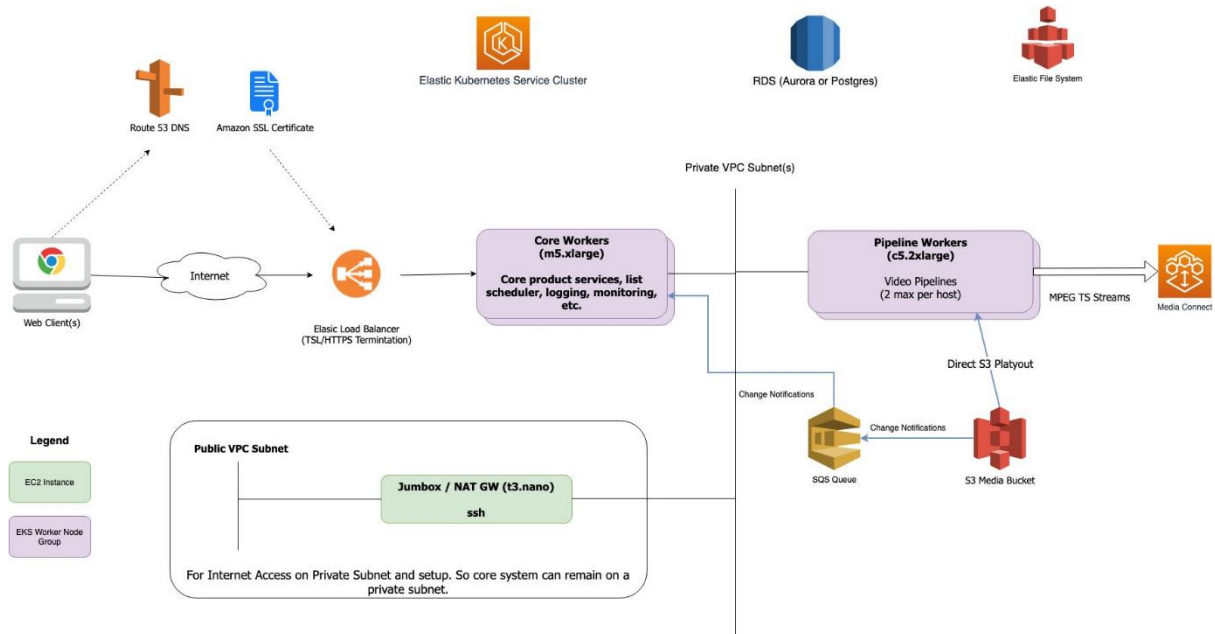


## Deployment in AWS, by Peter Hajittofi, CEO, coralbay.tv

Coralbay.tv has developed a next generation playout product using the latest software development technologies, based around the use of microservices, docker containers and kubernetes for deployment and orchestration. The software is event based, rather than clock based like a traditional real-time playout system, meaning that our software is cloud native and much more efficient in resource usage. This is an important consideration for reducing running costs, especially when hosting in the cloud.

The diagram below shows a typical coralPlay deployment in AWS:



Where possible, we make use of AWS managed services. For example, EKS (Elastic Kubernetes Services cluster) is used to host Kubernetes and because it is deeply integrated with services such as Cloudwatch, Autoscaling Groups, AWS Identify, Access Management and VPC it provides a simple and resilient way to monitor, scale and load balance applications. We also use RDS (Relational Database Service) to manage the system's Postgres database, providing a resilient and scalable database where data is replicated automatically and protected against server failure.

The core workers (or automation services) manage the scheduling, media management, logging and monitoring and are normally hosted on m5.xlarge instances. The pipeline workers run the audio/video processing to deliver the video, audio, graphics, subtitling, switching and so on. These typically run on c5.2xlarge instances (up to 2 HD Pipelines), however depending on the number of channels, channel requirements, bit rates and so on, different host types can be utilised. These instances are usually replicated for redundancy.

Internal network connectivity is via a private VPC. Connectivity from the outside world is via AWS's Elastic load balancer, which as well as handling the security certificates, balances the traffic to the back end system running within AWS.

AWS's S3 is used for storage of media content for the coralPlay MAM. As well as all the primary media such as movies, S3 is also used for all secondary media, such as Graphics and subtitles. S3 can also be used for direct playout, acting as shared storage repository for the pipelines, rather than caching to the EBS volumes on the pipeline servers. However, caching has some benefits such as another level of redundancy, and some customers will prefer to play from the pipeline's EBS volumes.

The AWS Elastic File system is used for shared storage between multiple containers.

Our deployment also makes use of AWS Media Connect for video distribution. To make this even more reliable we are in the process of integrating the Zixi Feeder SDK on our pipelines, which will improve the reliability of signal distribution between the pipeline and AWS Media Connect and reduce packet loss.