firewall, Intelligent threat protection and remediation
 - g) DRM & Zero Trust should be built into the solution.
 - h) Media asset management

6.3.2 Continuous monitoring & IT Management service

The Bidder is required to ensure a smooth experience to meet the requirement given in the Service Level Agreement. Cloud resources shall be optimally deployed and scaled up and scaled down based on the load. The Bidder shall provide the complete solution and fill all the gaps which are not explicitly mentioned in this RFP. The bidder is to ensure following:

- a. **System Integration Services**
Design, Procure, implement, integrate and commission all cloud based services in respect of the OTT platform including active and passive components required to deliver a complete solution.
- b. **System Maintenance Services**
Undertake maintenance services of all the components to ensure that overall uptime commitment as defined in SLA section (Service Level Agreement) of the RFP.
- c. **Database support services**
Provide administration, patch upgrade and update management services for Database for optimal and tuned services.
- d. Computing, Storage, Bandwidth, Security services, authentication and any other cloud service optimally design and provided.
- e. **Performance Monitoring and Capacity Management Services**
Procure, operate, and maintain the monitoring components and provide performance monitoring and capacity management services for the solution by creating a dedicated setup of a Dashboard system which will provide realtime data to Prasar Bharati officials related to utilization of cloud resources. but not limited to, media ingested, users, advertisements, bugs, buffering issues, screen freeze etc.
- f. **Messaging Services**
Provide Unified Messaging Services to the all the users of Prasar Bharati
- g. **Application Related Services**
Provide OTT Application related services like Application Maintenance Enhancement / Migration.

6.3.3 Media Download/Egress from the Cloud

The deployment shall be such that it shall allow download of media files by authorised users of Prasar Bharati through the Media Asset Management system. The bidder shall clearly specify applicable cloud data egress charges, if any.

6.3.4 Disaster Recovery Centre on Cloud

- 6.3.4.1 Disaster Recovery Centre shall be hosted on MeitY empanelled cloud.
- 6.3.4.2 Disaster Recovery centre shall be arranged as per RTO and RPO. In the event of a disaster at DC site, activation of services from the DR site (or from different physical locations) with RPO $\leq$ 15 Minutes and RTO $\leq$ 1 Hour. In case of DR Solution having Active-Active arrangement or Multisite site solution then applicable RPO and RTO shall be $\leq$ 15 Minutes).
- 6.3.4.3 It shall be responsibility of the Bidder to ensure uninterrupted operation of Prasar Bharati OTT platform solution at all times to all the users.
- 6.3.4.4 The SLA defined shall be rigorously followed to ensure a smooth and best performance to the end users.
- 6.3.4.5 In case of a disaster, when the on-cloud data center's services get affected, it shall be the responsibility of the bidder to ensure uninterrupted services to the user, meeting all the SLA requirements defined in the RFP.
- 6.3.4.6 The solution (including the primary and DR sites of the proposed MAM) shall be hosted at Tier III / IV and / or SOC 3 / 4 Data centers such that Primary Site (DC) and DR site should be as per MEITY guidelines.
- 6.3.4.7 The DC and DR of Cloud based solution should be hosted in India. No data sharing/replication to any Data Centre outside the boundaries of India country
- 6.3.4.8 The data centers should be able to support long term scalability for Prasar Bharti setup to expand to cover the entire Indian population as its subscribers.
- 6.3.4.9 Data Centres should be certified for valid ISO 27001, 27701 etc.
- 6.3.4.10 This cloud infrastructure should be isolated and secured in nature
- 6.3.4.11 Cloud infrastructure shall be designed for high availability with dual redundancy for all solution components to enable reliable auto recovery workflows.
- 6.3.4.12 Cloud platform should support cloud native Infrastructure services, API, and tools to work seamlessly.
- 6.3.4.13 Cloud platform should support and be available to build secure and compliant hybrid cloud architectures.
- 6.3.4.14 Cloud platform should provide the functionality to protect data from accidental deletion as per Meity Guidelines
- 6.3.4.15 Cloud platform should provide completely managed computer service
- 6.3.4.16 Capability to provision virtual machines/container workload over API calls without any manual intervention.
- 6.3.4.17 Service shall allow users to load applications and data securely and remotely onto the computing or virtual machine instance from the SSL VPN clients only as against the public internet.
- 6.3.4.18 Configuration and management of the virtual machine shall be enabled via a Web browser over SSL VPN/Secure tunnel as against the public internet.
- 6.3.4.19 Cloud service architecture should be in such a way that it avoids VM outages or downtime when the provider is performing any kind of hardware or service maintenance at the host level.

6.3.5 Patch & Configuration Management

Bidder shall provide managed service for system patch and configuration management. Critical security patches are applied as needed, or when updates or patches are released

from OS vendors. Bidder must ensure patch and updates applies in a timely and consistent manner to minimize the impact on business.

6.3.6 Cloud User Administration

Implement Identity and Access Management (IAM) that properly separates users by their identified roles and responsibilities, thereby establishing least privilege and ensuring that users have only the permissions necessary to perform their assigned tasks.

Administration of users, identities and authorizations, properly managing the root account, as well as any Identity and Access Management (IAM) users, groups and roles they associated with the user account

6.3.7 Compute on Cloud

The proposed solution shall employ cloud-native auto-scaling capabilities for the system including media processing services, enabling dynamic allocation and release of compute resources in response to workload demand. The auto-scaling mechanism shall ensure efficient utilization of infrastructure resources while maintaining the required processing performance and service level. Adequate compute shall be deployed on cloud to ensure enterprise grade performance. However, indicative compute requirement has been specified as under:

6.3.7.1 Compute on 100% usage basis

S.No	HOST	Qty	Virtual CPU	RAM	Usage	Storage
1	Database	2	4 vCPUs	16 GB	100%	256 GB
2	Back-office Operations Including Workflow	2	4 vCPUs	16 GB	100%	20 GB
3	Content Indexing	3	4 vCPUs	16 GB	100%	20 GB
4	General – External Certification /Controller application	2	2 vCPUs	4 GB	100%	20 GB
5	Monitoring services	1	4 vCPUs	16 GB	100%	650 GB

6.3.7.2 Compute on Auto-scale

1	File movement	1	4 vCPUs	8 GB	Auto Scale	20 GB
2	Transcoding	1	8 vCPUs	32 GB	Auto Scale	20 GB

6.3.7.3 Load Balancer/VPN Services

1	Load Balancer	2			100%	16 GB
2	VPN – For Hybrid Deployment	1			100%	16 GB

6.3.8 Storage on Cloud

6.3.8.1 Cloud active/Online/Hot storage

- The proposed storage shall be cloud-based active /hot storage providing instant online access to all stored media assets.
- The storage shall support S3-compatible REST APIs for seamless integration with the proposed MAM system and third-party applications.
- The storage shall provide low-latency access suitable for active media workflows, including ingest, proxy generation, editing, playback, and distribution.

- d. The storage shall support an initial usable capacity as specified in the tender and be elastically scalable to multiple petabytes without service interruption.
- e. The storage shall support high concurrent read/write operations for multiple users and simultaneous workflow processes.
- f. The storage shall provide a minimum 99.9% service availability SLA.
- g. The storage shall support multipart upload for large media files and high-speed data transfer.
- h. The storage shall support custom object metadata, tagging, and metadata preservation for MAM workflows.
- i. The storage shall support lifecycle management policies for automated tiering of data to warm, cold, or archive storage.
- j. The storage shall support cross-region or geo-redundant replication for disaster recovery and business continuity.
- k. The storage shall provide AES-256 encryption at rest and TLS 1.2 or higher encryption in transit.
- l. The storage shall support IAM-based user and role access control, multi-factor authentication, and audit logging.
The storage shall support immutable object lock and retention policies to protect critical media assets from accidental deletion or ransomware attacks.
- m. The storage shall support partial object retrieval and range-read capability for efficient media streaming and preview.
- n. The storage shall provide real-time monitoring, usage reporting, performance analytics, and alerting.
- o. The storage shall allow selection of the storage region/data residency as per the tender requirement.
- p. The bidder shall provide 24×7 technical support with defined response and resolution timelines.

6.3.8.2 Cloud Deep archive storage

- a. The proposed storage shall be cloud-based deep archive object storage designed for long-term preservation of media assets and backup copies.
- b. The storage shall support S3-compatible REST APIs for seamless integration with the proposed MAM, archive management, and HSM systems.
- c. The storage shall support elastic scalability from the initial archive capacity to multiple petabytes without service disruption.
- d. The storage shall support lifecycle management policies for automated migration of content from hot/warm storage to deep archive storage.
- e. The storage shall support retrieval options with configurable restore times, including standard and expedited retrieval where available.
- f. The storage shall provide AES-256 encryption at rest and TLS 1.2 or higher encryption in transit.
- g. The storage shall support immutable object lock, retention policies, and legal hold for compliance and protection against accidental deletion.

- h. The storage shall support cross-region or geo-redundant replication for disaster recovery and business continuity.
- i. The bidder shall provide storage usage reporting, audit logging, and 24×7 technical support with defined response and resolution timelines.

6.3.8.3 Estimated storage requirement on cloud is as under:-

SN	Time frame	Online Storage(Hot)	Deep Storage (Cold/Archival)
1	Up to 6 months	10 TB	0.8 PB
2	Next 6 month	12 TB	1PB
3	Next 1 year	14 TB	2 PB

6.3.8.4 The storage capacity (Online/near line) shall be expanded as per the exact requirement.

6.4 **MIGRATION OF DATA FROM EXISTING MAM SYSTEMS TO THE CLOUD NATIVE HYBRID DEPLOYED SYSTEM.**

Required features for migration of data from existing MAM system to the new upgraded system:

- 6.4.1.1 The proposed solution shall be capable of migrating existing media (proxy and high res.) and metadata to new system & must have all the media and metadata synced as of current MAM after migration.
- 6.4.1.2 High Resolution of Video/Audio files are available in. DV & .Aiff format on LTO-4 library need to migrate on upgraded system in .MXF format.
- 6.4.1.3 Low Resolution copy of Video/Audio files are available in .MP4 format on near line storage need to migrate on upgraded storage system in .MP4 format.
- 6.4.1.4 Database of Archived Video/Audio files are available in Database server in .mdb format need to migrate on upgraded Database system in suitable open format.
- 6.4.1.5 The Migrated High-Resolution files, Proxy Files and Data based should be tightly linked to achieve frame accurate search and retrieval.
- 6.4.1.6 The bidder shall provide a certification confirming that the proposed solution supports migration of media assets, metadata, proxies, and associated information from the existing Central Archive DALET MAM system to the proposed MAM solution.
- 6.4.1.7 Details of existing MAM of DD Archives systems:
 - a. The existing Media Asset Management (MAM) environment consists of Dalet 2.0 as the core MAM platform, utilizing a Microsoft SQL Server (MSSQL) database to manage the metadata model and asset catalog.
 - b. Low-resolution proxy media is stored on an Open NAS storage system for browse and editing workflows, while the high-resolution archive is managed by the DIVA Archive Management System, integrated with an LTO-4 Tape Library for long-term content preservation.

- c. Approximately 500 Nos. of LTO-4 tapes, were managed under the existing DIVA Archive Management System, shall be migrated to the proposed Media Asset Management (MAM) platform.
 - d. The migration of archived media content (approximately 20,000 Hrs of SD video content) and associated metadata from these LTO-4 tapes to the new archival storage infrastructure and MAM system.
- 6.4.1.8 Details of existing MAM of AIR Archives systems:
- a. The existing Media Asset Management environment consists of CubeTech Workflow (CWF) as core MAM software utilizing Maria DB (RDBMS) to manage metadata and asset catalogue.
 - b. All Audio assets (18.9 TB) are uploaded in Dell Unity EMC SAN connected to Dell R720 server through iSCSI Protocol, while metadata is stored/managed in Dell R720 server.
 - c. The volume of audio content in the library is approximately 40,000 hrs of Audio.

6.5 INTEGRATION WITH THE WAVES OTT MAM SYSTEM

The proposed Media Asset Management (MAM) system shall provide seamless integration with the existing WAVES OTT Media Asset Management platform of Prasar Bharati through secure industry-standard APIs, web services, or other interoperable integration mechanisms. The integration shall, at a minimum, support the following capabilities:

6.5.1 Metadata Exchange:

- a) Bi-directional exchange of technical, descriptive, administrative, and rights metadata between both MAM platforms.
- b) Configurable metadata field mapping without requiring application-level customization.

6.5.2 Content Transfer:

- a) Secure transfer of high-resolution media, mezzanine files, proxies, subtitles, captions, posters, thumbnails, and associated assets.
- b) Support both automated and on-demand content transfer workflows.

6.5.3 Automated Publishing:

- a) Selected media assets, along with all associated metadata and related files, shall be automatically published from the proposed MAM to the WAVES OTT platform based on configurable workflow rules and approval processes.

6.5.4 Content Synchronization:

- a) Support synchronization of asset status, metadata updates, content revisions, deletion requests, and publication status between both systems.
- b) Prevent duplicate content creation through configurable asset identification mechanisms.

6.5.5 Workflow Integration:

- a) Integration shall support automated workflow triggers such as ingest completion, QC approval, editorial approval, transcoding completion, and publication to WAVES OTT.

6.5.6 API-Based Communication:

- a) The bidder shall provide all APIs, connectors, middleware, and integration services required for interoperability with the WAVES OTT MAM platform.
- b) Integration shall support REST APIs and JSON/XML-based data exchange, or any other interface supported by the WAVES platform.

6.5.7 Monitoring and Error Handling:

- a) The system shall provide comprehensive monitoring dashboards, transaction logs, retry mechanisms, alerts, and audit trails for all content and metadata exchanges.

6.6 ACCESS TO DD KENDRA'S AND ALL INDIA RADIO STATIONS ACROSS INDIA

- 6.6.1 The proposed solution shall enable authorized users across all Doordarshan Kendras (DDKs) and All India Radio (AIR) stations to securely access the centralized Media Asset Management (MAM) system over the organization's network or secure internet connectivity. The system shall facilitate remote users to upload, download, browse, search, preview, edit metadata, and manage media assets based on role-based access permissions.
- 6.6.2 The solution shall support secure authentication and media access through proxy files, and resilient file transfer mechanisms to ensure efficient collaboration between the central archive and geographically distributed regional stations.
- 6.6.3 This scope includes, but is not limited to:
 - a) Secure user authentication and role-based access control.
 - b) Upload of media and metadata from regional stations to the centralized MAM.
 - c) Download of authorized media assets from the central repository.
 - d) Proxy-based browsing and preview to optimize WAN bandwidth.
 - e) Resume/restart capability for interrupted file transfers.
 - f) End-to-end encrypted communication using secure protocols.
 - g) Comprehensive audit logs for all user activities.
 - h) Support for concurrent access by users across all DDKs and AIR stations.
 - i) Scalable architecture to accommodate future expansion to additional users and locations.

6.7 TEMPORARY ACCESS TO EXTERNAL AGENCIES

The proposed Media Asset Management (MAM) solution shall support the creation of temporary external user accounts to facilitate content submission by authorized third-party digitization agencies, content providers, or vendors. The solution shall meet the following minimum requirements:

- 6.7.1 The system should provide a secure, browser-based upload interface that enables temporary users to upload media files and enter predefined metadata directly into the MAM system without requiring access to the full MAM user interface.
- 6.7.2 Temporary users shall be granted access only to designated upload folders, projects, collections, or workspaces as configured by the Prasar Bharati administrator.
- 6.7.3 The interface shall support configurable metadata entry forms based on the metadata schema defined by Prasar Bharati.
- 6.7.4 All uploaded media and associated metadata shall be placed into a configurable review or quarantine workflow and shall not become available for production use until reviewed and approved by authorized Prasar Bharati personnel.

- 6.7.5 The solution shall support role-based access control (RBAC) to ensure temporary users can only perform the functions explicitly assigned to them, such as media upload, metadata entry, and viewing the status of their own submissions.
- 6.7.6 Temporary user accounts shall support configurable validity periods and shall be automatically disabled or revoked upon expiry of a predefined date and time.
- 6.7.7 In addition to automatic expiry, Prasar Bharati administrators shall have the ability to manually activate, suspend, extend, or revoke temporary user access at any time.
- 6.7.8 The system shall maintain a complete audit trail of all activities performed by temporary users, including login history, media uploads, metadata modifications, and account activation or deactivation events.
- 6.7.9 The solution shall support secure authentication mechanisms, enforce strong password policies, and use encrypted communication (HTTPS/TLS) for all external access.
- 6.7.10 The bidder shall configure and demonstrate this functionality during system commissioning.

6.8 LONG TERM MEDIA ARCHIVING SETUP

6.8.1 DISK BASED STORAGE

- 6.8.1.1 The proposed Media Asset Management (MAM) solution shall maintain a 2 PB on-premises storage repository as the primary backup copy of all archived high-resolution media assets to ensure long-term preservation, business continuity, and disaster recovery.
- 6.8.1.2 The MAM shall maintain a unified view of all assets irrespective of their physical storage location and shall automatically track asset locations, storage status, versions, and lifecycle information.
- 6.8.1.3 The scope shall include, but not be limited to, the following:
- 6.8.1.4 Maintaining a 2 PB on-premises storage repository for backup and long-term preservation of high-resolution media assets.
- 6.8.1.5 Retaining complete metadata, asset identifiers, technical metadata, workflow history, and storage references within the centralized MAM database.
- 6.8.1.6 Maintaining logical associations between media assets, proxy files, thumbnails, subtitles, captions, and other related objects.
- 6.8.1.7 Providing transparent access to archived assets through the MAM interface without requiring manual storage navigation.
- 6.8.1.8 Automatically managing asset location references between cloud and on-premises storage repositories.
- 6.8.1.9 Supporting restoration, retrieval, and recovery of media assets from the on-premises repository whenever required.
- 6.8.1.10 Supporting future expansion of the on-premises storage repository without disruption to the MAM operations or asset catalog.
- 6.8.1.11 This requirement ensures that the on-premises repository serves as the secure backup copy of the media, while the MAM remains the single source of truth for all asset metadata, indexing, search, workflow, and storage management, providing seamless access regardless of where the physical media resides.

6.8.2 **LTO BASED TAPE LIBRARY SYSTEM**

- 6.8.2.1 The bidder shall supply, install, configure, test, commission, and integrate an enterprise-class automated LTO tape library for long-term archival and disaster recovery.
- 6.8.2.2 The proposed tape library shall support the latest available LTO technology at the time of bid submission and be supplied with a minimum of two (2) LTO tape drives.
- 6.8.2.3 The tape drives shall support high-speed data transfer, hardware data compression, AES-256 hardware encryption, and backward compatibility as per the latest LTO Consortium specifications.
- 6.8.2.4 The solution shall include all required LTO data cartridges (equivalent to 2 PB), cleaning cartridges, and barcode labels necessary for commissioning and initial operation.
- 6.8.2.5 The tape library shall provide a web-based management interface with support for remote monitoring, diagnostics, firmware upgrades, inventory management, SNMP, audit logs, and email alerts.
- 6.8.2.6 The solution shall support seamless integration with the proposed Media Asset Management (MAM)
- 6.8.2.7 The system shall support enterprise data protection features including hardware encryption, data integrity verification, media validation, secure erases, and WORM (Write Once Read Many) media.
- 6.8.2.8 The tape library shall be designed for continuous 24×7 operation with enterprise-grade reliability and include redundant and hot-swappable components such as power supplies and cooling modules, wherever supported by the OEM.
- 6.8.2.9 All supplied hardware shall be brand new, from the OEM's current product portfolio, and covered under comprehensive OEM warranty and support, including installation, configuration, documentation, firmware updates, and technical assistance.
- 6.8.2.10 The tape library shall conform to following technical specifications:

- a.** The bidder shall design, supply, install, configure, test, commission, and integrate a fully automated enterprise-class LTO Tape Library System for long-term preservation of broadcast-quality Audio and video content available at Central Archives. The solution shall integrate with the Media Asset Management (MAM), Archive Management System, SAN/NAS storage, and Digital Preservation workflow.

b. Storage Capacity

Archive system should provide not less than 5 PB native storage capacity to accommodate high-quality broadcast masters, metadata, future growth, multiple versions, and redundancy.

c. LTO Technology

The proposed system shall support

- i. LTO-9 or Latest
- ii. Support for backward-compatible media as per the LTO roadmap.
- iii. Upgrade path to future LTO generations without replacing the library chassis.

d. Tape Library

The Tape Library shall be an enterprise-class modular robotic library as per the details given under:

Parameter	Requirement
Type	Automated Enterprise Tape Library
Rack Mount	19-inch
Architecture	Modular
Expansion	Non-disruptive
Robot	Intelligent robotic arm
Barcode Reader	Integrated
Hot Swap Drives	Yes
Redundant Power Supplies	Yes
Redundant Cooling	Yes

e. Tape Drives

The library shall be supplied with:

- i. Minimum 2 LTO-9 Fibre Channel Drives
- ii. Expandable to 12 or more drives
- iii. Each drive shall support:
 - a. Native Transfer Rate ≥ 400 MB/s (LTO-9) or latest available
 - b. Hardware AES-256 Encryption
 - c. Read-after-write verification
 - d. Dual-port 16/32 Gbps Fibre Channel
 - e. Hot-swappable design

f. Tape Slots

The system shall include:

Requirement	Value
Initial Slots	Minimum 280
Expansion	Minimum 540 Slots
Online Expansion	Supported

g. Storage Capacity

Using LTO-9 (18 TB Native)
 Required Native Capacity: 5 PB
 Number of cartridges required:
 $5000 \text{ TB} \div 18 \text{ TB}$
 ≈ 280 cartridges

280 LTO-9 Data Cartridges

h. Support:

- i. Parallel archive
- ii. Parallel restore
- iii. Simultaneous multiple users

- iv. 32 Gbps Fibre Channel (preferred)
- v. 16 Gbps Fibre Channel
- vi. 10/25 Gb Ethernet for management
- vii. USB Service Port

i. Media Management Software

The software shall provide:

- i. Web GUI
- ii. REST API
- iii. SNMP
- iv. Dashboard
- v. Capacity Reports
- vi. Tape Health
- vii. Firmware Updates
- viii. Barcode Inventory
- ix. Media Lifecycle Management
- x. Automatic Cleaning
- xi. Audit Trail

j. Supported Archive Functions

- i. Automatic Archive
- ii. Automatic Restore
- iii. Scheduled Migration
- iv. Data Verification
- v. LTFS
- vi. Checksum Validation
- vii. Metadata Preservation
- viii. Partial Restore
- ix. Batch Restore

k. LTFS Support

Native support shall be available for:

- i. LTFS Formatting
- ii. LTFS Exchange
- iii. LTFS Mount
- iv. Cross-platform interoperability

l. Security

The system shall support:

- i. AES-256 Hardware Encryption
- ii. Secure Key Management
- iii. LDAP/Active Directory
- iv. HTTPS
- v. SSH
- vi. Role-Based Access Control
- vii. Audit Logging
- viii. Password Policy

m. Reliability

- i. Availability: $\geq 99.9\%$
- ii. MTBF: 250,000 Hours
- iii. Hot-swappable:
 - a. Drives
 - b. Power Supplies
 - c. Fans

n. Integration

The system shall integrate with:

- i. Media Asset Management (MAM)
- ii. Digital Archive Management System
- iii. SAN Switches
- iv. Fibre Channel Storage
- v. Object Storage (optional)
- vi. Broadcast Automation
- vii. Newsroom Systems
- viii. Transcoding Platform

o. Data Integrity

Support:

- i. CRC Verification
- ii. SHA-256 Checksum
- iii. Read-after-write verification
- iv. Automatic Retry
- v. Error Reporting
- vi. Bad Media Detection

p. Monitoring

Provide:

- i. SNMP Alerts
- ii. Email Alerts
- iii. Dashboard
- iv. Performance Reports
- v. Capacity Reports
- vi. Predictive Failure Analysis

7. BILL OF QUANTITIES

The Bill of quantities/material of item wise requirement is given in **APPENDIX**.

8. GENERAL TERMS AND CONDITIONS

8.1 Tenders are invited from the reputed bidders.

8.2 The bidder shall offer the upgradation of Media Asset Management System solution as per the requirement of Prasar Bharati.

- 8.3 The bidder shall provide the unit cost for additional named or concurrent user licenses to support future expansion of the MAM system. The pricing shall enable Prasar Bharati to scale the solution by providing MAM access to additional regional users and locations without requiring any change to the overall licensing model.
- 8.4 The bidder shall provide all necessary secure network connectivity between the cloud environment and the on-premises infrastructure to ensure seamless operation of the hybrid MAM solution.
- 8.5 The bidder shall provide a detailed commercial breakdown of all cloud infrastructure components based on the current project scope, expected media volume, and estimated resource utilization. The proposed pricing model shall support usage-based billing to accommodate future scalability. Cloud storage charges shall be quoted separately on a per-unit basis (e.g., per TB per month) to facilitate transparent cost estimation for future capacity expansion.
- 8.6 The bidder shall provide a certificate or written confirmation from the respective MAM OEM, confirming compatibility and support for the proposed integration between the OTT platform and the Proposed Central MAM system.
- 8.7 The successful bidder shall be fully responsible for designing, developing, configuring, testing, commissioning, and supporting the complete integration with the existing WAVES OTT MAM platform, including coordination with Prasar Bharati and the WAVES platform team to ensure successful end-to-end interoperability.

9. ELIGIBILITY CRITERIA OF BIDDERS

- 9.1 The bidder shall either be a Media Service Solution Provider (MSSP) or their authorized representative.
- 9.2 MSSP shall provide a self-declaration certificate in respect of their services. In case, an authorized representative of the solution/service provider is the bidder, authorization certificates from the original service providers must be enclosed with the bid.
- 9.3 The bidder shall have completed at least 5 projects related to Media Asset Management systems. Work completion certificates for such projects to be furnished.
- 9.4 The bidders shall furnish authorization certificates from respective OEMs of the products offered. Copy of certificates must be attached with bid document.
- 9.5 The bidder/OEM must submit the certificate from existing OEM, MAM for authorization & services to migrate the audio and video content & database to upgraded MAM system.
- 9.6 Bidder shall not have been blacklisted by any State /PSU/ Central Government in India for corrupt, fraudulent or any other unethical business practices or for any other reason. Bidder shall submit affidavit along with Technical Bid.
- 9.7 The bidder shall not be under liquidation, court receivership or similar proceedings, shall not be bankrupt. Bidder to upload undertaking to this effect with bid.
- 9.8 Bidder must be able to present / demonstrate the Proof of Concept as per Client's requirements.
- 9.9 Bidders are advised to check applicable GST on their own before quoting. Buyer will not take any responsibility in this regards. GST reimbursement will be as per actuals or as per applicable rates (Whichever is lower), subject to the maximum of quoted GST %

- 9.10 Toll free numbers shall be provided by the Bidder/OEM for Service Support. Details to be furnished along with the technical bid.
- 9.11 Bidder/OEM must provide Escalation Matrix of Telephone Numbers for Service Support. Details to be furnished along with the technical bid.
- 9.12 Malicious Code Certificate: The bidder should upload following certificate in the bid:

“This is to certify that the Hardware and the Software being offered, as part of the contract, does not contain Embedded Malicious code that would activate procedures to:

- i. Inhibit the desires and designed function of the equipment.
- ii. Cause physical damage to the user or equipment during the exploitation.
- iii. Tap information resident or transient in the equipment/network.

In case physical damage, loss of information or infringements related to copyright and Intellectual Property Right (IPRs) are caused due to activation of any such malicious code in embedded software, the bidder/supplier will be considered to be in breach of the procurement contract.”

10.SUBMISSION OF BIDS

The bidders should submit their bids in two parts i.e. Technical Bid and Commercial Bid as per the notice inviting tender (NIT). The technical bid shall consist of following documents duly indexed:

- 10.1 Certificates and documents enumerated under the Eligibility Criteria
- 10.2 Solution document, which would include the following:

- a) The bidders should submit their proposed approach for SITC of this project.
- b) The bidders should submit their Technology and other details in respect of hardware, and software application.

- 10.3 Unpriced/price bid duly filled with all the details except the rates and prices quoted. Prices shall not be given with Technical Bid.
- 10.4 The bidders should submit detailed data migration plan.
- 10.5 The tenders are liable to be rejected if any of the above information/ documents is found missing in the technical bid/proposal.

11.TENDER EVALUATION

- 11.1 The tender should be technically evaluated on the basis of conformity of Bid to Technical specifications.
- 11.2 The Bid that fully meet the technical specifications shall be considered technically qualified.
- 11.3 Technically qualified bidders will be evaluated for financial Bid.

12.DESIGN, SUPPLY, INSTALLATION, INTEGRATION, TESTING AND COMMISSIONING (DSIITC) ACTIVITIES

The DSIITC activities shall include, but shall not be limited to:

12.1 Design

- 12.1.1 The successful bidder shall prepare a design document for the offered solution in consultation with the purchaser.
- 12.1.2 The design document shall include the block schematic, workflows and other necessary details for each of the modules, functionalities.
- 12.1.3 The Design document shall be submitted to the Central Archives by the successful bidder for prior concurrence within three (3) weeks after issue of LoI. Concurrence for the same shall be facilitated within 1(One) Week of such details.

12.2 Supply

- 12.2.1 The successful bidder shall supply all equipment, software, licenses, accessories, consumables, mounting hardware, patch cords, fibre accessories, connectors, power cables, and other materials necessary for complete implementation of the project.
- 12.2.2 All supplied equipment shall:
 - i. Be brand new and unused.
 - ii. Be sourced through authorized channels.
 - iii. Be covered under OEM warranty.
 - iv. Be accompanied by all required licenses.
 - v. Be supplied with latest stable firmware/software versions.
 - vi. Comply with applicable technical specifications.

12.3 Transportation and Delivery

The bidder shall be responsible for:

- i. Packing and transportation.
- ii. Transit insurance.
- iii. Loading and unloading.
- iv. Safe handling of equipment.
- v. Delivery to the designated installation location.

Any damage occurring during transit shall be rectified or replaced by the bidder at no additional cost to the Purchaser.

12.4 Installation

- 12.4.1 The bidder shall carry out installation for all supplied equipment on-premise in accordance with OEM recommendations and industry best practices.
- 12.4.2 On premise Installation shall include:
 - i. Rack mounting.
 - ii. Power connection.
 - iii. Earthing.
 - iv. Network connectivity.
 - v. Inter-rack cabling.
 - vi. Cable management.
 - vii. Equipment labelling.
 - viii. Asset tagging.
 - ix. Firmware upgrades.
 - x. Software installation.
 - xi. Initial configuration.

12.5 Installation of on Cloud infrastructure

- 12.5.1 The bidder shall carryout installation for cloud resources in accordance with MAM/application recommendations and industry best practices.
- 12.5.2 Configuration of all the modules of MAM shall be completed as per the design finalised in consultation with Purchaser.
- 12.5.3 The successful bidder shall ensure PB functional requirement/features described in the tender document/technical specifications.

12.6 Configuration and Integration

- 12.6.1 The bidder shall configure and integrate all supplied systems into a unified operational environment.
- 12.6.2 Configuration activities shall include:
 - i. Hardware configuration
 - ii. Network Configuration
 - iii. On premise Storage Configuration
 - iv. Cloud Compute and Storage
 - v. Network security configuration on cloud as well as on premise
- 12.6.3 The bidder shall ensure Integration of all the h/w & s/w components and modules as per the tender specification/ design document, so as to built a functional cloud native Media Asset Management System in hybrid mode.

12.7 Testing

- 12.7.1 The bidder shall perform comprehensive testing of the entire solution after configuration and integration of all the hardware, software, cloud hosted application modules, etc. prior to commissioning.
- 12.7.2 The bidder shall document and submit all test procedures in advance for approval by the purchaser for UAT.

12.8 User Acceptance Testing (UAT)

Upon completion of installation, the successful bidder shall conduct User Acceptance Testing (UAT). The UAT shall verify:

- i. Compliance with specifications.
 - ii. Successful integration.
 - iii. Functional operation including media operations on MAM
 - iv. Performance requirements.
 - v. Reliability requirements.
 - vi. System startup and shutdown.
 - vii. Failover testing
 - viii. Network communication.
 - ix. User authentication.
 - x. Storage access.
 - xi. Security policy operation/requirement.
- 12.8.1 The UAT shall be witnessed by authorized representatives of the Purchaser.

12.9 Commissioning

Commissioning shall be deemed complete only after:

- a. Installation of all equipment.
- b. Successful configuration.
- c. Completion of testing.
- d. Submission of test reports.
- e. Submission of documentation.
- f. Completion of training.
- g. Successful User Acceptance Testing.
- h. Written acceptance by the Purchaser.

12.10 Training

The bidder shall conduct comprehensive onsite training for 5 working days for designated personnel covering:

- a. Media operations
- b. System Administration
- c. NAS/Storage Administration
- d. Network Administration
- e. Backup and Recovery
- f. Monitoring and Reporting
- g. Troubleshooting Procedures

13.DELIVERY/IMPLEMENTATION SCHEDULE

4(Four) month from the date of placement of purchase order including customization of upgraded MAM.

14.DELIVERABLES

- 14.1 Customized Media Asset Management cloud native hybrid system with user defined workflow, features as per the tender specification
- 14.2 Migration of existing data(media assets and metadata) as per the specification
- 14.3 Comprehensive Documentation on functionality, features, system administration, and user guide.
- 14.4 The bidder shall hand over all administrator credentials, passwords, license keys, operational keys, and relevant documentation for the hardware and software to the authorized officers of Central Archives upon completion of the installation.

15.WARRANTY & MAINTENANCE SUPPORT

- 15.1 On site comprehensive warranty and maintenance support for solution shall be for minimum period of five years from the date of commissioning.
- 15.2 The bidder shall submit a letter from respective Original Equipment Manufacturer, Cloud Service Provider, Software Developer, confirming back to back support commitment for five years from the date of commissioning at Central Archives in respect of all the offered hardware & software. In addition to initial Support commitment, tenderer will have to submit a copy of support renewal contract with each OEM to Central Archives every year.
- 15.3 Bidder shall provide round the clock (24x7) support for satisfactory working of complete system.
- 15.4 However, if it is not possible to rectify the fault remotely, Onsite support for Replacement / servicing / labor / debugging of software / reinstallation/reconfiguring of software etc. should be provided free of cost.
- 15.5 No separate charges will be paid for visit of engineers for attending to faults and repairs or supply of spare parts.

- 15.6 After the fault is reported, it is to be rectified immediately by the successful bidder. Critical fault shall be attended within 24 hours and non – critical fault shall be attended within Next Business Day of reporting. The bidder will have to provide 99% of uptime on annualized basis at each station.
- 15.7 Bidder will assign a call tracking number for every fault reported. Each case will be considered closed only after it is settled to satisfaction of Central Archives.
- 15.8 Bidder will ensure that the existing data along with associated text, audio, metadata etc. is transferred successfully upon any hardware/software change, loading of software patches as well as upgrade.
- 15.9 Bidder will provide checklists of maintenance actions to be performed on daily, weekly and monthly basis. Tenderer will also extend assistance / help to Central Archives in issue of Guidelines / application note / procedure etc. for administration & maintenance of the system from time to time.
- 15.10 It will be the responsibility of tenderer to ensure supply and installation of all upgrades and patches of software as soon as these are released during the warranty period at free of cost.
- 15.11 Bidder shall have to provide assistance for making changes / modifications in system database. He will also support in case Prasar Bharati wishes to migrate data on to some other similar system.
- 15.12 During the warranty and maintenance support by the successful bidder, latest updates of the software modules/operating system etc. shall be made available from OEMs to Prasar Bharati without any extra cost.

16.SYSTEM COMPLETENESS & ADDITIONAL EQUIPMENT REQUIREMENTS

- 16.1 Completeness of the system is the responsibility of the bidder.
- 16.2 The successful bidder will be solely responsible for operationalization of the system to the satisfaction of Prasar Bharti as per the specifications.
- 16.3 In order to ensure the completeness of the system, any additional equipment/accessories which bidder feels necessary to complete the configuration should also be quoted. However, in such case they should provide proper justification for the additional equipment required. These items, if any, must be listed in the offered BOM.
- 16.4 If the bidder feels that the system required in the specifications may require additional features for better functionality, the bidder may quote such items as an optional item and provide full justification to decide its utility.

17. TECHNICAL LITERATURE

The successful bidder will have to supply a set of technical user guide and installation manuals with respect to each of the equipment.

18. INSPECTION

The inspection of material will be carried out by the authorized representatives/officials of the Prasar Bharati at New Delhi. The material will be accepted only after the same has been found satisfactory.

19. PAYMENT TERMS

- 19.1 No advance payment shall be made under the Contract.
- 19.2 Payments shall be released only upon successful completion of the prescribed milestones, certification by Prasar Bharati and submission of all requisite documents.

19.3 All payments shall be made after deduction of applicable statutory taxes and other recoveries in accordance with the provisions of the Contract and applicable laws.

19.4 Payments for the cloud services (items under B of the BoQ Appendix-1) shall be processed on quarterly basis.

19.5 Milestone wise Payment

Milestone	Deliverable	Payment
Milestone-I	Successful Design, Supply, installation, integration, configuration, testing, commissioning, completion of training and submission of all technical documentation. Successful completion of User Acceptance Test (UAT), commissioning of the complete Hybrid MAM System	70% (of A, C and D of BoQ items)
Milestone-II	Migration of media assets/ metadata(AIR/DD Archives)	20% (of A, C and D of BoQ items)
Milestone-III	Completion of 1 Year of satisfactory operation after commissioning of the complete system.	10% (of A, C and D of BoQ items)

19.6 Documents Required for Release of Payment

The successful bidder shall submit the following documents, as applicable, for release of each milestone payment:

- i. Original Tax Invoice.
- ii. Delivery Challans.
- iii. Installation and Commissioning Report.
- iv. Inspection and Acceptance Certificate issued by Prasar Bharati.
- v. User Acceptance Test (UAT) Certificate, wherever applicable.
- vi. Training Completion Report.
- vii. Warranty Certificates.
- viii. OEM Authorisation/License Certificates.
- ix. Performance Reports, wherever applicable.
- x. Any other document required under the Contract.

19.7 Release of Payment

Release of any payment shall not relieve the successful bidder of any contractual obligations, including warranty, maintenance, support, defect rectification, security compliance or any other performance obligations under the Contract.

19.8 Performance Security

The Performance Security furnished under the relevant provisions of the Contract shall remain valid in accordance with the applicable contractual provisions and shall not be affected by release of milestone payments.

19.9 Time for Release of Payments

Payments shall ordinarily be released within thirty (30) days of submission of complete documents and certification of the respective milestone by the competent authority, subject to observance of Government financial procedures and availability of funds.

APPENDIX-1

BILL OF QUANTITIES

SN	ITEM DESCRIPTION	Tender Ref.	QTY.	UNIT
A	On prime Hardware			
1	MAM Servers	6.1.36.1(a)	4	Nos.
2	Video Servers	6.1.36.1(b)	2	Nos.
3	Computer Workstations	6.1.36.1(c)	8	Nos.
4	Fiber Switch	6.1.36.1(d)	2	No.
5	Network Managed Switch	6.1.36.1(e)	2	Nos.
6	Video Router	6.1.36.1(f)	1	No.
7	Router Remote Control Panel	6.1.36.1(g)	2	Nos.
8	16 SD/HD SDI inputs Multiviewer (55")	6.1.36.1(h)	1	No.
9	Broadcast Monitors(17")	6.1.36.1(i)	2	Nos.
10	Sync Pulse Generator SPG with GPS Antenna	6.1.36.1(j)	1	No.
11	Digital LTC/NTP Clock	6.1.36.1(k)	2	Nos.
12	Active Storage 100 TB	6.2.1	1	No.
13	Archives Storage 2 PB	6.2.2	1	No.
14	LTO TAPE LIBRARY Enterprise Modular LTO Tape Library(280 Slots) -1 No LTO-9 FC Drives -2 Nos LTO Data Cartridges with Barcode Labels -280 Cleaning Cartridges-2 Library Management/ HSM system - As required	6.8.3	1	Set
15	Installation Materials including Racks, Patch Panels, Cables, connectors, etc.	16	1	Set
16	Design, Supply, Installation, Integration, Testing And Commissioning (DSIITC) Charges	12	1	Job
17	Any other hardware/software/tools bidder may like to quote in order to complete the solution.	16	1	
B	Cloud Infrastructure/Services			
18	Compute on 100% usage basis	6.3.6.1	60	month
19	Compute on auto scale	6.3.6.2	60	month

20	Essential services	6.3.6.3	60	month
21	Cloud active/Online/Hot Storage	6.3.7.1	468	TB.Month
22	Cloud Deep archive Storage	6.3.7.2	1,00,000	TB Month
23	Additional Auto-Scaled CPU for File Movement Processing with 4 vCPU & 8 GB RAM	6.3.6.2	10000	Hr
24	Additional Auto-Scaled CPU for Transcoding with 4 vCPU & 32 GB RAM	6.3.6.2	10000	Hr
25	Additional Compute instance with 4 vCPU & 16GB RAM	6.3.6	10000	Hr
C	APPLICATION/LICENCES			
26	Media Asset Management Web Client license Software with access to upload module, MAM module , review module , admin module	6.1	50	Nos.
27	MAM Web based editor – with 5 video track and 16 audio track	6.1	20	Nos.
28	MAM Mobile application–IOS and Andriod	6.1	10	Nos
29	Additional MAM user License	6.1	20	Licence year
30	Additional Web editor License	6.1	20	Licence year
31	Additional MAM- Mobile user license	6.1.30	20	Licence year
32	Additional 3rd Party Integration with MAM Cost		5	Nos
33	Egress cost	6.3.3	512	TB
D	DATA MIGRATION	6.4		
34	Migration of Data for AIR Archives	6.4.8	1	Job
35	Migration of Data for DD Archives	6.4.7	1	Job

APPENDIX-2

UNPRICED PRICE BID

(Quantities indicated in the price bid are merely for the financial evaluation of the bids. Payments shall be processed for the items/quantities supplied or utilised as per pay as you go model)

SN	ITEM DESCRIPTION	Make	Model	Tender Ref.	QTY.	UNIT	Unit Price	Price
A	On prime Hardware							
1	MAM Servers			6.1.36.1(a)	4	Nos.	X	X
2	Video Servers			6.1.36.1(b)	2	Nos.	X	X
3	Computer Workstations			6.1.36.1(c)	8	Nos.	X	X
4	Fiber Switch			6.1.36.1(d)	2	No.	X	X
5	Network Managed Switch			6.1.36.1(e)	2	Nos.	X	X
6	Video Router			6.1.36.1(f)	1	No.	X	X
7	Router Remote Control Panel			6.1.36.1(g)	2	Nos.	X	X
8	16 SD/HD SDI inputs Multiviewer (55")			6.1.36.1(h)	1	No.	X	X
9	Broadcast Monitors(17")			6.1.36.1(i)	2	Nos.	X	X
10	Sync Pulse Generator SPG with GPS Antenna			6.1.36.1(j)	1	No.	X	X
11	Digital LTC/NTP Clock			6.1.36.1(k)	2	Nos.	X	X
12	Active Storage 100 TB			6.2.1	1	No.	X	X
13	Archives Storage 2 PB			6.2.2	1	No.	X	X
14	LTO TAPE LIBRARY Enterprise Modular LTO Tape Library(280 Slots) -1 No LTO-9 FC Drives -2 Nos LTO Data Cartridges with Barcode Labels -280 Cleaning Cartridges-2 Library Management/ HSM system - As required			6.8.3	1	Set	X	X
15	Installation Materials including Racks, Patch Panels, Cables, connectors, etc.			16	1	Set	X	X
16	Design, Supply, Installation, Integration, Testing And Commissioning (DSIITC) Charges			12	1	Job	X	X
17	Any other hardware/software/tools bidder may like to quote in order to complete the solution.			16	1		X	X

B	Cloud Infrastructure/Services						X	X
18	Compute on 100% usage basis			6.3.6.1	60	month	X	X
19	Compute on auto scale			6.3.6.2	60	month	X	X
20	Essential services			6.3.6.3	60	month	X	X
21	Cloud active/Online/Hot Storage			6.3.7.1	468	TB.Month	X	X
22	Cloud Deep archive Storage			6.3.7.2	1,00,000	TB Month	X	X
23	Additional Auto-Scaled CPU for File Movement Processing with 4 vCPU & 8 GB RAM			6.3.6.2	10000	Hr	X	X
24	Additional Auto-Scaled CPU for Transcoding with 4 vCPU & 32 GB RAM			6.3.6.2	10000	Hr	X	X
25	Additional Compute instance with 4 vCPU & 16GB RAM			6.3.6	10000	Hr	X	X
C	APPLICATION/LICENCES						X	X
26	Media Asset Management Web Client license Software with access to upload module, MAM module , review module , admin module			6.1	50	Nos.	X	X
27	MAM Web based editor – with 5 video track and 16 audio track			6.1	20	Nos.	X	X
28	MAM Mobile application–IOS and Andriod			6.1	10	Nos	X	X
29	Additional MAM user License Cost			6.1	20	Lisence year	X	X
30	Additional Web editor License Cost			6.1	20	Lisence year	X	X
31	Additional MAM- Mobile user license cost / year			6.1	20	Lisence year	X	X
32	Additional 3rd Party Integration with MAM Cost				5	Nos	X	X
33	Egress cost			6.3.3	512	TB	X	X
D	DATA MIGRATION			6.4			X	X
34	Migration of Data for AIR Archives			6.4.8	1	Job	X	X
35	Migration of Data for DD Archives			6.4.7	1	Job	X	X
We hereby confirm that the prices for all the above items are quoted in the Price Bid submitted separately. We understand that the Technical Evaluation will be done based on this unpriced bid and the specifications enclosed. Authorized Signatory: _____ Name & Designation: _____ Seal of the Company Date: _____								