cisco Live!
Let's go

Connect with us after Cisco Live Amsterdam!

Want to chat more?

Scan the QR code or visit the link!

cs.co/emea

1. Learn more about Cisco Full- Stack Observability
2. Go deep with Cisco AppDynamics
3. Request a personal demo
4. Start a free trial

© 2024 Cisco and/or its affiliates. All rights reserved. Cisco Confidential

The bridge to possible

AI in Observability

Ananda Rajagopal, VP Product, Cisco AppDynamics and FSO
@anandarajagopal

Agenda

- Introduction
- AI capabilities embedded in our observability products
- Generative AI
- MLOps Observability
- AIOps

© 2024 Cisco and/or its affiliates. All rights reserved. Cisco Public

Predictive AI and Generative AI

Predictive AI

Maturity in 2017

Prediction, Recommendation

Predictive AI focuses on analyzing existing data that can be used **for predictions and automation**

Generative AI

Maturity in 2022

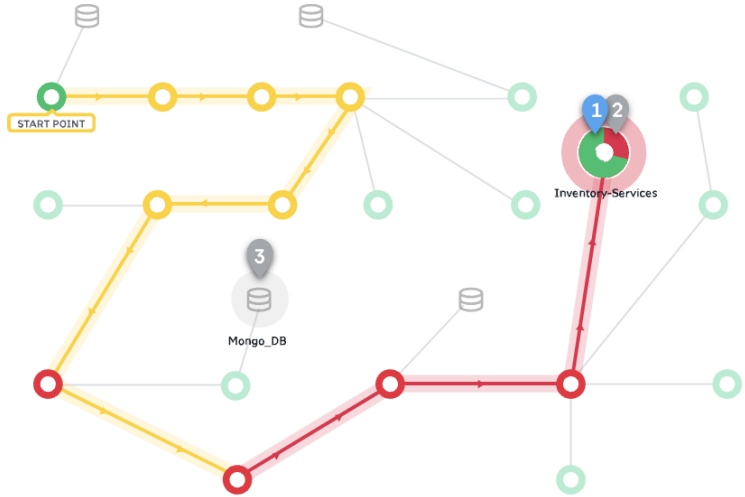
Creation, Reinvention

Generative AI focuses on learning a representation of artifacts from data and using it to **generate original artifacts** based on predicted sequences of information from a given prompt

© 2024 Cisco and/or its affiliates. All rights reserved. Cisco Public

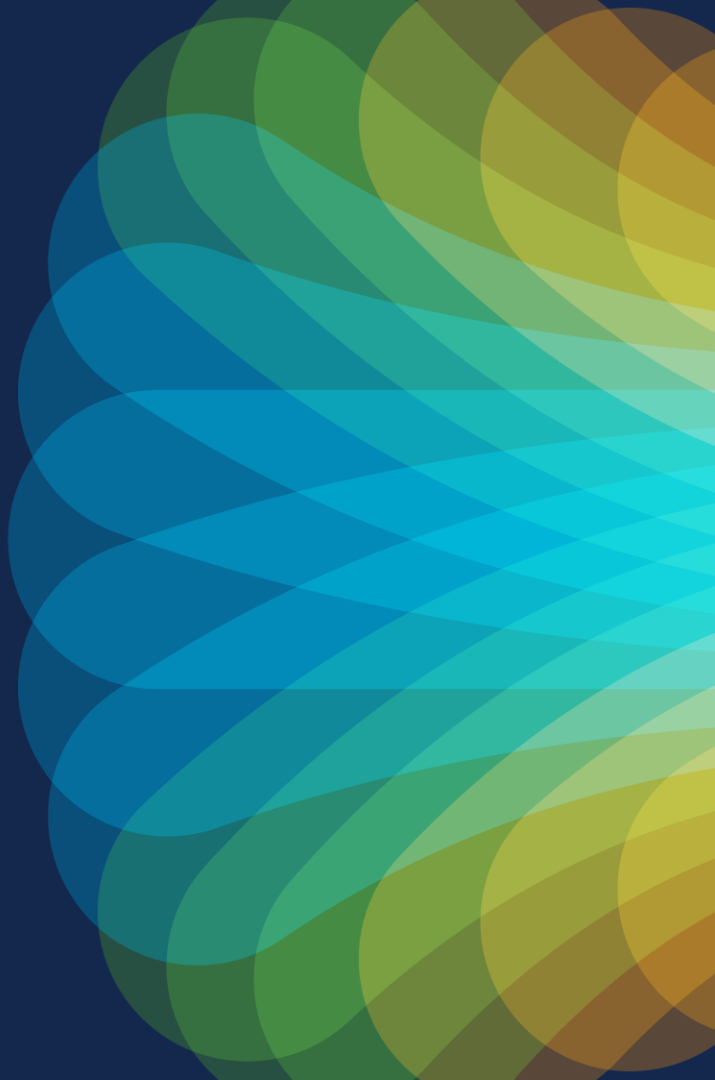
Predictive AI is based on analyzing data

- Analyze performance data across application topologies
- Analyze metrics across full stack
- Apply machine learning algorithms to learn patterns and what is “normal”

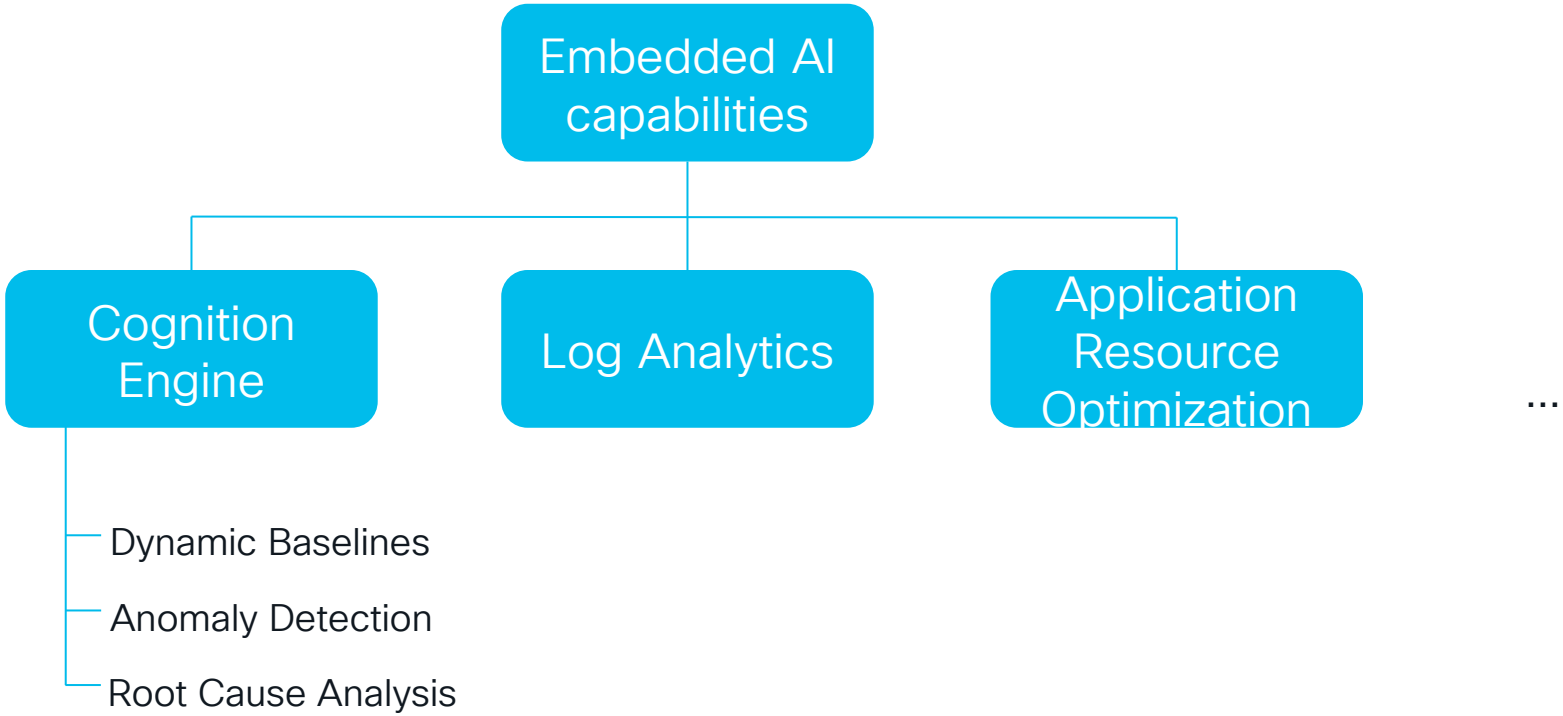


© 2024 Cisco and/or its affiliates. All rights reserved. Cisco Public

AI capabilities embedded in our observability products



Embedded AI capabilities



© 2024 Cisco and/or its affiliates. All rights reserved. Cisco Public

Summary of embedded AI capabilities

Dynamic Baselines
Baseline applications normal behavior every hour and account for seasonality

Anomaly Detection
Detect issues across the full-stack using anomaly algorithm

Root Cause Analysis
Accelerate troubleshooting using RCA and contextual insights

Log Analytics
Quickly detect outliers and patterns in large volumes of logs

Application Resource Optimization
Run continuous AI/ML experiments on workloads to optimize them

© 2024 Cisco and/or its affiliates. All rights reserved. Cisco Public

Dynamic Baselines

Adaptive thresholds

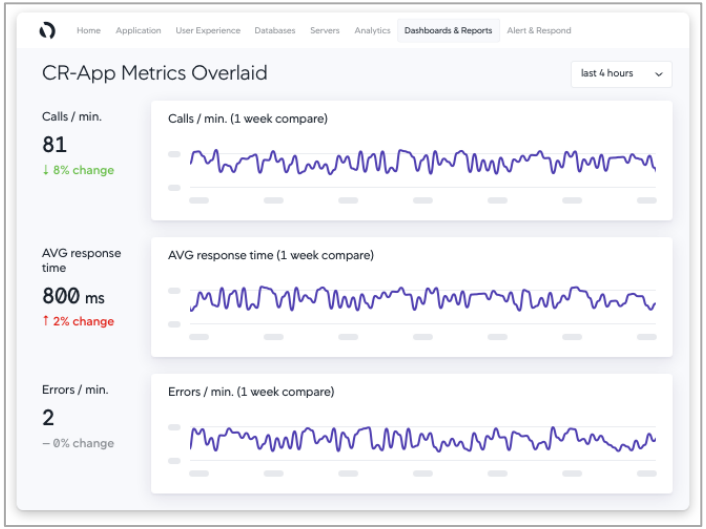
Baselines application's normal behavior every hour using rolling time window

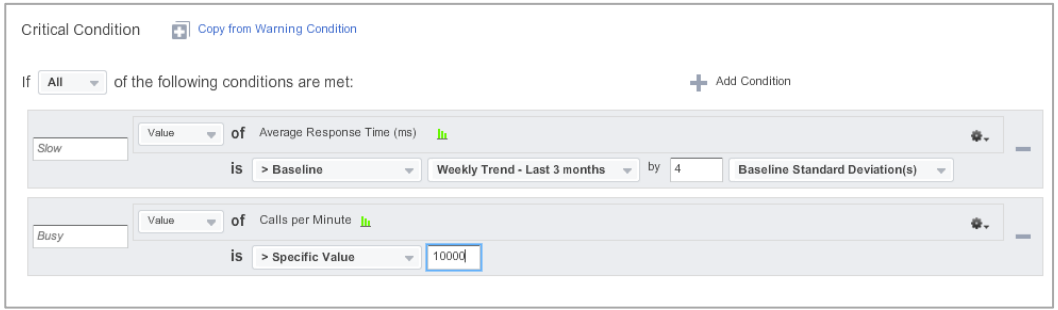
Seasonality

Accounts for daily, weekly, monthly seasonality patterns

Fully configurable

Configure parameters for each metric individually, combine it with threshold-based health rules to meet your use case





© 2024 Cisco and/or its affiliates. All rights reserved. Cisco Public

Anomaly Detection

Detect Anomalies

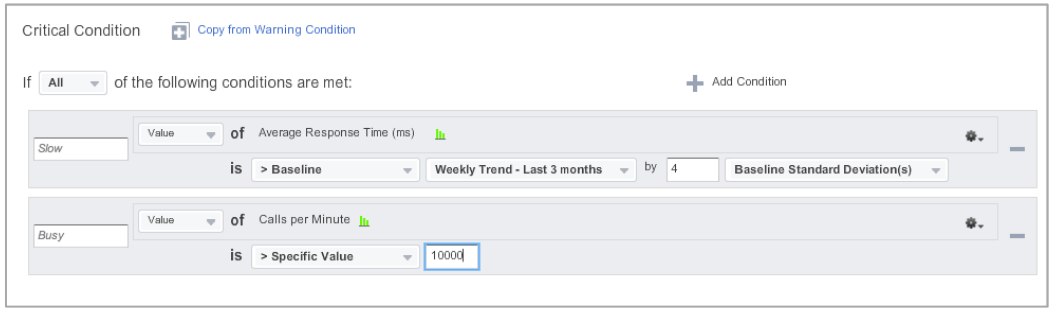
Detect app issues without config

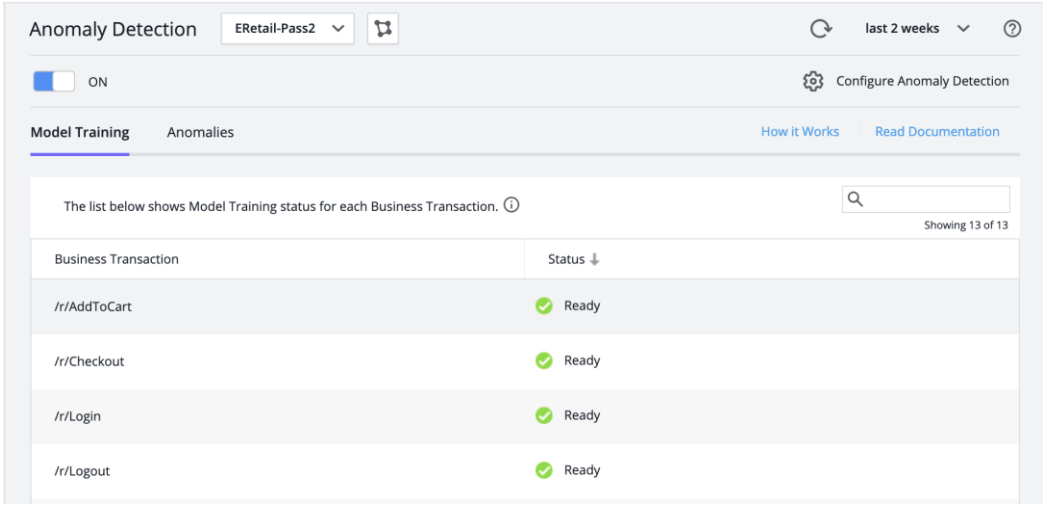
Minimize false alerts

Robust algorithms which include outlier removal, seasonality detection to minimize false alerts

Detect Anomalous transactions

Automatically detect issues in BTs





© 2024 Cisco and/or its affiliates. All rights reserved. Cisco Public

Anomaly Detection Compared to Health Rules

	Anomaly Detection	Health Rules
Normal vs. abnormal	Uses machine learning to detect normal ranges of key business transaction metrics and deviations	Apply logical conditions to one or more metrics
Configuration	No configuration except to limit anomaly alerting	Create health rules as needed beyond default rules
Event	Anomaly = series of anomaly events	Violation = series of health rules
Entity coverage	Business transactions, Services*, Kubernetes*, AWS services* (EC2, ELB)	Any entity

* Cisco Observability Platform only

© 2024 Cisco and/or its affiliates. All rights reserved. Cisco Public

Root Cause Analysis

Automated Root Cause Analysis

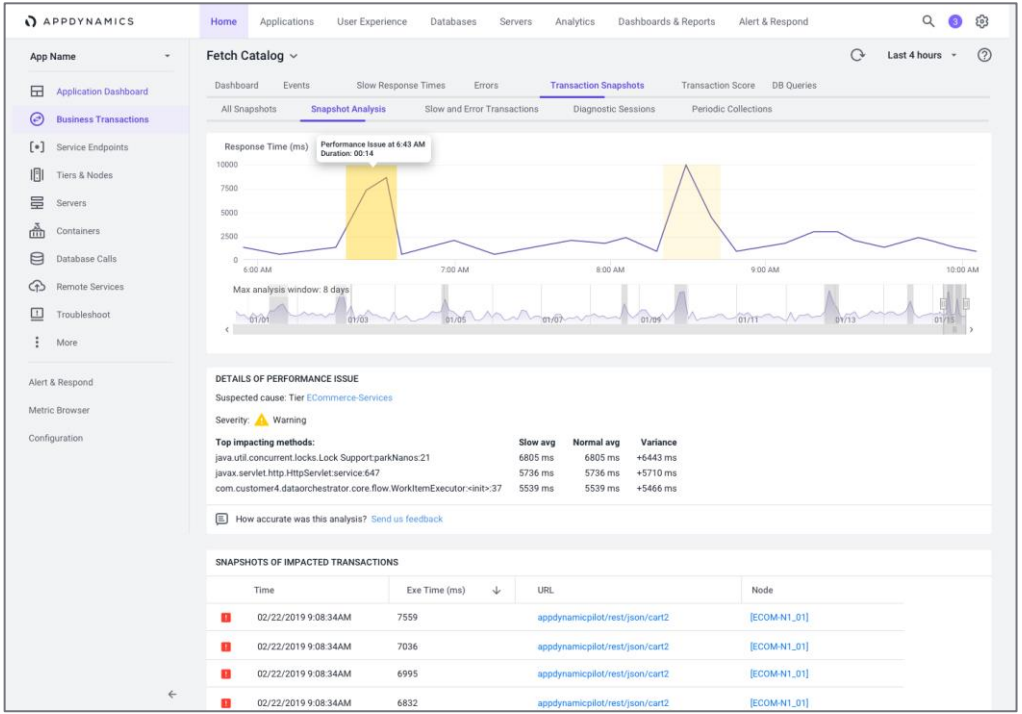
Automated root cause analysis for BT anomalies

Automated Transaction Diagnostics

Identify anomalous transactions, and suspected causes (slow methods, databases, service calls)

Suspected Causes

Identify suspected causes using graph traversal algorithm



© 2024 Cisco and/or its affiliates. All rights reserved. Cisco Public

Log Analytics

Common challenges with analyzing logs

- Volume
- Unstructured format
- Knowing original purpose of a log
- Keeping up with frequently updated log statements

© 2024 Cisco and/or its affiliates. All rights reserved. Cisco Public

Log Analytics in Cisco Cloud Observability

Typical format of a log

- Timestamp
- Log level: TRACE, DEBUG, INFO, WARN, ERROR, FATAL
- Log content

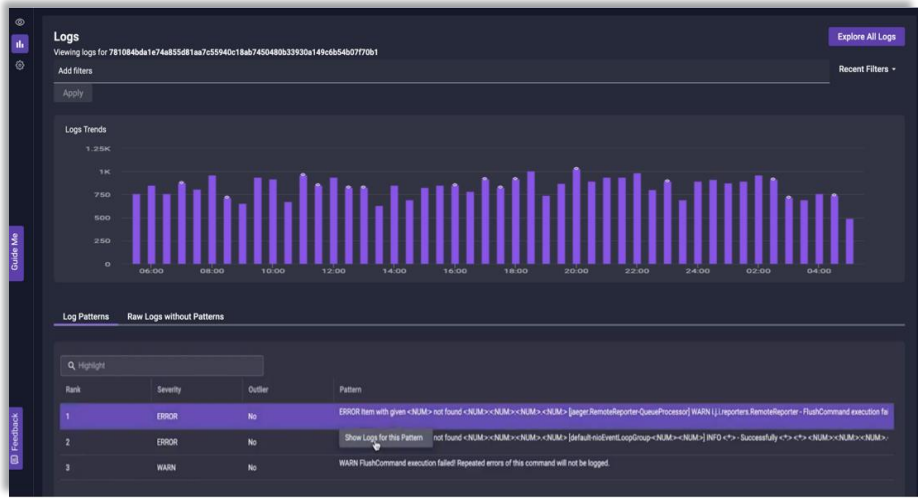
Key Capabilities in Log Analytics	Benefit
Auto-detect and rank log signature changes	Reduce MTTI
Detect anomalous signatures *Metrics related to patterns are learnt and and use for anomaly detection*	Early indication of anomalous signatures and trends
Signature based alerts	Proactive notification; mitigate manual effort

© 2024 Cisco and/or its affiliates. All rights reserved. Cisco Public

Log Analytics in Cisco Cloud Observability

Log Pattern Detection

Identify unusual patterns quickly without manually analyzing large volume of logs



What Cisco Cloud Observability does:

Pattern Miner → Event metrics represented as time series → Compute pattern impact score → Rank patterns → Drilldown: Show representative logs

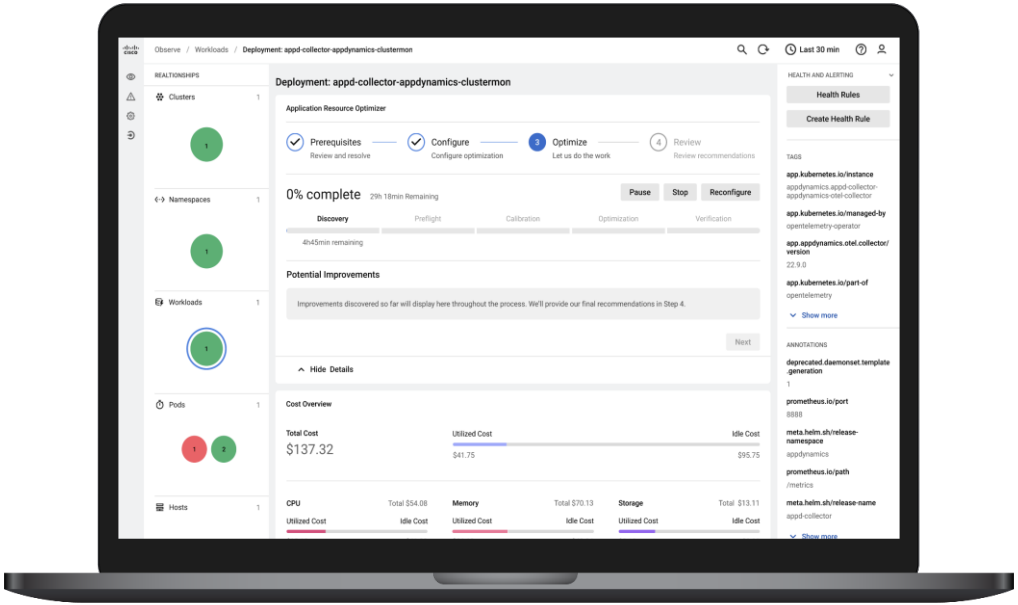
© 2024 Cisco and/or its affiliates. All rights reserved. Cisco Public

Application Resource Optimization

Provide deeper insights into a Kubernetes workload and provide visibility into the workload's resource utilization

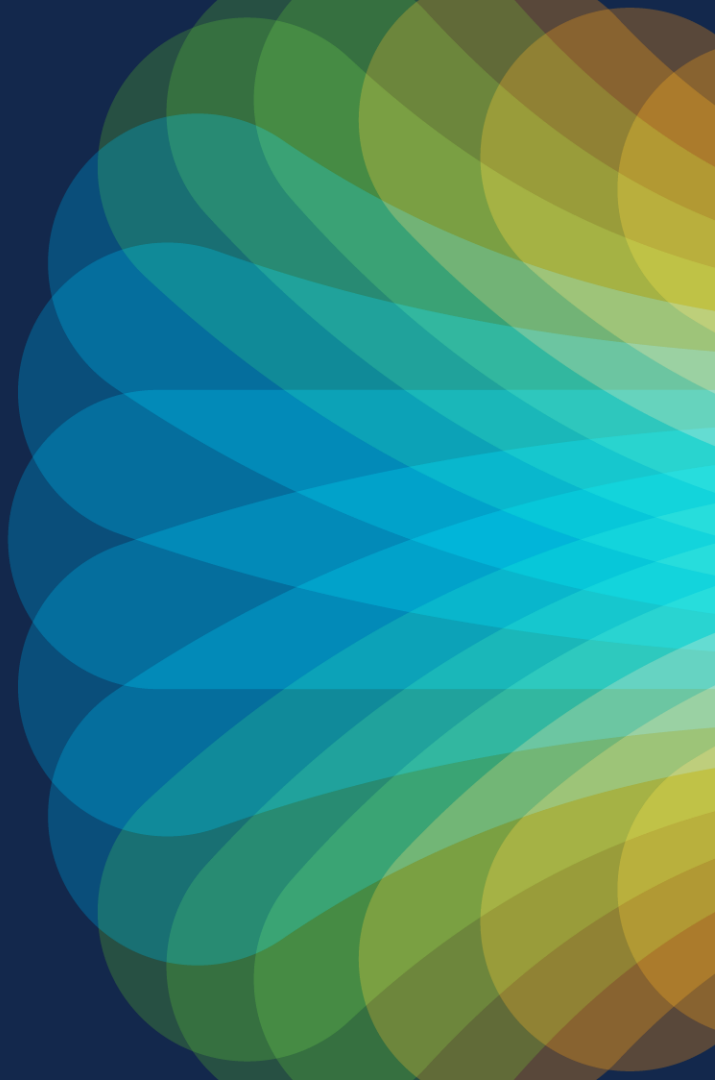
Analyze and optimize application workloads to maximize resource usage and reduce excessive cloud spend by running continuous AI/ML experiments on workloads

Provide recommendations to optimize workloads and bring costs down, from optimal, lower latency or lower cost perspective



© 2024 Cisco and/or its affiliates. All rights reserved. Cisco Public

Generative AI



Generative AI

SHIPPING NOW

Large Language Model (LLM) Monitoring

Understand cost and compliance of OpenAI calls in your applications

SHIPPING NOW

Natural Language Interface

Prompt interface in English for troubleshooting

COMING SOON

AI Assistant

Accelerate root cause identification

© 2024 Cisco and/or its affiliates. All rights reserved. Cisco Public

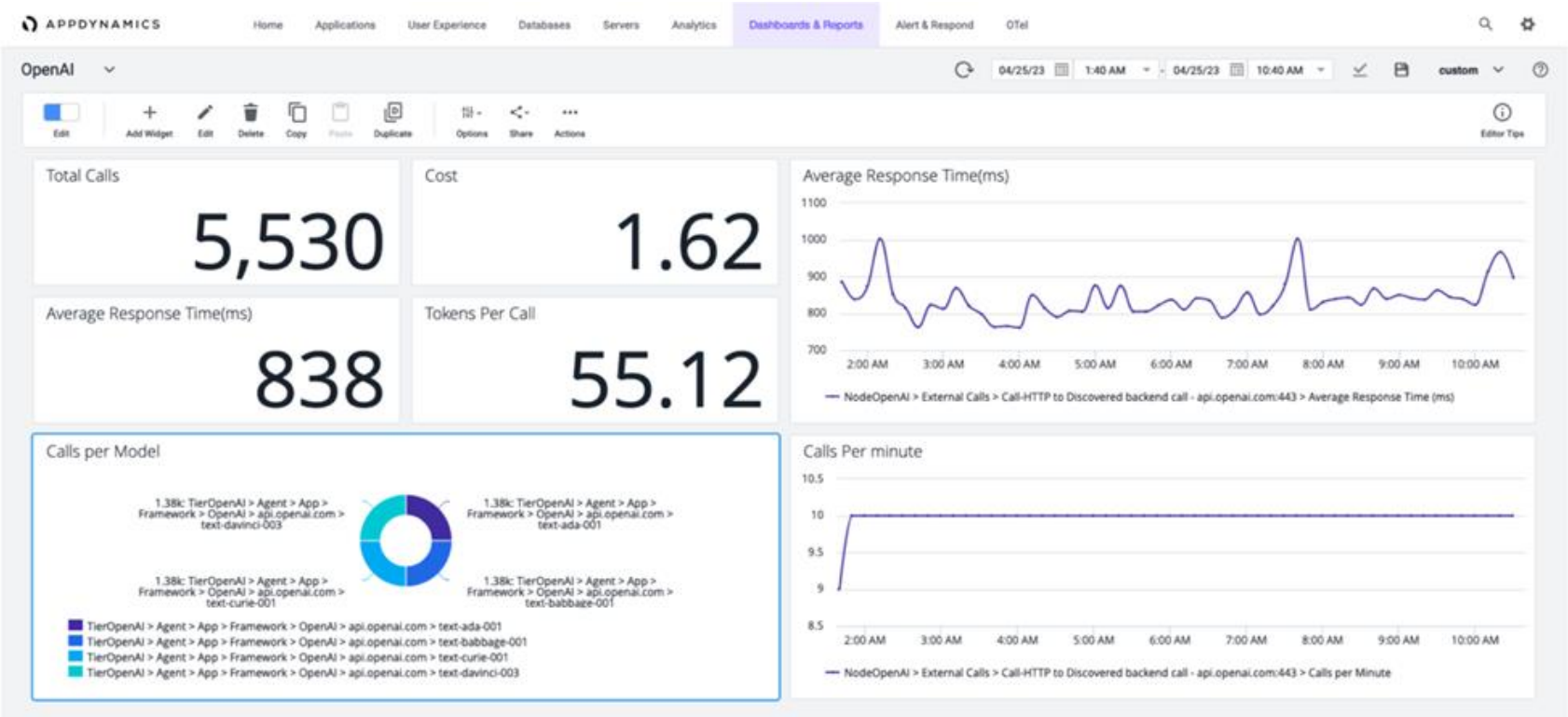
Large Language Model (LLM) Monitoring

Policy guideline compliance	Determine whether OpenAI calls made by your application are in line with your organization's policy guidelines
Cost analysis	Calculate the cost incurred by calls from your OpenAI-powered application
Response time tracking	Monitor the average response time for OpenAI calls
Token usage per call	Track the number of tokens used per call to understand the resource requirements of your application
A/B testing	Conduct A/B testing between different versions of your application as LLM capabilities evolve between versions
Supported LLM Models	GPT-3, GPT-3.5, GPT-4

© 2024 Cisco and/or its affiliates. All rights reserved. Cisco Public

LLM Monitoring: OpenAI Dashboard

Available on Cisco AppDynamics SaaS



© 2024 Cisco and/or its affiliates. All rights reserved. Cisco Public

Introducing Natural Language Interface

Available now on Cisco Observability Platform

New!

Solution

- Troubleshooting with natural language interface
- Retrieval Augmented Generation (RAG) and LLM
- Responsible AI with built-in guardrails

Key capabilities

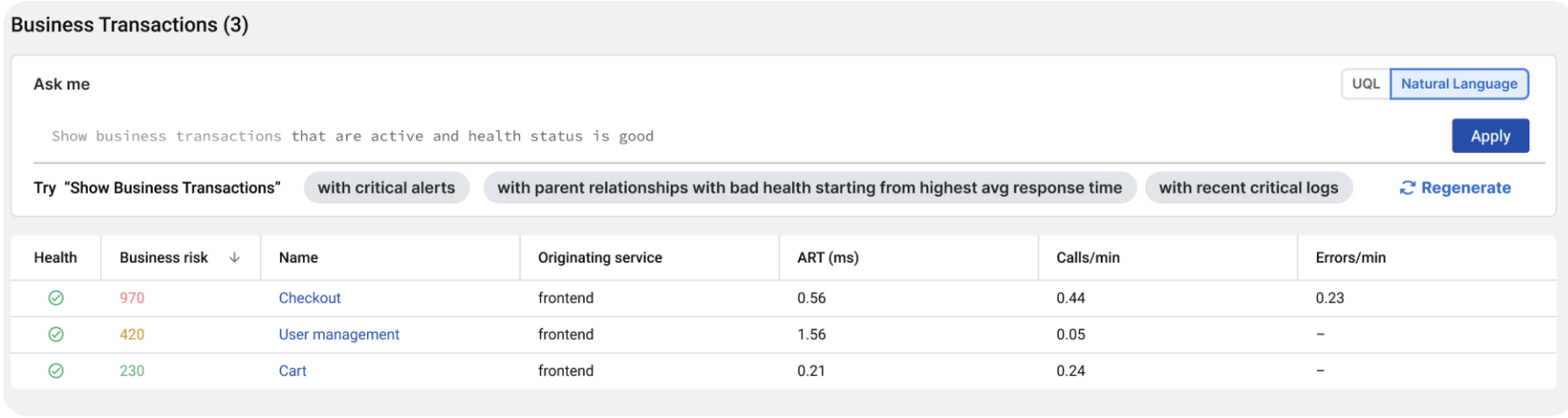
- Translate natural language to Universal Query Language

Benefits

- Empowers empowering tier-1 staff to handle advanced tasks
- Eliminates the need for precise syntax

© 2024 Cisco and/or its affiliates. All rights reserved. Cisco Public

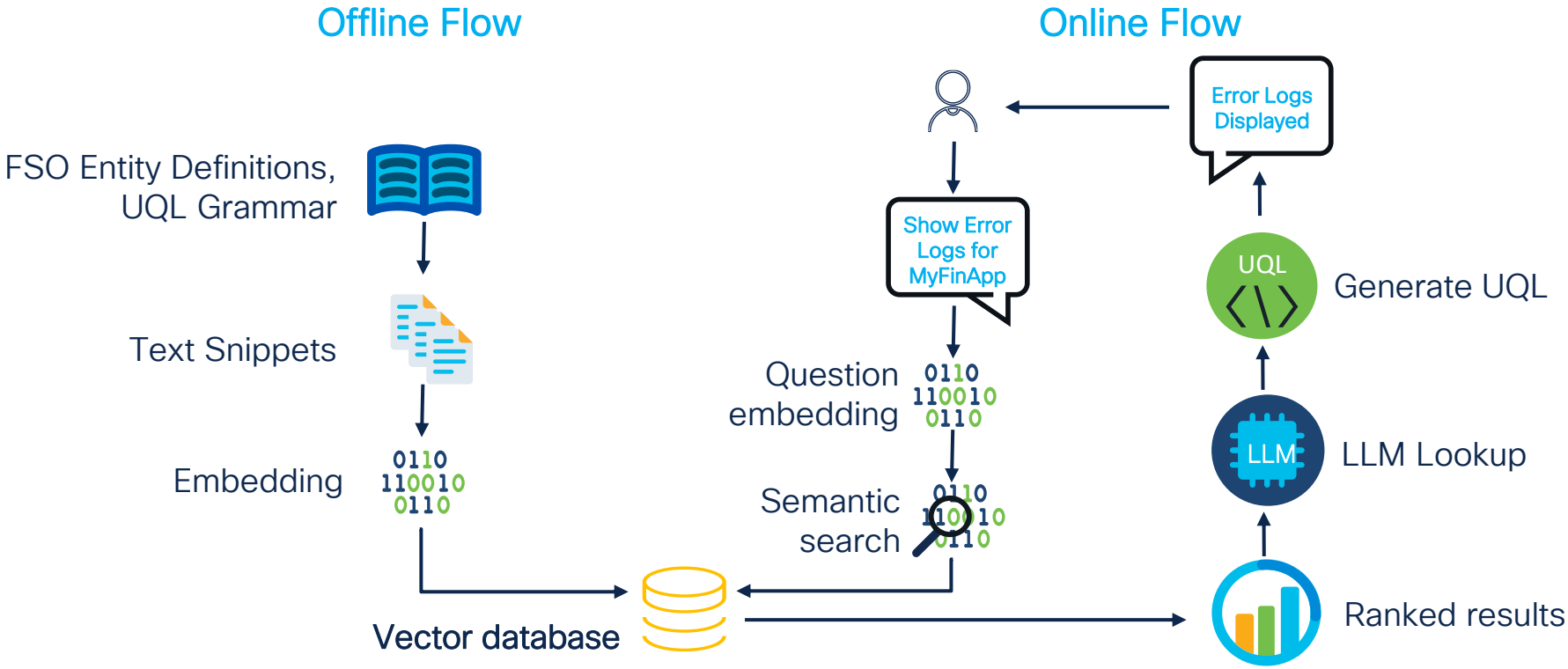
Natural Language Interface



© 2024 Cisco and/or its affiliates. All rights reserved. Cisco Public

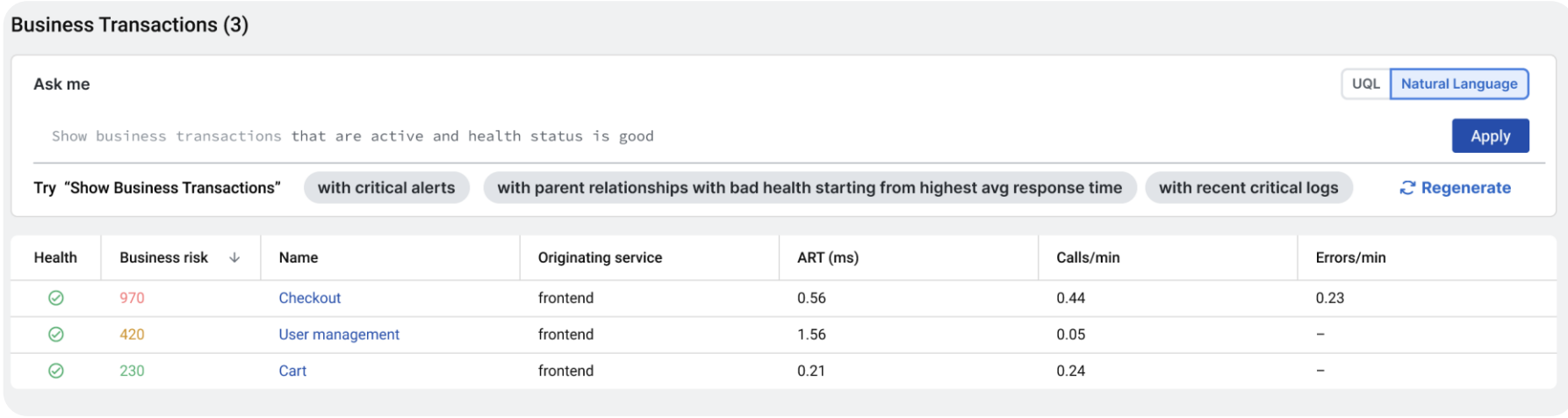
What happens in the background

Natural Language Interface on Cisco Observability Platform



© 2024 Cisco and/or its affiliates. All rights reserved. Cisco Public

Natural Language Interface Demo



© 2024 Cisco and/or its affiliates. All rights reserved. Cisco Public

AI Assistant

Knowledge Store

Organized repository for analysis, best practices, and decision-making.

Tools

Ability to use tools for collecting, grounding and analyzing data.

Decision making

Choosing the right course of action from various alternatives based on data, tools, and processes.

Metacognition

Ability to understand its own thoughts to optimize your problem-solving strategies.

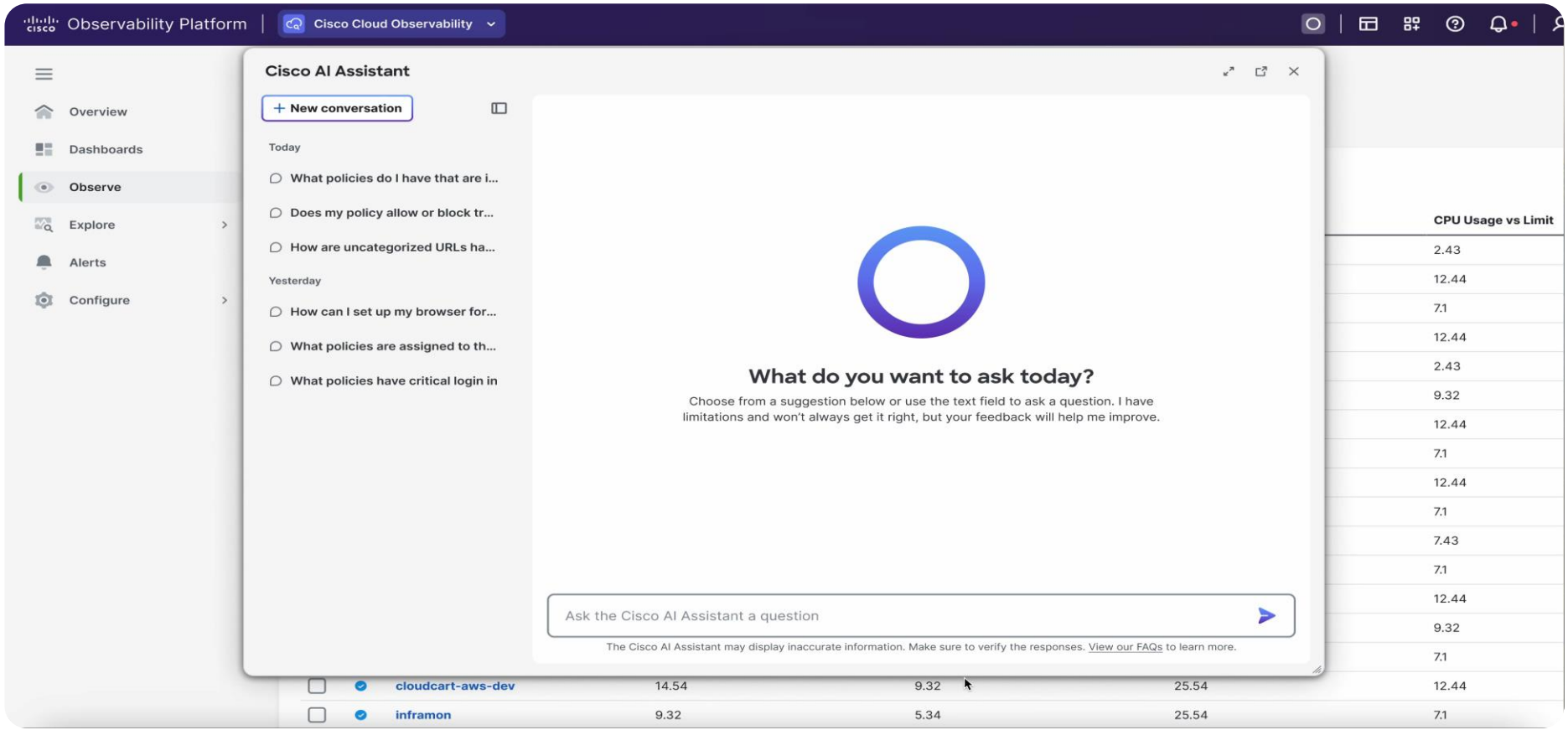
Planning & Prioritization

Organizing tasks to create a strategic approach to manage and accomplish goals efficiently.

cisco Live!

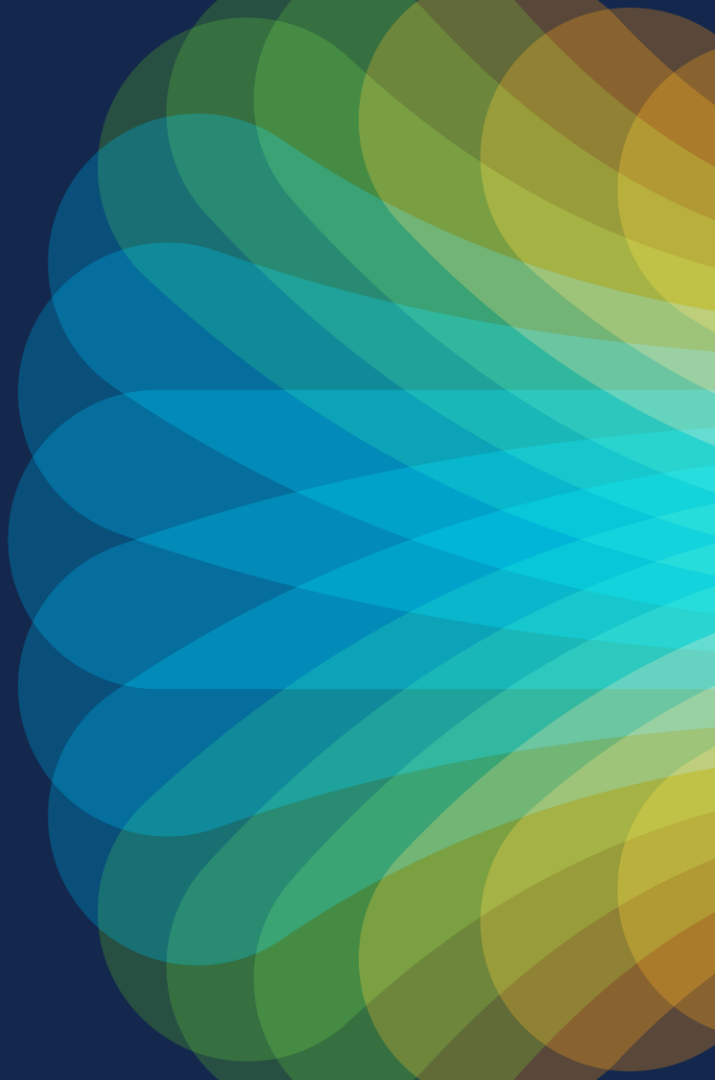
© 2024 Cisco and/or its affiliates. All rights reserved. Cisco Public

AI Assistant Demo



© 2024 Cisco and/or its affiliates. All rights reserved. Cisco Public

Model Observability: MLOps



What are you doing about the explosion in AI?

Chatbots, LLM, AI Assistants, GenAI, Predictive AI...

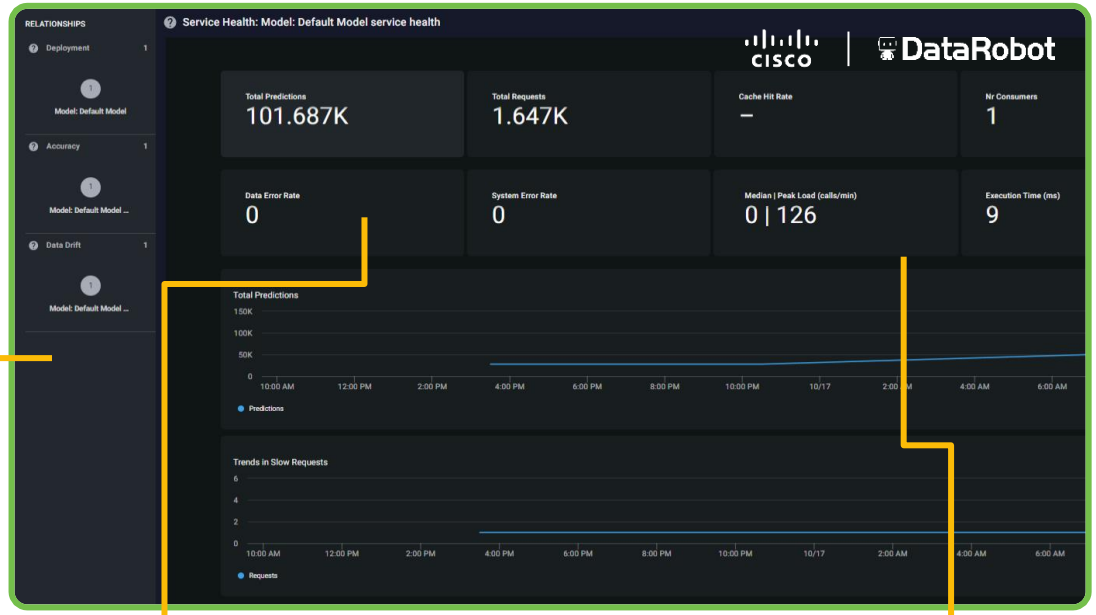
AI Observability is needed, including...

MLOps Definition: a set of practices that automate and simplify machine learning (ML) workflows and deployments

© 2024 Cisco and/or its affiliates. All rights reserved. Cisco Public

MLOps by Evolutio – Powered by DataRobot

Purpose: enables AI Observability = Monitoring & Governance of AI across the enterprise's software & AI applications



Model Health Metrics Monitored:

Service Health: Monitors operational efficiency and error occurrences.
Data Drift: Tracks differences between incoming and training data.
Accuracy: Compares predictions against actual outcomes.

Prediction volume & error rates: understand across all AI platforms

Real-time AI Observability insights: into AI system governance, performance, and health

eVolutio DataRobot

© 2024 Cisco and/or its affiliates. All rights reserved. Cisco Public

Benefits

1. Comprehensive Monitoring: Real-time insights into AI system performance and health.
2. Enhanced Governance: Ensuring ethical, transparent, and compliant AI operations.
3. DataRobot Edge: Advanced analytics for predictive and proactive AI management.

Cisco | DataRobot to Monitor and Govern AI

Tabular and Unstructured Data

Unstructured

Tabular

Knowledge Bases

Embedding Models

Vector DBs

Generative Models

LLMs / Prompting

Predictive Models

Production

Monitoring Rules

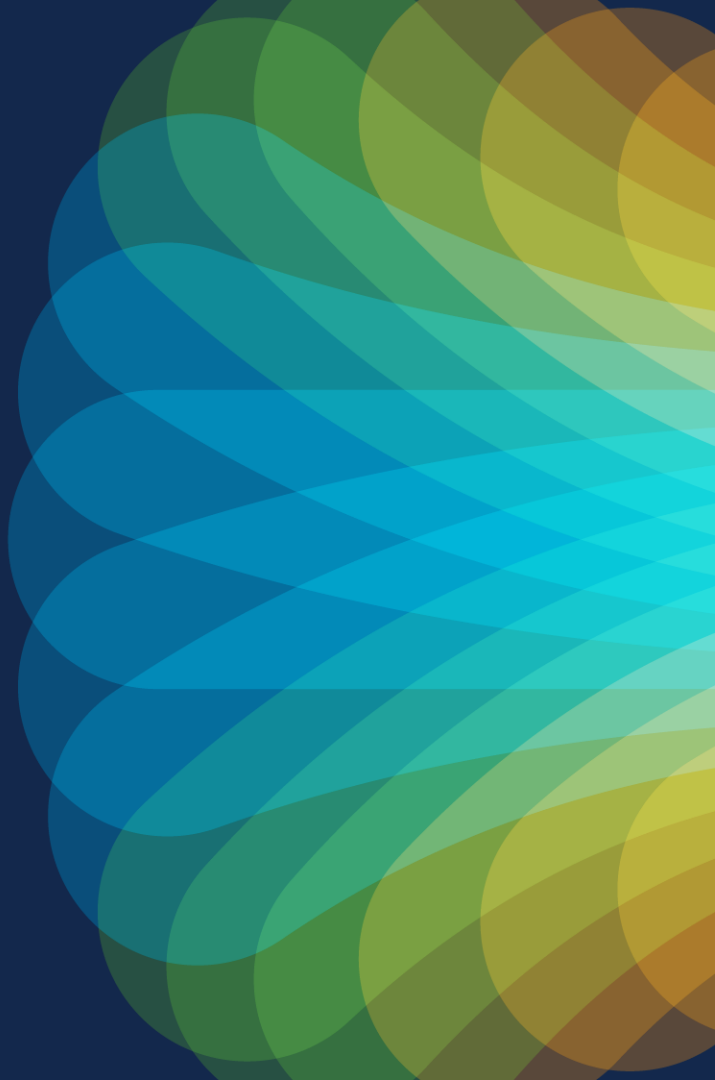
GenAI and Predictive AI Consumption

App frameworks

evolutio DataRobot

© 2024 Cisco and/or its affiliates. All rights reserved. Cisco Public

AIOps

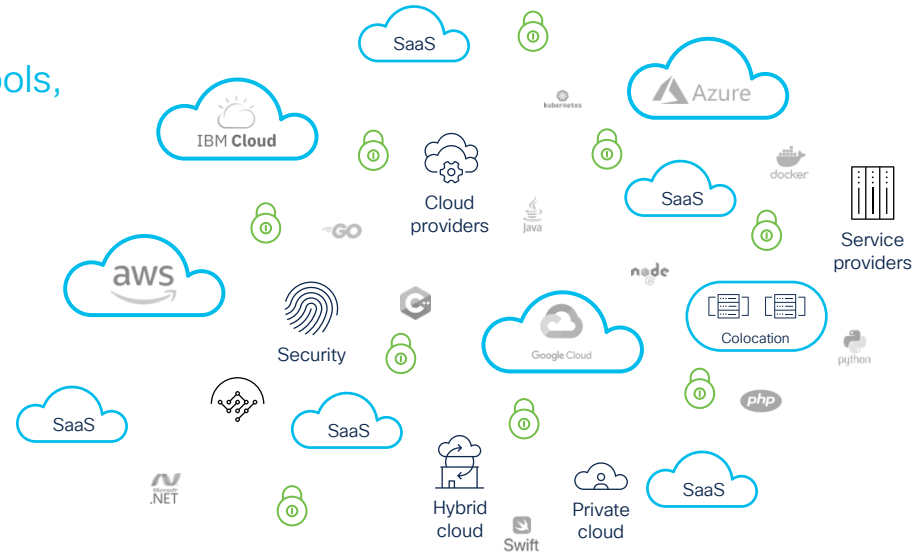


Need for AIOps

Apps are being built and deployed in complex environments

Multiple monitoring tools, incomplete visibility

A single incident causes multiple alerts



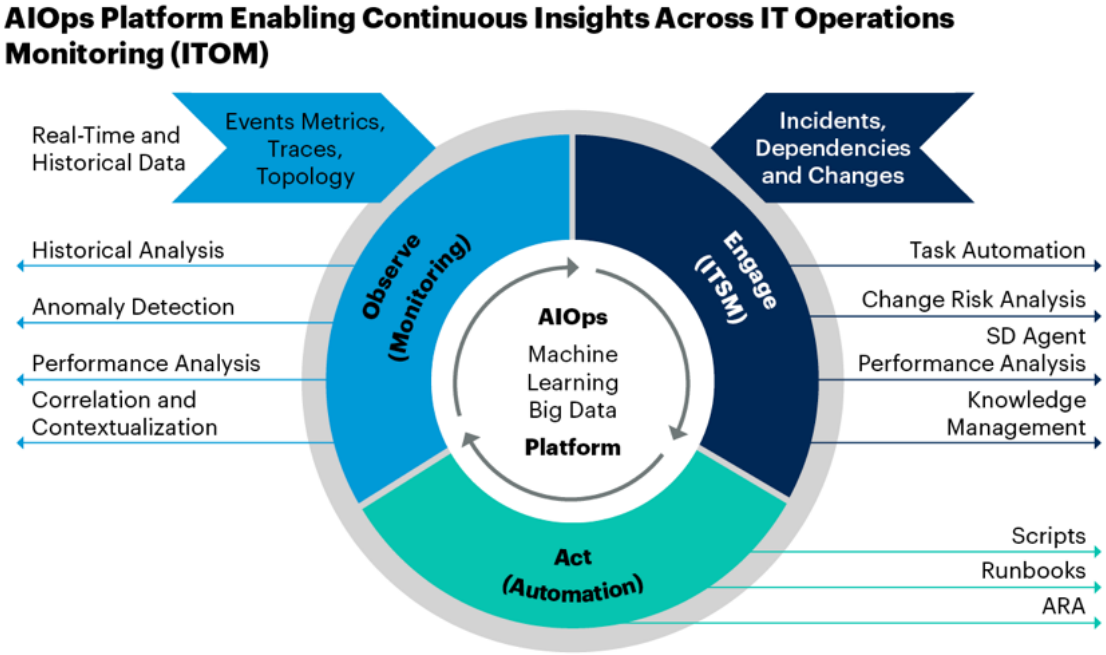
Fragmented topology and changes

Desire to move from reactive to proactive ITOps

Limited business context

© 2024 Cisco and/or its affiliates. All rights reserved. Cisco Public

Key Components of an AIOps Platform



Gartner

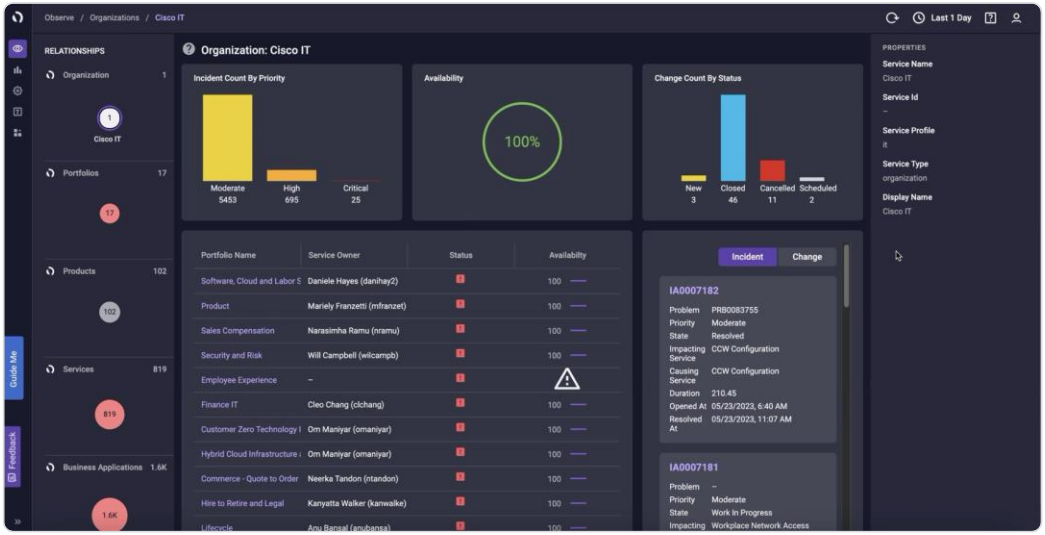
© 2024 Cisco and/or its affiliates. All rights reserved. Cisco Public

Introducing AIOps on Cisco Observability Platform

Unified view
Single pane of glass view of multi-vendor assets across the organization

Business health
Application and infrastructure health in context of business

Cross-domain insights
Event and alert correlation using time and topology



© 2024 Cisco and/or its affiliates. All rights reserved. Cisco Public

AIOps is not new, so what is the big deal?

Key differentiators for Cisco AIOps App

Capability	AIOps on Cisco Observability Platform	Standalone AIOps
Data sources	Pre-packaged collectors for Cisco infrastructure	Development of custom collectors required
Supported data types	Alerts, events, metrics, logs*	Alerts, events, metrics (limited)
Alerting	Dynamic thresholds-based alerting on metrics and events	Alerting thresholds are set by tools feeding standalone AIOps tools
Anomaly detection	Multiple ML anomaly-detection approaches (metrics, logs)	Limited to the alerts created by source monitoring tools

*Logs: Roadmap

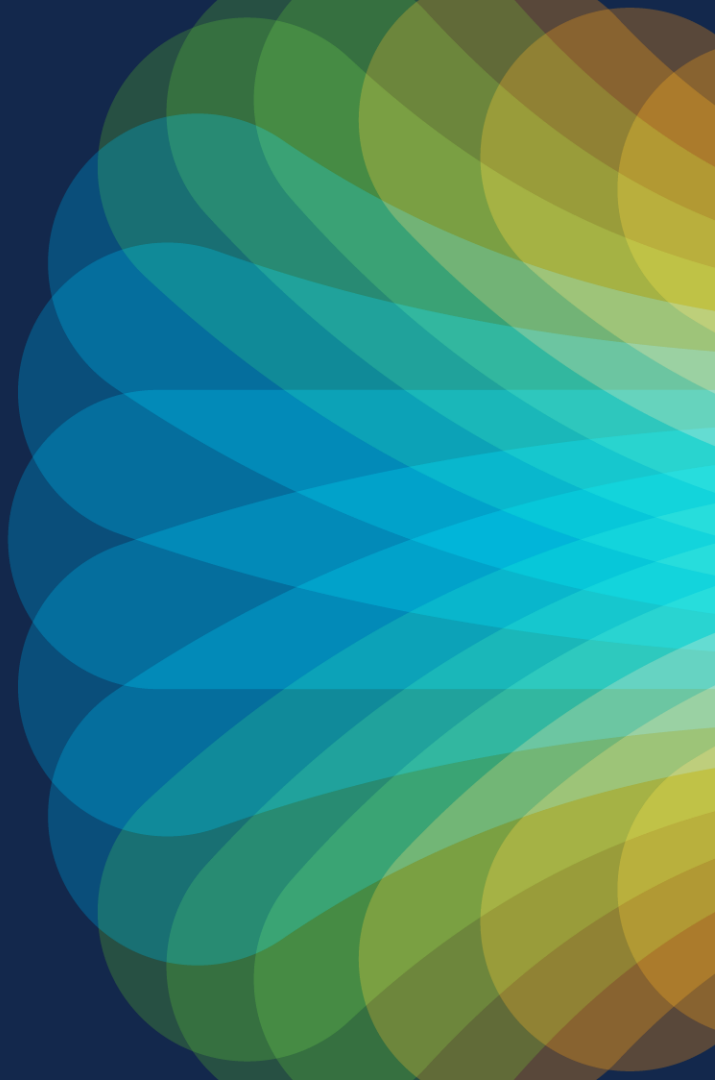
© 2024 Cisco and/or its affiliates. All rights reserved. Cisco Public

Key Capabilities

Theme	Supported today	Coming soon
Integrations (Data sources)	• Cisco: AppDynamics SaaS, Thousand Eyes, DNA Center • Others: VMware, Zabbix • ServiceNow: ITSM, ITOM, CMDB	• Cisco: Intersights, Meraki, MDS Switches • Others: EMC, NetApp, ScienceLogic • Topology: VMWare • CI/CD tools: Jenkins
Observe	• Service Health and availability • Business health and Availability • Incidents, Problems, Changes, CIs	• Component health
Troubleshoot	• Entity Pages: Alerts, Events, Metrics • Relationship map • Command Center	• Related alerts, events • Related incidents, ci changes etc.
Intelligent Insights	• Event/Alert enrichment • Alert Intelligence: deduplication, filtering	• Events and Alerts correlation • Incident Correlation
Actions	• User triggered actions: Service Now, Pager Duty	• User triggered actions: WebEx, Teams, Slack • Situation Rooms (PagerDuty/Slack/WebEx) • Workflow Automation (Script, Runbook)

© 2024 Cisco and/or its affiliates. All rights reserved. Cisco Public

AIOps Demo



Takeaways

- Embedded AI capabilities
  - Cognition Engine
  - Log Analytics
  - Application Resource Optimization
- Observe LLM usage for costs and compliance
- ML innovations from partners in Cisco Observability Platform
- Natural Language Interface speeds troubleshooting
- AIOps: unified view for business health, cross-domain insights

© 2024 Cisco and/or its affiliates. All rights reserved. Cisco Public

Related Sessions

Session	Session Title	Speaker	Date/Time
BRKAPP-2675	Cisco AIOps – Design, Deployment and Cisco on Cisco story	Carlos Pereira	Thursday, Feb 8 1.30 – 2.30 PM

© 2024 Cisco and/or its affiliates. All rights reserved. Cisco Public

Connect with us after Cisco Live Amsterdam!

Want to chat more?

Scan the QR code or visit the link!

cs.co/emea

1. Learn more about Cisco Full- Stack Observability
2. Go deep with Cisco AppDynamics
3. Request a personal demo
4. Start a free trial

© 2024 Cisco and/or its affiliates. All rights reserved. Cisco Confidential

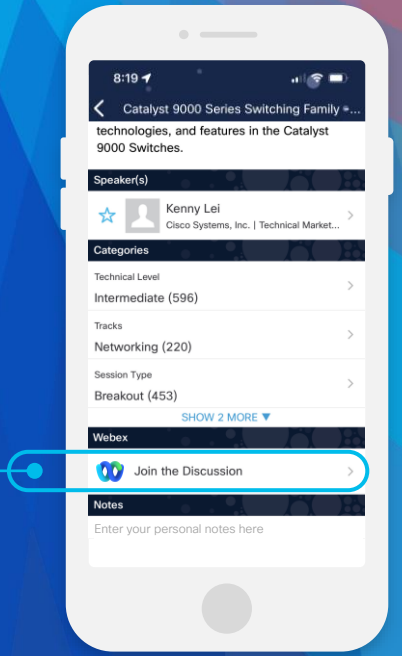
Webex App

Questions?

Use the Webex App to chat with the speaker after the session

How

1. Find this session in the Cisco Events Mobile App
2. Click “Join the Discussion”
3. Install the Webex App or go directly to the Webex space
4. Enter messages/questions in the Webex space



https://ciscolive.ciscoevents.com/ciscolivebot/#BRKAPP-2686

Webex spaces will be moderated by the speaker until February 23, 2024.

© 2024 Cisco and/or its affiliates. All rights reserved. Cisco Public

Fill out your session surveys!

Participants who fill out a minimum of four session surveys and the overall event survey will get a Cisco Live t-shirt (from 11:30 on Thursday, while supplies last)!

All surveys can be taken in the Cisco Events Mobile App or by logging into the Session Catalog and clicking the 'Participant Resource Center' link at https://www.ciscolive.com/emea/learn/session-catalog.html.

© 2024 Cisco and/or its affiliates. All rights reserved. Cisco Public

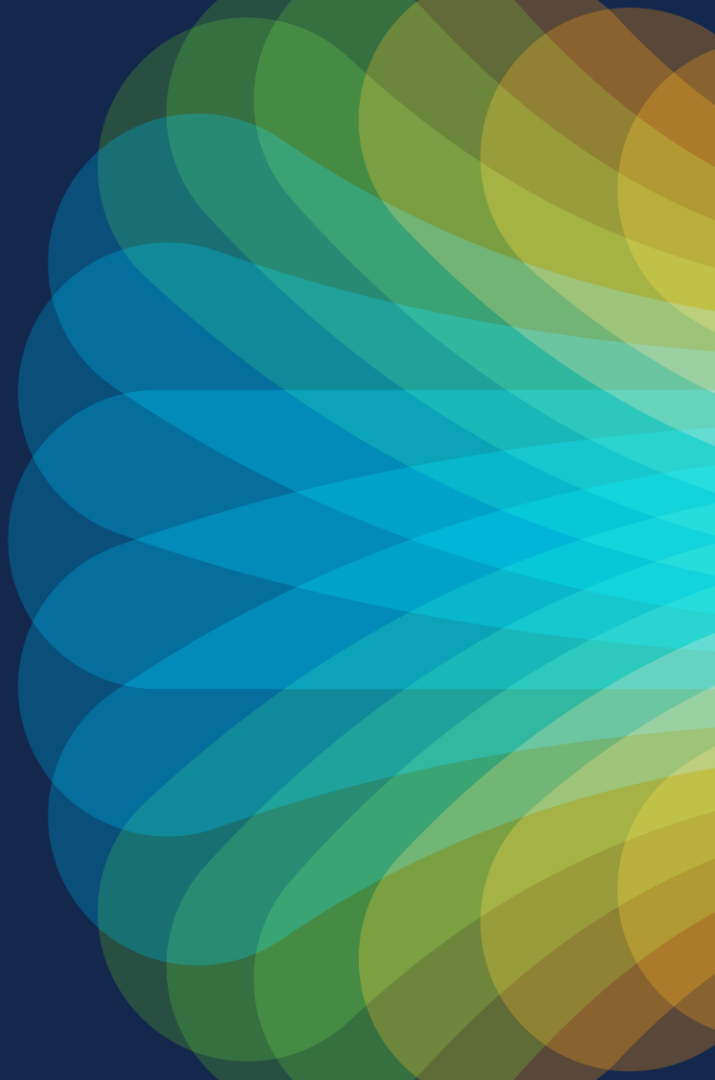
Continue your education

- Visit the Cisco Showcase for related demos
- Book your one-on-one Meet the Engineer meeting
- Attend the interactive education with DevNet, Capture the Flag, and Walk-in Labs
- Visit the On-Demand Library for more sessions at ciscolive.com/on-demand. Sessions from this event will be available from February 23.

© 2024 Cisco and/or its affiliates. All rights reserved. Cisco Public

The bridge to possible

Thank you



cisco Live!

cisco Live!
Let's go