Varnishing Search Performance

Changing the (search) engine of a racecar going 300 km/h

VARNISH elasticsearch

bol.com

Volkan Yazıcı

http://vlkan.com/

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Changing the (search) engine of a racecar going 300 km/h

SERIOUSLY!

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Secret Agenda

I will try to convince you Elasticsearch **performance** and **caching** are indeed difficult subjects. So that I can justify our complex caching **setup**.

Who uses **search** anyway?

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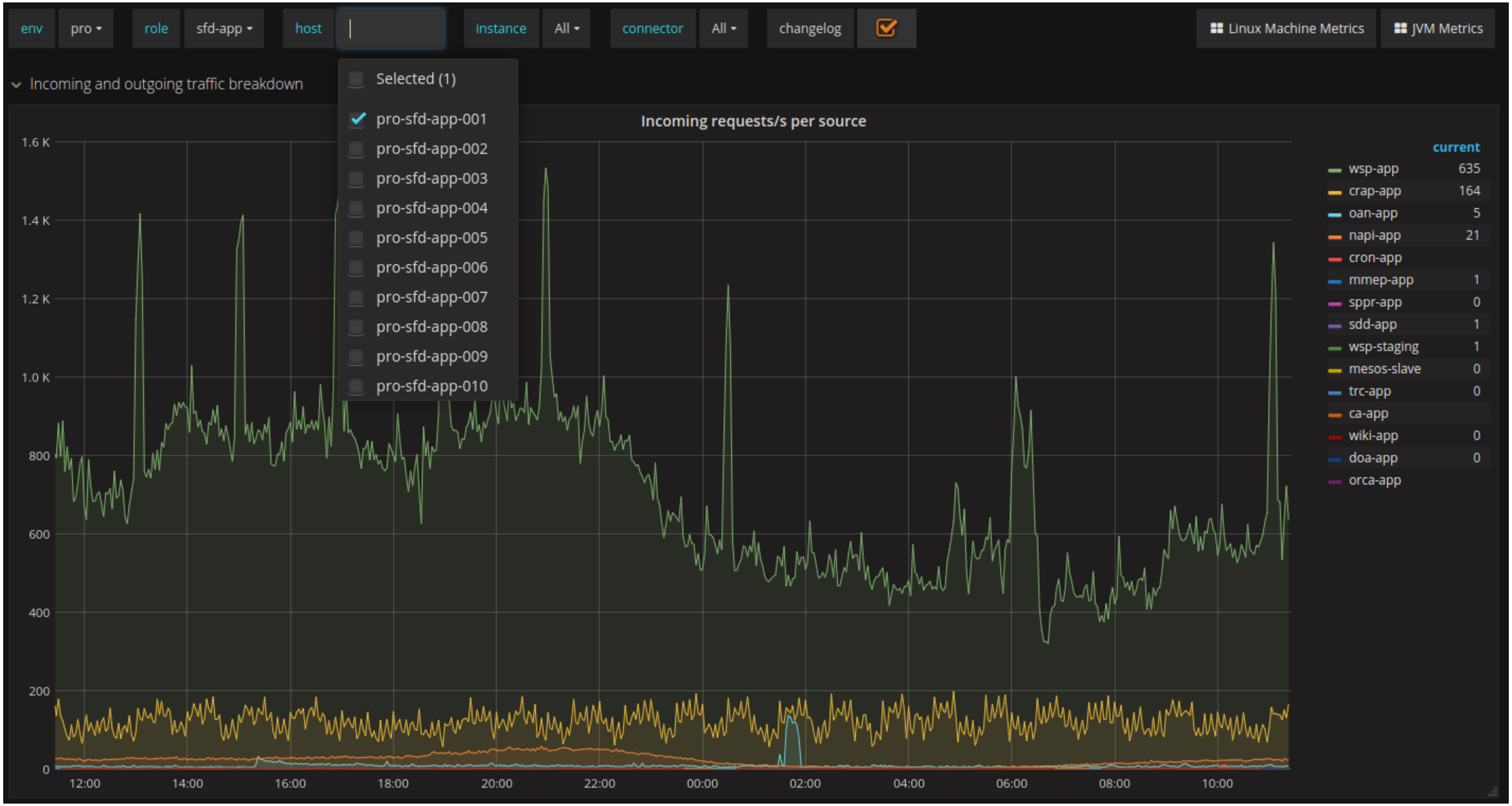

env: pro
role: sfd-app
host:
instance: All
connector: All

Selected (1)
☑ pro-sfd-app-001
☐ pro-sfd-app-002
☐ pro-sfd-app-003
☐ pro-sfd-app-004
☐ pro-sfd-app-005
☐ pro-sfd-app-006
☐ pro-sfd-app-007
☐ pro-sfd-app-008
☐ pro-sfd-app-009
☐ pro-sfd-app-010

Incoming and outgoing traffic breakdown

Incoming requests/s per source

	current
wsp-app	635
crap-app	164
oan-app	5
napi-app	21
cron-app	
mmep-app	1
sppr-app	0
sdd-app	1
wsp-staging	1
mesos-slave	0
trc-app	0
ca-app	
wiki-app	0
doa-app	0
orca-app	

changelog
Linux Machine Metrics
JVM Metrics
1.6 K
1.4 K
1.2 K
1.0 K
800
600
400
200
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12:00
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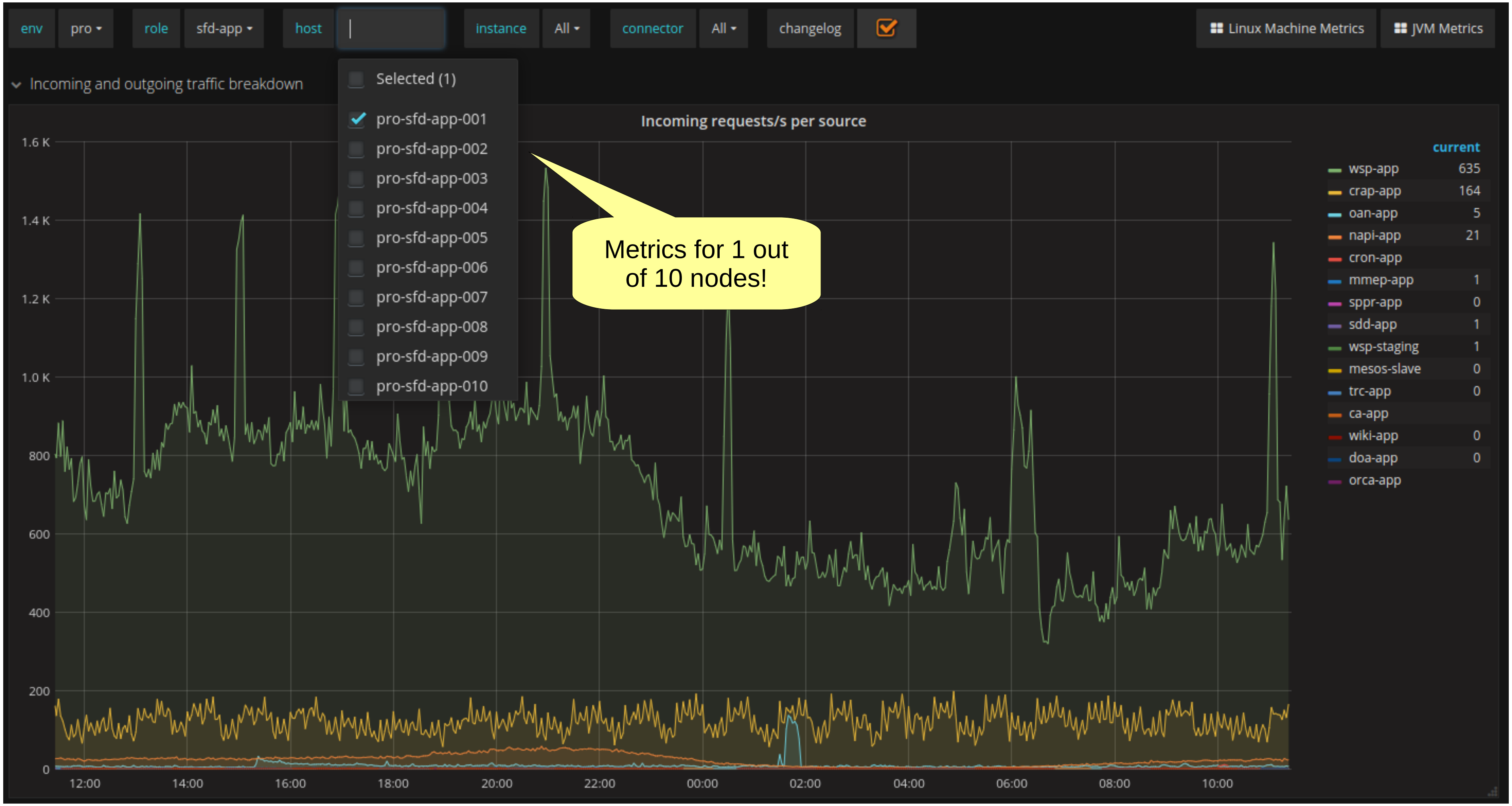
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Metrics for 1 out of 10 nodes!

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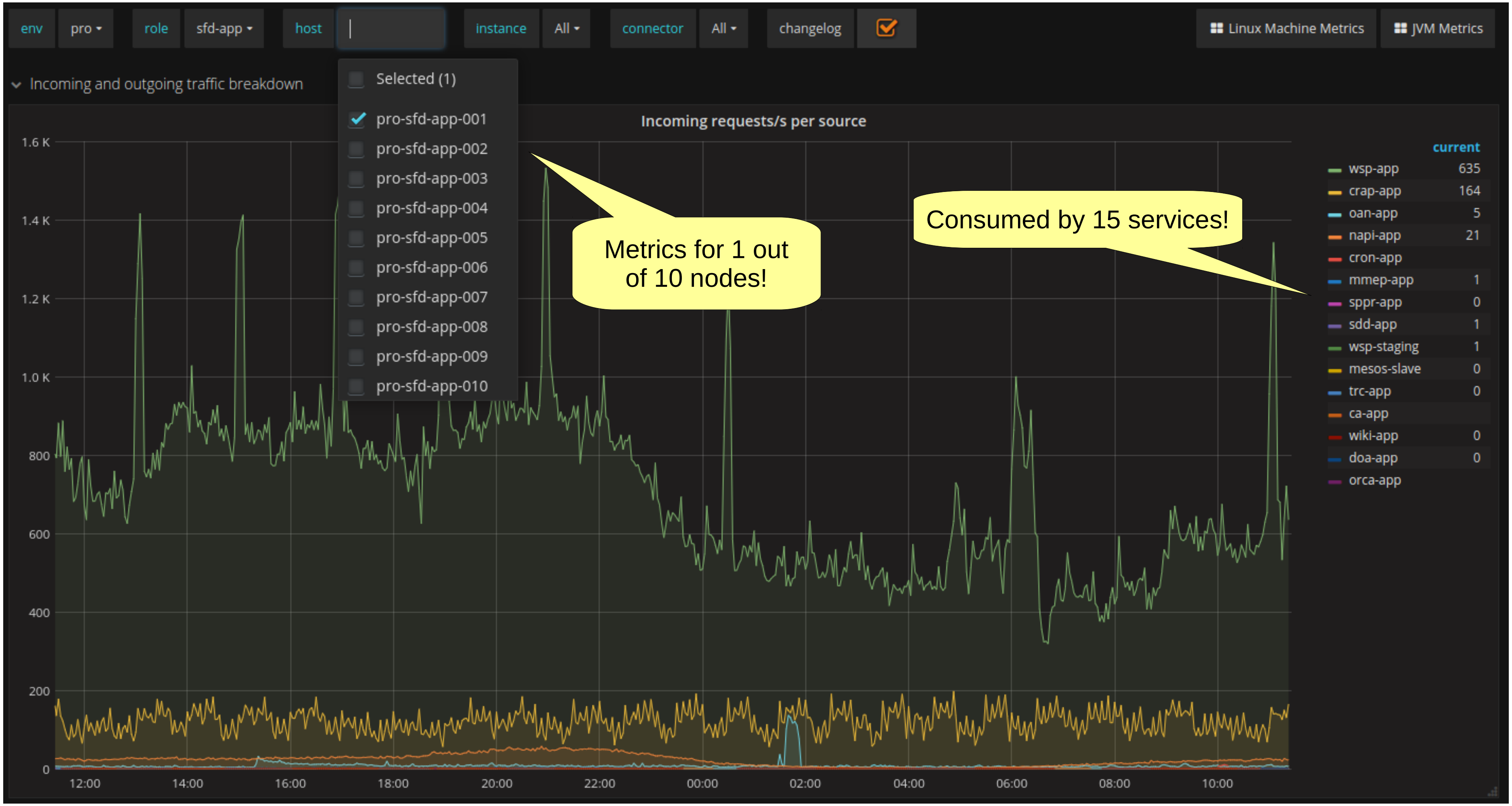

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Metrics for 1 out of 10 nodes!

Consumed by 15 services!

The Untold Story of **Performance** in Elasticsearch

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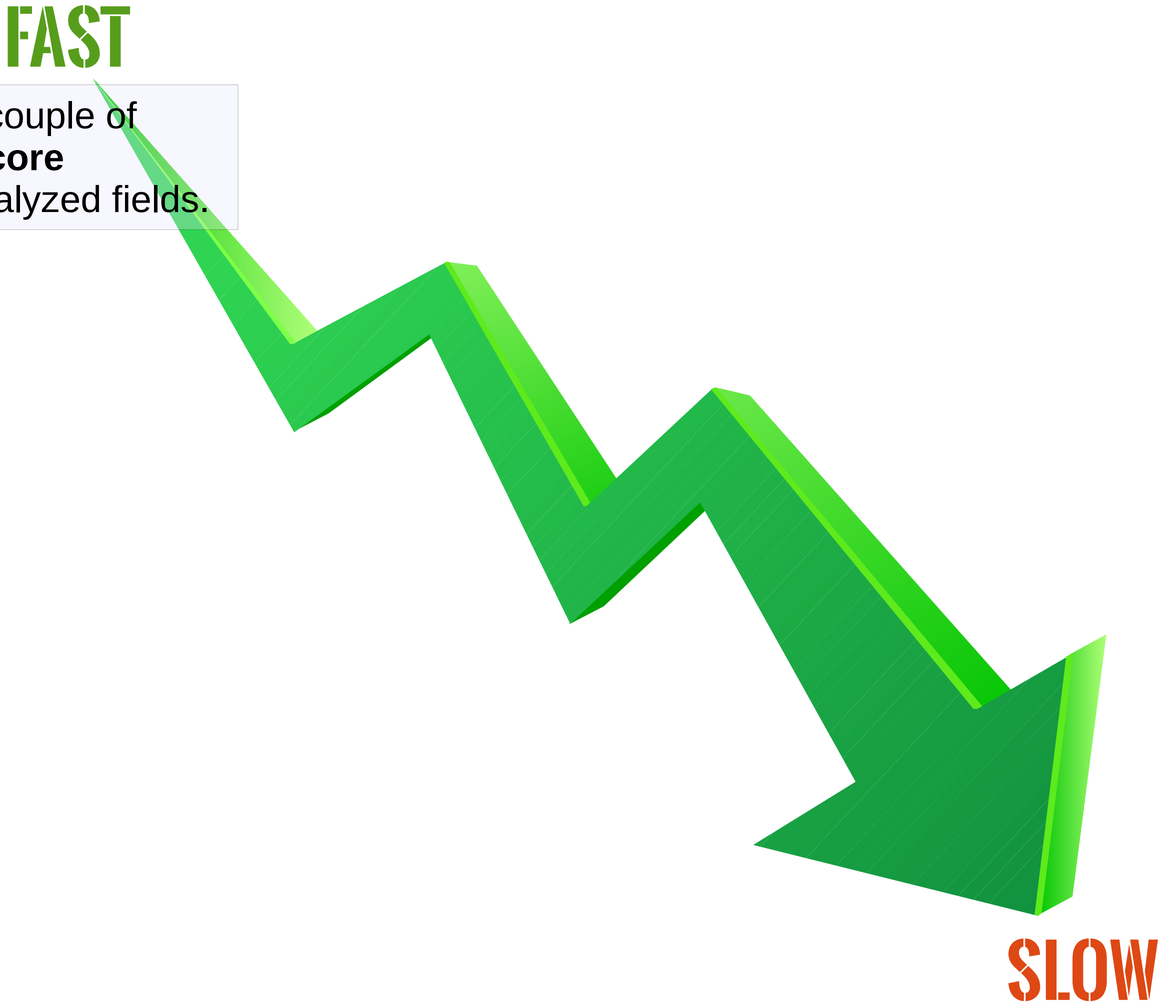

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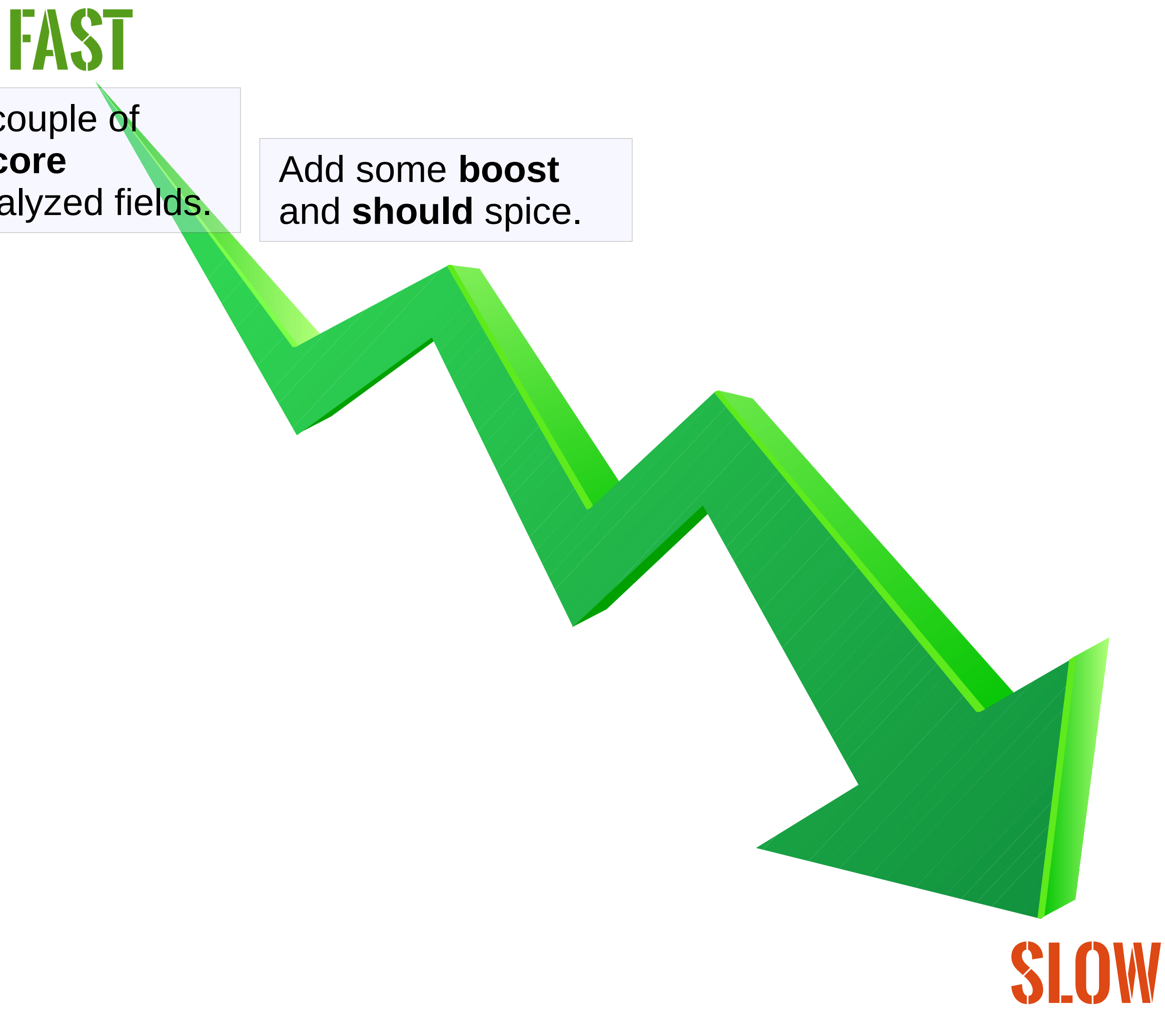

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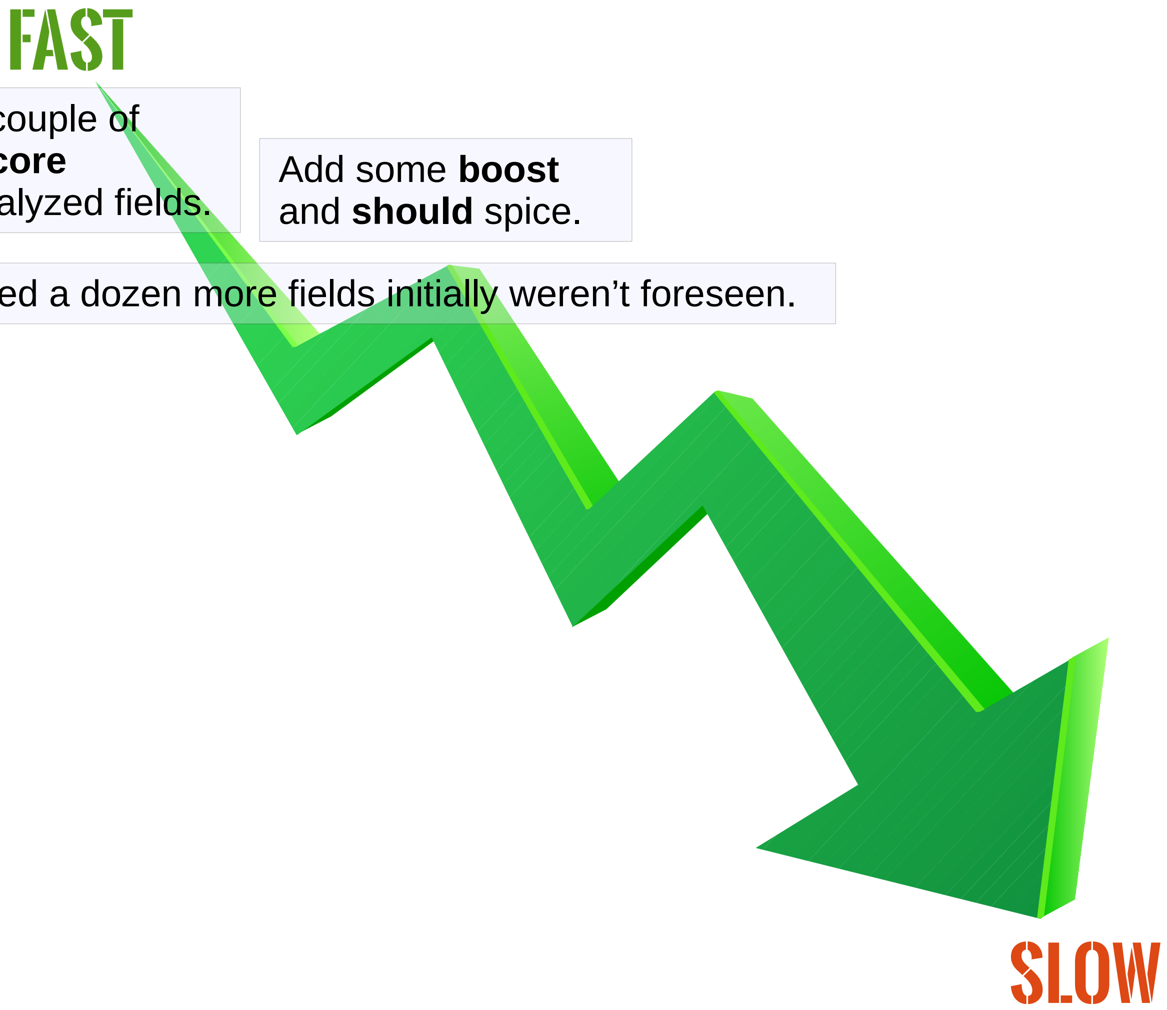

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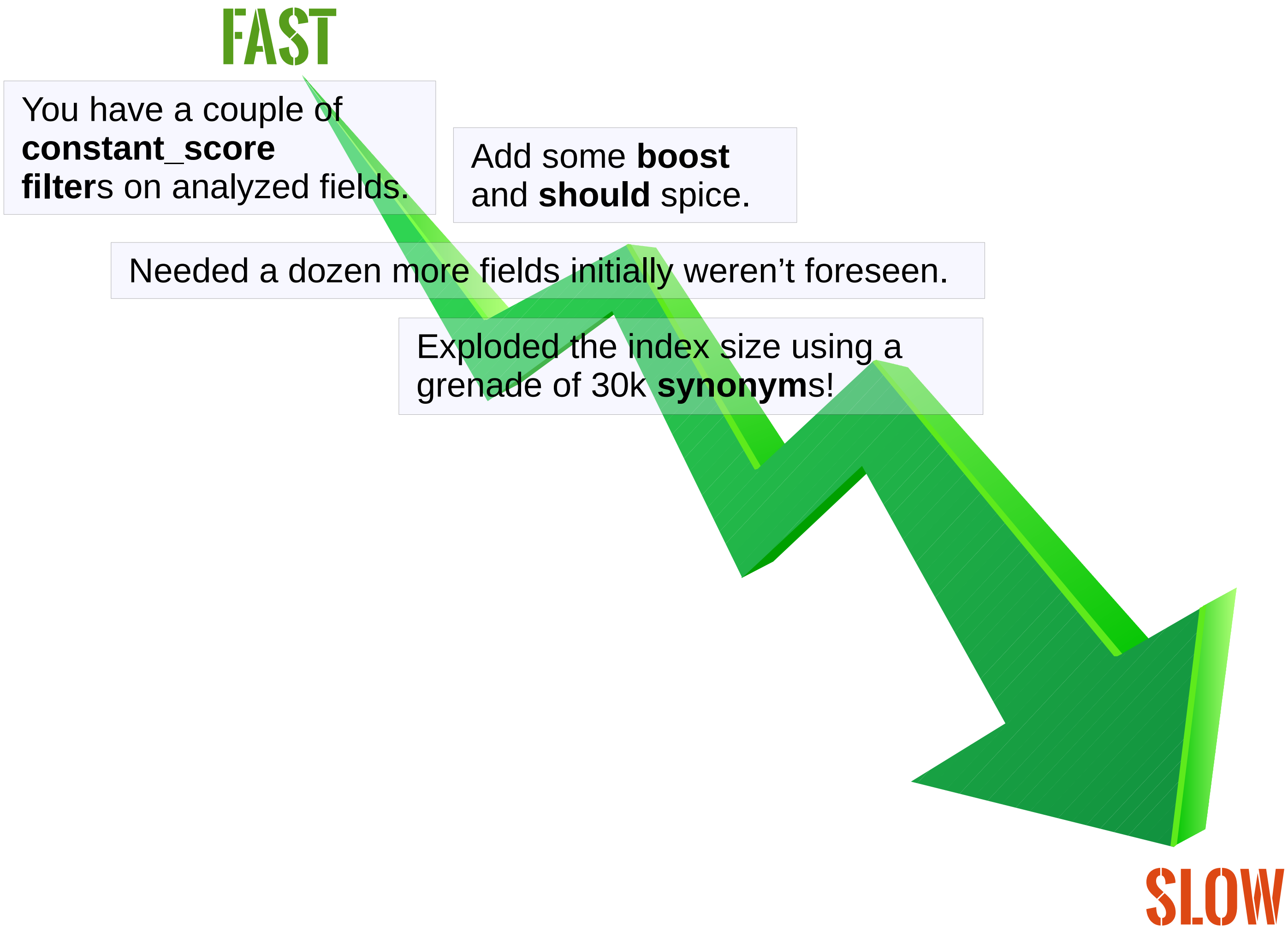

FAST

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Exploded the index size using a grenade of 30k **synonyms**!

SLOW

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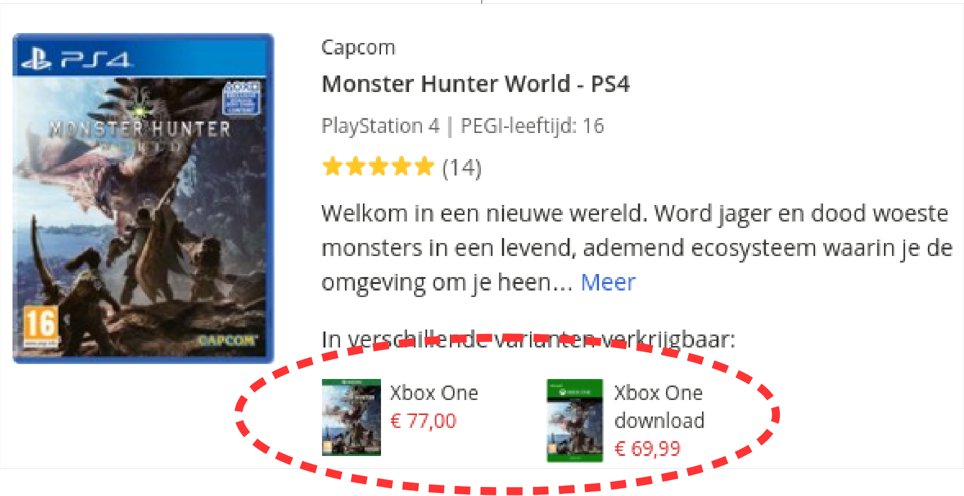

Capcom

Monster Hunter World - PS4

PlayStation 4 | PEGI-leeftijd: 16

★★★★★ (14)

Welkom in een nieuwe wereld. Word jager en dood woeste monsters in een levend, ademend ecosysteem waarin je de omgeving om je heen... Meer

In verschillende varianten verkrijgbaar:

Xbox One
€ 77,00

Xbox One download
€ 69,99

The Untold Story of
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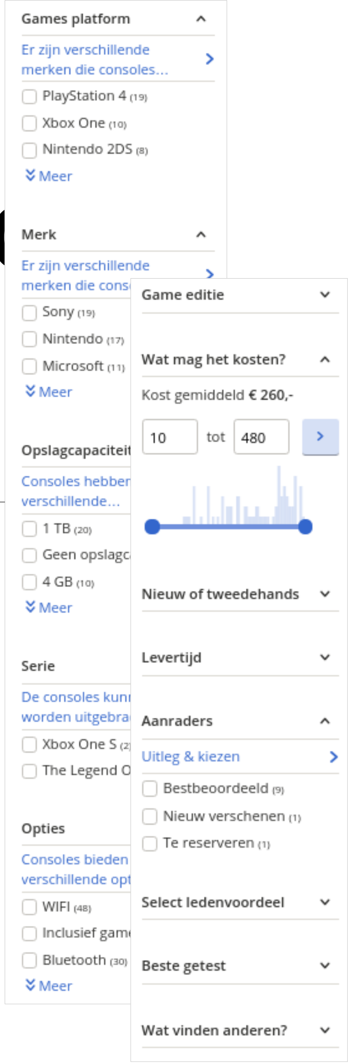
Games platform
Er zijn verschillende merken die consoles...
☐ PlayStation 4 (19)
☐ Xbox One (10)
☐ Nintendo 2DS (8)
Meer
Merk
Er zijn verschillende merken die cons
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Meer
Opslagcapaciteit
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☐ 1 TB (20)
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Consoles bieden verschillende opt
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Meer
Game editie
Wat mag het kosten?
Kost gemiddeld € 260,-
10 tot 480
Nieuw of tweedehands
Levertijd
Aanraders
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☐ Bestbeoordeeld (9)
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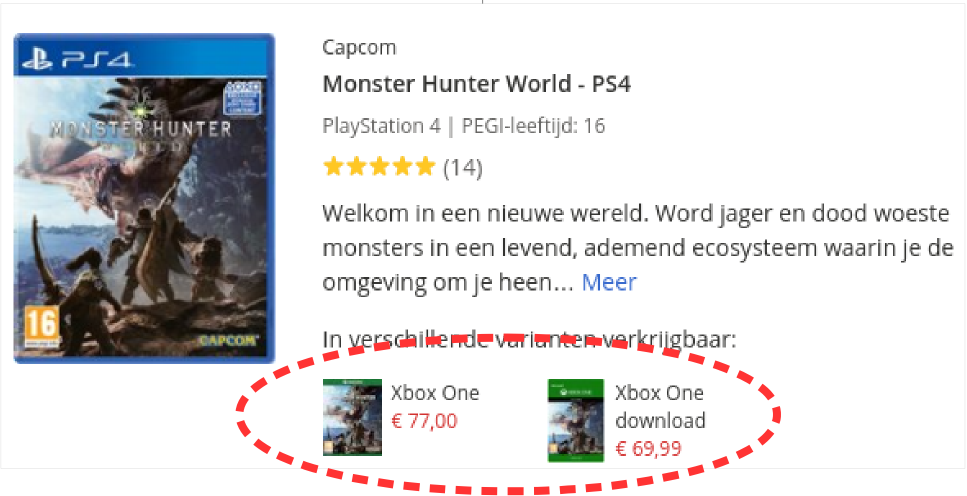
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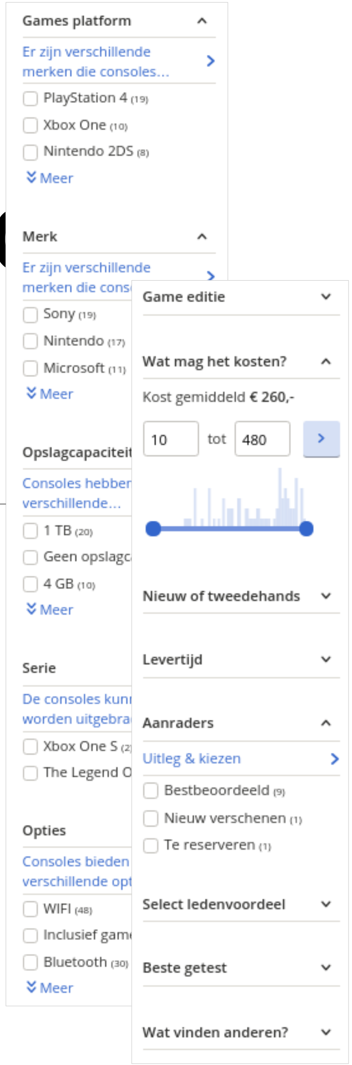
SLOW

Hey! There aren't 20 facets here!



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Beste getest ˅

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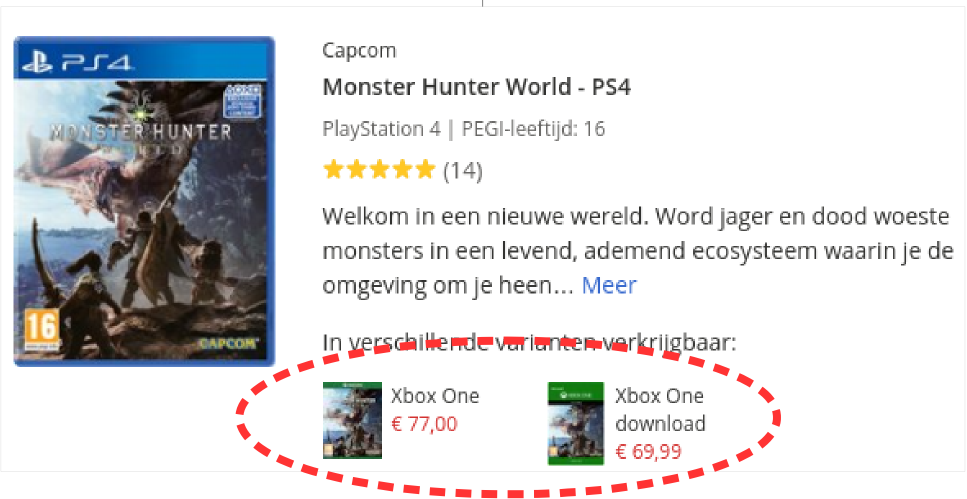

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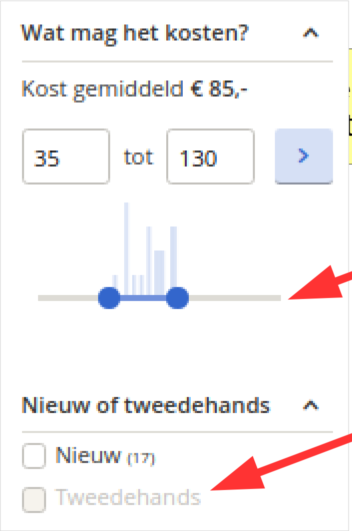


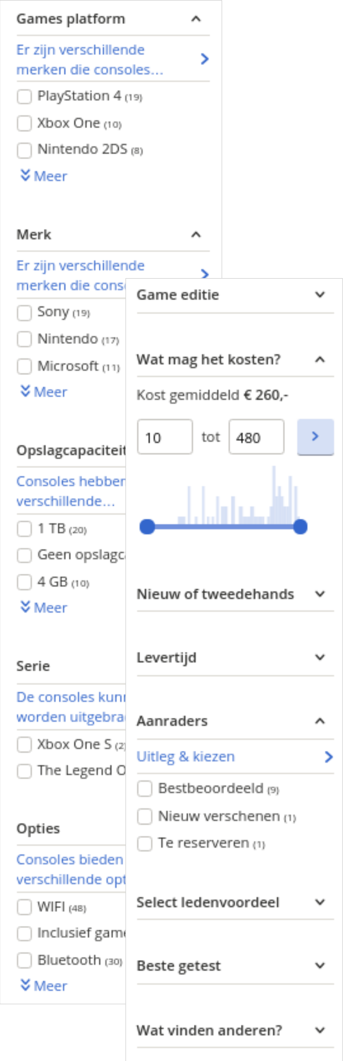
Wat mag het kosten?

Kost gemiddeld **€ 85,-**

35 tot 130

Nieuw of tweedehands

☐ Nieuw (17)
☐ Tweedehands



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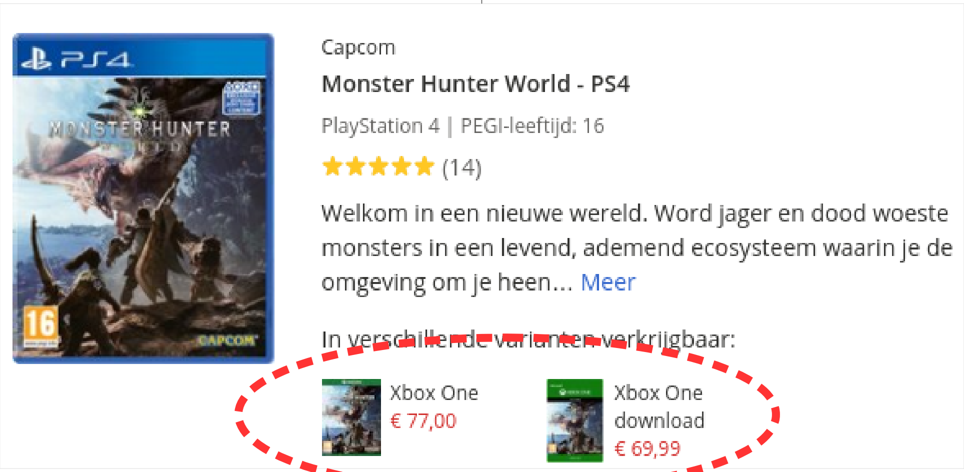

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Just realized you're serving 5% of calls on production behind an A/B test.

SLOW

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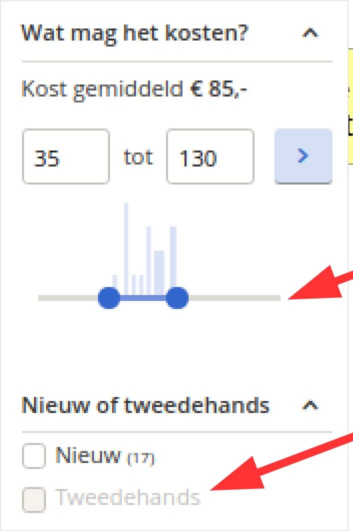

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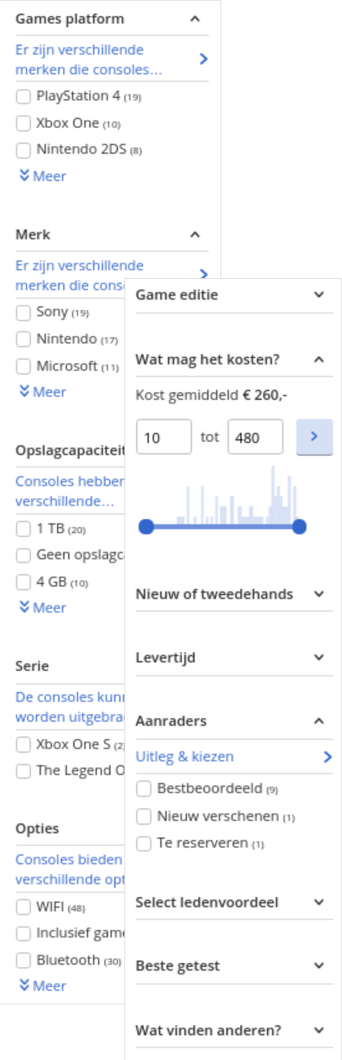

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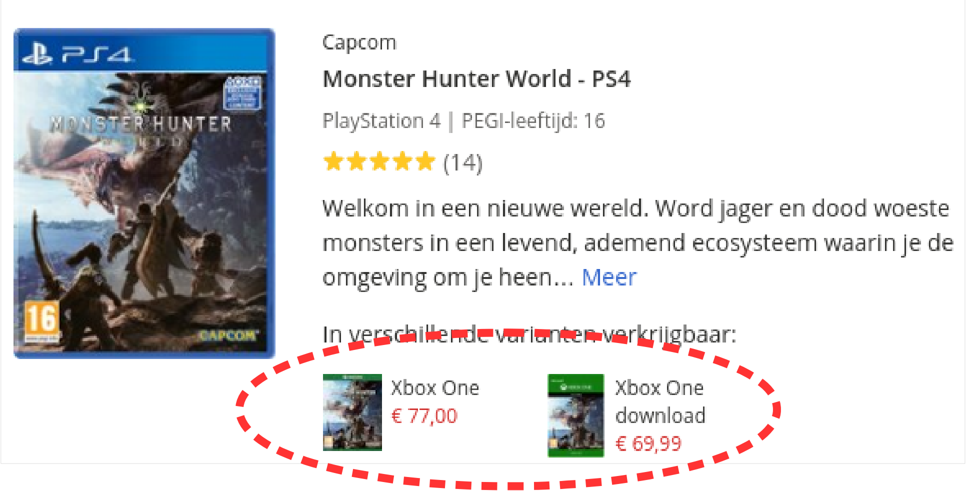

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EVER MAKE A MISTAKE IN LIFE?
LET'S MAKE THEM BIRDS. YEAH, THEY'RE BIRDS NOW.
quickmeme.

EVER MAKE A SLOW QUERY IN LIFE?
LET'S MAKE THEM CACHED. YEAH,
THEY'RE CACHED NOW.
quickmeme

The Untold Story of
Caching with Elasticsearch

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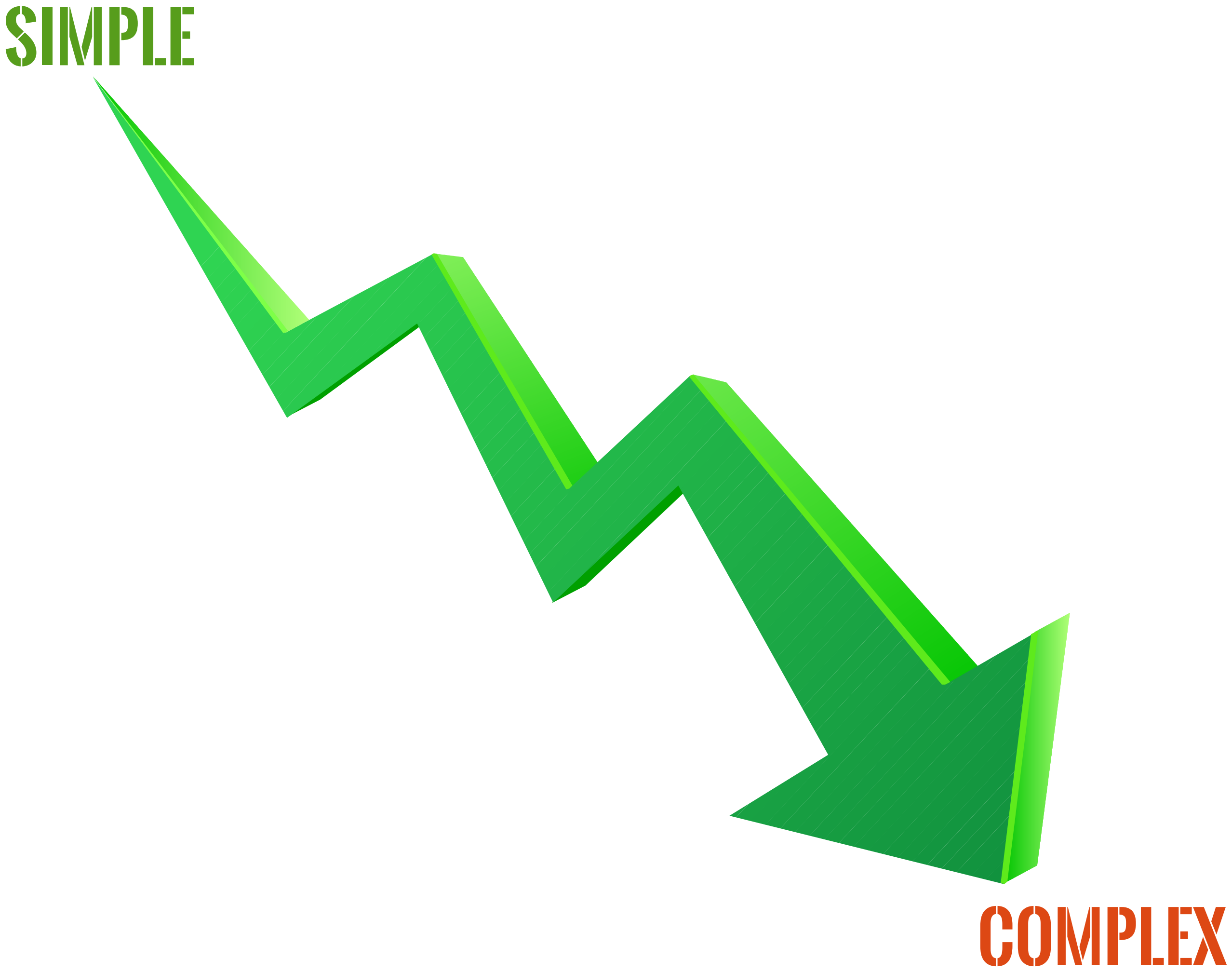
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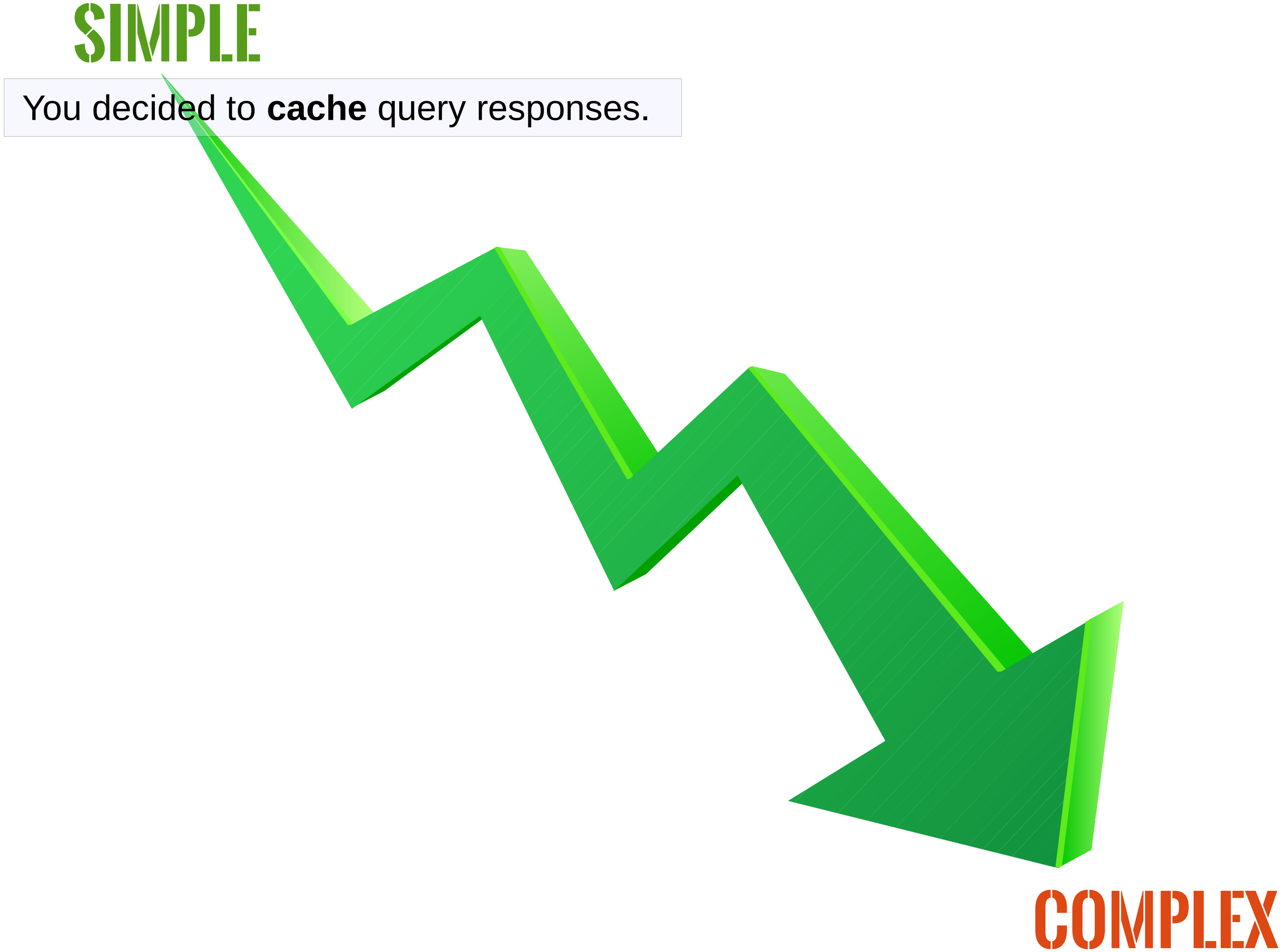
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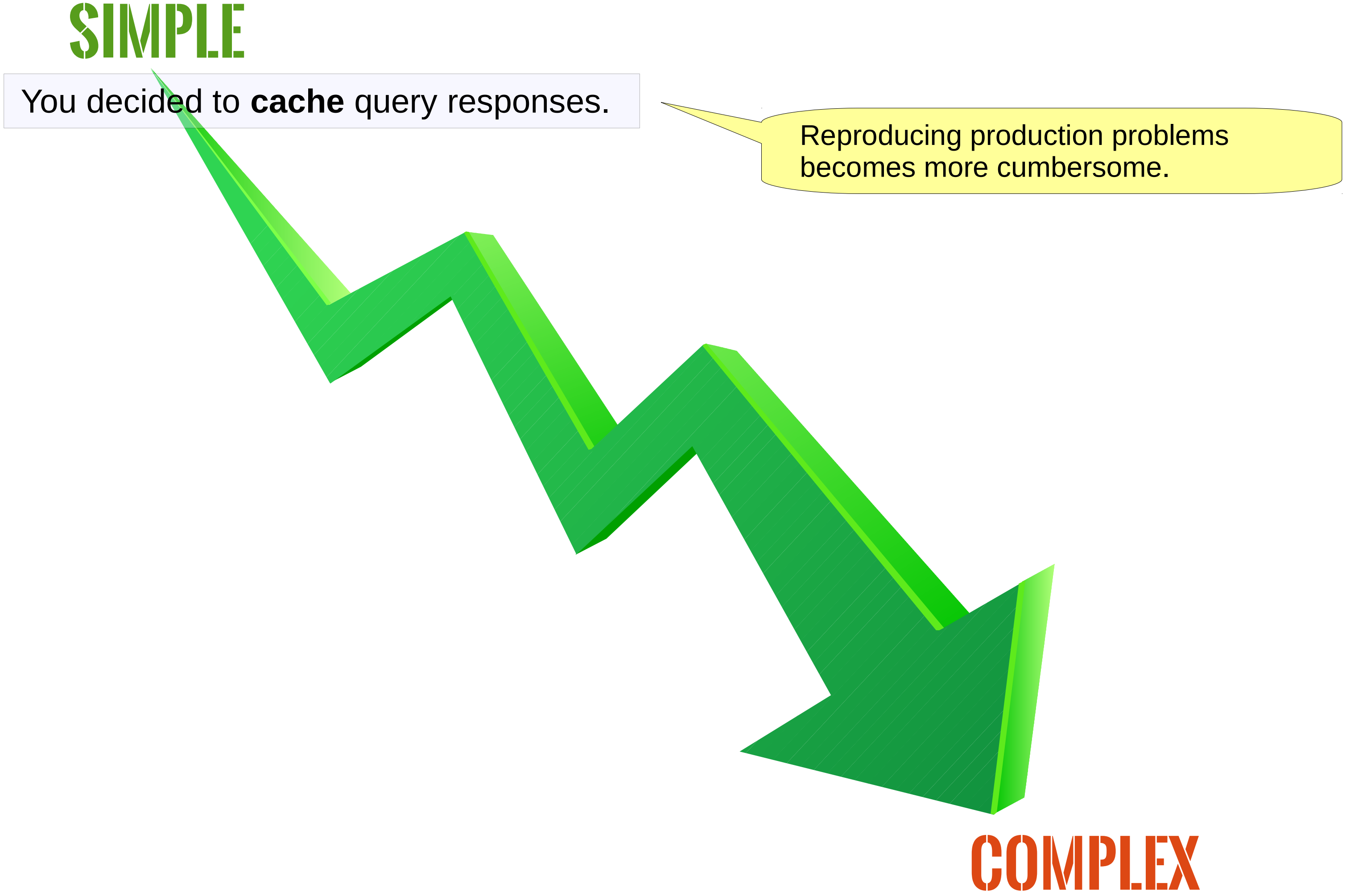

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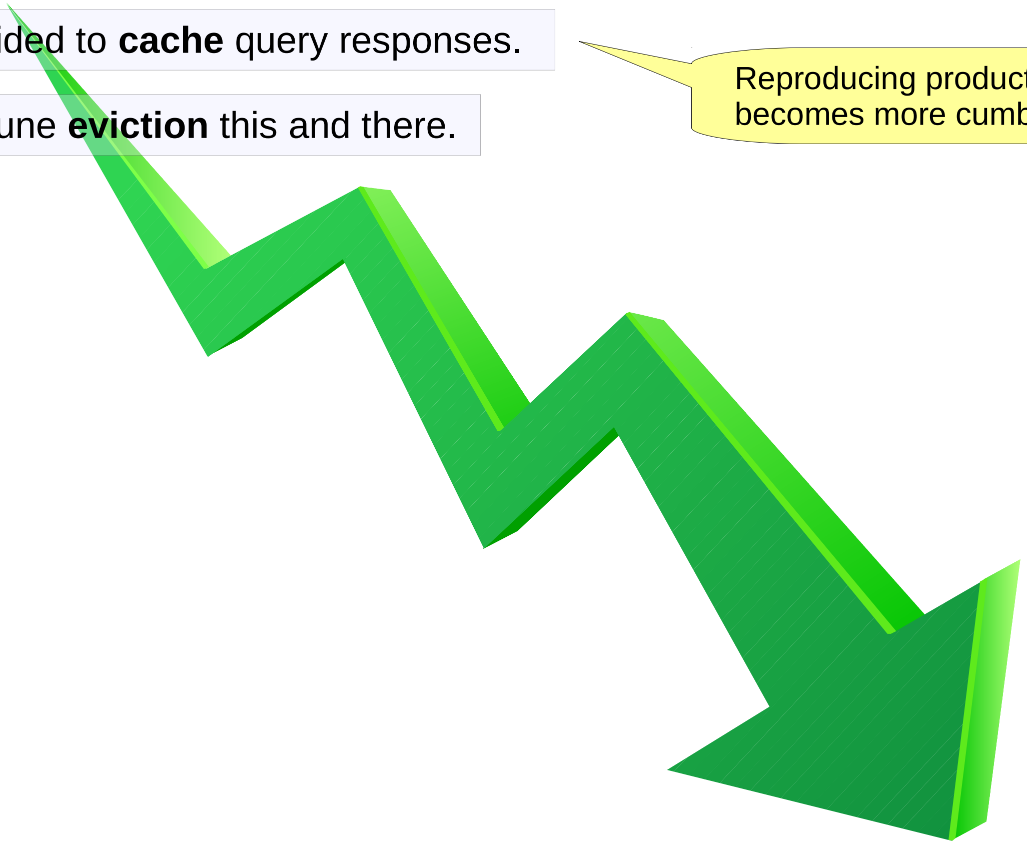

SIMPLE

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COMPLEX

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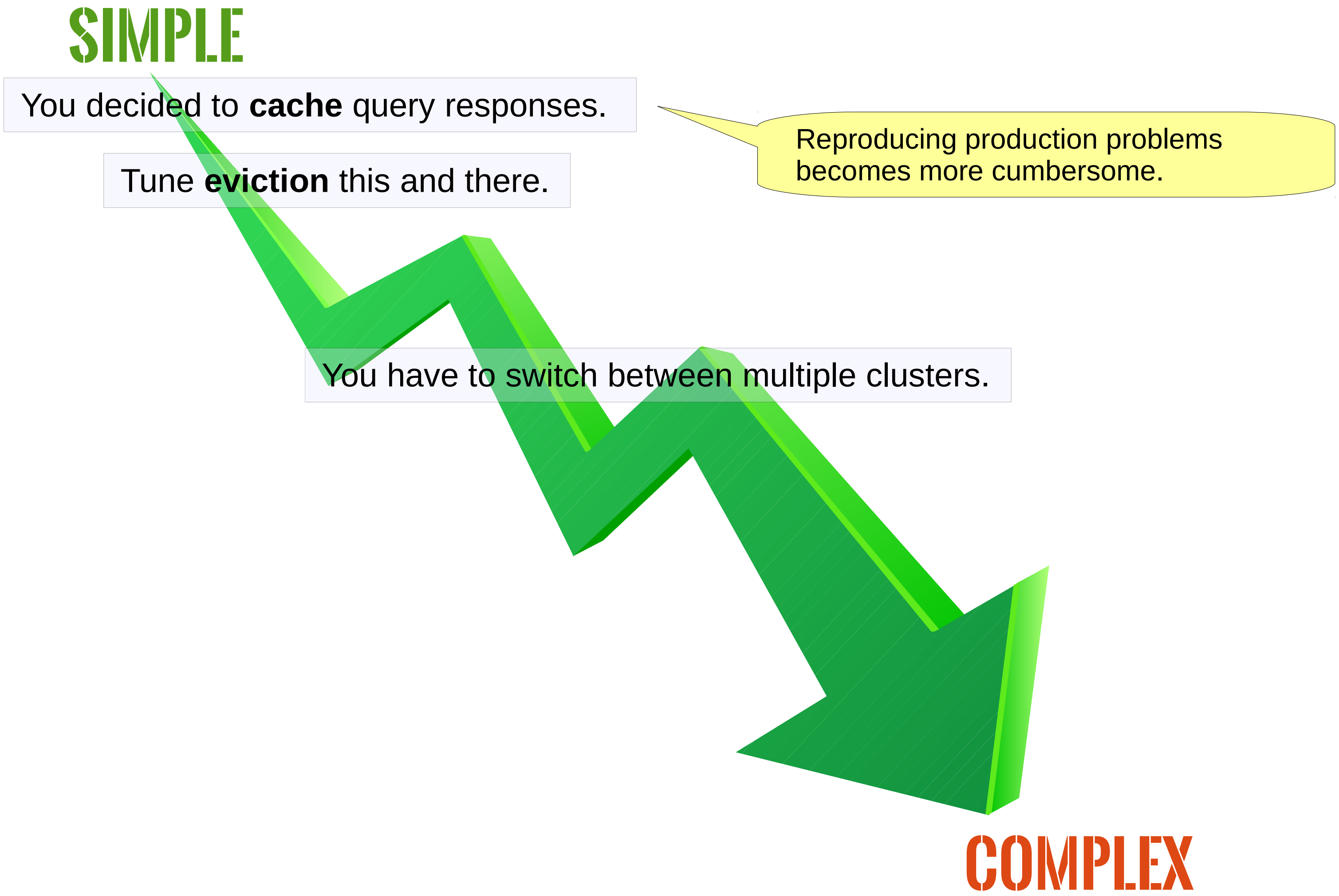

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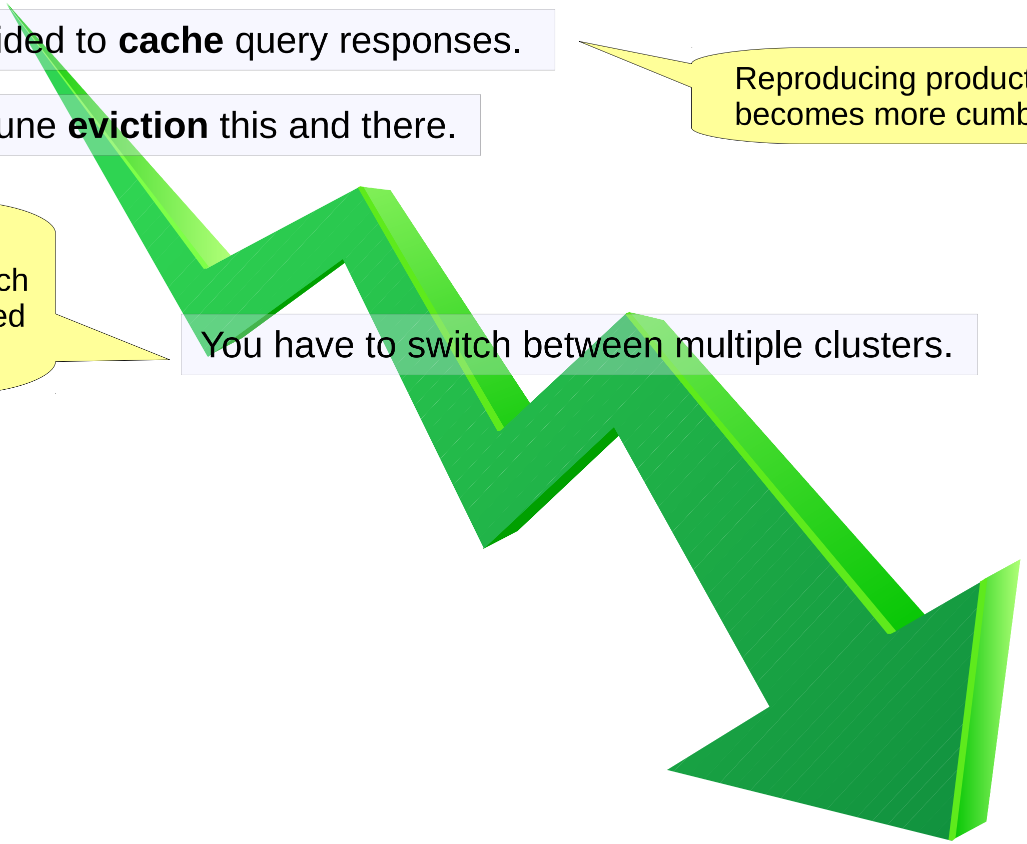

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Management interfaces:
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- which clusters are getting indexed
- in-progress index operations

COMPLEX

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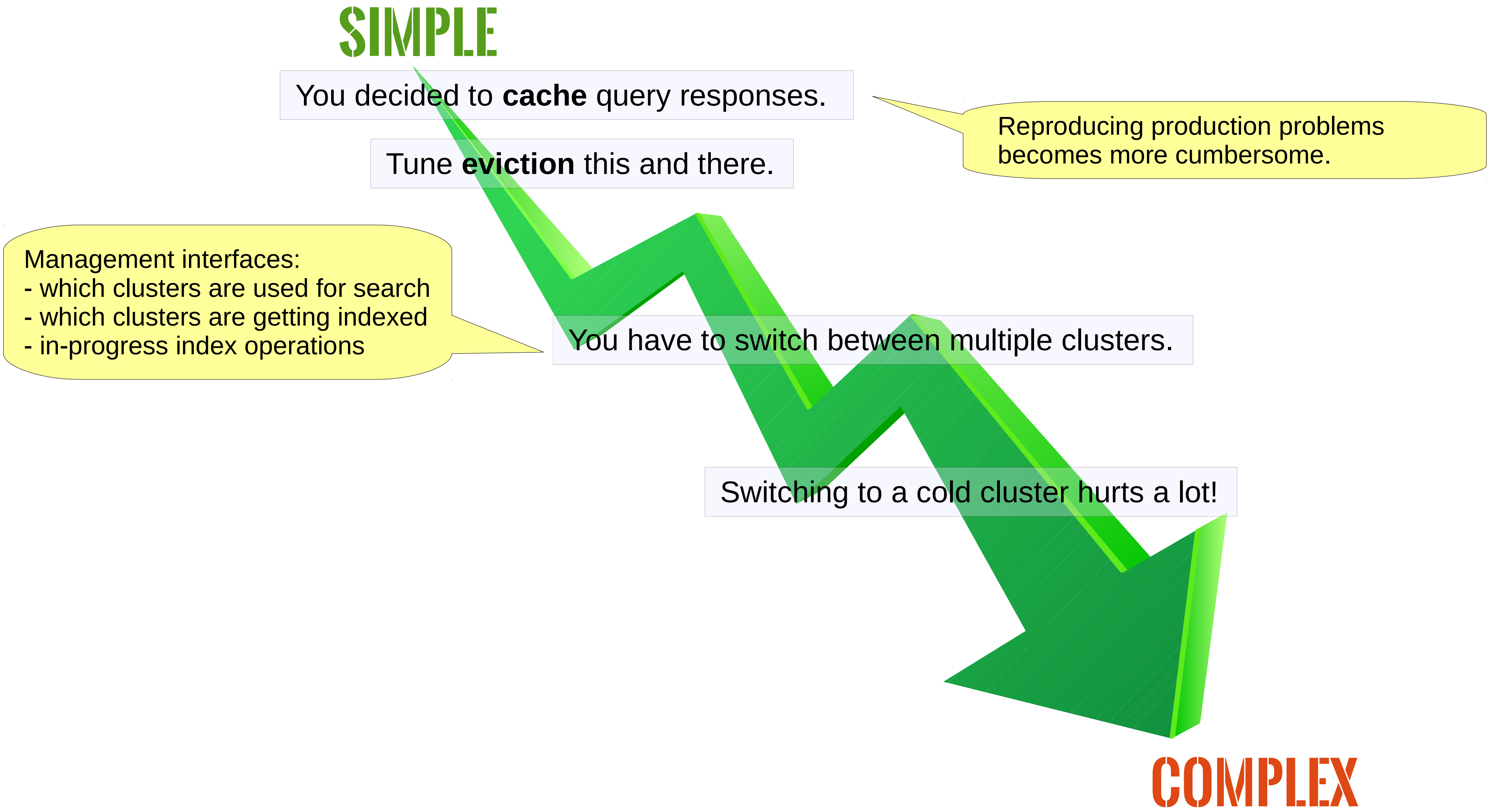

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COMPLEX

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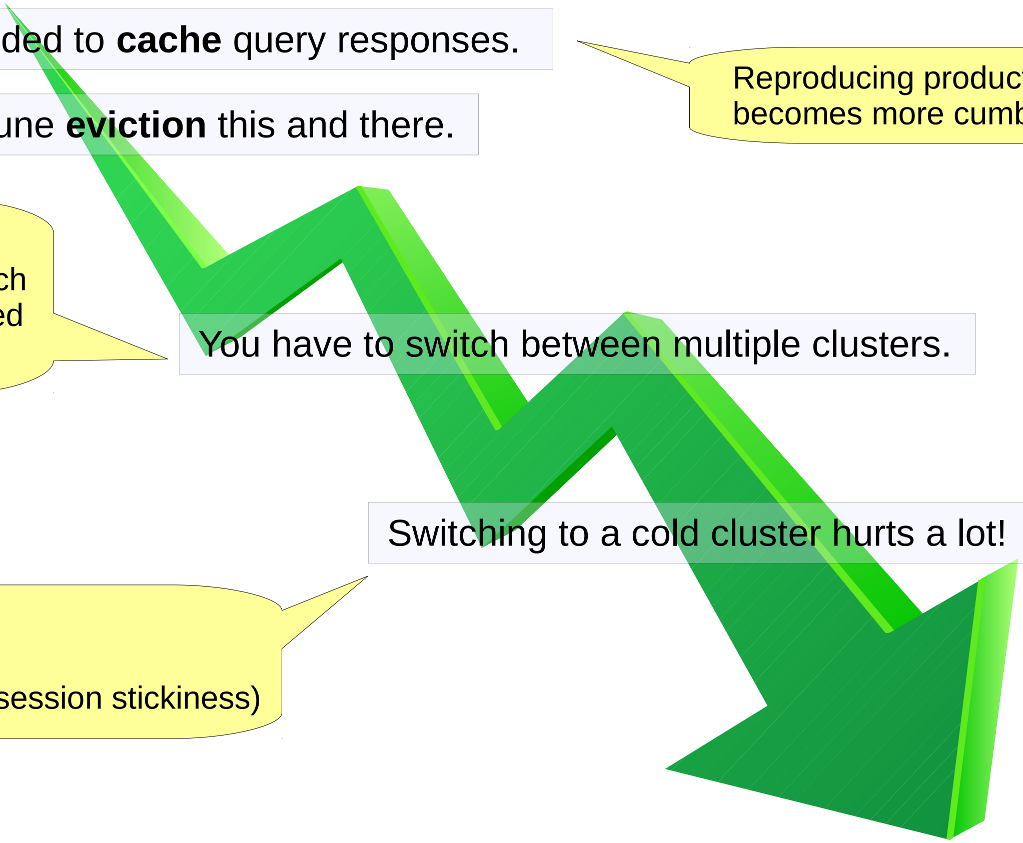

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- replay traffic
- gradually move traffic (session stickiness)

COMPLEX

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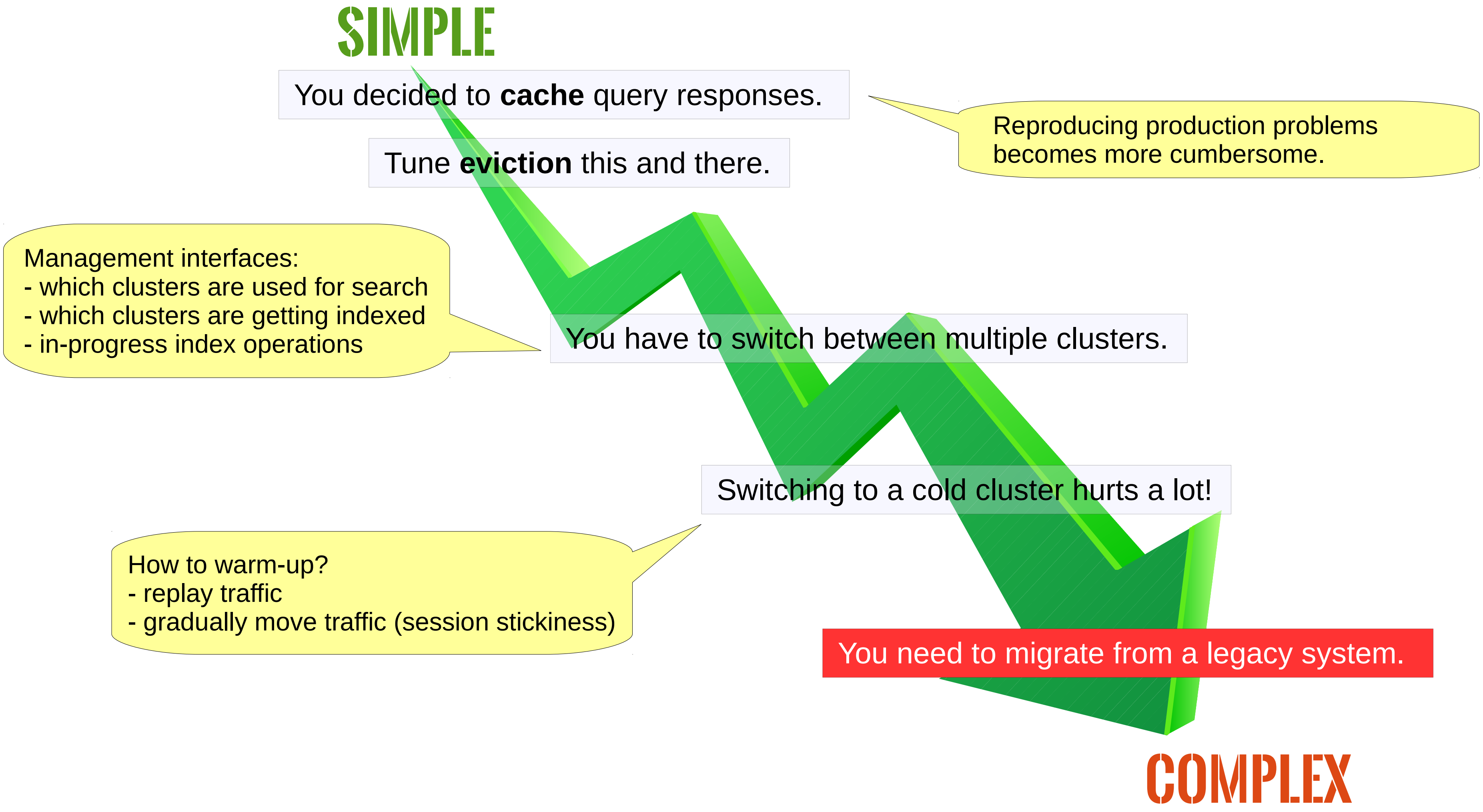

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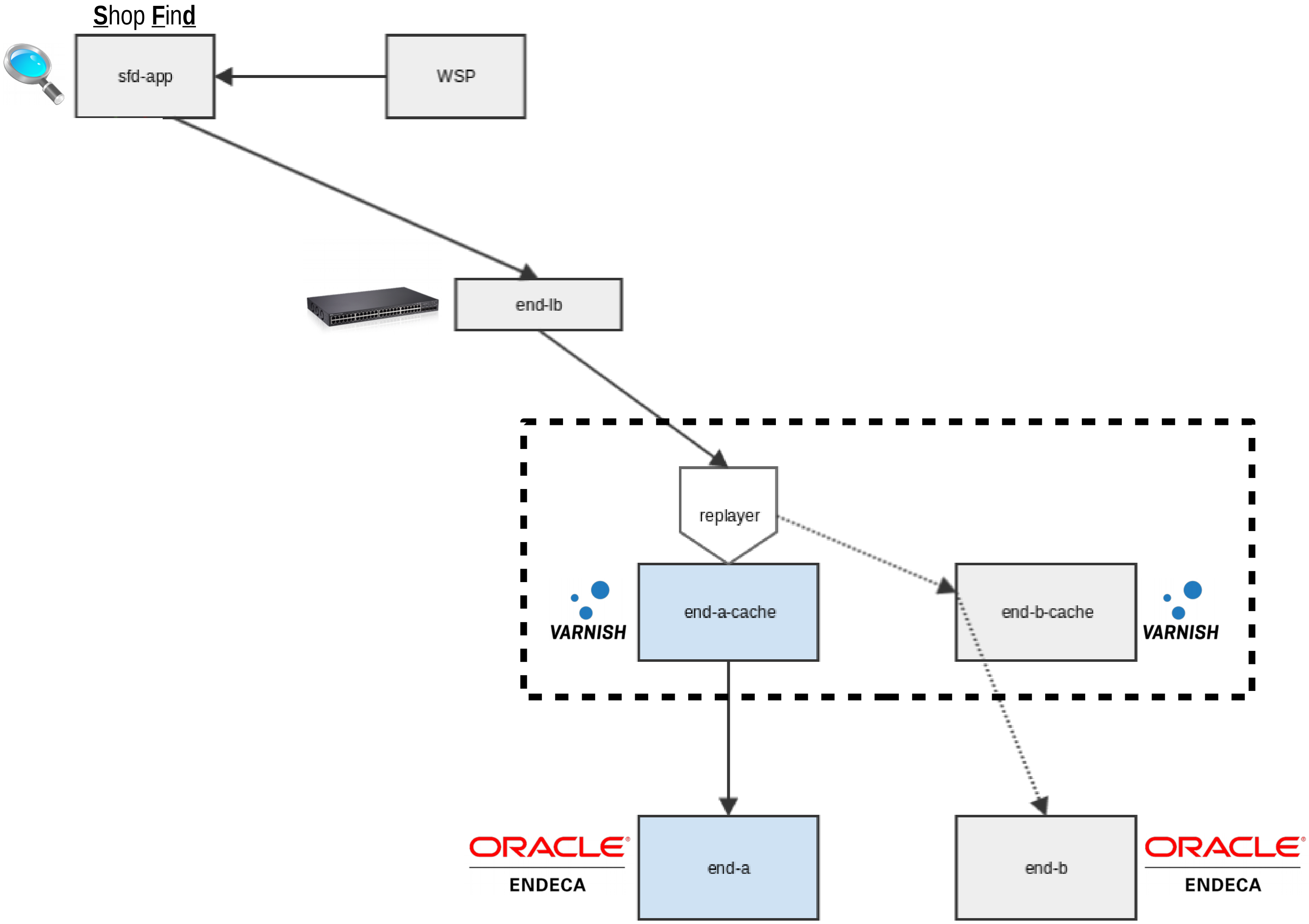
- gradually move traffic (session stickiness)

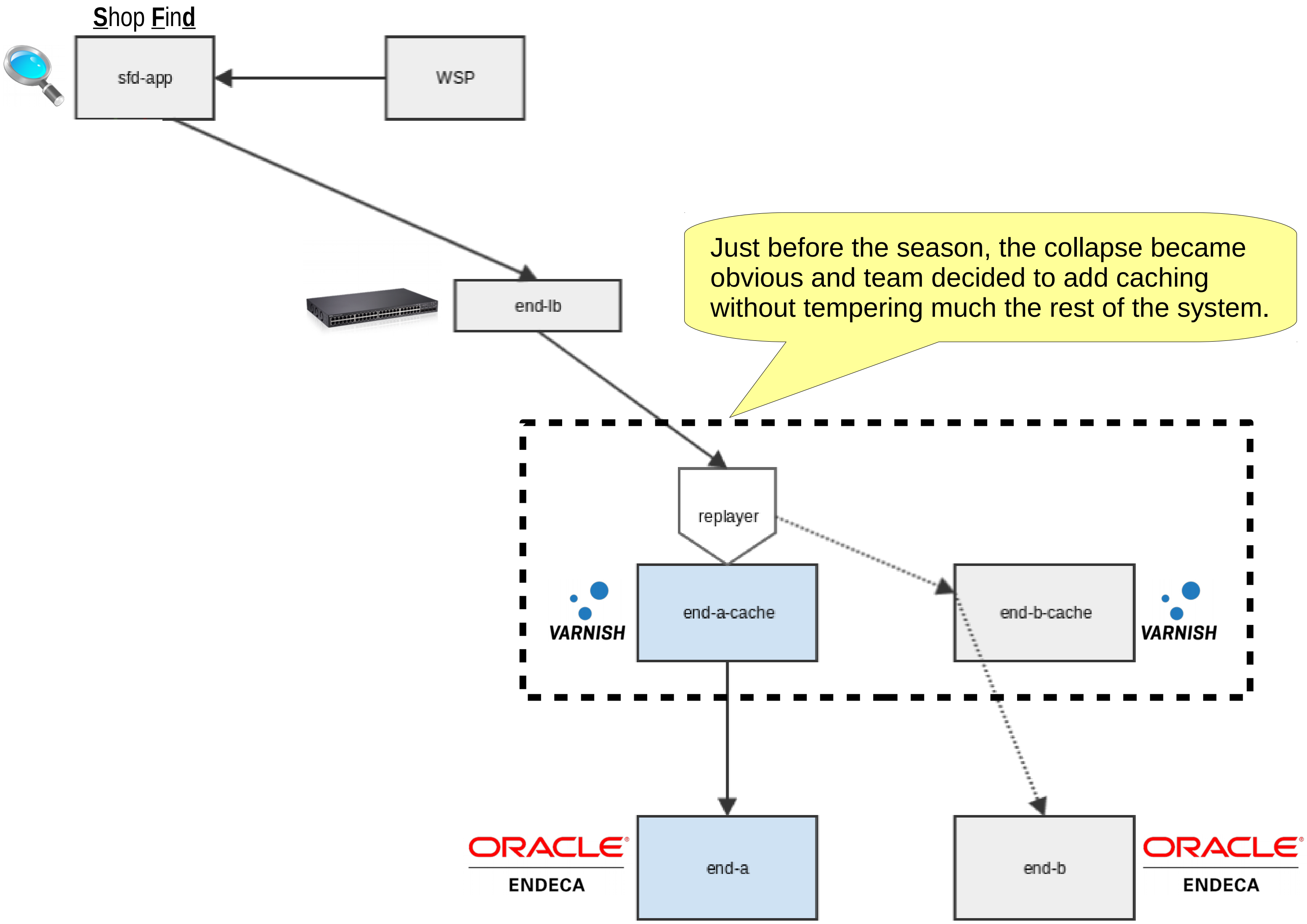
You need to migrate from a legacy system.

COMPLEX

Hail the **Legacy**!

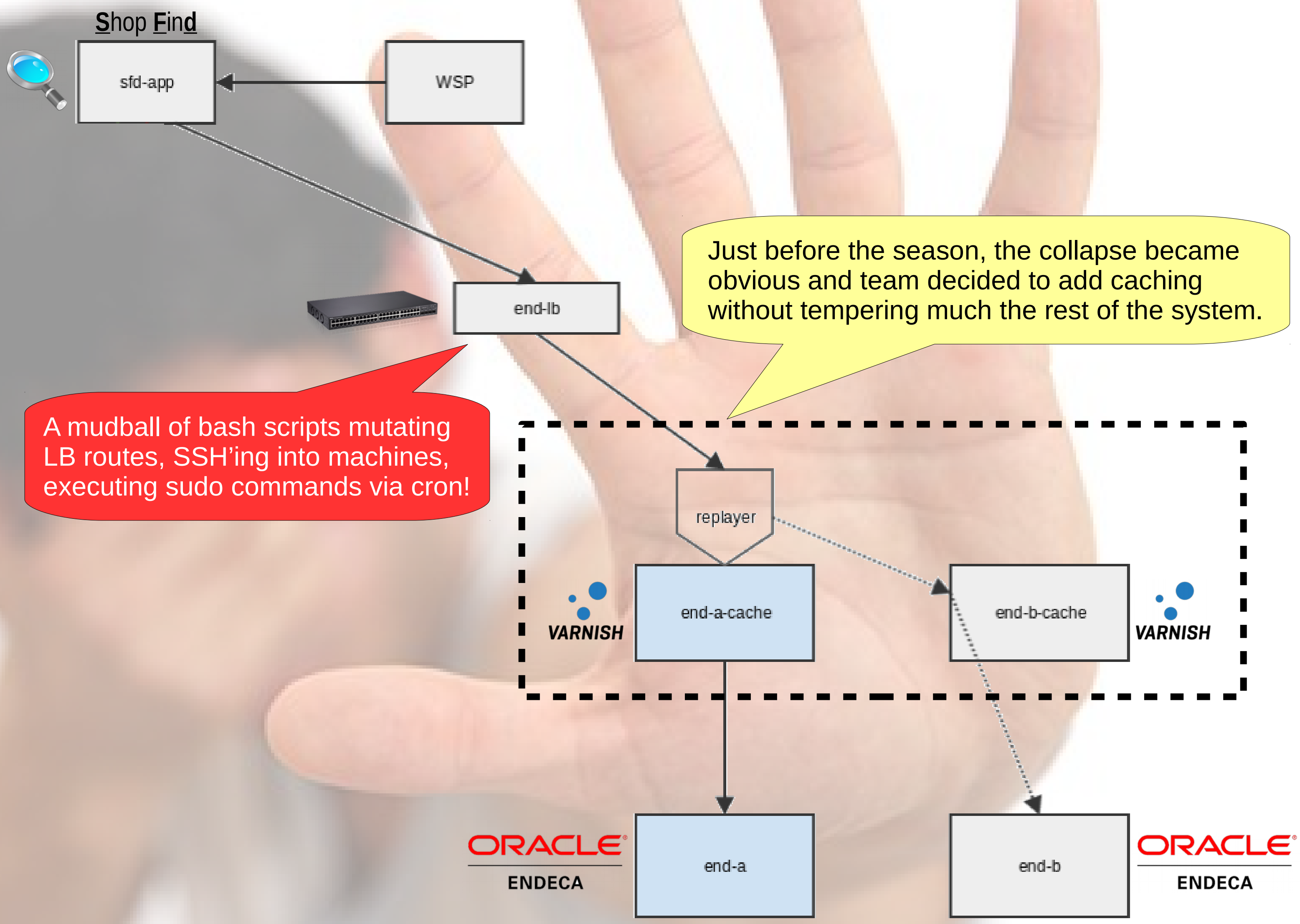

Shop Find
sfd-app
WSP
end-lb
replayer
VARNISH
end-a-cache
end-b-cache
VARNISH
ORACLE
ENDECA
end-a
end-b
ORACLE
ENDECA

Hail the **Legacy**!


Shop Find
sfd-app
WSP
end-lb
replayer
end-a-cache
end-b-cache
VARNISH
VARNISH
end-a
end-b
ORACLE ENDECA
ORACLE ENDECA

Just before the season, the collapse became obvious and team decided to add caching without tempering much the rest of the system.

Hail the **Legacy**!


Shop Find
sfd-app
WSP
end-lb
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VARNISH
end-a-cache
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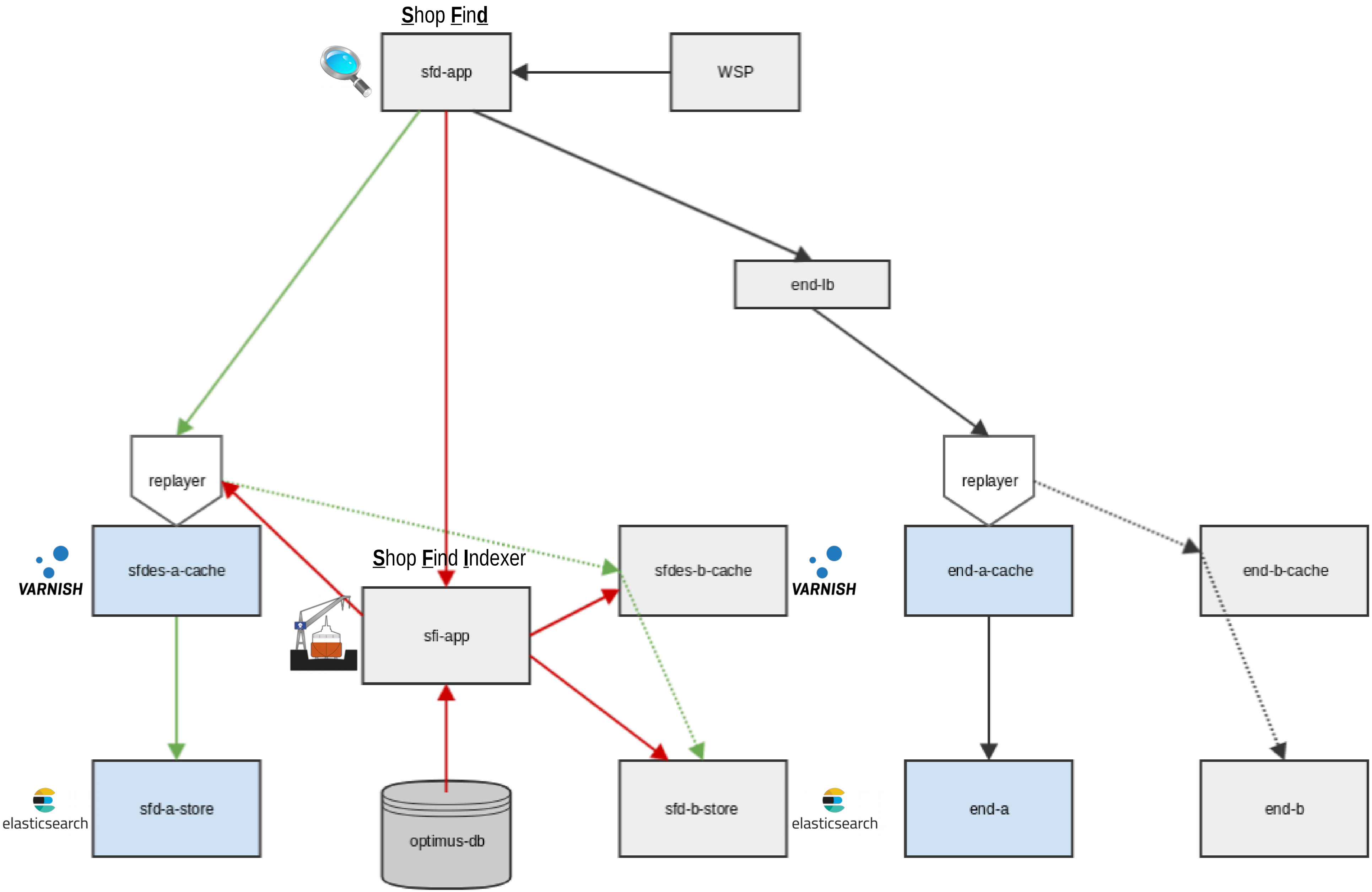
VARNISH
ORACLE ENDECA
end-a
end-b
ORACLE ENDECA

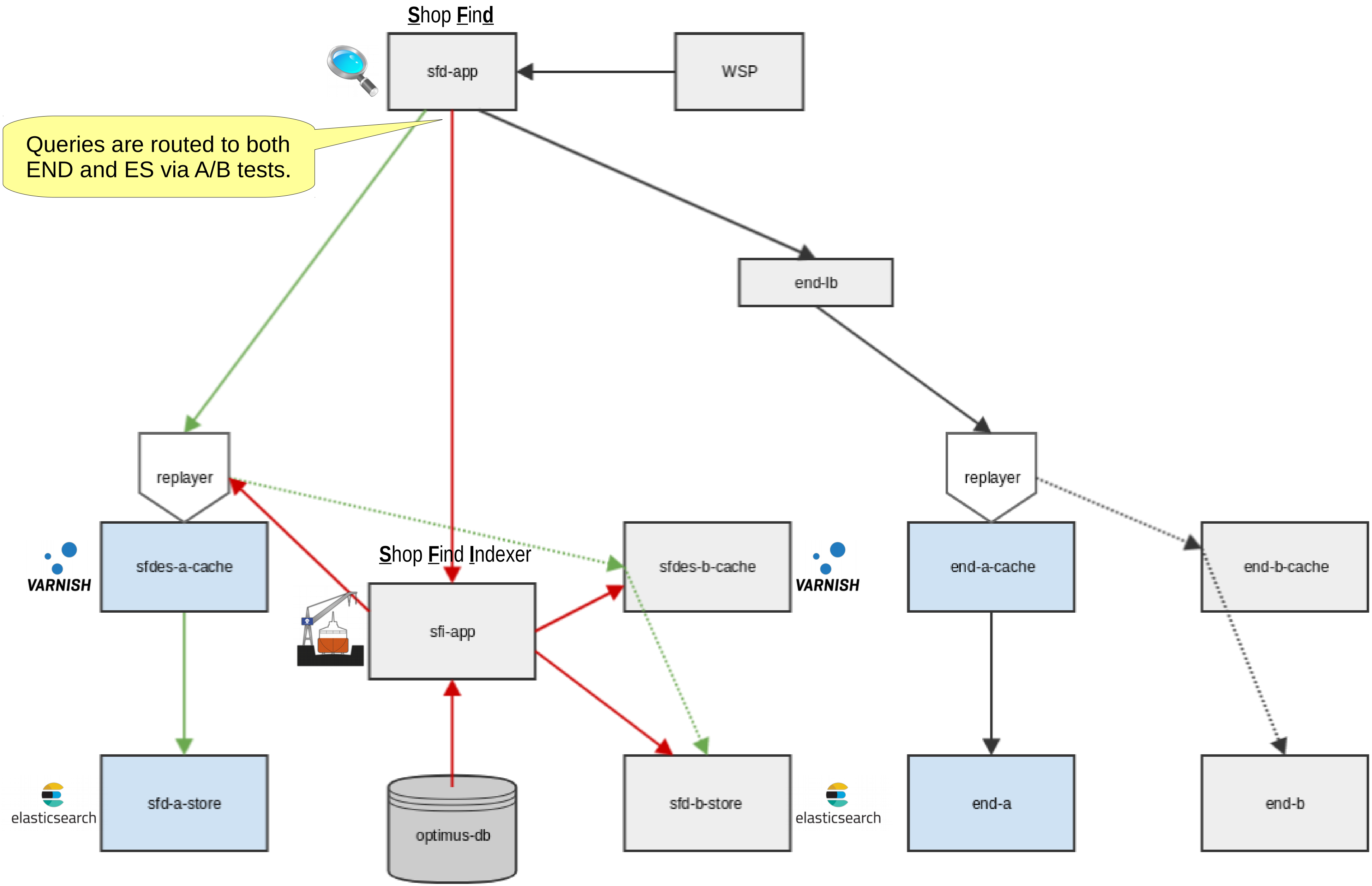
Just before the season, the collapse became obvious and team decided to add caching without tempering much the rest of the system.

A mudball of bash scripts mutating LB routes, SSH'ing into machines, executing sudo commands via cron!

Long live the **king**!


Shop Find
sfd-app
WSP
end-lb
replayer
replayer
VARNISH
sfdes-a-cache
Shop Find Indexer
sfdes-b-cache
VARNISH
end-a-cache
end-b-cache
sfi-app
elasticsearch
sfd-a-store
optimus-db
sfd-b-store
elasticsearch
end-a
end-b

Long live the **king**!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sfd-app
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replayer
VARNISH
sfdes-a-cache
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sfdes-b-cache
VARNISH
end-a-cache
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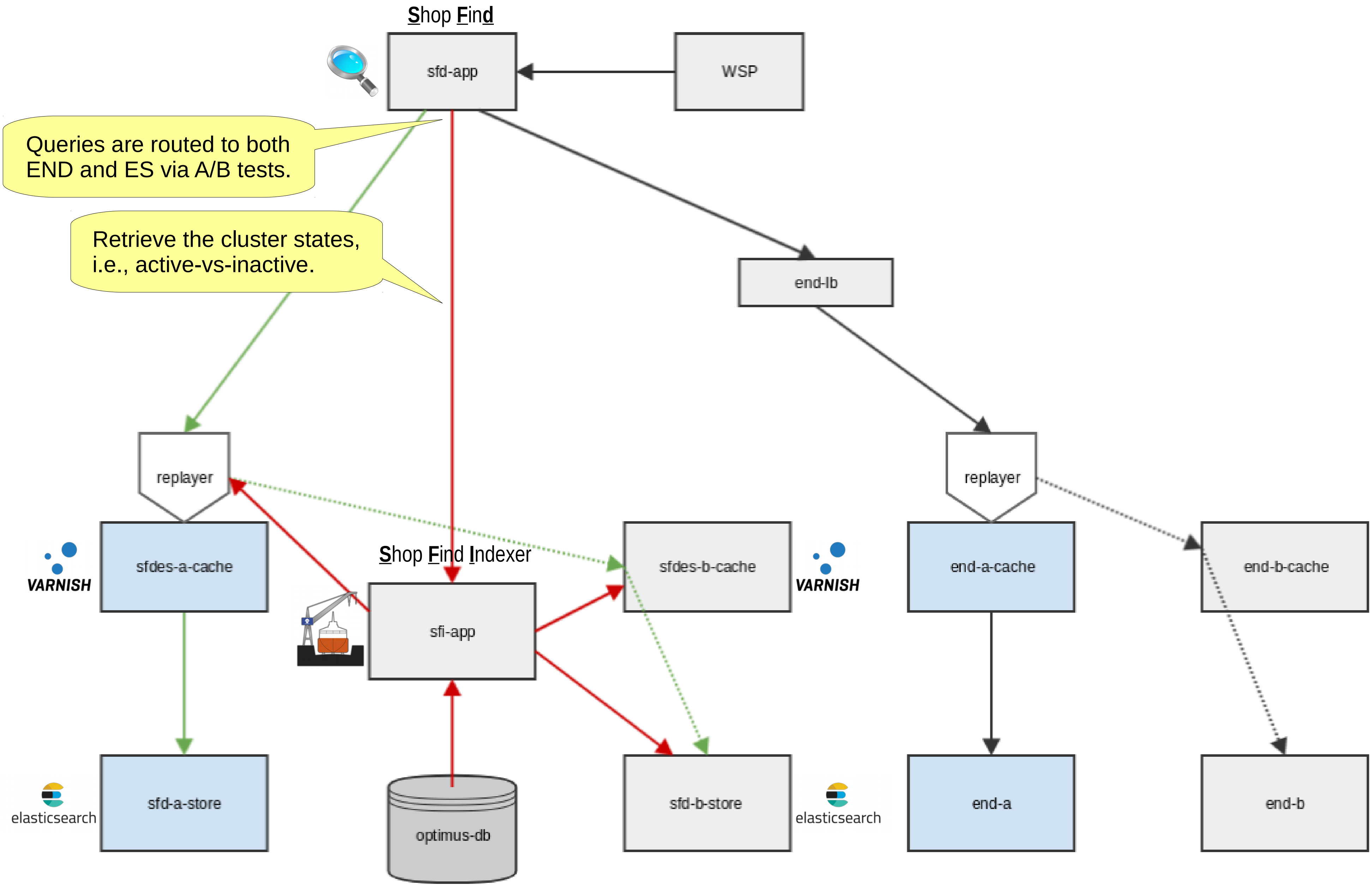
sfi-app
elasticsearch
sfd-a-store
optimus-db
sfd-b-store
elasticsearch
end-a
end-b

Queries are routed to both END and ES via A/B tests.

Long live the **king**!


Shop Find
sfd-app
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VARNISH
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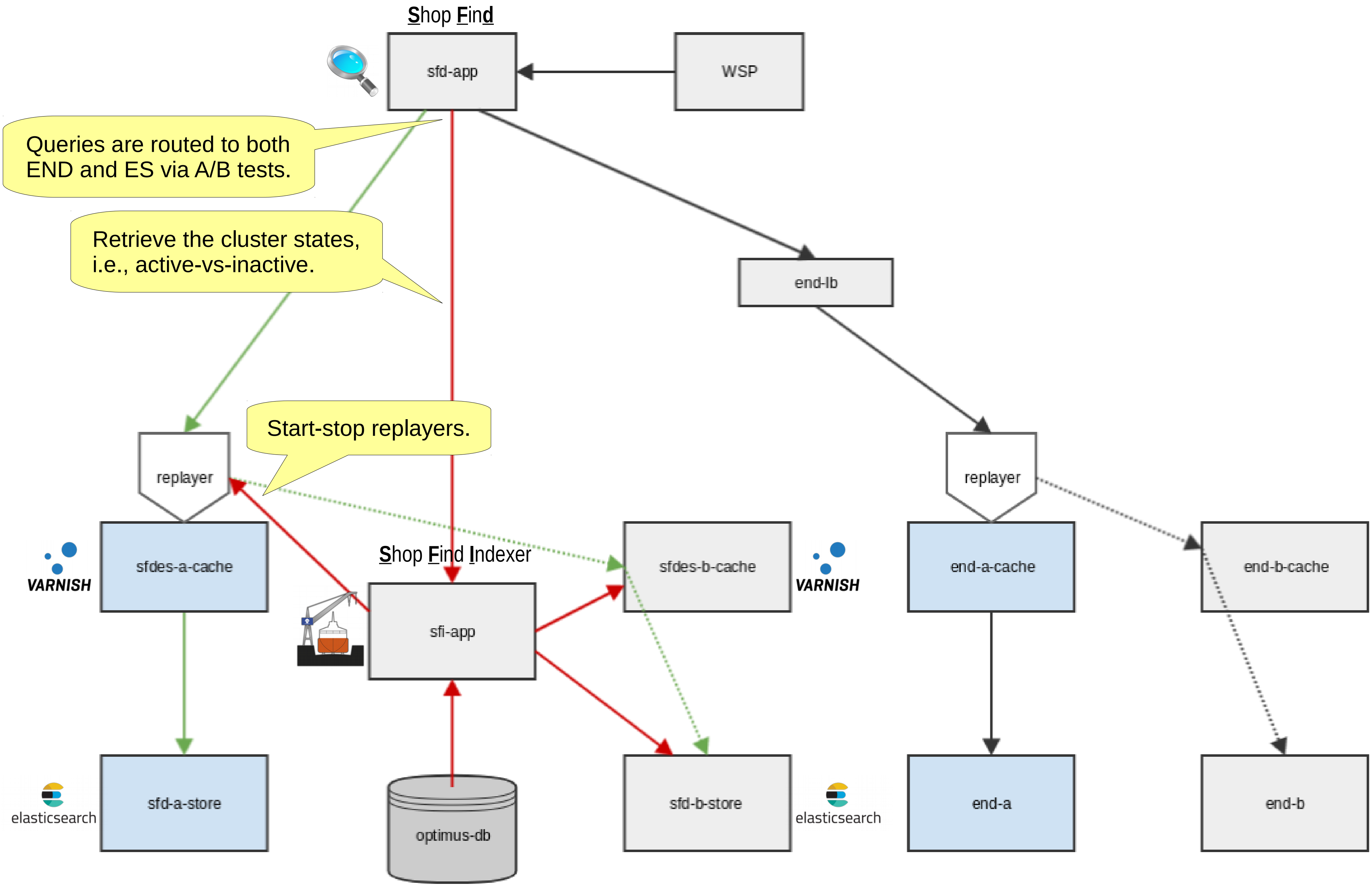
sfdes-b-cache
VARNISH
end-a-cache
end-b-cache
sfi-app
elasticsearch
sfd-a-store
optimus-db
sfd-b-store
elasticsearch
end-a
end-b

Queries are routed to both END and ES via A/B tests.

Retrieve the cluster states, i.e., active-vs-inactive.

Long live the king!


Shop Find
sfd-app
WSP
end-lb
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VARNISH
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Shop Find Indexer
sfdes-b-cache
VARNISH
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elasticsearch
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elasticsearch
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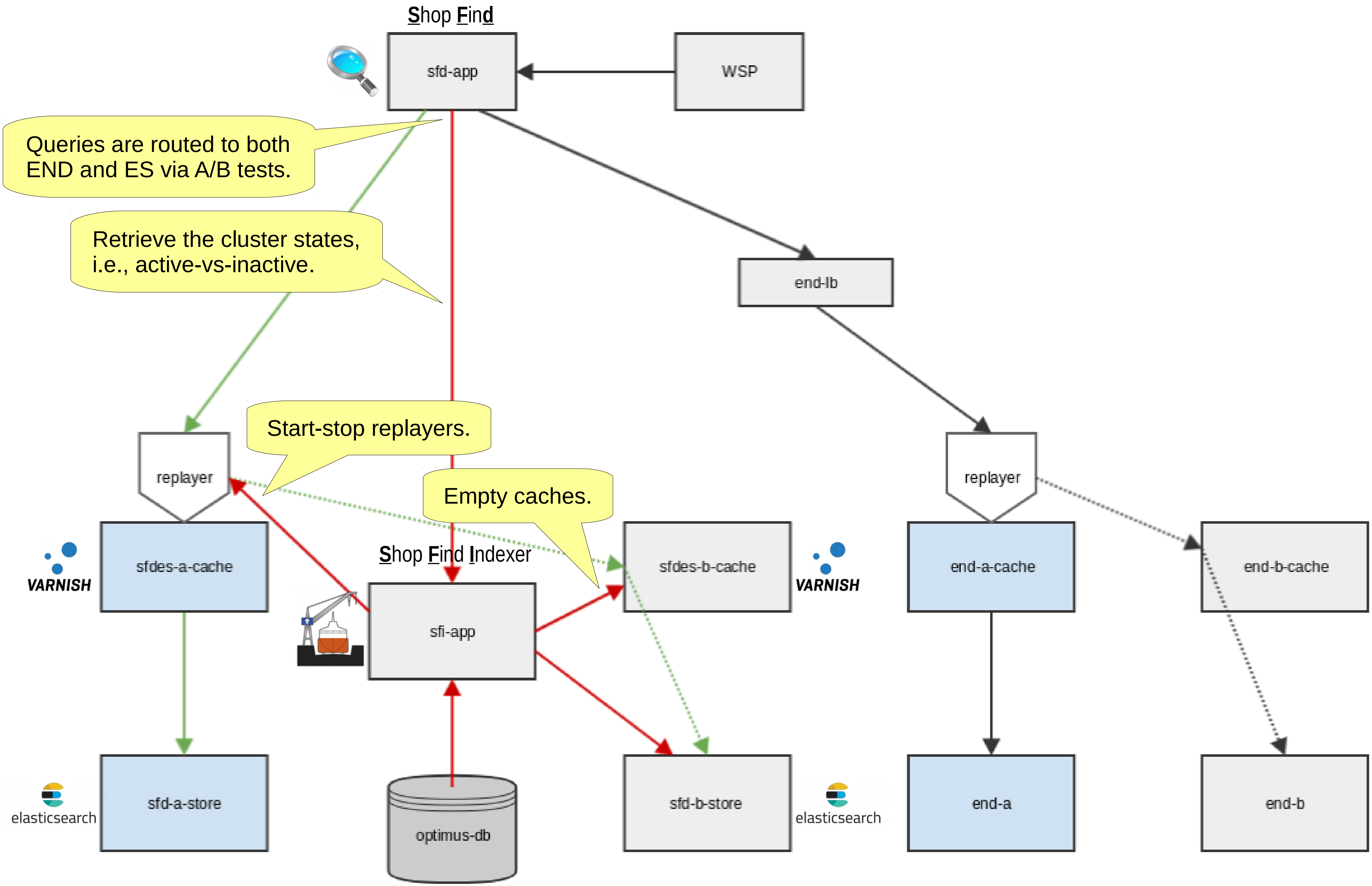
Queries are routed to both END and ES via A/B tests.

Retrieve the cluster states, i.e., active-vs-inactive.

Start-stop replayers.

Long live the king!


Shop Find
sfd-app
WSP
end-lb
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sfdes-a-cache
VARNISH
Shop Find Indexer
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sfdes-b-cache
VARNISH
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end-b-cache
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optimus-db
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elasticsearch
end-a
end-b

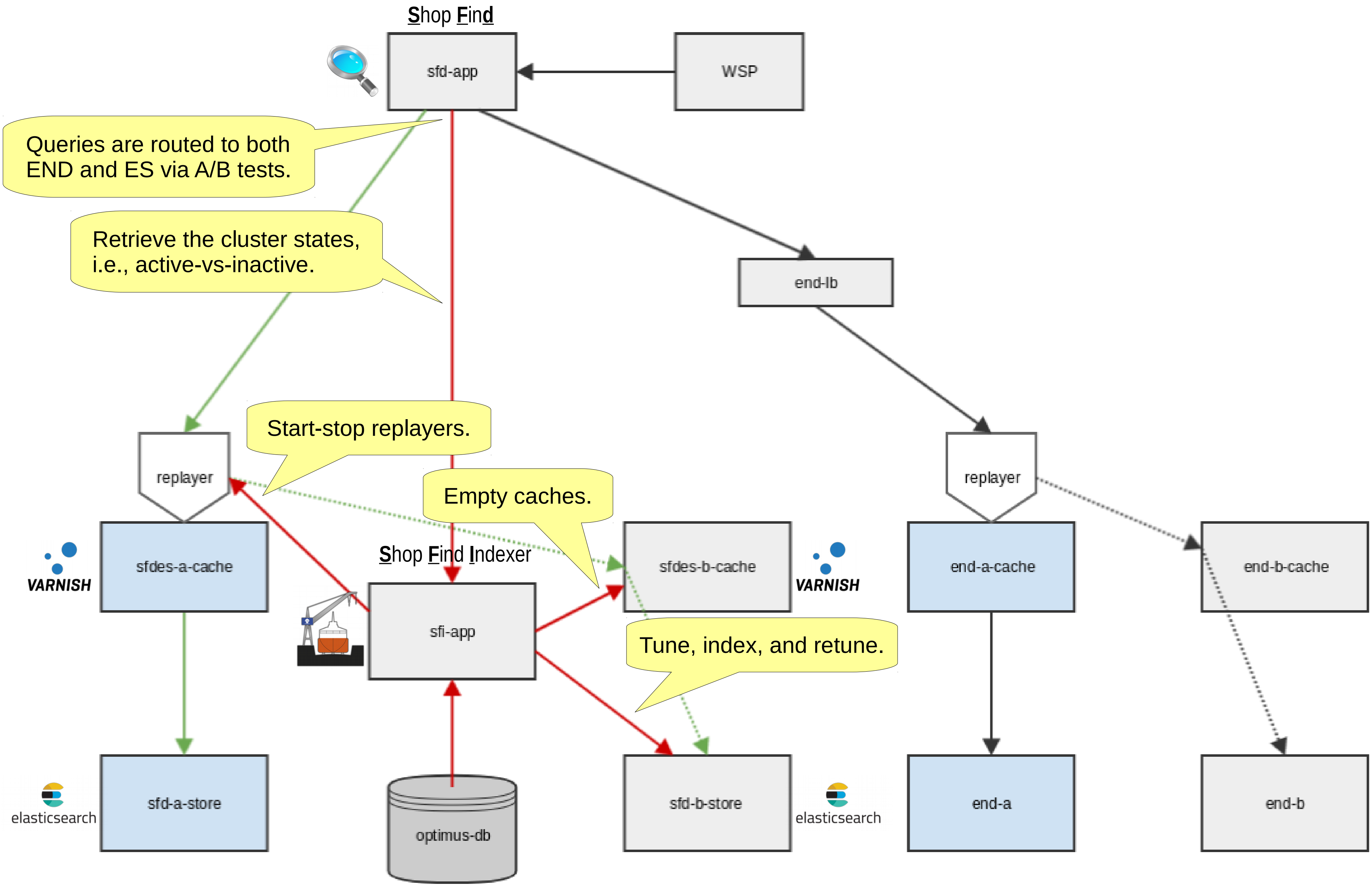
Queries are routed to both END and ES via A/B tests.

Retrieve the cluster states, i.e., active-vs-inactive.

Start-stop replayers.

Empty caches.

Long live the **king**!



Shop Find

sfd-app

WSP

Queries are routed to both END and ES via A/B tests.

Retrieve the cluster states, i.e., active-vs-inactive.

end-lb

Start-stop replayers.

replayer

replayer

Empty caches.

VARNISH

sfdes-a-cache

Shop Find Indexer

sfdes-b-cache

VARNISH

end-a-cache

end-b-cache

sfi-app

Tune, index, and retune.

elasticsearch

sfd-a-store

optimus-db

sfd-b-store

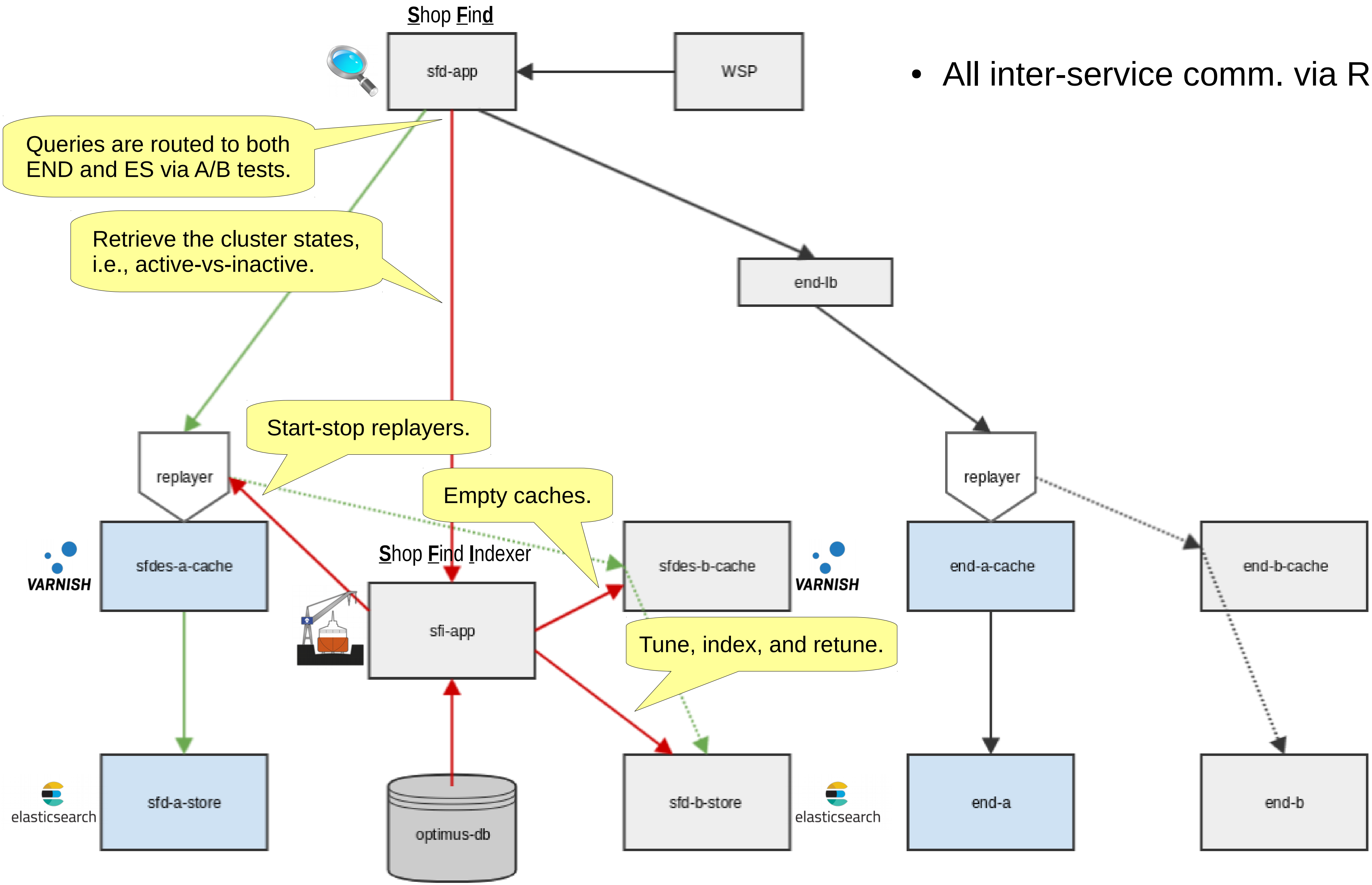
elasticsearch

end-a

end-b

Long live the king!

- All inter-service comm. via REST


Shop Find
sfd-app
WSP
end-lb
replayer
replayer
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VARNISH
Shop Find Indexer
sfi-app
sfdes-b-cache
VARNISH
end-a-cache
end-b-cache
sfd-a-store
elasticsearch
optimus-db
sfd-b-store
elasticsearch
end-a
end-b

Queries are routed to both END and ES via A/B tests.

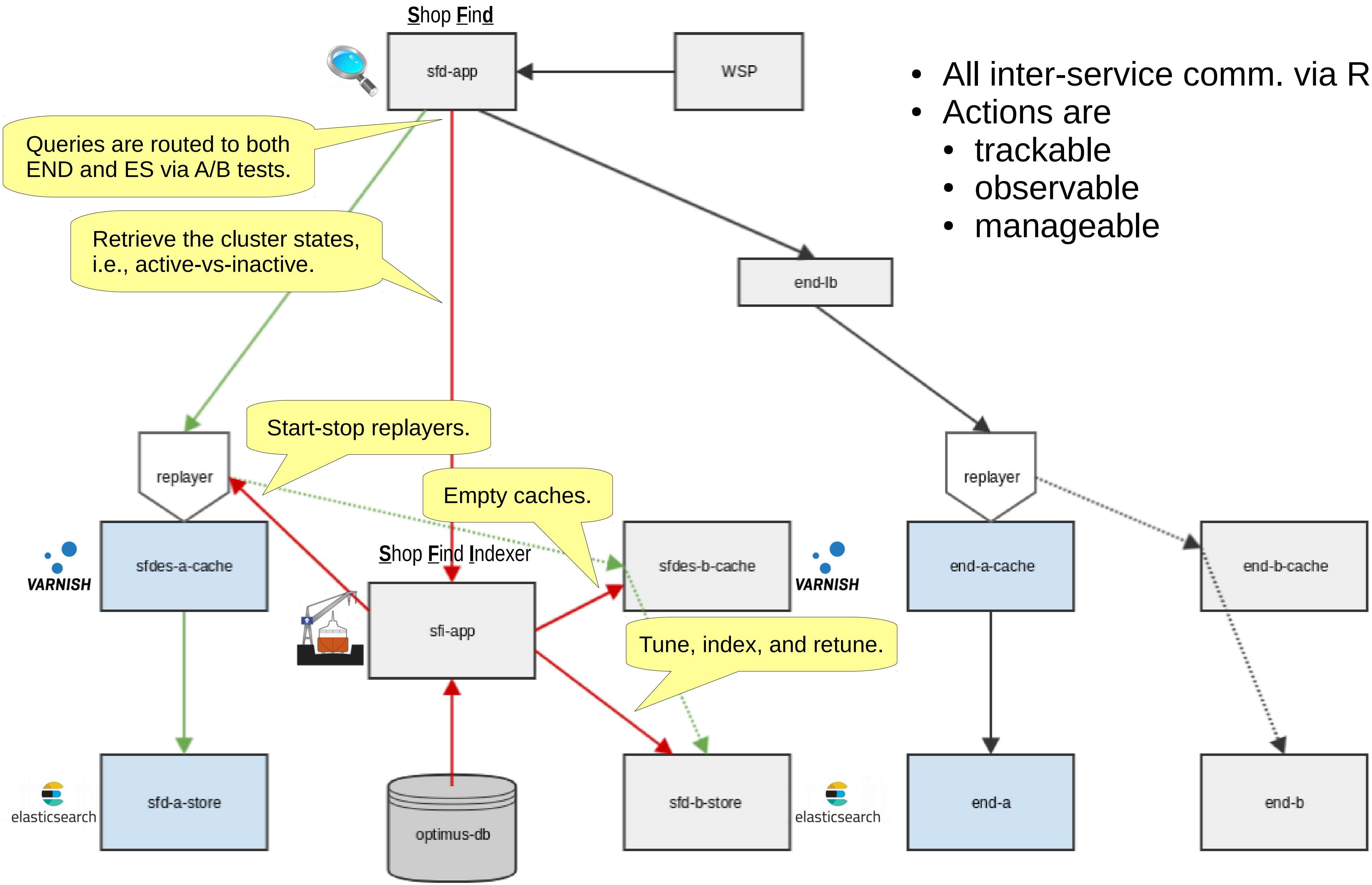
Retrieve the cluster states, i.e., active-vs-inactive.

Start-stop replayers.

Empty caches.

Tune, index, and retune.

Long live the **king**!



Shop Find
sfd-app
WSP
end-lb
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replayer
sfdes-a-cache
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sfi-app
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sfd-a-store
elasticsearch
optimus-db
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elasticsearch
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Queries are routed to both END and ES via A/B tests.

Retrieve the cluster states, i.e., active-vs-inactive.

Start-stop replayers.

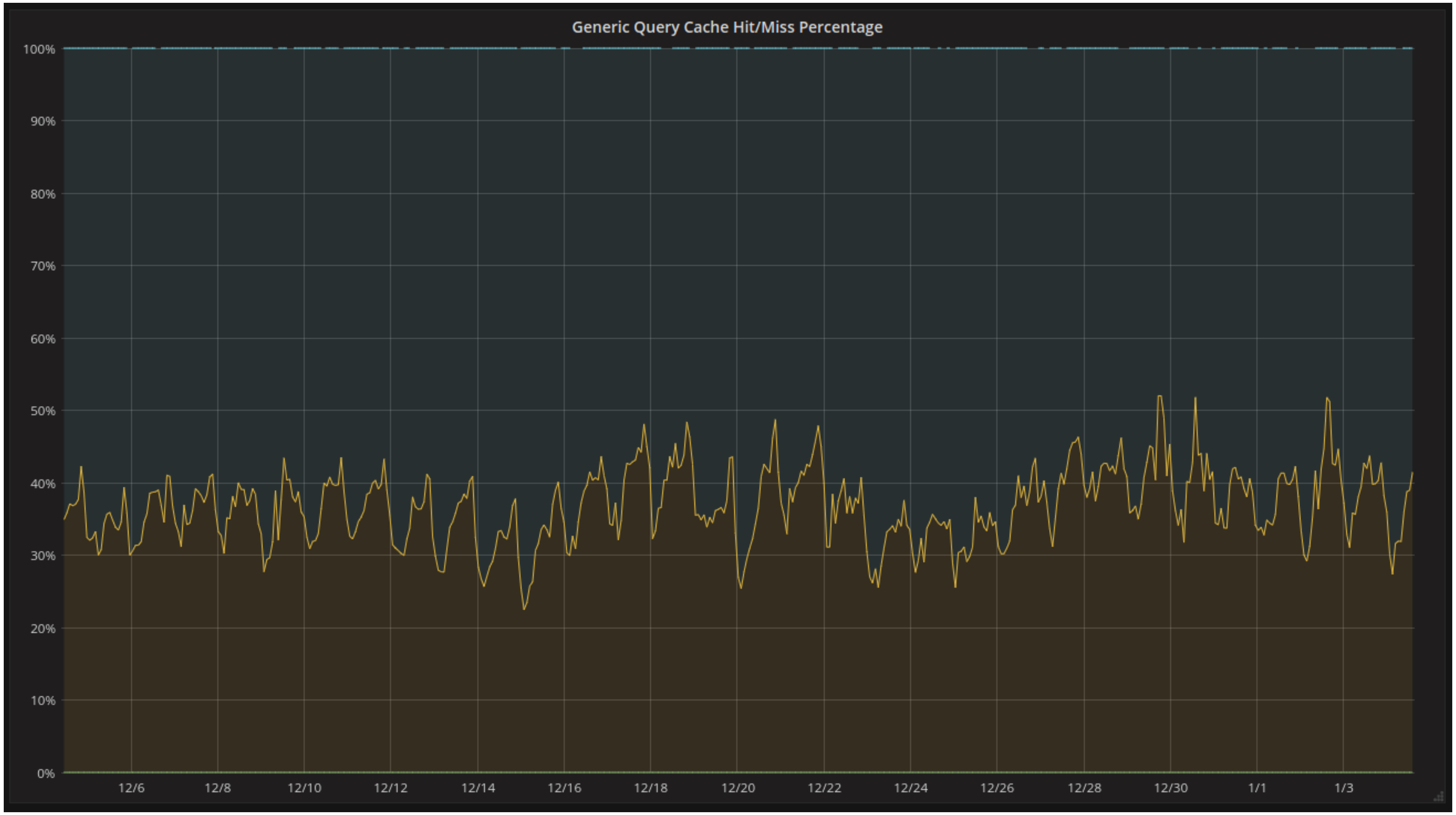
Empty caches.

Tune, index, and retune.

- All inter-service comm. via REST
- Actions are
  - trackable
  - observable
  - manageable

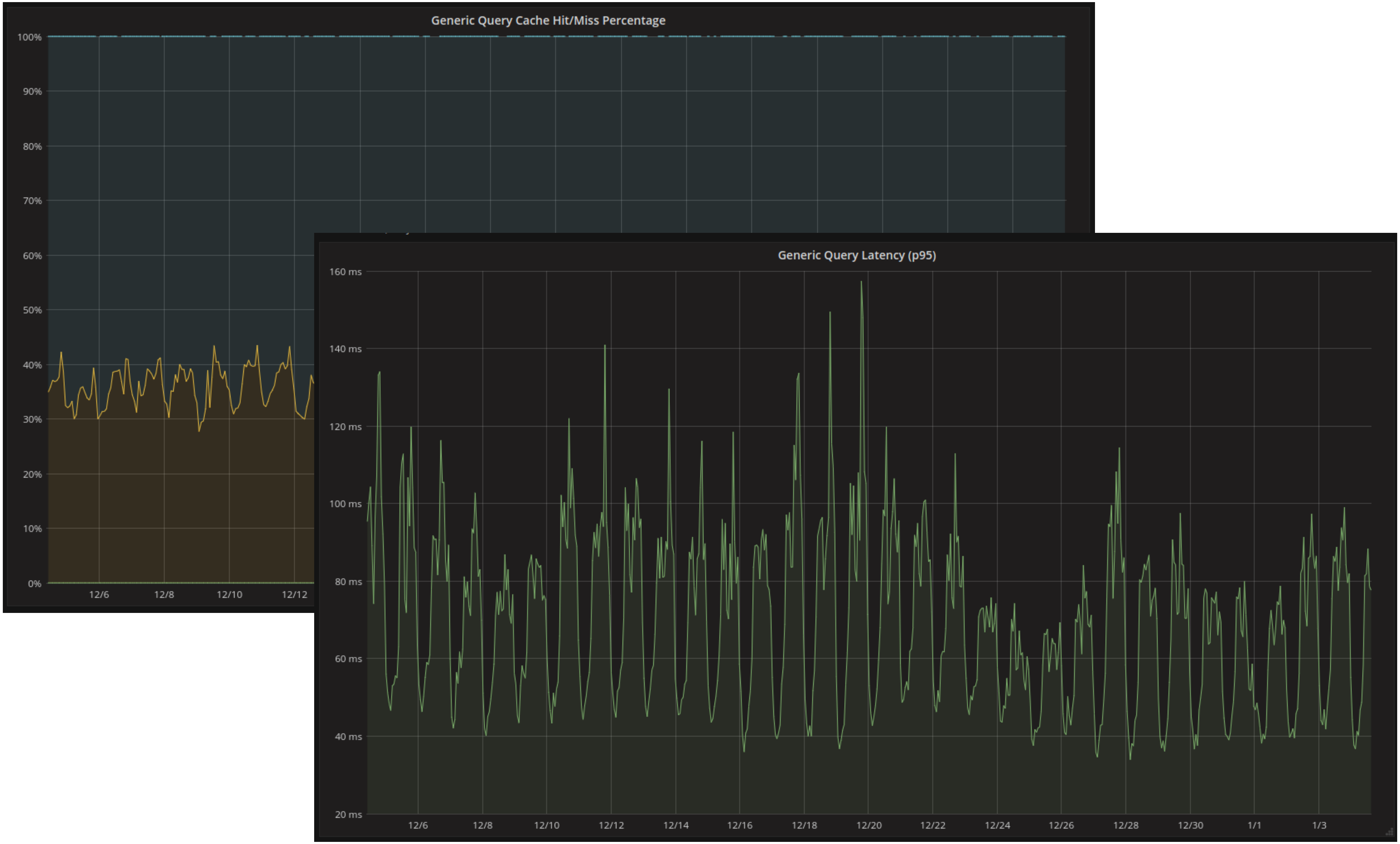
Did it work? (1/2)

(for generic queries)



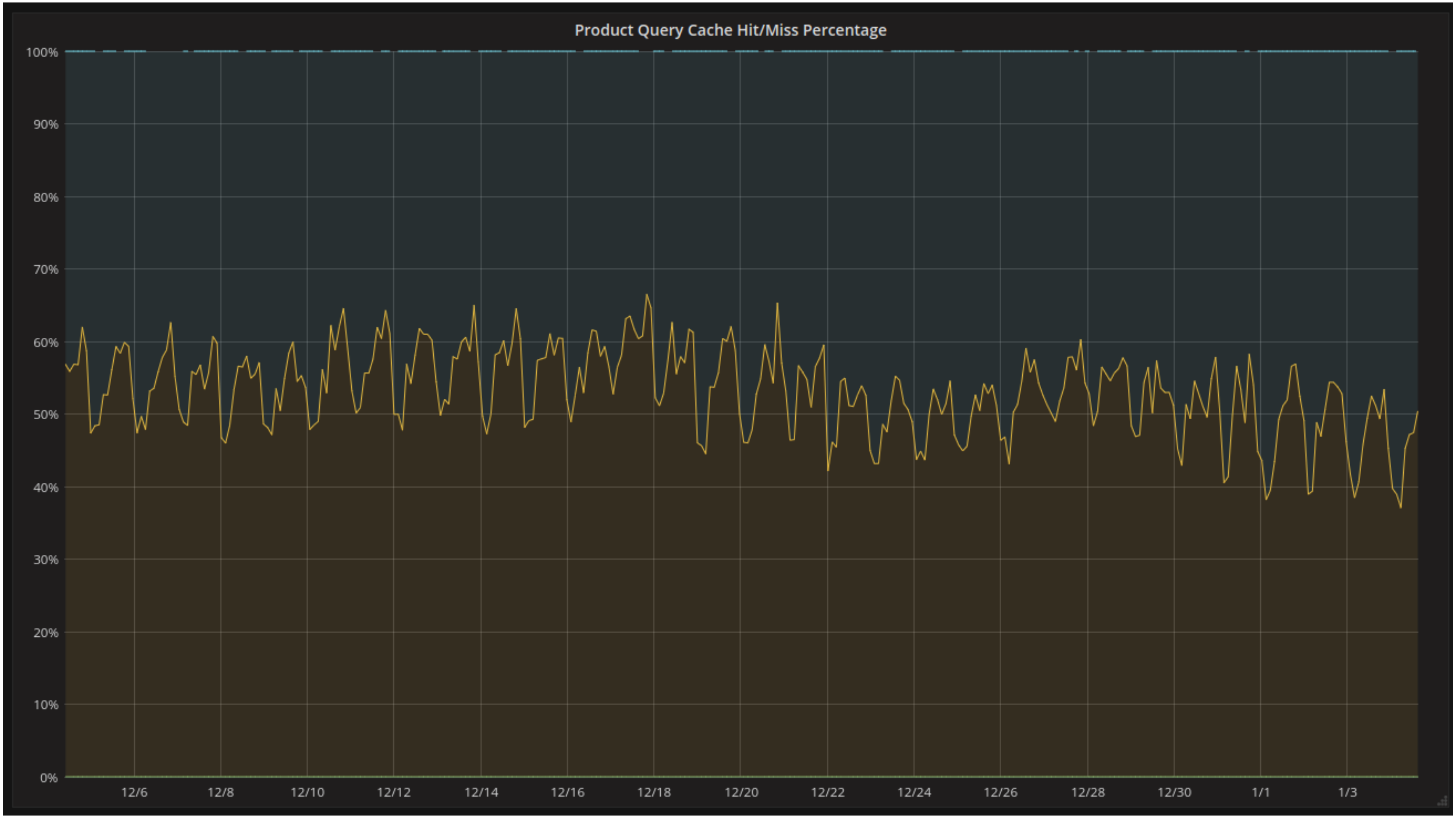
Did it work? (1/2)

(for generic queries)



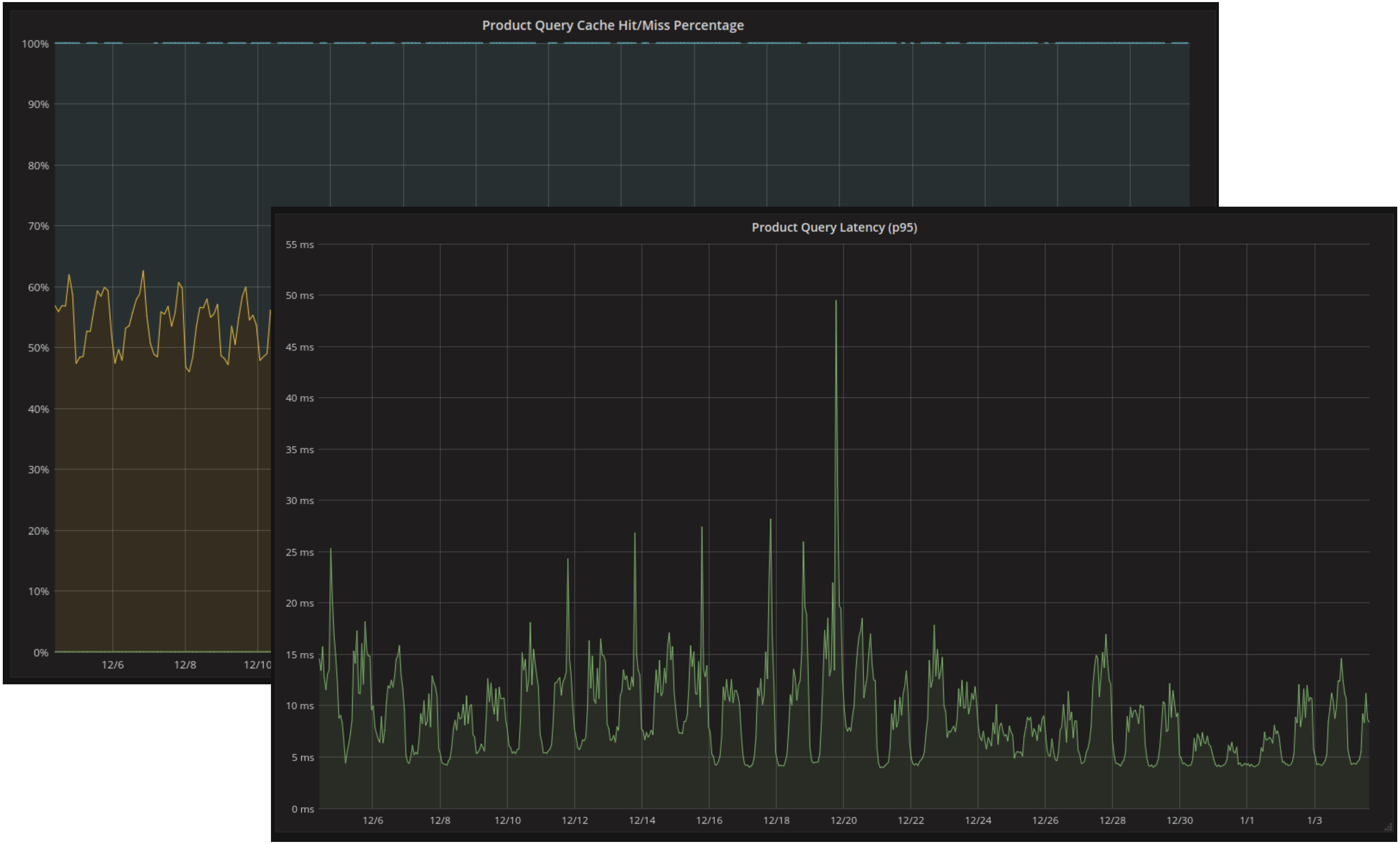
Did it work? (2/2)

(for single product queries)



Did it work? (2/2)

(for single product queries)



Questions?

(Do you still want to have caching?)