

CISCO *Engage* Taipei

ALL IN



The bridge to possible

Cloud Native 監控的點，線，面

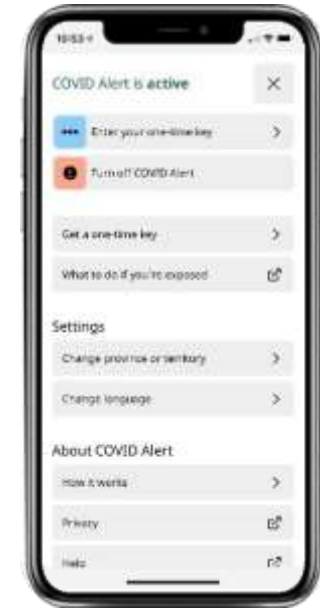
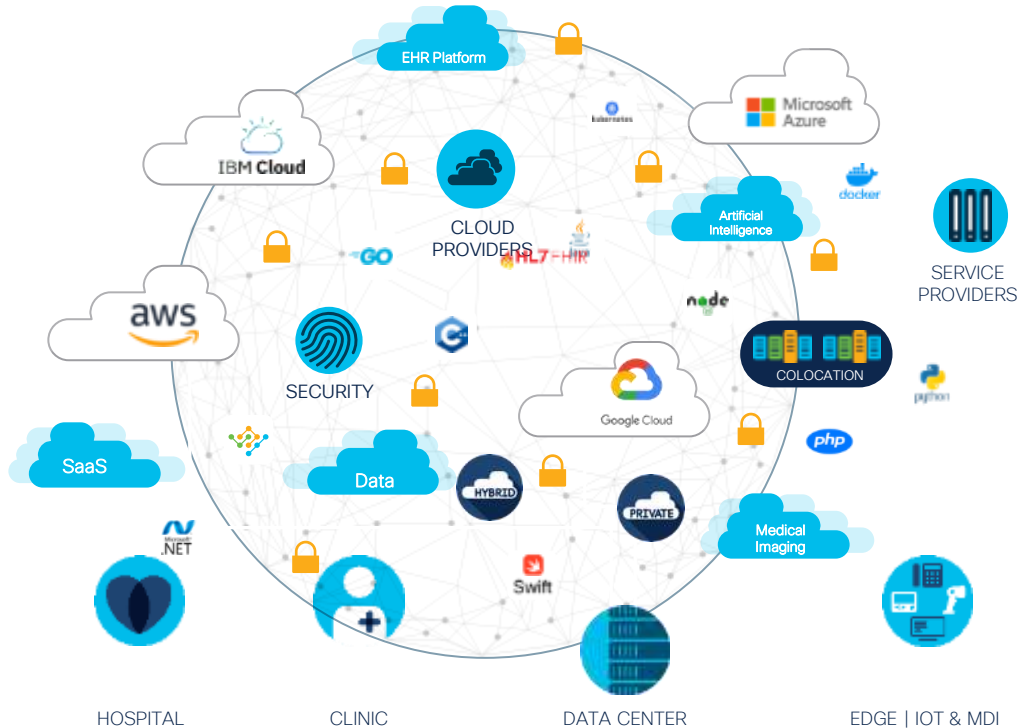
Vince Liu
Cisco Taiwan SE
Jan. 17 2023



Agenda

- Application and Cloud Native
- Cloud-native observability challenges
- AppDynamics Cloud
- AppDynamics Cloud Support for OpenTelemetry
- Conclusion

Applications are the front door to an evolving and expanding digital experience



The application world has changed

Monolithic, 3-Tier Apps → Distributed, Event-driven

Virtual Machines → Containers, Serverless

Manageable Data → 10x-100x Data

Traditional Ops → DevSecOps

Manual → AI/ML aided

Modern applications need modern observability!

Cloud Native

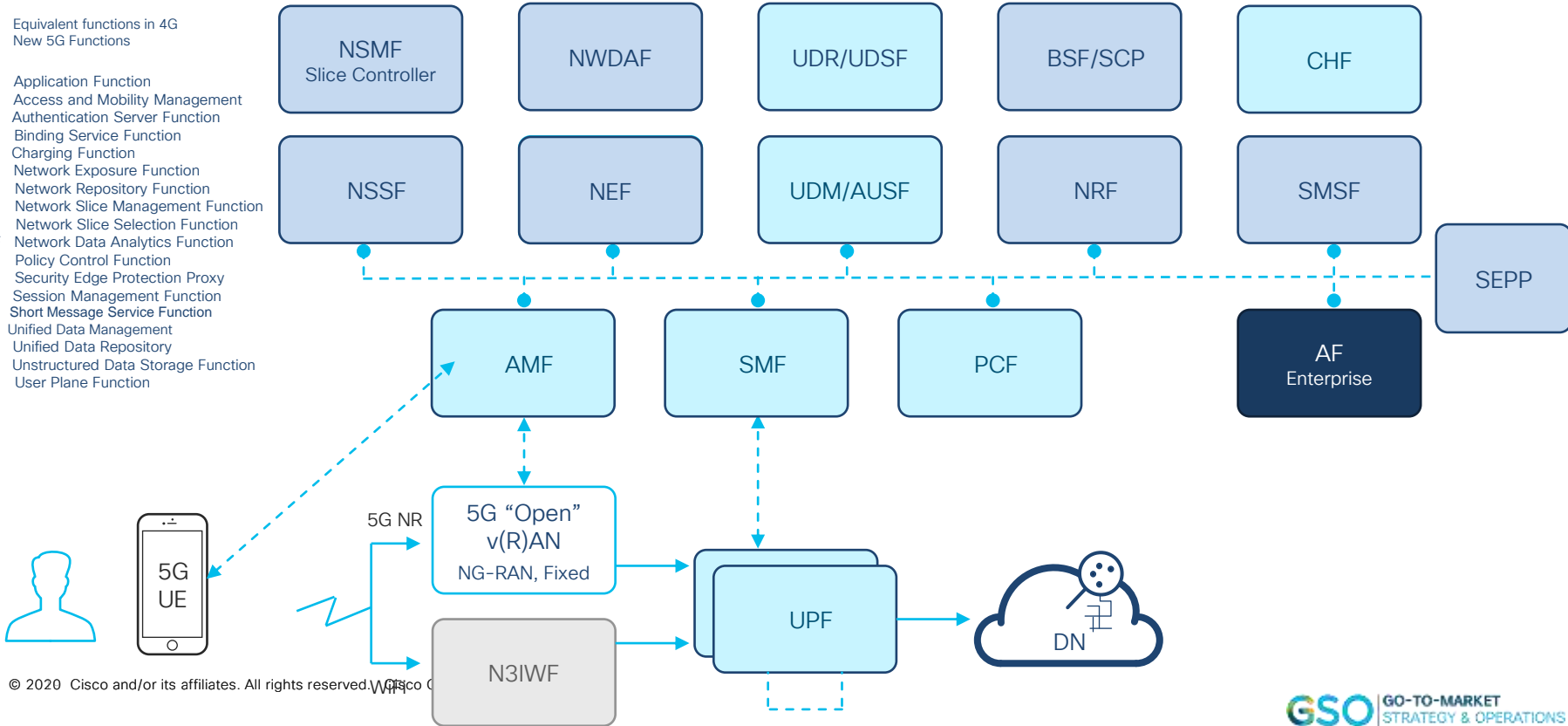
Principal of cloud native architecture:

- Scalable
- Resilient
- Manageable
- Observable
- Automated

5G SA – New Standalone Core

- Equivalent functions in 4G
- New 5G Functions

- AF Application Function
- AMF Access and Mobility Management
- AUSF Authentication Server Function
- BSF Binding Service Function
- CHF Charging Function
- NEF Network Exposure Function
- NRF Network Repository Function
- NSMF Network Slice Management Function
- NSSF Network Slice Selection Function
- NWDAF Network Data Analytics Function
- PCF Policy Control Function
- SEPP Security Edge Protection Proxy
- SMF Session Management Function
- SMSF Short Message Service Function
- UDM Unified Data Management
- UDR Unified Data Repository
- UDSF Unstructured Data Storage Function
- UPF User Plane Function



“

“Kubernetes adoption among the ever-expanding cloud native community is approaching 100%, meaning those investing in cloud native are strongly bought in and excited for the future,”

Priyanka Sharma

*Executive Director | Cloud Native Computing
Organization*



Cloud-native observability challenges

Most offerings were designed years ago with a single purpose in mind and new use cases were bolted on



Disconnected silos of data and tab jumping



Incomplete visibility



Biased point of view based on legacy

AppDynamics Cloud

- **Purpose-built**

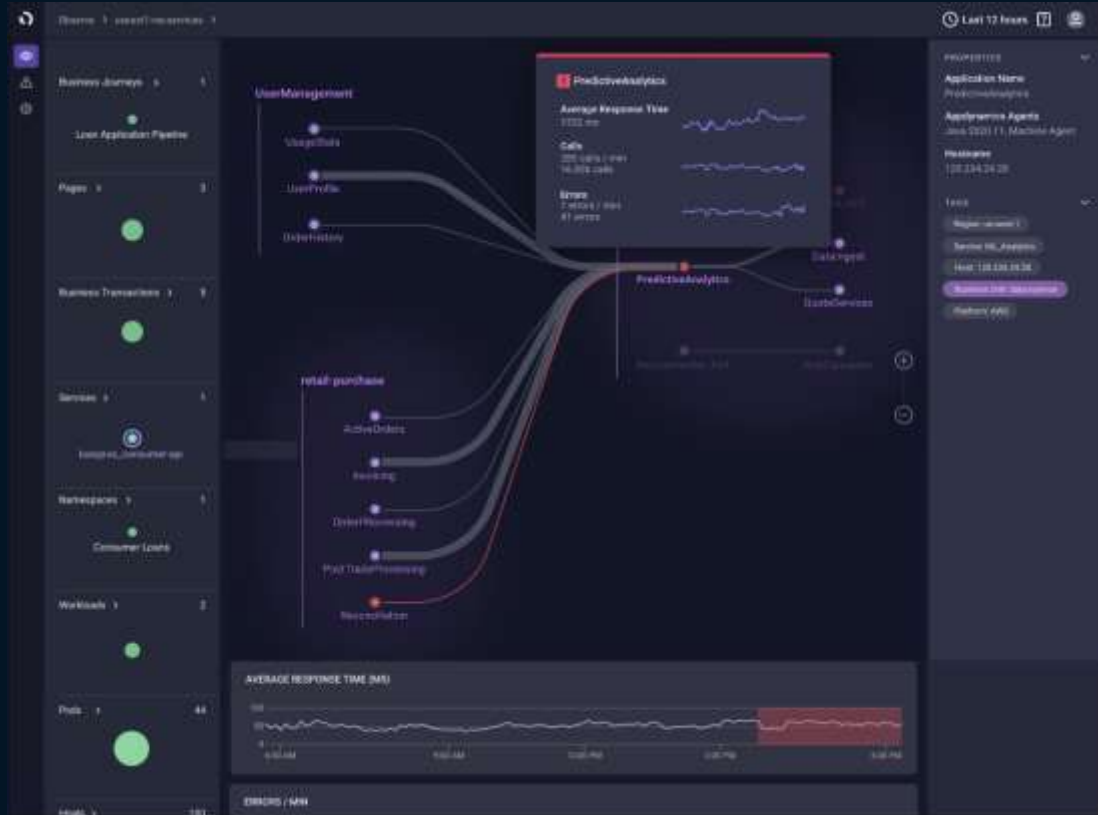
Allowing you to observe distributed and dynamic cloud-native applications at scale

- **Built on a foundation that embraces open-standards**

IT and developer teams get full-stack correlated views of all telemetry data across their entire technology landscape

- **Observability and advanced AIOps functionality**

Empowering enterprises with the intelligent insights they need to quickly address issues before they impact their cloud-native applications



AppDynamics Cloud Support for OpenTelemetry

What is OpenTelemetry?

- **APIs**
Code instrumentation to create telemetry data
- **SDKs**
Gather the telemetry and send to pipeline
- **Processing**
Sampling, filtering, and enriching
- **Exporter**
Converts/translates into custom formats
- **Collector**
Data filtering, aggregation, batching, and communication



Telemetry

Observability

Monitoring

Back-end

Implementation

Adherent to OTLP Framework



OTLP supported backend
Supports all OpenTelemetry
languages



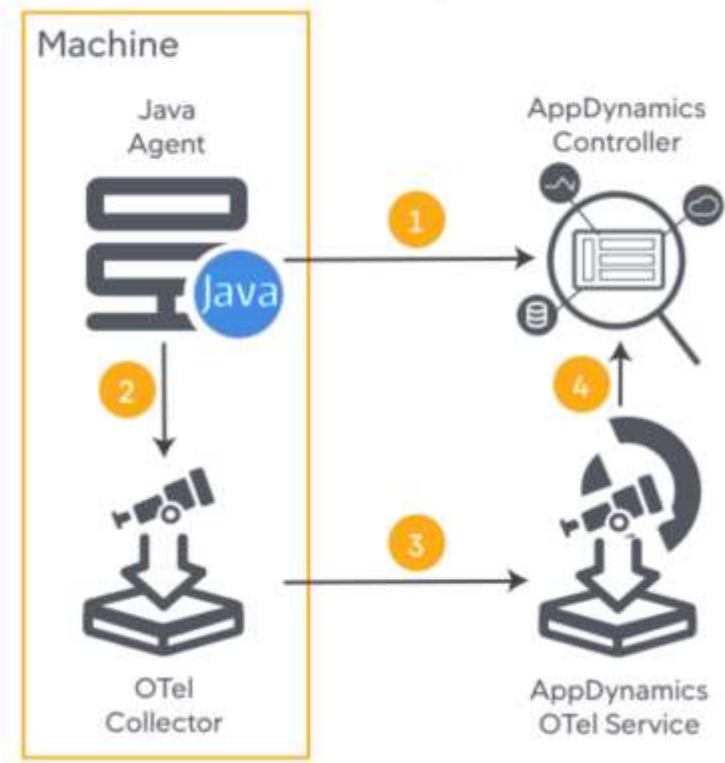
OpenTelemetry™

Instrument, generate, collect, and export telemetry data (metrics, logs, and traces - MELT) using APIs and SDKs.

- Helps you analyze application behavior with a more complete impression of performance metrics.
- Supports the common OTLP framework, a unified standard.
- Simplify the process of observing systems and processes while alleviating vendor lockdown.

Take advantage of AppDynamics' existing agents* that send APM data to the AppDynamics Controller and **OpenTelemetry spans to the OpenTelemetry Collector** in what can be referred to as a "hybrid" workflow.

AppDynamics Agent with OpenTelemetry Enabled



OpenTelemetry™ is a trademark of The Linux Foundation®.



APPDYNAMICS
CLOUD

Simplifying
cloud-native
complexity!

CISCO *Live!*



Cross-Domain
Insights

Unified view across your modern application stack
Biz → services → infrastructure



Cross-M.E.L.T.
Troubleshooting

Correlate data types to accelerate
root cause and remediation



AI Assisted
Root Cause

Faster MTTR & MTTD
with AIOPs

Overcoming the Observability Silos

A **new** full-stack observability product for modern, cloud-native applications



Correlated full-stack
context across
domains and data
types



Open Standard-based
extensible platform



Purpose-built for
observing cloud-native
architectures at scale



AI-driven
insights across
observable data

Cross-Domain Visibility

Seamless visibility up + down the modern application stack

Entity Correlation

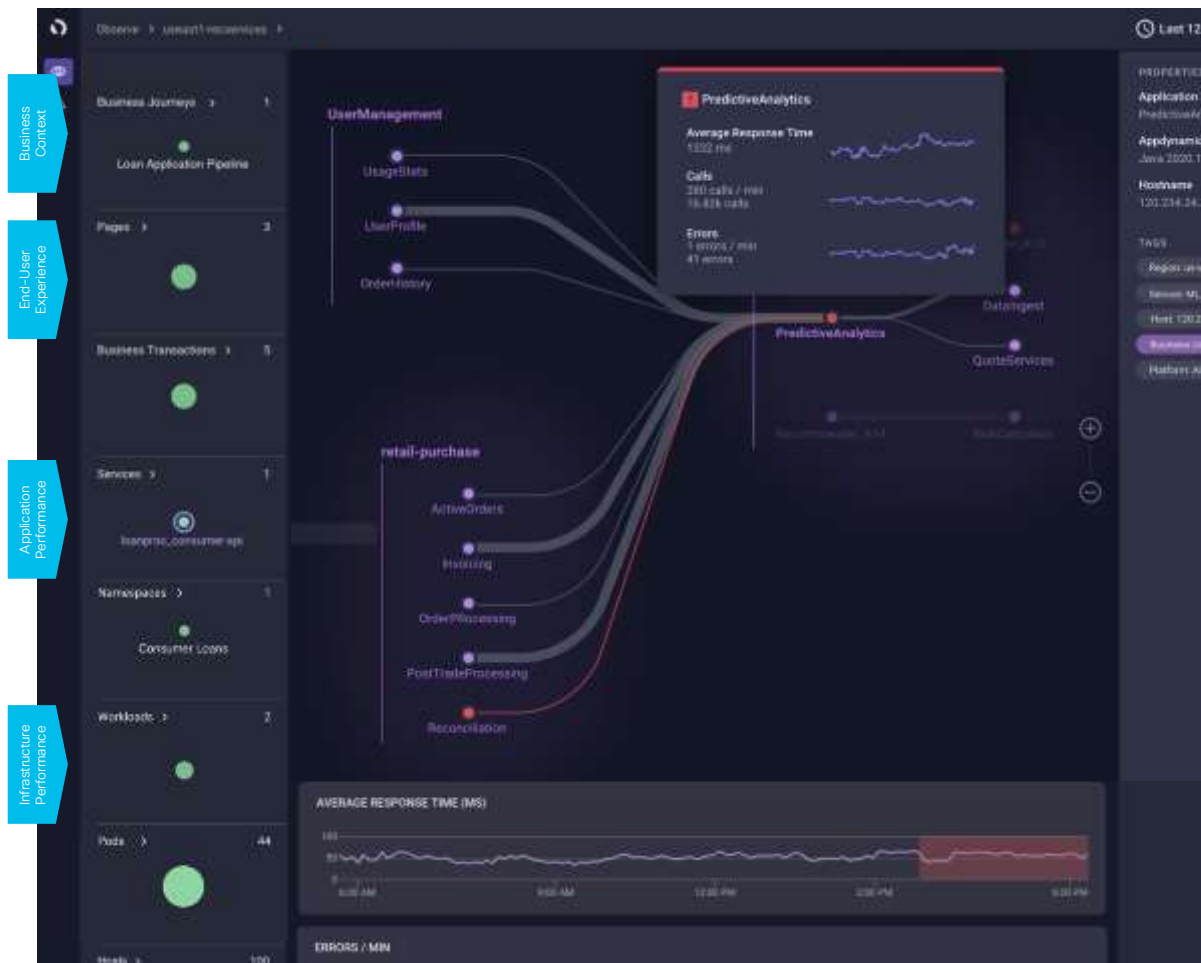
across domains shows how entities are connected across applications

Traverse Relationships

to assess upstream and downstream impact of cascading failures

Dynamic Exploration

allows you to discover unexpected “unknown unknowns”



Cross-M.E.L.T. Troubleshooting

Everything you need to see without jumping tab-to-tab

Surfacing the root cause

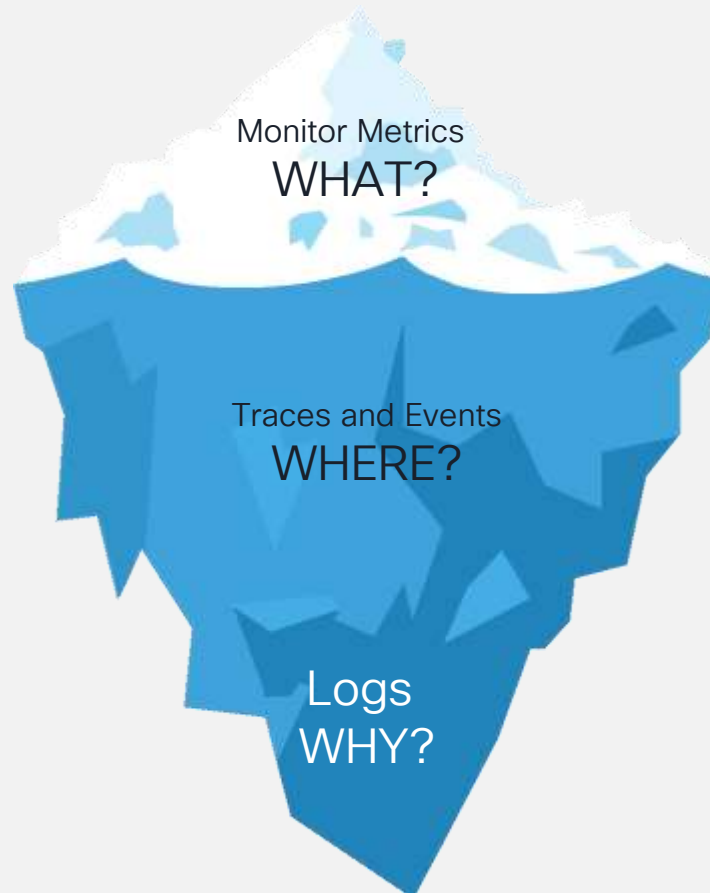
Entity & time context + ML= Pattern detection for logs behavior

Multiple levels for troubleshooting specifics

Different layers of data granularity, better traversing

Expert or not expert you still feel comfortable

Guidance through UI x query



AI-Powered Root Cause

Cognition Engine processes big data so you don't have to

Anomaly Detection

Automatically detect potential services issues using robust AD algorithm

Suspected Causes

Probable root cause is identified by correlating symptoms across services

AI Tuning

Provide feedback to Cognition Engine to tune sensitivity



Developing a business case

Issues generated for 11 customers over 3-month period

~8000

Anomalies using common statistical models

1192

Issues detected using correlated analytics

303

Core Issues pinpointed with Machine Learning

- Traditional NMS
- Cisco DNA Assurance
- Cisco DNA Assurance with Cisco AI Network Analytics



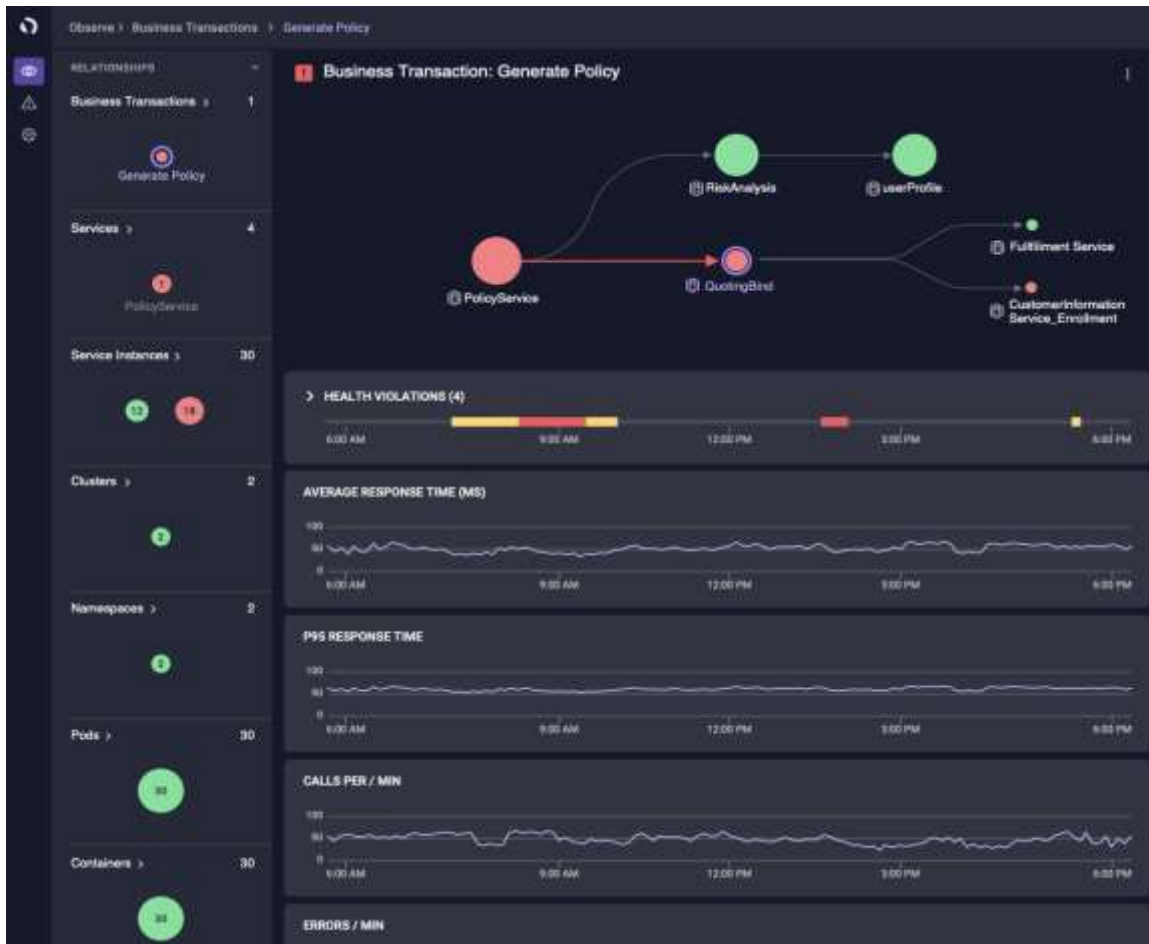
Fewer issues = less troubleshooting.
Relevant issues = big events first.

Troubleshoot with Biz Impact

Traces \neq Business Transactions

BT's add higher level of abstraction to overcome complexity

Evaluate risk and prioritize response based on what's most important to the business



Common language of Troubleshooting & RCA for multiple personas



DevOps



CloudOps/SRE



App Owner

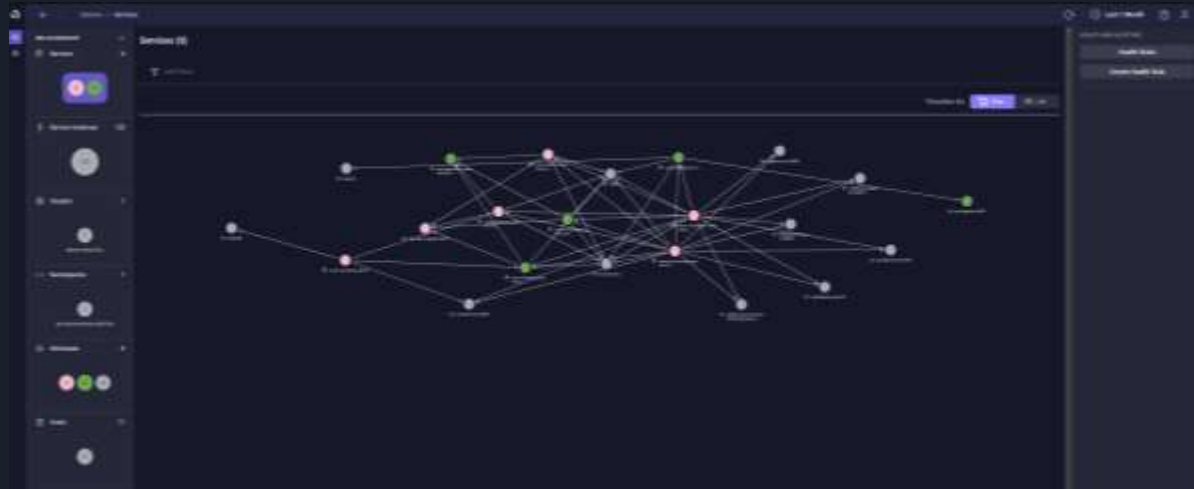


Biz Owner

Observability for Cloud Native

Maximize digital business revenue and customer experiences by continuously optimizing your cloud-native applications

- **Multi-Cloud infrastructure and services visibility**
- **Applications and Service topologies captured and visualized**
- **OpenTelemetry Support**
- **Microservices/Serverless Observability**
- **At Scale Kubernetes Observability (EKS/AKS)**



AppDynamics Cloud

Value

App Migration with Confidence

Purpose-built for observing cloud native architectures at scale

Reduce MTTR/MTTI and Revenue Risk

Correlated context across domains & data types (MELT)

Improve Customer Experience

ML-aided insights across observable data and Open Standards based foundation for extensibility



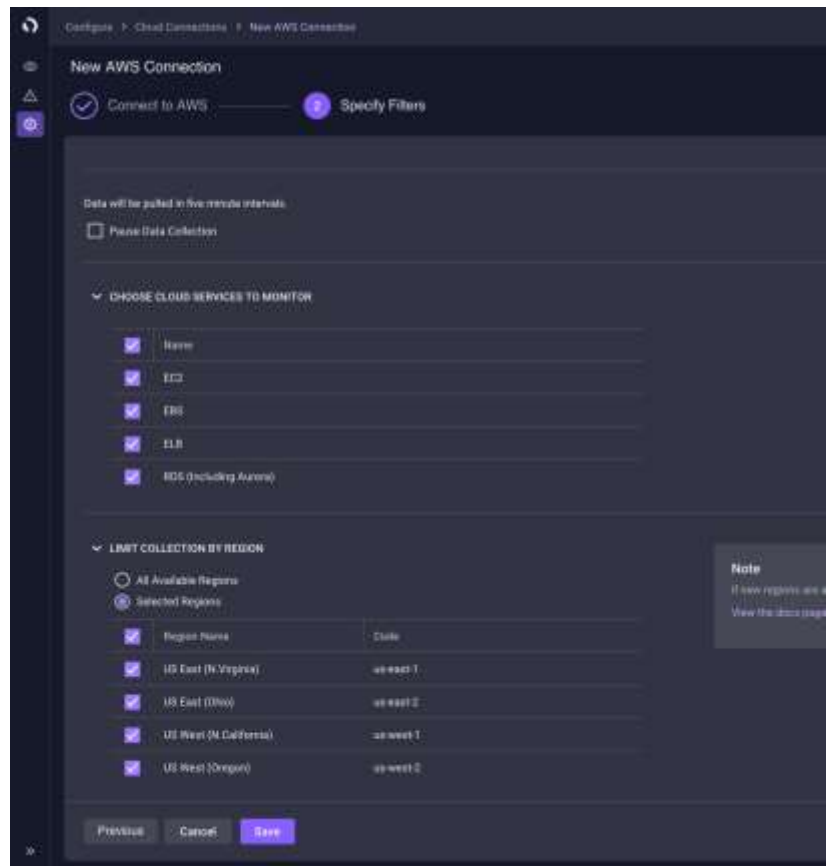
Cloud Managed Services Support

Why is it important

- Cloud runs the world of technology
- Customers need to understand how their applications perform specifically on the cloud
- No correlation between cloud and application metrics
 - The two works hand in hand but there is no way to view their data in one tool.
- Lack of correlation leads to lack of understanding between teams

How AppDynamics Does It

- AppDynamics Cloud allows for both cloud and application metrics to be seen in one view for a holistic view of the state of affairs



Increased Level of Support of Cloud Managed Kubernetes

Why is it important

- Kubernetes has become the standard for distributed applications in the modern era
- Distributed systems mean many more places to look for a problem

How AppDynamics Does It

- AppDynamics Cloud is able to analyze problems occurring in a Kubernetes cluster
- AppDynamics Cloud is also able to filter through Kubernetes concepts such as namespace, deployments, and labels



