

Microservices Speed Market Responsiveness for Financial Service Leader

Flux7 microservices experts pair AWS and Docker, delivering responsive, agile architecture

Profile:

With millions of devices and terminals deployed worldwide, this provider of point-of-sale (POS) systems consistently brings innovation to the payment industry, changing the way merchants do business and interact with customers like never before. Trusted for its hardware and proprietary operating systems, security and encryption software, and certified payment software, this Fortune 1000 company maintains a solid reputation for enabling merchants to easily and quickly customize the point of sale through innovative apps that provide customers with rich, contextual in-store experiences.

Challenge:

This leader in the financial services market has historically relied on on-premise compute resources. They maintain multiple data centers and host their assets from their own compute farms. However, with two new projects launching – both of which had tight timelines; were considered highly strategic to the business; and required creating solutions that simultaneously enabled development, retained agility, and provided a high level of security – this company realized that the path to take was paved by a microservices architecture, supported by the cloud and DevOps. As expert DevOps and microservice consultants, this financial services organization chose AWS consulting partner Flux7 to help them successfully achieve their aggressive goals within the allotted timeframe.

Solution:

In assessing the client's needs, Flux7 experts recommended that this financial services leader approach its microservices architecture with

the pairing of Amazon Web Services (AWS) — which allowed the organization to quickly scale to demand without expensive hardware purchases — and Docker containers. Docker was a great fit for the initiative as the new cloud-based microservices architecture needed to address high availability, portability across multiple environments, and a high degree of automation to increase agility and security.

Flux7 was able to create an environment that enabled this financial services organization to embrace Continuous Integration and Continuous Delivery (CI/CD) as its microservices could be updated more frequently and more safely given the inherent benefits of Docker containers.

The goal of the microservices architecture was to speed time to market, automate IT, and in the process empower the financial services firm to manage its own infrastructure, in spirit with AWS' mission of self-service IT.

The two projects featured four key focus areas:

- **Automation focused on high availability, portability and agility.** The project was complex with numerous microservices—each developed autonomously by different teams. Using Docker containers, Flux7 was able to provide this firm with a homogeneous deployment framework ideal for the variation in technology stacks across these services. This approach helped streamline infrastructure needs, making it easier to port services across environments. It also increased the level of automation which in turn increased agility and decreased risk associated with manual efforts.
- **CI/CD.** The firm and Flux7 worked together to implement a unique build and deploy system with Docker at its core, an on-

Business Needs

- Build on market reputation for innovation
- Further grow development agility
- Decrease time to market for competitive advantage
- Maintain strict PCI-ready security and compliance

Solution

- AWS-based microservices architecture
- Flux7 toolchain based on Docker, Jenkins, OpenVPN, and MediaWiki
- DevOps-based approach

Benefits

- Increased developer agility and sped time to market with CI/CD
- Risk mitigation through automation and microservices architecture
- Eliminated need for additional hardware purchases
- Eliminated capacity planning and need for backup DR environment

Technical Details

- AWS Services: EC2, S3, EBS, Route53, AWS VPC, CloudTrail, CloudConfig, CloudFormation, CodeDeploy, AWS autoscaling, Elastic Load Balancer, KMS, RDS

Other Services

- Docker, Jenkins, Ansible, MediaWiki, OpenVPN



premise code repository, and on-cloud build deployment. The most innovative component, the portable system for configuration management and code deploy uses AWS Code Deploy, S3, and a Docker registry that provides CD. The system is self-service for Development, giving developers greater control over the process, allowing them to quickly bring up new environments, testing against them, and easily starting over if need be. Further, as small independent units, the organization's new microservices are quick to flow through the delivery pipeline, significantly increasing service delivery.

• **Security.** While the enterprise was already very focused on security, Flux7 was able to provide another layer of expertise when it came to security in the cloud and the surrounding ecosystem of tools. For example, the system for configuration management and code deployment was configured to satisfy strict security requirements that the code repository remain on-premise and that development could deploy to production without accessing sensitive data. In response, Flux7 developed an automated mechanism to make sensitive configuration data available to production Docker containers without any involvement from Developers or IT or having the need to save those files anywhere in plain text.

In addition, microservices innately provide risk mitigation of their own, with the ability to rollback if needed, and the knowledge that if a microservice were to fail, other

services would continue running, providing greater system resilience. Coupled with automated provisioning which also reduces organizational risk, microservices added yet another layer of reliability.

• **Culture Change.** While technology played an important role in these projects, overseeing a culture change to support the new initiatives was also important. As such, the enterprise designed, defined and created a Center of Excellence for DevOps comprised of engineers who Flux7 trained to use and extend the environment.

In addition, Flux7 focused on educating development teams about how to deploy their microservices in Docker containers and focused specific lessons on knowledge transfer and being change agents, not just 'doers'. The overarching goal of the culture change elements was to enable the customer to extend the AWS-based microservices environment on their own. The team is now enabled and has already built upon what Flux7 delivered to expand their use of DevOps, CI/CD, Containers, and AWS.

These four elements combined to increase developer agility which shortened the time to market of new applications associated with these projects. They also combined to decrease costs driven by reduced wait times for IT when standing up Dev/QA/Staging/Prod environments and the ability to eliminate capacity planning and backup disaster recovery.

Benefits:

The microservices initiative touched several areas of the organization, helping developers increase agility by improving development processes which increased productivity and resulted in faster time to market. CI/CD was embraced as part of the process, translating into faster innovation and strategic advantage in a highly competitive market.

For operations, this initiative effectively removed wait times to stand up environments, and with cloud elasticity, removed the need for capacity planning and the purchase of expensive hardware to support the plan's worst case scenarios. Moreover, the microservices environment allows the organization to start small and easily add services as market needs grow.

Through this microservices initiative, this financial services organization was able to increase its resiliency and scalability while easing deployment and mitigating risk. Flux7 applied its extensive microservices, Docker and AWS experience to help create greater agility that now allows the firm to take full advantage of a changing marketplace to drive innovation and short and long term business success.

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Austin-based Flux7 is a team of IT experts helping businesses realize and optimize the benefits of technology by using DevOps processes and full-stack expertise. Flux7's team delivers specialist development skills, architecture, and operations knowledge, accelerating an IT team's progress toward achieving business agility using best practices in continuous delivery and integration. Through a unique blend of services and products, Flux7 provides high-quality solutions that directly address the challenges faced by CIOs and IT teams to achieve short-term results with long-term benefits. With decades of combined industry experience, best-practices and industry benchmarks, our team is committed to creating sustainable, reliable solutions. For more information about Flux7, visit flux7.com or email info@flux7.com.

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