

University of Nebraska Medical Center launches educational medical video site with Nomad

The University of Nebraska Medical Center (UNMC) is the medical learning center of the University of Nebraska. UNMC provides undergraduate and graduate-level medical education to future doctors and other medical professionals.

As the subject matter of UNMC's courses is human physiology, their staff uses an extensive catalogue of materials and media, especially images and videos, of the human body. UNMC needed an easy-to-use system for lecturers to find and access materials and media for their presentations and exhibit them live from any location.

UNMC needed the system to serve several common content management functions:

- Centralize the storage of large volumes of materials and media
- Provide file / folder and taxonomical asset management
- Enable effective search of the media and associated metadata
- Support online registration of lecturers and record acceptance of Terms of Use

In addition, UNMC needed the system to provide an easy-to-use public-facing interface for lecturers to exhibit media during lectures.

In September 2020, UNMC chose the combination of the Nomad Platform and AWS to serve their needs because the Nomad / AWS pairing offered a full range of content management capabilities, including media management and distribution, and a public-facing Content Portal.

Customer Challenges

UNMC's staff had been copying the media resources needed for lectures from on-prem equipment, which included segregated storage systems and legacy media storage. This made accessing these resources a cumbersome process which often required specific knowledge of where the desired media items were kept. Lecturers kept the copies on personal systems for use in lectures, and these assets were not updated with the original asset. The University also needed to collect acknowledgement of ownership of the media assets from lecturers to prevent unauthorized distribution, which had been managed by a paper-trail system.

UNMC's system lacked the ability to effectively support its lecturers with online content or to effectively manage and update their content without labor-intensive manual processes, which were prone to human error. The University's website was not a viable solution for their needs, so a new system was the only way to improve UNMC's content management and access services.

Integration of the Nomad / AWS Solution

Nomad assisted UNMC with setting up an AWS account and deployed baseline Nomad and Discovery Content Portal installations into the account. Nomad customized the look, feel and front-end functionality of the Nomad Platform and Content Portal installations to UNMC's requirements, then assisted UNMC with the transfer of media assets into the S3 storage of their AWS account. Nomad also assisted UNMC with importing metadata attached to media assets and synchronizing the data with the assets. Nomad trained UNMC staff on the use of the Nomad Platform and supported their staff's early efforts to organize their assets to their needs.

Drawing on the capabilities of the AWS feature set, Nomad's Asset Manager and associated user security management allowed UNMC staff to centrally manage all website content assets with clear user permissions and file / folder organization. Lecturers can exhibit media directly on the Content Portal for their lectures, and administrators are able to use Nomad's Live Dashboard to schedule media broadcasts and sequence multiple videos for playback together.

Lecturers can now register accounts and fill out web forms confirming acceptance of Terms of Use for the media, and this information is automatically collected and forwarded to the administrators. This removed several previous manual steps from the user registration process to access UNMC's assets, which alleviated the administrative burden significantly on all parties.

For UNMC, the Nomad Platform and AWS delivered a highly useful back-end feature set, including:

- Asset intake, processing, and management for S3-hosted assets
- Search / Advanced Search of hosted assets
- AI / ML analysis of and metadata generation for media assets
- Media properties and preview
- User and asset security management
- Live stream and Video-on-Demand media processing, scheduling, and distribution management

Nomad's leveraging of AWS Media services optimized the media for both cost-effective playback and long-term storage by creating web-friendly proxies of the uploaded media on-the-fly and transitioning the originals to long-term storage automatically afterwards. This ensured that at the time of launch of the site, the web-friendly media assets were compatible with a wide array of devices and ready for online use and the original assets were secured in deep storage.

The Nomad Platform also provides a full-featured set of user interfaces for user, content, and security management by administrators, and the Discovery Content Portal provides user registration services and media search and playback for authorized lecturers.

AWS Services Used

The following services were key to Nomad's fulfillment of UNMC's needs:

- The Amazon API Gateway is a core part of the Nomad architecture and was used for all external requests to Nomad components.
- S3 was integrated as the web file host for its ability to host web files.
- Amazon Route53 was chosen to provide DNS services for the site.
- Amazon CloudFront was implemented to offload site traffic from the origin AWS account.
- Amazon Cognito and Amazon DynamoDB are engaged to manage Nomad application user accounts.
- Amazon Media Services are used to transcode and package media into web-friendly formats for optimal playback.
- S3 Glacier is employed for long-term storage of the original media files after transcoding.

Successful Launch

The project was successful in addressing UNMC's requirements and realized additional benefits as well. Through their Nomad integration, UNMC was successfully able to transition from on-prem storage and manual media management and distribution, to cloud media storage with centralized management and decentralized access to media for lecturers. The media assets were successfully imported, proxied for web use, and archived in long-term storage. The assets inherited the correct metadata and were organized through taxonomies in a group effort. New versions were identified and selected for distribution and past versions were deprecated.

Lecturers were freed from integrating manual media into their presentations and easily transitioned to using Nomad for media exhibition during lectures. The associated business process of granting access to lecturers and permission to use media was also streamlined by Nomad's user registration and Terms of Service acceptance forms.