

## Educational Medical Video Site powered by Nomad and AWS

Educational medical video site, the Virtual Dissection Database (VDD), created and launched with Nomad

At the start of the COVID-19 pandemic, educators around the world found themselves lacking the resources to move their courses to an online format. This was particularly true for educators teaching gross anatomy to undergraduate, graduate and professional students. The need for high quality cadaveric dissection videos and images became urgent. The VDD needed an easy-to-use system for educators to find and access materials and media for their presentations and exhibit them live from any global classroom.

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

In September 2020, creators of the VDD 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 Goals

The creators of the VDD needed to maintain the highest ethical standards due to the content available in the VDD library. Their goals included:

- 1) Securing cadaveric educational material use to registered and approved users only.
- 2) Ability to approve all content by an internal review board prior to publication.
- 3) Signed acknowledgement of media asset ownership from content donors to prevent unauthorized distribution.
- 4) Signed acknowledgement of content donors' acceptance of the VDD creative commons licensure.

## Integration of the Nomad / AWS Solution

Nomad assisted the VDD 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 the VDD's requirements, then assisted content donors with the transfer of media assets into the S3 storage of their AWS account. Nomad also assisted content donors with importing metadata attached to media assets and synchronizing the data with the assets. Nomad trained the VDD administrators on the use of the Nomad Platform and supported their 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 VDD administrators to centrally manage all website content assets with clear user permissions and file / folder organization. Educators have the ability to exhibit media directly from the VDD website for their lectures.

Educators 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 streamlined the user registration process to access the VDD's assets.

For the VDD, 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
- Video-on-Demand media processing, 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 the VDD'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 the VDD's requirements and realized additional benefits as well. Through their collaboration with Nomad, the VDD was successfully able to establish cloud media storage with centralized management and decentralized access to media for educators. 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.

Educators are able to easily integrate media exhibition during lectures. The associated business process of granting access to educators and permission to use media was also streamlined by Nomad's user registration and Terms of Service acceptance forms.