SaaS (Software as a Service) Software Development Lifecycle

The SaaS aim is to provide users access to software as a service rather than installing it on their machines and managing software.

The phases to consider for this

Envisioning

The Planning phase involves Product owners, CTO, Architects, Sales executives to work on business requirement to determine business needs. Business requirement will require understanding on software functionalities and capabilities to be provided to users. This is also to determine various use cases and any new features for existing software. During this phase determine application that can benefit from leveraging the characteristics of the cloud are identified. List of cloud providers which can be used will be listed.

Platform Evaluation

The capabilities and architecture of the chosen cloud service have a large impact on the final solution. This phase will determine which cloud provider will be fit for purpose. Various cloud providers provide ISVpartnership. This phase will include architects, developers, cloud expert, product owner. In this phase architecture will be determined. Perform Proof of Concept for cloud providers. Draw out graphical layout for architect. Finalise SDLC methodology to use. Determine how software will be deployed for ex. to run containerised application AWS provides option of ECS and EKS. Also determine is application will work in hybrid mode (on-premise and cloud) or on cloud. Disaster recovery strategy to be determined which can include which regions the application can be standby mode and which disaster recovery method to be used. Determine availability of software which includes highly available in one region or across multiple geographies. Deciding which Programming language to use, monitoring tools. Determining Security, compliance and governance.

Planning Phase

Create project plan, project schedule, resource plan, design specification, team size and team structure. Jiracan be used for creating epics for current iteration deliverable. To define the process for faster deliveries. Confluence pages to add details of decisions.

Subscribing

This phase will acquire subscription for SaaS on cloud provider. This is to finalise which subscription model AWS provides 3 subscription models pay-as-you-go model, advanced billing and contracts with pay-as-you-go. Also determining how customer will access product either through AWS private link or own product website. Determine components to be setup in cloud for SaaS.

Development

Create technical documents based on design specification and architect. For REST API development Java, Spring boot, Maven can be used. For UI html5, CSS, angular JS or react JS can be used. Setting up code repository for this GitHub, AWS code commit, SVN can be used. To containerise the application, create a Docker base image which has all required components for running application or select image which has required components. Leverage use of cloud provided components for ex for docker image repo AWS ECR can be used. Setup database, integrate with required third party or cloud components. The database selection is also crucial depending on requirement SQL or NoSql and standalone of AWS RDS Unit testing, load testing and penetration testing to be done. Develop security components for software. This phase will help in determining upgrade or rollback strategyfor software. The strategy should have less user impact. For static content delivery use of CDN improves faster deliveries across globe and reduces load on server or storage location.

Create the pipeline using Jenkins or AWS CodePipeline or any other for setting pipeline of packaging and deploying applications to servers or containers. The pipeline can involve approvals, integration with tools like SonarQube for code quality, NexusIQ for vulnerabilities, Migration of existing components to cloud.

Integration of monitoring tool like AppDynamics, new relic and analytics like google analytics. The logs monitoring tools to be integrate with application to send required logs.

Refine architect diagram and documents. Create the support documents and user documents.

Operations

Deployment of software to production environment and integrate with live subscription on cloud. Setup deployment to production strategy. Setup alerts for any failures or thresholds breach which can be done with CloudWatch alarms or monitoring tool alarms and sending alerts to relevant users. Disaster Recovery testing. Finalize support plan, training plan, escalation matrix. Setup of monitoring dashboards for quick view of overall resources like CloudWatch dashboard, Grafana dashboard or custom dashboard.