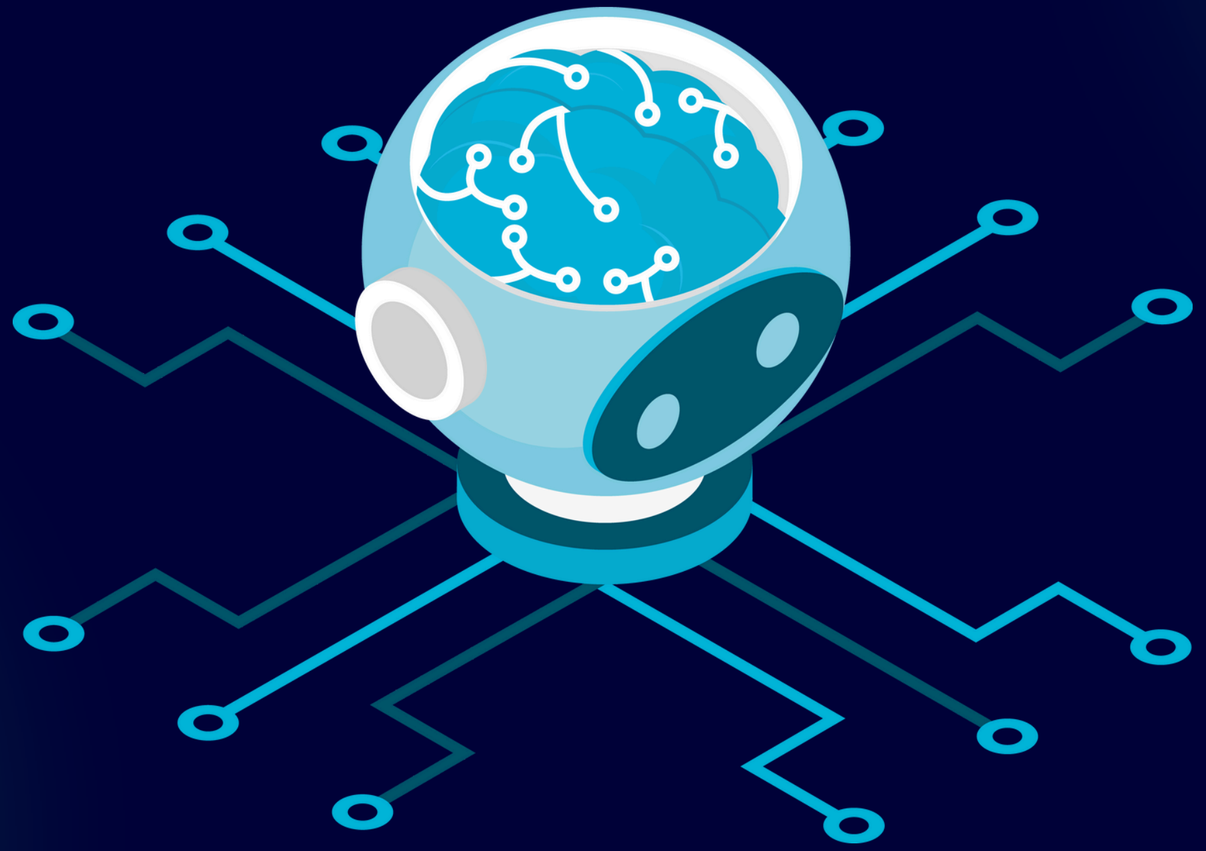
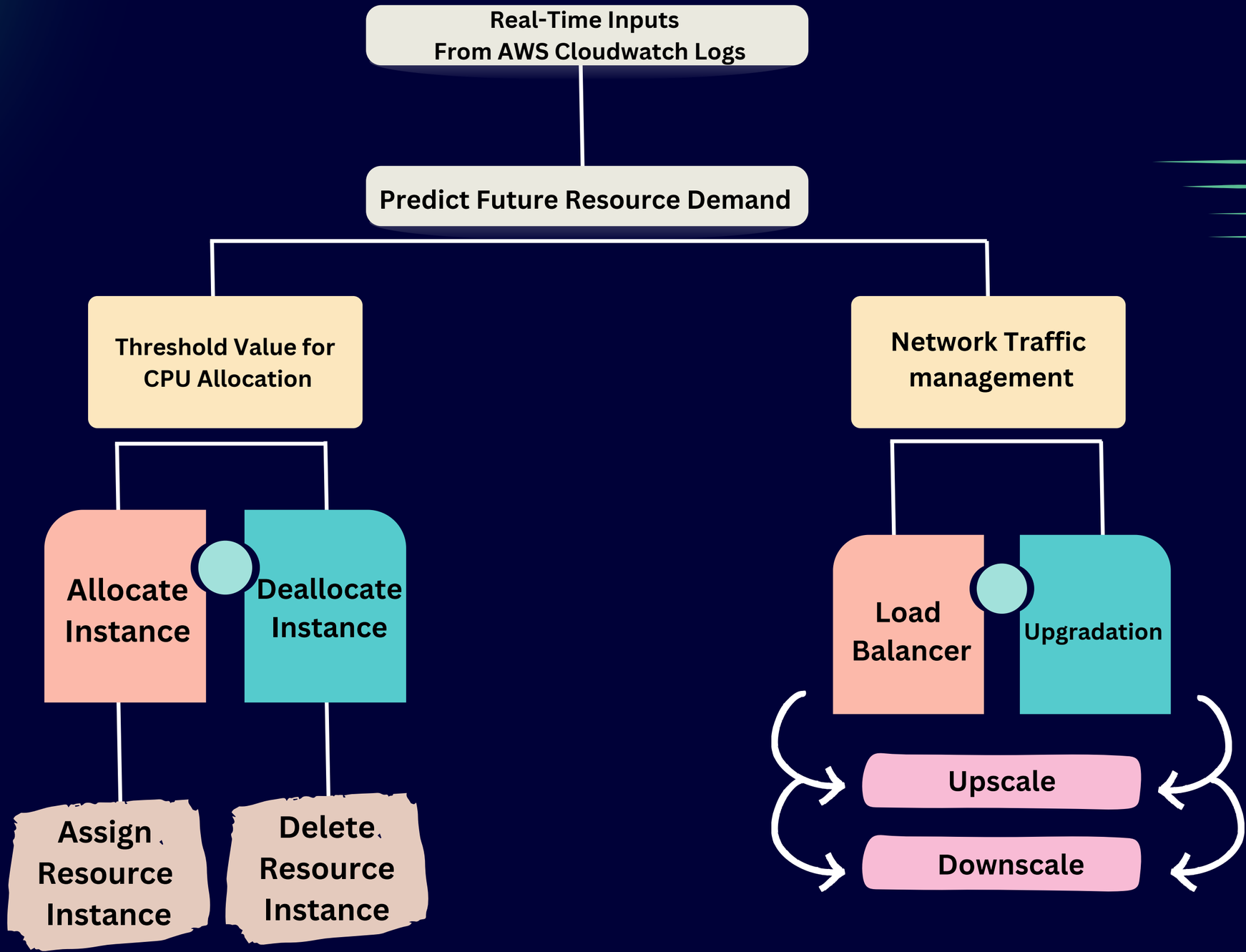
Nebula Nexus:
AI-Powered Resource Predictions



Presenting NEBULA NEXUS

- Real- Time Data Processing
- Predictive Analysis
- Threshold Management
- Scalability Management
- Dynamic Allocation
- Load Balancing
- Automated Decision Making
- User Interface


Real-Time Inputs
From AWS Cloudwatch Logs
Predict Future Resource Demand
Threshold Value for
CPU Allocation
Network Traffic
management
Allocate
Instance
Deallocate
Instance
Load
Balancer
Upgradation
Assign
Resource
Instance
Delete
Resource
Instance
Upscale
Downscale

IMAGINE !?

A popular pizza place;
Without a load balancer,
One chef handles all orders
while others sip coffee.
Chaos ensues as pizzas pile up,
leading to hungry customers and cold pies!

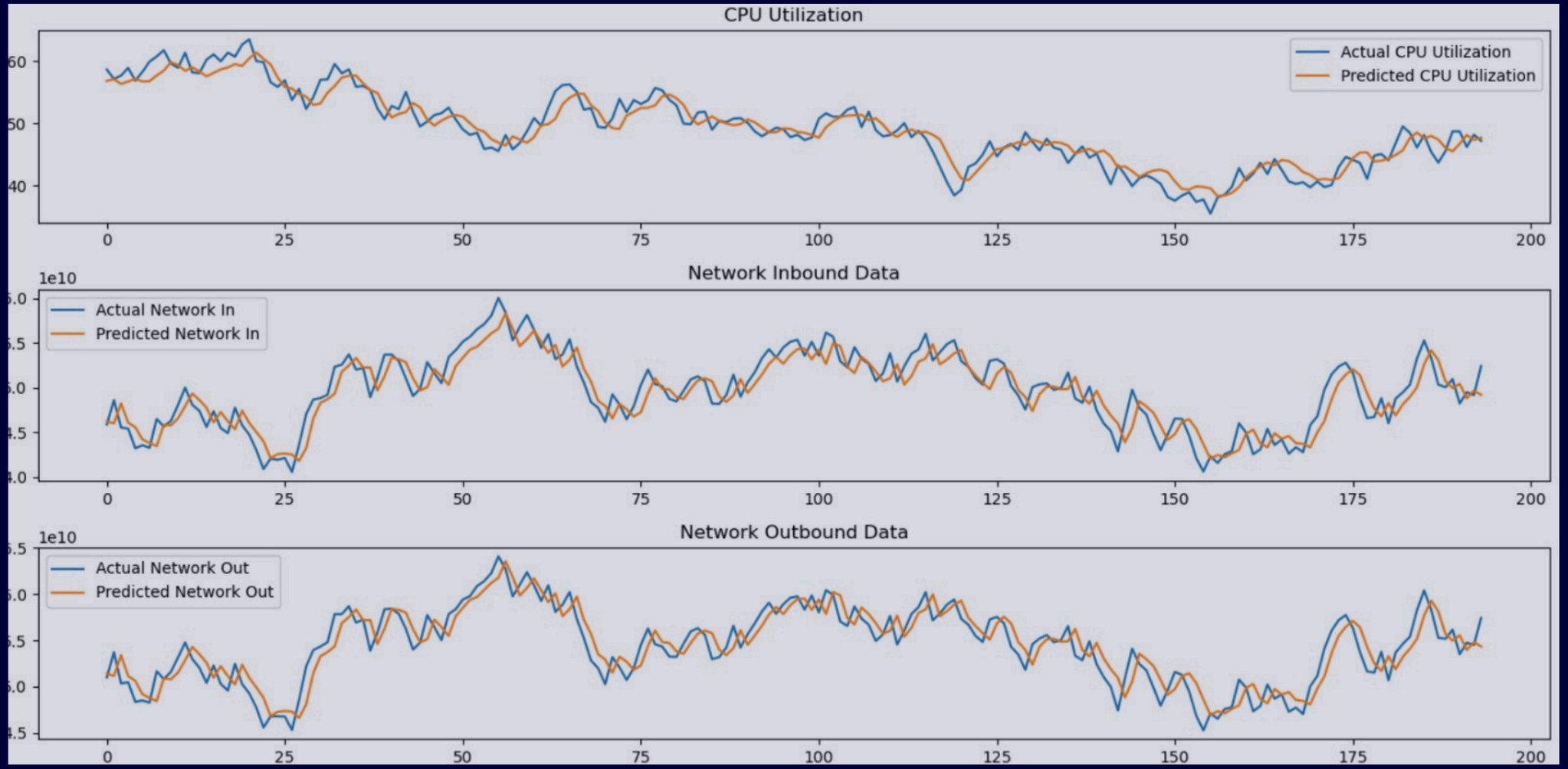
This illustrates the importance of a load balancer effectively...

Show Stoppers

- Advanced LSTM Model: The LSTM model has been rigorously tested in multiple scenarios, effectively filtering out unnecessary predictions and providing accurate forecasts.
- Spike-Resistant Training: The model is designed to remain stable and unaffected by sudden traffic spikes or manual interventions, ensuring it delivers true predictions without being misled
- Optimized Resource Management: Instead of always load balancing, we focus on upgrading resources only when necessary, particularly for handling lower traffic levels efficiently.
- Traffic-Based Upgradation: Resource upgradation is dynamically adjusted based on specific traffic ranges, ensuring no extra resources are wasted.
- Auto-Scaling: Our model adapts to the current need, automatically downscaling resources during low traffic to save costs and optimize resource usage.
- Efficient Caching: Implementing caching significantly improves performance by offloading less frequently used files and retrieving them from the S3 bucket only when required.

Magical Model Maker

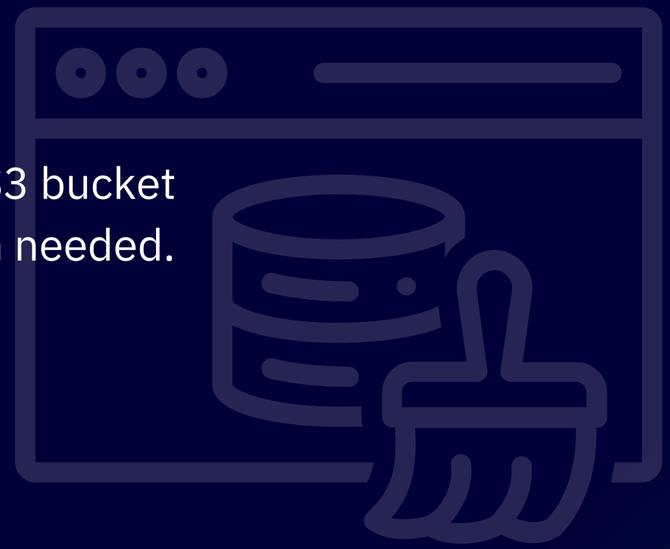
We employed an LSTM-based approach to predict CPU utilization, network inbound bytes, and network outbound bytes, generating accurate forecasts that are visualized in the accompanying output graphs.



We developed our AI-powered cloud predictions using a robust tech stack, including Python, Flask, Amazon S3, and Amazon EC2, ensuring efficient performance and scalable solutions for our users

Major Affect

CACHING MEMORY:



Enhances performance by offloading infrequently used files to a S3 bucket and Optimizes resource usage while ensuring quick retrieval when needed.

File Evaluation

File Size

- < 10 MB
- 10 - 50 MB
- > 50 MB

Access Frequency

With a Threshold of 10 Days