

PREDICTIVE VIGILANCE
Transforming
Data Center Reliability
THROUGH ALARM PREDICTION



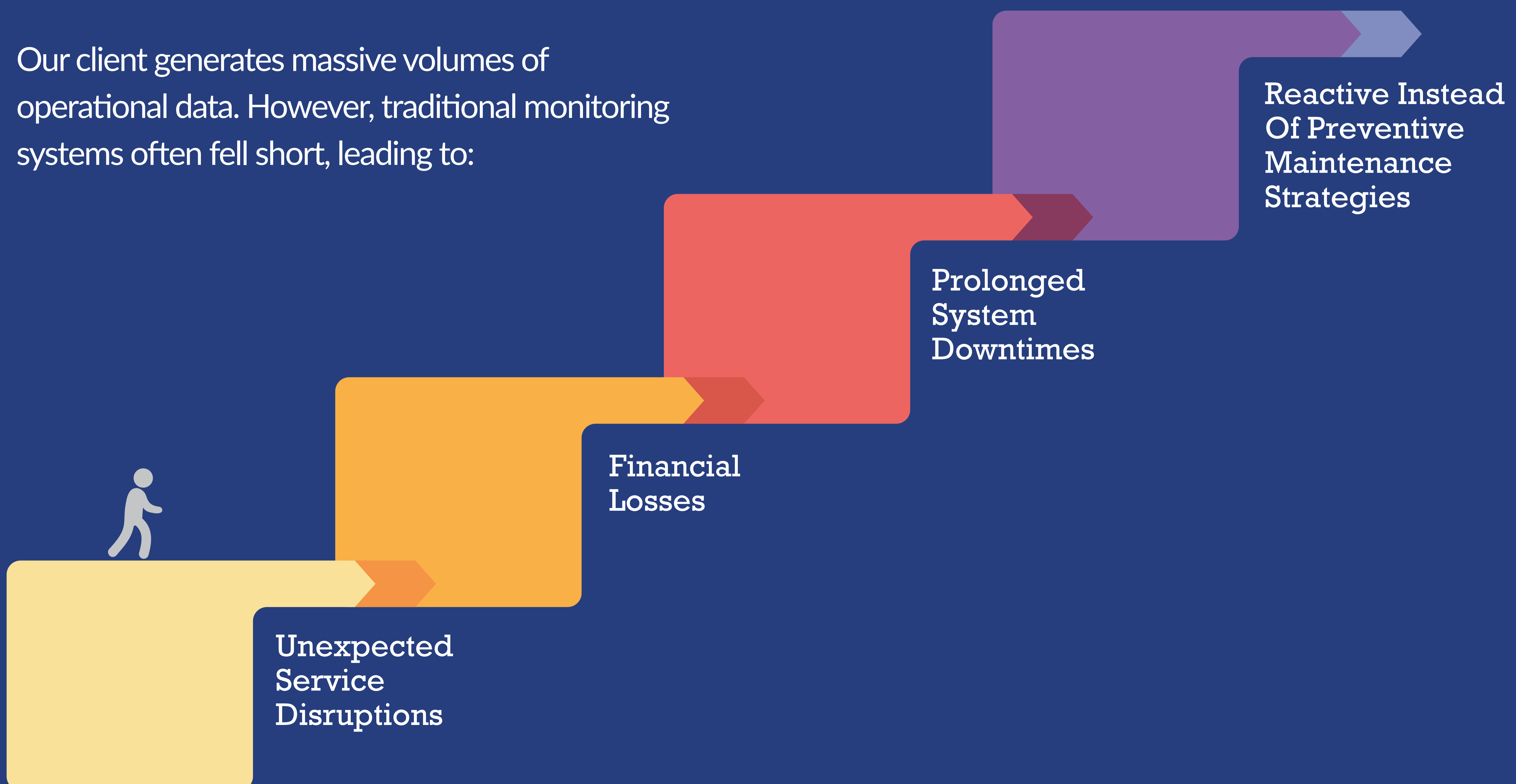
Client Profile

The client is a leading multinational technology company serving millions of customers globally. They provide **data storage, protection, and cloud solutions** that are critical to the data operations of many of the world's largest organizations.

By partnering with us, they wanted to further enhance their ability to deliver reliable, scalable, and secure solutions to their customers without any service disruption.

The Challenge

Our client generates massive volumes of operational data. However, traditional monitoring systems often fell short, leading to:



Mantra's

Data-Driven Approach

Data Processing

Data Ingestion

Collected and processed a massive dataset of event logs from nearly **300 customer-reported callbacks**.

Feature Engineering

Developed **event log parsing mechanisms** from ~1Terabyte of unstructured text data to identify patterns and correlations

Predictive Modeling

Time Series Analysis

Employed time series analysis techniques such as **ARIMA**, and **Holt-Winters models** to identify patterns and trends in the data.

Model Development And Testing

Established a stable code branch and conducted comprehensive performance tests under simulated customer environments to ensure the model's accuracy and reliability.

Machine Learning Algorithms

Tested advanced machine learning algorithms, including **LSTM** with 20 layers, to build predictive models capable of forecasting critical alarms.

Model Validation And Optimization

Rigorously tested and fine-tuned our models on simulated loads that predicted **6 alarms with 85-92%** accuracy.

Real-Time Monitoring And Alerting

Real-Time Monitoring

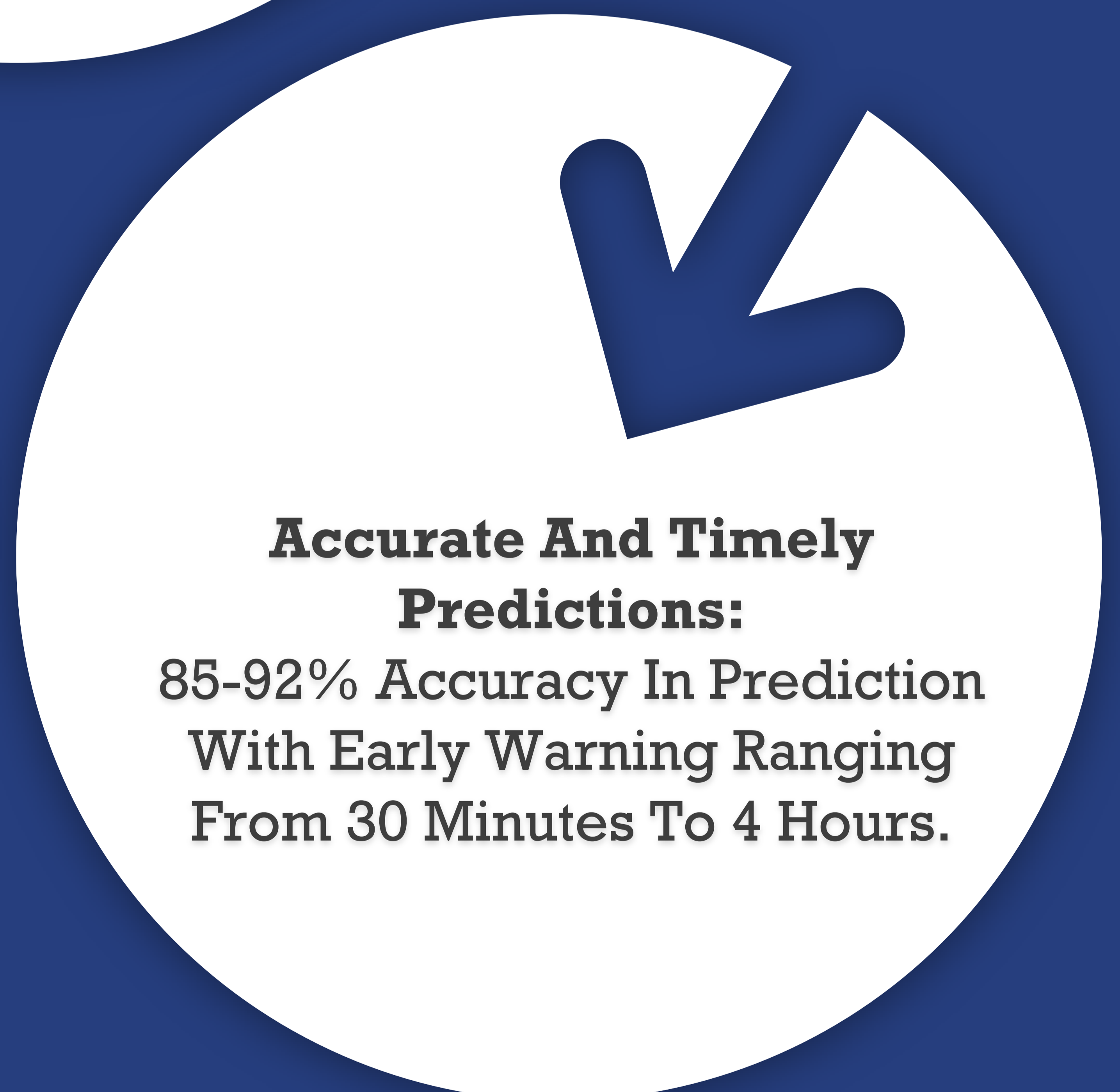
Implemented a real-time monitoring system to continuously track system health and identify potential issues.

Proactive Alerts

Generated timely alerts to notify the operations team of impending critical alarms, enabling proactive intervention.

The Impact

Our predictive models not only identified critical alarms but also provided actionable insights to the operations team. For instance, if the model identified **three critical alarms** within a three-hour window, it triggered an immediate alert, indicating a high probability of a major service disruption within the next six hours. This **early warning system** enabled the client to take proactive measures, such as initiating maintenance procedures or escalating the issue to higher-level support.



An astronaut in a white and red spacesuit stands on the reddish, rocky surface of Mars, looking out at the vast, curved horizon of Earth in space. The Earth's atmosphere is visible as a bright, glowing arc against the dark starry background. The scene is lit from behind, creating a silhouette effect on the astronaut and highlighting the textures of the Martian landscape and the planet's clouds.

**ACHIEVE
OUTCOMES**

**THAT
MATTER**

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