

On Air and Nomad Deliver High-Quality Live Streaming Concerts to Viewers Globally Using AWS

Technology and entertainment company On Air developed a solution to bring high-quality live streaming concerts to viewers globally using AWS. After launching its initial streaming solution, On Air experienced rapid success and began looking for a more robust solution with the ability to broadcast in different formats. The company contacted AWS Partner Nomad, and together they developed a new, integrated streaming environment built entirely on AWS. Now, On Air has the ability to broadcast concerts in ultrahigh definition, supports multiple languages and currencies, and has achieved an over 60 percent time savings in its media workflows.

Experiencing Rapidly Growing Demand

[On Air](#) needed to meet a sudden increase in demand following the success of its first online streaming solution for live concerts and performances. During the COVID-19 pandemic, the demand for live streaming content increased rapidly, and the company's solution couldn't support this sudden growth. On Air reached out to AWS Partner [Nomad](#) for assistance developing a more robust solution.

Nomad provided On Air with a demonstration of the content management system (CMS) it had developed using Amazon Web Services (AWS). "Building this solution on our own would have been very time consuming," says Angelo Lamme, head of product at On Air. "Nomad CMS is already a proven solution. It was very clear to us that Nomad understood our language so we could start customizing Nomad CMS to make it suitable for our needs." Using an integrated solution that it developed alongside Nomad, On Air is now well positioned for future growth.

Customizing a Proven Solution to Facilitate Growth

Nomad offers solutions for video creation and live streaming. The company takes advantage of the [AWS Software Partner Path](#) and belongs to the [AWS Solution Provider Program](#), which helps AWS Partners resell and deliver AWS services to customers as part of the AWS Partners' unique offerings. The company has staff possessing five AWS Certifications, including [AWS Certified Solutions Architect—Professional](#), a credential that helps organizations identify and develop talent with critical skills for implementing cloud initiatives.

Nomad uses AWS extensively in its solution. A core part of Nomad CMS is [Amazon API Gateway](#), a fully managed service that makes it easy for developers to create, publish, maintain, monitor, and secure APIs at any scale. It is used for all external requests to Nomad components. For the web file host, Nomad CMS uses [Amazon Simple Storage Service](#) (Amazon S3), an object storage service offering high scalability, data availability, security, and performance. "On Air came to us and said that they needed to get this new solution online," says Adam Miller, founder and lead architect of Nomad. "Using Nomad CMS made it simple for us to integrate most of the technology and bring it directly into their user interface."

Creating a Video Streaming Solution in the Cloud

Nomad customized the solution it developed for On Air so that it could integrate seamlessly with On Air's existing online streaming solution. Nomad's solution became On Air's new backend, making it possible for On Air to focus on the front end of its solution. Nomad also improved the content management features of the solution, simplifying several processes for On Air, including finding its content definitions, managing the metadata and relationships, and creating a scalable, high-performance interface. Next, Nomad brought On Air's video streams online for increased ease of use in broadcasting the media. To transcode and package media into web-friendly formats for optimal playback, the solution uses [Media Services on AWS](#), which lets users create digital content and build live and on-demand video workflows.

AWS CloudFront was used as On Air's Content Delivery Network due to its capabilities and native integration with S3 and Elemental MediaLive. AWS CloudFront is a world-class scalable distribution system fully capable of service On Air's live streaming and Video on Demand distribution needs. This capability is essential to On Air's business model of serving the artistic performance industry as an online distribution platform.

Nomad's installation automatically configured AWS CloudFront to serve On Air's S3-hosted content through pre-signed URLs secured to FIPS 140-2 encryption standards. Nomad also configured masked origins via AWS Origin Access Identities and set up dedicated AWS CloudFront distributions with best-practice performance and security policies. In addition, Nomad configured policies to serve packaged distributions from AWS MediaStore containers through AWS CloudFront distributions to handle the large quantities of on-demand content processed through AWS MediaLive by On Air on behalf of its customers.

"What's nice is that through the power of the cloud, we have the ability to distribute it instantly with high performance," says Miller. "So when these big shows come online, we have the ability to scale it instantly from tens of thousands to hundreds of thousands, if not millions, of users, and you don't have to touch your infrastructure. It just works."

To manage user accounts, the solution employs [Amazon DynamoDB](#)—a fully managed, serverless, keyvalue NoSQL database designed to run high-performance applications at any scale—and [Amazon Cognito](#), which businesses can use to add user sign-up, sign-in, and access control to web and mobile apps quickly and easily. To use the service, fans sign into their On Air accounts and click an event link. The virtual venue solution delivers high-definition video and audio using [AWS Elemental MediaLive](#), a broadcast-grade live video processing service. "Until now, we've only been able to broadcast our events in high definition with stereo," says Lamme. "With the new solution that we've built based on Nomad CMS, we're now able to fully broadcast in ultrahigh definition using immersive audio technology." Additionally, working together with Nomad, On Air was able to customize the solution further to support multiple languages, currencies, and time zones.

Because its new solution was built on Nomad CMS, On Air was able to relaunch its virtual venue solution in less than 3 months. Using this solution, the company is realizing a more than 60 percent time savings in regard to its media workflow. With its old system, a facility partner would upload assets to a file transfer protocol server. On Air would then need to download the asset, reformat it, postprocess it, and upload it to a legacy video provider. Now, On Air doesn't need to worry about any of that. The facility partner uploads assets, AWS Elemental Services, which include MediaConvert and MediaPackage process the file, and it's ready for playout. "Everything is handled in a very elegant way by Nomad CMS," Lamme says. And for long-term storage of the original media files after transcoding, On Air uses [Amazon S3 Glacier](#), which lets users choose from three archive storage classes optimized for different access patterns and storage duration.

Realizing Success through Collaboration

Working alongside Nomad and building on AWS, On Air quickly implemented a solution to support a high-quality live streaming concert experience. The company appreciates the support it received from Nomad in creating this solution, as well as the knowledge about best practices and streamlining processes that Nomad brought to the collaboration. “We really wanted a partnership,” Miller says. “We wanted to be able to take our expertise that we’ve gathered over the years and work with On Air.”

By working with Nomad and its streaming solution, On Air achieved a customized solution much more quickly and cost effectively than it could have done alone or by working with multiple vendors. “We were able to customize Nomad CMS into what we wanted it to be,” says Lamme. “This technology made innovation possible in a big way for us.”