# Autonomous Automation

## How Cloudflare Handles Server Diagnostics and Recovery at Scale

SREcon23 Asia/Pacific

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# Automation and Autonomy: What's the Difference?

- **Automation** is about performing tasks or processes without much human intervention.

- **Autonomy** is the ability to not only perform tasks or processes automatically, but is also performing decisions on its own without any human intervention.

# Levels of Automation

| LEVEL | CONCEPT | DEFINITION | OWNER |
|---|---|---|---|
| 0 | **Manual Operation** | The human operator does all things by hand. | |
| 1 | **Partial Automation** | Some parts are still done by hand but other parts are already done by automation. | |
| 2 | **Full Automation** | Everything is done by automation, but continues to provide space for human interaction. | |
| 3 | **Autonomous Automation** | Full Automation without any human intervention. | |

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# The Cloudflare Network



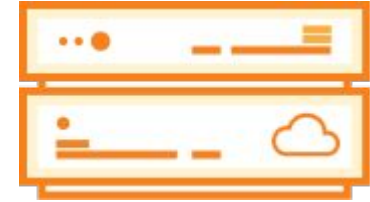Spans more than 285 cities in over 100 countries.

as of Q1 2023

# The Cloudflare Network
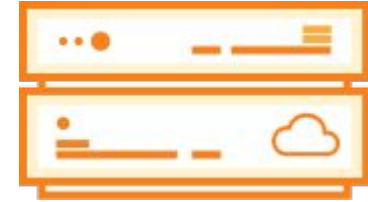


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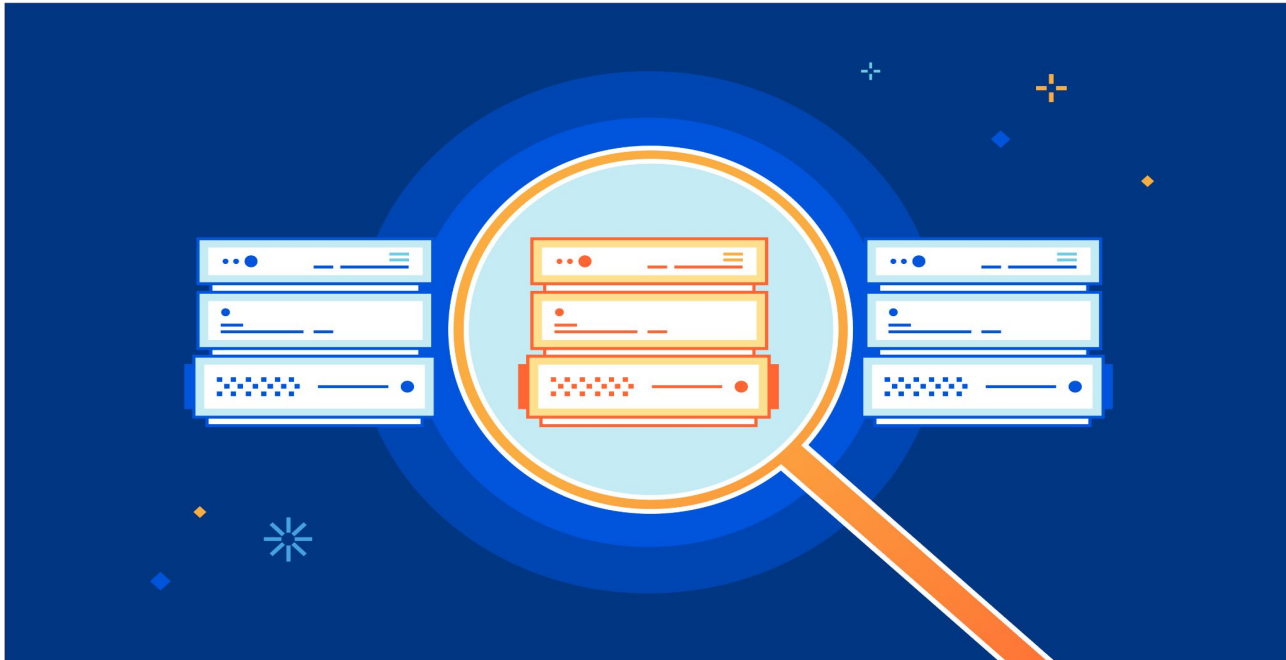Spans more than 285 cities in over 100 countries.

# Life without Automation

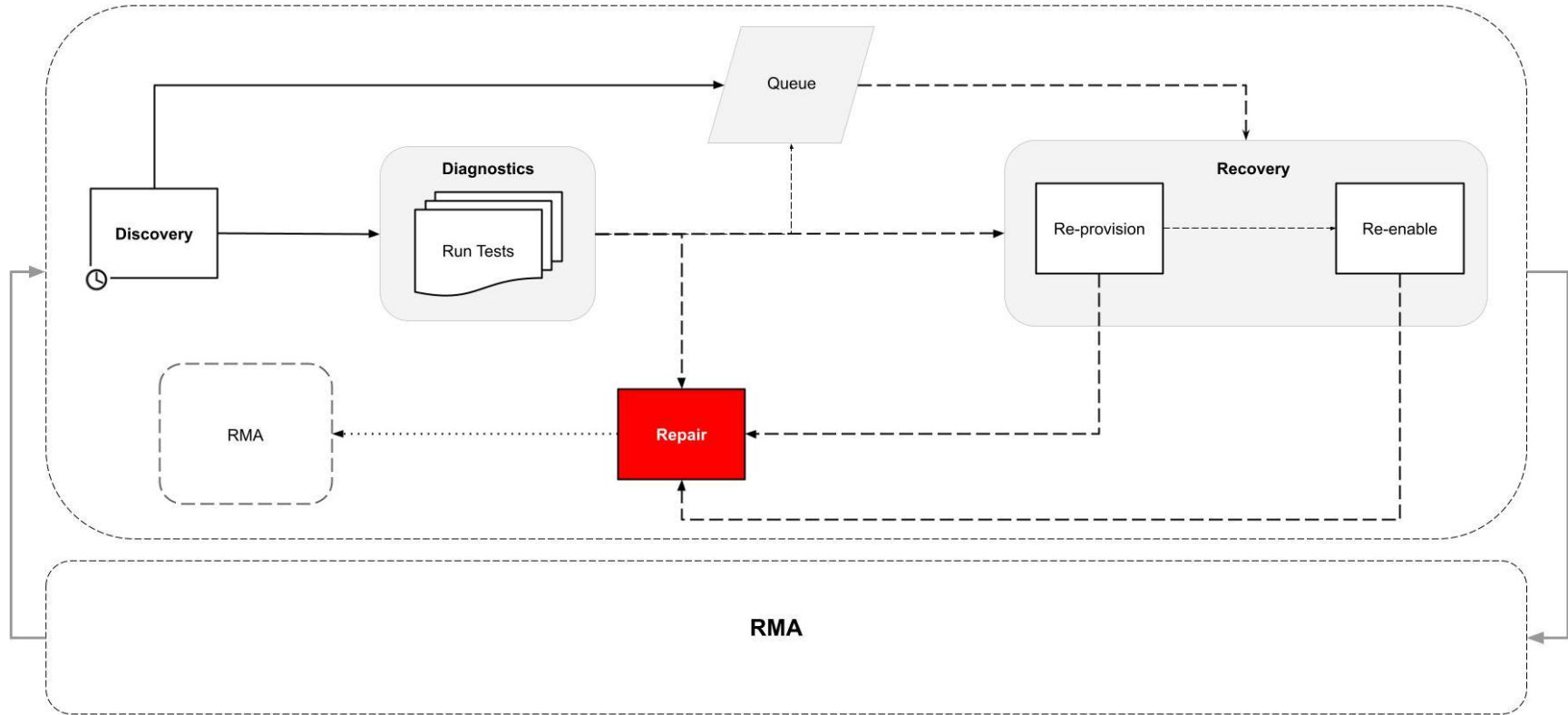- Executing diagnostics and recoveries are so tedious and time consuming!
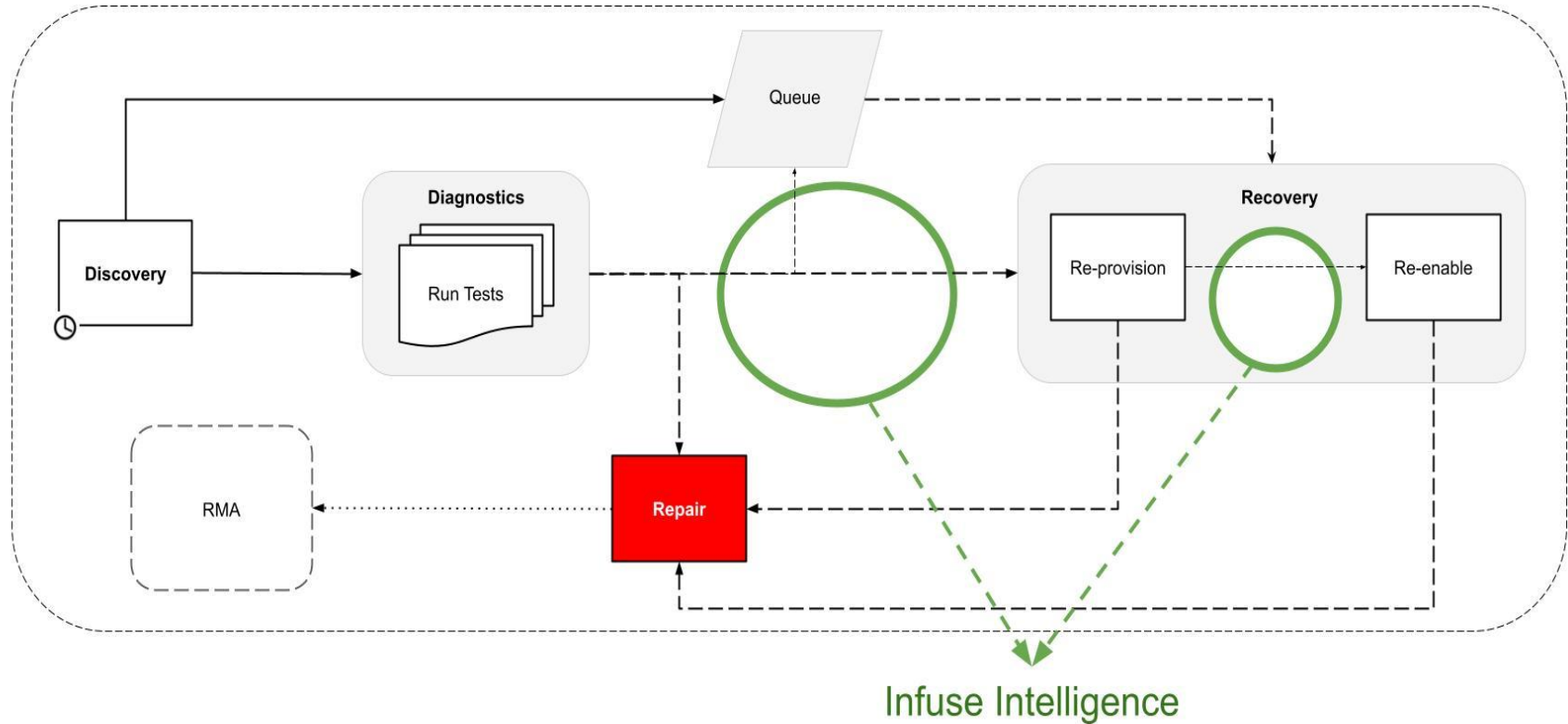
# Applying the Levels of Automation

- From Manual Operation to Full Automation

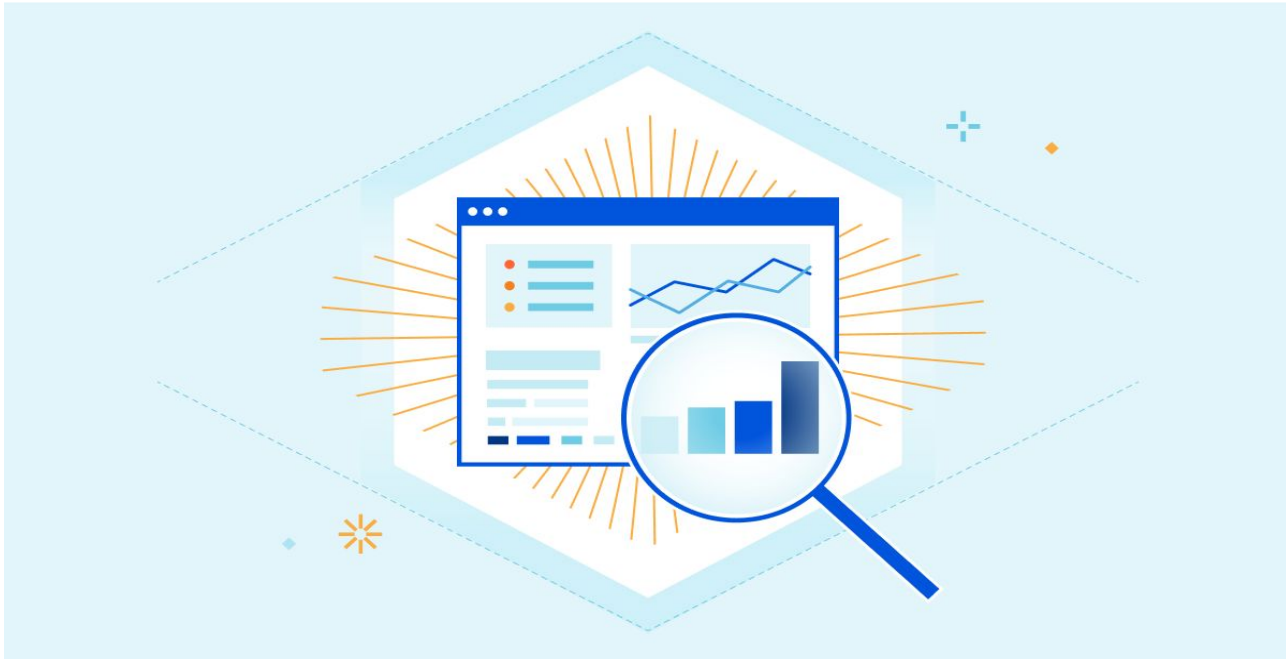# Automating Server Diagnostics and Recovery
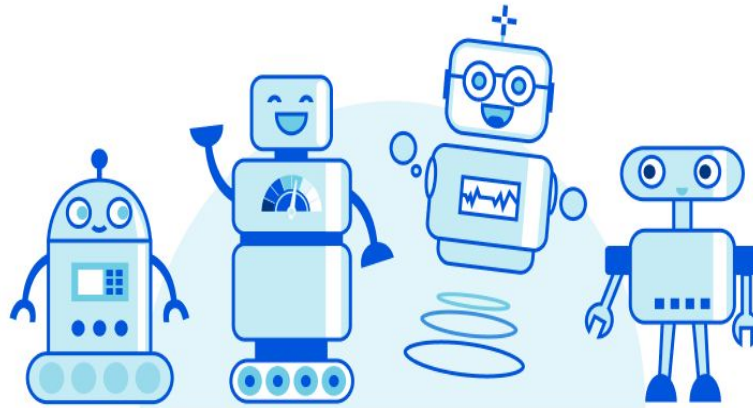
# From Automated to Autonomous

# Infusing Intelligence: Consuming data from Prometheus

- Gaining immediate access to real-time metrics and monitoring information about various aspects of our systems

# Infusing Intelligence: Consuming data from other systems

- Building automation-aware systems that interoperate with other automated systems
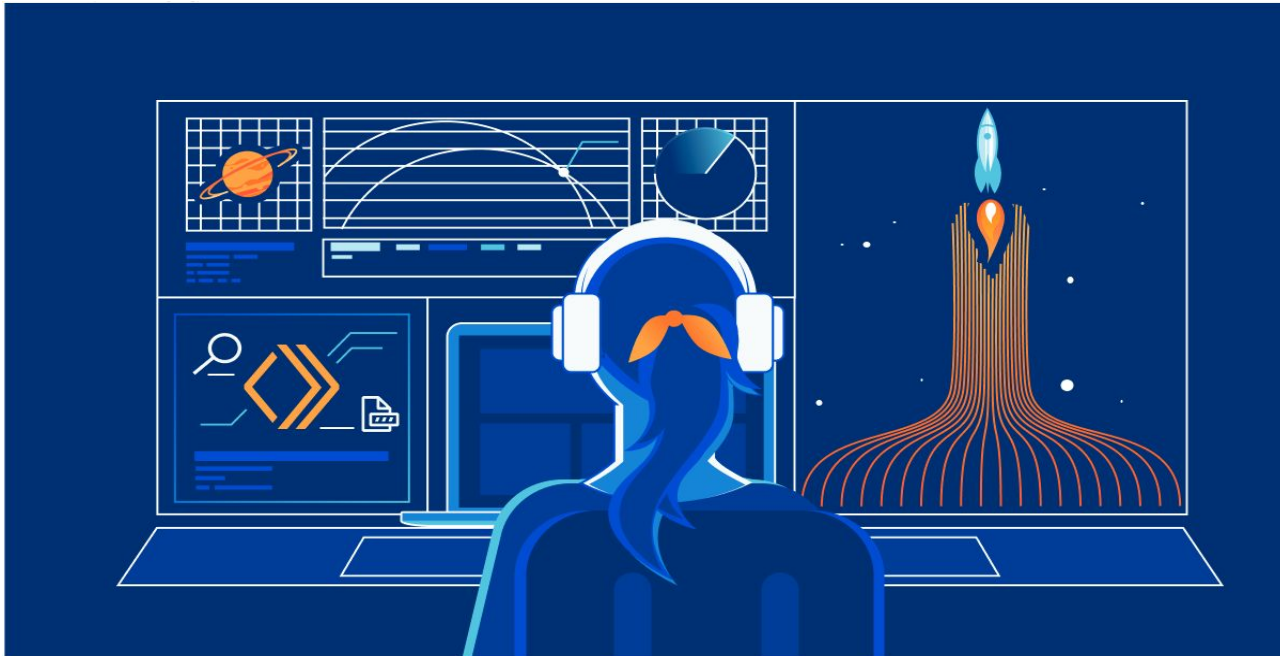
# Infusing Intelligence: Consuming data from other systems

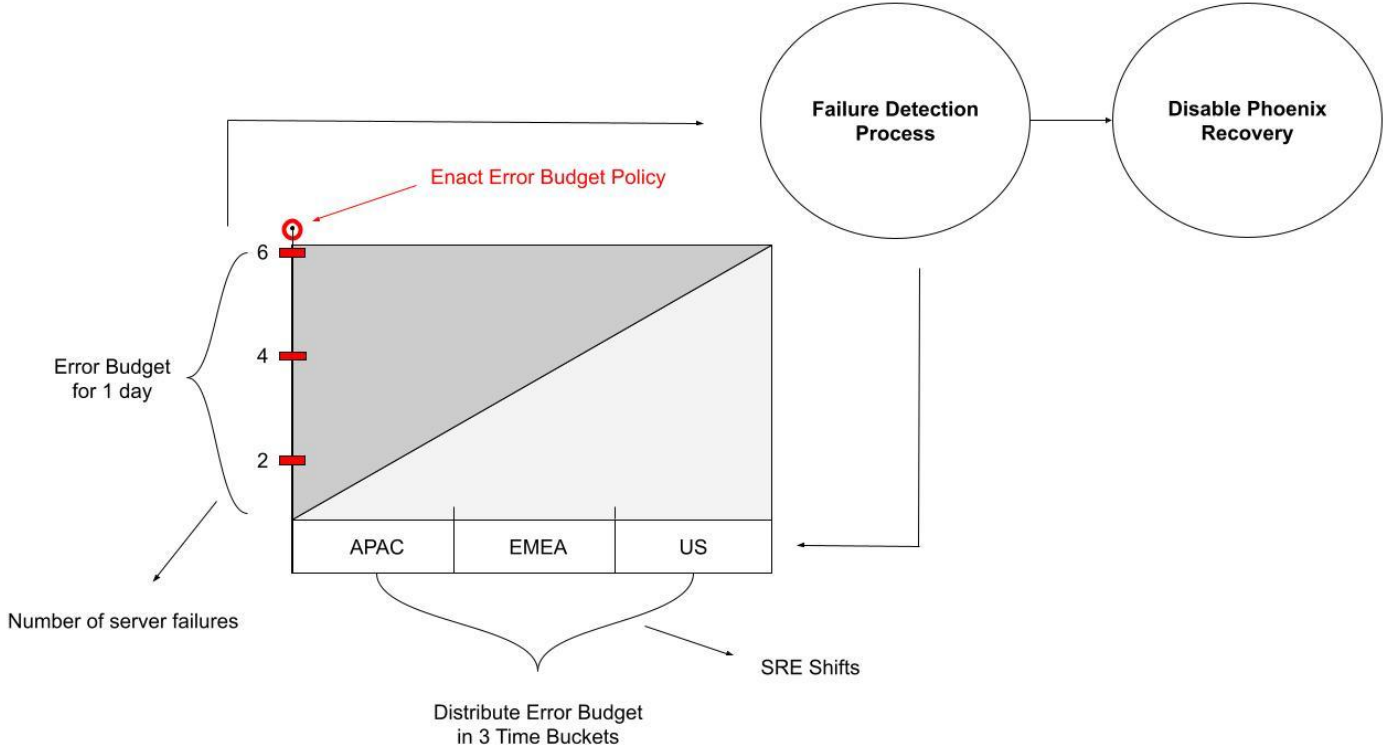- Creating a unified and comprehensive view of a situation
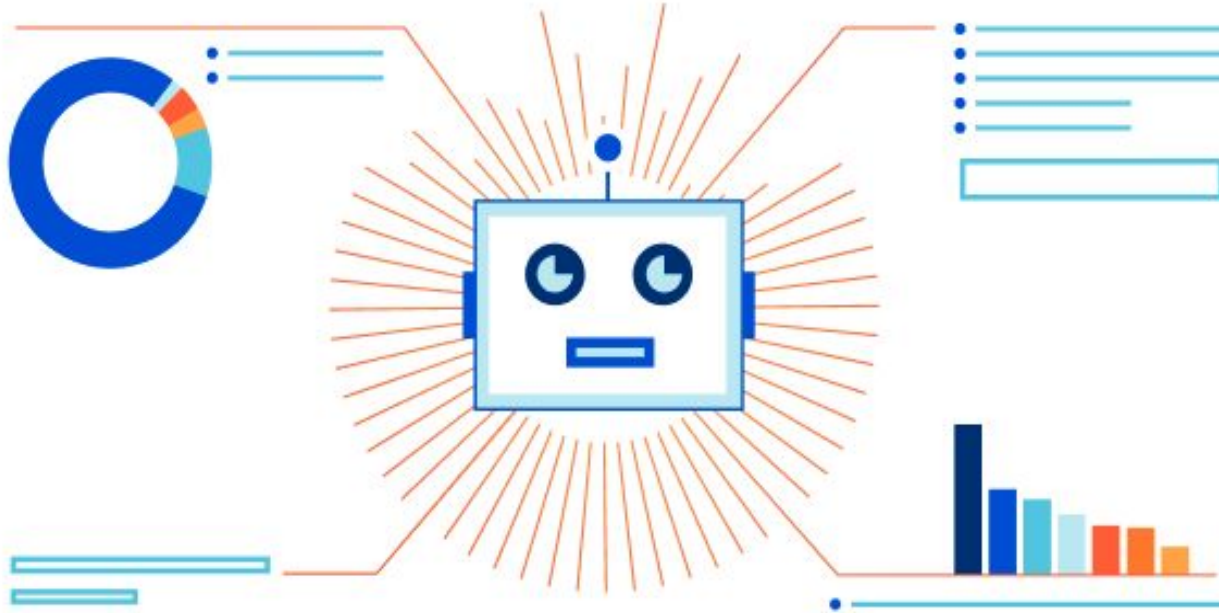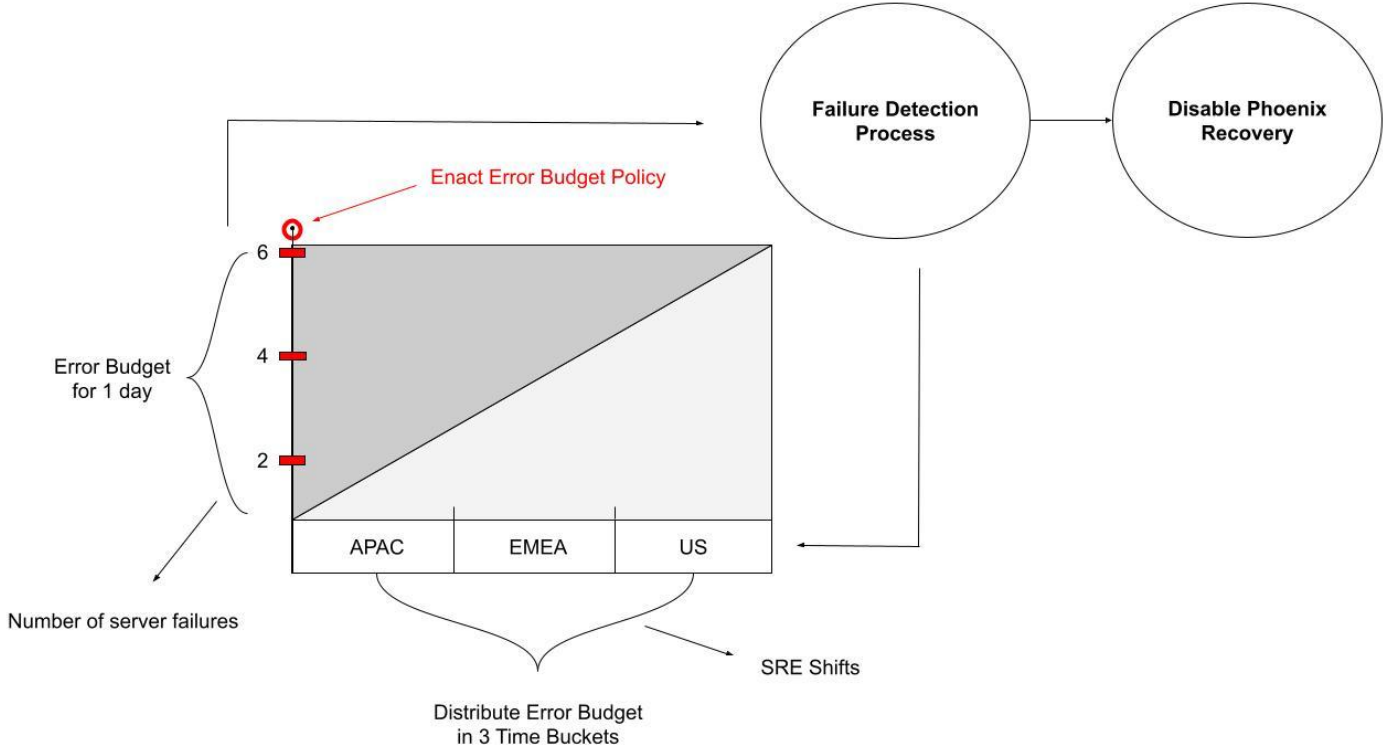
# Situational Awareness Achieved

- Enabling automation to adapt to dynamic environments, optimize performance, and contribute to improved overall system operation

# Error Budgets for Automated Systems

# Empathy in Automations

# Thank you!

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