Hand out version for attendees

Hands-On Lab:
How Dynatrace helps DevOps & SRE

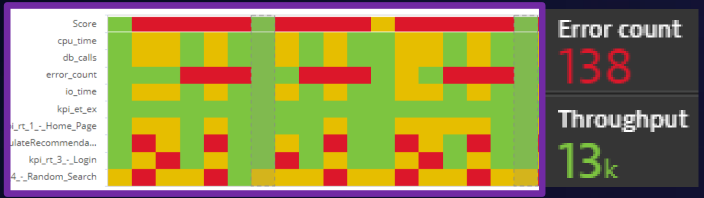
dynatrace

Dynatrace helps DevOps & SREs to Shift-Left SLOs

Delivery Pipelines

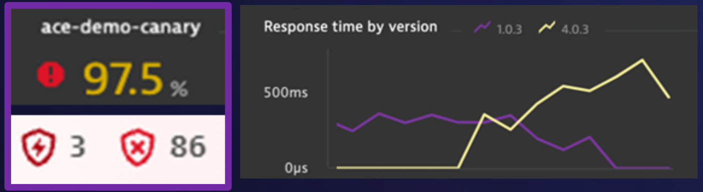
Release Validation

Production Reliability



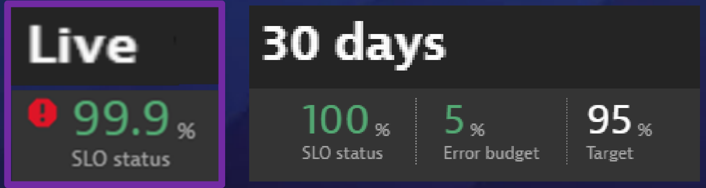
Error count
138

Throughput
13k


ace-demo-canary
97.5 %

3 86

Response time by version


Live
99.9 %
SLO status

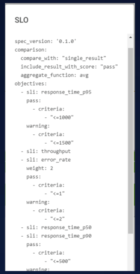
30 days
100 % SLO status
5 % Error budget
95 % Target

Speed up high-**quality** value creation

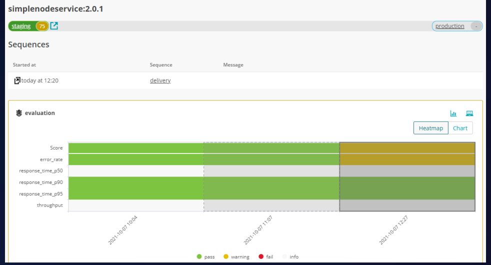
Eliminate Failed Releases

Ensure 100% Business Up-Time

Lab 3: SLO-based Quality Gates


SLO

```
spec_version: '0.1.0'
comparison:
  compare_with: "single_result"
  include_result_with_score: "pass"
  aggregate_function: avg
objectives:
  - sli: response_time_p95
    pass:
      - criteria:
          - "<=1000"
    warning:
      - criteria:
          - "<=1500"
  - sli: throughput
  - sli: error_rate
    weight: 2
    pass:
      - criteria:
          - "<=1"
    warning:
      - criteria:
          - "<=2"
  - sli: response_time_p50
  - sli: response_time_p90
    pass:
      - criteria:
          - "<=500"
    warning:
```


simplenodeservice:2.0.1

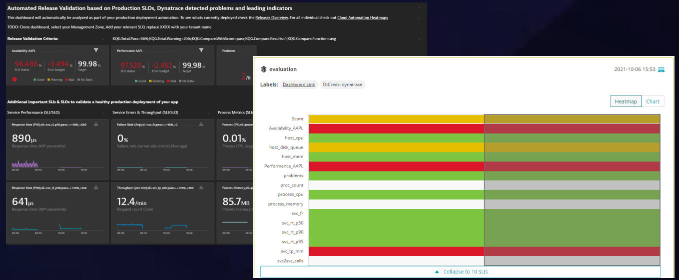
staging 75 production

Sequences

Started at	Sequence	Message
today at 12:20	delivery	

evaluation

Lab 2: SLOs for Release Managers


Automated Release Validation based on Production SLOs, Dynatrace detected problems and leading indicators

This dashboard will automatically be analyzed as part of your production deployment automation. To see whats currently deployed check the Releases Overview. For all individual check out Cloud Automation Heatmaps

TODO: Clone dashboard, select your Management Zone, Add your relevant SLO, replace XXXX with your tenant name

Release Validation Criteria: KQG.Total.Pass=90%;KQG.Total.Warning=70%;KQG.Compare.WithScore=pass;KQG.Compare.Results=1;KQG.Compare.Function=avg

Availability AAPL: 96.486 % SLO status, -3.494 % Error budget, 99.98 % Target

Performance AAPL: 97.528 % SLO status, -2.452 % Error budget, 99.98 % Target

Problems: 2/8

Additional important SLIs & SLOs to validate a healthy production deployment of your app

Service Performance (SLI/SLO)

Response time (P95);sli=svc_rt_p95;pass=<+10%,<600: 890µs Response time (95th percentile)

Response time (P90);sli=svc_rt_p90;pass=<+10%,<550: 641µs Response time (90th percentile)

Service Errors & Throughput (SLI/SLO)

Failure Rate (Avg);sli=svc_fr;pass=<+10%,<2: 0% Failure rate (server side errors) (Average)

Throughput (per min);sli=svc_tp_min;pass=<+10%,<200: 12.4/min Request count (Sum)

Process Metrics (SLI

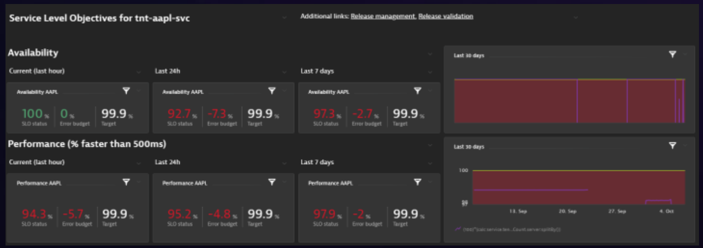
Process CPU;sli=proce: 0.01% Process CPU usag

Process Memory;sli=p: 85.7MB Process memory (

evaluation 2021-10-06 15:53

Labels: Dashboard Link DtCreds: dynatrace

Lab 1: SLOs for Operations


Service Level Objectives for tnt-aapl-svc

Additional links: Release management, Release validation

Availability

	Current (last hour)	Last 24h	Last 7 days
Availability AAPL	100 % SLO status, 0 % Error budget, 99.9 % Target	92.7 % SLO status, -7.3 % Error budget, 99.9 % Target	97.3 % SLO status, -2.7 % Error budget, 99.9 % Target

Performance (% faster than 500ms)

	Current (last hour)	Last 24h	Last 7 days
Performance AAPL	94.3 % SLO status, -5.7 % Error budget, 99.9 % Target	95.2 % SLO status, -4.8 % Error budget, 99.9 % Target	97.9 % SLO status, -2 % Error budget, 99.9 % Target

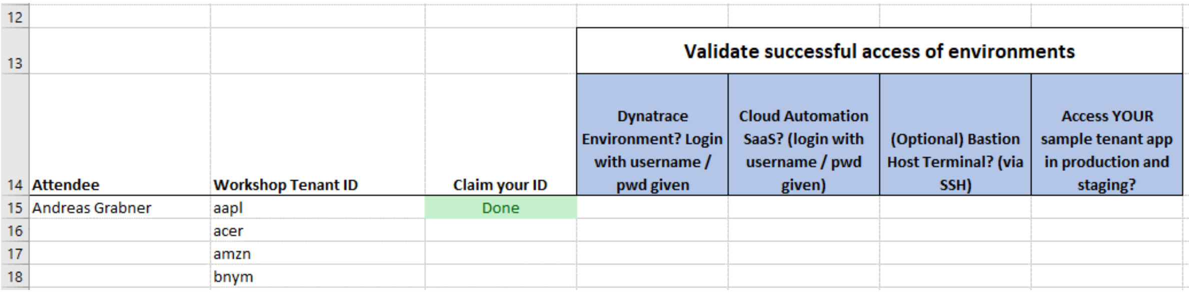
dynatrace

Prerequisits

- Dynatrace Know How
  - Understanding of Dynatrace, OneAgent and the Software Intelligence Platform
  - Understanding of Process Groups, Process Group Instances and Services
  - Know how to navigate the Dynatrace web interface to find Services, Release Overview, Dashboards
- Technical Pre-Requisits
  - Modern Browser to access Dynatrace & Cloud Automation SaaS environments
  - (optional) SSH Client, e.g. Putty to access remote bastion host with installed Keptn CLI
  - (optional) local Keptn CLI

Feedback options throughout the training

- Keep track of progress through Online Excel Sheet
  - Trainer will share link to Excel
  - Find your Workshop Tenant ID next to your name
  - Mark tasks with
    - Yes or All Good
    - No or Need Help Now
    - Need help later in the break but please continue
  - Lets mark the first cell in the excel if you found your id!

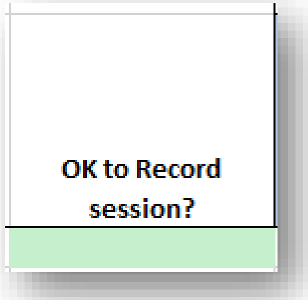


12							
13				Validate successful access of environments			
14	Attendee	Workshop Tenant ID	Claim your ID	Dynatrace Environment? Login with username / pwd given	Cloud Automation SaaS? (login with username / pwd given)	(Optional) Bastion Host Terminal? (via SSH)	Access YOUR sample tenant app in production and staging?
15	Andreas Grabner	aapl	Done				
16		acer					
17		amzn					
18		bnym					

- If you have questions
  - Raise your hand if we are in the same room
  - Ask questions through the chat or simply unmute and ask question in case you are remote!

BEFORE WE GET STARTED!

- Recording?
  - If everyone is OK that we record this session we can share it later on with todays attendees + internally at Dynatrace! OK?



OK to Record session?

- WITH GREAT POWER COMES GREAT RESPONSIBILITY!
  - You are admins in several environments today
  - PLEASE DO NOT DELETE or RECONFIGURE things UNLESS I TELL YOU ☺
- IF YOU NEED HELP?
  - Let us know. We have a whole team of ppl supporting this event

Hands-On Lab:
Introduction to our Lab Environment

dynatrace

Accessing the Lab Environment and all relevant links

- Its recommended to use a browser in “Incognito Mode”
  - Open https://hci34192.live.dynatrace.com/
    - User: dt.claus.workshop@gmail.com
    - Password: @dtClausWorkshop2021
  - Once logged in open dashboard *“Cloud Automation Workshop Overview and Links”*
- Additional hands-on supporting instructions on GitHub:
  - *https://github.com/keptn-sandbox/keptn-on-k3s/blob/master/cloudautomation/INSTRUCTIONS.md*

High-Level Overview of our Lab

Your laptop

Cloud Automation Attendee Host

Login with dtu_training / @dtulabs2021
Used to execute keptn CLI commands

Access through web ui, Keptn CLI or API

dynatrace

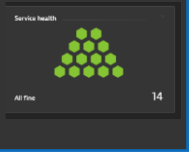
https://fvk03152.cloudautomation.live.dynatrace.com

Cloud Automation Control Plane
+ Dynatrace Services for SLO Validation

Connected

https://hci34192.live.dynatrace.com/

Dynatrace Software Intelligence Platform
- Monitors our k3s clusters
- Synthetic tests against our services



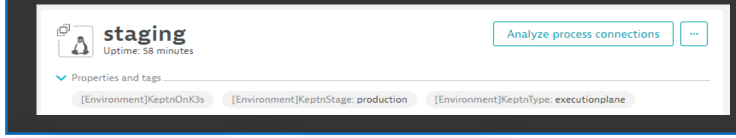
Registered to execute deploy, test, configure, …

FullStack Monitored with OneAgent

kubernetes

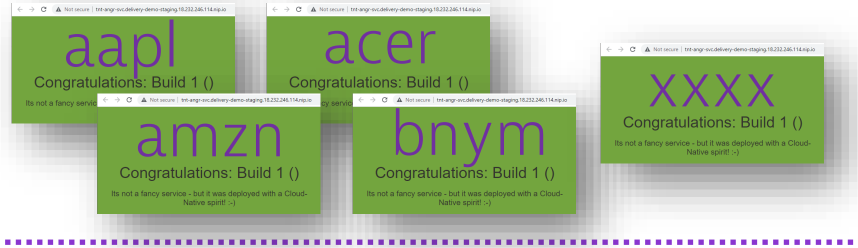
https://*.delivery-demo-**staging**.claus-ws-**staging**.keptn.sh

Execution Plane for STAGING
+ Helm, Monaco, Generic Executor


staging
Uptime: 58 minutes

Properties and tags

[Environment]KeptnOnK3s
[Environment]KeptnStage: production
[Environment]KeptnType: executionplane


Not secure | tnt-angr-svc.delivery-demo-staging.18.232.246.114.nip.io

aapl
Congratulations: Build 1 ()
Its not a fancy servic

Not secure | tnt-angr-svc.delivery-demo-staging.18.232.246.114.nip.io

acer
Congratulations: Build 1 ()
cy servic

Not secure | tnt-angr-svc.delivery-demo-staging.18.232.246.114.nip.io

amzn
Congratulations: Build 1 ()
Its not a fancy service - but it was deployed with a Cloud-Native spirit! :-)

Not secure | tnt-angr-svc.delivery-demo-staging.18.232.246.114.nip.io

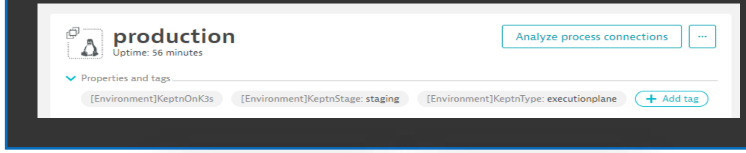
bnym
Congratulations: Build 1 ()
Its not a fancy service - but it was deployed with a Cloud-Native spirit! :-)

Not secure | tnt-angr-svc.delivery-demo-staging.18.232.246.114.nip.io

xxxx
Congratulations: Build 1 ()
Its not a fancy service - but it was deployed with a Cloud-Native spirit! :-)

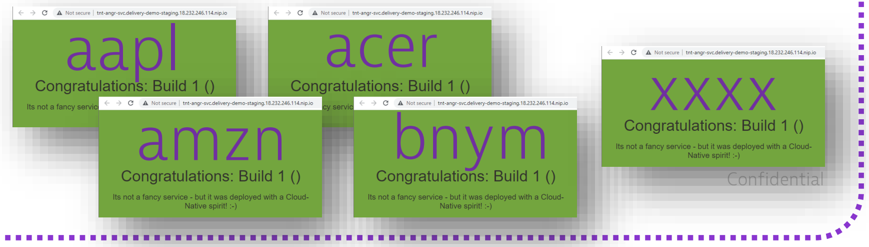
https://*.delivery-demo-**production**.claus-ws-**production**.keptn.sh

Execution Plane for PRODUCTION
+ Helm, Monaco, Generic Executor


production
Uptime: 56 minutes

Properties and tags

[Environment]KeptnOnK3s
[Environment]KeptnStage: staging
[Environment]KeptnType: executionplane


Not secure | tnt-angr-svc.delivery-demo-staging.18.232.246.114.nip.io

aapl
Congratulations: Build 1 ()
Its not a fancy servic

Not secure | tnt-angr-svc.delivery-demo-staging.18.232.246.114.nip.io

acer
Congratulations: Build 1 ()
y servic

Not secure | tnt-angr-svc.delivery-demo-staging.18.232.246.114.nip.io

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Not secure | tnt-angr-svc.delivery-demo-staging.18.232.246.114.nip.io

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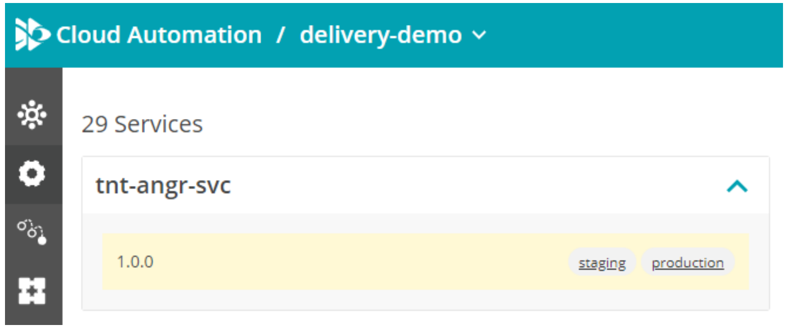
Not secure | tnt-angr-svc.delivery-demo-staging.18.232.246.114.nip.io

xxxx
Congratulations: Build 1 ()
Its not a fancy service - but it was deployed with a Cloud-Native spirit! :-)

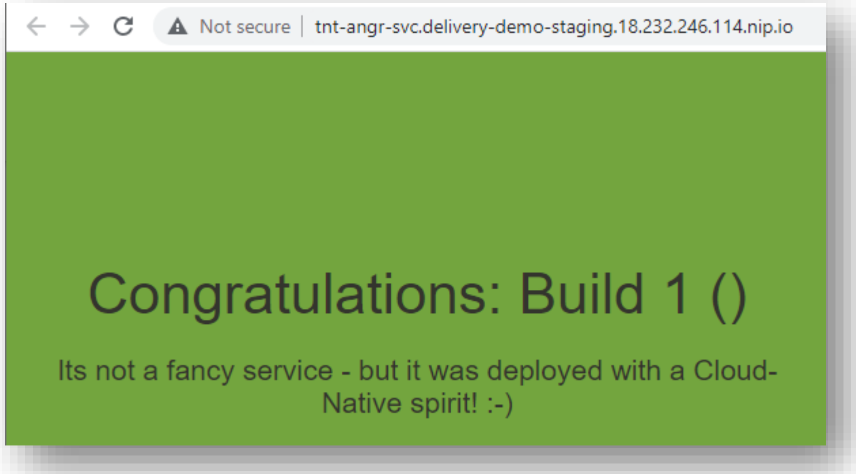
Our sample app: every attendee has its own instance in staging & production

- Deployed through Cloud Automation on our two k8s clusters



Try to access YOUR app!

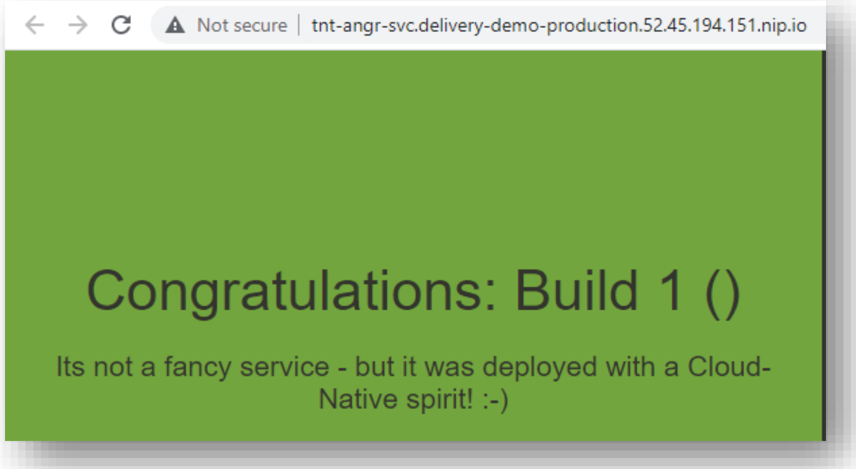
- With unique URLs including your own „TenantID“ and environment
  - http://tnt-aapl-svc.delivery-demo-staging.claus-ws-staging.keptn.sh/
  - http://tnt-aapl-svc.delivery-demo-production.claus-ws-production.keptn.sh/



Not secure | tnt-angr-svc.delivery-demo-staging.18.232.246.114.nip.io

Congratulations: Build 1 ()

Its not a fancy service - but it was deployed with a Cloud-Native spirit! :-)



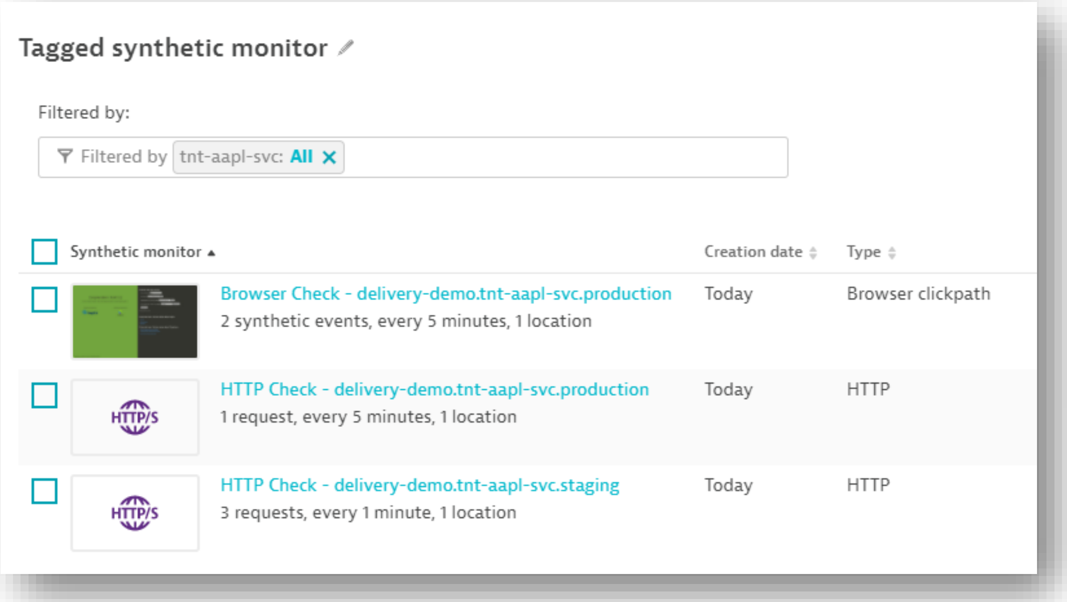
Not secure | tnt-angr-svc.delivery-demo-production.52.45.194.151.nip.io

Congratulations: Build 1 ()

Its not a fancy service - but it was deployed with a Cloud-Native spirit! :-)

Our sample app is automatically monitored with Dynatrace

- Including automatic created Synthetic Checks in Staging and Production
- Proper automated taging and naming

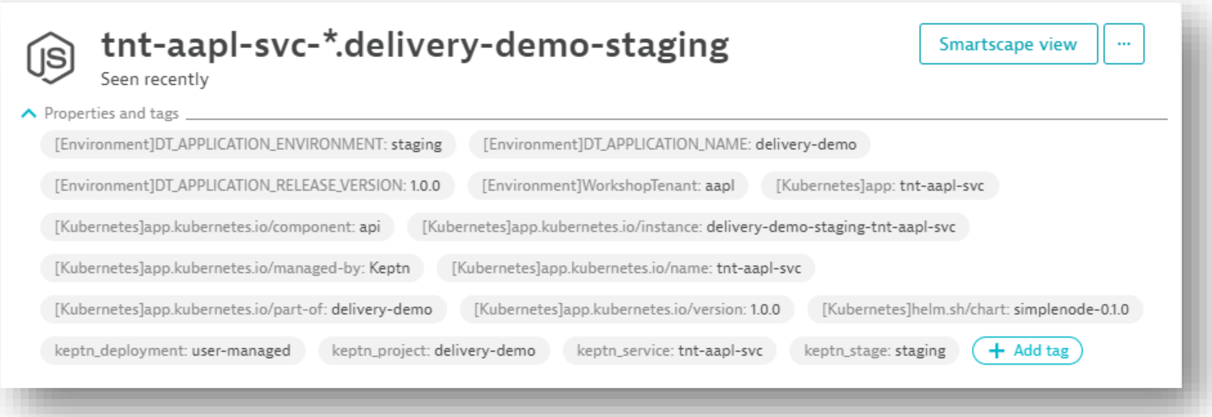


Tagged synthetic monitor

Filtered by:

Filtered by tnt-aapl-svc: **All** ✕

□	Synthetic monitor ▲	Creation date	Type
□	Browser Check - delivery-demo.tnt-aapl-svc.production 2 synthetic events, every 5 minutes, 1 location	Today	Browser clickpath
□	HTTP Check - delivery-demo.tnt-aapl-svc.production 1 request, every 5 minutes, 1 location	Today	HTTP
□	HTTP Check - delivery-demo.tnt-aapl-svc.staging 3 requests, every 1 minute, 1 location	Today	HTTP



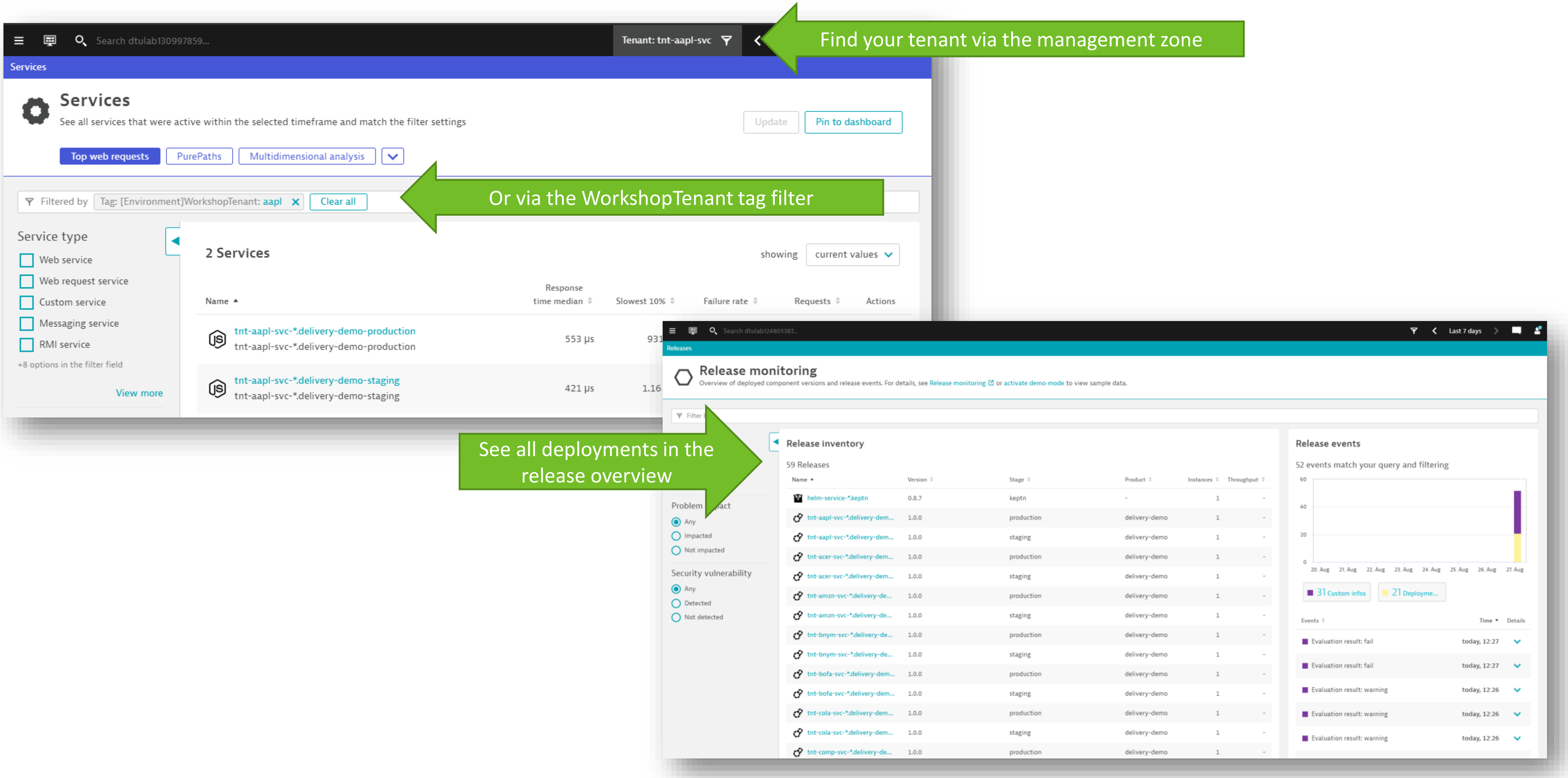
tnt-aapl-svc-*.delivery-demo-staging

Seen recently

Properties and tags

- [Environment]DT_APPLICATION_ENVIRONMENT: staging
- [Environment]DT_APPLICATION_NAME: delivery-demo
- [Environment]DT_APPLICATION_RELEASE_VERSION: 1.0.0
- [Environment]WorkshopTenant: aapl
- [Kubernetes]app: tnt-aapl-svc
- [Kubernetes]app.kubernetes.io/component: api
- [Kubernetes]app.kubernetes.io/instance: delivery-demo-staging-tnt-aapl-svc
- [Kubernetes]app.kubernetes.io/managed-by: Keptn
- [Kubernetes]app.kubernetes.io/name: tnt-aapl-svc
- [Kubernetes]app.kubernetes.io/part-of: delivery-demo
- [Kubernetes]app.kubernetes.io/version: 1.0.0
- [Kubernetes]helm.sh/chart: simplenode-0.1.0
- keptn_deployment: user-managed
- keptn_project: delivery-demo
- keptn_service: tnt-aapl-svc
- keptn_stage: staging

Find your app in the Dynatrace Environment



Find your tenant via the management zone

Or via the WorkshopTenant tag filter

See all deployments in the release overview

Services

See all services that were active within the selected timeframe and match the filter settings

Filtered by Tag: [Environment]WorkshopTenant: aapl

Service type

- □ Web service
- □ Web request service
- □ Custom service
- □ Messaging service
- □ RMI service

+8 options in the filter field

View more

2 Services

Name	Response time median	Slowest 10%	Failure rate	Requests	Actions
tnt-aapl-svc-*.delivery-demo-production tnt-aapl-svc-*.delivery-demo-production	553 µs	931			
tnt-aapl-svc-*.delivery-demo-staging tnt-aapl-svc-*.delivery-demo-staging	421 µs	1.16			

Release monitoring

Overview of deployed component versions and release events. For details, see Release monitoring or activate demo mode to view sample data.

Problem impact

- ● Any
- ○ Impacted
- ○ Not impacted

Security vulnerability

- ● Any
- ○ Detected
- ○ Not detected

Release inventory

59 Releases

Name	Version	Stage	Product	Instances	Throughput
helm-service-*.keptn	0.8.7	keptn	-	1	-
tnt-aapl-svc-*.delivery-dem...	1.0.0	production	delivery-demo	1	-
tnt-aapl-svc-*.delivery-dem...	1.0.0	staging	delivery-demo	1	-
tnt-acer-svc-*.delivery-dem...	1.0.0	production	delivery-demo	1	-
tnt-acer-svc-*.delivery-dem...	1.0.0	staging	delivery-demo	1	-
tnt-amzn-svc-*.delivery-de...	1.0.0	production	delivery-demo	1	-
tnt-amzn-svc-*.delivery-de...	1.0.0	staging	delivery-demo	1	-
tnt-bnym-svc-*.delivery-de...	1.0.0	production	delivery-demo	1	-
tnt-bnym-svc-*.delivery-de...	1.0.0	staging	delivery-demo	1	-
tnt-bofa-svc-*.delivery-dem...	1.0.0	production	delivery-demo	1	-
tnt-bofa-svc-*.delivery-dem...	1.0.0	staging	delivery-demo	1	-
tnt-cola-svc-*.delivery-dem...	1.0.0	production	delivery-demo	1	-
tnt-cola-svc-*.delivery-dem...	1.0.0	staging	delivery-demo	1	-
tnt-comp-svc-*.delivery-de...	1.0.0	production	delivery-demo	1	-

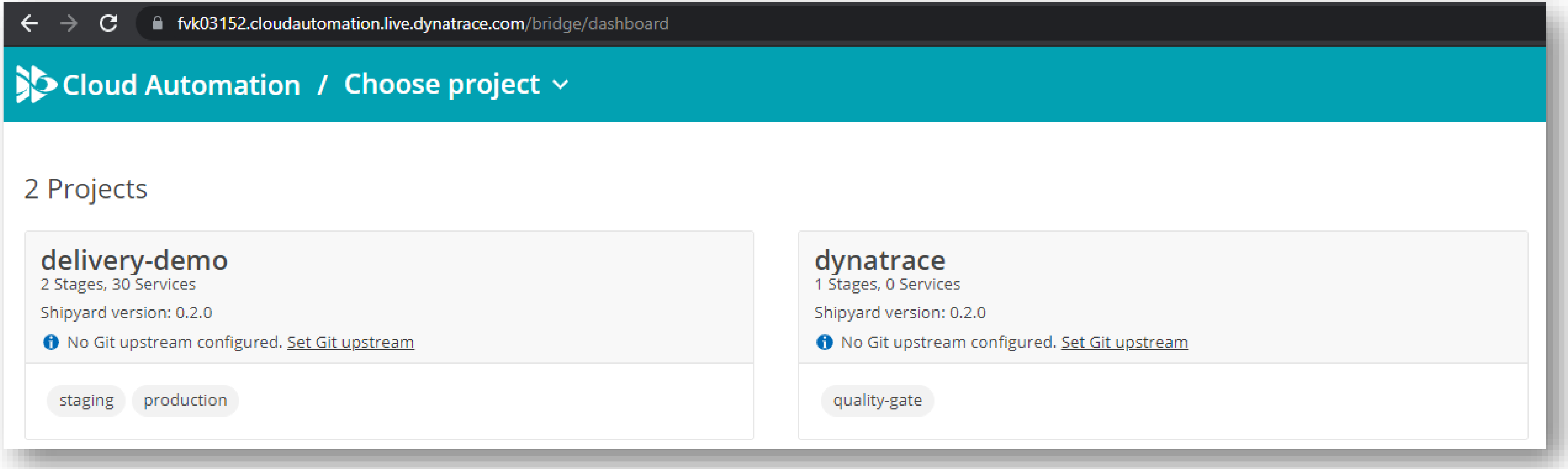
Release events

52 events match your query and filtering

Events	Time	Details
Evaluation result: fail	today, 12:27	
Evaluation result: fail	today, 12:27	
Evaluation result: warning	today, 12:26	
Evaluation result: warning	today, 12:26	
Evaluation result: warning	today, 12:26	

Dynatrace Cloud Automation Environment

- Login with the same Dynatrace user provided



fvk03152.cloudautomation.live.dynatrace.com/bridge/dashboard

Cloud Automation / Choose project

2 Projects

delivery-demo
2 Stages, 30 Services
Shipyard version: 0.2.0
No Git upstream configured. Set Git upstream

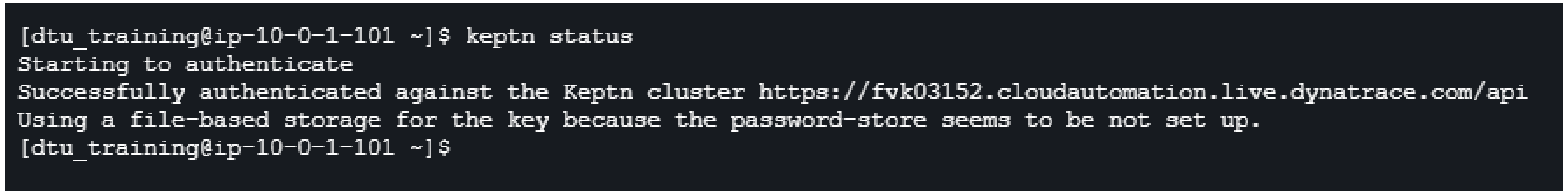
staging production

dynatrace
1 Stages, 0 Services
Shipyard version: 0.2.0
No Git upstream configured. Set Git upstream

quality-gate

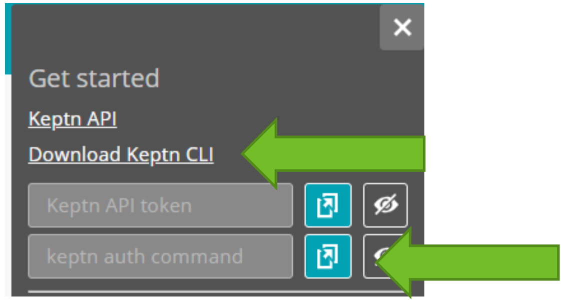
(OPTIONAL) Access Keptn CLI – via Bastion Host or locally on your machine

- Via Bastion Host
  - Connect via Putty (or equivalent SSH client): IP Address is in Excel File
  - Lets run a „*keptn status*" command: should say its authenticated against fvk03152.xxx



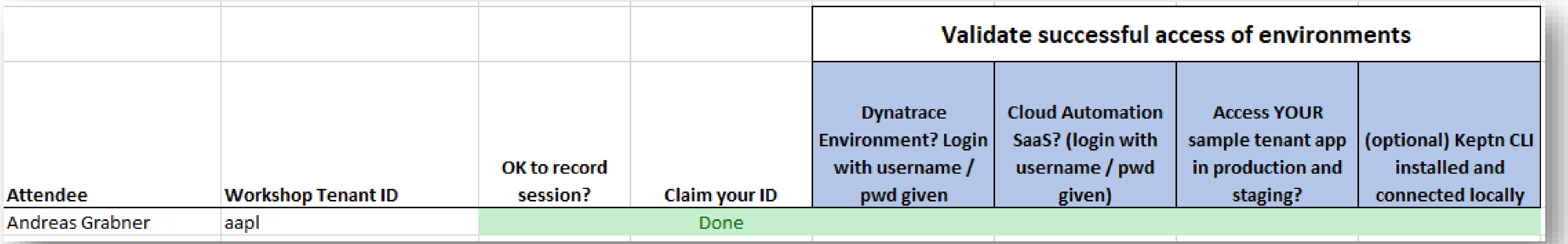
```
[dtu_training@ip-10-0-1-101 ~]$ keptn status
Starting to authenticate
Successfully authenticated against the Keptn cluster https://fvk03152.cloudautomation.live.dynatrace.com/api
Using a file-based storage for the key because the password-store seems to be not set up.
[dtu_training@ip-10-0-1-101 ~]$
```

- Locally on your laptop
  - First install the Keptn CLI
  - Then authenticate it by copying kepth auth from the UI



Quick Status Check: are we all good with accessing our environments?

- Please mark your tasks accordingly in the Excel file



				Validate successful access of environments			
Attendee	**Workshop Tenant ID**	**OK to record session?**	**Claim your ID**	**Dynatrace Environment? Login with username / pwd given**	**Cloud Automation SaaS? (login with username / pwd given)**	**Access YOUR sample tenant app in production and staging?**	**(optional) Keptn CLI installed and connected locally**
Andreas Grabner	aapl	Done					

Lab 1: Production Reliability

Creating SLOs and putting them on a dashboard

REFRESHER!!

DevOps & SRE Language: SLIs drive SLOs which inform SLAs!!!

Service Level Indicators (SLIs)

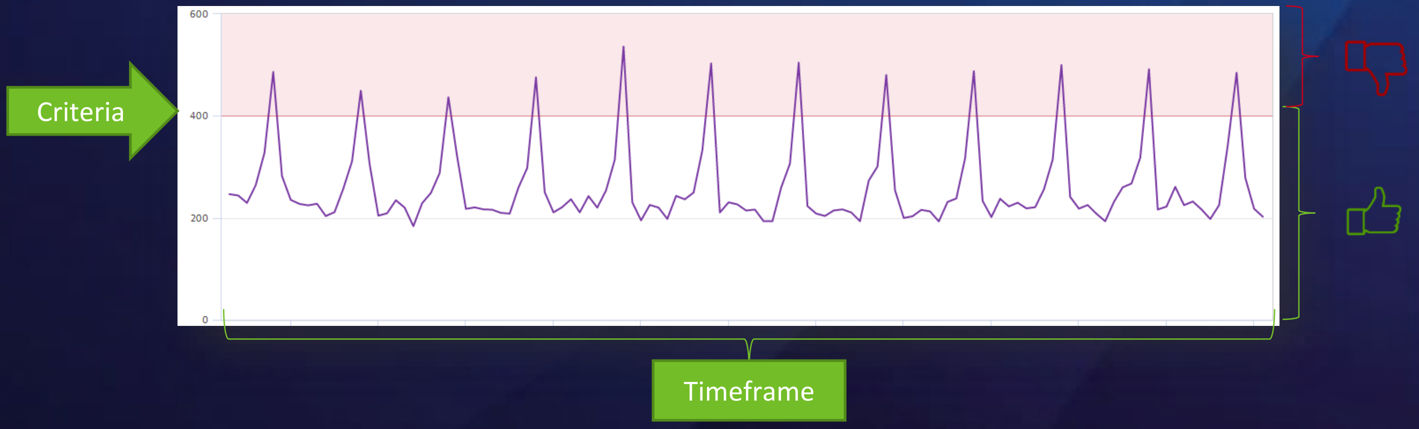
Percentage of an imporant metric against a criteria

Example: Service Response Time p95 < 400ms

Service Level Objectives (SLOs)

Success-% SLI over a timeframe

Example: p95 < 400ms in 90% of the time over 30 days



Error Budget

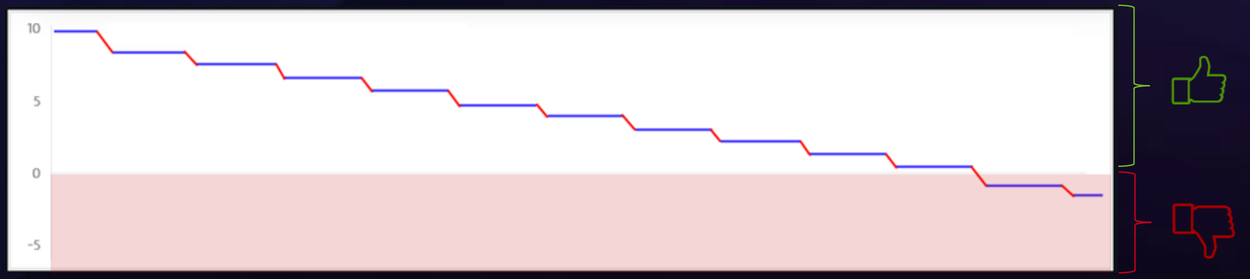
How much more impact can we afford before violating SLO?

Service Level Agreements (SLAs)

What happens IF SLO is breached

Example: Paying penalities, loosing customers …

Error Budget: how much budget is left?

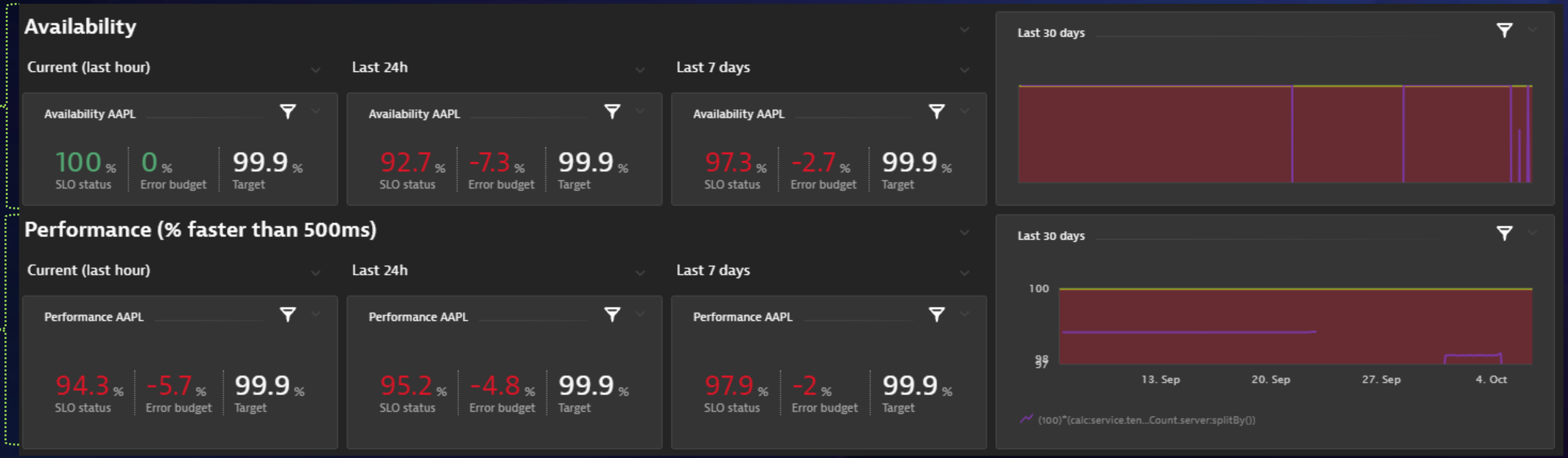


REFRESHER!!

A best practice SLO dashboard to start with

% of Time System is available

% of Requests meeting Performance Goal



Availability

Current (last hour)

Availability AAPL

100 % SLO status | 0 % Error budget | 99.9 % Target

Last 24h

Availability AAPL

92.7 % SLO status | -7.3 % Error budget | 99.9 % Target

Last 7 days

Availability AAPL

97.3 % SLO status | -2.7 % Error budget | 99.9 % Target

Last 30 days

Performance (% faster than 500ms)

Current (last hour)

Performance AAPL

94.3 % SLO status | -5.7 % Error budget | 99.9 % Target

Last 24h

Performance AAPL

95.2 % SLO status | -4.8 % Error budget | 99.9 % Target

Last 7 days

Performance AAPL

97.9 % SLO status | -2 % Error budget | 99.9 % Target

Last 30 days

Last 1 hour
Any current issues?

Last 24 hour
Any long running issues?

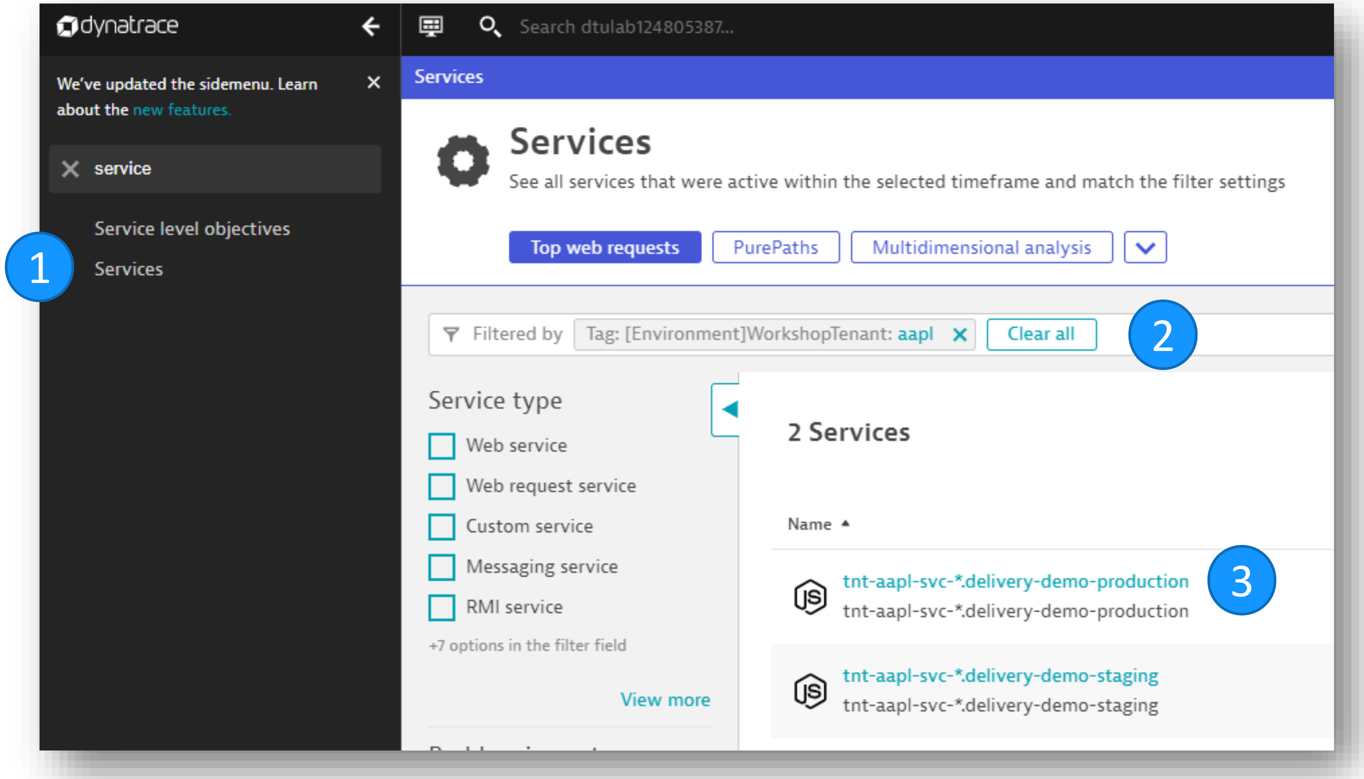
Last 7 days
Any permantent issues?

Last 30 days
Any repeting issues? Will we meet our SLO?

HANDS-ON SECTION

Performance Clinic
webinar series

Lets quickly expore our responsible service in production



dynatrace

We've updated the sidemenu. Learn about the new features. ✕

✕ service

1 Service level objectives
Services

Search dtulab124805387...

Services

Services

See all services that were active within the selected timeframe and match the filter settings

Top web requests | PurePaths | Multidimensional analysis

Filtered by Tag: [Environment]WorkshopTenant: aapl ✕ Clear all 2

Service type

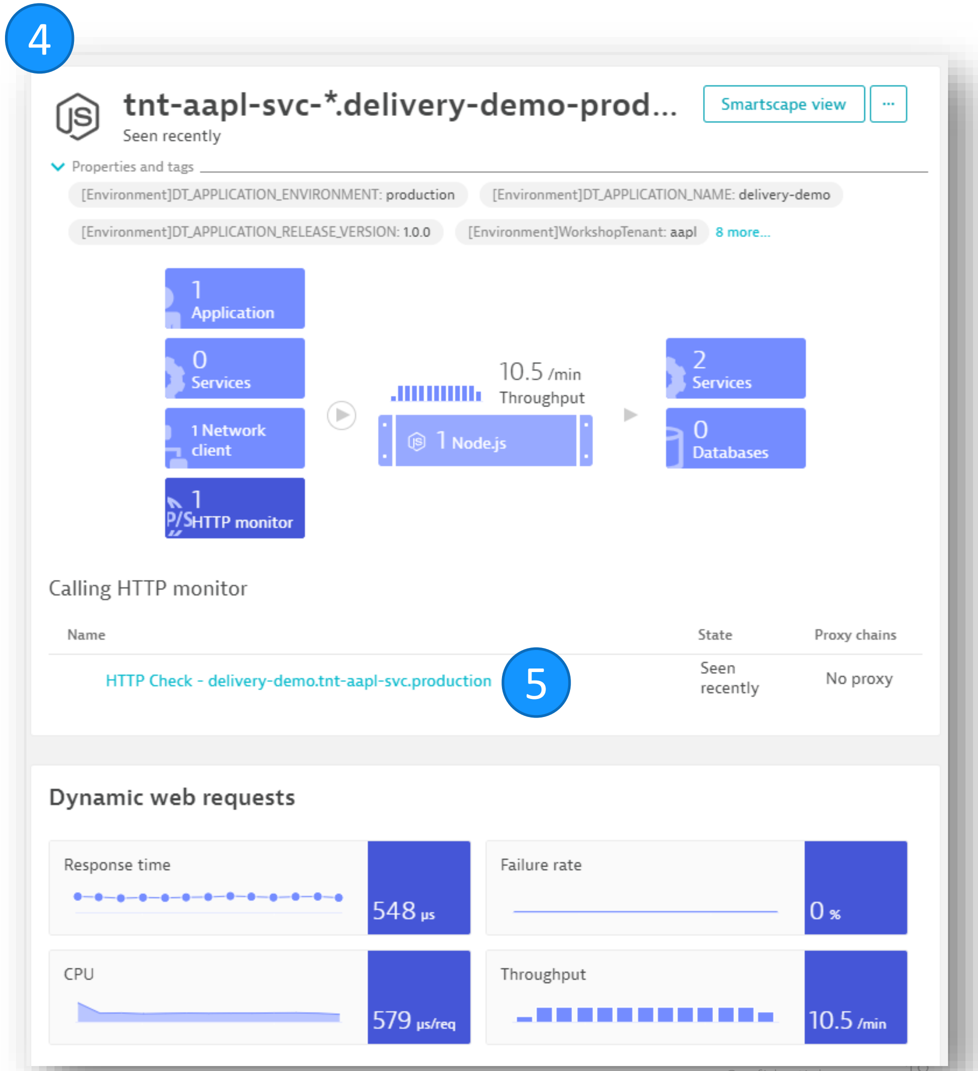
□ Web service
□ Web request service
□ Custom service
□ Messaging service
□ RMI service

+7 options in the filter field

View more

2 Services

Name ▲
tnt-aapl-svc-*.delivery-demo-production tnt-aapl-svc-*.delivery-demo-production 3
tnt-aapl-svc-*.delivery-demo-staging tnt-aapl-svc-*.delivery-demo-staging



4

tnt-aapl-svc-*.delivery-demo-prod...

Seen recently

Smartscape view | ···

Properties and tags

[Environment]DT_APPLICATION_ENVIRONMENT: production
[Environment]DT_APPLICATION_NAME: delivery-demo
[Environment]DT_APPLICATION_RELEASE_VERSION: 1.0.0
[Environment]WorkshopTenant: aapl
8 more...

Calling HTTP monitor

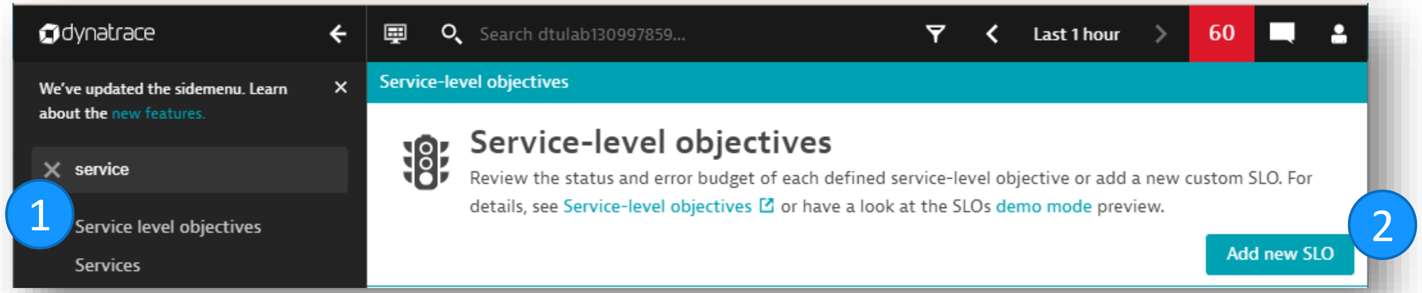
Name	State	Proxy chains
HTTP Check - delivery-demo.tnt-aapl-svc.production 5	Seen recently	No proxy

Dynamic web requests

Response time 548 µs	Failure rate 0 %
CPU 579 µs/req	Throughput 10.5 /min

Step #1: Lets create an SLO for production availablity

- Lets create our own SLO based on your Synthetic Test Availablity of our tenant in Production



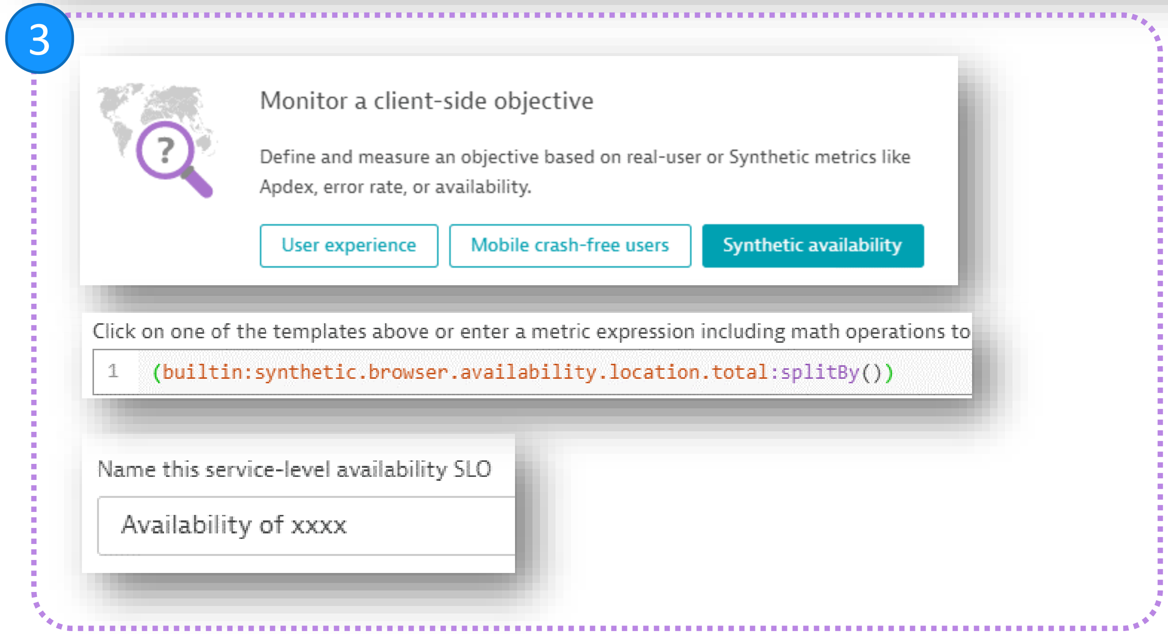
1 service → Service level objectives

Service-level objectives

Review the status and error budget of each defined service-level objective or add a new custom SLO. For details, see Service-level objectives or have a look at the SLOs demo mode preview.

2 Add new SLO

dynatrace
We've updated the sidemenu. Learn about the new features.
Services
Search dtulab130997859...
Last 1 hour
60



3 Monitor a client-side objective

Define and measure an objective based on real-user or Synthetic metrics like Apdex, error rate, or availability.

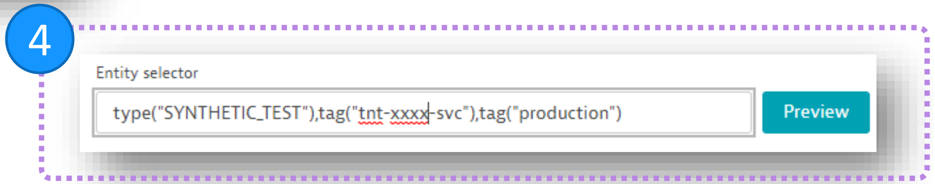
User experience | Mobile crash-free users | Synthetic availability

Click on one of the templates above or enter a metric expression including math operations to

```
(builtin:synthetic.browser.availability.location.total:splitBy())
```

Name this service-level availability SLO

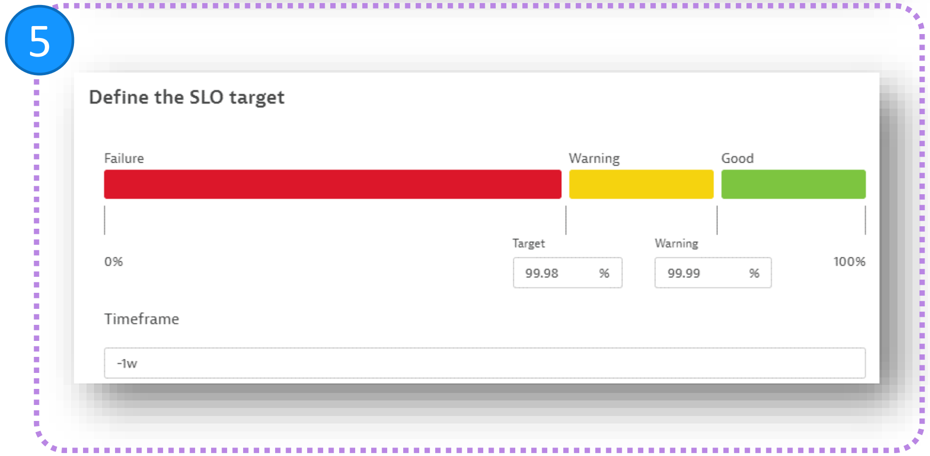
Availability of xxxx



4 Entity selector

type("SYNTHETIC_TEST"),tag("tnt-xxxx-svc"),tag("production")

Preview



5 Define the SLO target

Target 99.98 %

Warning 99.99 %

Timeframe -1w

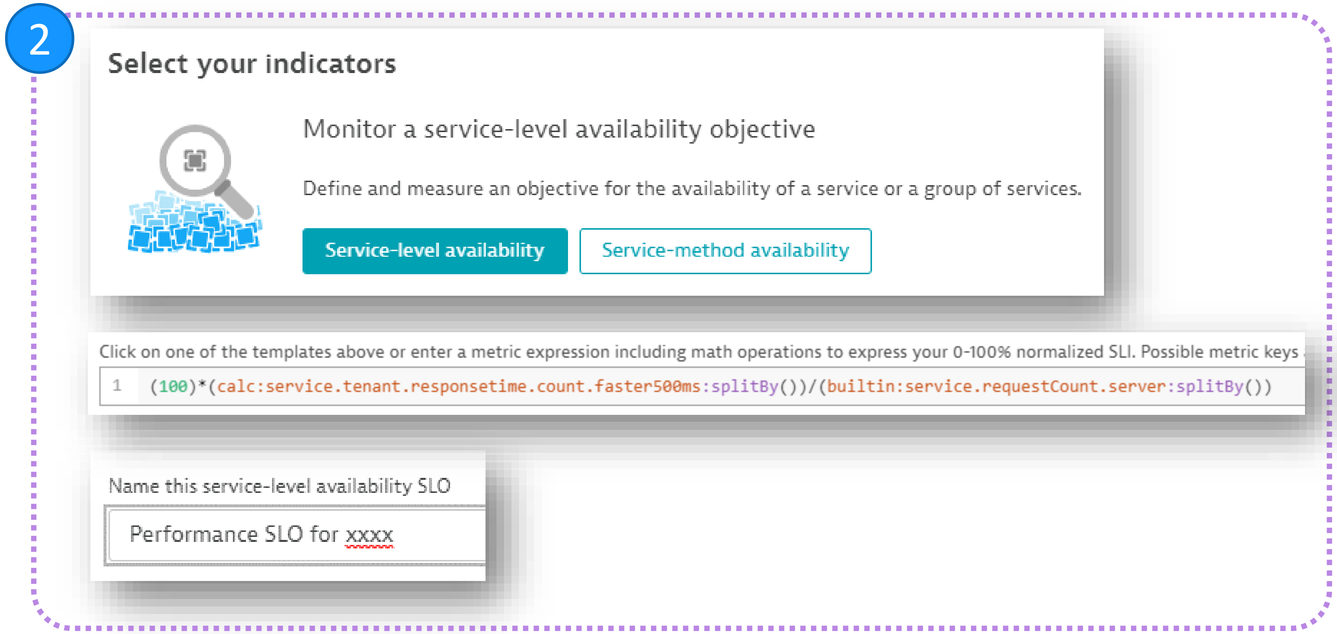
Hint: Copy queries and tags from slide notes!

HANDS-ON SECTION

Step #2: Lets create an SLO for production performance

- Let‘s create an SLO that measures the % of requests faster than 500ms on our tenant
  - Select „Service-level Availability“ and replace nominator metric with *calc:service.tenant.responsetime.count.faster500ms*

1 Add new SLO


2

Select your indicators

Monitor a service-level availability objective

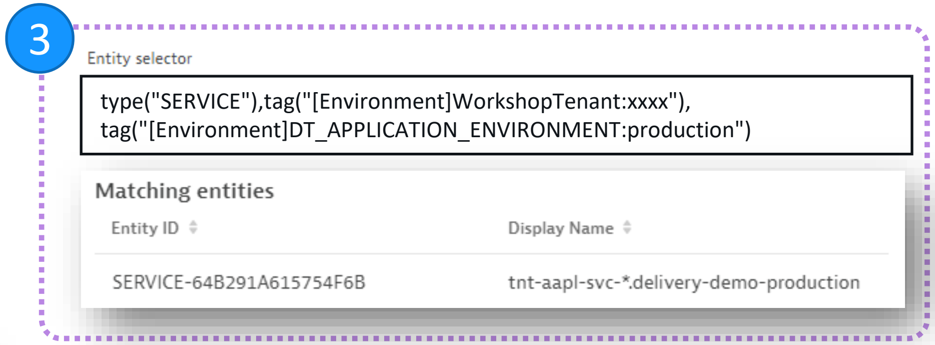
Define and measure an objective for the availability of a service or a group of services.

Click on one of the templates above or enter a metric expression including math operations to express your 0-100% normalized SLI. Possible metric keys

```
(100)*(calc:service.tenant.responsetime.count.faster500ms:splitBy())/(builtin:service.requestCount.server:splitBy())
```

Name this service-level availability SLO

Performance SLO for xxxx

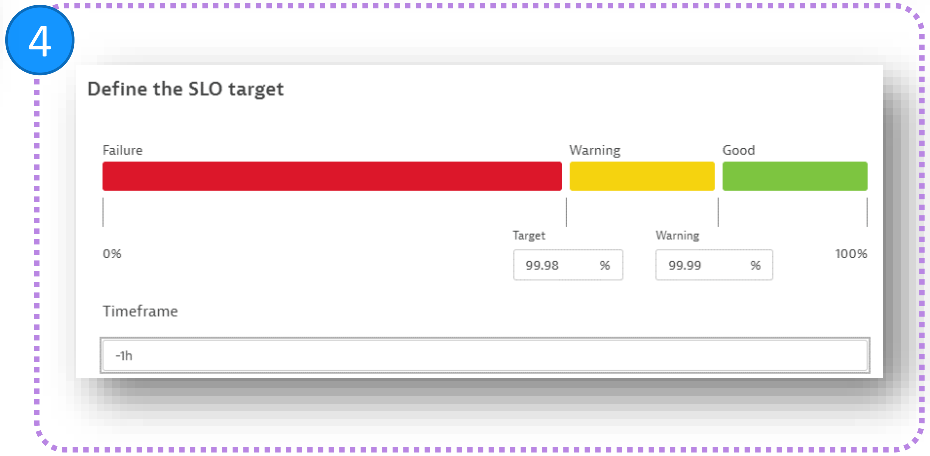

3

Entity selector

```
type("SERVICE"),tag("[Environment]WorkshopTenant:xxxx"),
tag("[Environment]DT_APPLICATION_ENVIRONMENT:production")
```

Matching entities

Entity ID	Display Name
SERVICE-64B291A615754F6B	tnt-aapl-svc-*.delivery-demo-production


4

Define the SLO target

Target: 99.98 %

Warning: 99.99 %

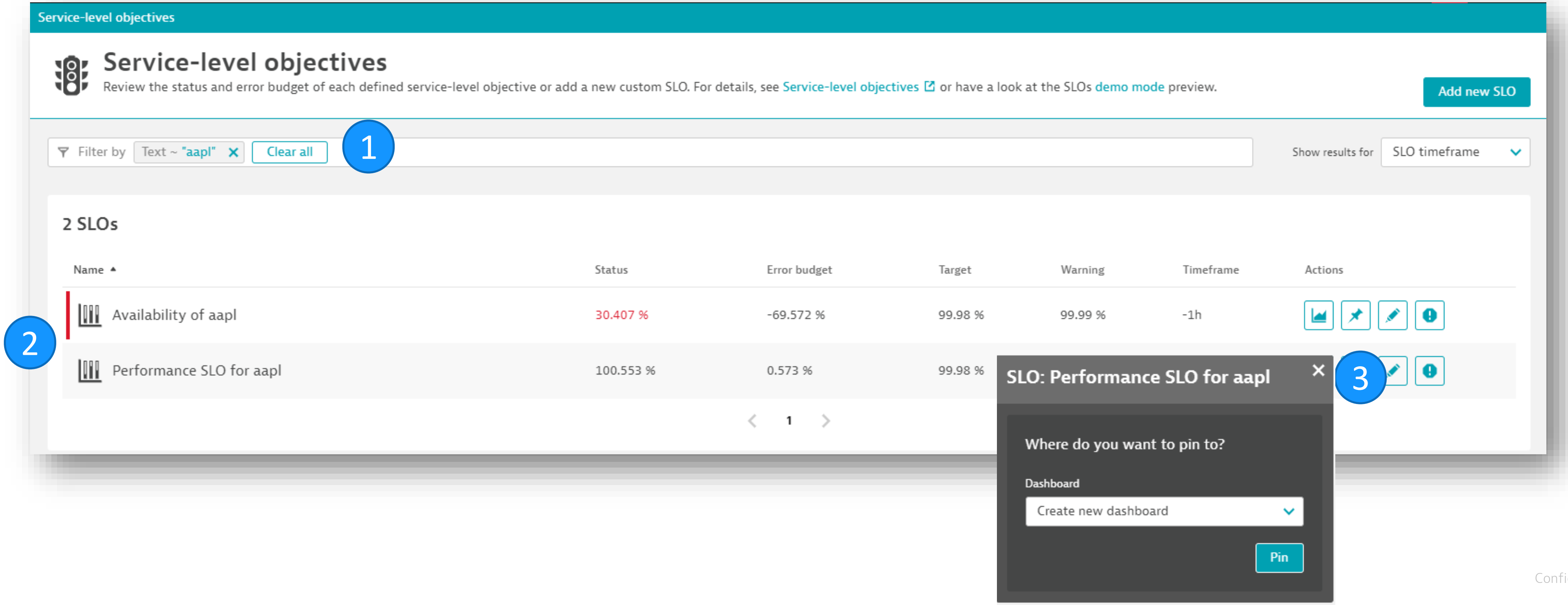
Timeframe: -1h

Hint: Copy queries and tags from slide notes!

HANDS-ON SECTION

Step #3: Validate our SLOs are created and delivery data

1. Filter by name, e.g: xxxx to find your SLOs
2. Validate you see your SLOs
3. Start creating a new dashboard



Service-level objectives

Review the status and error budget of each defined service-level objective or add a new custom SLO. For details, see Service-level objectives or have a look at the SLOs demo mode preview.

2 SLOs

Name	Status	Error budget	Target	Warning	Timeframe	Actions
Availability of aapl	30.407 %	-69.572 %	99.98 %	99.99 %	-1h	
Performance SLO for aapl	100.553 %	0.573 %	99.98 %			

SLO: Performance SLO for aapl

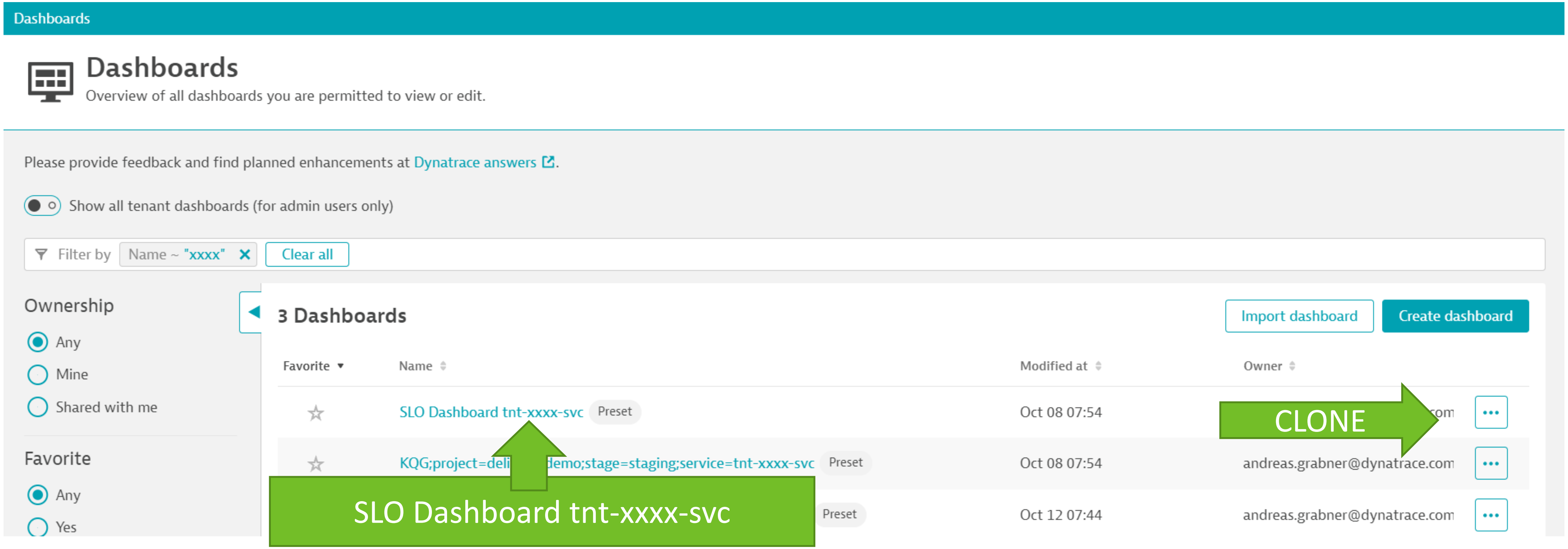
Where do you want to pin to?

Dashboard: Create new dashboard

Pin

HANDS-ON SECTION

Step #4 – Clone the existing dashboard template



Dashboards

Dashboards

Overview of all dashboards you are permitted to view or edit.

Please provide feedback and find planned enhancements at Dynatrace answers.

Show all tenant dashboards (for admin users only)

Filter by Name ~ "xxxx" Clear all

Ownership

- ● Any
- ○ Mine
- ○ Shared with me

Favorite

- ● Any
- ○ Yes

3 Dashboards

Import dashboard | Create dashboard

Favorite	Name	Modified at	Owner
☆	SLO Dashboard tnt-xxxx-svc Preset	Oct 08 07:54	…om
☆	KQG;project=deli…demo;stage=staging;service=tnt-xxxx-svc Preset	Oct 08 07:54	andreas.grabner@dynatrace.com
	Preset	Oct 12 07:44	andreas.grabner@dynatrace.com

CLONE

SLO Dashboard tnt-xxxx-svc

Step #5: Customize it for your tenant

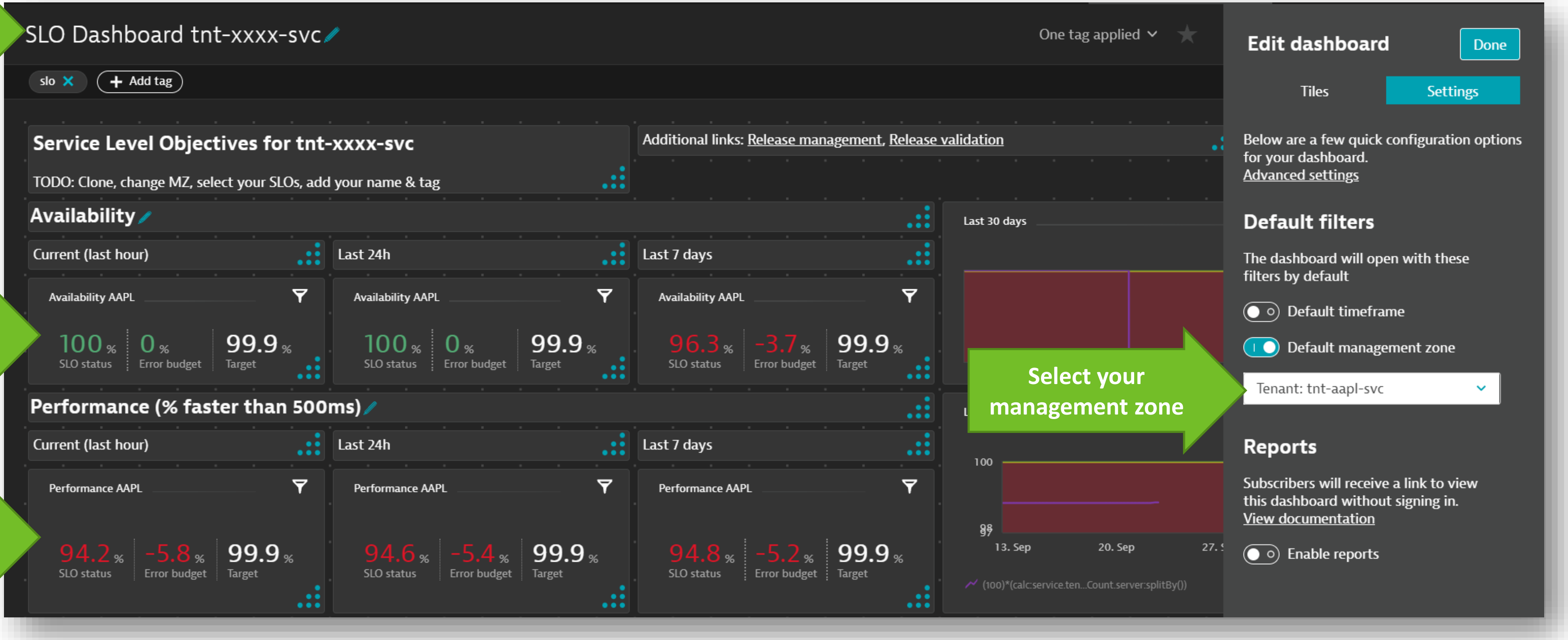
- Edit the settings necessary to pick up the data from your tenant

Give it a good name

Select your Availablity SLOs and select corret timeframe

Select your Performance SLOs and select corret timeframe

Select your management zone



SLO Dashboard tnt-xxxx-svc

One tag applied

slo ✕ + Add tag

Service Level Objectives for tnt-xxxx-svc

TODO: Clone, change MZ, select your SLOs, add your name & tag

Additional links: Release management, Release validation

Availability

Current (last hour)	Last 24h	Last 7 days
Availability AAPL	Availability AAPL	Availability AAPL
100 % SLO status 0 % Error budget 99.9 % Target	100 % SLO status 0 % Error budget 99.9 % Target	96.3 % SLO status -3.7 % Error budget 99.9 % Target

Performance (% faster than 500ms)

Current (last hour)	Last 24h	Last 7 days
Performance AAPL	Performance AAPL	Performance AAPL
94.2 % SLO status -5.8 % Error budget 99.9 % Target	94.6 % SLO status -5.4 % Error budget 99.9 % Target	94.8 % SLO status -5.2 % Error budget 99.9 % Target

Edit dashboard Done

Tiles | Settings

Below are a few quick configuration options for your dashboard.
Advanced settings

Default filters

The dashboard will open with these filters by default

○ Default timeframe

● Default management zone

Tenant: tnt-aapl-svc

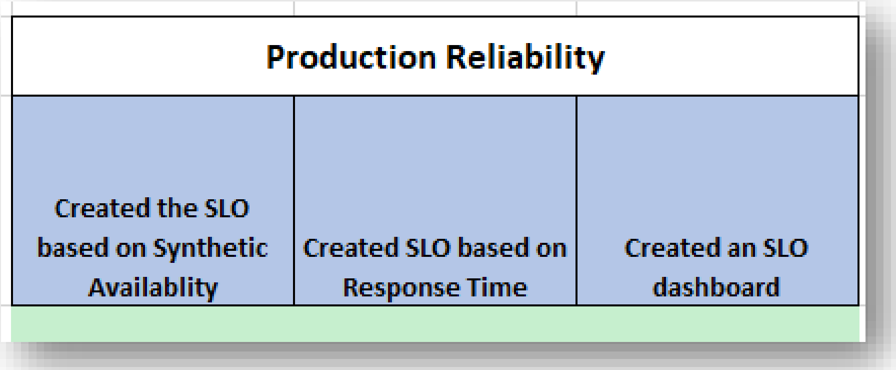
Reports

Subscribers will receive a link to view this dashboard without signing in.
View documentation

○ Enable reports

Quick Status Check: are we all good with accessing our environments?

- Please mark your tasks accordingly in the Excel file



Production Reliability		
Created the SLO based on Synthetic Availablity	Created SLO based on Response Time	Created an SLO dashboard

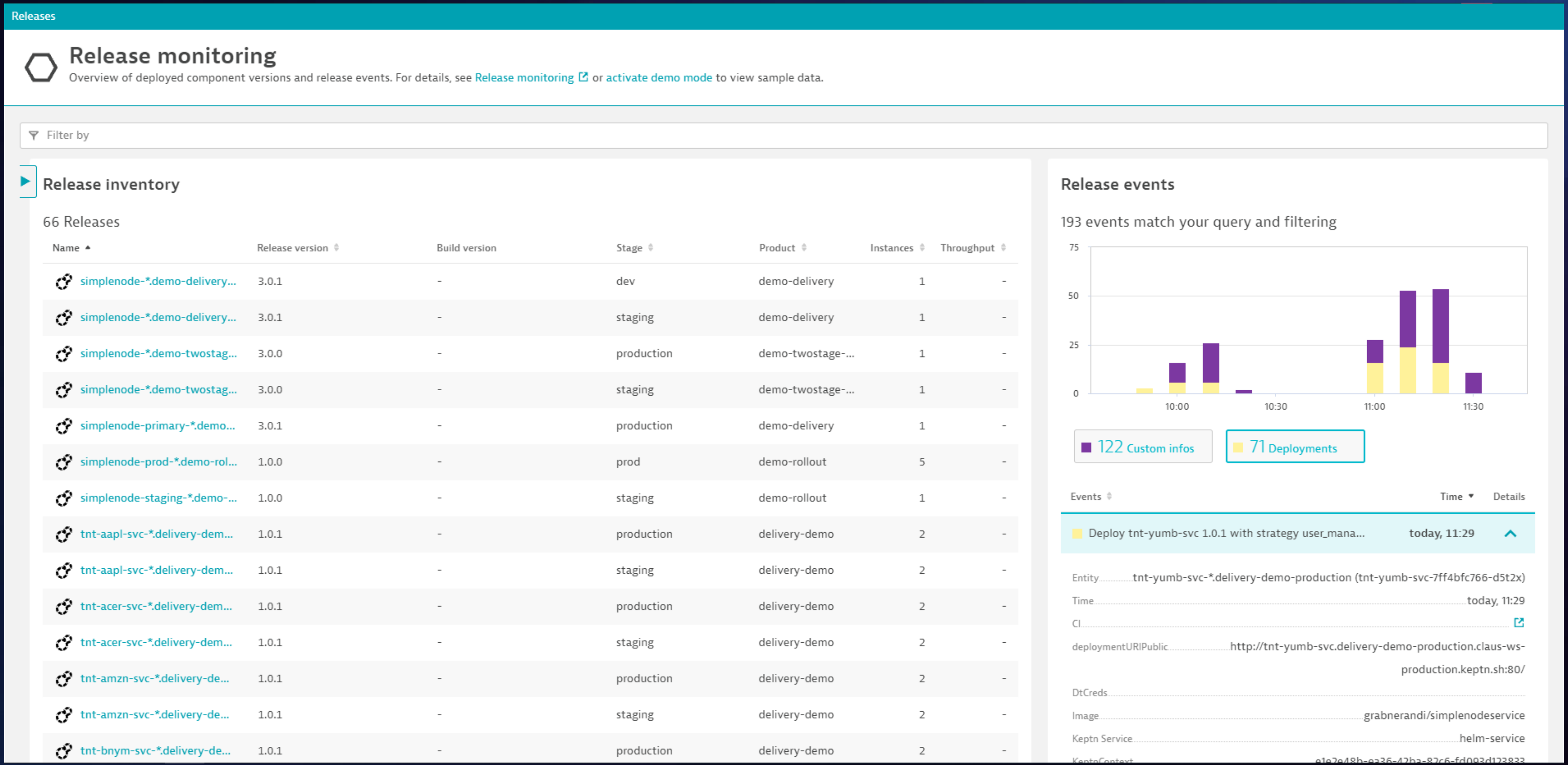
Lab 2: Release Validation

Automating release validation through an SLO Dashboard

dynatrace

REFRESHER!!

Reminder: Release monitoring overview based on meta data



Releases

Release monitoring

Overview of deployed component versions and release events. For details, see Release monitoring or activate demo mode to view sample data.

Filter by

Release inventory

66 Releases

Name	Release version	Build version	Stage	Product	Instances	Throughput
simplenode-*.demo-delivery...	3.0.1	-	dev	demo-delivery	1	-
simplenode-*.demo-delivery...	3.0.1	-	staging	demo-delivery	1	-
simplenode-*.demo-twostag...	3.0.0	-	production	demo-twostage-...	1	-
simplenode-*.demo-twostag...	3.0.0	-	staging	demo-twostage-...	1	-
simplenode-primary-*.demo...	3.0.1	-	production	demo-delivery	1	-
simplenode-prod-*.demo-rol...	1.0.0	-	prod	demo-rollout	5	-
simplenode-staging-*.demo-...	1.0.0	-	staging	demo-rollout	1	-
tnt-aapl-svc-*.delivery-dem...	1.0.1	-	production	delivery-demo	2	-
tnt-aapl-svc-*.delivery-dem...	1.0.1	-	staging	delivery-demo	2	-
tnt-acer-svc-*.delivery-dem...	1.0.1	-	production	delivery-demo	2	-
tnt-acer-svc-*.delivery-dem...	1.0.1	-	staging	delivery-demo	2	-
tnt-amzn-svc-*.delivery-de...	1.0.1	-	production	delivery-demo	2	-
tnt-amzn-svc-*.delivery-de...	1.0.1	-	staging	delivery-demo	2	-
tnt-bnym-svc-*.delivery-de...	1.0.1	-	production	delivery-demo	2	-

Release events

193 events match your query and filtering

🟪 122 Custom infos

🟨 71 Deployments

Events	Time	Details
🟨 Deploy tnt-yumb-svc 1.0.1 with strategy user_mana...	today, 11:29	

Entity: tnt-yumb-svc-*.delivery-demo-production (tnt-yumb-svc-7ff4bfc766-d5t2x)

Time: today, 11:29

CI

deploymentURIPublic: http://tnt-yumb-svc.delivery-demo-production.claus-ws-production.keptn.sh:80/

DtCreds

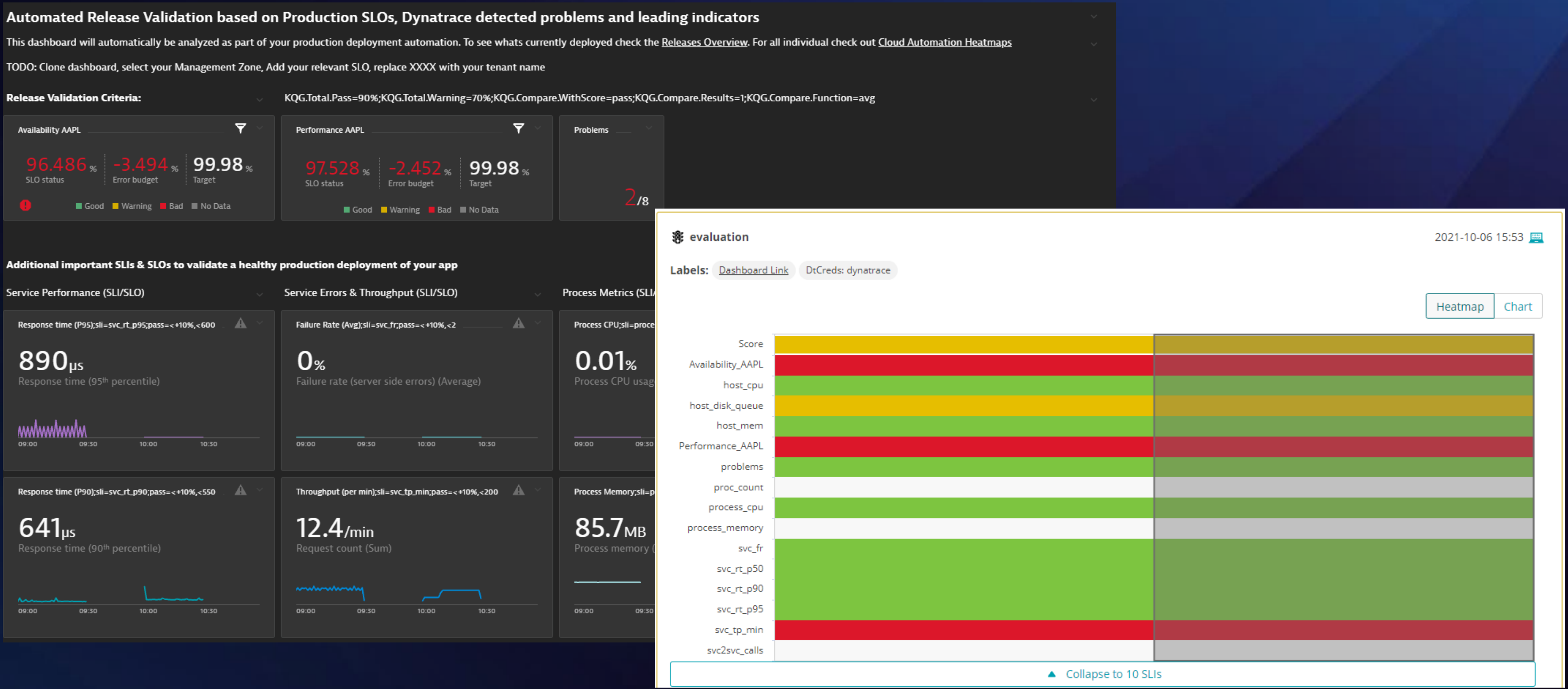
Image: grabnerandi/simplenodeservice

Keptn Service: helm-service

KeptnContext: e1e2e48b-ea36-42ba-82c6-fd093d123833

REFRESHER!!

„To Keep or Not?" - Automate Release Validation



Automated Release Validation based on Production SLOs, Dynatrace detected problems and leading indicators

This dashboard will automatically be analyzed as part of your production deployment automation. To see whats currently deployed check the Releases Overview. For all individual check out Cloud Automation Heatmaps

TODO: Clone dashboard, select your Management Zone, Add your relevant SLO, replace XXXX with your tenant name

Release Validation Criteria: KQG.Total.Pass=90%;KQG.Total.Warning=70%;KQG.Compare.WithScore=pass;KQG.Compare.Results=1;KQG.Compare.Function=avg

Availability AAPL: 96.486 % SLO status | -3.494 % Error budget | 99.98 % Target

Performance AAPL: 97.528 % SLO status | -2.452 % Error budget | 99.98 % Target

Problems: 2/8

Additional important SLIs & SLOs to validate a healthy production deployment of your app

Service Performance (SLI/SLO)

Response time (P95);sli=svc_rt_p95;pass=<+10%,<600
890μs
Response time (95th percentile)

Response time (P90);sli=svc_rt_p90;pass=<+10%,<550
641μs
Response time (90th percentile)

Service Errors & Throughput (SLI/SLO)

Failure Rate (Avg);sli=svc_fr;pass=<+10%,<2
0%
Failure rate (server side errors) (Average)

Throughput (per min);sli=svc_tp_min;pass=<+10%,<200
12.4/min
Request count (Sum)

Process Metrics (SLI

Process CPU;sli=proce
0.01%
Process CPU usag

Process Memory;sli=p
85.7MB
Process memory (

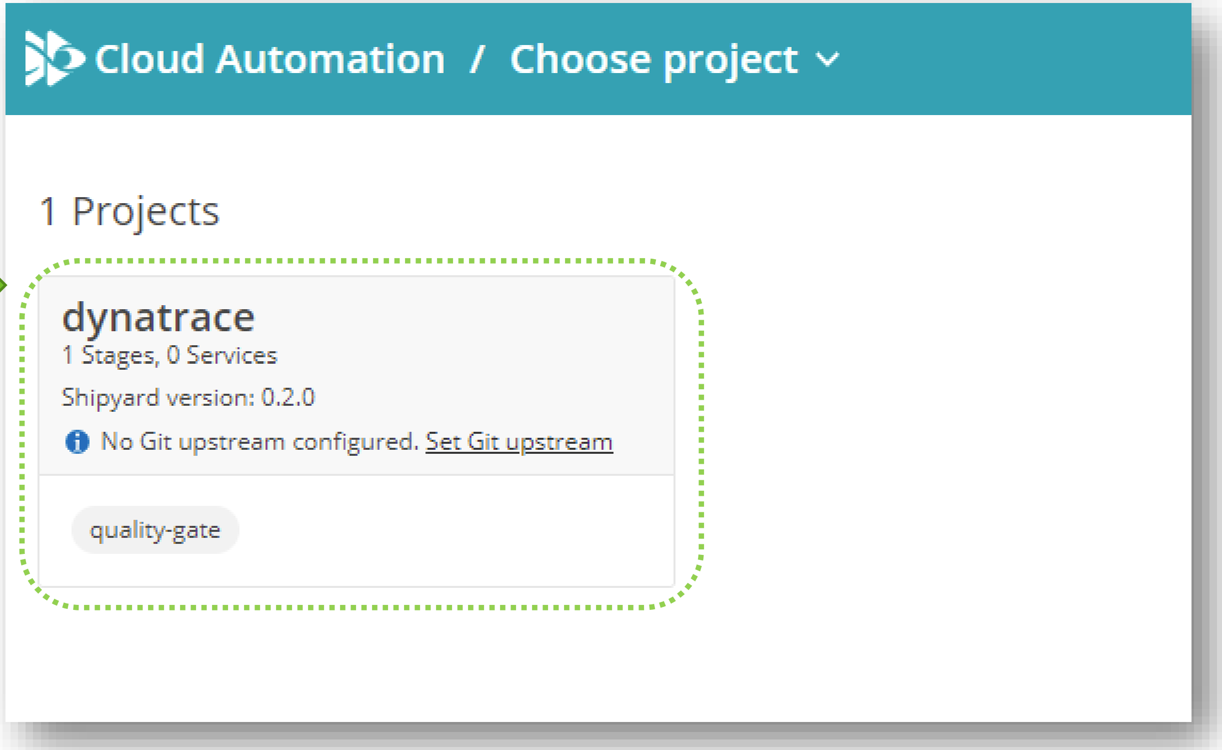
evaluation 2021-10-06 15:53

Labels: Dashboard Link | DtCreds: dynatrace

WATCH TRAINER SECTION

After you login to Cloud Automation you have a default „dynatrace“ project

Default project „dynatrace“



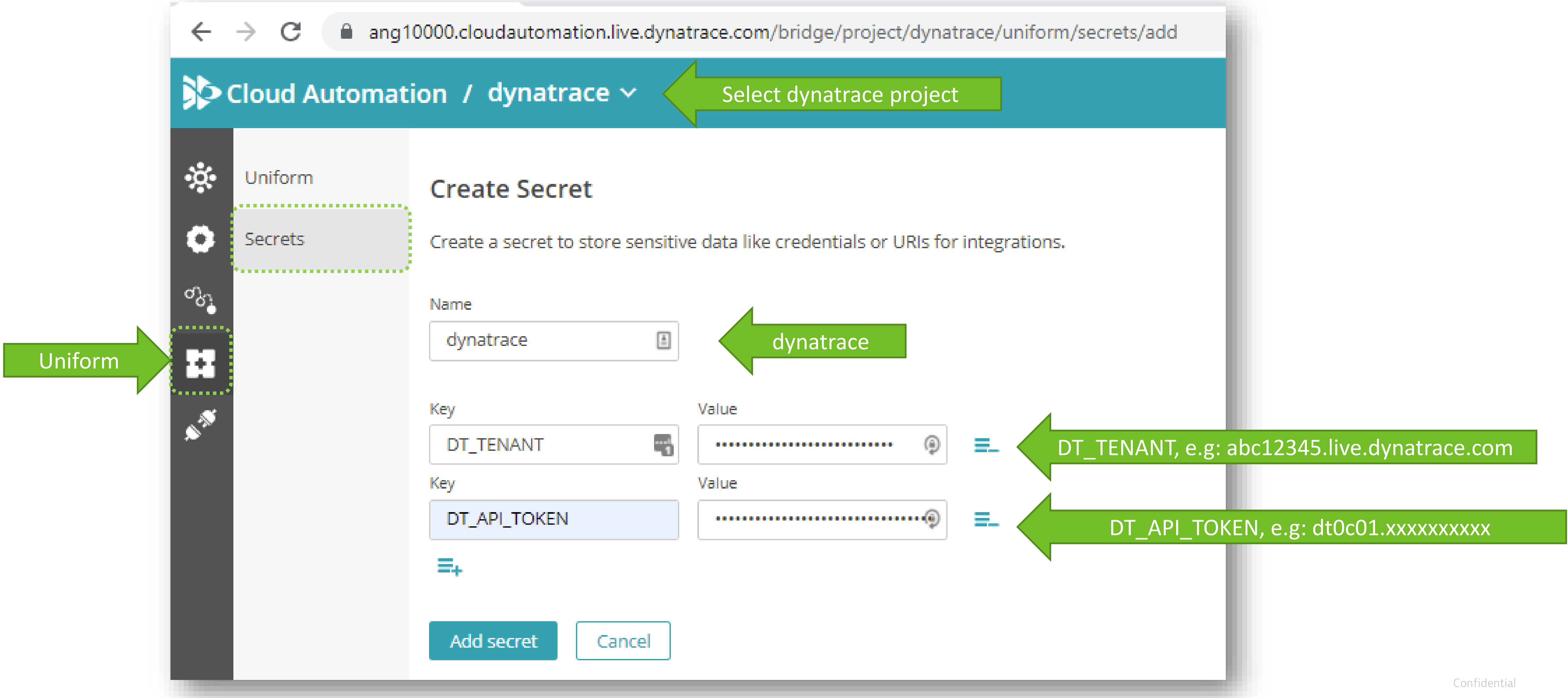
1 Projects

dynatrace
1 Stages, 0 Services
Shipyard version: 0.2.0
No Git upstream configured. Set Git upstream

quality-gate

WATCH TRAINER SECTION

Connect – Option A via Web UI



ang10000.cloudautomation.live.dynatrace.com/bridge/project/dynatrace/uniform/secrets/add

Cloud Automation / dynatrace
Select dynatrace project
Uniform
Secrets
Uniform

Create Secret

Create a secret to store sensitive data like credentials or URIs for integrations.

Name: dynatrace

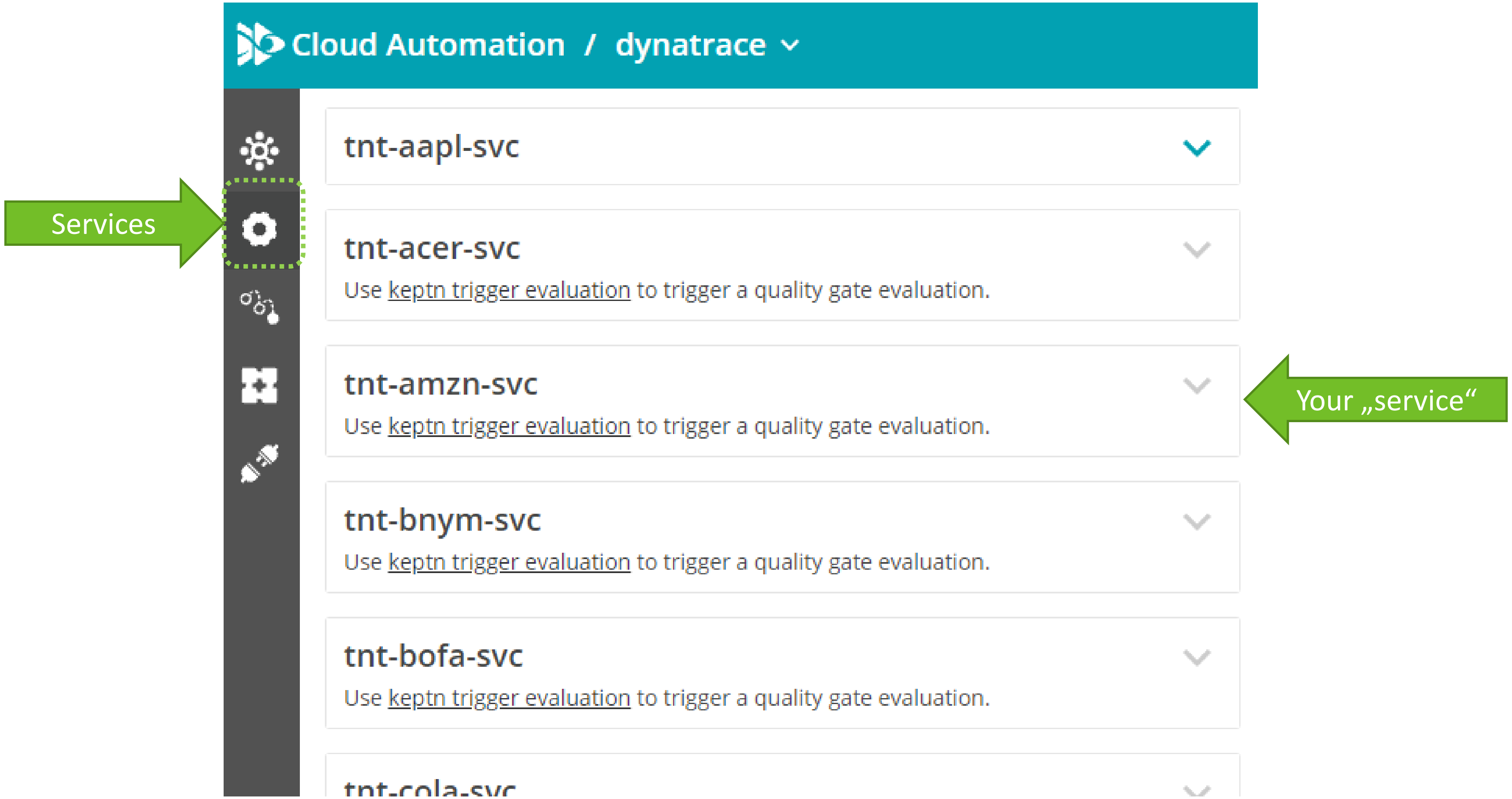
Key: DT_TENANT — Value: ••••••••••••••••••••••••••••••

Key: DT_API_TOKEN — Value: ••••••••••••••••••••••••••••••••••

dynatrace
DT_TENANT, e.g: abc12345.live.dynatrace.com
DT_API_TOKEN, e.g: dt0c01.xxxxxxxxxx
Add secret
Cancel

WATCH TRAINER SECTION

I have created „services“ already for all our tnt-XXXX-svc



tnt-aapl-svc

tnt-acer-svc

Use keptn trigger evaluation to trigger a quality gate evaluation.

tnt-amzn-svc

Use keptn trigger evaluation to trigger a quality gate evaluation.

tnt-bnym-svc

Use keptn trigger evaluation to trigger a quality gate evaluation.

tnt-bofa-svc

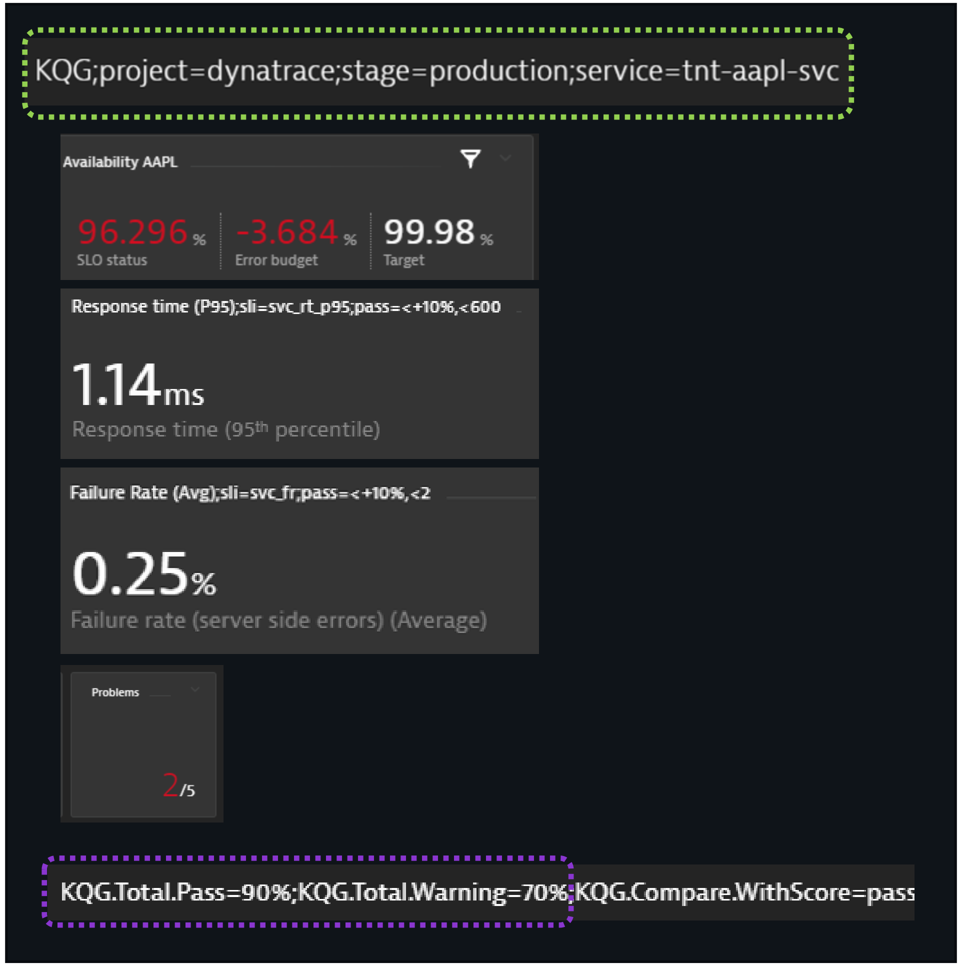
Use keptn trigger evaluation to trigger a quality gate evaluation.

tnt-cola-svc

WATCH TRAINER SECTION

How does dashboards get analyzed when used in automation?

Dashboard name links to Cloud Automation
KQG;project=xxx,stage=xxx,service=xxx



KQG;project=dynatrace;stage=production;service=tnt-aapl-svc

Availability AAPL

96.296 % SLO status | -3.684 % Error budget | 99.98 % Target

Response time (P95);sli=svc_rt_p95;pass=<+10%,<600

1.14ms
Response time (95th percentile)

Failure Rate (Avg);sli=svc_fr;pass=<+10%,<2

0.25%
Failure rate (server side errors) (Average)

Problems
2/5

KQG.Total.Pass=90%;KQG.Total.Warning=70%;KQG.Compare.WithScore=pass

Pulled Value via API and compared against	Points Normalized to 100
Availability: 96.296 <=99.98	0
Response Time: 1.14 <600 and <=+10% increase	25
Failure Rate: 0.25 < 2 and <=+10% increase	25
Open Problems: 2 Always compared against 0	0
Total Score Compared based on pass/warn	50

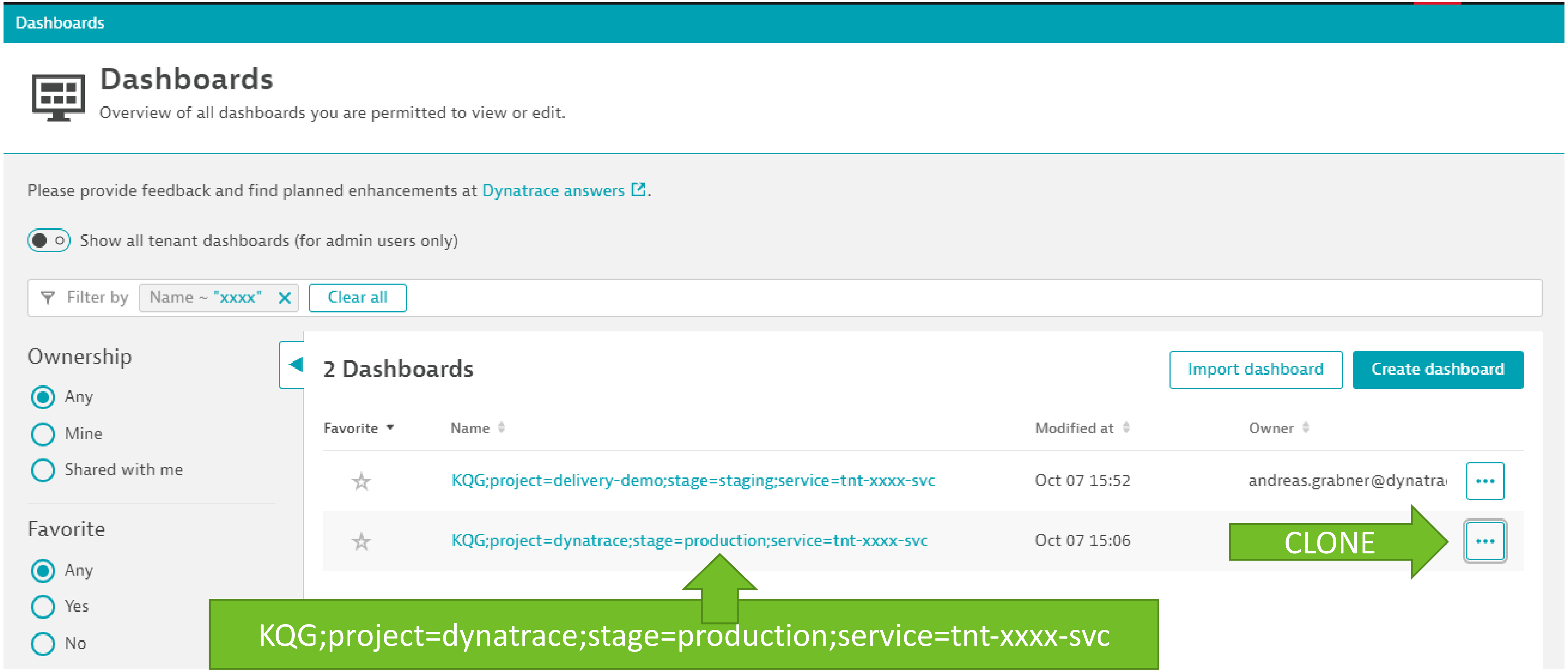
WATCH TRAINER SECTION

Now lets create a dashboard that we can use for release validation automation

- The automation will look for a Dynatrace dashboard with the following naming schema:
  - KQG;project=<PROJECT>;stage=<STAGE>;service=<SERVICE>
- In our case project=dynatrace, stage=production and service=tnt-xxxx-svc
- We could start from scratch, or ….. – start from a template ☺

HANDS-ON SECTION

Step 1 – Clone the existing dashboard template



Dashboards

Dashboards

Overview of all dashboards you are permitted to view or edit.

Please provide feedback and find planned enhancements at Dynatrace answers.

○ Show all tenant dashboards (for admin users only)

Filter by Name ~ "xxxx" ✕ Clear all

Ownership

- ● Any
- ○ Mine
- ○ Shared with me

Favorite

- ● Any
- ○ Yes
- ○ No

2 Dashboards

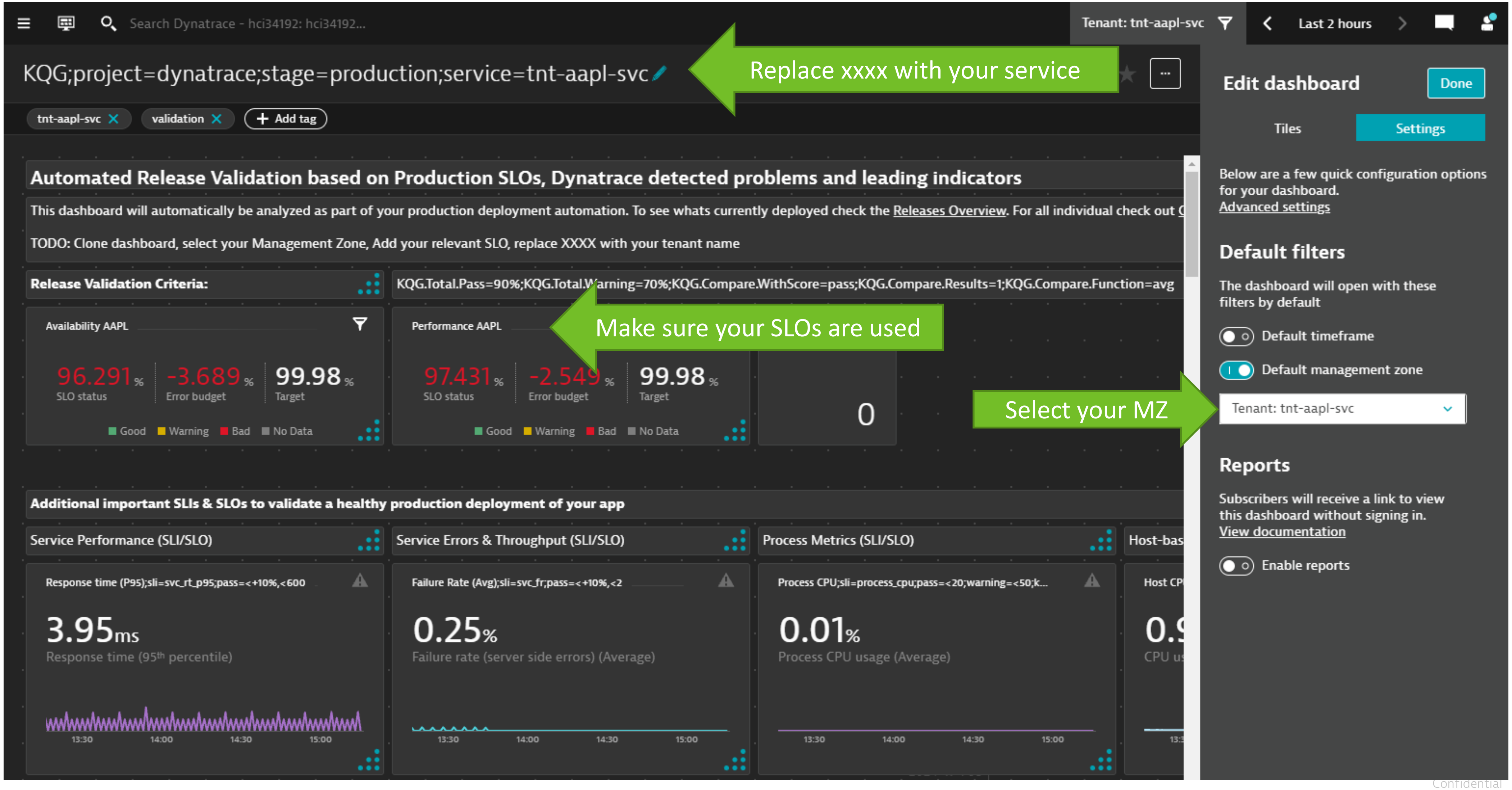
Import dashboard | Create dashboard

Favorite	Name	Modified at	Owner	
☆	KQG;project=delivery-demo;stage=staging;service=tnt-xxxx-svc	Oct 07 15:52	andreas.grabner@dynatra	•••
☆	KQG;project=dynatrace;stage=production;service=tnt-xxxx-svc	Oct 07 15:06		•••

CLONE

KQG;project=dynatrace;stage=production;service=tnt-xxxx-svc

Step 2 – Give it proper name, change MZs and add your SLOs



Replace xxxx with your service

Make sure your SLOs are used

Select your MZ

KQG;project=dynatrace;stage=production;service=tnt-aapl-svc

tnt-aapl-svc ✕ validation ✕ + Add tag

Automated Release Validation based on Production SLOs, Dynatrace detected problems and leading indicators

This dashboard will automatically be analyzed as part of your production deployment automation. To see whats currently deployed check the Releases Overview. For all individual check out C

TODO: Clone dashboard, select your Management Zone, Add your relevant SLO, replace XXXX with your tenant name

Release Validation Criteria:

KQG.Total.Pass=90%;KQG.Total.Warning=70%;KQG.Compare.WithScore=pass;KQG.Compare.Results=1;KQG.Compare.Function=avg

Availability AAPL

96.291 %	-3.689 %	99.98 %
SLO status	Error budget	Target

🟩 Good 🟨 Warning 🟥 Bad ▨ No Data

Performance AAPL

97.431 %	-2.549 %	99.98 %
SLO status	Error budget	Target

🟩 Good 🟨 Warning 🟥 Bad ▨ No Data

0

Additional important SLIs & SLOs to validate a healthy production deployment of your app

Service Performance (SLI/SLO)

Response time (P95);sli=svc_rt_p95;pass=<+10%,<600

3.95ms
Response time (95th percentile)

Service Errors & Throughput (SLI/SLO)

Failure Rate (Avg);sli=svc_fr;pass=<+10%,<2

0.25%
Failure rate (server side errors) (Average)

Process Metrics (SLI/SLO)

Process CPU;sli=process_cpu;pass=<20;warning=<50;k...

0.01%
Process CPU usage (Average)

Host-bas

Host CP

0.9

CPU us

Edit dashboard Done

Tiles Settings

Below are a few quick configuration options for your dashboard.
Advanced settings

Default filters

The dashboard will open with these filters by default

○ Default timeframe

● Default management zone

Tenant: tnt-aapl-svc

Reports

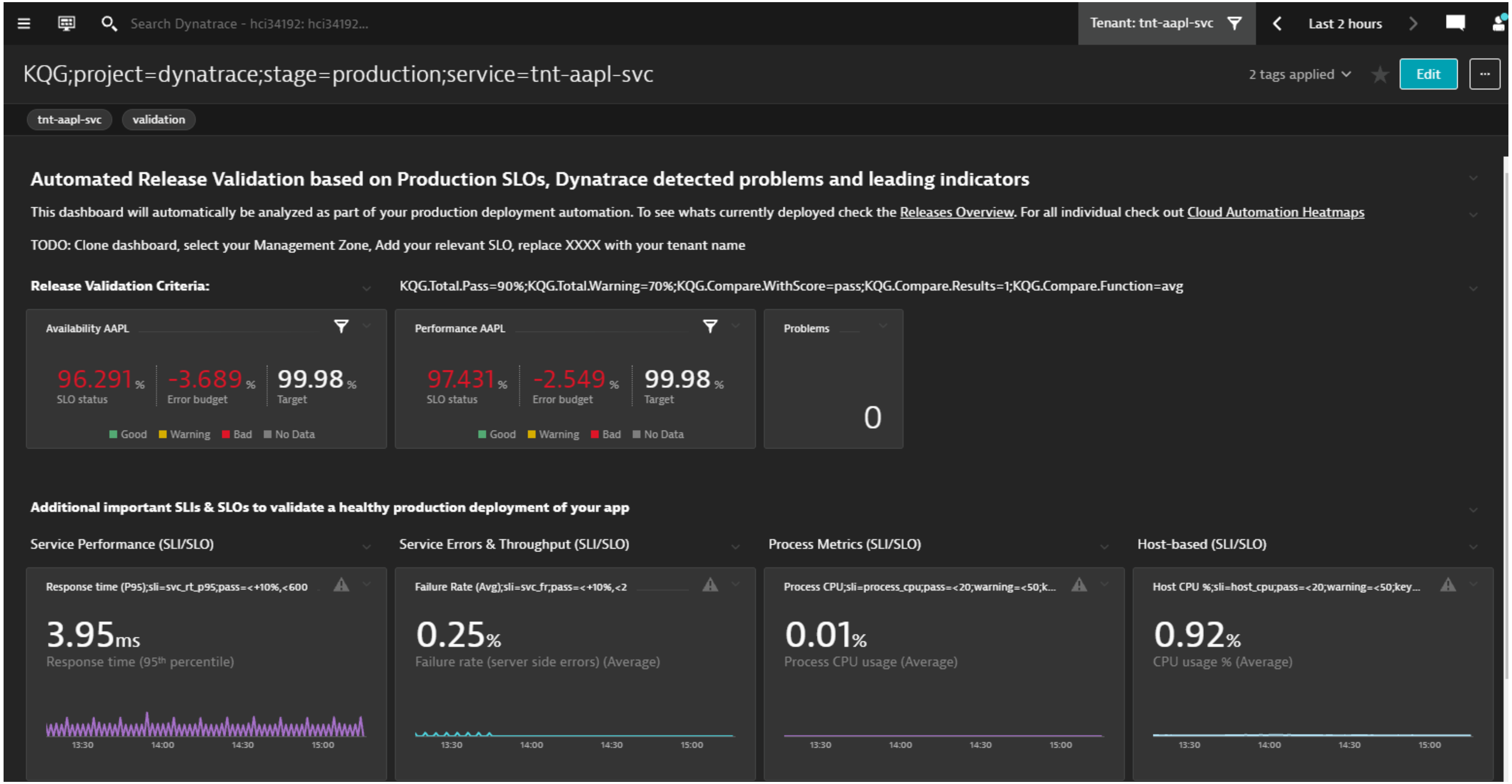
Subscribers will receive a link to view this dashboard without signing in.
View documentation

○ Enable reports

HANDS-ON SECTION

dynatrace Performance Clinic webinar series

Step 3 – Save the dashboard!



KQG;project=dynatrace;stage=production;service=tnt-aapl-svc

tnt-aapl-svc | validation

Automated Release Validation based on Production SLOs, Dynatrace detected problems and leading indicators

This dashboard will automatically be analyzed as part of your production deployment automation. To see whats currently deployed check the Releases Overview. For all individual check out Cloud Automation Heatmaps

TODO: Clone dashboard, select your Management Zone, Add your relevant SLO, replace XXXX with your tenant name

Release Validation Criteria: KQG.Total.Pass=90%;KQG.Total.Warning=70%;KQG.Compare.WithScore=pass;KQG.Compare.Results=1;KQG.Compare.Function=avg

Availability AAPL: 96.291 % SLO status | -3.689 % Error budget | 99.98 % Target
🟩 Good 🟨 Warning 🟥 Bad ▨ No Data

Performance AAPL: 97.431 % SLO status | -2.549 % Error budget | 99.98 % Target
🟩 Good 🟨 Warning 🟥 Bad ▨ No Data

Problems: 0

Additional important SLIs & SLOs to validate a healthy production deployment of your app

Service Performance (SLI/SLO)
Response time (P95);sli=svc_rt_p95;pass=<+10%,<600
3.95ms
Response time (95th percentile)

Service Errors & Throughput (SLI/SLO)
Failure Rate (Avg);sli=svc_fr;pass=<+10%,<2
0.25%
Failure rate (server side errors) (Average)

Process Metrics (SLI/SLO)
Process CPU;sli=process_cpu;pass=<20;warning=<50;k...
0.01%
Process CPU usage (Average)

Host-based (SLI/SLO)
Host CPU %;sli=host_cpu;pass=<20;warning=<50;key...
0.92%
CPU usage % (Average)

HANDS-ON SECTION

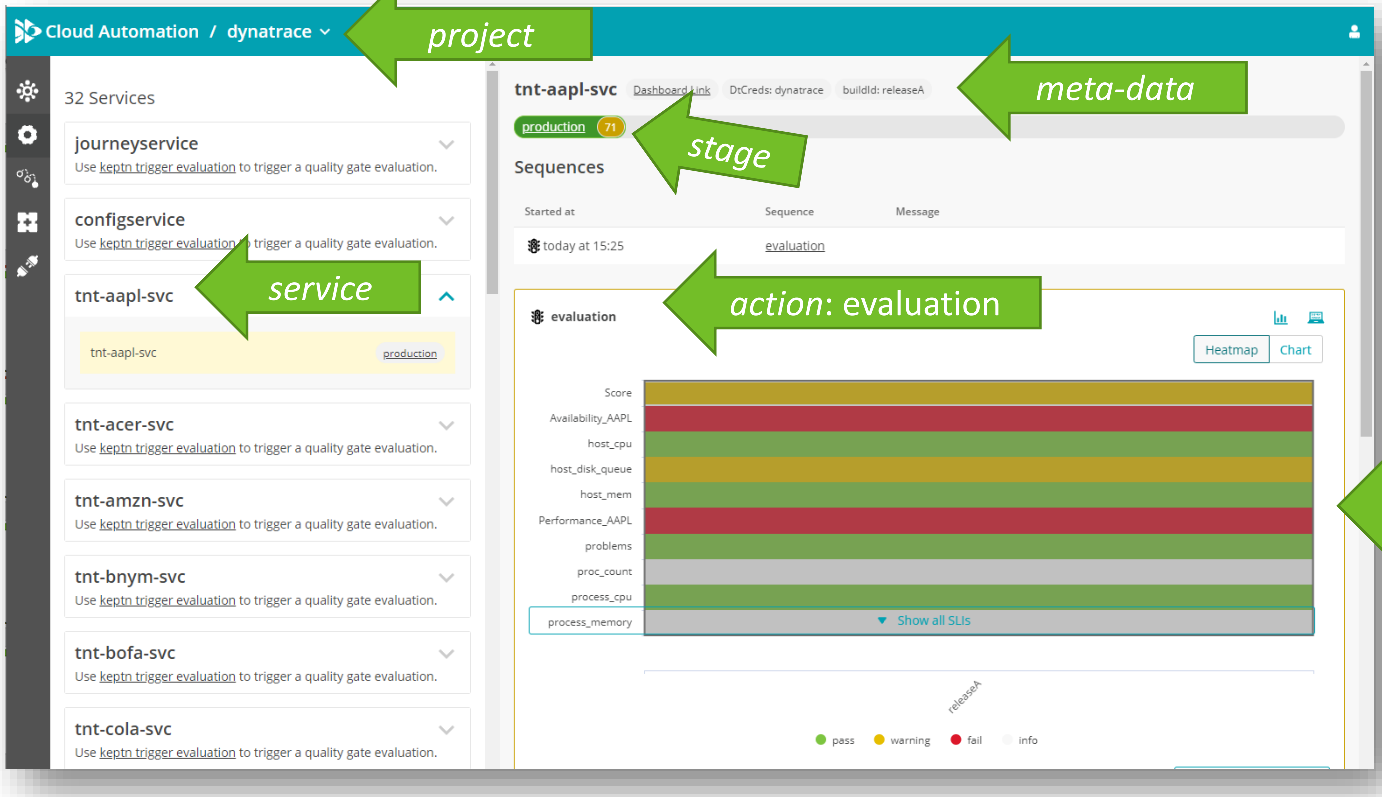
dynatrace Performance Clinic webinar series

Step 4 - Trigger an evaluation for your service

action | stage | evaluation timeframe

```
$ keptn trigger evaluation --project=dynatrace --stage=production --service=tnt-xxxx-svc --timeframe=30m --labels=buildId=releaseA
```

project | service | meta-data, e.g: buildId=releaseA



Cloud Automation / dynatrace

32 Services

journeyservice
Use keptn trigger evaluation to trigger a quality gate evaluation.

configservice
Use keptn trigger evaluation to trigger a quality gate evaluation.

tnt-aapl-svc
tnt-aapl-svc production

tnt-acer-svc
Use keptn trigger evaluation to trigger a quality gate evaluation.

tnt-amzn-svc
Use keptn trigger evaluation to trigger a quality gate evaluation.

tnt-bnym-svc
Use keptn trigger evaluation to trigger a quality gate evaluation.

tnt-bofa-svc
Use keptn trigger evaluation to trigger a quality gate evaluation.

tnt-cola-svc
Use keptn trigger evaluation to trigger a quality gate evaluation.

tnt-aapl-svc Dashboard Link DtCreds: dynatrace buildId: releaseA

production 71

Sequences

Started at	Sequence	Message
today at 15:25	evaluation	

evaluation

project

meta-data

stage

service

action: evaluation

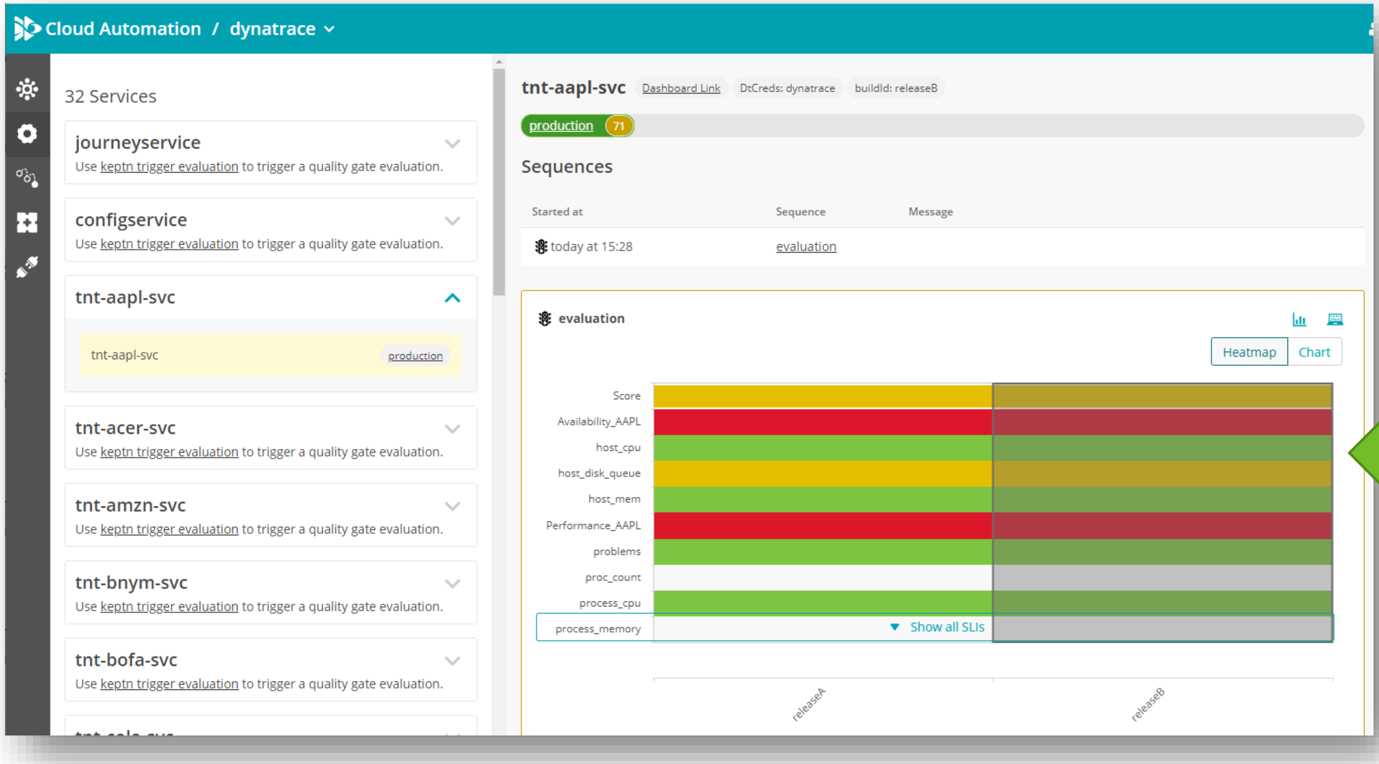
Result for buildId=releaseA

Hint: copy command from slide notes!

Step 5: Trigger another evaluation

```
$ keptn trigger evaluation --project=dynatrace --stage=production --service=tnt-xxxx-svc --timeframe=30m --labels=buildId=releaseB
```

meta-data, e.g: buildId=releaseB



32 Services

journeyservice
Use keptn trigger evaluation to trigger a quality gate evaluation.

configservice
Use keptn trigger evaluation to trigger a quality gate evaluation.

tnt-aapl-svc
tnt-aapl-svc production

tnt-acer-svc
Use keptn trigger evaluation to trigger a quality gate evaluation.

tnt-amzn-svc
Use keptn trigger evaluation to trigger a quality gate evaluation.

tnt-bnym-svc
Use keptn trigger evaluation to trigger a quality gate evaluation.

tnt-bofa-svc
Use keptn trigger evaluation to trigger a quality gate evaluation.

tnt-aapl-svc Dashboard Link DtCreds: dynatrace buildId: releaseB

Sequences

Started at	Sequence	Message
today at 15:28	evaluation	

evaluation

Result for buildId=releaseB

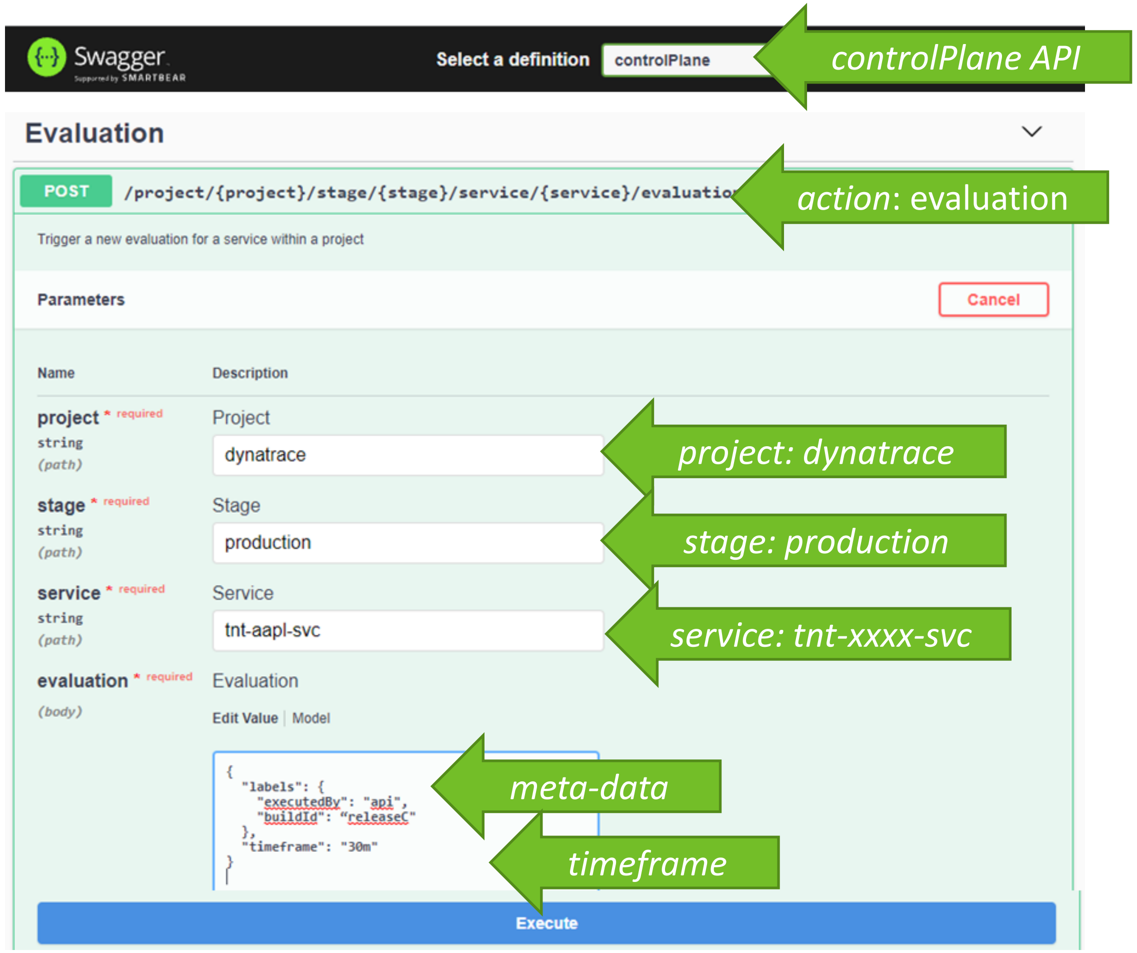
Hint: copy command from slide notes!

HANDS-ON SECTION

dynatrace Performance Clinic webinar series

Step 6: Trigger through the API

- Open the Swagger UI; select the controlPlane API, Authenticate with the API Token, execute the evaluation endpoint



Select a definition controlPlane

controlPlane API

Evaluation

POST /project/{project}/stage/{stage}/service/{service}/evaluation

action: evaluation

Trigger a new evaluation for a service within a project

Parameters

Name	Description
project * required string *(path)*	Project dynatrace
stage * required string *(path)*	Stage production
service * required string *(path)*	Service tnt-aapl-svc
evaluation * required *(body)*	Evaluation

project: dynatrace

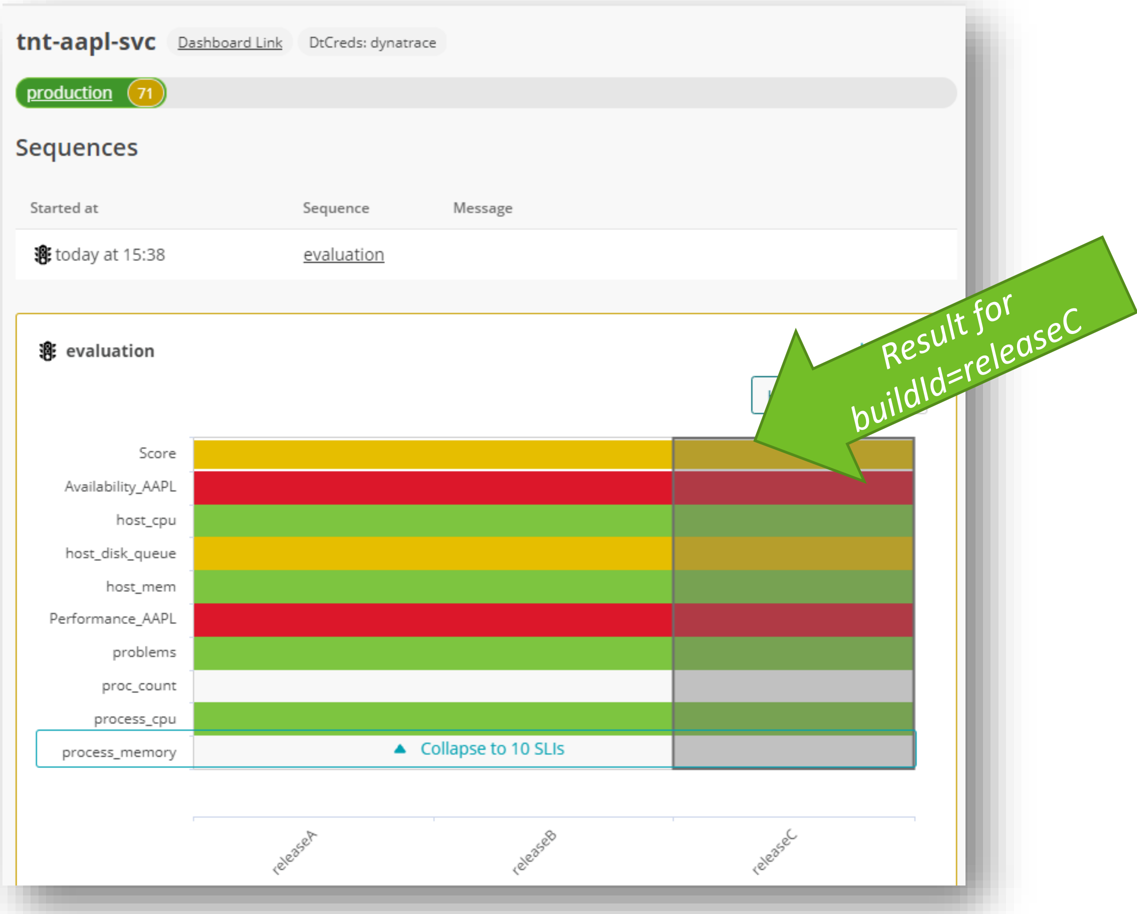
stage: production

service: tnt-xxxx-svc

```
{
  "labels": {
    "executedBy": "api",
    "buildId": “releaseC"
  },
  "timeframe": "30m"
}
```

meta-data

timeframe



tnt-aapl-svc Dashboard Link DtCreds: dynatrace

production 71

Sequences

Started at	Sequence	Message
today at 15:38	evaluation	

evaluation

Result for buildId=releaseC

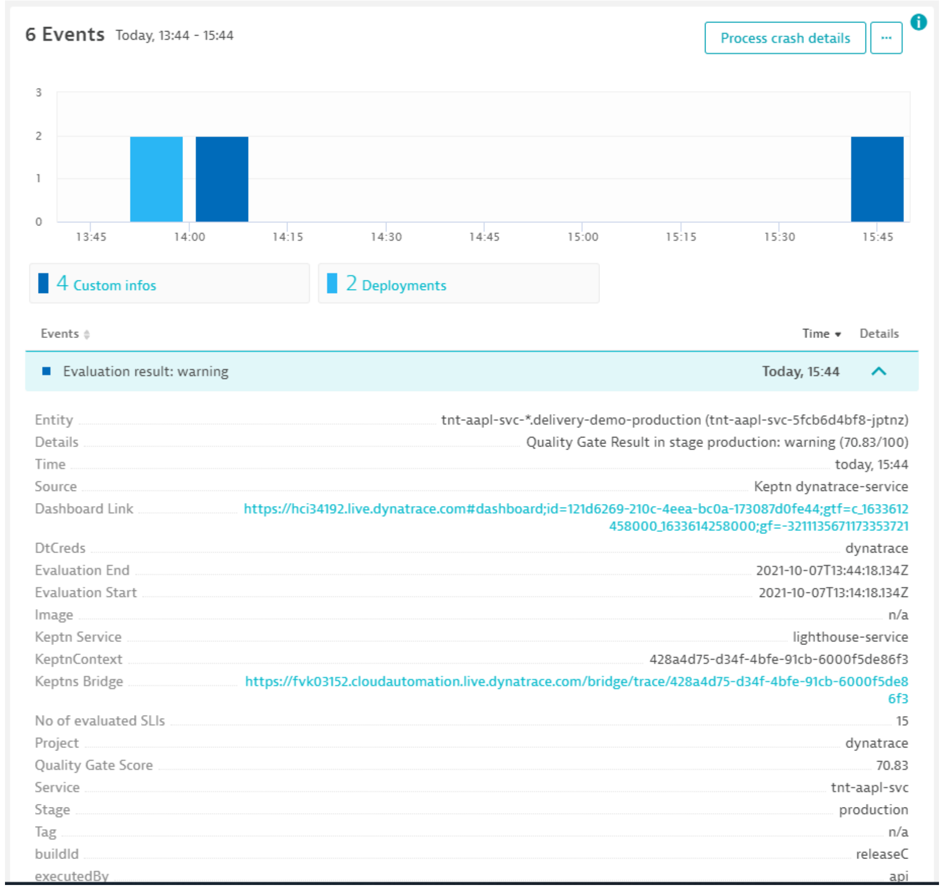
Hint: copy HTTP body from slide notes!

HANDS-ON SECTION

dynatrace
Performance Clinic
webinar series

Phase #2 – Step 4: Automation Events also available in Dynatrace

- Evaluation Events also sent to Dynatrace monitored entities

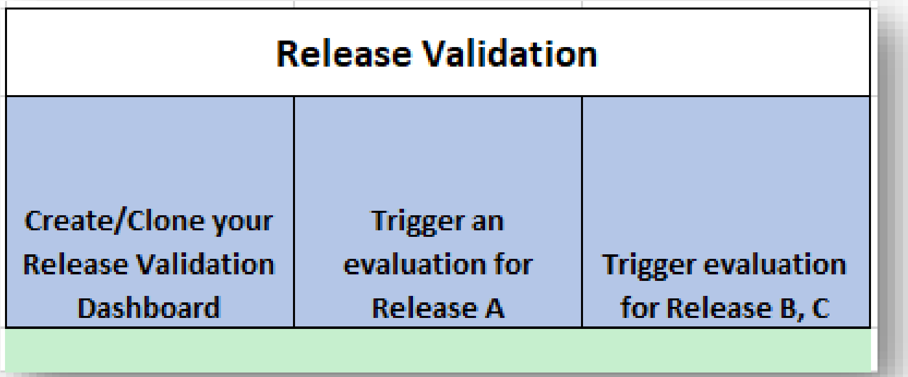


■ Evaluation result: warning — Today, 15:44

Entity	tnt-aapl-svc-*.delivery-demo-production (tnt-aapl-svc-5fcb6d4bf8-jptnz)
Details	Quality Gate Result in stage production: warning (70.83/100)
Time	today, 15:44
Source	Keptn dynatrace-service
Dashboard Link	https://hci34192.live.dynatrace.com#dashboard;id=121d6269-210c-4eea-bc0a-173087d0fe44;gtf=c_1633612458000_1633614258000;gf=-3211135671173353721
DtCreds	dynatrace
Evaluation End	2021-10-07T13:44:18.134Z
Evaluation Start	2021-10-07T13:14:18.134Z
Image	n/a
Keptn Service	lighthouse-service
KeptnContext	428a4d75-d34f-4bfe-91cb-6000f5de86f3
Keptns Bridge	https://fvk03152.cloudautomation.live.dynatrace.com/bridge/trace/428a4d75-d34f-4bfe-91cb-6000f5de86f3
No of evaluated SLIs	15
Project	dynatrace
Quality Gate Score	70.83
Service	tnt-aapl-svc
Stage	production
Tag	n/a
buildId	releaseC
executedBy	api

Quick Status Check: are we all good with accessing our environments?

- Please mark your tasks accordingly in the Excel file



Release Validation		
Create/Clone your Release Validation Dashboard	Trigger an evaluation for Release A	Trigger evaluation for Release B, C

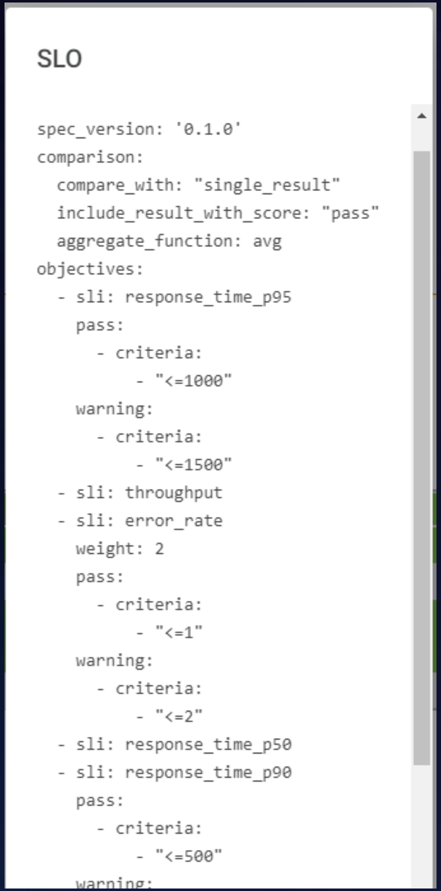
Lab 3: Delivery Pipelines

Automating Quality Gates as part of Delivery Pipelines

dynatrace

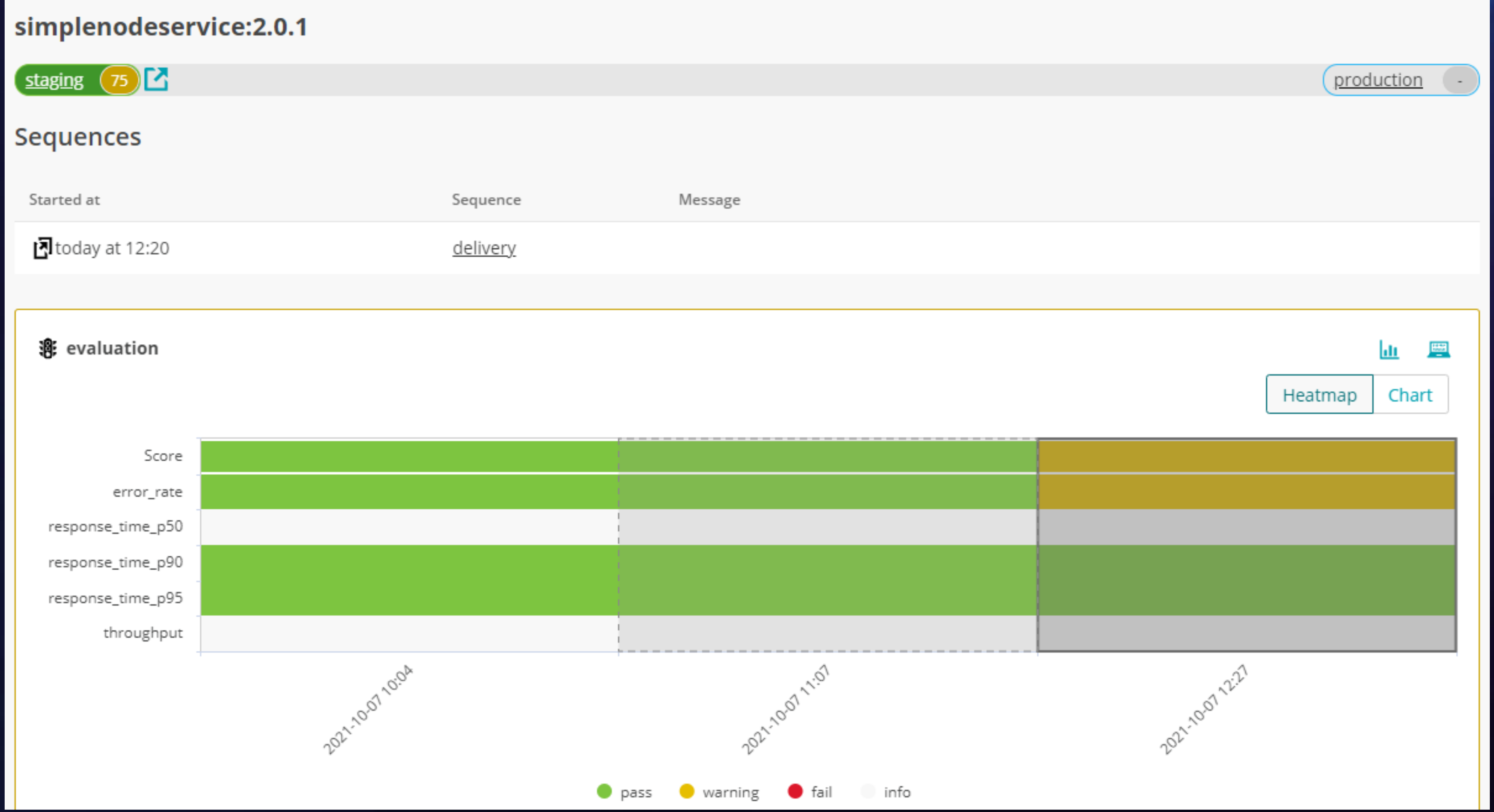
REFRESHER!!

Demo: SLO evaluation part of DevOps delivery



SLO

```
spec_version: '0.1.0'
comparison:
  compare_with: "single_result"
  include_result_with_score: "pass"
  aggregate_function: avg
objectives:
  - sli: response_time_p95
    pass:
      - criteria:
          - "<=1000"
    warning:
      - criteria:
          - "<=1500"
  - sli: throughput
  - sli: error_rate
    weight: 2
    pass:
      - criteria:
          - "<=1"
    warning:
      - criteria:
          - "<=2"
  - sli: response_time_p50
  - sli: response_time_p90
    pass:
      - criteria:
          - "<=500"
    warning:
```



simplenodeservice:2.0.1

Sequences

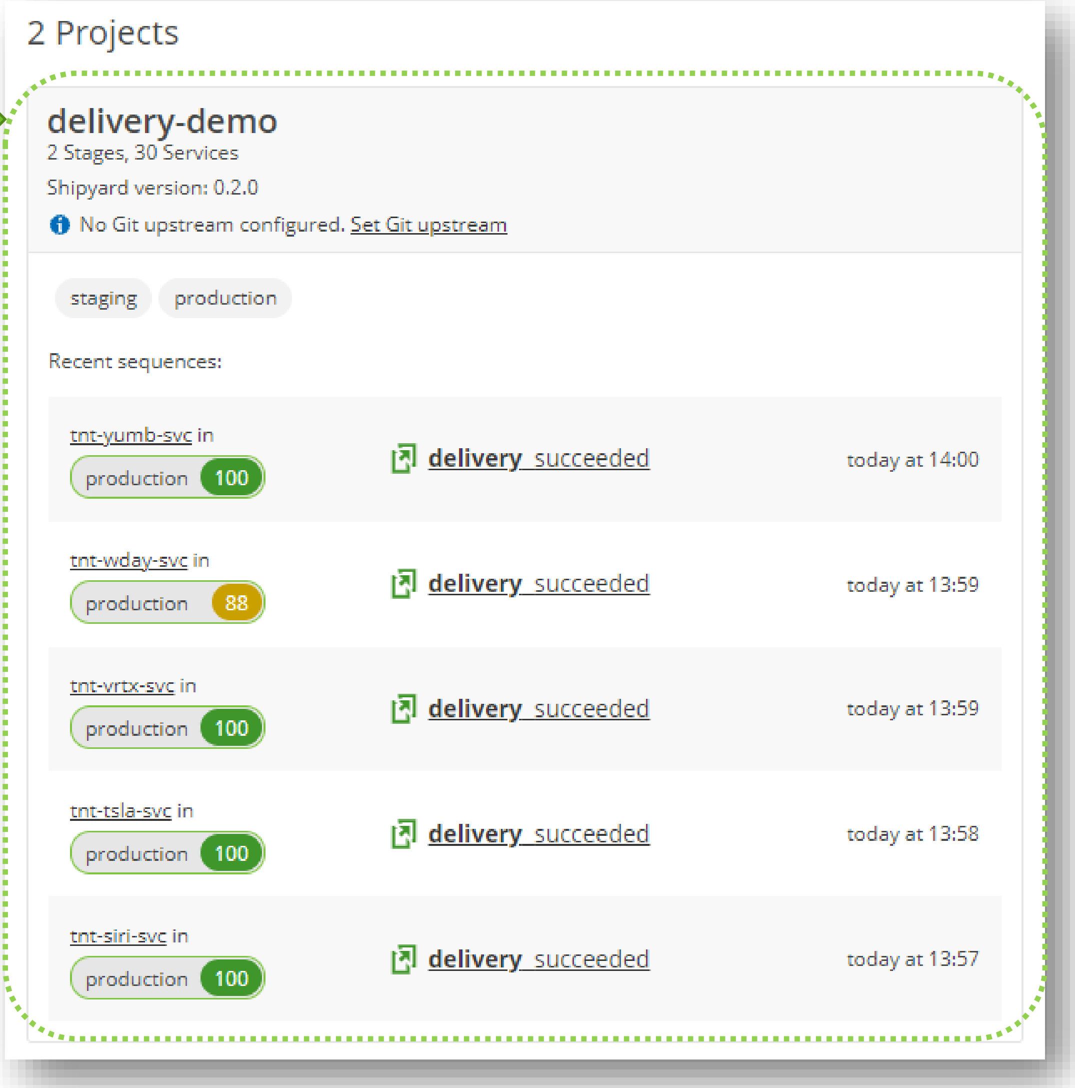
Started at	Sequence	Message
today at 12:20	delivery	

evaluation

HANDS-ON SECTION

After you login to Cloud Automation you see the project „delivery-demo“

Delivery-demo project



2 Projects

delivery-demo

2 Stages, 30 Services

Shipyard version: 0.2.0

No Git upstream configured. Set Git upstream

staging production

Recent sequences:

tnt-yumb-svc in production 100 — delivery succeeded — today at 14:00

tnt-wday-svc in production 88 — delivery succeeded — today at 13:59

tnt-vrtx-svc in production 100 — delivery succeeded — today at 13:59

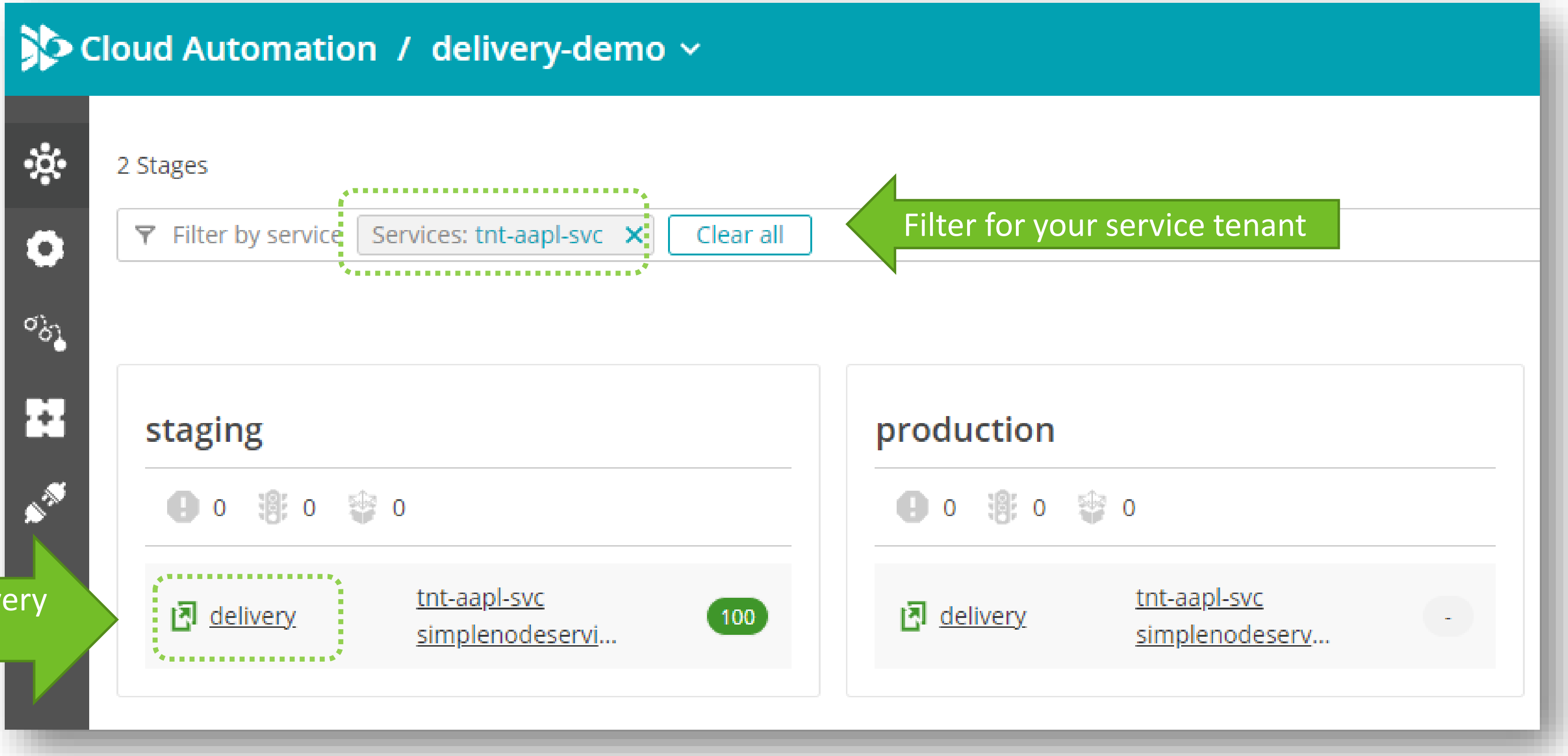
tnt-tsla-svc in production 100 — delivery succeeded — today at 13:58

tnt-siri-svc in production 100 — delivery succeeded — today at 13:57

HANDS-ON SECTION

dynatrace Performance Clinic webinar series

Explore your delivery automation for your tenant


Cloud Automation / delivery-demo

2 Stages

Filter by service | Services: tnt-aapl-svc ✕ | Clear all

staging	production
0 0 0	0 0 0
delivery · tnt-aapl-svc simplenodeservi... · 100	delivery · tnt-aapl-svc simplenodeserv... · -

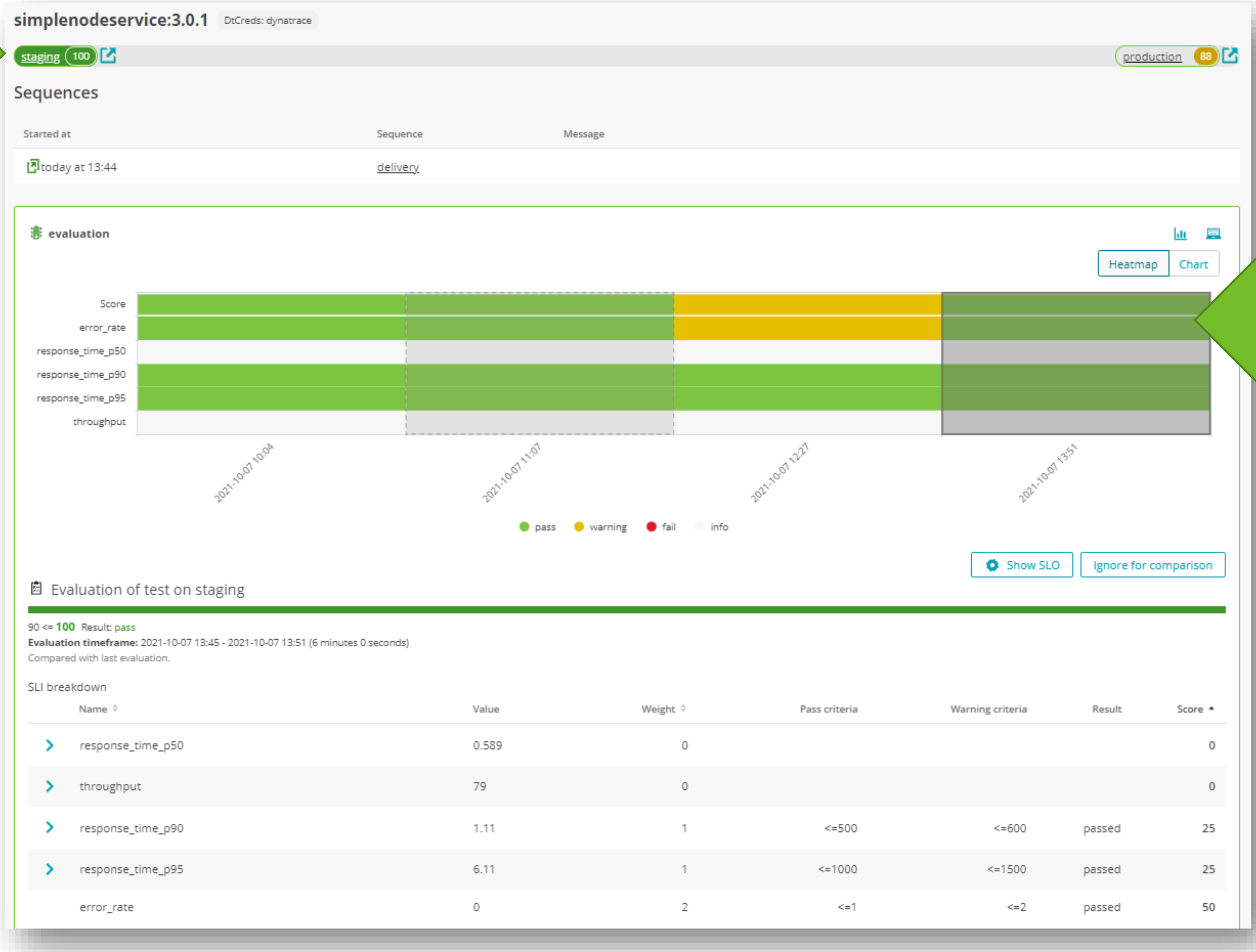
Filter for your service tenant

Clock on the latest delivery automation

HANDS-ON SECTION

Explore previous delivery automation runs

Switch between staging and production



simplenodeservice:3.0.1 DtCreds: dynatrace

staging 100 production 88

Sequences

Started at	Sequence	Message
today at 13:44	delivery	

evaluation

Evaluation of test on staging

90 <= **100** Result: pass

Evaluation timeframe: 2021-10-07 13:45 - 2021-10-07 13:51 (6 minutes 0 seconds)

Compared with last evaluation.

SLI breakdown

Name	Value	Weight	Pass criteria	Warning criteria	Result	Score
response_time_p50	0.589	0				0
throughput	79	0				0
response_time_p90	1.11	1	<=500	<=600	passed	25
response_time_p95	6.11	1	<=1000	<=1500	passed	25
error_rate	0	2	<=1	<=2	passed	50

To see previous SLO validations during delivery

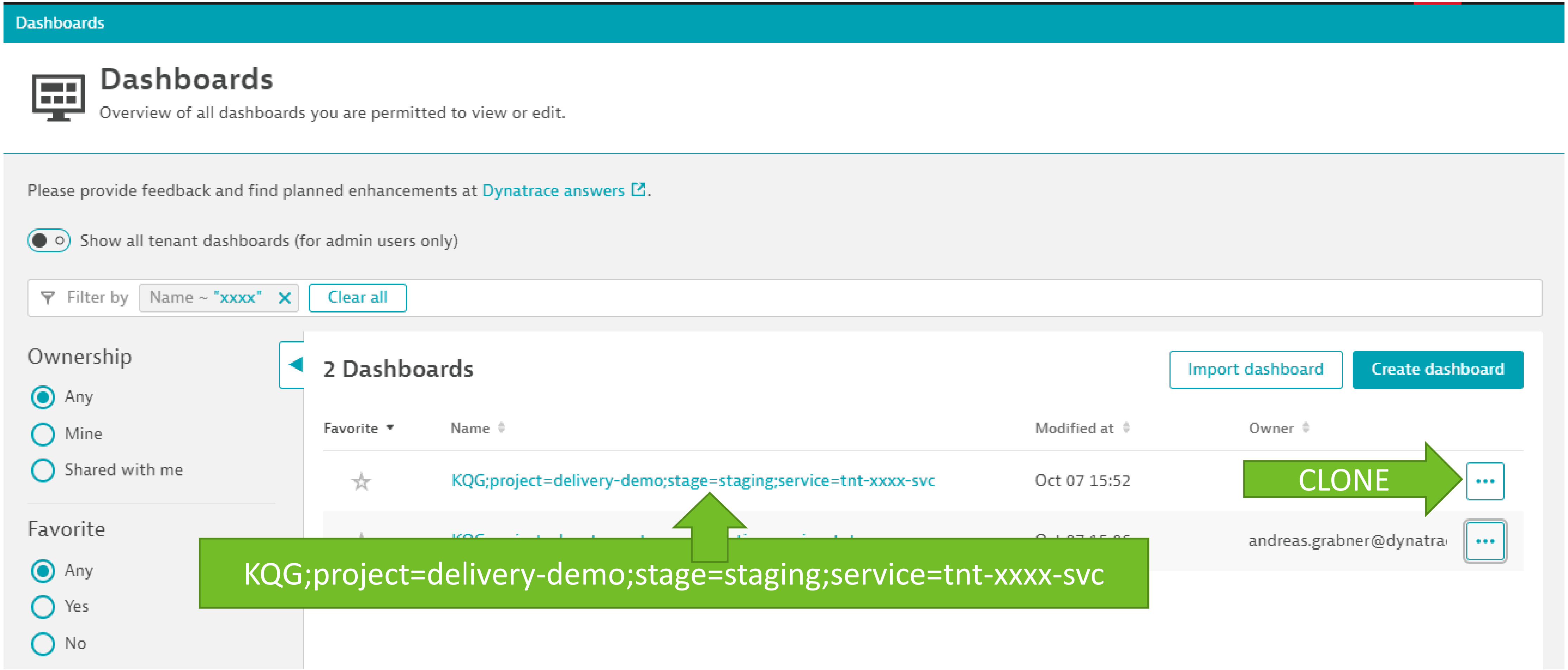
WATCH TRAINER SECTION

Just as we did for release validation automation – we need a dashboard

- The automation will look for a Dynatrace dashboard with the following naming schema:
  - KQG;project=<PROJECT>;stage=<STAGE>;service=<SERVICE>
- In our case project=delivery-demo, stage=staging and service=tnt-xxxx-svc
- We could start from scratch, or ….. – start from a template ☺

HANDS-ON SECTION

Step 1 – Clone the existing dashboard template



Dashboards

Dashboards

Overview of all dashboards you are permitted to view or edit.

Please provide feedback and find planned enhancements at Dynatrace answers.

Show all tenant dashboards (for admin users only)

Filter by Name ~ "xxxx" Clear all

Ownership
- ● Any
- ○ Mine
- ○ Shared with me

Favorite
- ● Any
- ○ Yes
- ○ No

2 Dashboards

Import dashboard | Create dashboard

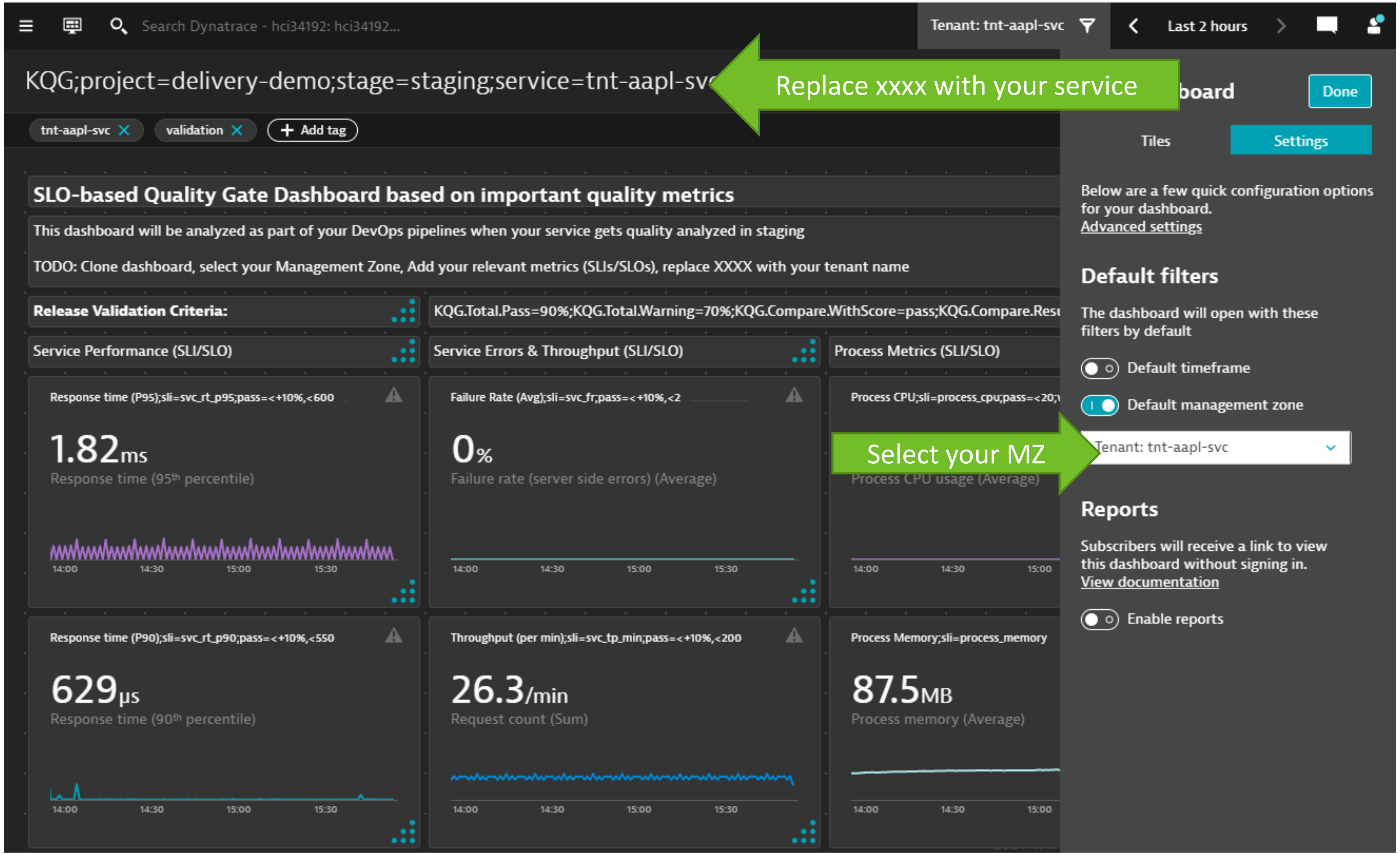
Favorite	Name	Modified at	Owner	
☆	KQG;project=delivery-demo;stage=staging;service=tnt-xxxx-svc	Oct 07 15:52		•••
			andreas.grabner@dynatra	•••

CLONE

KQG;project=delivery-demo;stage=staging;service=tnt-xxxx-svc

HANDS-ON SECTION

Step 2 – Give it proper name, change MZs and add your SLOs



Replace xxxx with your service

Select your MZ

KQG;project=delivery-demo;stage=staging;service=tnt-aapl-sv

SLO-based Quality Gate Dashboard based on important quality metrics

This dashboard will be analyzed as part of your DevOps pipelines when your service gets quality analyzed in staging

TODO: Clone dashboard, select your Management Zone, Add your relevant metrics (SLIs/SLOs), replace XXXX with your tenant name

Release Validation Criteria: KQG.Total.Pass=90%;KQG.Total.Warning=70%;KQG.Compare.WithScore=pass;KQG.Compare.Resu

Service Performance (SLI/SLO)

- Response time (P95);sli=svc_rt_p95;pass=<+10%,<600 — 1.82ms Response time (95th percentile)
- Response time (P90);sli=svc_rt_p90;pass=<+10%,<550 — 629µs Response time (90th percentile)

Service Errors & Throughput (SLI/SLO)

- Failure Rate (Avg);sli=svc_fr;pass=<+10%,<2 — 0% Failure rate (server side errors) (Average)
- Throughput (per min);sli=svc_tp_min;pass=<+10%,<200 — 26.3/min Request count (Sum)

Process Metrics (SLI/SLO)

- Process CPU;sli=process_cpu;pass=<20; — Process CPU usage (Average)
- Process Memory;sli=process_memory — 87.5MB Process memory (Average)

Below are a few quick configuration options for your dashboard.
Advanced settings

Default filters

The dashboard will open with these filters by default

○ Default timeframe

● Default management zone

Tenant: tnt-aapl-svc

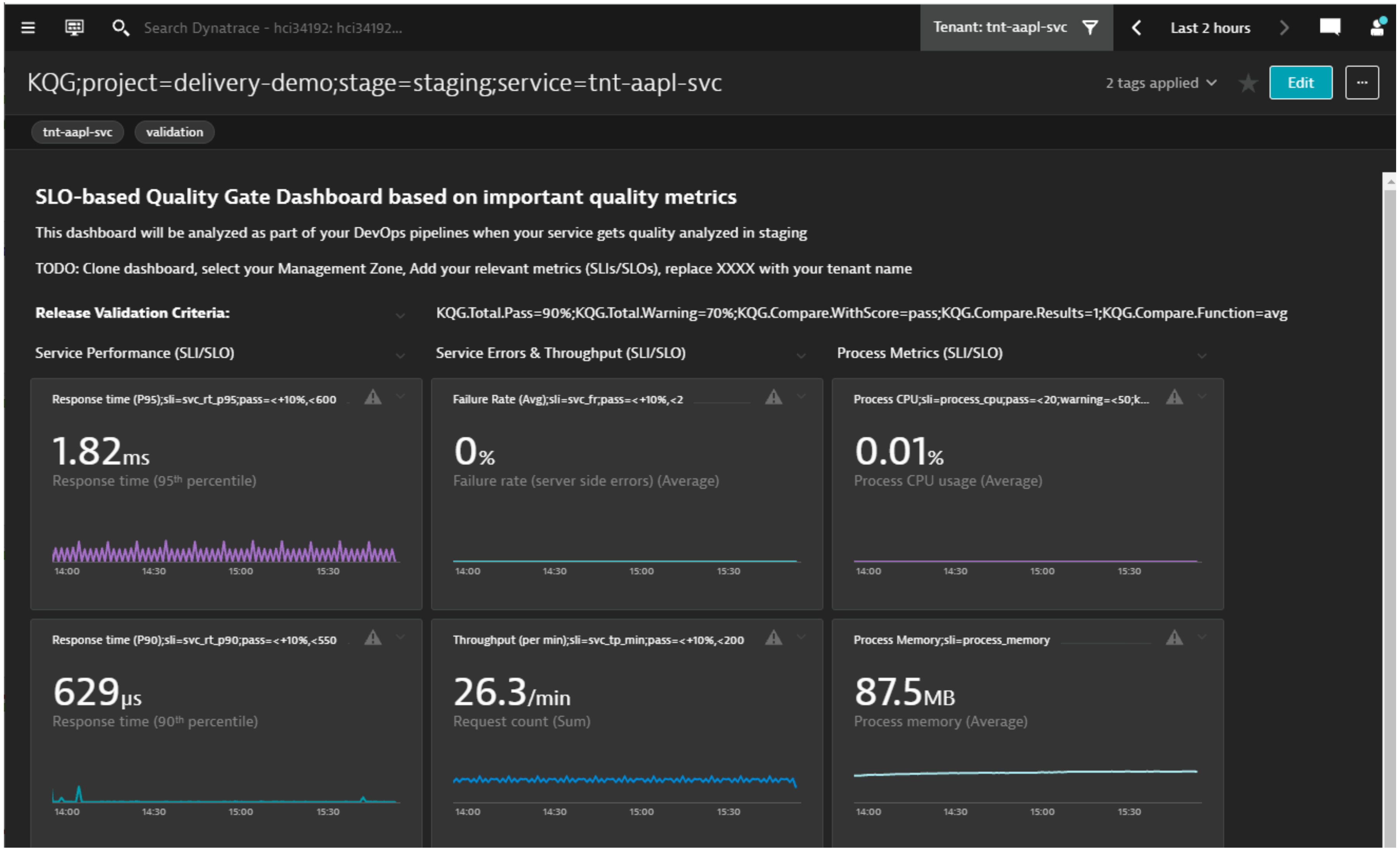
Reports

Subscribers will receive a link to view this dashboard without signing in.
View documentation

○ Enable reports

HANDS-ON SECTION

Step 3 – Save the dashboard!



KQG;project=delivery-demo;stage=staging;service=tnt-aapl-svc

SLO-based Quality Gate Dashboard based on important quality metrics

This dashboard will be analyzed as part of your DevOps pipelines when your service gets quality analyzed in staging

TODO: Clone dashboard, select your Management Zone, Add your relevant metrics (SLIs/SLOs), replace XXXX with your tenant name

Release Validation Criteria: KQG.Total.Pass=90%;KQG.Total.Warning=70%;KQG.Compare.WithScore=pass;KQG.Compare.Results=1;KQG.Compare.Function=avg

Service Performance (SLI/SLO)

Response time (P95);sli=svc_rt_p95;pass=<+10%,<600

1.82ms
Response time (95th percentile)

Response time (P90);sli=svc_rt_p90;pass=<+10%,<550

629µs
Response time (90th percentile)

Service Errors & Throughput (SLI/SLO)

Failure Rate (Avg);sli=svc_fr;pass=<+10%,<2

0%
Failure rate (server side errors) (Average)

Throughput (per min);sli=svc_tp_min;pass=<+10%,<200

26.3/min
Request count (Sum)

Process Metrics (SLI/SLO)

Process CPU;sli=process_cpu;pass=<20;warning=<50;k...

0.01%
Process CPU usage (Average)

Process Memory;sli=process_memory

87.5MB
Process memory (Average)

Triggering end-2-end delivery of version 2.0.1 of our sample app

action

service

```
$ keptn trigger delivery --project=delivery-demo --service=tnt-xxxx-svc --image=grabnerandi/simplenodeservice:2.0.1
```

project

image

Other optional parameters:

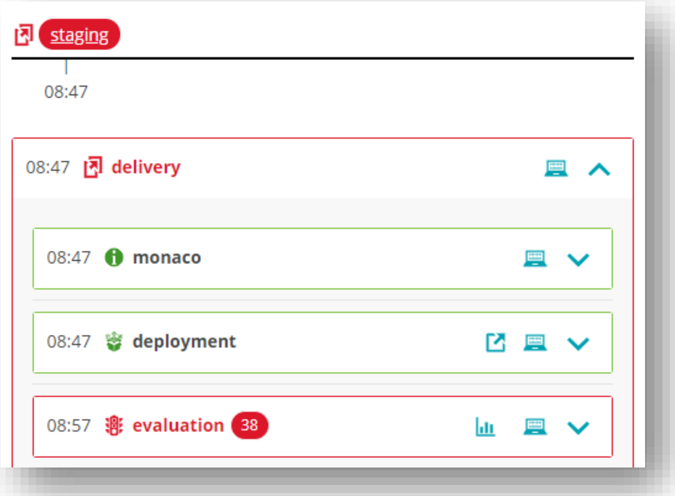
--service defaults to staging

--labels is also possible

--values additional artifact metadata

--sequence if sequence other than delivery

Build #2 should fail due to high error rate and wont be promoted to production!



staging

08:47

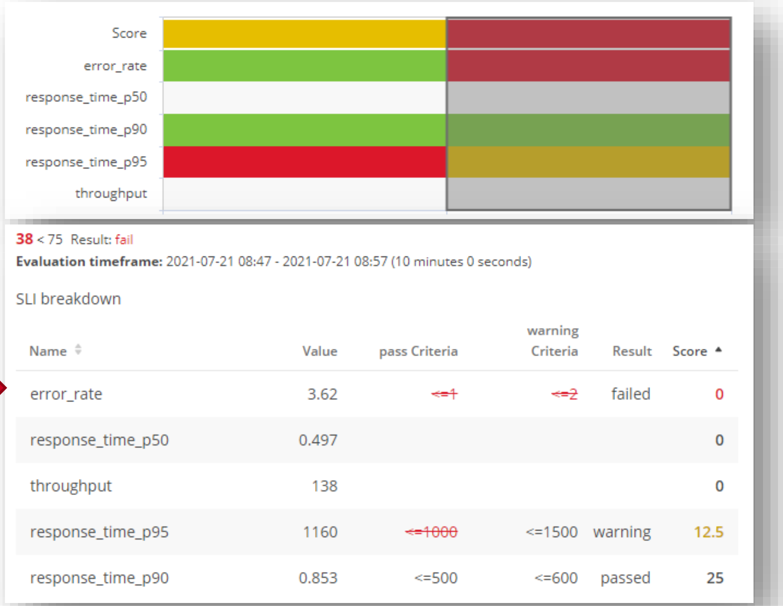
08:47 delivery

08:47 monaco

08:47 deployment

08:57 evaluation 38

Failure Rate not meeting SLO of <2



38 < 75 Result: fail

Evaluation timeframe: 2021-07-21 08:47 - 2021-07-21 08:57 (10 minutes 0 seconds)

SLI breakdown

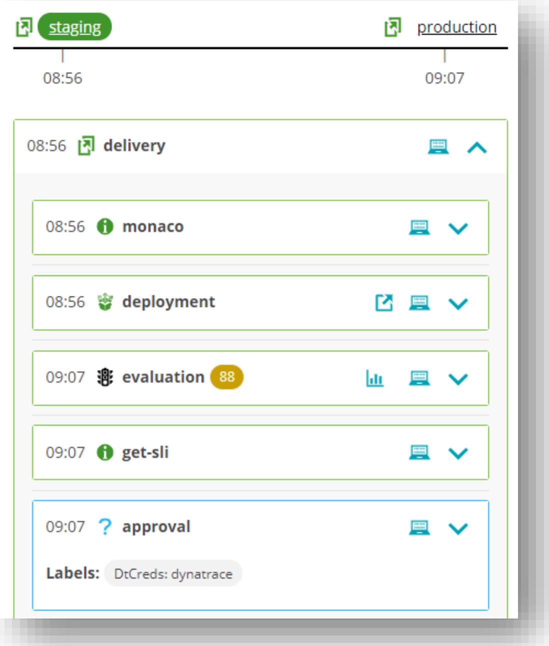
Name	Value	pass Criteria	warning Criteria	Result	Score
error_rate	3.62	~~<=1~~	~~<=2~~	failed	0
response_time_p50	0.497				0
throughput	138				0
response_time_p95	1160	~~<=1000~~	<=1500	warning	12.5
response_time_p90	0.853	<=500	<=600	passed	25

Triggering end-2-end delivery of version 3.0.1 of our sample app

```
$ keptn trigger delivery --project=delivery-demo --service=tnt-xxxx-svc --image=grabnerandi/simplenodeservice:3.0.1
```

image

Build #3 should meet Quality Gate and gets promoted to production



staging — production

08:56 — 09:07

08:56 delivery

08:56 monaco

08:56 deployment

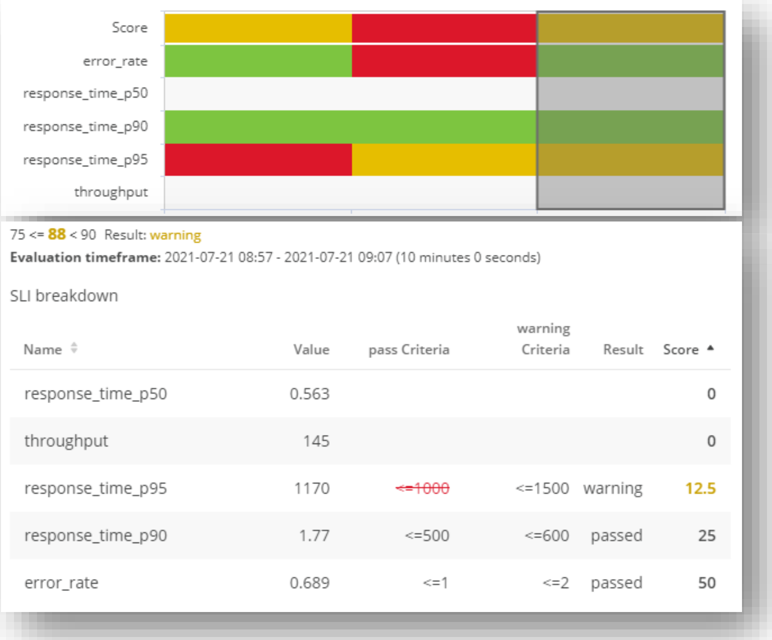
09:07 evaluation 88

09:07 get-sli

09:07 approval

Labels: DtCreds: dynatrace

No major issues any more



75 <= 88 < 90 Result: warning

Evaluation timeframe: 2021-07-21 08:57 - 2021-07-21 09:07 (10 minutes 0 seconds)

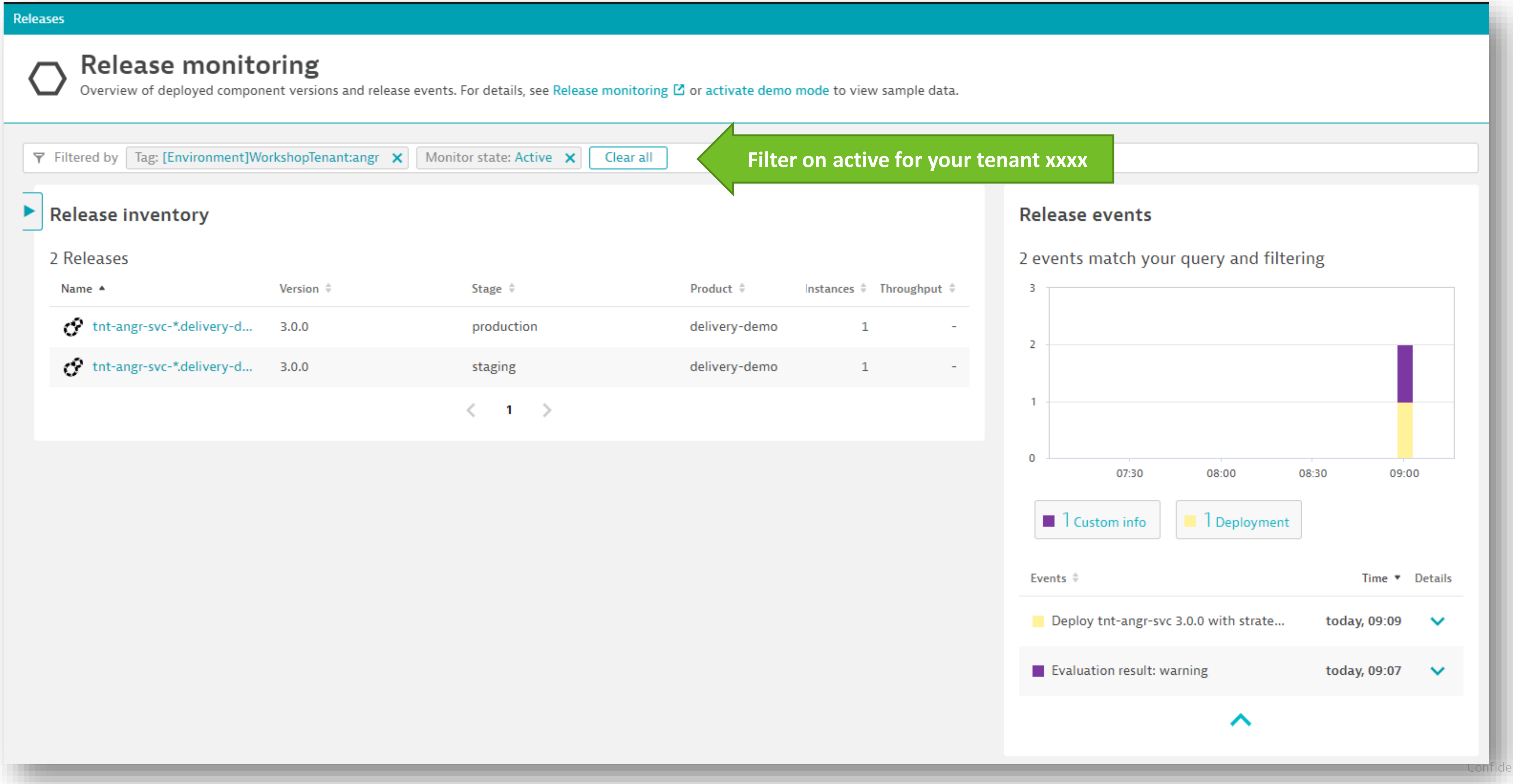
SLI breakdown

Name	Value	pass Criteria	warning Criteria	Result	Score
response_time_p50	0.563				0
throughput	145				0
response_time_p95	1170	~~<=1000~~	<=1500	warning	12.5
response_time_p90	1.77	<=500	<=600	passed	25
error_rate	0.689	<=1	<=2	passed	50

HANDS-ON SECTION

dynatrace
Performance Clinic
webinar series

Validate Deployment Events in Release Inventory



Releases

Release monitoring

Overview of deployed component versions and release events. For details, see Release monitoring or activate demo mode to view sample data.

Filtered by Tag: [Environment]WorkshopTenant:angr ✕ Monitor state: Active ✕ Clear all

Filter on active for your tenant xxxx

Release inventory

2 Releases

Name ▲	Version	Stage	Product	Instances	Throughput
tnt-angr-svc-*.delivery-d...	3.0.0	production	delivery-demo	1	-
tnt-angr-svc-*.delivery-d...	3.0.0	staging	delivery-demo	1	-

‹ 1 ›

Release events

2 events match your query and filtering

■ 1 Custom info ■ 1 Deployment

Events	Time ▼	Details
■ Deploy tnt-angr-svc 3.0.0 with strate...	today, 09:09	⌄
■ Evaluation result: warning	today, 09:07	⌄

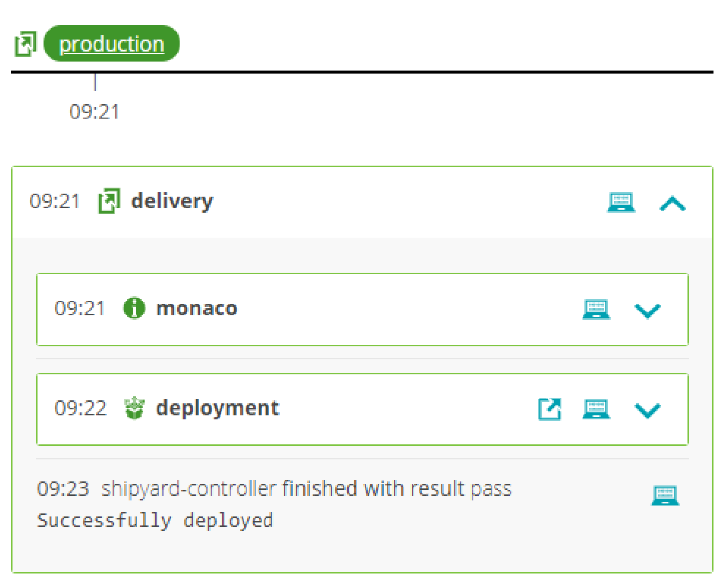
Triggering direct deployment of 4.0.1 into production

stage

```
$ keptn trigger delivery --project=delivery-demo --stage=production --service=tnt-xxxx-svc --image=grabnerandi/simplenodeservice:4.0.1
```

image

Build #4 deploys straight into production



production

09:21

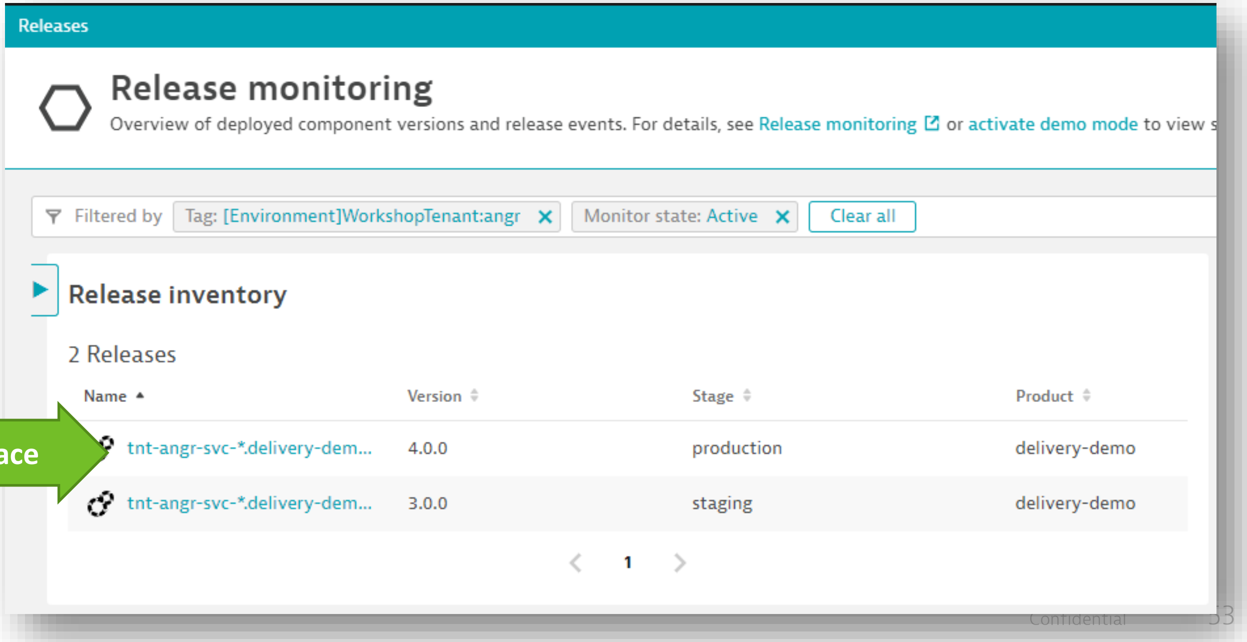
09:21 delivery

09:21 monaco

09:22 deployment

09:23 shipyard-controller finished with result pass
Successfully deployed

Also reflected in Dynatrace



Releases

Release monitoring

Overview of deployed component versions and release events. For details, see Release monitoring or activate demo mode to view s

Filtered by Tag: [Environment]WorkshopTenant:angr ✕ Monitor state: Active ✕ Clear all

Release inventory

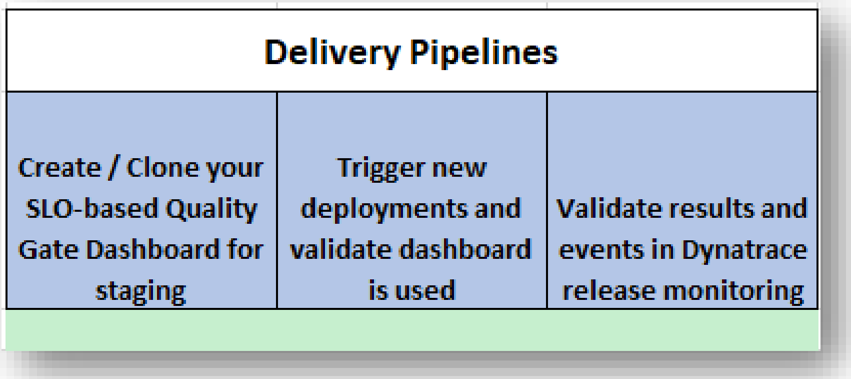
2 Releases

Name	Version	Stage	Product
tnt-angr-svc-*.delivery-dem...	4.0.0	production	delivery-demo
tnt-angr-svc-*.delivery-dem...	3.0.0	staging	delivery-demo

< 1 >

Quick Status Check: are we all good with accessing our environments?

- Please mark your tasks accordingly in the Excel file



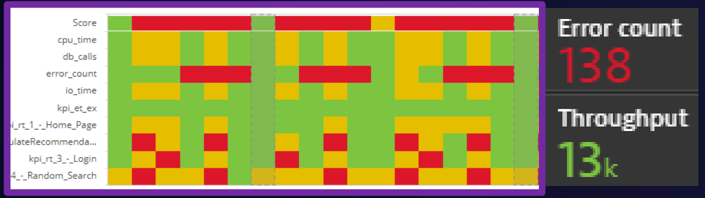
Delivery Pipelines		
Create / Clone your SLO-based Quality Gate Dashboard for staging	Trigger new deployments and validate dashboard is used	Validate results and events in Dynatrace release monitoring

Hands-On Lab: Wrap Up!
How Dynatrace helps DevOps & SRE

dynatrace

Dynatrace helps DevOps & SREs to Shift-Left SLOs

Delivery Pipelines

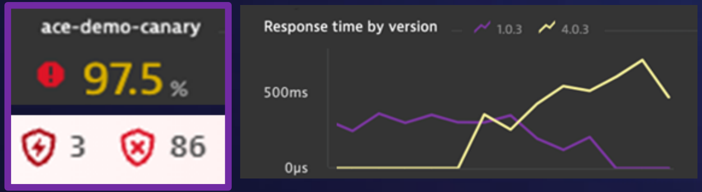


Error count 138

Throughput 13k

Speed up high-quality value creation

Release Validation



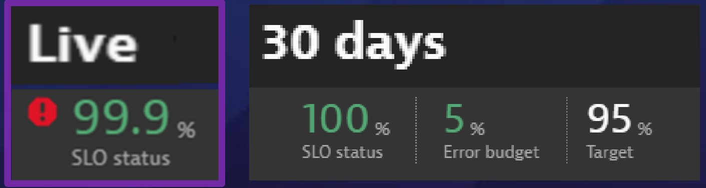
ace-demo-canary

97.5 %

3 86

Eliminate Failed Releases

Production Reliability



Live

99.9 %

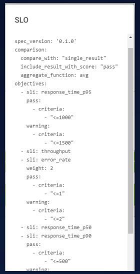
SLO status

30 days

100 %	5 %	95 %
SLO status	Error budget	Target

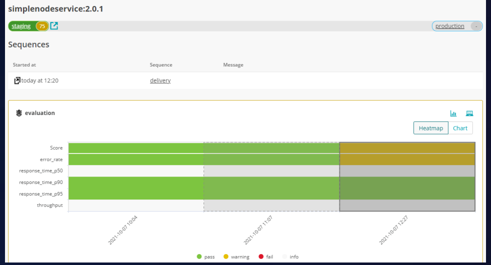
Ensure 100% Business Up-Time

Lab 3: SLO-based Quality Gates



SLO

```
spec_version: '0.1.0'
comparison:
  compare_with: "single_result"
  include_result_with_score: "pass"
  aggregate_function: avg
objectives:
  - sli: response_time_p95
    pass:
      - criteria:
          - "<=1000"
    warning:
      - criteria:
          - "<=1500"
  - sli: throughput
  - sli: error_rate
    weight: 2
    pass:
      - criteria:
          - "<=1"
    warning:
      - criteria:
          - "<=2"
  - sli: response_time_p50
  - sli: response_time_p90
    pass:
      - criteria:
          - "<=500"
    warning:
```



simplenodeservice:2.0.1

staging 75 production -

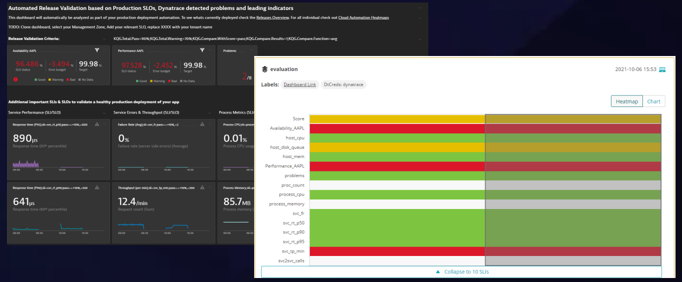
Sequences

Started at	Sequence	Message
today at 12:20	delivery	

evaluation

Heatmap Chart

Lab 2: SLOs for Release Validation



Automated Release Validation based on Production SLOs, Dynatrace detected problems and leading indicators

This dashboard will automatically be analyzed as part of your production deployment automation. To see whats currently deployed check the Releases Overview. For all individual check out Cloud Automation Heatmaps

TODO: Clone dashboard, select your Management Zone, Add your relevant SLO, replace XXXX with your tenant name

Release Validation Criteria: KQG.Total.Pass=90%;KQG.Total.Warning=70%;KQG.Compare.WithScore=pass;KQG.Compare.Results=1;KQG.Compare.Function=avg

Availability AAPL: 96.486 % SLO status | -3.494 % Error budget | 99.98 % Target

Performance AAPL: 97.528 % SLO status | -2.452 % Error budget | 99.98 % Target

Problems: 2/8

Additional important SLIs & SLOs to validate a healthy production deployment of your app

Service Performance (SLI/SLO)

Response time (P95);sli=svc_rt_p95;pass=<+10%,<600: 890µs Response time (95th percentile)

Response time (P90);sli=svc_rt_p90;pass=<+10%,<550: 641µs Response time (90th percentile)

Service Errors & Throughput (SLI/SLO)

Failure Rate (Avg);sli=svc_fr;pass=<+10%,<2: 0% Failure rate (server side errors) (Average)

Throughput (per min);sli=svc_tp_min;pass=<+10%,<200: 12.4/min Request count (Sum)

Process Metrics (SLI/SLO)

Process CPU: 0.01% Process CPU usage

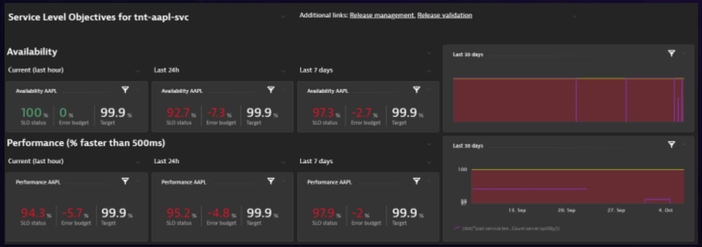
Process Memory: 85.7MB Process memory

evaluation 2021-10-06 15:53

Labels: Dashboard Link DtCreds: dynatrace

Heatmap Chart

Lab 1: SLOs for Reporting



Service Level Objectives for tnt-aapl-svc

Additional links: Release management, Release validation

Availability

	Current (last hour)	Last 24h	Last 7 days
Availability AAPL SLO status	100 %	92.7 %	97.3 %
Error budget	0 %	-7.3 %	-2.7 %
Target	99.9 %	99.9 %	99.9 %

Performance (% faster than 500ms)

	Current (last hour)	Last 24h	Last 7 days
Performance AAPL SLO status	94.3 %	95.2 %	97.9 %
Error budget	-5.7 %	-4.8 %	-2 %
Target	99.9 %	99.9 %	99.9 %