

# Data Migration & Process Automation Enablement with AWS Clickstream



## MEET THE CLIENT

AARP is a nonprofit, nonpartisan social welfare organization with a membership of nearly 38 million that helps people turn their goals and dreams into real possibilities. It does so by strengthening communities and fighting for the issues that matter most to families, including healthcare, unemployment, income security and protection from financial abuse. AARP offers discounts and benefits in various healthcare and other lifestyle categories to its subscription members.

AARP Services Inc. (ASI) manages relationships with companies that provide AARP member benefits. Influent50 is an AARP agency and an expert in the 50+ age market. The firm studies trends in that segment, including attitudinal patterns, behavioral tendencies, purchasing trends and more. It has strategic partnerships with other businesses, offering valuable and relevant insights that include research on the 50+ age segment with positive communication channels for a fee.

## THE CLIENT'S MAJOR CHALLENGES

**Migration:** AARP faced the challenge of migrating the existing Clickstream data to the AWS Cloud from servers that were currently on-premise.

**Automation for Critical Accessibility:** The secondary piece to that challenge was implementing the process automation for data maintenance and updates to ensuring it was always current and accessible to ASI Analysts and Data Scientists.

**Maintenance through Managed Services:** After addressing ASI's server migration challenges to the AWS Cloud, Idexcel provided managed services to support the AWS Infrastructure, to include Monitoring, Performance Advisory, Configuration Management, Incident Response, Problem Resolution, Change Management Security Service, and Production Support.



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## Specific Management & Maintenance Challenges

- Hardware reaching the end of its rope
- Increasing hardware & software licensing costs
- Unable to offer new features

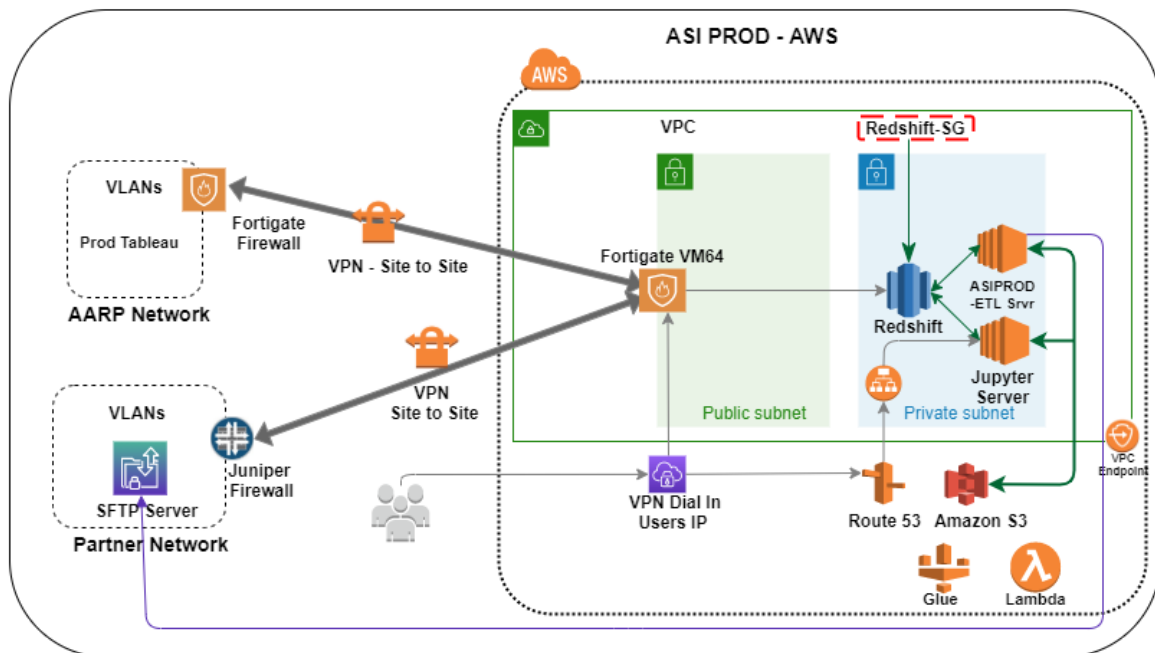
## Unique Technical Challenges

- The current solution doesn't offer high availability/fault tolerance accessory services that are hardware dependent
- Performance issues with larger data size and data frequency
- The servers are unable to support their new demands and workloads
- Backing up and restoring data in a timely fashion
- Attaining and maintaining operational excellence
- Defining high-level architecture best practices that are secure, scalable, resilient, and operational

## THE IDEXCEL SOLUTION

Our Idexcel implementation team reviewed the current workload and infrastructure to identify common bottlenecks and key parameters. To ensure the new solution offered the necessary benefits surrounding performance, new workload demands, the need for resilience, high availability, and fault tolerance, Idexcel migrated the application using Amazon Web Services (AWS). The Idexcel team had detailed and fruitful discussions with several stakeholders from the business and technical teams to determine how to deploy the solution, that was determined via the following phases:

- Phase 1. Cloud Readiness Assessment
- Phase 2. Migration Readiness Assessment
- Phase 3. Portfolio Assessment



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## IDEXCEL'S SOLUTION APPROACH

1. Migration of the MS SQL database workloads to Redshift for the following performance benefits:
  - a. Fully Managed and Hosted Solution
  - b. Better DR Strategy
2. Amazon Elastic Compute Cloud (Amazon EC2) for ETL when processing computing instances.
3. Amazon Virtual Private Cloud (VPC) and its associated services for securely isolating cloud resources.
4. Enablement of infrastructural health monitoring with efficient notification system using CloudWatch and SNS solution.
5. Implementation of AWS CloudFormation to deploy infrastructure as code.
6. One-time Data Migration using S3 Copy and Redshift loads.
7. Data Extraction using Redshift native commands.
8. Implementation of an event-driven approach with Lambda to initiate the ETL processes.

<b>AWS Service</b>	<b>Purpose</b>
<b>EC2 Instance</b>	Elimination of the up-front investment for hardware, and there is no need to maintain any rented hardware.
<b>S3</b>	To store and retrieve any amount of data, at any time, from anywhere on the web.
<b>Redshift</b>	Fully managed petabyte-scale cloud-based data warehouse product designed for large scale data set storage and analysis.
<b>VPC</b>	To build a virtual network in the AWS Cloud.
<b>Load Balancer</b>	The network load balancer balances between 2 app instances across subnets over multiple available zones. The load balancer allows secured traffic via SSL.
<b>Security Groups</b>	To allow the traffic from the VPC and the on-premise network via VPN.
<b>Subnets</b>	The subnets have been designed using CIDR blocks and segregated according to the purpose, e.g., App & DB and utility.
<b>NACL</b>	To allow only the necessary traffic to the subnet.
<b>VPN</b>	The VPN connects the AWS VPC to the customer network.
<b>CloudTrail</b>	To allow complete insight of the cloud environment.
<b>Trusted Advisor</b>	To monitor the environment to validate the AWS Well Architected Framework Compliance.
<b>Config</b>	To monitor and alert any changes to some of the primary services of the entire infrastructure.
<b>IAM Roles &amp; Policies</b>	To provide necessary permissions to Lambda code and accessibility of the S3 buckets.
<b>Systems Manager</b>	To execute various necessary ad-hoc PowerShell commands without logging to the instances.
<b>KMS</b>	To encrypt EBS volume data drives using KMS keys.




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## KEY ADVANTAGES OF THIS SOLUTION

With proper assessment, planning and design, the Idexcel team was able to complete the migration process within the original timeframe and enable the organization to achieve the following advantages:

 **Optimized Performance:** Some data processing workloads efficiencies improved by up to 1500%.

 **Scalability & Flexibility:** This solution enables the organization to support new data processing workloads and growing dataset sizes as more information is collected, stored, and secured.

 **Significant Cost Savings:** As the solution costs are based on usage, expenses were reduced on licenses and infrastructure usage.

 **Safe, Secure, and Accessible:** System availability to valuable data created a highly available and resilient IT environment that maintains operational excellence and productivity.

Interested in learning more about loading bulk amount of data to better manage your IT ecosystem?

**Contact Idexcel** to schedule a workshop, request a demo, or to speak with someone from our team about how we can help implement this solution.

## OUR AWS COMPETENCIES



- Public Sector
- Solution Provider
- DevOps Services Competency

- Financial Services Competency
- Migration Services Competency

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