Athens Administrators Infrastructure Modernization — Case Study

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Founded in 1976 and based in Concord, California, Athens Administrators has become a leading entity in the field of third-party claims administration services. Known for their expertise in reducing risk expenses, the company's headquarters serve as a center for collaborative client efforts, resulting in enduringly beneficial services. By integrating innovative methodologies and advanced technologies, Athens Administrators delivers solutions that significantly save time, resources, and financial costs.

Athens Administrators has been leveraging AWS as the platform for hosting their application workloads for several years, with smartShift serving as their trusted Managed Services Provider throughout this period. As part of their ongoing commitment to operational excellence and infrastructure optimization, Athens Administrators partnered with smartShift to modernize their existing cloud environment. The initiative focused on enhancing workload efficiency, improving security posture, ensuring high availability and disaster recovery readiness, and future-proofing their infrastructure to support evolving business requirements.

Challenge:

Athens Administrators had been operating their application infrastructure on AWS for several years. The previous environment included older generation AWS instance types, End-Of-Life (EOL) operating systems, and outdated MSSQL database versions. These components lacked modern performance enhancements, security features, and operational optimizations, posing risks of security vulnerabilities, performance bottlenecks, and support limitations.

Additionally, their disaster recovery (DR) setup relied on a Cold DR strategy, which did not meet evolving business continuity requirements. Their Quality Assurance (QA) environment also mirrored these legacy components, limiting the effectiveness of application testing and validation.

To mitigate these risks and future-proof their cloud infrastructure, smartShift proposed a comprehensive infrastructure modernization initiative.

Approach:

smartShift designed and executed a multi-phase modernization strategy leveraging Blue-Green deployment methodology for both Production and QA environments, ensuring minimal downtime and seamless cutover. The modernization included upgrading to the latest AWS instance types, supported operating systems and database versions, implementing advanced High Availability (HA) solutions, and adopting AWS DRS for disaster recovery.

Phase 1: Production Environment Modernization

1. **Infrastructure Upgrade:**

   o Deployed latest generation AWS instance types for all Production systems, leveraging enhanced CPU, memory, and networking capabilities.
   o Upgraded to the latest supported Windows Server operating systems and MSSQL database versions.

2. **Networking Modernization:**

   o Implemented enhanced network security and segmentation using the latest version of Cohesive VNS3 controllers within the VPC for improved encrypted fault tolerant overlay networking.

3. **High Availability Configuration:**

   o Designed and implemented fault-tolerant infrastructure with AlwaysOn Availability Groups (AOAG) in an Active-Active / Active-Passive configuration for MSSQL databases.
   o Ensured production applications and databases were configured for fault tolerance across multiple Availability Zones.

4. **Data Migration & Cutover:**

   o Carried out data migration to the green environment using robust tools and methodologies.
   o Performed thorough validation and testing.
   o Executed production cutover with minimal downtime, ensuring seamless business operations.

5. **Disaster Recovery Modernization:**

   o Transitioned from Cold DR to AWS Disaster Recovery Service (AWS DRS), enabling near real-time replication and rapid failover capabilities for critical workloads.
   o Validated DR setup to meet defined RPO and RTO objectives.

Phase 2: QA Environment Modernization

1. **Infrastructure Alignment:**

    o   Provisioned a new QA landscape mirroring the Production setup in terms of Operating systems, and MSSQL versions (excluding HA and DR configurations).

2. **Blue-Green Deployment:**

    o   Employed the same Blue-Green deployment methodology to ensure a safe and controlled transition with minimal testing interruptions.

3. **Cutover & Validation:**

    o   Executed data migration, system validation, and QA cutover without impacting ongoing application testing cycles.

Results:

The modernization initiative delivered significant improvements in performance, security, operational resilience, and cost optimization:

1. **Enhanced Performance:**

    o   Upgraded AWS instance types resulted in improved application response times and system throughput.
    o   Optimized MSSQL database clusters achieved faster query execution and improved transactional performance.
    o   Modernized QA landscape enabled more reliable, performance-aligned application testing.

2. **Improved Security:**

    o   Adoption of the latest supported Windows Server OS versions ensured comprehensive security patching and compliance.
    o   Enhanced VNS3 controllers provided advanced network segmentation, overlay/underlay networking, and secured inter-system communication.

3. **High Availability & Fault Tolerance:**

    o   Active-Active / Active-Passive MSSQL AOAG configurations achieved continuous availability with automatic failover for Production databases.
    o   Production applications achieved HA across Availability Zones, reducing operational risks.

4. **Disaster Recovery Resilience:**

    o   Implementation of AWS DRS ensured near real-time replication and reliable failover mechanisms.

- o DR readiness was validated against business-defined RPO and RTO objectives.

5. **Operational Efficiency & Cost Optimization:**

   - o Modernized infrastructure reduced maintenance overhead and improved operational manageability.
   - o Leveraged instance right-sizing and architecture improvements to achieve better performance at optimized costs.
   - o QA modernization aligned with Production standards, simplifying workload management and support.

6. **Minimal Downtime Cutover:**

   - o Successful Blue-Green deployments for both Production and QA ensured minimal downtime during cutovers.
   - o Seamless transition to modern infrastructure without operational disruptions.

Conclusion:

Through a well-orchestrated modernization initiative, Athens Administrators has successfully transitioned to a scalable, secure, and high-performing AWS infrastructure. With enhanced production resilience, real-time DR capabilities, modernized QA operations, and cost-optimized environments, Athens Administrators is better equipped to deliver operational excellence and support future business demands.

This project highlights smartShift's capabilities in driving comprehensive AWS infrastructure transformations while maintaining business continuity, operational efficiency, and security at the forefront.