Nexus Water Group SAP Landscape Modernization and Network Transformation — Case Study

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Formerly known as SouthWest Water Company, Nexus Water Group is a prominent provider of comprehensive water and wastewater management services across multiple regions. With decades of experience, the company has built a strong reputation for delivering safe, reliable, and environmentally responsible water solutions to both communities and businesses. Through continuous innovation and a commitment to sustainability, Nexus Water Group remains at the forefront of its industry, ensuring the highest standards of water quality and operational excellence.

Challenge:

As part of its strategic initiative to migrate select SAP workloads to the SAP RISE program, Nexus Water Group also sought to modernize its remaining SAP environments hosted on AWS. The goal was to enhance the resilience, security, scalability, and operational efficiency of its SAP systems, ensuring seamless support for the company's growing business and evolving operational demands.

However, the existing AWS networking framework presented significant challenges. The previous setup relied on AWS Direct Connect links between their on-premises data center and multiple AWS environments, using CATO SD-WAN to facilitate communication. This environment included the Primary AWS region, Disaster Recovery (DR) region, Utilities account, and the SAP RISE VPC network. The key limitation was the absence of transitive routing support, which complicated the transition to SAP RISE and created fragmented connectivity across the estate.

Nexus Water Group engaged smartShift to resolve these networking challenges and lead the modernization of their SAP CRM application landscape, which was retained within AWS (outside of SAP RISE) to ensure ongoing operational continuity and control.

Approach:

smartShift developed and executed a structured, two-phased modernization and network transformation plan:

Phase 1: Network Modernization

To address the complex, non-transitive networking architecture, smartShift proposed and implemented the introduction of AWS Transit Gateway (TGW) to facilitate seamless, scalable, and transitive routing between all AWS accounts and environments. Key outcomes included:

- Integrating Transit Gateways in the Primary, DR, Utilities, and SAP RISE-connected VPCs.
- Retaining existing CATO SD-WAN appliances for hybrid connectivity while leveraging AWS Transit Gateway for intra-cloud routing.
- Establishing secure, scalable, and efficient communication pathways between all SAP and non-SAP workloads.

This solution was deployed seamlessly, ensuring zero disruption to ongoing operations and laying the foundation for a highly resilient and scalable network fabric.

Phase 2: SAP CRM Landscape Modernization

Following the successful network transformation, smartShift led the modernization of Nexus Water Group's SAP CRM environments, retained within AWS. The key focus areas included:

- Optimizing AWS EC2 infrastructure for enhanced performance and cost efficiency.
- Upgrading all systems to the latest supported SUSE Linux Enterprise Server (SLES) for SAP applications, strengthening security, compatibility, and supportability.
- Modernizing the AWS networking framework for these systems to align with the newly implemented TGW-based architecture.
- Integrating CRM systems with SAP RISE workloads for streamlined operations and secure communication.
- Implementing fault-tolerant architectures for Production and QA environments, ensuring high availability and operational resilience.
- Establishing a robust Disaster Recovery (DR) setup for Production CRM systems, aligned with defined Recovery Time Objectives (RTO) and Recovery Point Objectives (RPO).
- Applying strict Principle of Least Privilege (POLP) access management using AWS IAM fine-grained permissions.
- Enforcing data encryption standards for data at rest and in transit.
- Implementing operational best practices including automated backups, S3 lifecycle management, and archival policies.

- Developing a comprehensive Business Continuity Plan (BCP), encompassing DR testing and operational resilience strategies.

Results:

The modernization initiative delivered tangible improvements across network connectivity, application performance, operational resilience, and security compliance:

1. **Unified and Scalable Network Architecture:**
   - The introduction of AWS Transit Gateway provided seamless, transitive routing across all AWS accounts and SAP RISE environments while preserving hybrid connectivity with existing CATO SD-WAN appliances. This simplified network management and enhanced scalability for future growth.

2. **Modernized, Resilient SAP CRM Environment:**
   - Upgrading to the latest SUSE Linux Enterprise Server for SAP and optimized EC2 instance types improved application stability, responsiveness, and system reliability.
   - Production and QA systems were architected for high availability, with an integrated Disaster Recovery strategy for critical workloads ensuring business continuity and adherence to recovery objectives.

3. **Enhanced Security and Governance:**
   - Fine-grained access controls based on the Principle of Least Privilege were implemented using AWS IAM, significantly improving security posture.
   - Data protection was strengthened through encryption of data at rest and in transit, coupled with OS and infrastructure hardening.

4. **Operational Streamlining and Cost Optimization:**
   - Infrastructure optimization initiatives reduced operational overhead, improved resource utilization, and lowered costs without compromising performance.
   - Automated operational processes such as backup management, S3 lifecycle policies, and data archival contributed to greater operational efficiency and governance.

This comprehensive transformation enabled Nexus Water Group to support their evolving SAP landscape with a future-ready, secure, and efficient AWS infrastructure, while seamlessly integrating with the SAP RISE ecosystem.

Conclusion:

Through a carefully executed two-phased approach, smartShift enabled Nexus Water Group to overcome complex networking limitations, seamlessly integrate with SAP RISE, and modernize their SAP CRM landscape within AWS. The initiative delivered measurable improvements in network resilience, operational performance, security, and cost optimization — positioning Nexus Water Group to support future business growth and innovation with confidence.

This engagement highlights smartShift's expertise in AWS network architecture, SAP application modernization, and enterprise cloud managed services, successfully driving infrastructure transformation while maintaining operational continuity and compliance.