Debugging in the Cloud with Datadog and HashiCorp

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Datadog
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Agenda

- What is infrastructure as code?
- Understanding observability
- Live demo

Infrastructure as Code

Infrastructure as Code

Infrastructure as Code

Infrastructure as Code

- executable documentation

Infrastructure as Code

- executable documentation
- enables collaboration

Infrastructure as Code

- executable documentation
- enables collaboration
- safe and predictable

Infrastructure as Code

- executable documentation
- enables collaboration
- safe and predictable

HashiCorp Configuration Language

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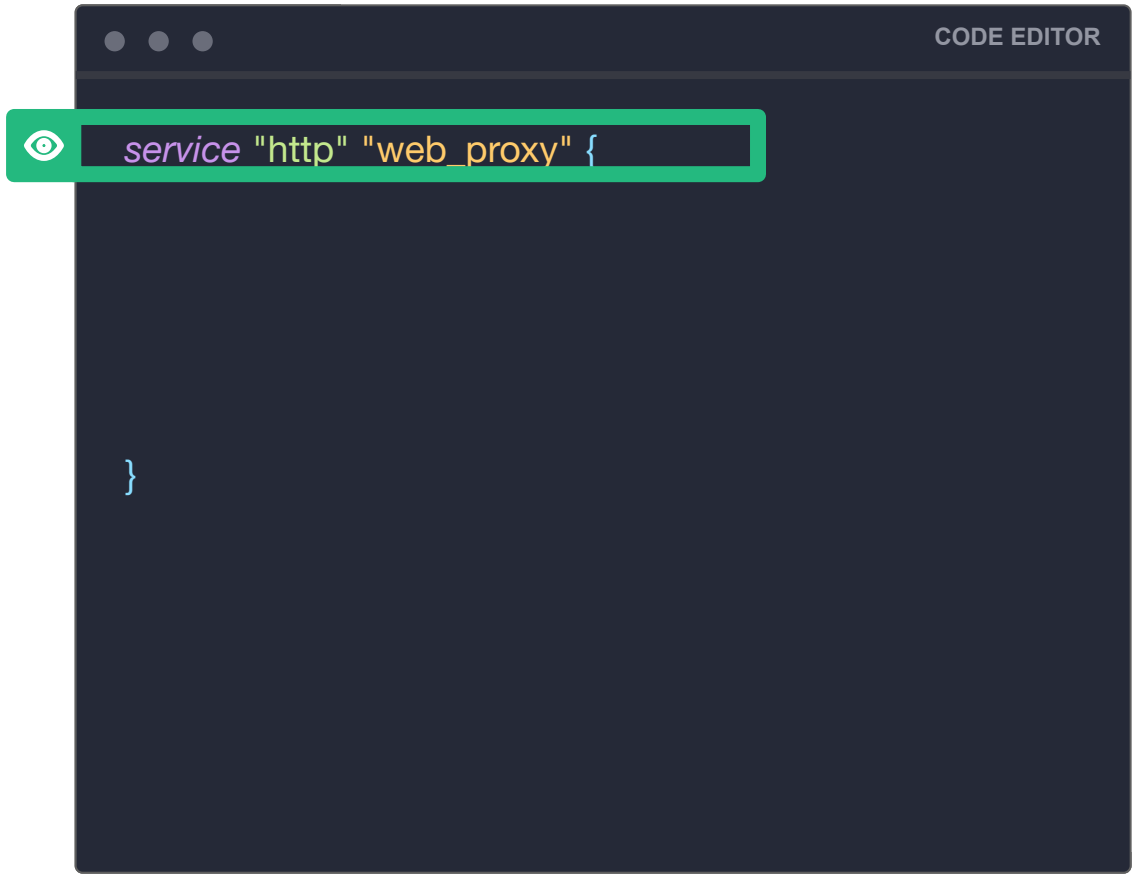
CODE EDITOR

```
service "http" "web_proxy" {

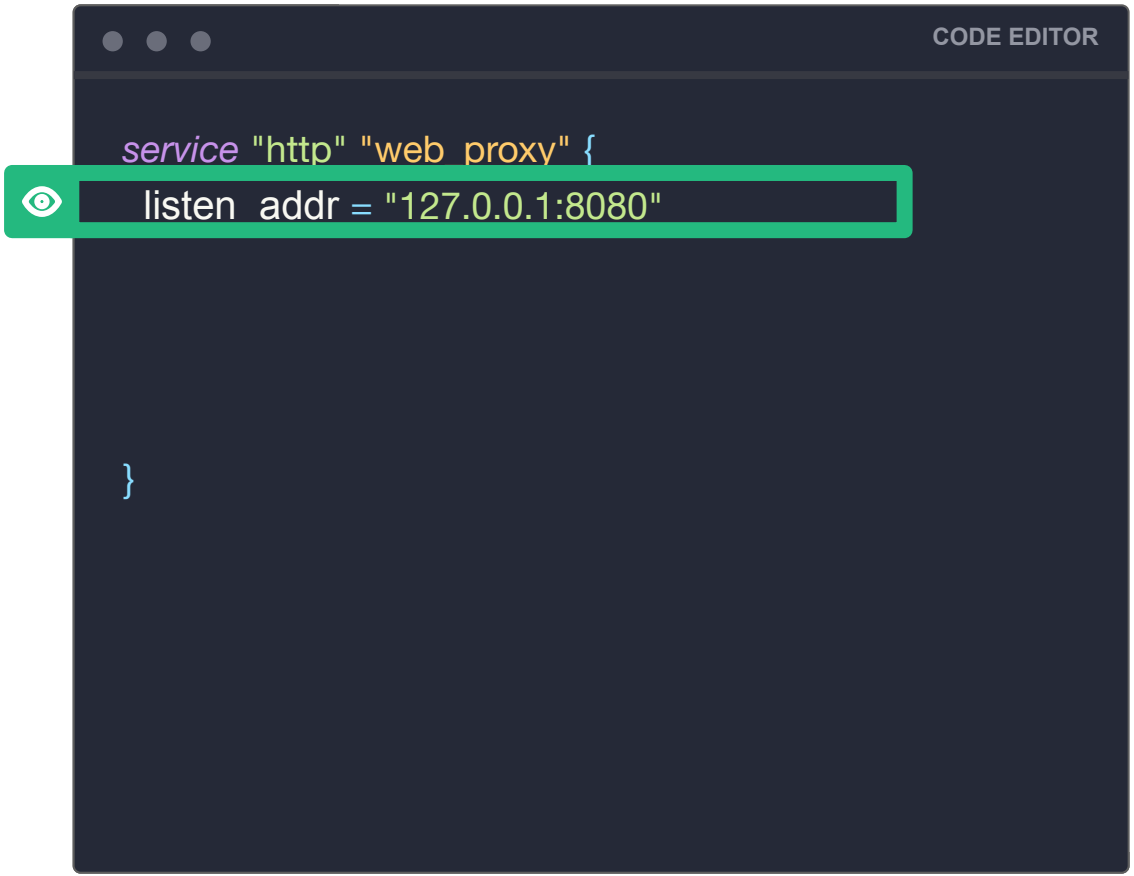


}
```

HashiCorp Configuration Language



HashiCorp Configuration Language



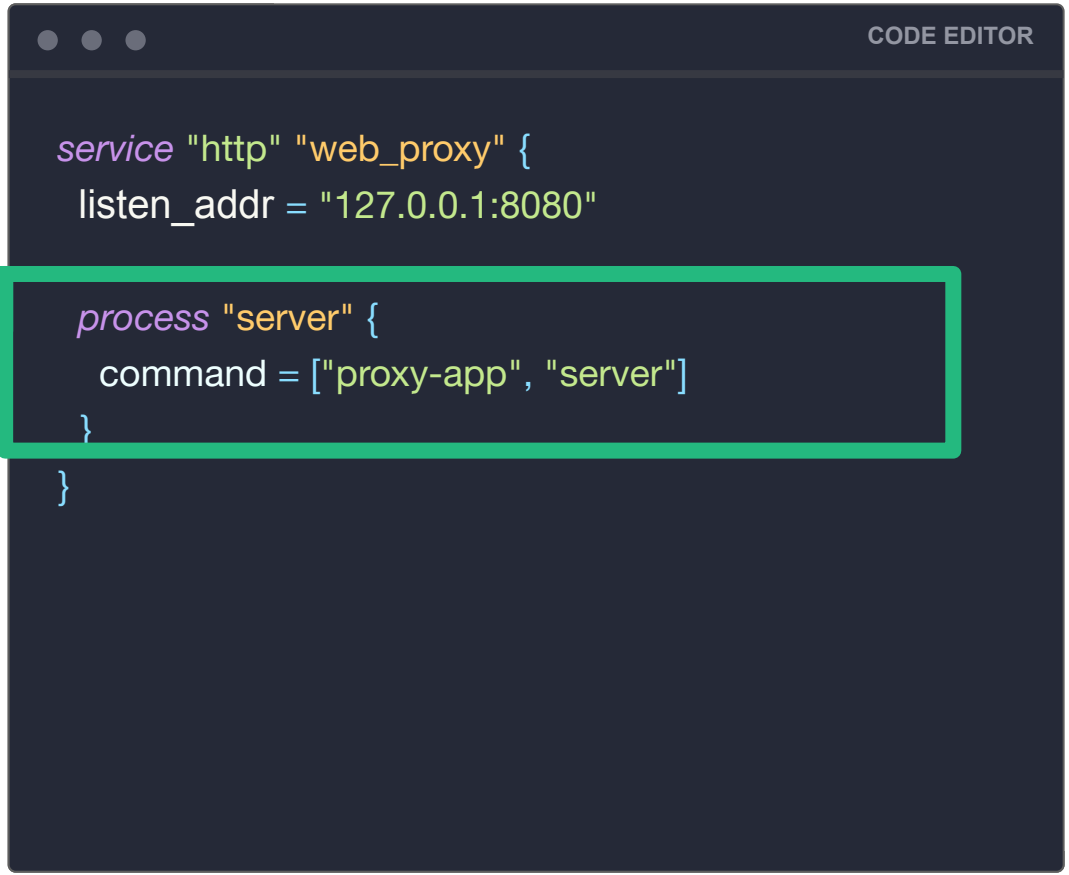
HashiCorp Configuration Language

CODE EDITOR

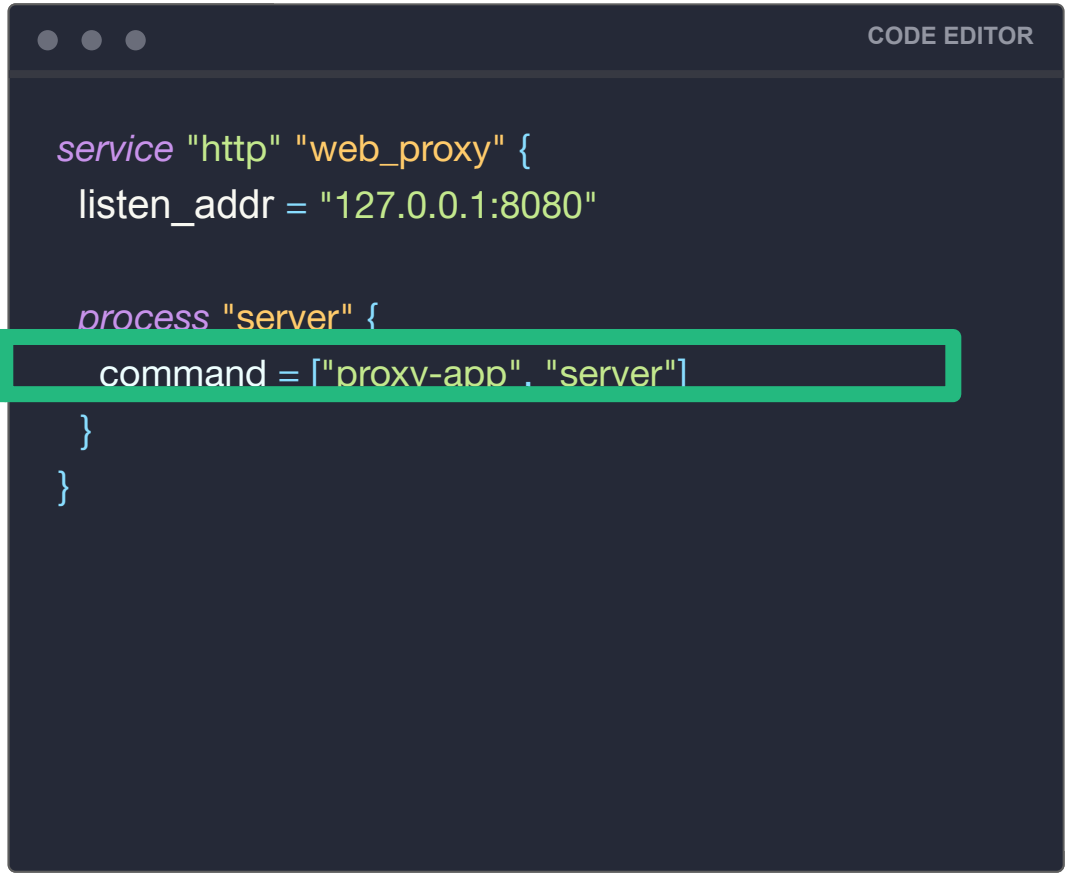
```
service "http" "web_proxy" {
  listen_addr = "127.0.0.1:8080"

  process "server" {
    command = ["proxy-app", "server"]
  }
}
```

HashiCorp Configuration Language



HashiCorp Configuration Language



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HashiCorp Configuration Language

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service "http" "web_proxy" {
  listen_addr = "127.0.0.1:8080"

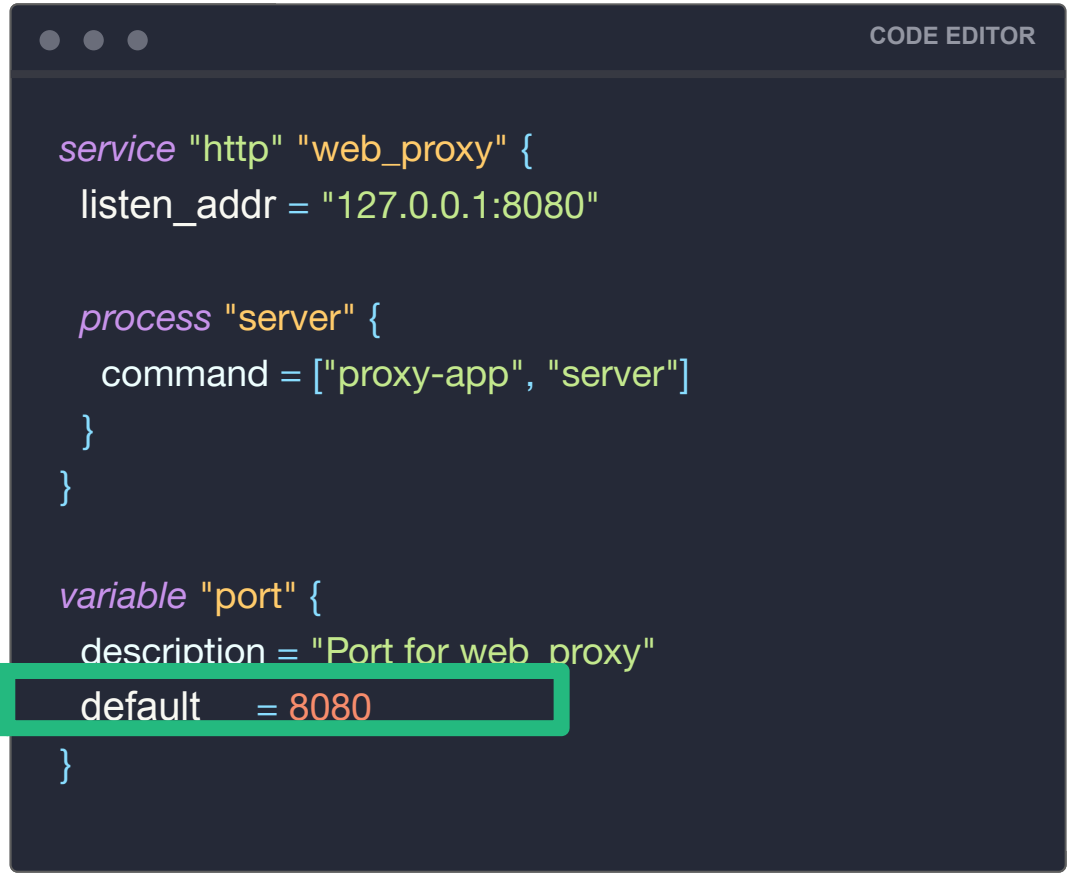
  process "server" {
    command = ["proxy-app", "server"]
  }
}

variable "port" {

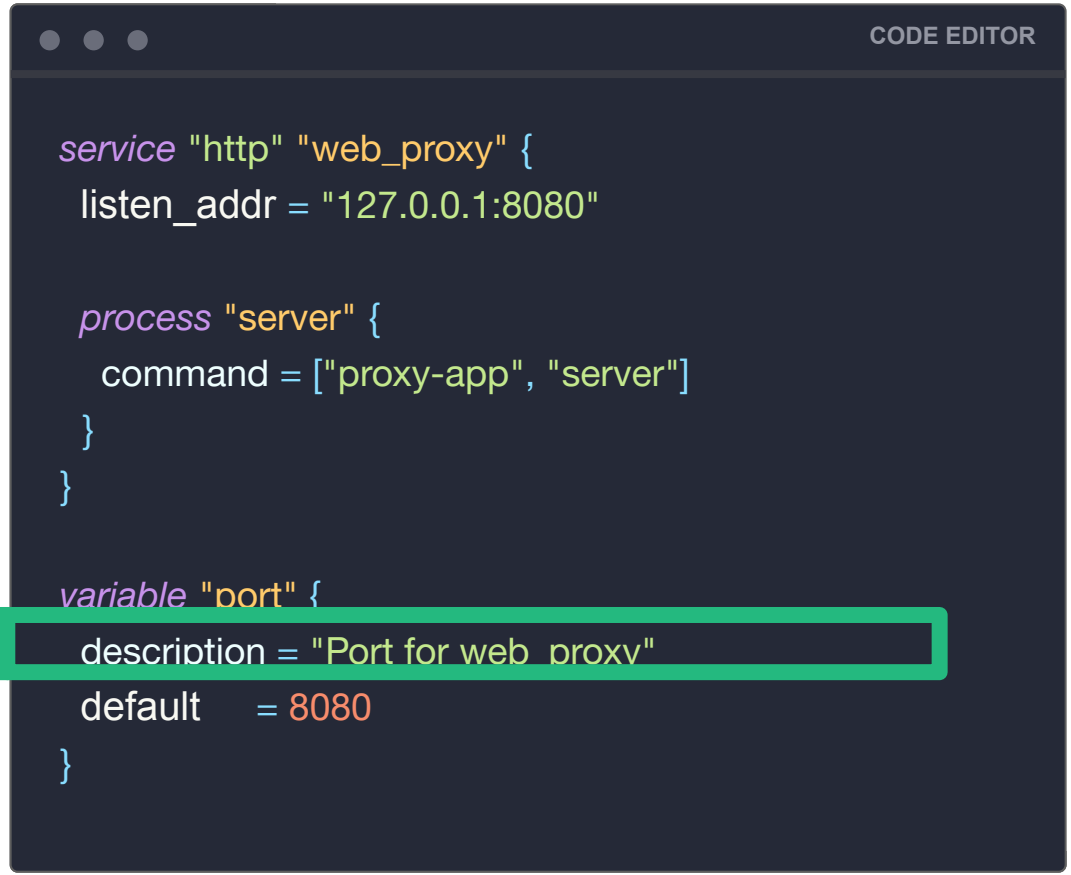

}
```

HashiCorp Configuration Language

HashiCorp Configuration Language



HashiCorp Configuration Language



HashiCorp Configuration Language

CODE EDITOR

```
service "http" "web_proxy" {
  listen_addr = "127.0.0.1:8080"

  process "server" {
    command = ["proxy-app", "server"]
  }
}

variable "port" {
  description = "Port for web_proxy"
  default     = 8080
}
```

HashiCorp Configuration Language

CODE EDITOR

```
service "http" "web_proxy" {
  listen_addr = "127.0.0.1:8080"

  process "server" {
    command = ["proxy-app", "server"]
  }
}

variable "port" {
  description = "Port for web_proxy"
  default     = 8080
}
```

HashiCorp Configuration Language

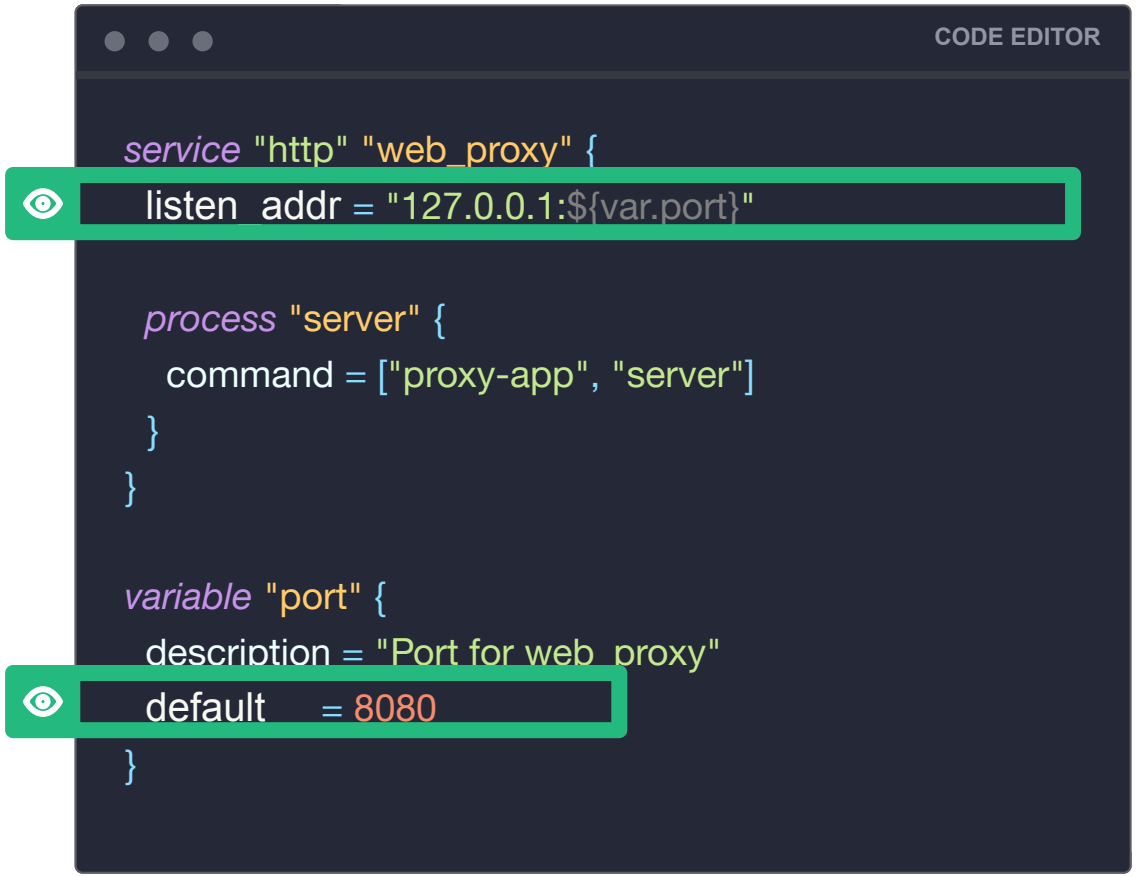
CODE EDITOR

```
service "http" "web_proxy" {
  listen_addr = "127.0.0.1:${var.port}"

  process "server" {
    command = ["proxy-app", "server"]
  }
}

variable "port" {
  description = "Port for web_proxy"
  default     = 8080
}
```

HashiCorp Configuration Language

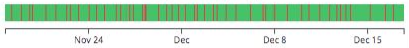


Understanding observability

Service Level Agreements

Shop.ist Homepage Uptime

Past 30 Days
99.69%
94% (1d 9h 49m) budget



Shop.ist Checkout Latency

Worst 4 groups sorted by 7d status	Past 7 Days
aws:ap-northeast-1	99.99%
aws:eu-west-2	100.00%

Shop.ist Uptime - This Week

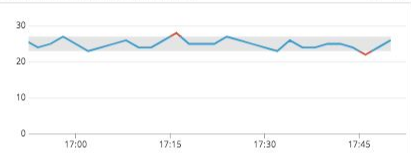
Previous week
99.77%
99% (1d 11h 27m) budget

Shop.ist Checkout Availability

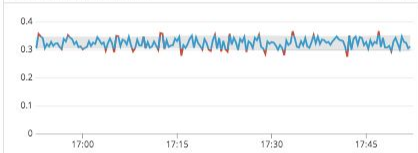
Past 30 Days
88.8340%
-12% (-108k reqs) budget

Business KPIs

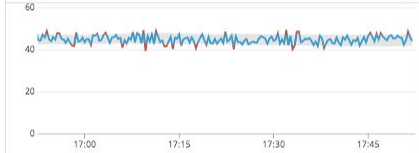
Count of Checkouts Completed



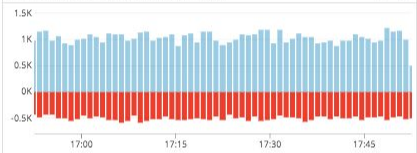
% of Carts Abandoned



Avg Time To Checkout

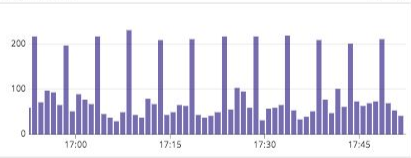


Items added / removed from carts

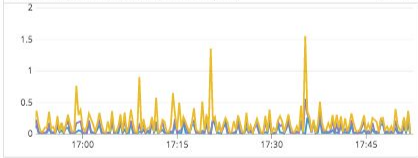


RUM - Frontend Metrics

Page views



Load time end median, p75 and p90



Top URLs

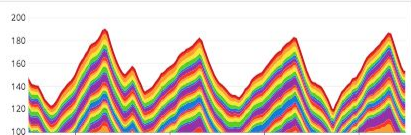
@VIEW.URL_DETAILS.PA'	COUNT	MEDIAN:LOAD EVENT
/	1.18K	11.09s
/cart	855	1129.27ms
/department/sofas	747	1246.72ms
/department/sofas/produ	744	1074.26ms
/checkout	542	N/A

Top countries

@NETWORK.CLIENT.GEC	COUNT	MEDIAN:LOAD EVENT
United States	1.49K	922.88ms
United Kingdom	622	865.86ms
Singapore	609	1512.3ms
Ireland	586	1027.09ms
South Korea	500	1494.6ms

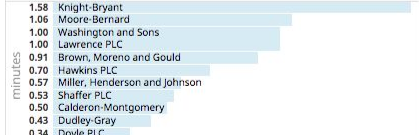
Performance

Shopist System Load by host

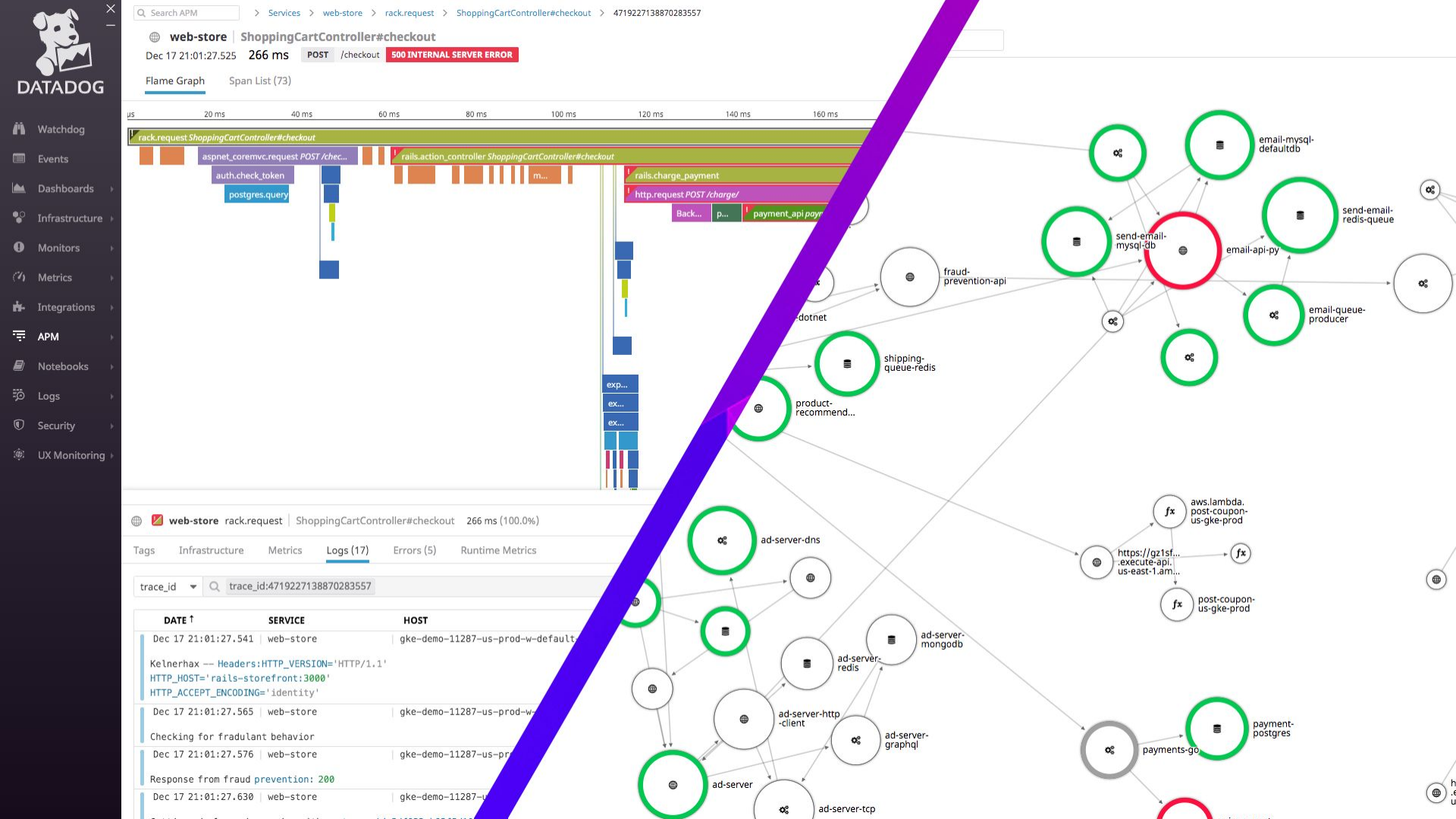


p95 latency per Merchant

Avg of @duration by @merchant.store_name over "env...



Trace duration by AZ


DATADOG
Watchdog
Events
Dashboards
Infrastructure
Monitors
Metrics
Integrations
APM
Notebooks
Logs
Security
UX Monitoring
Search APM
Services > web-store > rack.request > ShoppingCartController#checkout > 4719227138870283557
web-store | ShoppingCartController#checkout
Dec 17 21:01:27.525 266 ms POST /checkout 500 INTERNAL SERVER ERROR
Flame Graph
Span List (73)
20 ms
40 ms
60 ms
80 ms
100 ms
120 ms
140 ms
160 ms
rack.request ShoppingCartController#checkout
aspnet_coremvc.request POST /chec...
rails.action_controller ShoppingCartController#checkout
auth.check_token
postgres.query
rails.charge_payment
http.request POST /charge/
Back...
p...
payment_api payr
exp...
ex...
ex...
web-store rack.request | ShoppingCartController#checkout 266 ms (100.0%)
Tags
Infrastructure
Metrics
Logs (17)
Errors (5)
Runtime Metrics
trace_id
trace_id:4719227138870283557
DATE
SERVICE
HOST
Dec 17 21:01:27.541 | web-store | gke-demo-11287-us-prod-w-default
Kelnerhax -- Headers:HTTP_VERSION='HTTP/1.1'
HTTP_HOST='rails-storefront:3000'
HTTP_ACCEPT_ENCODING='identity'
Dec 17 21:01:27.565 | web-store | gke-demo-11287-us-prod-w
Checking for fradulant behavior
Dec 17 21:01:27.576 | web-store | gke-demo-11287-us-pr
Response from fraud prevention: 200
Dec 17 21:01:27.630 | web-store | gke-demo-11287-u
email-mysql-defaultdb
send-email-redis-queue
send-email-mysql-db
email-api-py
fraud-prevention-api
dotnet
email-queue-producer
shipping-queue-redis
product-recommend...
aws.lambda.post-coupon-us-gke-prod
https://gz1sf....execute-api.us-east-1.am...
post-coupon-us-gke-prod
ad-server-dns
ad-server-mongodb
ad-server-redis
ad-server-http-client
ad-server-graphql
ad-server
ad-server-tcp
payment-postgres
payments-go

DATADOG

- Watchdog
- Events
- Dashboards
- Infrastructure
- Monitors
- Metrics
- Integrations
- APM
- Notebooks
- Logs
- Security
- UX Monitoring

Help

Copy Link

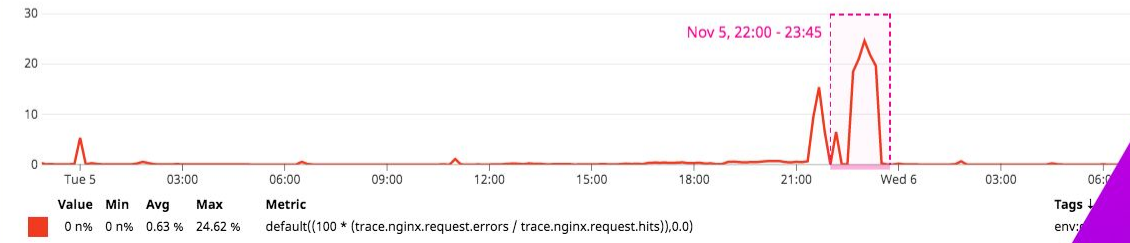
2d Nov

Starting on November 5th, **error rate was up** for more than 1 hour on **multiple** resources in **nginx-mcnulty-query**

nginx-mcnulty-query

env:datad0g.com service:nginx-mcnulty-query

% Error Rate 182 total (1.2 err/s)



Value	Min	Avg	Max	Metric
0 n%	0 n%	0.63 %	24.62 %	default((100 * (trace.nginx.request.errors / trace.nginx.request.hits)),0.0)

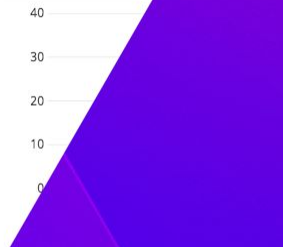
Tags

Error rate also **was up** for:

nginx-mcnulty-query | series.batch_query

Error rate also **was up** for:

nginx-mcnulty-query



Error rate also **was up** for:

nginx-mcnulty-query | api/series.query

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How do Datadog & Terraform integrate?

Datadog Provider for Terraform

Datadog Provider

The Datadog provider is used to interact with the resources supported by Datadog. T
configured with the proper credentials before it can be used.

Use the navigation to the left to read about the available resources.

Example Usage

```
# Configure the Datadog provider
provider "datadog" {
  api_key = "${var.datadog_api_key}"
  app_key = "${var.datadog_app_key}"
}

# Create a new monitor
resource "datadog_monitor" "default" {
  # ...
}

# Create a new timeboard
resource "datadog_timeboard" "default" {
  # ...
}
```

Demo

Resources

Sign up for Datadog
datadoghq.com/free-datadog-trial/

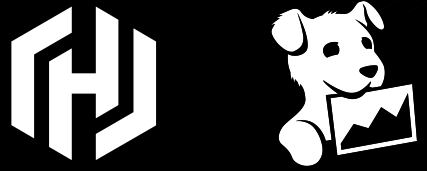
Sign up for Terraform Cloud
app.terraform.io/signup/account

Datadog Provider for Terraform
terraform.io/docs/providers/datadog/

Demo: StoreDog Application
github.com/datadog/ecommerce-workshop

Demo: Debugging the Cloud
https://github.com/onlydole/debugging-the-cloud

Q & A



Thank You