

Automate container management and cut AWS costs by up to 60%

How Syml Systems successfully leverages microservices and AWS spot instances to create a disruptive competitive advantage in the financial services market

The team at Syml Systems has a vision to streamline costly, time and labor-intensive processes in the financial services industry.

To achieve this goal, they have developed a software-as-a-service (SaaS) application, which allows the lending industry to reduce the time and effort traditionally involved in lending by over 80%.

Building a disruptive solution with microservices

To build a competitive advantage, Syml needed an application that could handle massive processing spikes while remaining cost effective. The team at Syml decided to adopt microservices architecture and look for an efficient way to leverage AWS spot instances for cost savings. Portable containers allowed the team to decouple their application from the cloud instances and gave them the flexibility to provision application services in seconds. Nearly stateless, the new version had microservices talking to SQL and no-SQL databases geographically located elsewhere on the back end to effectively manage security and data sovereignty requirements.

Because their applications work with sensitive client data, everything had to work securely and

“We have yet to find an organization that has offered the level of functionality, support and speed of response that Nirmata has offered.”

— **Guy Pallister**
CTO & Founder, Syml



smoothly every day without fail. To ensure optimal availability during data processing spikes, they chose to provision three times their minimum capacity in the cloud environment. This meant they had to deploy and flawlessly manage dozens of containers across multiple platforms every day.

HIGHLIGHTS

CHALLENGE:

- Deliver a cost-effective and scalable SaaS solution
- Keep team focused on delivering core business value
- Manage cloud spend
- Provide geographically separate data and application layers

SOLUTION:

- AWS for infrastructure
- Docker container engine
- Nirmata to easily manage microservices in containers on AWS spot instances

RESULTS:

- Consistent 50-60% reduction in AWS cloud costs
- Fully automated DevOps workflows across development, test and production environments
- Automated spot instance optimization and management

Orchestrating containers, maximizing availability and controlling costs

The next challenge was to find a solution for orchestrating these containers efficiently while controlling cloud costs.

- How could the team deploy so many containers quickly during each development sprint?
- How would they handle communications across services as they scaled up and down?
- How hard would it be to manage clustering and fail over in the new environment?

The team considered using Amazon ECS but it did not offer integrated microservices capabilities or work with spot instances. Putting together open source solutions required a significant learning curve and forced the team to do the heavy lifting to keep them up and running.

Meanwhile, meeting the high availability requirements was expensive. Each on-demand Amazon EC2 instance costs hundreds of dollars – budget that the bootstrapping company needed to fuel other areas of their business. Syml wanted to leverage spot instances to cut their infrastructure costs. Despite being up to 90% cheaper than on-demand instances, using spot instances left their application vulnerable since they go away without much notice.

Syml has deployed more than 7,000 containers on AWS since adopting Nirmata for container and microservices management.



“Nirmata solves several problems for us.”

Syml decided to do a proof of concept with Nirmata. It provided flexible container orchestration, and had built-in microservices support to make the team's job easier.

The team built a full DevOps pipeline with automated container management and provisioning powered by Nirmata. Whenever a developer checks in code, it automatically builds a new container image and deploys it into a shared staging environment. Once testing is complete, the changes get promoted directly to production. The built-in service gateway ensures that client requests are routed to the appropriate containers no matter which virtual machine the container lands on.

“Nirmata allows us to deploy services from a single console. Each service is deployed across a cluster of three containers to cater to both scale and availability needs,” Syml's CTO Guy Pallister. “This way, we don't need to maintain failover servers.” These newly provisioned services are immediately available since Nirmata automatically configures the addressing.

Nirmata works seamlessly with AWS spot instances to deliver significant cost savings. “As soon as a new spot instance appears in the cluster, Nirmata re-provisions the containers from an on-demand instance to the spot instance. Even if we provision 3x for each service we still save 50-60% in our monthly AWS costs.”



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