TrueMark

# Enhancing Scalability and Reliability: A Case Study on Migrating to AWS Elastic Kubernetes Service (EKS)

## About the Customer

A leading branch of a global skincare and wellness company sought to enhance the scalability and reliability of its e-commerce infrastructure. Previously reliant on a VMware-based setup, the company faced limitations in scalability and flexibility that could impact their growing market demands.

## Customer Challenge

The e-commerce operations faced critical issues that demanded an urgent resolution to ensure business continuity and scalability:

- **Operational Risks:** The data center operated as a "black box" to corporate leadership, offering l imited visibility into system performance and health, which hindered effective governance and decision-making.
- **Compliance and Security Risks:** Key applications failed to meet stringent compliance requirements such as PCI-DSS, exposing the organization to potential penalties and reputational damage.
- **Planned Data Center Shutdown:** With aging hardware nearing the end of its lifecycle and the planned shutdown of the data center, the existing infrastructure was unsustainable, heightening risks of downtime and system failures.
- **Skill and Knowledge Gaps:** The loss of experienced engineers during a corporate restructuring left a significant skill gap. Limited documentation further complicated efforts to maintain or troubleshoot the legacy systems.
- **Need for Modernization:** The infrastructure struggled to scale during peak sales periods, leading to performance bottlenecks and a diminished customer experience. A modern, scalable solution was essential to meet growing business demands.

## Partner Solution

TrueMark, an AWS Advanced Tier Partner, implemented a comprehensive solution to address the customer's challenges. The team designed and executed a phased migration strategy to transition their e-commerce platform to AWS. The approach ensured limited and controlled downtime and delivered a robust, scalable, and compliant infrastructure.

## AWS Key Services

- **Amazon Elastic Kubernetes Service (EKS):** The backbone of the new infrastructure, enabling enhanced scalability and reliability.
- **Amazon RDS:** Provided high-performance managed database services for improved data management and the ability to scale to meet application demands.
- **AWS Elastic Load Balancing (ELB):** Distributed traffic for enhanced fault tolerance and reliability.
- **AWS Certificate Manager (ACM):** Automated SSL/TLS certificate management to ensure secure communications.
- **Amazon Elastic Block Store (EBS):** Delivered high-performance storage for critical workloads, ensuring low-latency access to data and scalability for high-demand applications.
- **Amazon Elastic File System (EFS):** Provided scalable, elastic file storage for seamless integration with AWS services, ensuring high availability and accessibility for shared workloads.
- **Amazon S3:** Delivered scalable storage for backups and static content.
- **Amazon ElastiCache for Memcached:** Enhanced performance through optimized data caching.
- **AWS Route 53:** Enabled reliable DNS and traffic management.

## Implementation Process

- **Infrastructure Assessment and Planning:** Conducted a detailed review of the legacy VMware environment to map dependencies and gaps.
- **Automation with Terraform and GitLab CI/CD:** Leveraged Infrastructure as Code (IaC) to automate deployments, ensuring consistency and accuracy.
- **Phased Migration Strategy:** Began with database migration to AWS, followed by applications organized by waves, to minimize risks and downtime.
- **Testing and Validation:** Conducted rigorous testing to ensure the new system met all performance and compliance requirements.

## Enhancements for Reliability and Compliance

- **Multi-AZ Deployments:** Ensured high availability for critical services, including EKS clusters and RDS instances.
- **Automated Backups:** Regular backups to Amazon S3 ensured data durability and rapid recovery capabilities.
- **Compliance Assurance:** Leveraged AWS security features, such as ACM and IAM policies, to meet PCI-DSS and other regulatory requirements.

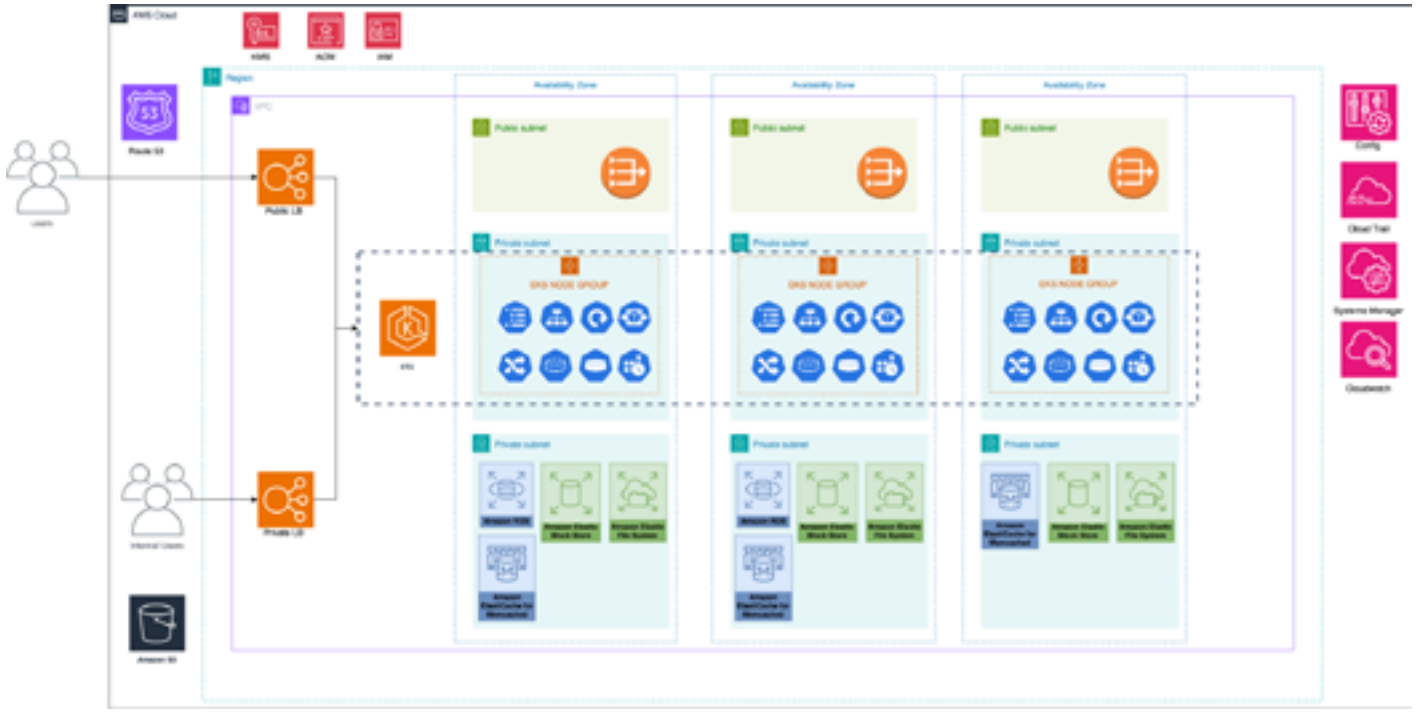

Fig 1: Architectural diagram of proposed solution

# Results and Benefits

The migration to AWS delivered transformative benefits for the customer:

- **Enhanced Scalability:** AWS Elastic Kubernetes Service provided the scalability needed to handle peak sales events without service interruptions.
- **Improved Compliance and Security:** Applications were brought into compliance with PCI-DSS and other regulatory standards, reducing risk exposure.
- **Increased Transparency:** AWS monitoring tools like CloudWatch and CloudTrail offered visibility into system performance and security, enabling proactive management.
- **Cost Efficiency:** Automated scaling and efficient resource management reduced operational costs.
- **Improved Performance:** Load balancing and caching optimizations decreased latency and improved the overall user experience.

## Key Metrics

- **Downtime:** 0% during migration.
- **Response Times:** Improved by 35% across key services.
- **Compliance:** Full adherence to PCI-DSS standards.

# About TrueMark

TrueMark, an IT Solutions provider and AWS Advanced Tier Partner, excels in guiding companies through the intricacies of migrating, modernizing, managing and supporting their IT Systems within AWS. We deliver key benefits to our customers, including improvements in efficiency, consistency, reducing cost, scaling systems, and security. Our competitive advantage stems from our skilled professionals, providing them with the resources they need to successfully tackle challenging projects and create sustainable, reusable patterns, tools and automation. At TrueMark, our commitment is to consistently deliver substantial value to our customers and to always act in their best interest, ensuring that our solutions not only meet but surpass expectations.

Want to learn more? Visit **https://truemark.io**
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