Reliable monitoring and alerts

SETTING UP YOUR CLOUD FOR SUCCESS

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CONF42

About me

- Family
- Brazilians living in the UK
- Games & Travelling
- Software Engineer @ Meta

Outline

- Why?
- Metrics
- Dashboards
- Alerts
- Learning from failures

Why?

- Are the systems up right now?
- Are the metrics stable?
  - Or keeping the expected trends?
- Can I sleep in peace?

Metrics

WHAT DO WE WANT TO MONITOR?

Metrics

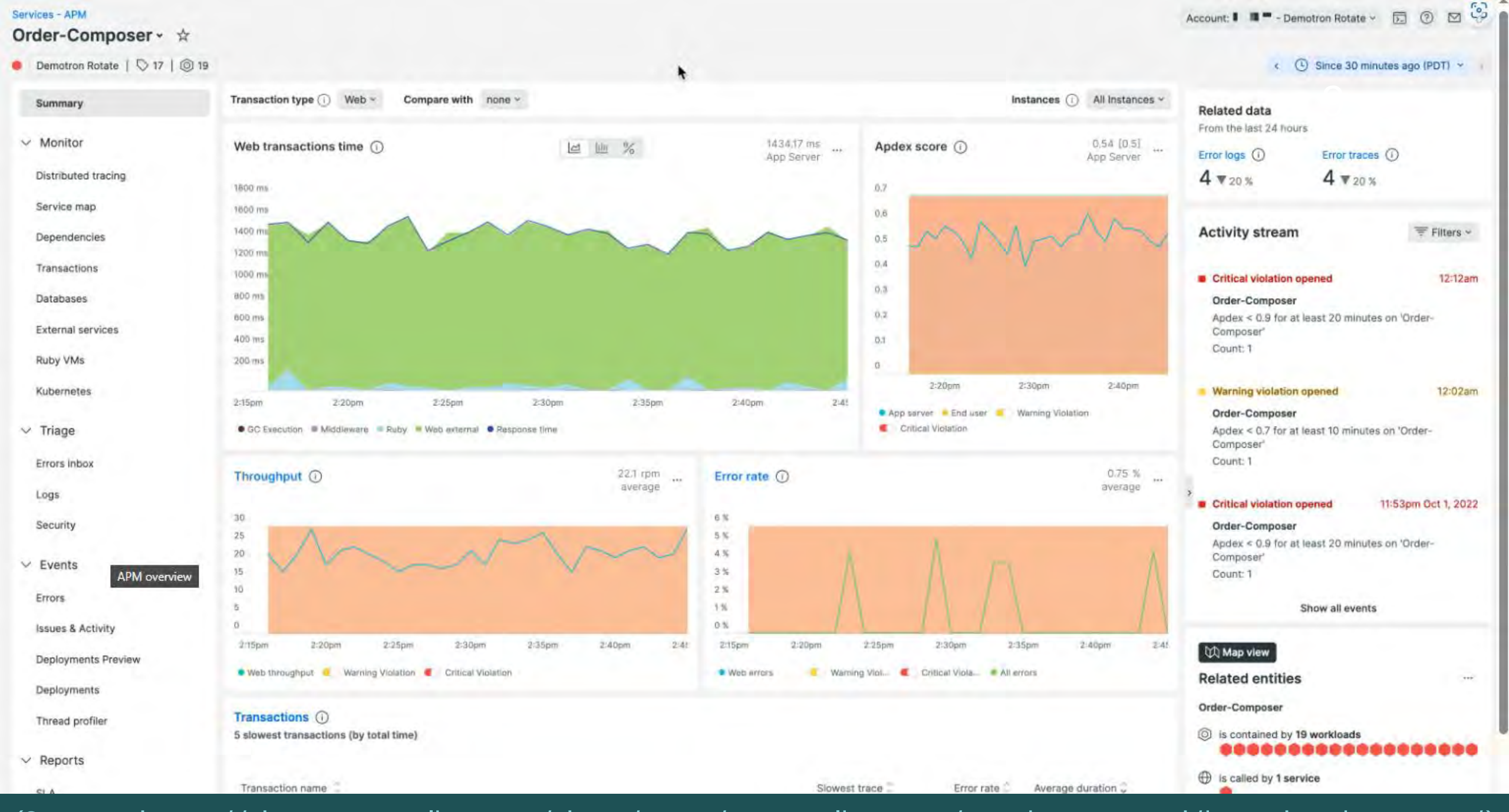
- Business
  - KPIs
  - Goals
  - User behaviour
- Technical
  - Response time
  - Error rate
  - Machine constraints (CPU, Memory, IO, …)
  - …
  - (We'll focus our examples in the technical side)

Dashboards

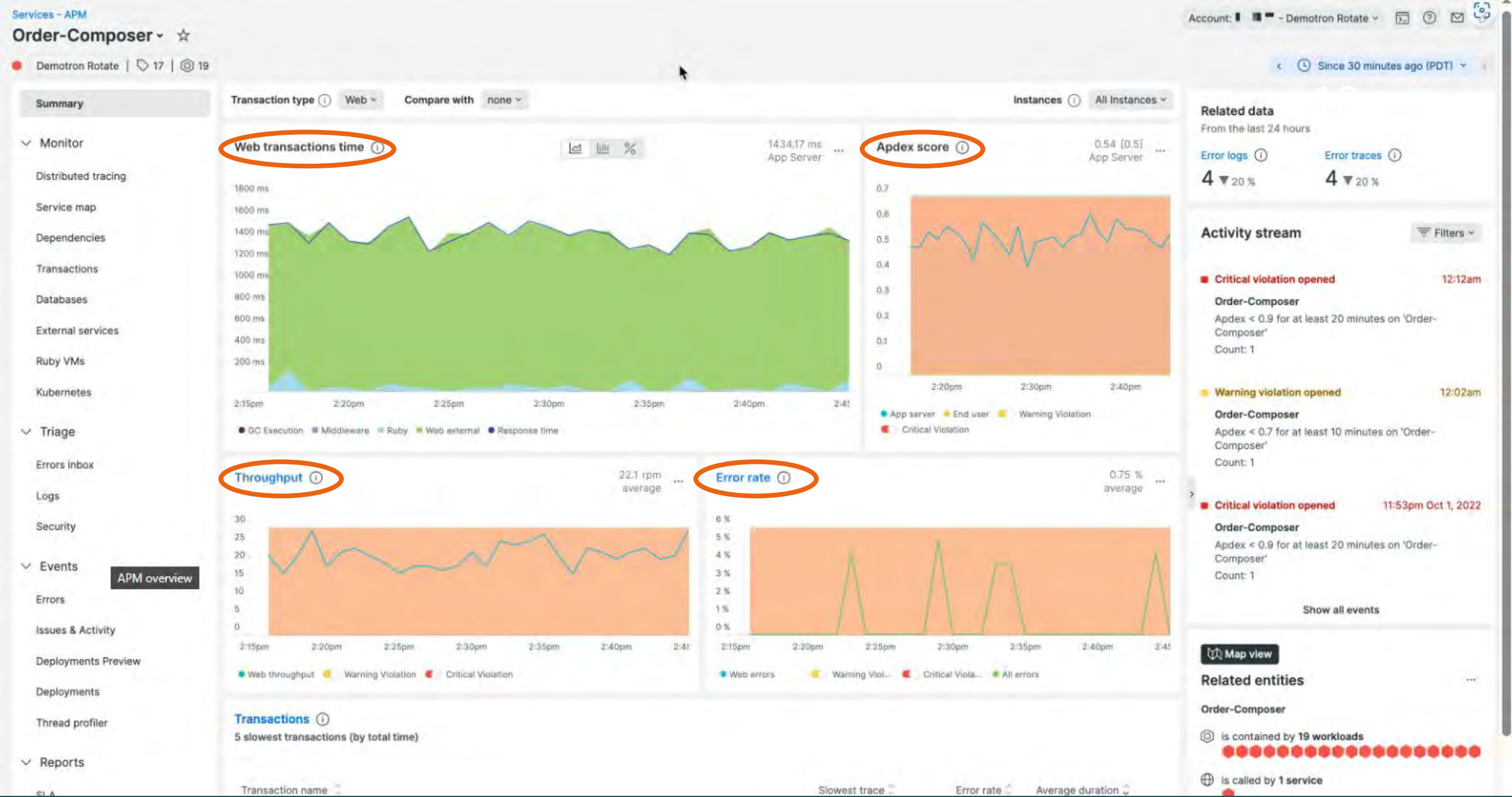
ALL YOU NEED TO KNOW AT A GLANCE

Dashboards

- Visual representation
- Key metrics, indicators and trends
- Insights into the current state
- Continuous monitoring and analysis
- Usually, over a time period
  - Past X hours/days/weeks



(Source https://docs.newrelic.com/docs/apm/new-relic-apm/getting-started/introduction-apm/)


Services - APM
Order-Composer
Demotron Rotate | 17 | 19
Account: - Demotron Rotate
Since 30 minutes ago (PDT)
Summary
Monitor
Distributed tracing
Service map
Dependencies
Transactions
Databases
External services
Ruby VMs
Kubernetes
Triage
Errors inbox
Logs
Security
Events
Errors
Issues & Activity
Deployments Preview
Deployments
Thread profiler
Reports
APM overview
Transaction type Web
Compare with none
Instances All Instances
Web transactions time
1434.17 ms App Server
GC Execution
Middleware
Ruby
Web external
Response time
Apdex score
0.54 [0.5] App Server
App server
End user
Warning Violation
Critical Violation
Throughput
22.1 rpm average
Web throughput
Error rate
0.75 % average
Web errors
Related data
From the last 24 hours
Error logs
4 ▼ 20 %
Error traces
4 ▼ 20 %
Activity stream
Filters
Critical violation opened
12:12am
Order-Composer
Apdex < 0.9 for at least 20 minutes on 'Order-Composer'
Count: 1
Warning violation opened
12:02am
Order-Composer
Apdex < 0.7 for at least 10 minutes on 'Order-Composer'
Count: 1
Critical violation opened
11:53pm Oct 1, 2022
Order-Composer
Apdex < 0.9 for at least 20 minutes on 'Order-Composer'
Count: 1
Show all events
Map view
Related entities
Order-Composer
is contained by 19 workloads
is called by 1 service
Transactions
5 slowest transactions (by total time)
Transaction name
Slowest trace
Error rate
Average duration

Key Metrics

Services - APM

Order-Composer

Demotron Rotate | 17 | 19

Account: ■ ■ - Demotron Rotate

Since 30 minutes ago (PDT)

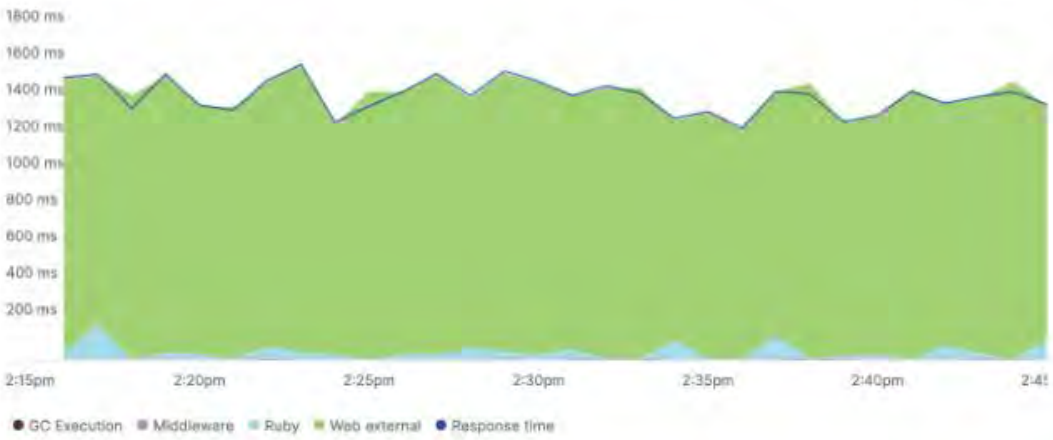
- Summary
- Monitor
  - Distributed tracing
  - Service map
  - Dependencies
  - Transactions
  - Databases
  - External services
  - Ruby VMs
  - Kubernetes
- Triage
  - Errors inbox
  - Logs
  - Security
- Events
  - Errors
  - Issues & Activity
  - Deployments Preview
  - Deployments
  - Thread profiler
- Reports
  - SLA

APM overview

Transaction type: Web | Compare with: none | Instances: All Instances

Web transactions time

1434.17 ms App Server



Apdex score

0.54 [0.5] App Server

Throughput

22.1 rpm average

Error rate

0.75 % average

Transactions

5 slowest transactions (by total time)

Transaction name | Slowest trace | Error rate | Average duration

Related data

From the last 24 hours

Error logs: 4 ▼ 20 %

Error traces: 4 ▼ 20 %

Activity stream

Filters

Critical violation opened 12:12am

Order-Composer

Apdex < 0.9 for at least 20 minutes on 'Order-Composer'

Count: 1

Warning violation opened 12:02am

Order-Composer

Apdex < 0.7 for at least 10 minutes on 'Order-Composer'

Count: 1

Critical violation opened 11:53pm Oct 1, 2022

Order-Composer

Apdex < 0.9 for at least 20 minutes on 'Order-Composer'

Count: 1

Show all events

Map view

Related entities

Order-Composer

is contained by **19 workloads**

is called by **1 service**

Period selection

Useful visualizations

- Time series: Display trends over time
  - Spikes and seasonality
  - Example: Error rate over time
- Stacked area charts: Cumulative contribution to a total value over time
  - Example: % of users per platform
- And many others
  - Bar Charts, Pie Charts, Heat Maps, Scatter Plots, Gauge Charts, Histograms, Waterfall charts
  - But remember: We need to know how to read them

Intuitive dashboards

- Plot useful guidelines
  - Expected values
  - Soft limits
- Handful filters
- Quick access to debug tools
  - Error rate up?
  - Which errors?
  - Show me the stack trace!
- Not too overwhelming

Alerts

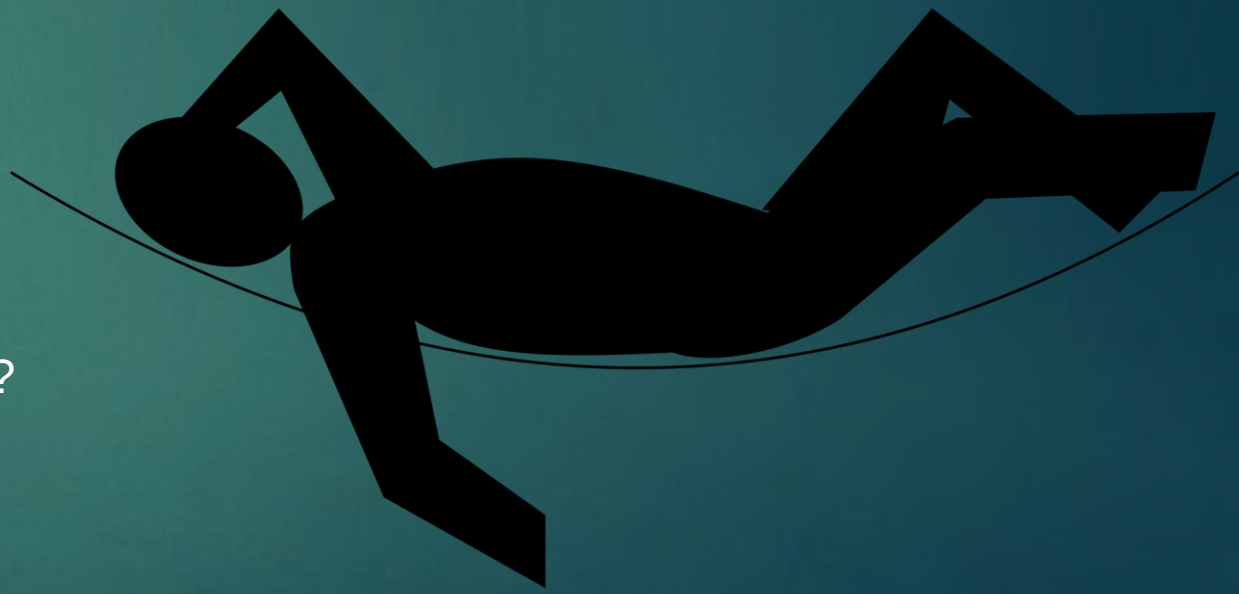
WE ALL DESERVE PEACE OF MIND

Alerts

- Automated notifications
- Observe desired data and metrics
- Predefined conditions or thresholds
- Prompt immediate attention
- Targeted to specific individuals or teams

Alerts for peace of mind

- Most critical metrics
- Different levels of severity
  - Different tags and alerting patterns
- Early trends vs late downtime
  - DB storage will be full in X days
- Clear and actionable
  - What we should do when this alert fires?
  - Is there an escalation path?



Learning from failures

WHY? WHY? WHY? WHY? WHY?

Problems happen

Learning from failures

- Why did this incident happen?
  - Non-cloud example: Server shutdown
  - Why? Why? Why? Why? Why?
  - Finding the real root cause
- What could have prevented it?
  - Alert: System down vs dangerous trends
- Were we caught off guard?
  - How can we detect this earlier
- Any missing dashboard or alert?

Wrapping up

- Metrics
- Dashboards
- Alerts
- Learning from failures

Thank you

► /israelhlc