ZERO-DOWNTIME DATACENTER FAILOVERS

(SWITCHING HOSTING PROVIDERS FOR YOUR 1.5TB MYSQL DATABASE FOR DUMMIES)

INTRO
(WHO IS THIS GUY)

MIGRATING AN ENTIRE COMPANY'S INFRASTRUCTURE

FROM RACKSPACE TO AWS

60 VIRTUAL MACHINES

3 BAREMETAL BOXES (DB)

THE MIGRATION TOOK 2 MONTHS TO EXECUTE

BUT A YEAR AND A HALF TO PREPARE

FOUND STATE

- everything continuously deployed
- no concept of stable

- hand-crafted build server
- 10 GB git repo

- no local dev environments
- horrible code review tool

- CDN is some weird magical thing
- no access to LB config, has a bunch of magic in it

- no insight into server metrics / perfdata

- still hosting custom PHP code
- even tho majority of codebase is now java and python

- same mysql account used by everyone everywhere

- that mysql account is "root"

- that mysql db is 1.5 TB big

- half the company has to VPN into production to get any work done

- no db schema migration system == no db versioning

- half the servers are not deployable from scratch
- or their deployability is unknown

- no access to disaster recovery instance
  in case the primary DC went down

- but Rackspace was a constant pain to deal with
- unexpected outages of unexplained causes
- unresponsive support team
- zero flexibility

HOW LONG WOULD IT TAKE TO MIGRATE THIS?

> CONSERVATIVELY: 3 MONTHS

> REALISTICALLY: 6-9 MONTHS

NO LEADERSHIP BUY-IN

> 2 FAILED ATTEMPTS TO GET BUY-IN

> INFRASTRUCTURE TEAM MAKES A PACT

> DO THINGS THE RIGHT WAY FROM NOW ON

A YEAR AND A HALF LATER...

MAJORITY OF THE ISSUES WERE FIXED

OR AT LEAST SIGNIFICANTLY IMPROVED

RACKSPACE STARTS FALLING APART

> **NEW ESTIMATE: 19 MAN-DAYS**

(AFTER FINAL PUSH FOR PREPARATION)

SAVINGS ESTIMATE

12$k / mo

GOT APPROVAL!

> ACTUALLY EXECUTED IN 25-30 MAN-DAYS

OVER 2 MONTHS

HOW?

> ALL LB LOGIC SLOWLY MOVED TO OUR OWN HAPROXIES

> CDN MAGIC MOVED TO OUR HAPROXIES

- VPN BRIDGE BETWEEN DCS
- ~20 MB/S, ~20MS PING

GOOD ENOUGH TO TREAT AS A "LOCAL" CONNECTION
FOR SHORTER PERIODS OF TIME

> MYSQL MASTER-MASTER REPLICATION BETWEEN DCS

> **APP SERVERS IN BOTH DCS**

> HAPROXIES IN TO BOTH DCS

> FAILOVER WITH DNS AT CLOUDFLARE NEAR-INSTANTLY

BUT EVEN STRAY REQUESTS WOULD GET HANDLED

> METRICS, METRICS, METRICS

DATADOG FTW

RESULTS

> **CORE PRODUCTION MIGRATED IN DAYS**
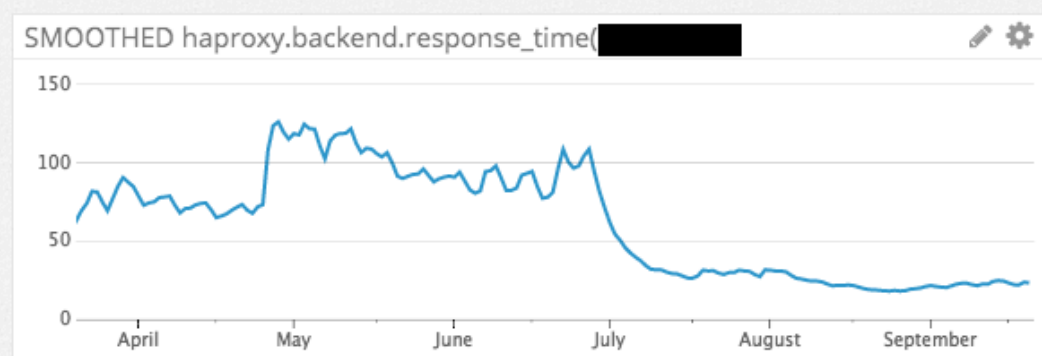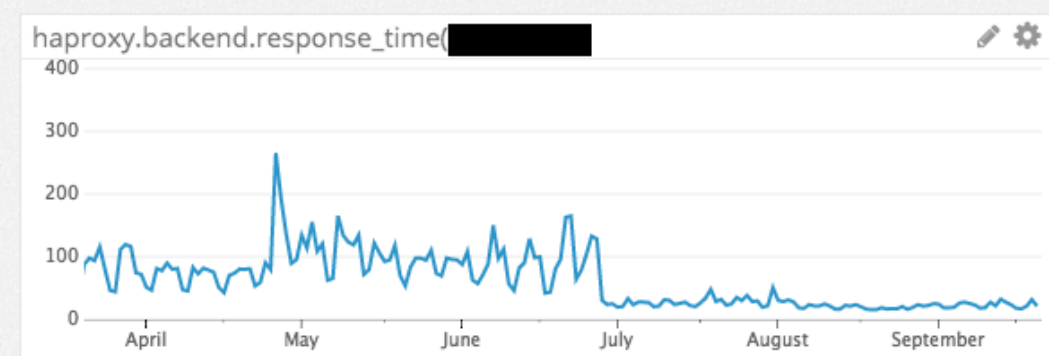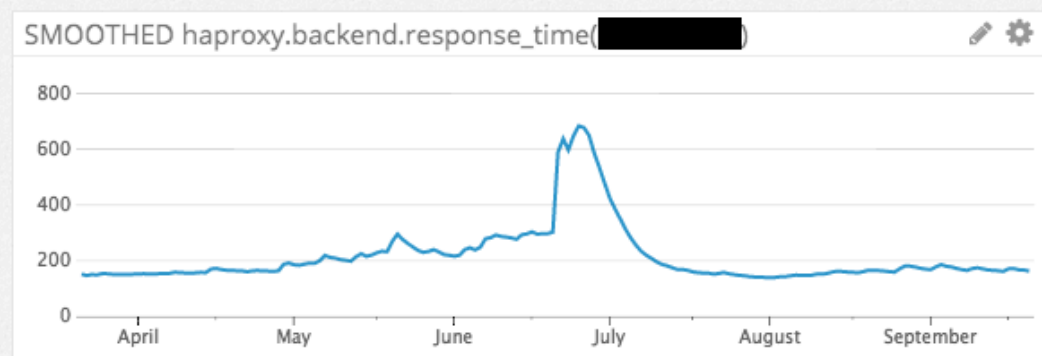
> INTERNAL TOOLS MIGRATED WITHIN A WEEK OR TWO
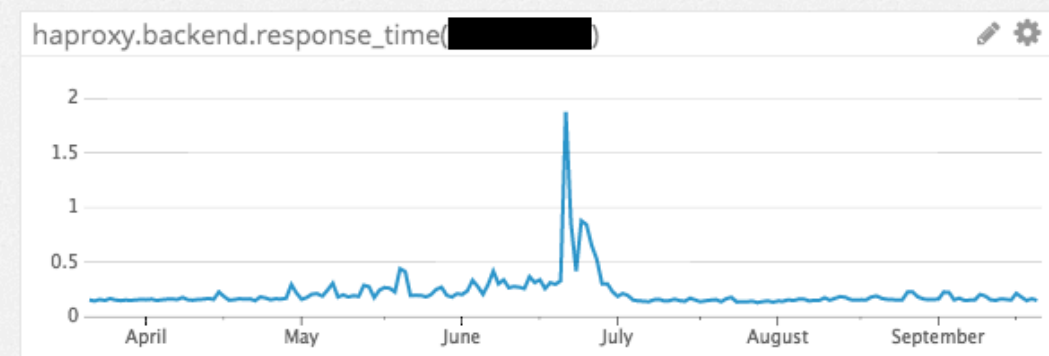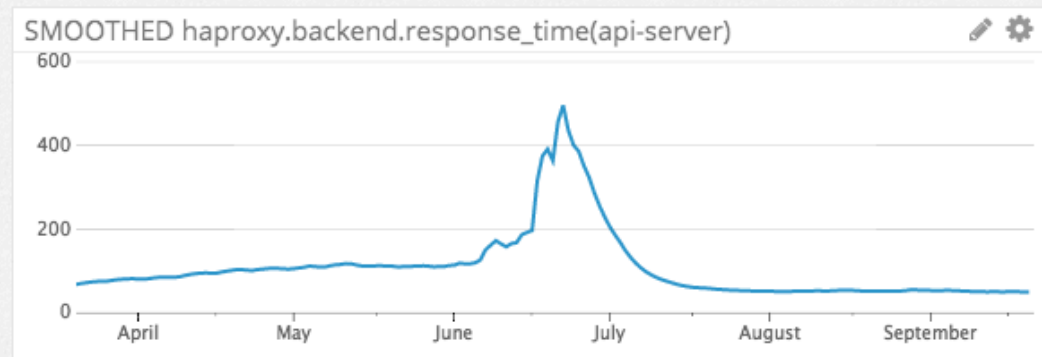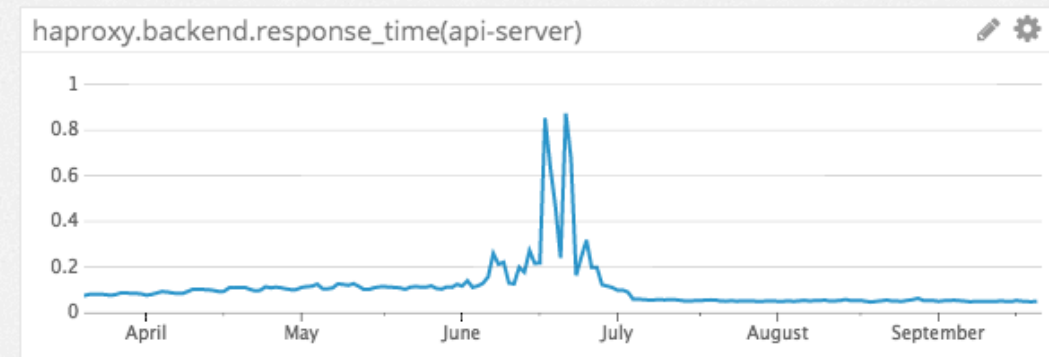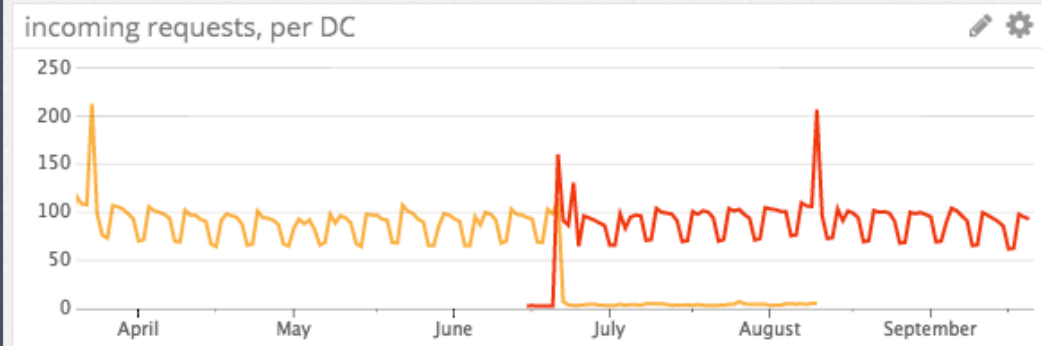
> DEVELOPER TOOLS MIGRATED WITHIN A MONTH

GIT HOSTING, BUILD SERVER, ETC

> OBSCURE LEGACY SERVICES MIGRATED WITHIN 2 MONTHS

> ALL HARDWARE AT RACKSPACE DECOMISSIONED WITHIN 3 MONTHS

> AND IT WAS GOOD

incoming requests, per DC

haproxy.backend.response_time(api-server)

SMOOTHED haproxy.backend.response_time(api-server)

haproxy.backend.response_time(████████)

SMOOTHED haproxy.backend.response_time(████████)

haproxy.backend.response_time(███████)

SMOOTHED haproxy.backend.response_time(███████)

haproxy.backend.response_time(███████)

SMOOTHED haproxy.backend.response_time(███████)

QUESTIONS?