Kalpa Optimise

your new ritual for cloud cost optimisation.

Kalpa Optimise is an AI-powered cloud cost optimisation platform that helps to reduce your AWS cloud expenditure.

Principals & Ideology of the Kalpa Optimise

- Kalpa Optimise mainly works around the ideology of the **AWS Well-Architected Cost Optimisation Pillar.**
- It emphasises recommendation, planning, and optimisation to manage cloud expenditures efficiently.
- leveraging best practices for cost reduction and utilising the flexibility of AWS pricing models.
- Kalpa Optimise works on the ideology of AWS Solutions Architects, AWS Solutions
- Kalpa Optimise believes in the four pillars of cloud financial management: See, Save, Plan and Run.

Existing Problem Statement

Before we jump into the problem statement, let’s ask ourselves the question.

Q: What cost optimisation levers are you currently using to optimise your spending? Are you familiar with common usage-based and pricing model-based optimisations?

If we don’t have a concrete answer to the above question, we have a problem to resolve.

Organisations often struggle with managing cloud costs due to the dynamic nature of usage and the wide range of pricing models available. This results in inaccurate planning, lack of visibility, and ultimately, higher cloud expenditures.

- **Unpredictable Costs:** With varying workloads, it’s difficult for businesses to predict and control spending without significant oversight.
- **Inability to Optimise Across Multiple Models:** Businesses often miss out on cost-saving opportunities due to a lack of understanding of AWS pricing models, such as Spot Instances, Reserved Instances, and Savings Plans.
- **Manual Oversight:** Many organisations still rely on manual processes, leaving potential cost optimisation opportunities unexplored.

Solution By Kalpa Optimise

Our AI-powered cloud cost optimisation platform addresses these issues by:

- Our Platform understands AWS costs and where those costs are coming from.
- Kalpa will always be available with the latest cost-aware architecture design and service selection
- The AI-powered platform helps in evaluating the cost when selecting services. Select the correct resource type, size and number. Select the best pricing model.
- Optimising well-defined strategy for your new cloud operating model which gives and resource recommendations which will help in optimising cost.

How Kalpa Optimise Works

- Kalpa will first analyse your past cloud usage and expenditure by analysing your previous months cost and usage report.
- Perform ETL on the cost and usage report to give account level analysis and create a report around
    - cost model
    - On-Demand Instances
    - Spot Instances
    - Commitment discounts - Savings Plans

    - Commitment discounts - Reserved Instances/Capacity
    - Geographic selection
    - Third-party agreements and pricing
- these reports then will feed to our Kalpa Optmise well trained AI model.
- Our Kalpa AI model being available with the latest cost-aware architecture design and service selection help us to provide new cloud operating model which will help in optimising cost.

Pitfalls In Existing Solutions like AWS Cost Explorer?

While AWS Cost Explorer and other traditional cost management tools offer visibility into cloud expenditures, Kalpa Optimise goes far beyond by automating the complex decision-making process and providing.

This is where the existing solutions lack

1. AWS Cost Explorer is primarily a tool for visualizing costs, but it doesn't offer deep insights into optimising the resource types, sizes, or pricing models used by the organization.
2. AWS Cost Explorer, while useful for tracking costs, requires manual configuration to dive into individual services, which can be time-consuming and error-prone.
3. AWS Cost Explorer requires manual intervention to draw insights and implement changes.
4. AWS Cost Explorer cannot directly leverages AWS Well-Architected Framework’s Cost Optimisation Pillar, integrating best practices to manage cloud expenditures effectively.

Why Choose Kalpa Optimise

OR

How Kalpa Optimise Will Help Organisations and Automate the Work of AWS System Architects and System Partners

Kalpa Optimise is designed to streamline and automate the complex tasks associated with cloud cost management. For AWS System Architects and cloud system partners, it offers a powerful AI-powered platform that not only identifies inefficiencies but also provides actionable recommendations to drive significant cost savings. Here's how Kalpa Optimise benefits organisations:

1. **Automated Cost Monitoring and Optimisation:**
    - Kalpa Optimise analyse your previous month cloud costs, reducing the need for manual oversight. By identifying underutilised resources, misconfigured instances, and inefficient services, it automatically recommends more efficient resource configurations that align with cost-saving best practices.
    - The platform continually monitors changes in your AWS environment, adjusting recommendations based on evolving workloads, ensuring that cost optimisation remains an ongoing process.
2. **AI-Driven Recommendations for AWS Pricing Models:**
    - Kalpa Optimise leverages AI to assess the most cost-effective pricing models for your workloads. This includes dynamically suggesting whether Spot Instances, Reserved Instances, or Savings Plans would be more appropriate, and adjusting these recommendations as your usage patterns change.
    - The platform evaluates and adjusts the resource types, sizes, and numbers to optimise costs while maintaining system performance.
3. **Simplified Architectural Decisions:**
    - For AWS System Architects, Kalpa Optimise simplifies architectural decisions by offering up-to-date insights on the best AWS services to use based on the specific needs of the business.
    - The platform recommends the most cost-effective cloud architecture based on the workload type, usage patterns, and specific requirements like high availability, redundancy, or compute-intensive operations.

4. **Continuous Improvement and Learning:**
    - Unlike traditional cost management solutions, Kalpa Optimise's AI learns from your environment, improving its recommendations over time. The platform adapts to the changing cloud landscape, ensuring that your cloud cost management strategy is always aligned with the latest trends and best practices

Kalpa Optimise Under The Hood

1. End user/organisation uploads past 1 to 3 months AWS Cost and Usage Report (CUR) to a secure storage location (e.g., AWS S3 bucket).
2. An ETL data pipeline job processes the uploaded CUR data. This job extracts, transforms, and loads (ETL) relevant information into an optimised format for analysis.
3. The pipeline focuses on key cost drivers: Reserved Instances (RIs), On-Demand Instances, and other significant AWS services, analysing usage, costs, wastage, and over-provisioning.
4. we can also focus on reserved and on-demand instances, also consider saving the cost of unattached EBS volumes, un-utilised load balancers, and idle RDS instances.
5. The transformed and analysed data is stored in an AWS RDS for MySQL database, specifically in analytics tables designed for efficient querying.
6. A REST API microservice retrieves the analysed data from the MySQL database for a specific organisation.
7. This microservice constructs a detailed prompt, incorporating key cost and usage metrics, for the AWS Architect AI model.
8. The microservice sends the generated prompt to an AWS Architect AI model (e.g., using Amazon SageMaker or a custom-built model).
9. The AI model analyses the prompt and provides recommendations for optimizing the organisation's AWS cloud architecture, focusing on cost reduction and efficiency.

10. The model should give back specific actionable items, and not just general advice. For example: "Replace these 5 t2.micro instances with 3 t3.small instances" or "Purchase these specific reserved instances.
11. The microservice receives the AI model's recommendations and stores them in a 'results' table within the MySQL database.
12. A front-end (FE) platform retrieves the recommendations and presents them to the end user.
13. The FE platform provides a clear comparison between the user's current AWS setup and the AI model's optimised recommendations, highlighting potential cost savings and efficiency improvements.
14. The Fe platform Implement visualisation tools (e.g., charts, graphs) to present the cost savings and efficiency improvements in a clear and concise manner.
15. Allow users to provide feedback on the AI model's recommendations to improve its accuracy.
16. Provide the ability to download reports.