PROPOSAL FOR MIGRATING ON-PREMISE WORKLOADS OF A 3-TIER APPLICATION TO AWS CLOUD

Introduction:

This document proposes to migrate on-premise workloads of a 3-tier application to the Amazon Web Services (AWS) cloud. Three-tier applications are distinct from a two-tier application by introducing an additional third-tier layer of application logic between the user interface and the database. This third length typically contains the presentation logic, business logic and workflow, and is flexible enough to support a wide variety of applications.

The goal of this document is to propose the most cost-effective and efficient Amazon Web Services (AWS) services to migrate the 3-tier application from an on-premise infrastructure to the AWS cloud. The key components of the 3-tier application will be identified, as well as the AWS services that are best suited for their needs. Additionally, the overall cost effectiveness of the proposed tools and methods for monitoring and cost optimization will be discussed.

Components of the 3-tier Application:

- ✓ Presentation Tier: This tier handles the user's request/action. It consists of web pages, HTML, graphics, images, JavaServer Pages, and other user interfaces.
- ✓ Application Tier: This tier contains the business logic for the application that implements the business rules, such as authentication, authorization, and workflow processing. It involves the use of programming languages and database.
- ✓ Data Tier: This tier handles the data that is accessed and manipulated by the application, such as customer details, order details, and inventory information. It includes database services, data stores, and other infrastructures.

Assessment:

The first step in the migration process is to assess the use-case. For this project, the customer requires the on-premise workloads of a 3-tier application to be migrated to AWS cloud. The customer must assess their workloads to determine what needs to be moved and the steps they would need to take to complete the migration. This includes deciding which services are compatible and required in each tier.

- Perform technical assessment to evaluate existing workloads.
- Document cloud architecture requirements.
- Create cloud migration plan and strategy.
- Develop & implement secure migration processes.
- Perform the migration and testing.
- Develop proper methodology for proper usage of the data.
- Develop strategy for resource optimization and cost management.
- Monitor & Tune application performance in the cloud environment.

AWS Services for Migrating the 3-tier Application:

The following Amazon Web Services (AWS) services are recommended for migrating the 3-tier application from on-premise to the cloud:

- ✓ Amazon Elastic Compute Cloud (EC2): Amazon EC2 provides cloud computing instances that enable businesses to quickly set up compute resources to meet their application needs. EC2 can be used to create virtual machines with the operating system and other software configurations required to support the 3-tier application.
- ✓ Amazon Relational Database Service (RDS): Amazon RDS is a cloud service for hosting databases, which enables businesses to deploy, operate, and scale database instances quickly and easily. RDS can be used to manage and scale the database layer of the 3-tier application.
- ✓ Amazon Elastic Container Service (ECS): Amazon ECS is a cloud-native container application that makes it easy to deploy, manage, and scale containerized applications on AWS. ECS can be used to manage and deploy the presentation and business logic layers of the 3-tier application.
- ✓ Amazon Elastic Container Registry: Amazon Elastic Container Registry (ECR) is a secure place to store, manage, and deploy Docker images. ECR can be used to store the presentation and business logic layers of the 3-tier application.

Cost-Effectiveness:

Using the proposed solutions mentioned above, the customer will have a cost-effective solution. The customer will have access to AWS's pay-as-you-go pricing model which means they will pay only for what they use. The customer will also benefit from the scalability and flexibility of AWS services, allowing them to quickly and easily increase or decrease their resources, as needed.

Deliverables

- ✓ Technical documentation, architecture diagrams, and cloud resources diagrams.
- ✓ Detailed migration plan and timeline.
- ✓ Automation scripts for the cloud setup and migration processes.
- ✓ Final test reports outlining the performance metrics, security validation and operational readiness.
- ✓ Documentation on Cloud cost optimization strategies.

Monitoring and Cost Optimizations:

In order to ensure that the 3-tier application is running optimally on the AWS cloud, it is important to monitor the performance of the application and take proactive steps to optimize its cost. The following tools and services can be used to monitor the performance and optimize the cost of the 3-tier application:

- ✓ Use CloudWatch or other third-party monitoring tools – Using these tools, you can monitor system metrics such as CPU utilization, network and disk usage, and memory. This will help you identify any potential bottlenecks or performance issues.
- ✓ Automate deployment and scaling – Automating deployment and scaling can help improve agility and reduce costs. Automating operations such as testing, deployment, and scaling can

help ensure that applications are always up and running and provide a way to quickly scale as needed with little manual effort.

- ✓ Utilize serverless computing – Serverless computing can be used to run applications and services without needing to manage servers. This can help reduce costs associated with provisioning and managing servers.
- ✓ Implement caching – Implementing caching technologies can help improve the performance of 3-tier applications by storing frequently accessed data and content in memory, reducing the time required to make requests.
- ✓ Leverage a "Containers-as-a-Service (CaaS)" model – CaaS offers the ability to quickly create, scale, and manage containers, improving agility and reducing costs associated with long-term management of applications and their environment.

Conclusion:

Migrating on-premise workloads of 3-tier applications to AWS cloud is an excellent way to reduce costs and improve performance. AWS provides a range of services and tools that can be used to migrate a 3-tier application from on-premise to the cloud. The proposed services and tools can be used to ensure that the 3-tier application is running optimally and cost-effectively on the AWS cloud.

Furthermore, Amazon CloudWatch, Amazon EC2 Auto Scaling, and Amazon Trusted Advisor can be used to monitor the performance of the application and proactively optimize its cost.

It is recommended that the business explore the array of AWS services to identify the most cost-effective and efficient way of migrating the 3-tier application to the cloud.