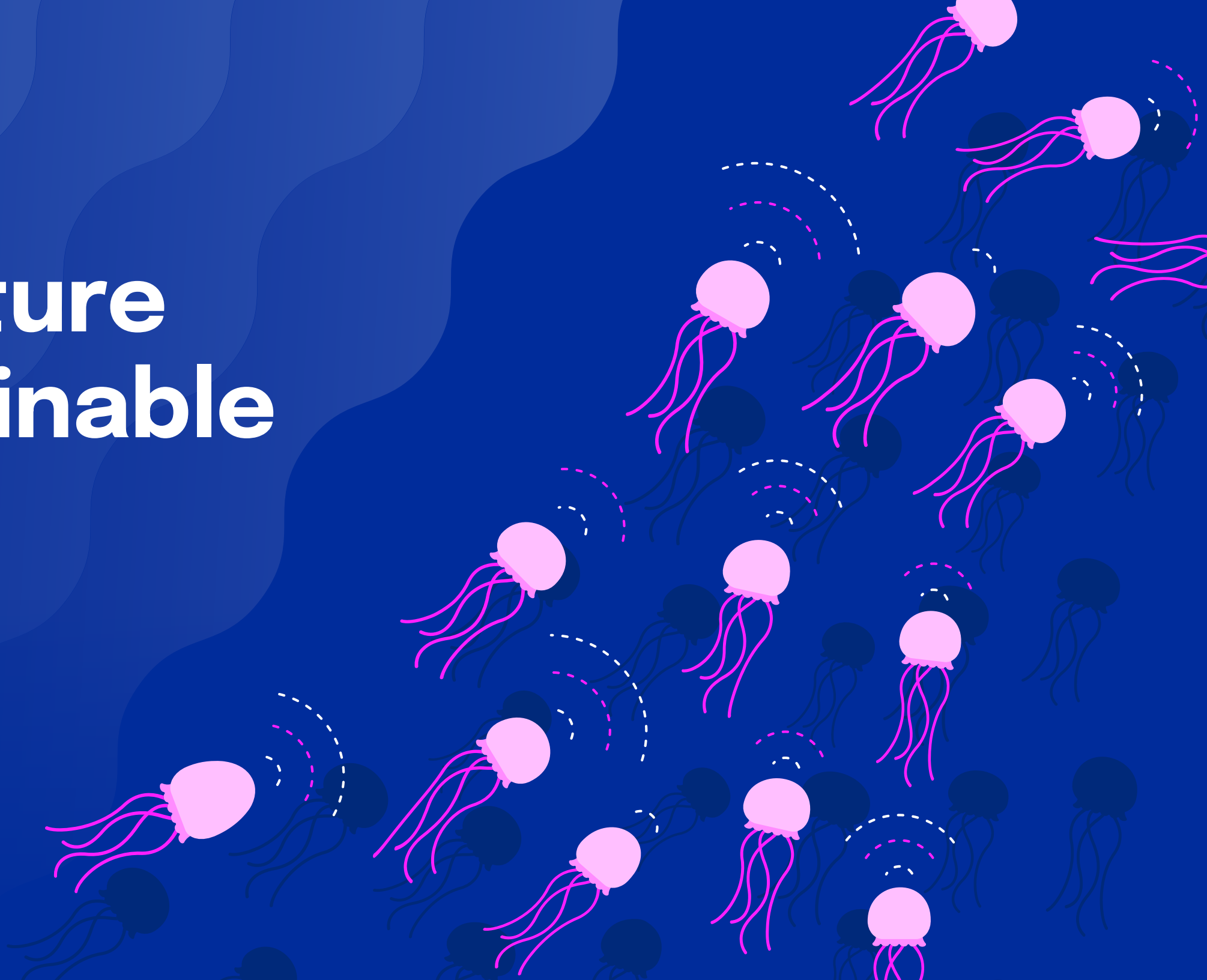# DigitalOcean

Architecture for Sustainable Growth

Three streaming businesses built for scale

DigitalOcean

Streaming applications need to be fast, reliable, and scalable. The unique needs of streaming businesses including low latency, high bandwidth, lots of storage, and rapid scaling, require well-thought architecture and strategic technical decisions to sustain rapid growth.

High performance can't be sacrificed because of price, and determining how to optimize performance, plan for scale, and keep costs low are top of mind for many streaming startups and small- and medium-sized businesses (SMBs).

These three streaming businesses built sustainable, highly performant architectures that serve the needs of their growing organizations. You can, too. DigitalOcean is here to help.

Learn from

1. **Atom Learning**

2. **Origin Media**

3. **Loot.tv**

Atom Learning

Industry: EdTech

Priority: Simple scaling on demand, resiliency

Atom Learning provides high-quality education for primary school students through a fully adaptive online learning platform.

The organization adjusts the education experience to individual student needs by using machine learning and artificial intelligence to optimize both the content and questions.

Atom Learning runs three Kubernetes clusters with multiple node pools on DigitalOcean Kubernetes. They use a microservices architecture on the backend that uses REST to communicate with each other and the frontend React app.

With this setup, Atom Learning is able to dynamically scale up and down with demand. Atom Learning scaled to over 350,000 accounts and continues to grow, experiencing 50% growth month-to-month through 2019. Even with that tremendous growth, the team hasn't had to make any major architecture changes since launching with DigitalOcean.

> "One of the reasons we've been able to grow as quickly as we have is because of how scalable everything is and how easy it is to add new features on our DigitalOcean platform. We use every single one of your products now. It's been great."
>
> Tim Osborne, CTO, Atom Learning
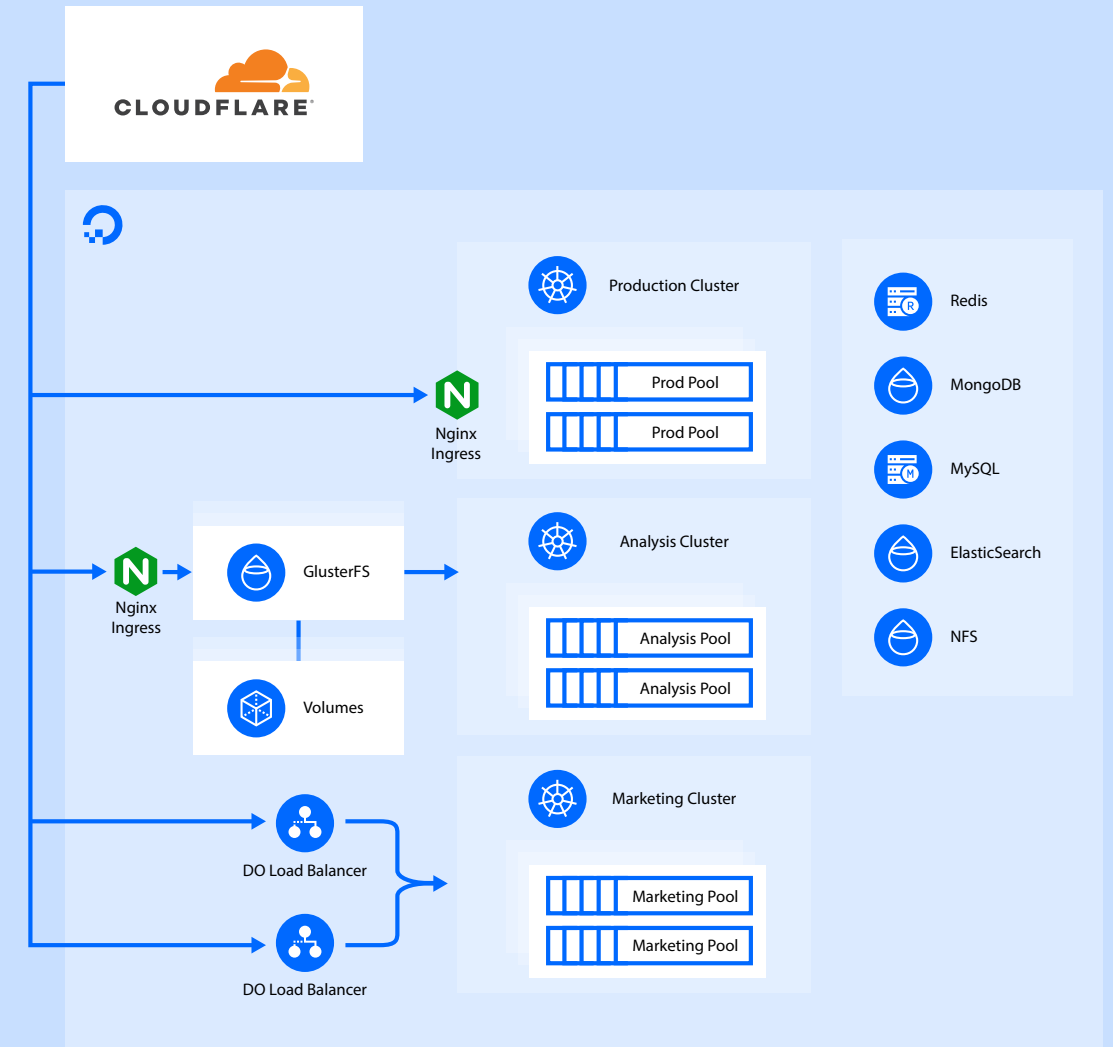
Origin Media

Industry: Advertising

Priority: Resiliency, affordable bandwidth, simplified scaling

Origin uses 25 DigitalOcean Droplets operating behind a DigitalOcean Load Balancer. The Droplets function as stateless, algorithmic engines that exist to receive instructions and data about existing campaigns and receive bid requests from partners.

Origin can receive upwards of 40,000 queries per second (QPS) and for every request that comes in, the Droplet opens up seven outbound connections to the ad partners to receive bid requests.

As Origin expands to different locations across the globe, they can easily replicate this architecture in other territories. Since it's primarily stateless, they can replicate the configuration in various data centers, simply adding a geo-load balancer. With this setup, Origin was able to create Droplets with one click, name them, add them to the Ansible host list, and run the Ansible playbook. The DigitalOcean Load Balancer immediately added the new Droplets to the cluster. Origin houses everything in GitHub and uses GitHub Actions. Every commit creates a different version of the server, meaning they can deploy a specific version or roll back if needed.

> "An organization like ours, which is dependent on streaming and data and heavy on bandwidth, benefits greatly from deducting bandwidth costs and making leaner software on smaller servers to get additional bandwidth benefits."
>
> DevOps Manager, Origin
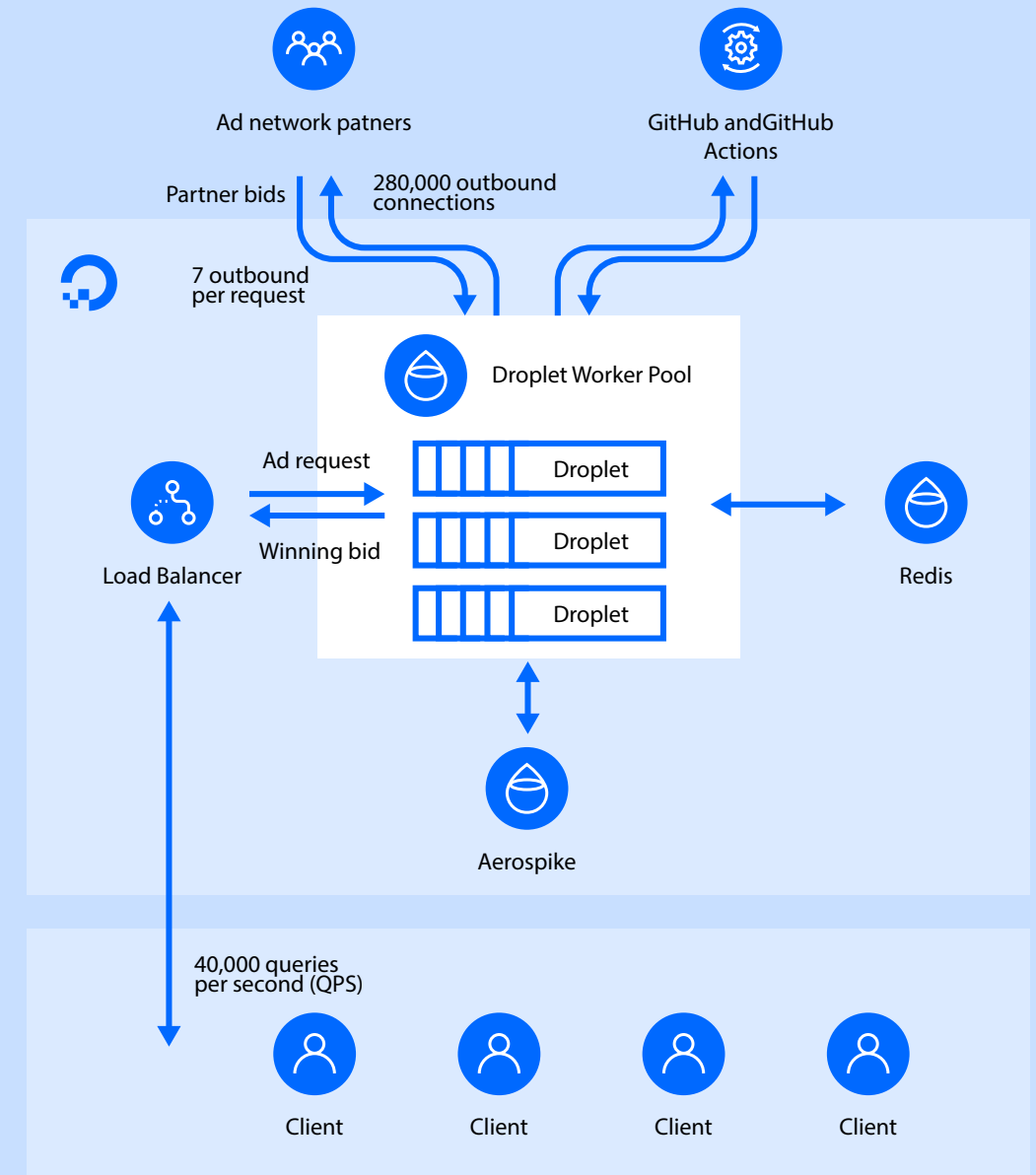
Loot.tv

Industry: Advertising

Priority: Scaling to meet high growth, and easy to maintain architecture

Loot.tv is an engaging video platform where creators and communities can earn rewards for uploading and interacting with their favorite content.

DigitalOcean's low bandwidth costs and SLA guarantees allow Loot.tv to effectively serve its customers while paying a fraction of the cost for bandwidth that they would pay on hyperscalers. DigitalOcean Managed Kubernetes allows the Loot.tv team to focus on building their application rather than maintaining infrastructure. DigitalOcean Kubernetes also provides them with reliable scaling to match demand. Month-to-month Loot.tv can see three petabytes of data transfer and average 8,000 viewers at any one time.

> "Cloud providers love gouging on bandwidth for seemingly no reason. The only reason that Loot.tv can exist is because of the very cheap overage [bandwidth charges] on DigitalOcean Spaces."
>
> Josh, Founder, Loot.tv
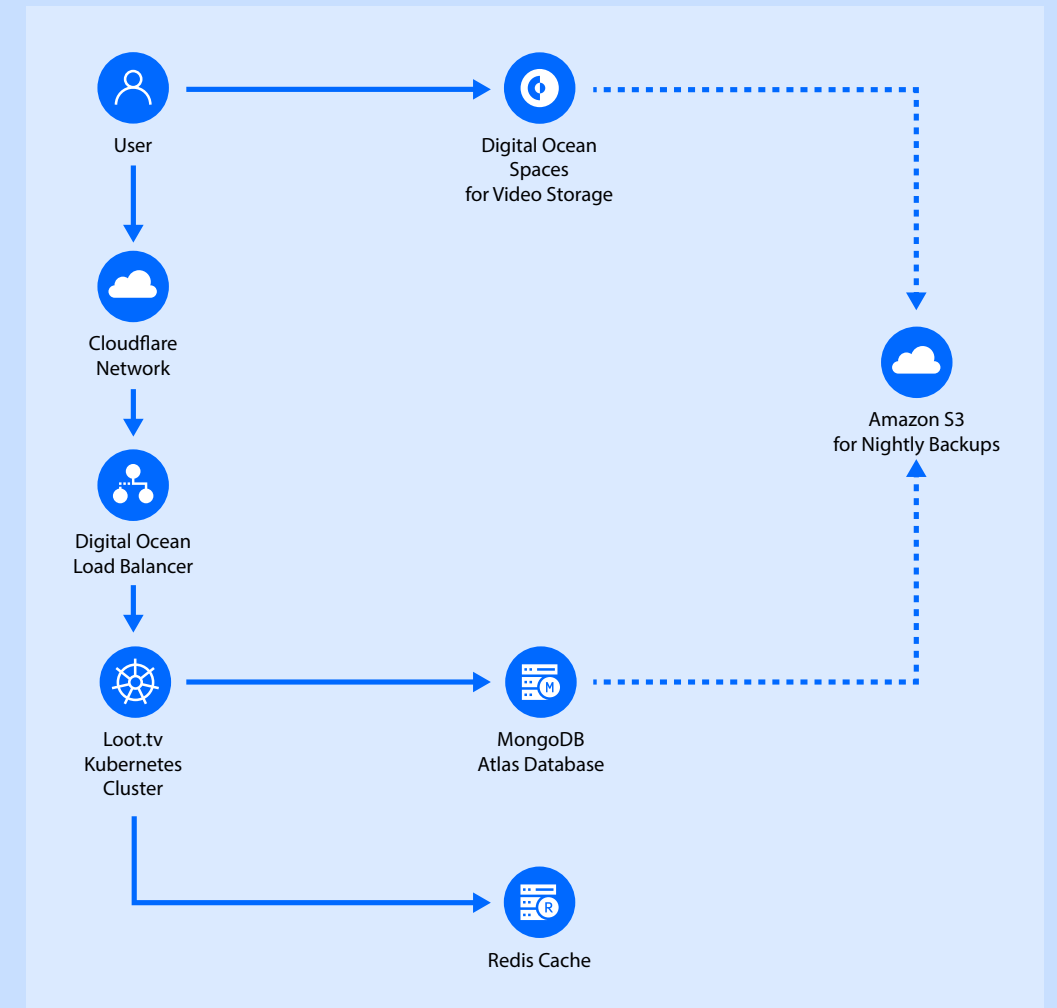
Key Takeaways

1. **Plan for growth**

Successful organizations craft architecture that's scalable. Each of these businesses build their infrastructure for scale, whether it was through containerization or easily replicatable automations.

2. **Automate as much as possible**

In order to provide highly reliable services, streaming businesses should consider automating as many infrastructure maintenance tasks as possible. Businesses like Origin, Atom Learning, and Loot.tv set up their architecture in a way that could it could be easily and automatically scaled and easy to deploy updates, fixes, and more.

3. **Know where your audience is**

Using a CDN for caching and fast delivery of content is key for streaming businesses. Each of these organizations knew where their customers were located and chose Points of Presence in strategic locations.

DigitalOcean

About DigitalOcean

DigitalOcean simplifies cloud computing so developers and businesses can spend more time building software that changes the world. With its mission-critical infrastructure and fully managed offerings, DigitalOcean helps developers, startups, and small- and medium-sized businesses (SMBs) rapidly build, deploy, and scale applications to accelerate innovation and increase productivity and agility. DigitalOcean combines the power of simplicity, community, open source, and customer support so customers can spend less time managing their infrastructure and more time building innovative applications that drive business growth.

To get started, **sign up for an account at DigitalOcean.com.** For more information or help migrating your infrastructure to DigitalOcean, **speak to a sales representative.**