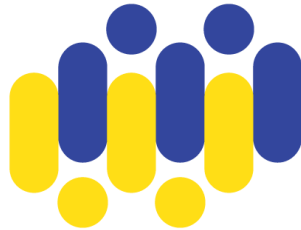




Advanced  
Consulting  
Partner



*AWS Case Studies for Nexval Infotech Pvt Ltd*



Advanced  
Consulting  
Partner

Public Sector Partner

**Workmates Core2cloud Solution Pvt Limited**



## About the customer



In 2009, Nexval was founded by a group of seasoned executives with deep domain expertise in mortgage banking and outsourcing services. Today, with clients from across the globe and skilled employees on board, Nexval is revolutionizing business process management services and solutions.

Nexval's team of 700+ associates have extensive Mortgage and Banking Software Development, Software Integration, and Business Process Outsourcing expertise to deliver you world-class support. With a clear focus on innovation, incorporation of the latest technologies, and cost-efficient solutions, we are a partner of choice for global organizations looking to streamline their operations and boost their competitiveness.

## Problem Statement

- Customer runs multiple process like Zillow and NWTC. These are processes used for different types of technology like document processing, data extraction, Mortgage It, Quality control etc.
- Due to covid19 situation their process manpower is operating from home and having connectivity challenges , processing of documents , easiness of accessibility and security was a major challenge for them.
- Customer's mission critical application was previously hosted On-Premises, creating multiple problems like hardware issues, OS related issues, resource utilization crunch etc.
- Customers existing IAAS environment was not scalable and reliable.
- In previous scenario all the employees would connect to the locally hosted server and run the process from local office. Due to lockdown scenario customer need immediate solution on cloud so that people can connect easily and have business continuity.
- Nexval requires secured working environment for all the employees.
- They want to migrate there entire workload to AWS cloud platform. Application requires MSSQL and PGSQL to be installed on the server.



## Problem Statement



- Customer also wants to Integrate the On-Prem AD with the cloud Infrastructure to be hosted on AWS Cloud platform. Both the AD should be in sync.
- More than 100 employees to be using virtual desktops (AWS Workspaces). The application server and the workspaces should reside in the same network, to have absolute zero latency.
- There would be around 1.5 Tb data which needs to be accessed by the users and application constantly.
- There would be around 3 Tb of archival data. Which would be required once / twice per week.
- Main issues which workmates has to solve:
  1. 99.99 % availability.
  2. Highly scalable infrastructure.
  3. Secured and reliable infrastructure. SSL integration for all its application.
  4. Backup to be implemented in such a way that we can achieve zero data loss.
  5. Infrastructure should have DDOS protection.
  6. Required an platform which can run IIS based application seamlessly.
  7. Building and managing there entire IAAS Stack.

## Proposed Solution – Microsoft Services Integration.



- Workmates had suggested a highly scalable and highly secured solution for their Zillow application which needs to be hosted on AWS. Zillow had been developed on .NET and requires Microsoft operating system for its functionality. Zillow requires MSSQL Standard edition as database.
- Customer's application has been built on top of AWS IAAS stack maintaining the best practices as suggested by AWS.
- On-Prem AD was connected using the AWS Managed AD Connector. This has helped users access their virtual desktops seamlessly. All the users, groups and policies were migrated seamlessly.
- We have also used AWS Systems Manager for the patch updates and running few commands on the workspaces.
- AWS Workspaces and AWS Directory Service were integrated with these Microsoft workloads.
- These Microsoft services like MSSQL, Active Directory, IIS etc.



## Proposed Solution

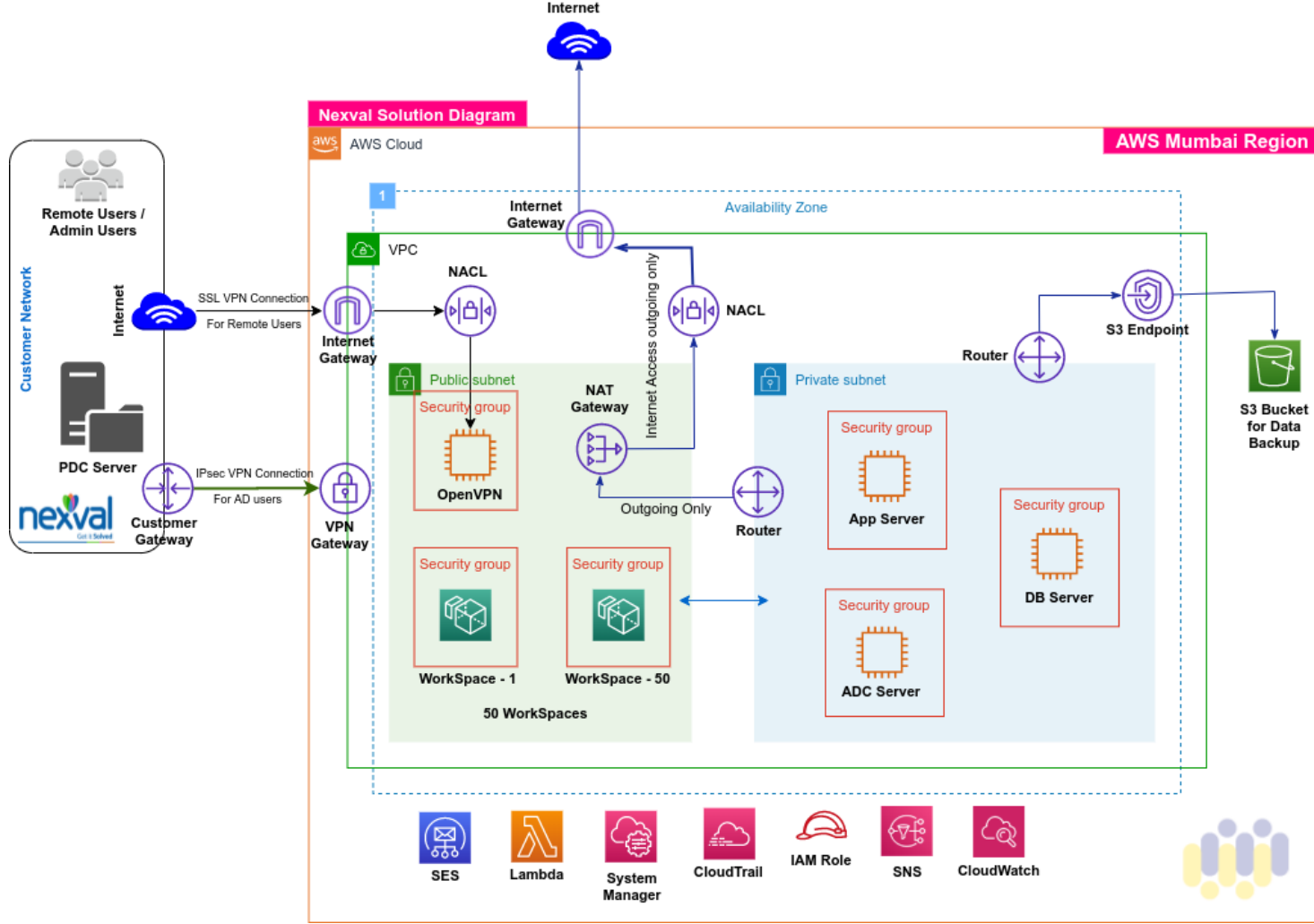


- We have created an AWS account for Nexval Infotech in the Singapore region for better accessibility, and low latency.
- As the workspaces are not available in the Mumbai region, so we have selected Singapore region. Singapore is also having low latency of less than 80 ms.
- We have provisioned an isolated network i.e VPC (Virtual Private Cloud) with proper security and firewalls.
- We have provisioned required server with Windows operating system, as per the requirement of the application.
- We have created an IPSEC tunnel between Nexval Kolkata office and AWS Singapore region.
- All communication between the On-Prem AD and AWS AD is happening over the secured connection.
- Workspaces have been configured with multiple security features.
- Workspaces and the server have been placed in the same region and same vpc to have reduced latency.
- Prod OpenVPN and all the workspaces have been placed in public subnet i.e internet facing zone, Prod application and AD server have been placed in private subnet i.e Off Internet zone.
- All monitoring is done using AWS Enterprise tool CloudWatch.
- We have implemented Infra backup i.e AMI & Snapshots and Native database and code backups.
- All the infra and DB backup is being stored on s3 storage service with 15 days retention and can be accessible at any point of time.
- We have automated all the backup and recovery with our own scripts.
- We have configured MSSQL std. 2019 database in windows server (Nexval Infotech having MSSQL license).
- We have enabled system, IIS and MSSQL logs in the servers and copy logs to the S3 bucket.
- CloudTrail for recording changes in AWS infra maintain 90 days logs without any additional cost.

## Proposed Solution – AWS Service Integration



- AWS AD Connector – We have integrated AWS AD Connector with there On-Prem AD. All the Workspaces are joined with the On-Prem Ad. All the GPO and exiting setting also got integrated on the workspaces. Existing users are able to login using the same credentials.
- AWS Systems manager have been used in this project to update the patches in the windows servers.
- AWS VPC – VPC is used to secure the environment and have a secured network architecture.





## Results and Outcome



- Highly available and scalable infrastructure using different services of AWS.
- On-Prem Hardware dependency eliminated.
- 100+ users connecting from different locations and user experienced got increased.
- There was around 30% increase in the performance.
- Multiple DB used in this scenario as per the application dependency.
- All the security concerns has been taken care using AWS security services like security group, Nacl, Route table, ACM.
- Better performance of the application by using latest instances from AWS. We have used r5 series instances. Amazon EC2 R5 instances are the next generation of memory optimized instances for the Amazon Elastic Compute Cloud. R5 instances are well suited for memory intensive applications such as high performance databases, distributed web scale in-memory caches, mid-size in-memory databases, real time big data analytics, and other enterprise applications.
- MSSQL running smoothly on AWS EC2 server. We have also installed cpanel for the micro finance application. Cpanel will help the developer to manage the application very easily.
- Enhanced user experience. We have received positive customer feed backs.
- Application / corporate website has never gone down after go live.



## Lessons Learned