

Background

FishTank Ltd, a provider of advertisement services to broadcasters in EMEA and LATAM, currently operates IT applications from two third party-owned data centres in Poland and Mexico City. Facing constraints in IT resources, timescales, and budgets, they seek a cost-effective transition to the cloud without service interruption. Their goals include implementing disaster recovery measures and safeguarding their reputation with clients.

Proposal

To ensure a seamless transition to the cloud without disrupting existing services, FishTank Ltd must develop a comprehensive migration plan. This plan should outline the approach, timelines, and required resources for the migration process.

Prioritising applications and services based on complexity and dependencies is crucial. Identifying low-risk applications for early migration minimises disruption. Data transfer can be executed in batches and stored in Amazon S3, known for its high durability and scalability. Services such as AWS Server Migration and AWS Database Migration can be used to automate data migration from physical data centres to Amazon S3 or other services like RDS, based on database requirements. Automating transfers can accelerate the process, and parallel migration for different applications can expedite it further. Additionally, advanced services like AWS Snowball can further ensure high-speed, reliable large-scale data migration.

Detailed analysis of workload performance and resource utilisation can help with adhering to tight budget constraints. Also, Leveraging various cost plans offered by AWS can help cut down the cost further. Utilising spot instances can save up to 90% while batch transferring data, offering fault tolerance for interruptions during data transfer. Tools like AWS Cost Explorer, AWS Budgets, and AWS Cost Anomaly Detection can help optimise further resource allocation.

With careful planning and utilization of AWS's cost-effective solutions, FishTank Ltd can successfully migrate to the cloud within budget and without service disruption.

The benefits of moving its services to the cloud are as follows -

Short-term benefits

Disaster recovery

Current limitation – The company does not have a system in place to back up critical data in case of hardware failure, natural disasters, or cyber-attacks. This can lead to disruption in services leading to potential revenue loss and business reputation.

Benefits of Cloud Deployment - On deploying its data and applications to the cloud the company can have its data stored in data centres placed in multiple availability

zones within geographic regions depending on its customer base. Each availability zone will have independent power and infrastructure reducing the risk of data loss in case of failure of a single availability zone. This will provide fish tank ltd high availability and redundancy, ensuring continuous operation in case of a disaster such as hardware failure or network disruptions. Fishtank can also set up auto-automated backups using services like Amazon S3 OR RDS. Data can also be replicated across regions for data recovery in case of natural disaster.

Scalability and availability

Current issues -The company is struggling with limited IT resources, and they must juggle between projects to meet the tight deadline to maintain their reputation with the client. The company is operating from two physical data centres that impose limitations in terms of expansion as the data centres will have restrictive space for storage space in terms of server racks and networking equipment which means they may struggle to accommodate increased workload demands efficiently.

Benefits of cloud deployment - Transitioning to the cloud can effectively mitigate the scalability challenges resulting from the company's current constraints on IT resources. AWS Cloud offers a seamless scaling experience by supporting both vertical and horizontal scaling methods. Vertical scaling involves upgrading or adding more resources (like CPU, RAM, or storage) to a single server or virtual machine, thereby enhancing its performance and capacity. Additionally, horizontal scaling distributes these instances across Availability Zones, not only boosting performance but also enhancing overall reliability and accommodating increased workload demands efficiently.

FishTank Ltd can effortlessly provision these resources on-demand, specifying the desired configuration—such as instance type, storage capacity, and network throughput—through the AWS Management Console, CLI, or APIs helping them to scale their business without a break in their service and providing availability throughout

FishTank Ltd can effectively use AWS Auto Scaling to dynamically adjust compute capacity. They can define scaling policies based on metrics like CPU usage, set triggers for scaling actions, and configure Auto Scaling groups with minimum and maximum instance limits. With dynamic scaling enabled, their infrastructure can respond to demand changes by launching or terminating instances automatically. Continuous monitoring will allow adjustments to optimise performance and cost efficiency. Integration with load balancers will ensure even traffic distribution. This streamlined approach will ensure FishTank Ltd can efficiently handle workload fluctuations while maintaining optimal resource utilisation and cost control.

Latency

Current Issue: FishTank Ltd currently faces latency issues as their data centers are solely based in Poland. This geographical limitation results in customers located on the opposite side of the globe experiencing delays in data processing.

AWS Benefits: Adopting AWS offers a solution to this challenge through its deployment capabilities, particularly edge locations. By leveraging edge locations, data processing can occur closer to end users, significantly reducing latency. AWS provides services like AWS Lambda and AWS IoT Greengrass, enabling FishTank Ltd to execute code at the edge, either on devices or within edge locations. Utilizing such services empowers FishTank Ltd to effectively mitigate latency concerns for their customers.

Mid term benefits

Cost optimisation – Fishtank Ltd is tight on its budget. Deploying their day and application on the cloud can help them optimise their cost by paying for the resources they consume. project's workload performance resource utilisation will need to be analysed in detail to take advantage of various cost plans offered by AWS.

FishTank Ltd can optimise IT costs effectively by leveraging the pay-as-you-go pricing model and cost management tools offered by AWS. With the pay-as-you-go pricing model, Fishtank Ltd only pays for the resources and services they consume, eliminating the need for upfront investments and allowing for flexible resource scaling based on demand.

By rightsizing instances, selecting appropriate storage tiers, and leveraging spot instances, FishTank Ltd can optimise resource usage and minimise costs. AWS also offers Reserved Instances and Savings Plans for predictable workloads, providing significant cost savings compared to on-demand pricing.

FishTank Ltd can further reduce costs by using Spot Instances for fault-tolerant or batch processing workloads, taking advantage of spare compute capacity at reduced prices.

Additionally, AWS provides a suite of cost management tools and analytics that enable FishTank Ltd to monitor, track, and optimize spending across their AWS environment. Tools like AWS Cost Explorer, AWS Budgets, and AWS Cost and Usage Report offer visibility into cost drivers, trends, and anomalies, allowing FishTank Ltd to identify inefficiencies and implement cost-saving measures proactively.

Innovation

AWS provides access to advanced features like machine learning and AI. By leveraging these technologies, FishTank Ltd can drive innovation, gain actionable insights, and deliver cutting-edge solutions to its customers, thereby gaining a competitive edge in the market such as studying customer behaviours to streamline their product and provides services on demand. They can also make use of the AI features to streamline and automate tasks such as dealing with customer queries through chatbots bringing the business cost down on the whole.

Long term Benefits

Global Expansion

Global Expansion and Market Reach: Cloud-based infrastructure provides FishTank Ltd with the scalability and flexibility to expand its operations into new regions, such as North America and APJC territories leveraging the benefits of AWS multi-region infrastructure with the scope for scaling with the increased business demand and maintaining availability at the same time. By leveraging the virtually limitless resources and global reach of cloud platforms, Fishtank Ltd can scale its operations and infrastructure in line with business growth.

Business Agility and Resilience: Cloud-native architecture enables FishTank Ltd to embrace DevOps practices, agile methodologies, and continuous delivery pipelines, empowering the company to respond rapidly to market changes, customer feedback, and competitive pressures.

Enhanced Security

For FishTank Ltd can take advantage of the networking and security features of AWS to safeguard their data and ensure secure communication between resources and the internet. With Virtual Private Cloud (VPC), FishTank Ltd can create isolated network environments tailored to their specific needs, enhancing data privacy and control. Network Access Control Lists (NACLs) provide an additional layer of security by allowing FishTank Ltd to control traffic at the subnet level, ensuring that only authorized communication is permitted.

Moreover, Security Groups enable FishTank Ltd to define inbound and outbound traffic rules, allowing them to restrict access to resources based on their security requirements. This helps mitigate the risk of unauthorised access and potential security breaches.

They can take advantage of AWS Identity and Access Management (IAM) to manage user access to AWS resources securely. FishTank Ltd can make use of IAM to granularly control user permissions, ensuring that only authorised personnel have access to sensitive data and resources. Additionally, IAM supports

authentication mechanisms such as multi-factor authentication (MFA), further enhancing security by requiring additional verification steps for user authentication.

By leveraging these networking and security features provided by AWS, FishTank Ltd can establish a robust and secure infrastructure that protects their data, mitigates security risks, and ensures compliance with industry regulations. This enables FishTank Ltd to focus on its core business activities without compromising on security and data integrity.

Cultural issues that might need addressing -

- Resistance to change - the transition from traditional on-premises infrastructure to cloud-based solutions. Employees may fear the unknown, worry about job security, or resist learning new technologies. These concerns can be addressed by providing clear communication, and training and enabling robust change management plans in place.
- Data Security Concerns: Some stakeholders may express concerns about the security of sensitive data stored in the cloud, fearing potential data breaches, unauthorized access, or compliance violations. These concerns can be addressed by providing security assurance through robust security protocols implemented by AWS cloud services and highlighting the advanced security features offered by AWS.
- Integration challenges - Existing systems, applications, and workflows may not seamlessly integrate with cloud-based solutions, leading to disruptions in operations and productivity. Developing a comprehensive integration strategy and providing adequate training and support can mitigate integration challenges.
- Cultural differences within the organisation, such as resistance to collaboration or a lack of openness to new ideas, may impede the adoption of cloud technologies. Encourage a culture of collaboration, innovation, and continuous learning and development within the organisation. Recognise and reward employees who embrace change and contribute positively to the cloud migration initiative.