

A Day in the Life of a NodeJS Developer



**KEEP
CALM
AND LET AN
ARCHITECT
HANDLE IT**



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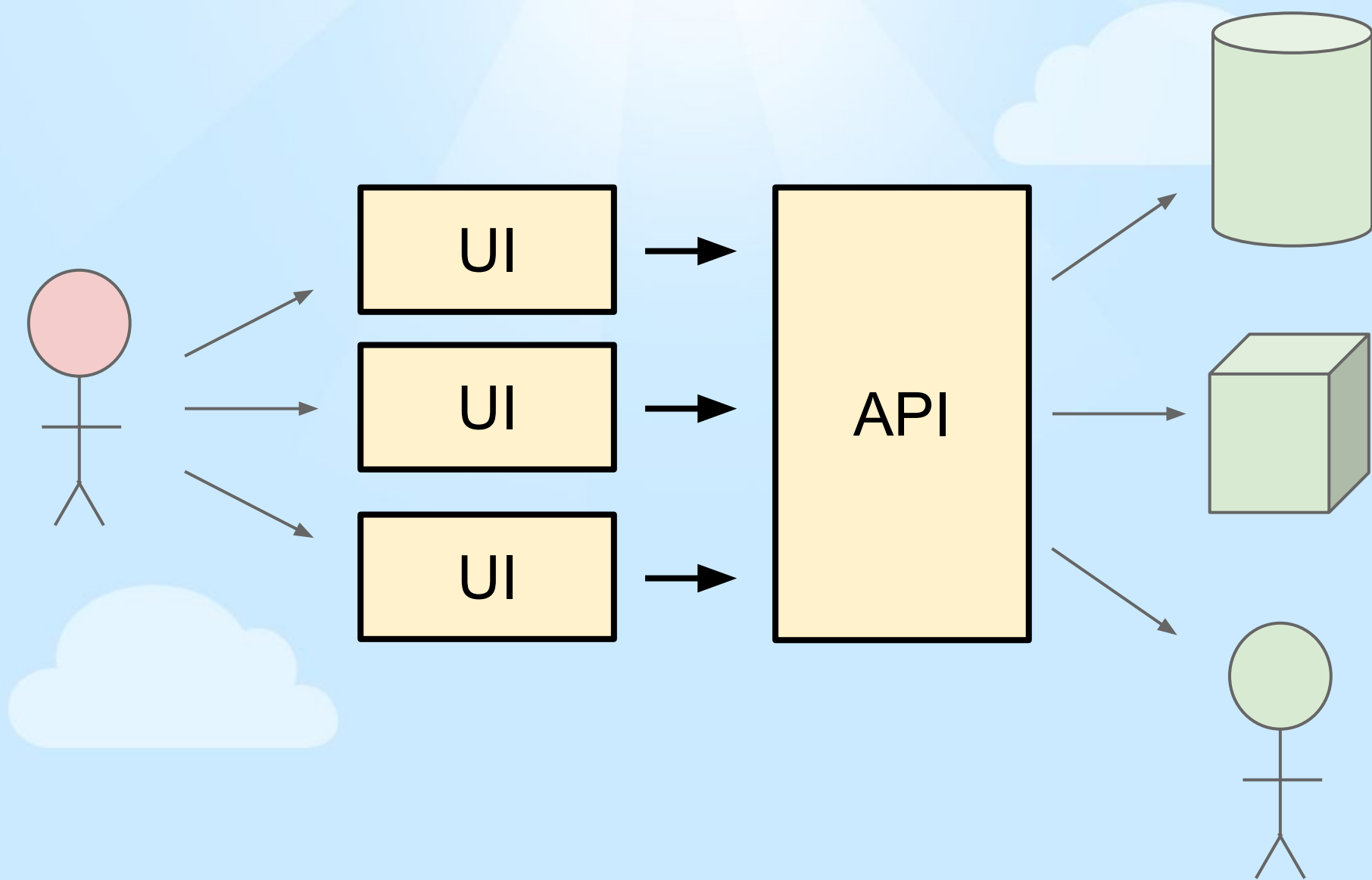


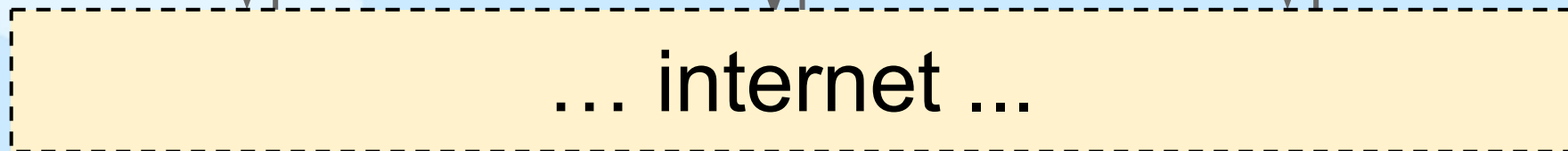
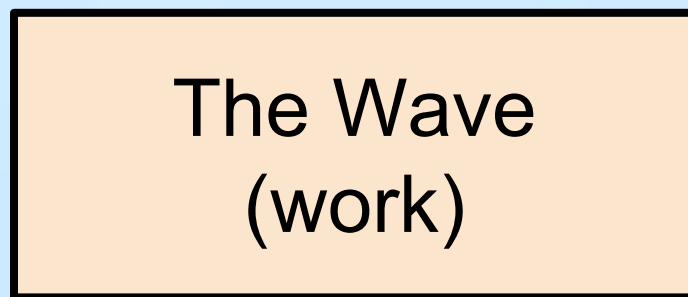
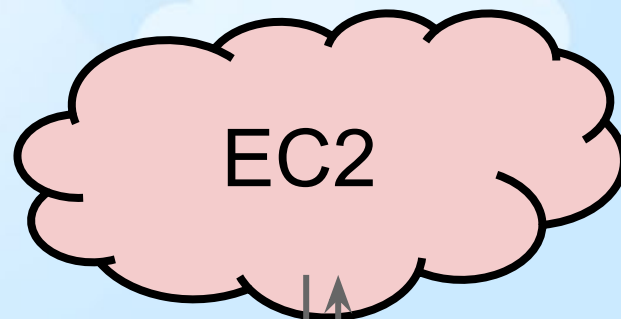
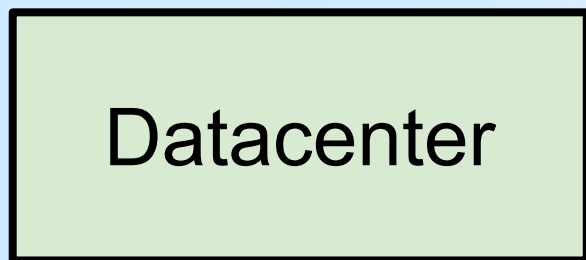


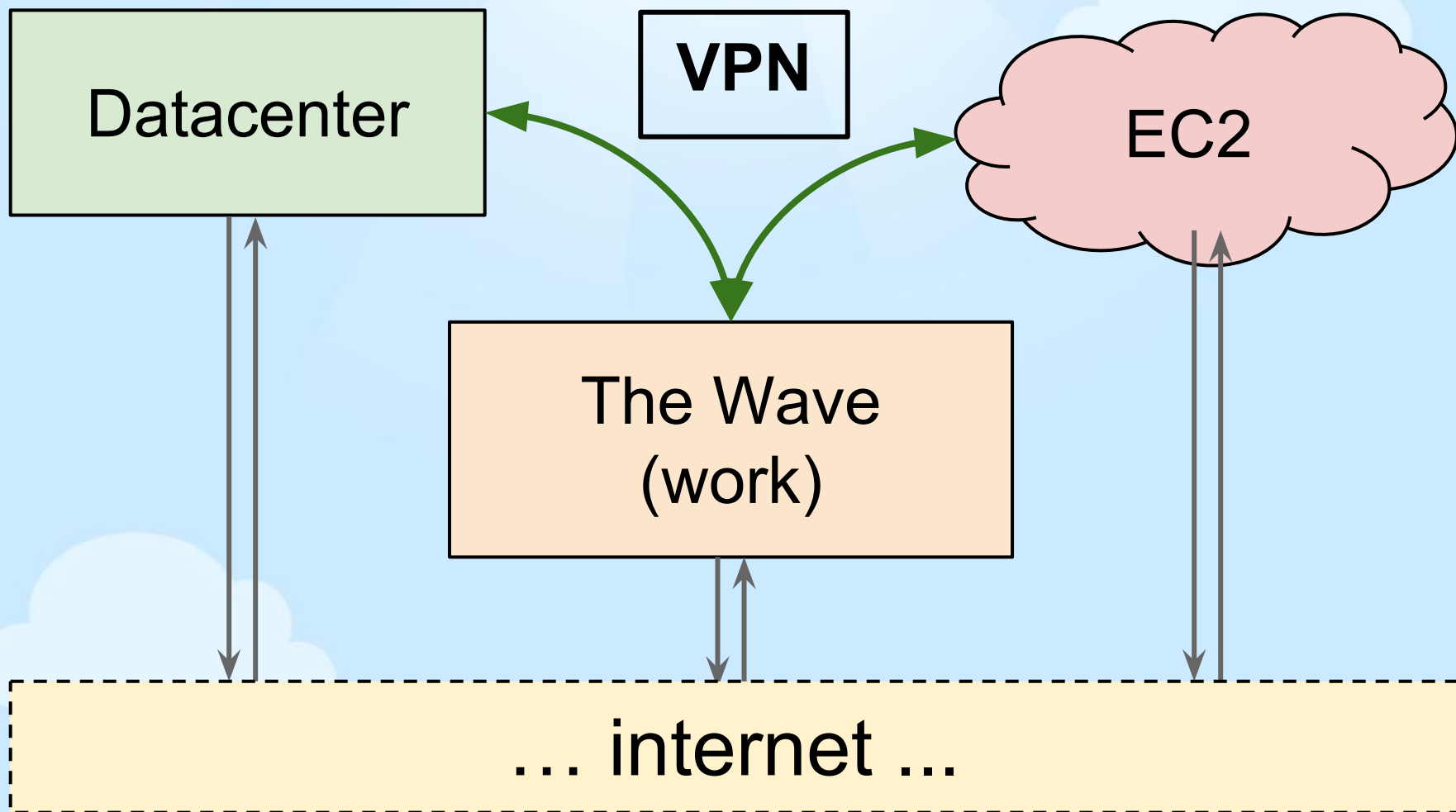
The background is a light blue sky with stylized white clouds in the top right and bottom left corners. A bright sun is positioned at the top center, with several light blue rays emanating from it.

8th July 2015
Wednesday

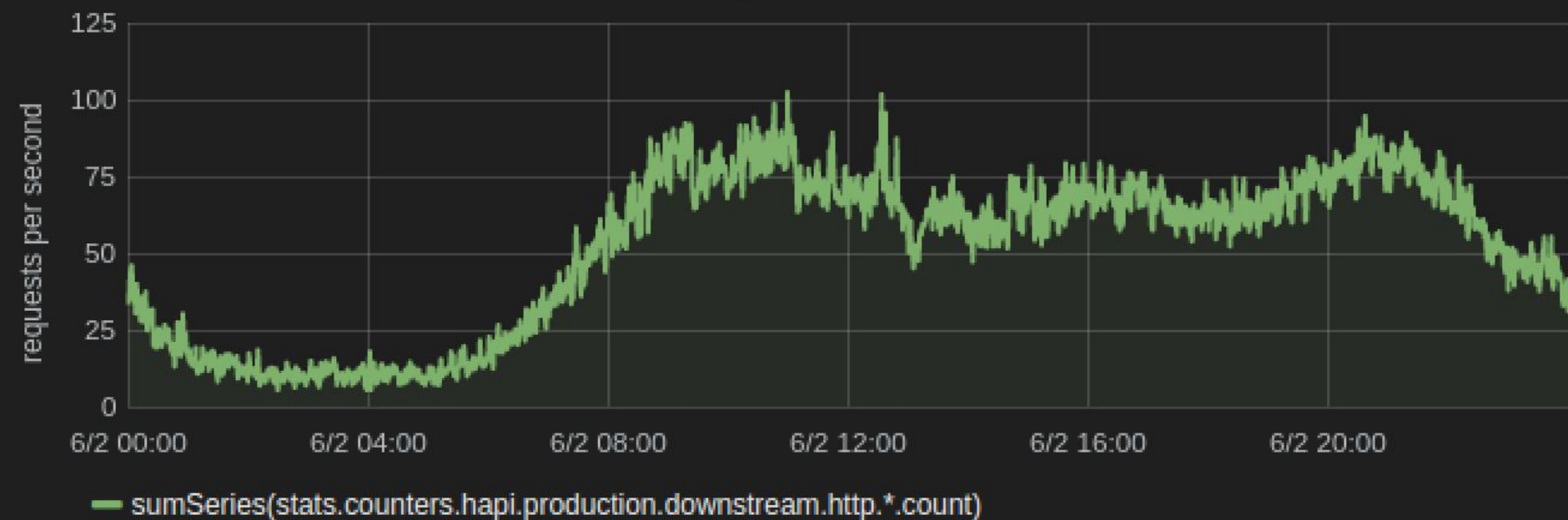
Background



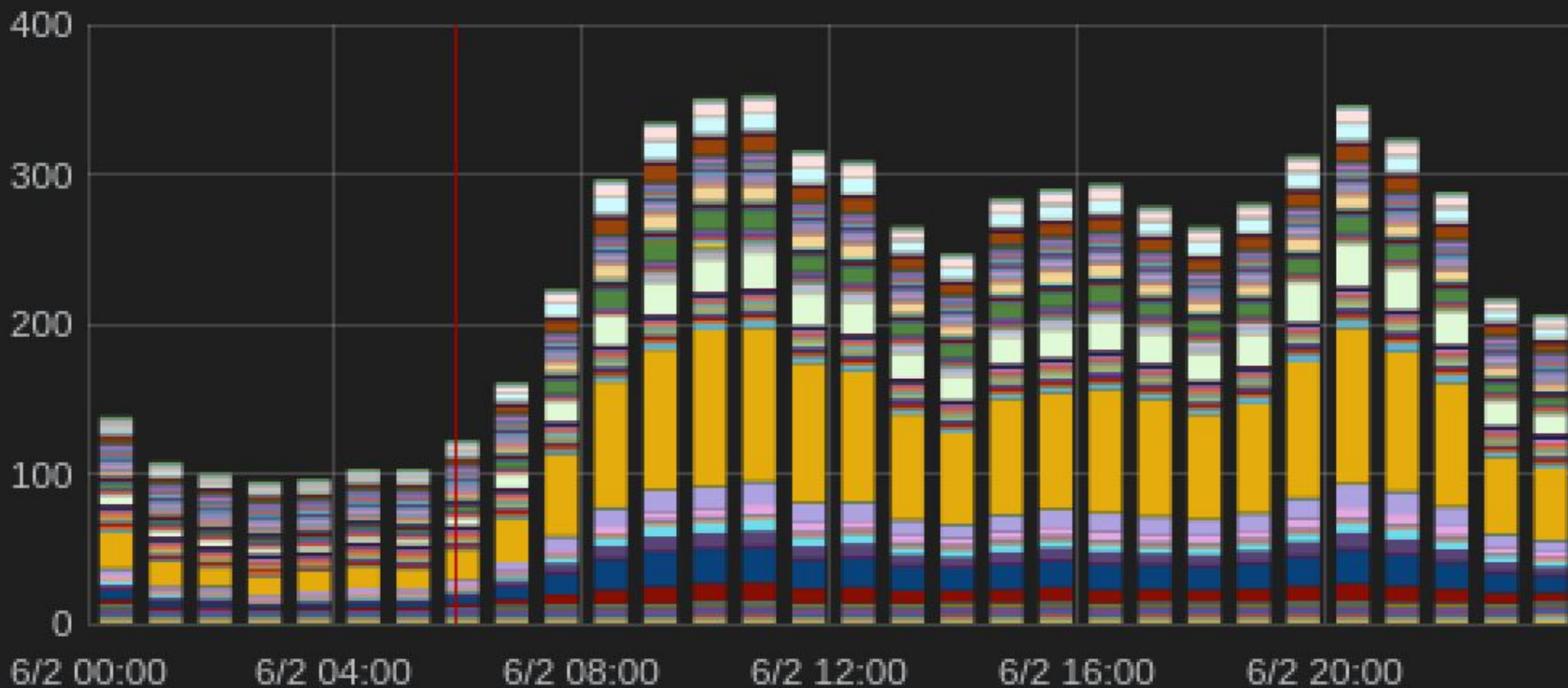




Request Volumes

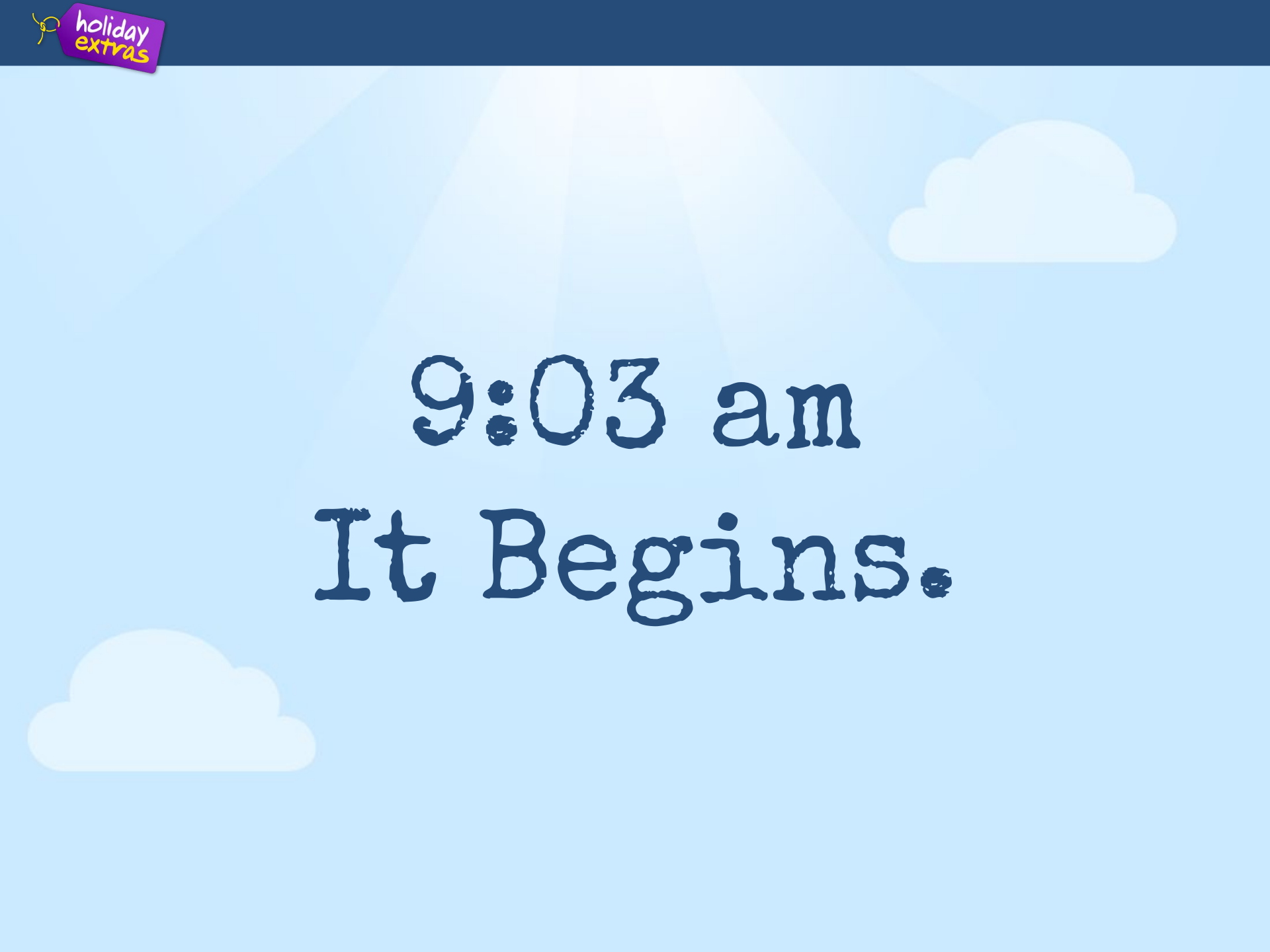


Supplier Volume Summary



The background is a light blue sky with stylized white clouds in the top right and bottom left corners. A bright sun is positioned at the top center, with several light blue rays emanating from it.

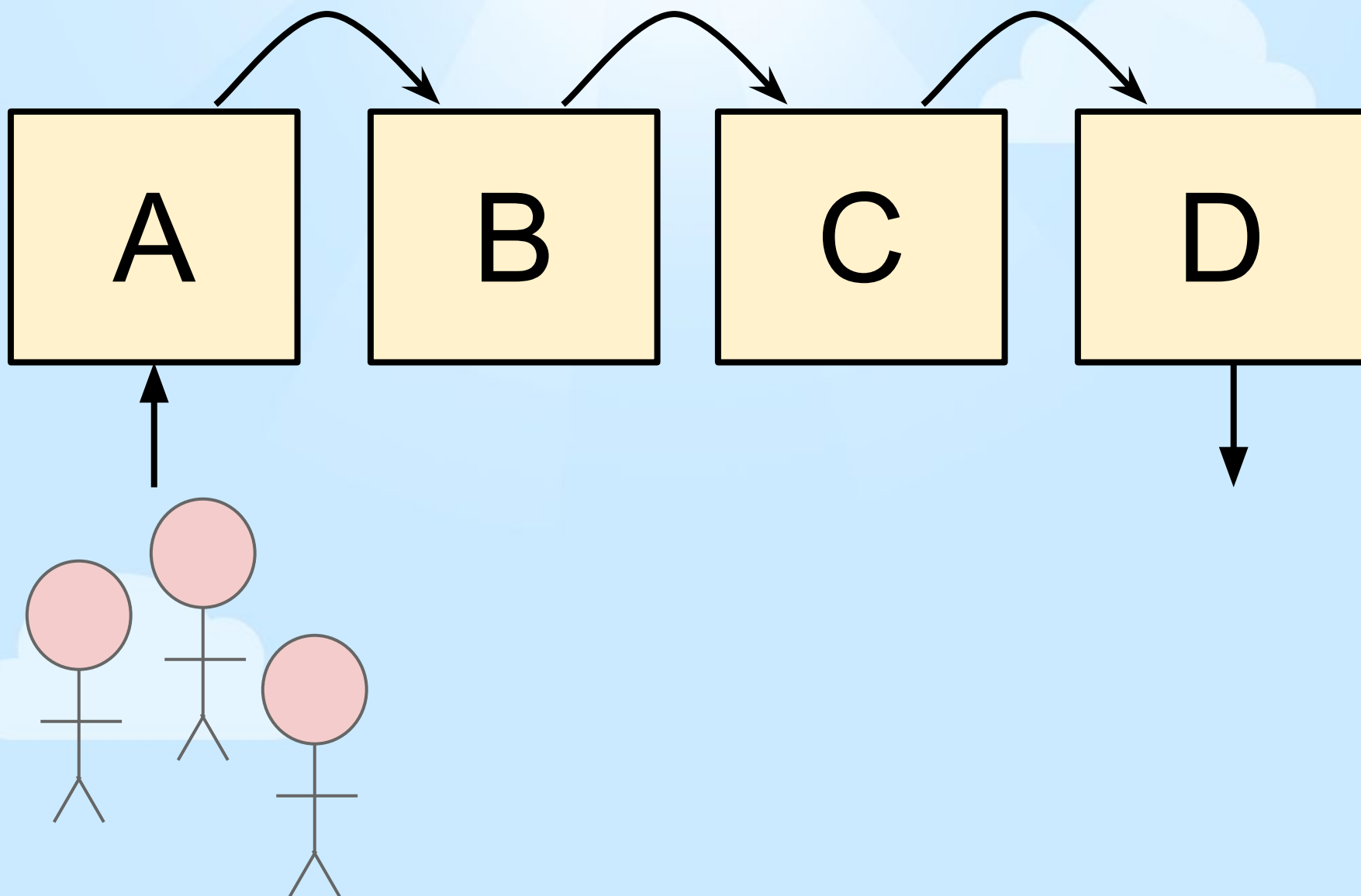
8th July 2015
Wednesday

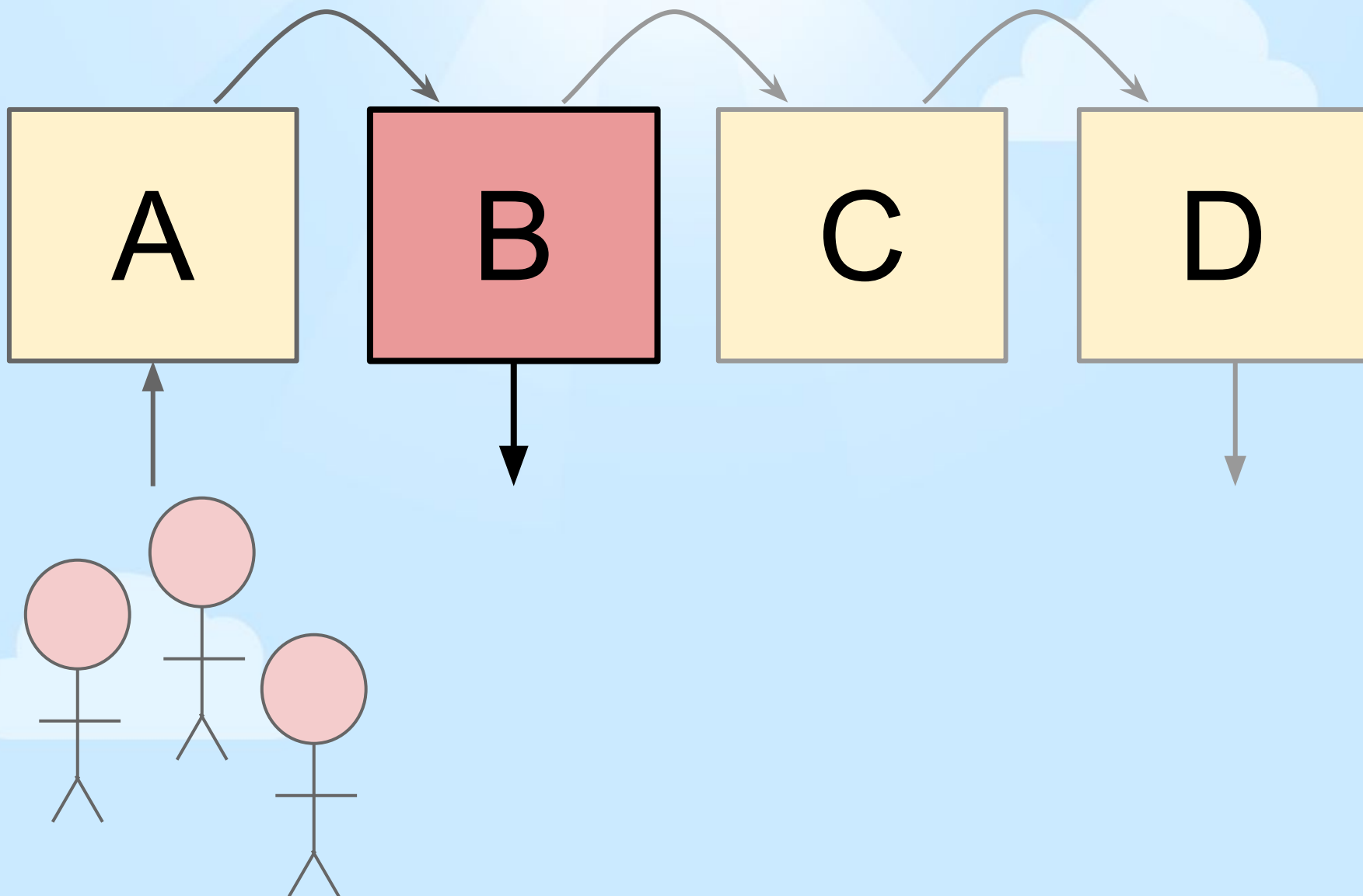


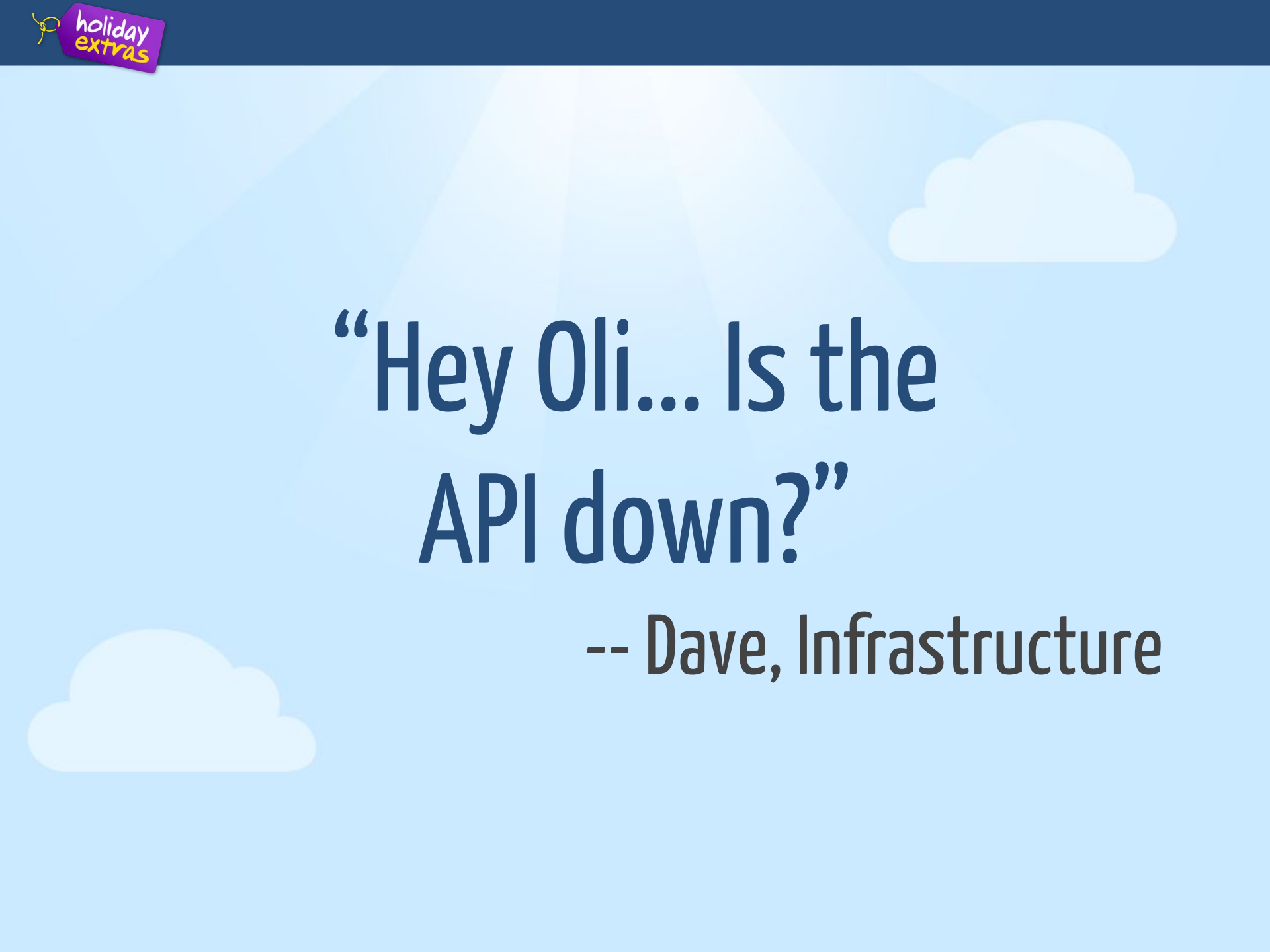
9:03 am
It Begins.

“Hmm I’m getting a
timeout when requesting
XXXXX”

-- Mike, Architect







“Hey Oli... Is the
API down?”

-- Dave, Infrastructure



GET → /xxx/yyy/elb-health-check

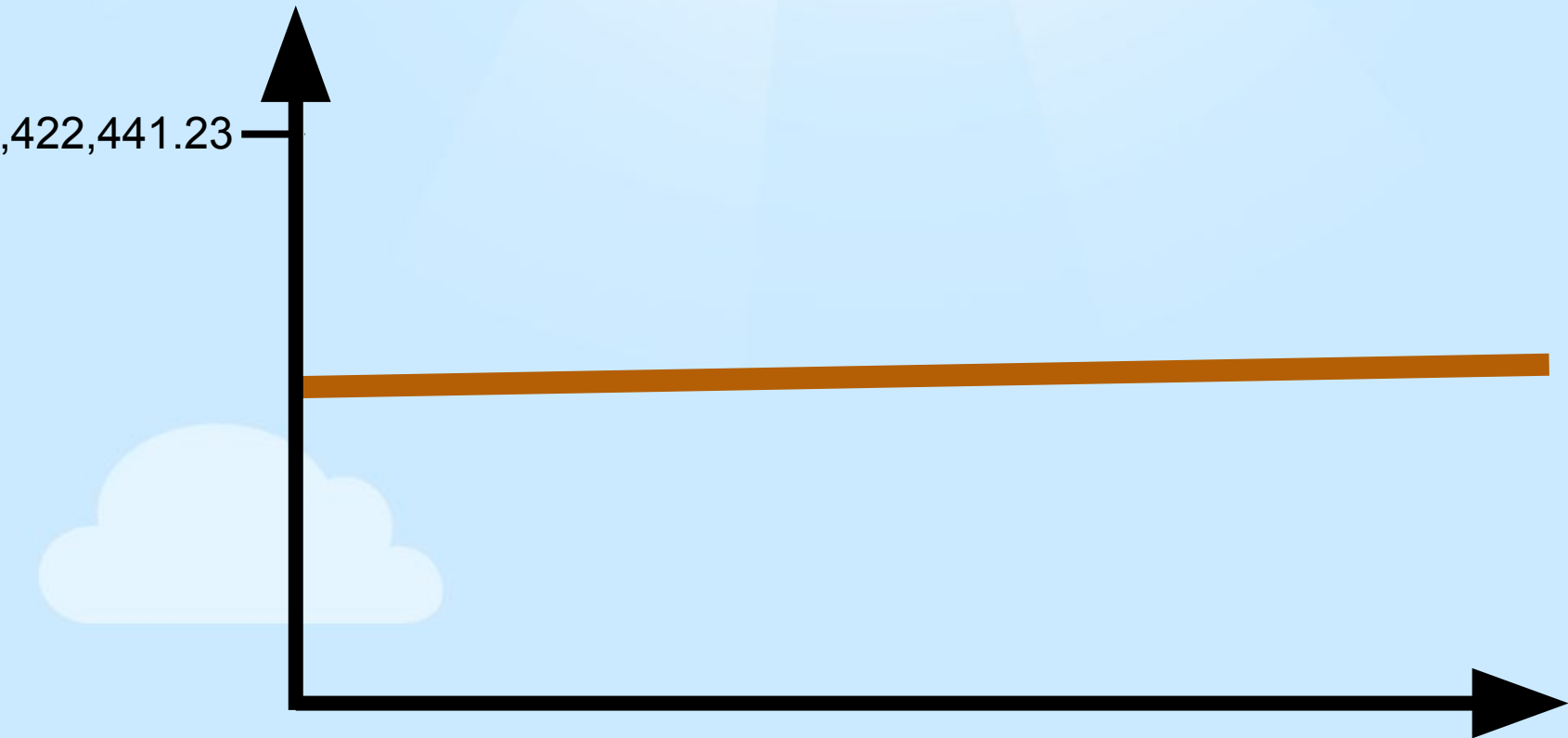
```
{  
  "up": true  
}
```

GET → /xxx/yyy/service-test

```
{  
  "[supplier]-[product]": true,  
  "[supplier]-[product]": true,  
  "[supplier]-[product]": null  
}
```

HTTP 200 OK

Response Times

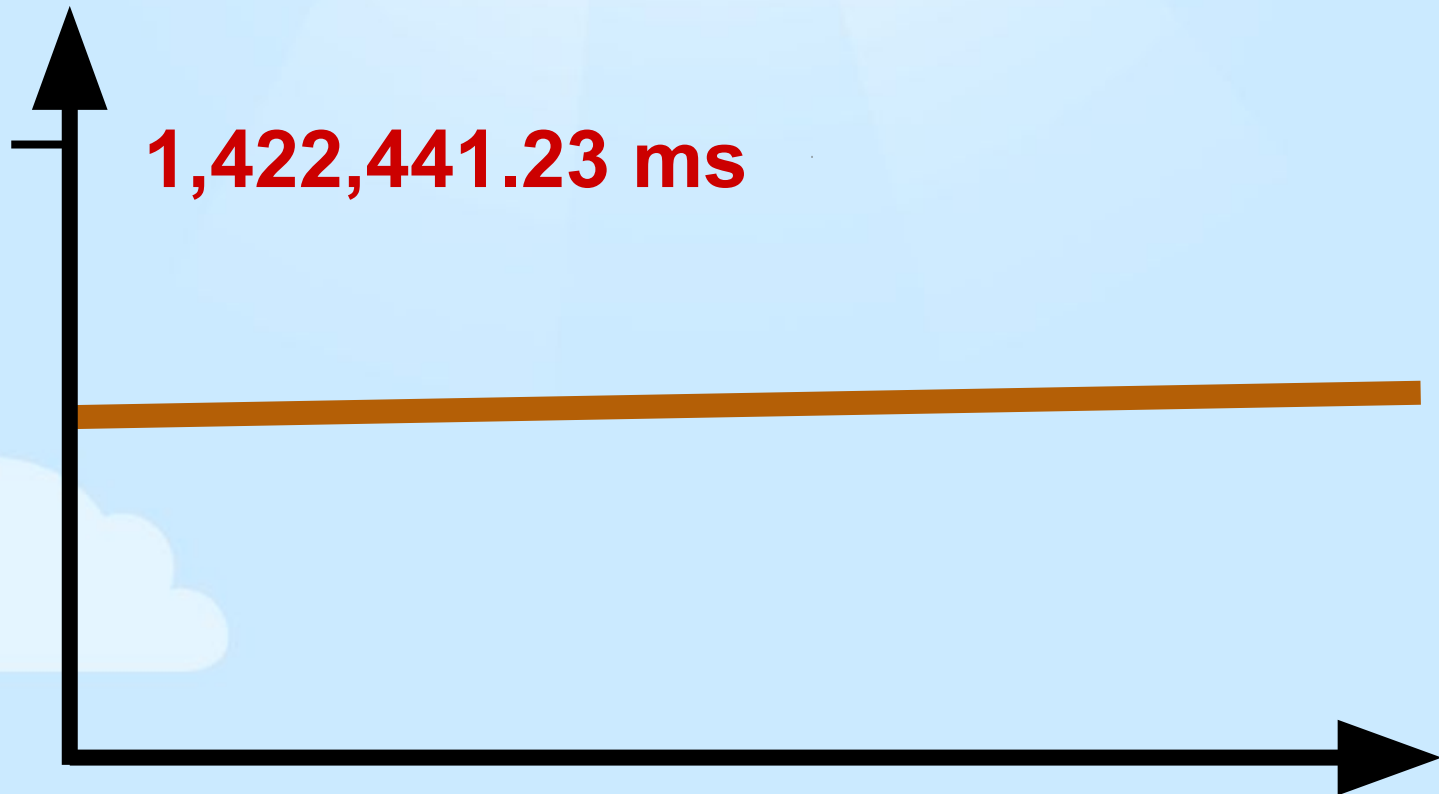


GET → /xxx/yyy/service-test

?


TIMEOUT

Response Times





 **The API is up.** **The API is not crashing.** **The API is not working.**



9:10am
Triage

API Deployments

Wed 08 July 2015 **"Today"**

Tue 07 July 2015 14:42

Tue 07 July 2015 12:56

Mon 06 July 2015 12:06

Mon 06 July 2015 10:47

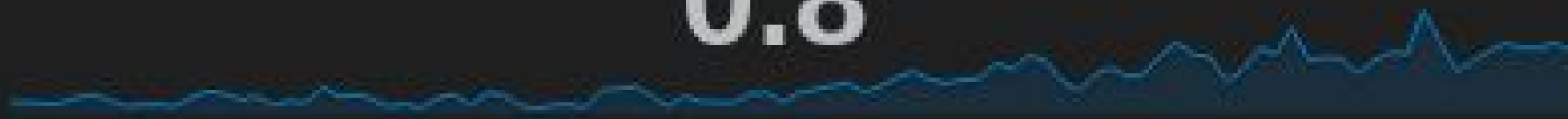
Fri 03 July 2015 11:17

Staging

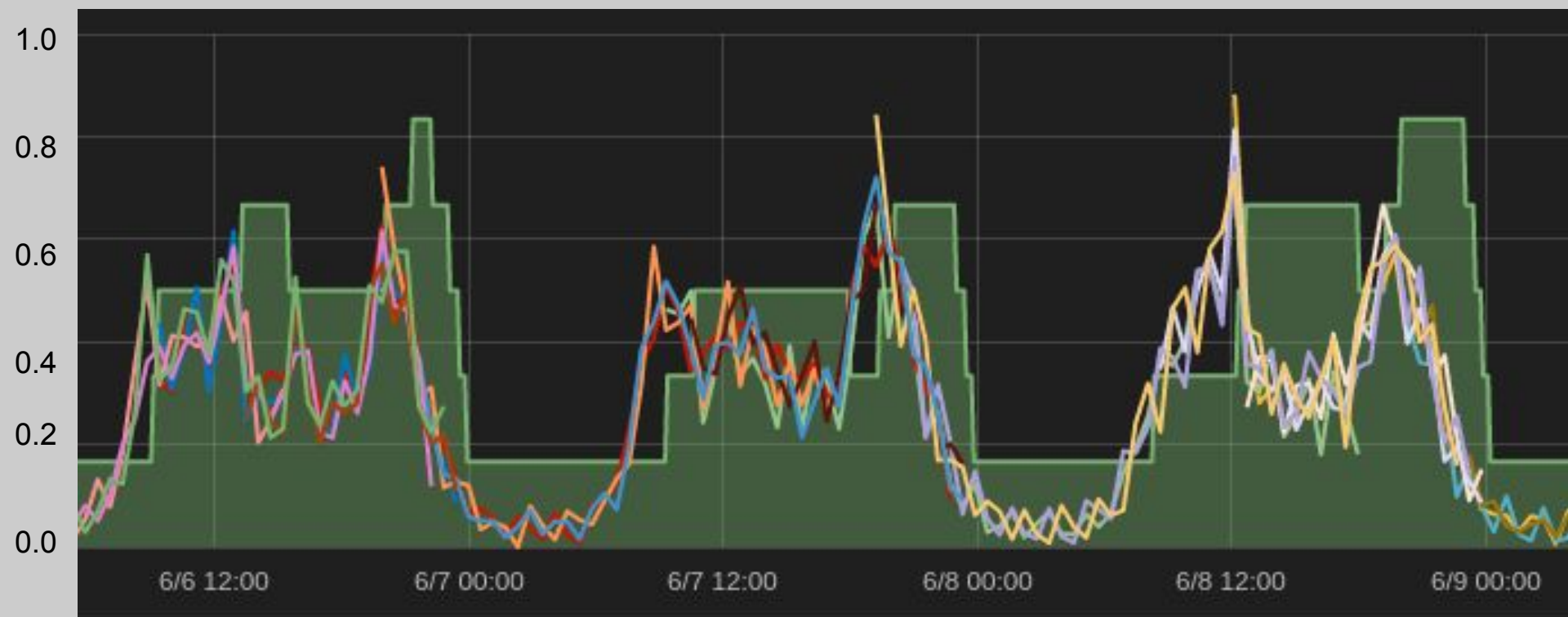
Max Box Load



0.8



Max Box Load



Max Event Loop Lag

10 ms



Max Event Loop Lag

```
var computeEvLag = function() {  
  var startDate = new Date();  
  setTimeout(function() {  
    var endDate = new Date();  
    collectrix.timer('node.eventlooplag', (endDate - startDate) - 25);  
    setTimeout(computeEvLag, 5000);  
  }, 25);  
};  
setTimeout(computeEvLag, 5000);
```

Max Heap Size

Max Heap Size

135.8 MiB

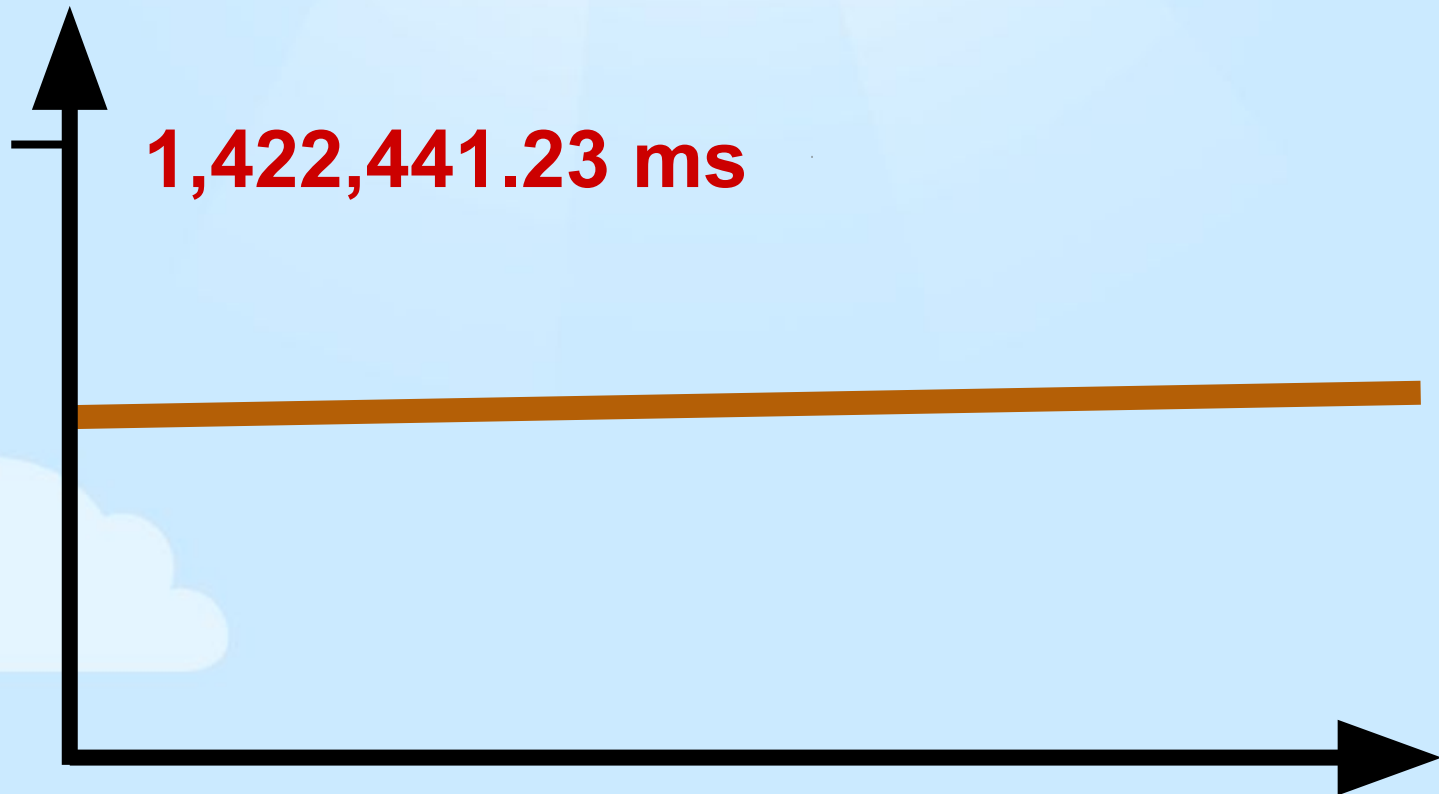
Max Heap Size

```
var memwatch = require('memwatch-next');

memwatch.on('leak', function(info) {
  collectrix.timer('node.heap.growth', info.growth);
});


memwatch.on('stats', function(info) {
  collectrix.timer('node.heap.size', info.current_base);
  collectrix.timer('node.gc.full', info.num_full_gc);
  collectrix.timer('node.gc.incremental', info.num_inc_gc);
});
```

Response Times



- ✓ The servers are operating as expected.
- ✓ NodeJS runtime is operating as expected.
- ✗ The API is not working.





9:15am
Damage
Mitigation



“We can try and bypass those requests in our UIs?”

-- Mike, Rahul, Tom, Joe. Legends.

yo

can you come to the wave and help us diagnose some INF?
its urgent
if Si is there, can you grab him?



Si is not online yet... would you rather I wait for him or come now?

head over, we've got issues





9:18am

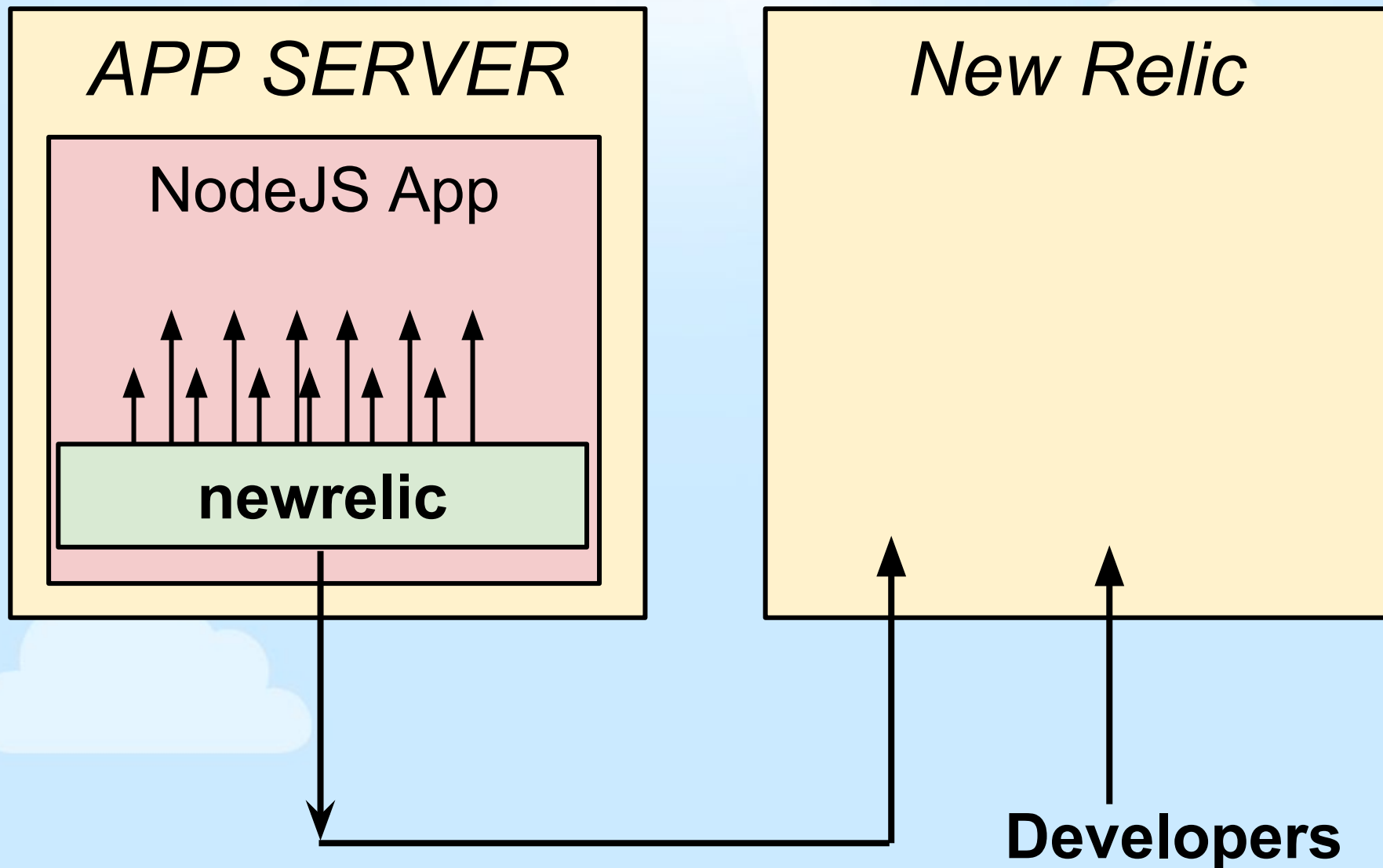
Digging Deeper

- ✓ The servers are operating as expected.
- ✓ NodeJS runtime is operating as expected.
- ✗ The API is not working.

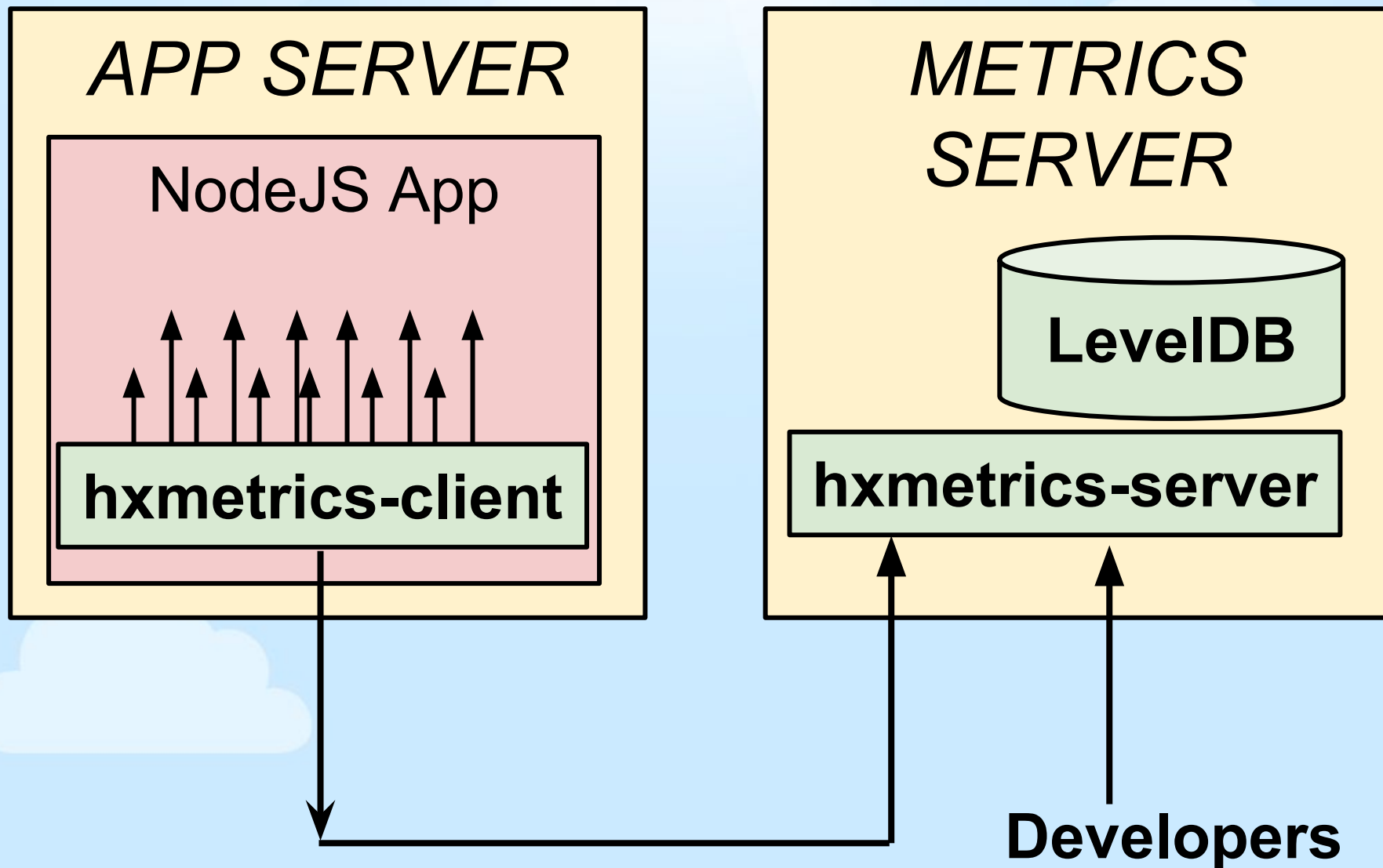


AppDynamics











hxMetrics

Request Volume Request Duration Error Volume Error Percent < > 28d 7d 2d 6h 2h 30m 10m 2m 2014/05/28 07:51 2014/06/01 07:51

Summary of sql queries for hapi - production

63,593,986 requests



averaging 22.26ms



0.71

4,258 errors



0.01% error rate



2589 ER_BAD_NULL_ERROR: Column 'Registration' cannot be null - undefined
1594 ER_PARSE_ERROR: You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the right syntax to use near ') AND internal_only = false AND preview_only = false AND ((start_date is null)' at line 1 - undef
65 ER_LOCK_WAIT_TIMEOUT: Lock wait timeout exceeded; try restarting transaction - undefined
5 ER_DUP_ENTRY: Duplicate entry 'MJzZ487' for key 'PRIMARY' - undefined
4 ER_BAD_NULL_ERROR: Column 'EMAIL_ADDRESS_' cannot be null - undefined
1 ER_CANT_AGGREGATE_: Illegal mix of collations (latin1_swedish_ci,IMPLICIT) and (utf8_general_ci,COERCIBLE) for operation '=' - undefined

SELECT `code`, CASE WHEN (details.type_id in (1, 5, 8, 9, 10, 11, 15, 29, 39)) THEN ? WHEN (details.type_id not in (14, 1, 5, 8, 9, 10, 11, 15, 29, 39)) THEN ? END as `date` FROM addons.addon_details `details` WHERE `code` in (?);

2,252 requests



averaging 3.74ms



0

0 errors



0.00% error rate

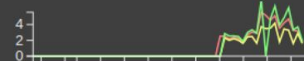


SELECT `code`, CASE WHEN (details.type_id in (10, 14, 26)) THEN ? WHEN (details.type_id not in (10, 14, 26)) THEN ? END as `date` FROM addons.addon_details `details` WHERE `code` in (?);

63,558 requests



averaging 3.73ms



0

0 errors



0.00% error rate



SELECT `code`, CASE WHEN (details.type_id in (14)) THEN ? WHEN (details.type_id in (1, 5, 8, 9, 10, 11, 15, 29, 39)) THEN ? WHEN (details.type_id in (1, 5, 8, 9, 10, 11, 15, 29, 39)) THEN ? WHEN (details.type_id not in (14, 1, 5, 8, 9, 10, 11, 15, 29, 39)) THEN ? END as `date` FROM addons.addon_details `details` WHERE `code` in (?);

10,836 requests



averaging 4.29ms



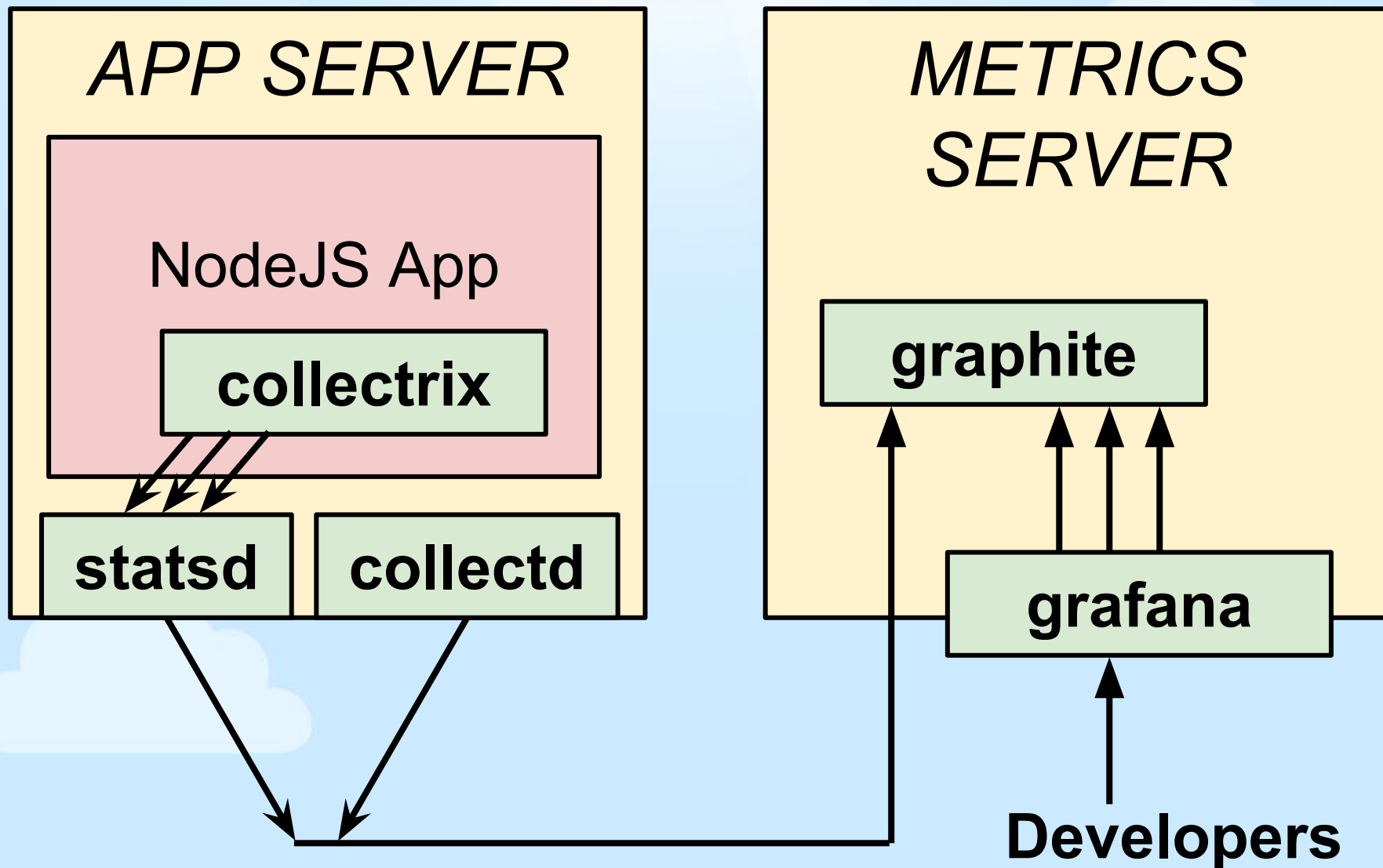
0

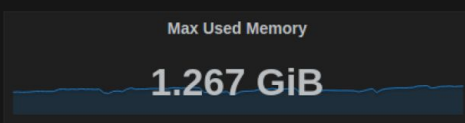
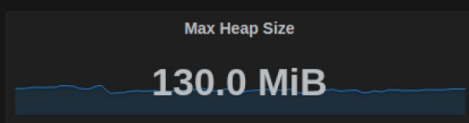
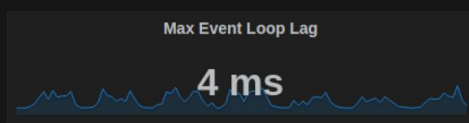
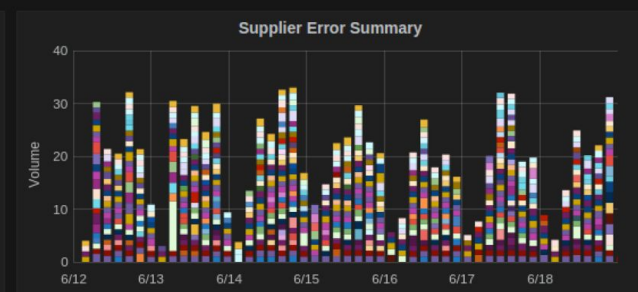
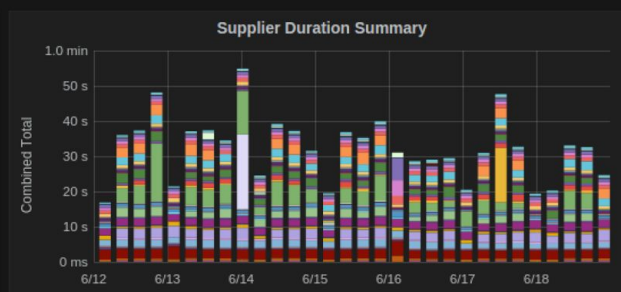
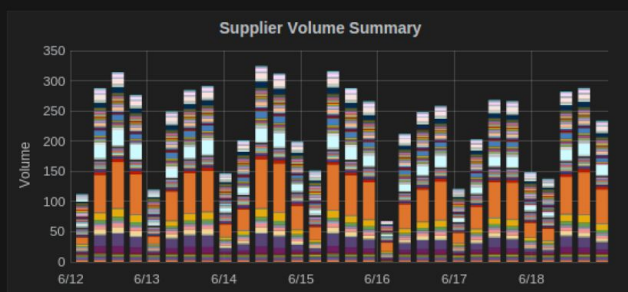
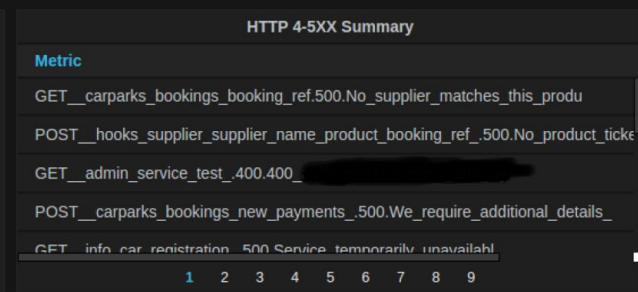
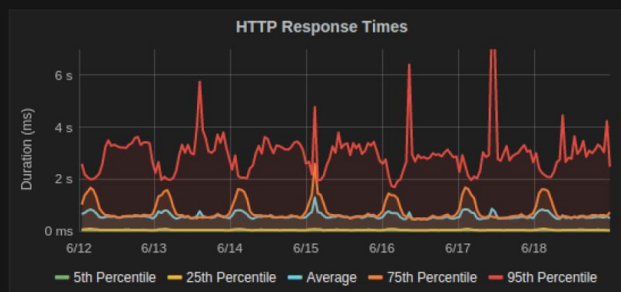
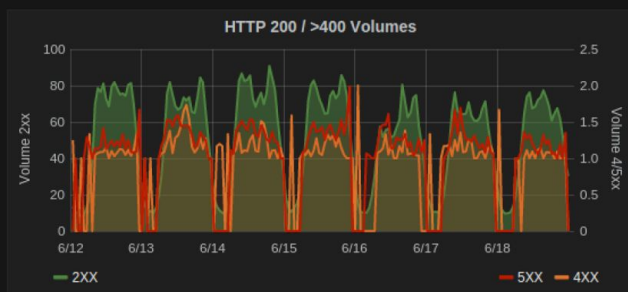
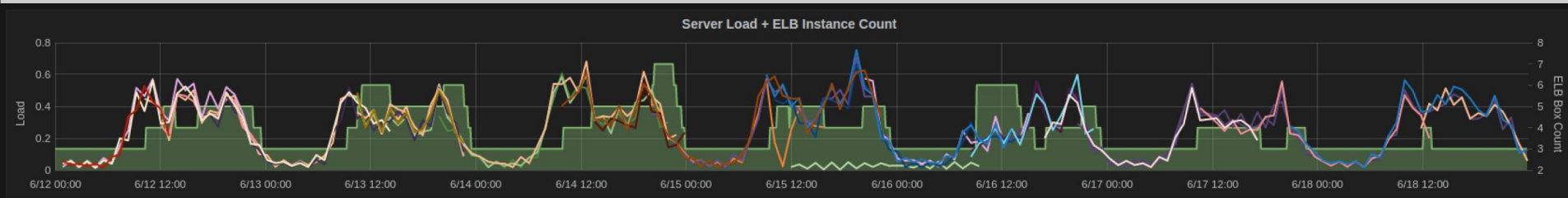
0 errors



0.00% error rate







Metric

Status

MySQL

NORMAL(ish)

Redis

NORMAL(ish)

RabbitMQ

NORMAL(ish)

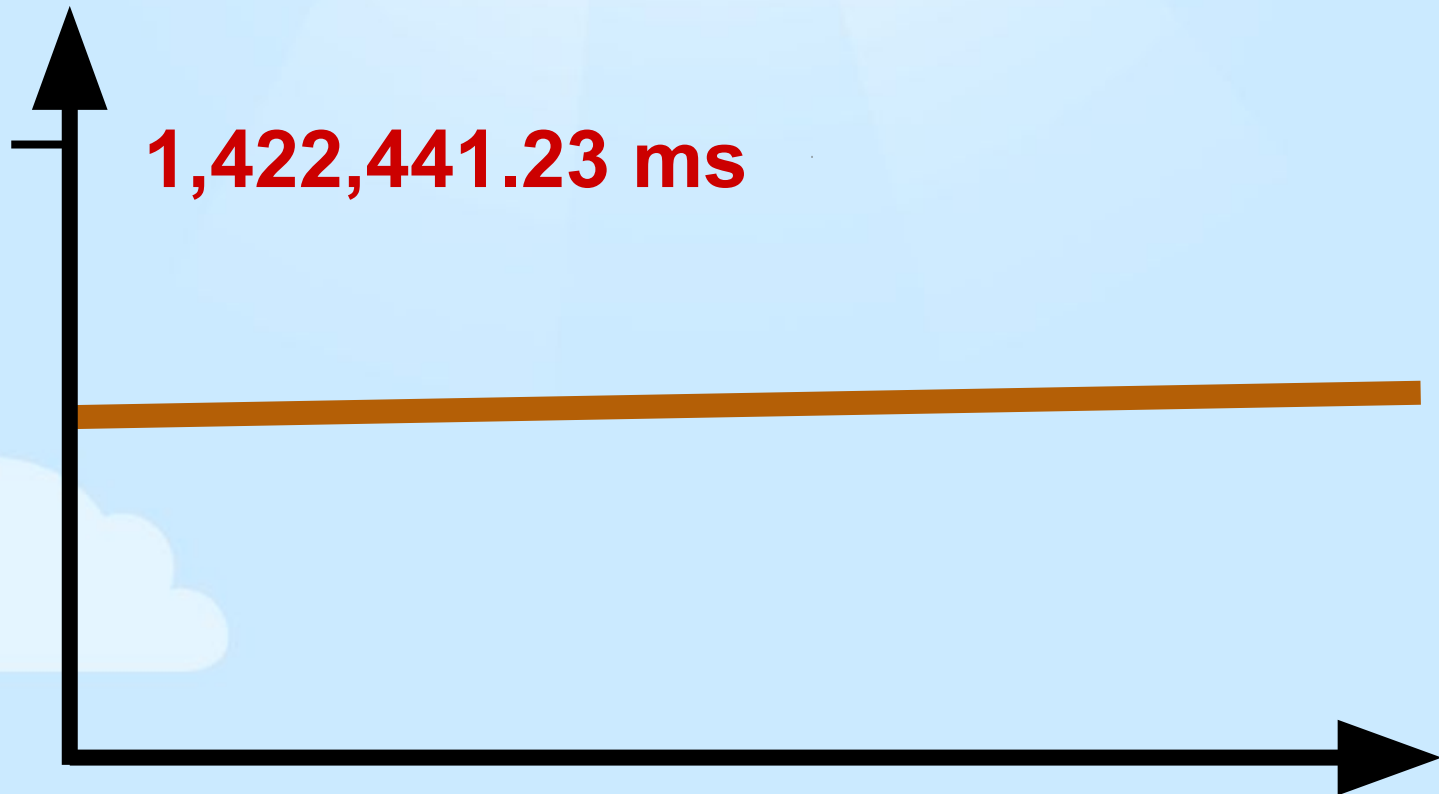
Elasticsearch

NORMAL(ish)

Internal Systems

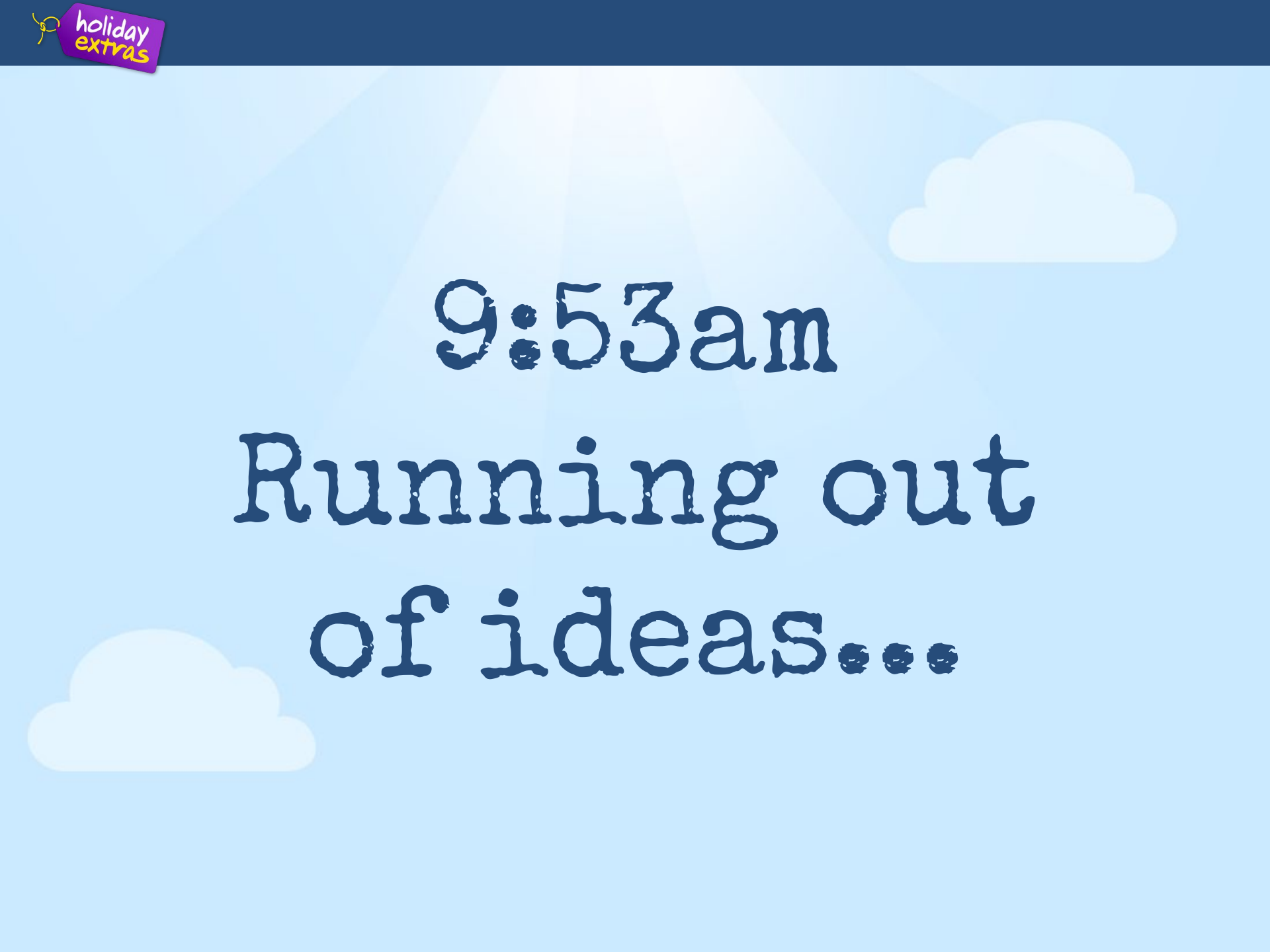
NORMAL(ish)

Response Times



- ✓ Other infrastructure is operating as expected.
- ✓ 3rd party services are operating as expected.
- ✗ The API is not working.





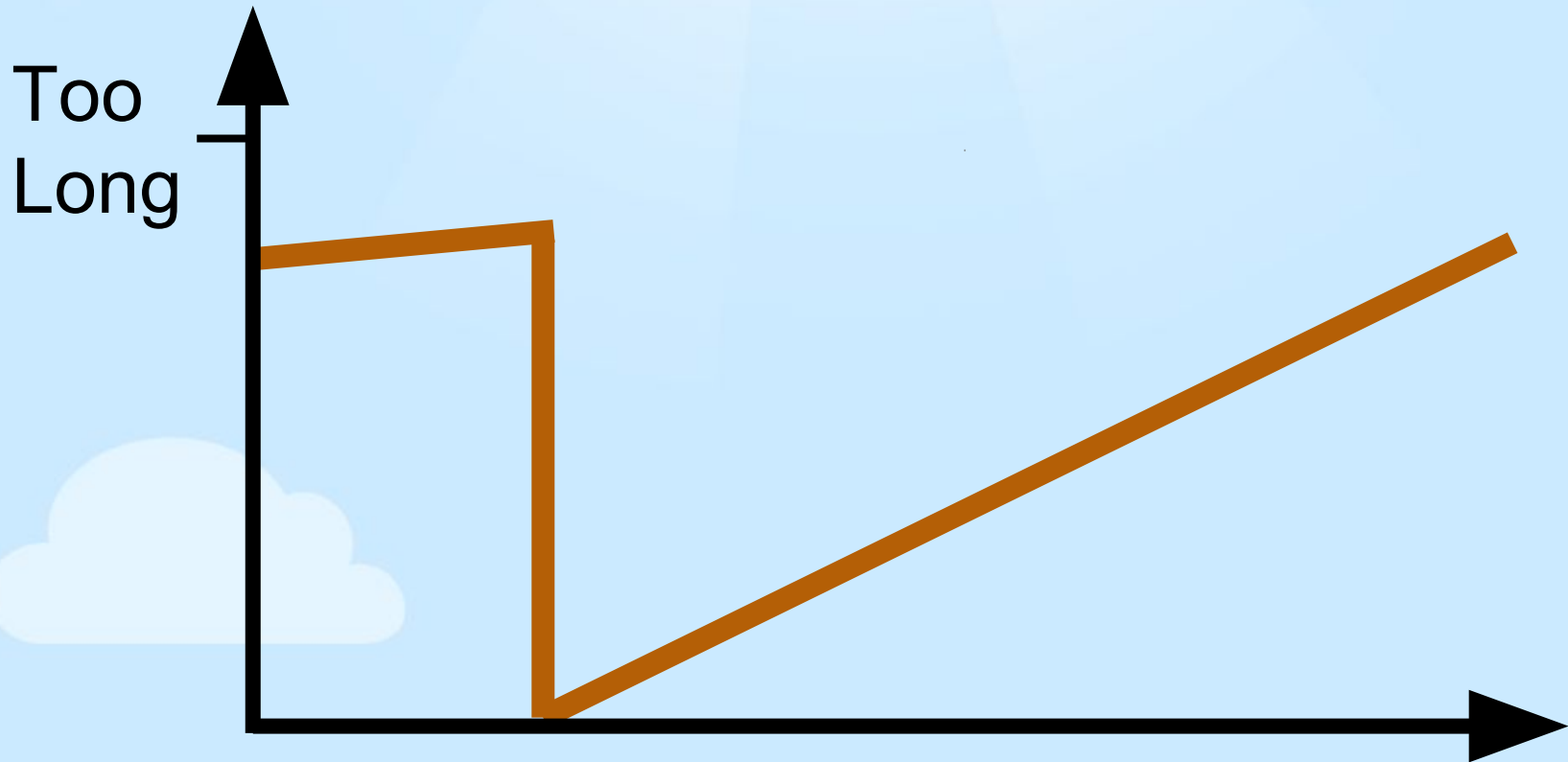
9:53am
Runnning out
of ideas...



“Can we turn it all
off and on again?”

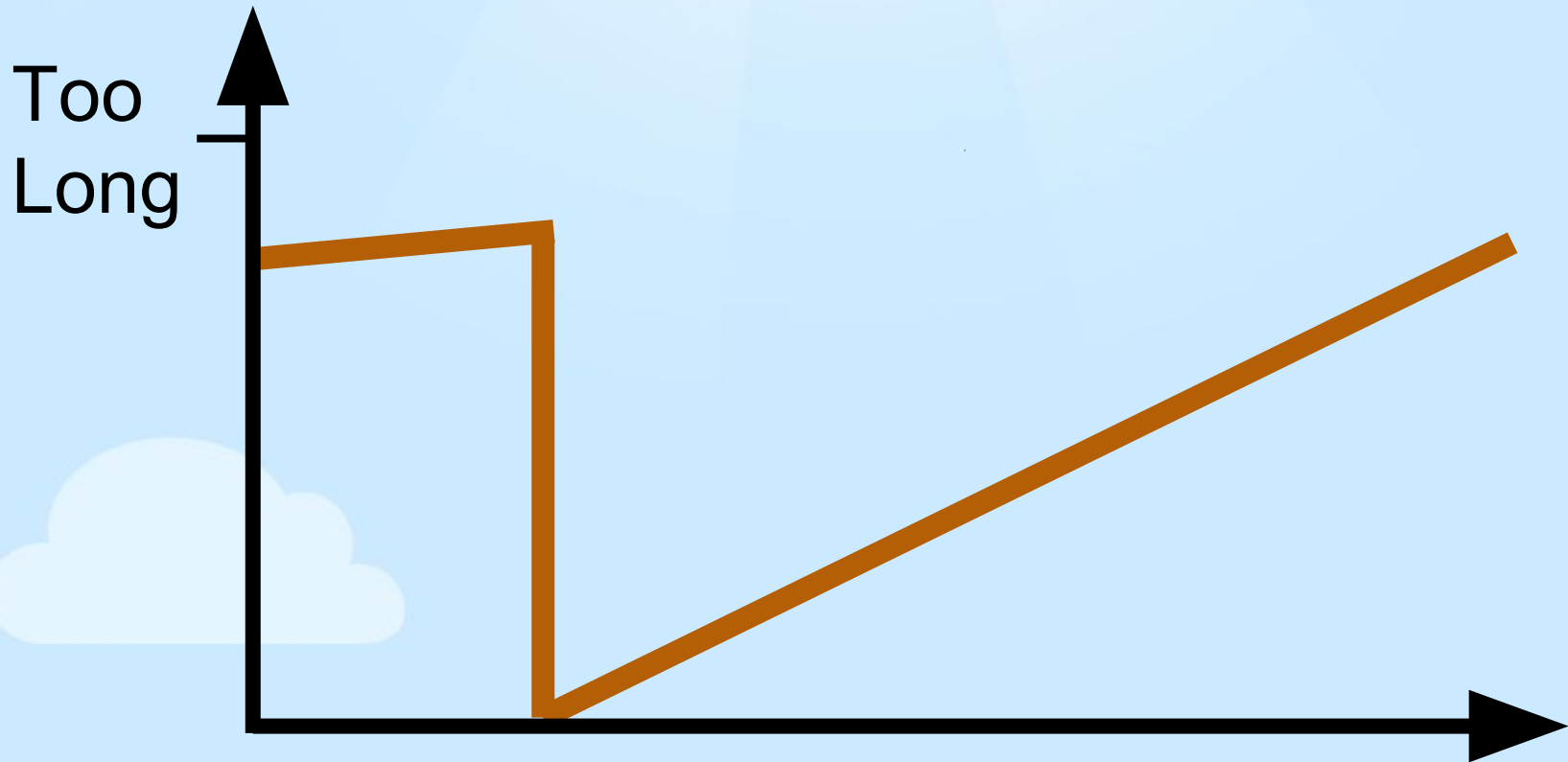
-- Me


Response Times



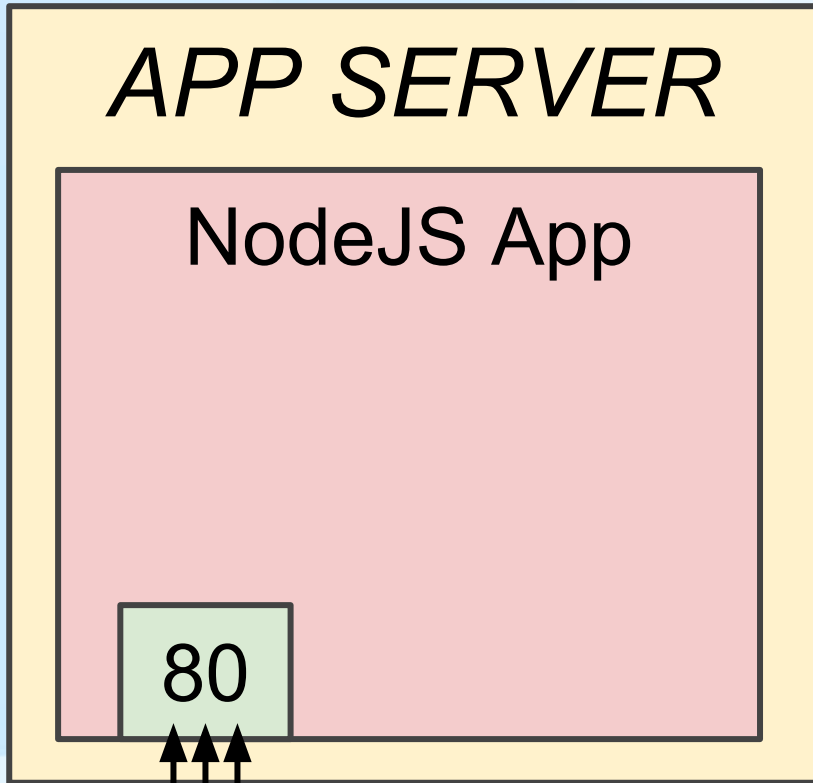
Oh my!

Response Times

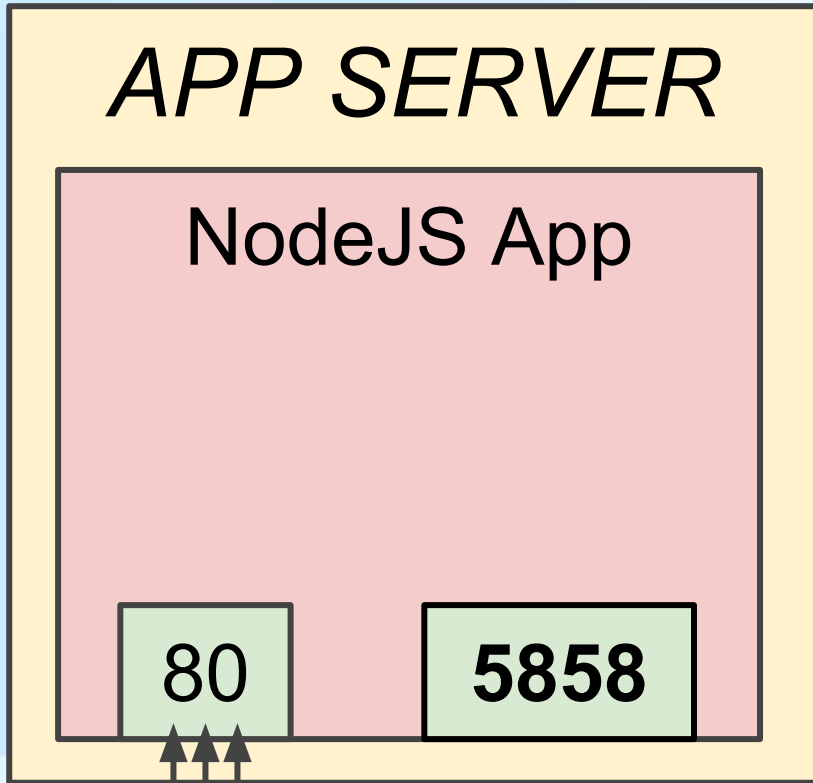




10:01am Hotfix Production

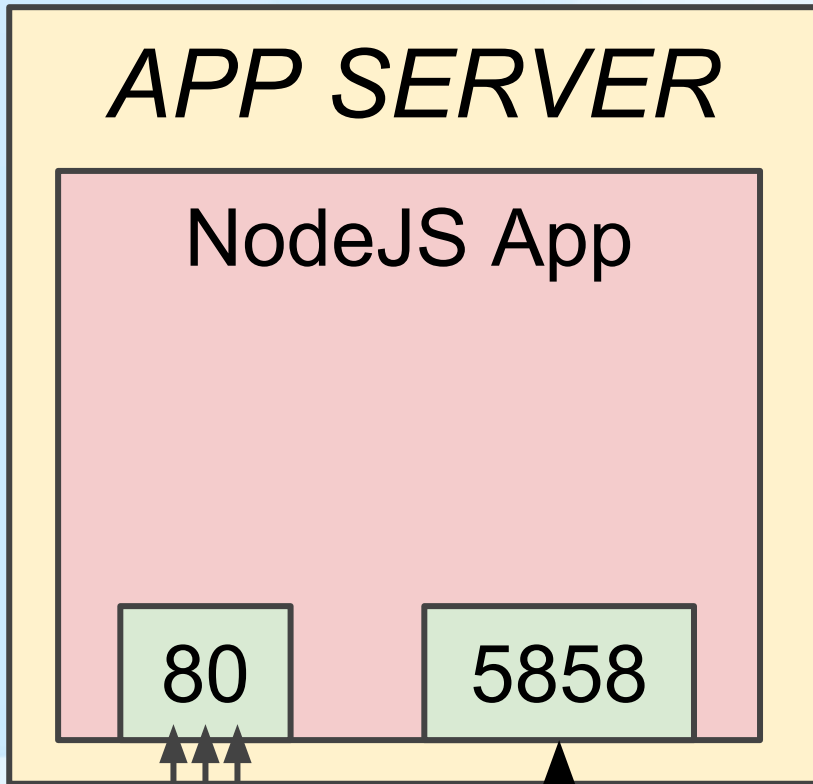


**Remove from Load
Balancer**



Remove from Load Balancer


```
$ ps auxww | grep node  
$ kill -s SIGUSR1 [pid]
```

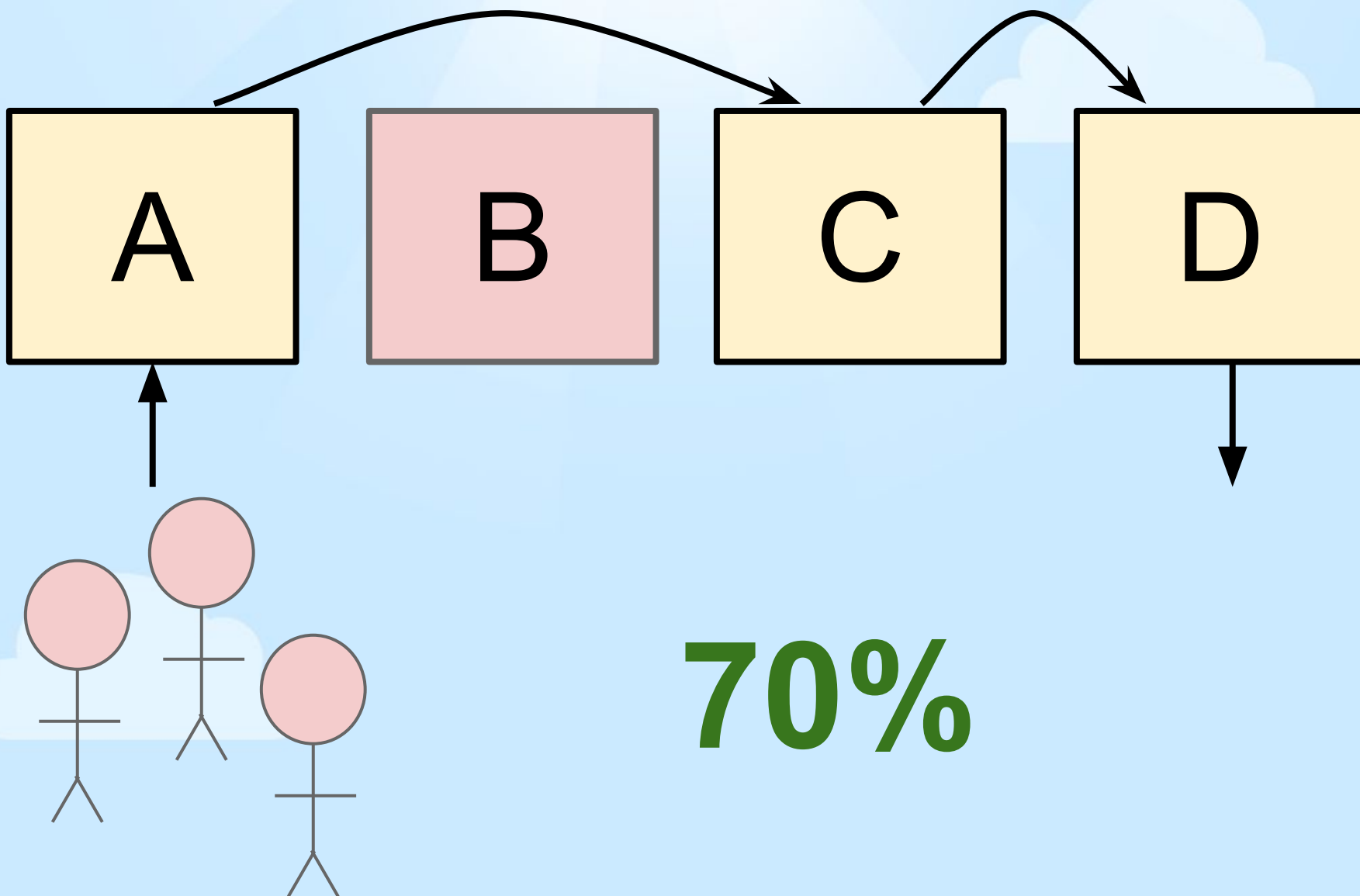
Remove from Load Balancer


```
$ ps auxww | grep node  
$ kill -s SIGUSR1 [pid]
```

```
$ node debug -p [pid]  
$ node debug [uri]  
$ node-inspector
```


A light blue background with a large, faint sun in the center and two white clouds, one in the top right and one in the bottom left.

10:15am
FrontEnd #1
Gets Patched

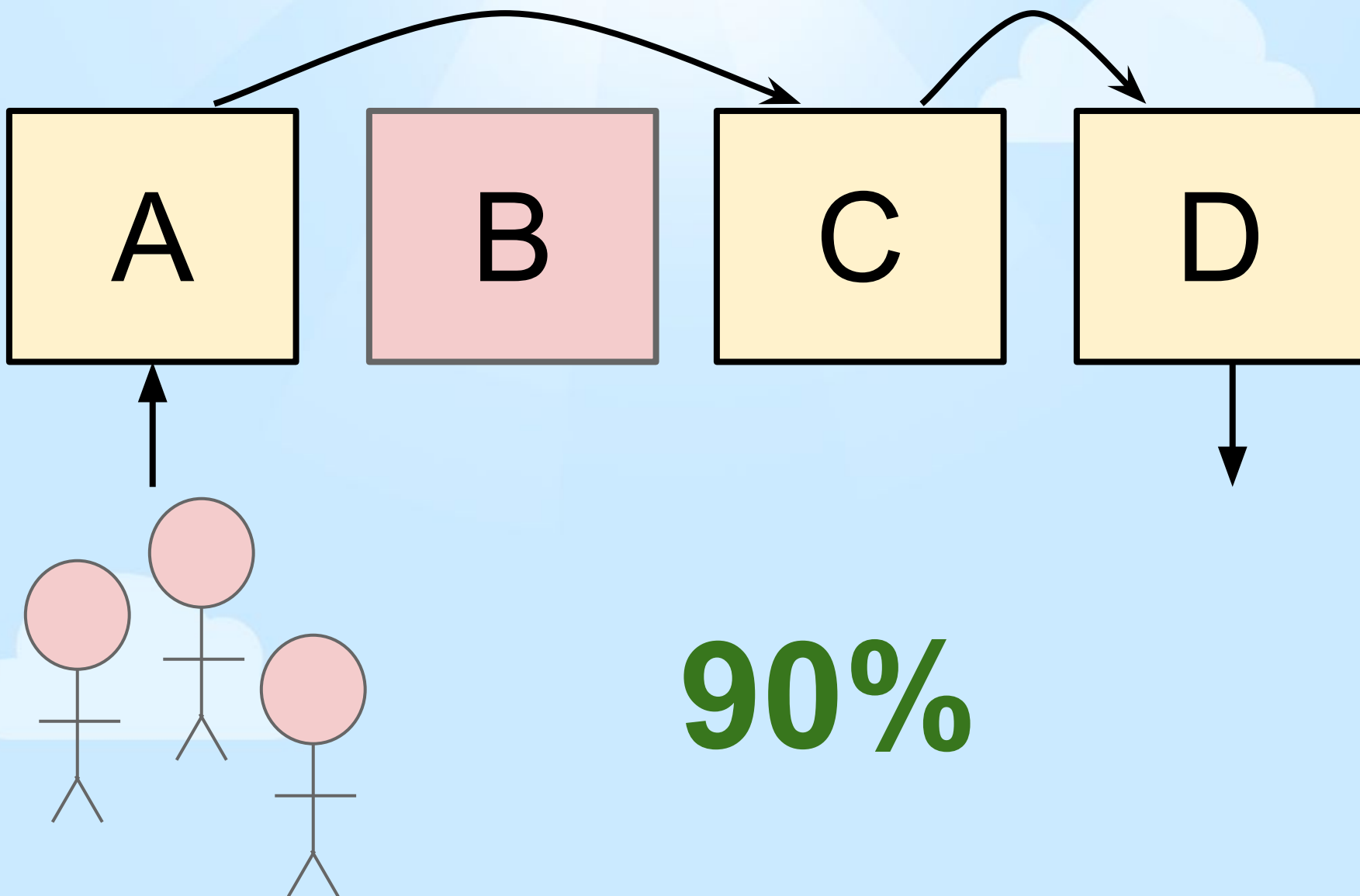




10:15am
Restore
Production!



10:20am
FrontEnd #2
Gets Patched



✓ We're back in business.

✗ Impacted customer journey.

✓ We can afford to stop and think.

✗ The API is not working.

...Load Test Staging & Hotfix...

Culprit Module!

```
request.get({  
  uri: "https://api.foobar.com/xx/yy?a=1",  
  timeout: 10 * 1000  
}, function(error, response, body) {
```

\$ curl https://api.foobar.co...

\$ curl https://api.foobar.co...

IT WORKS.

```
request.get({  
  uri: "https://api.foobar.com/xx/yy?a=1",  
  timeout: 10 * 1000  
}, function(error, response, body) {
```

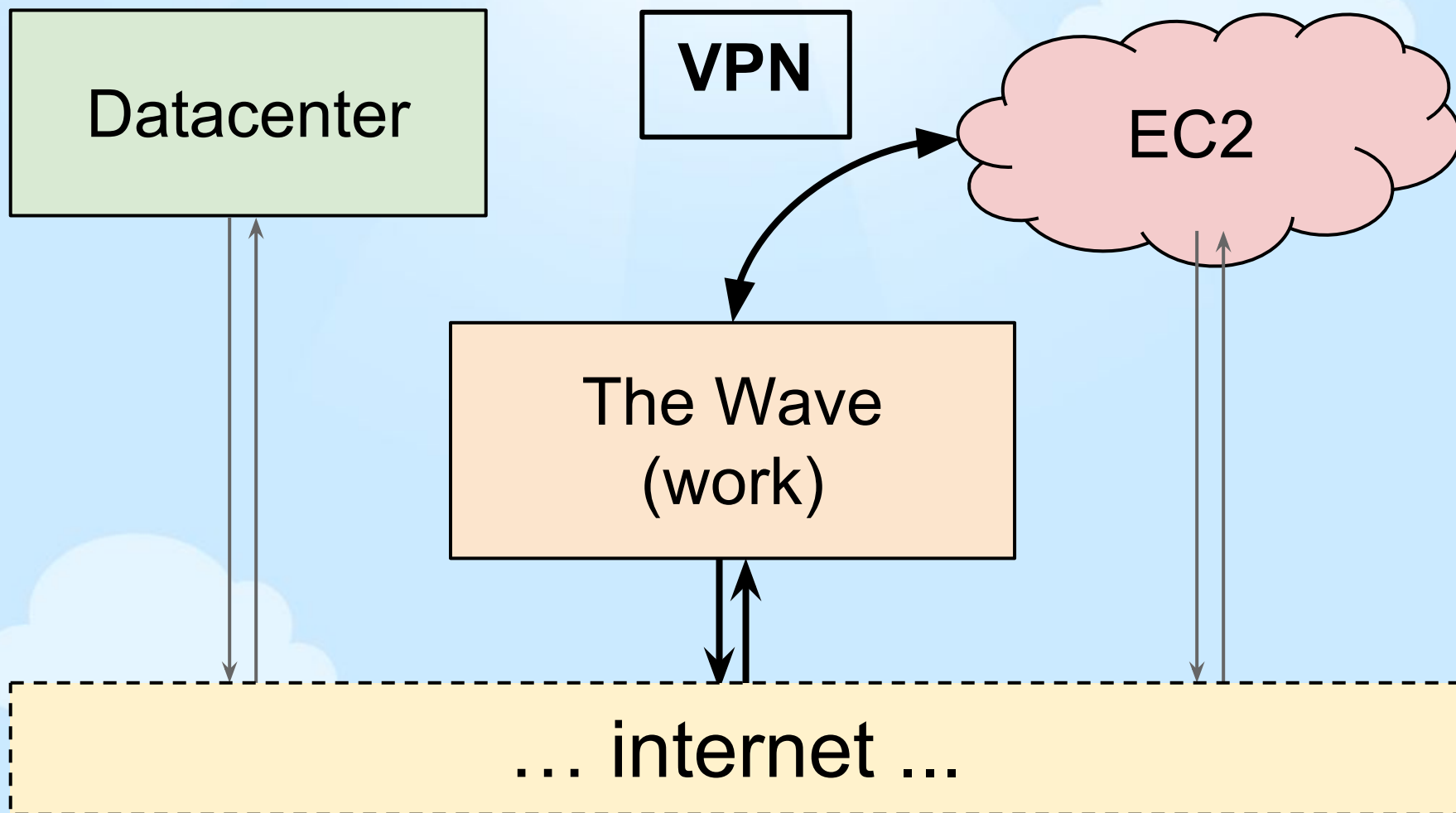
“Oh yeah, I got an email from them, they were going to move their IP address”

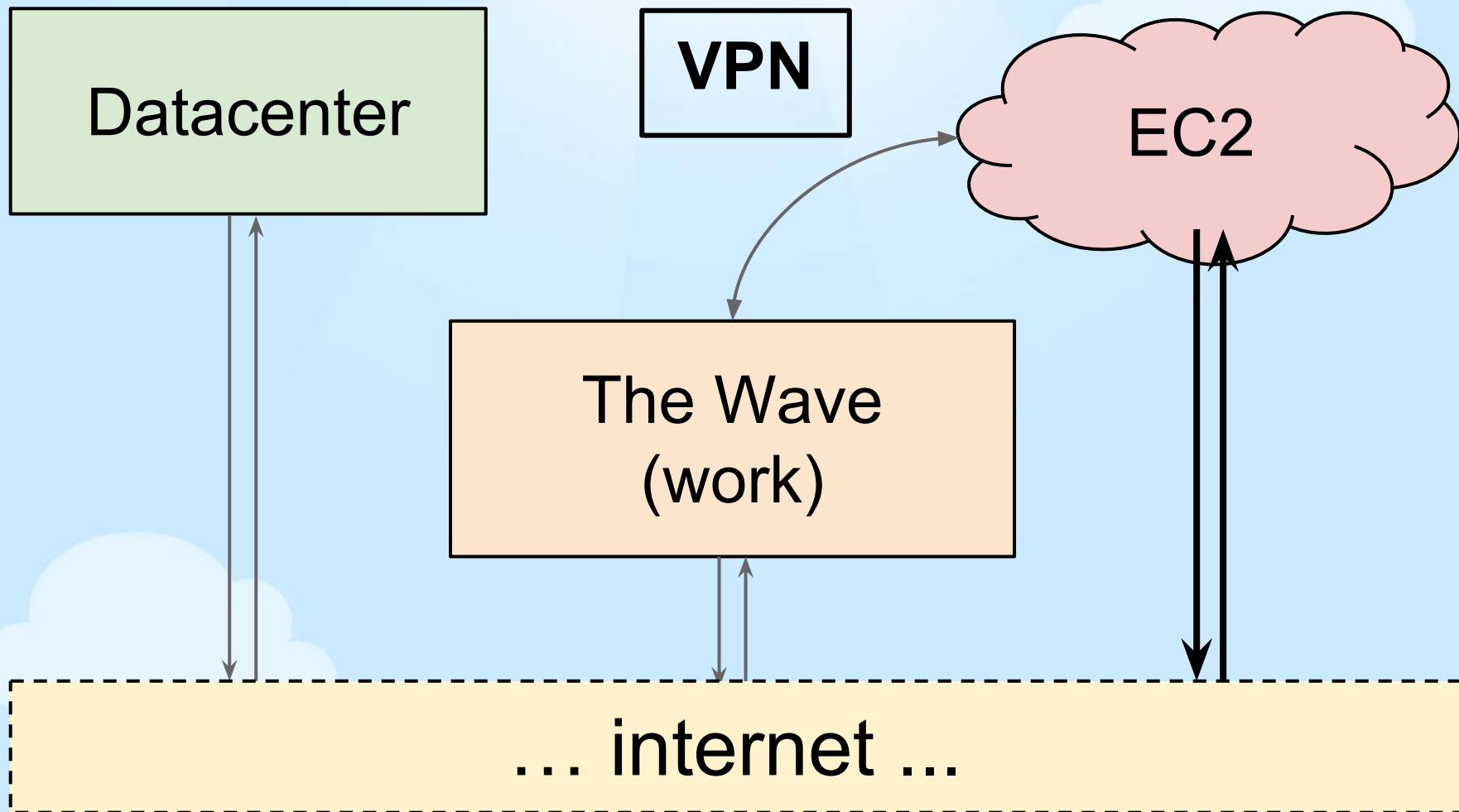
-- Anon #1

“Yeah, we did that Jira, we
use their DNS hostname so it
doesn’t matter”

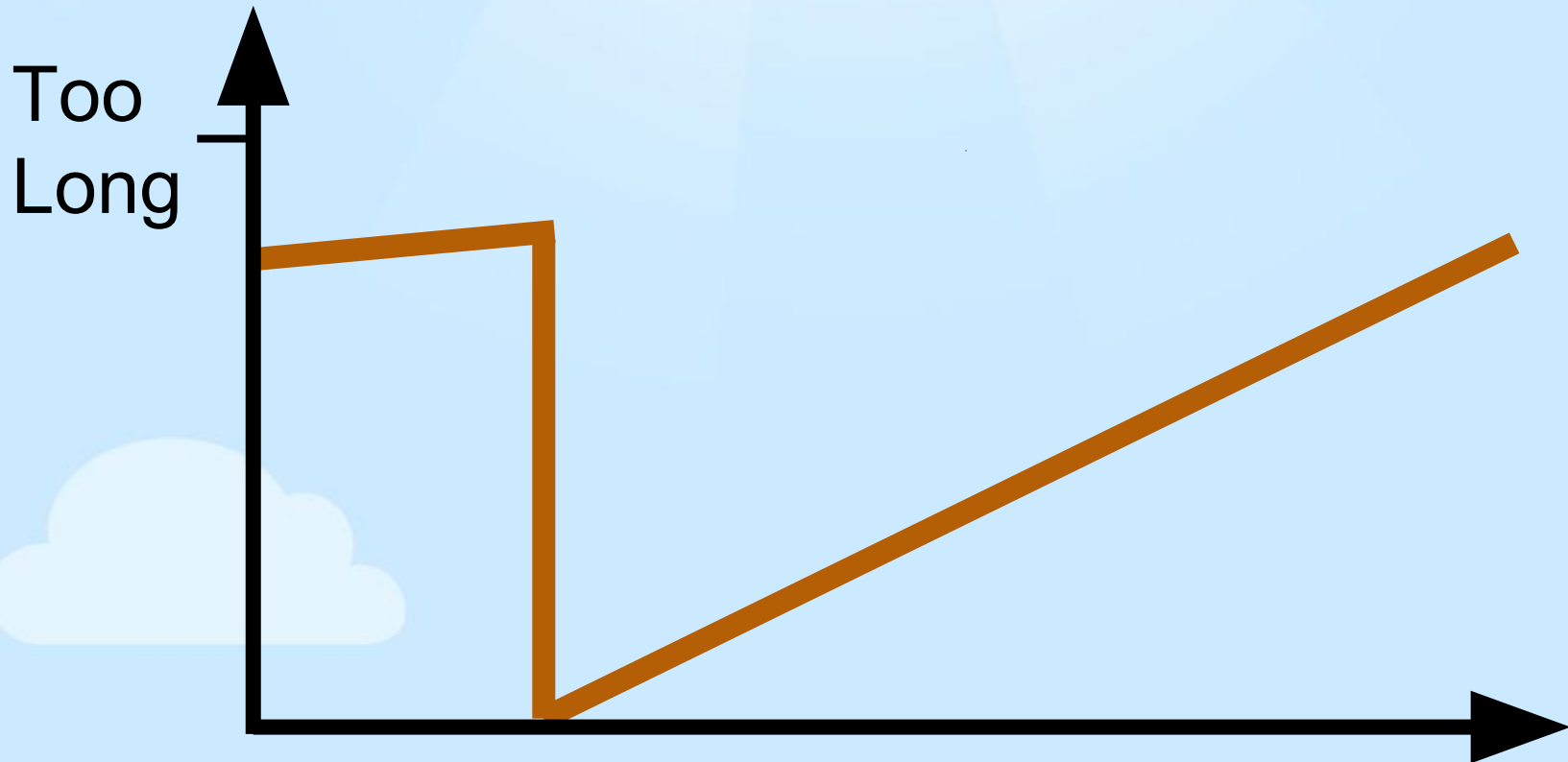
-- Anon #2







Response Times



**“In node 0.10 and earlier,
the HTTP Agent will only
open 5 connections to a
single host by default.”**

-- NodeJS

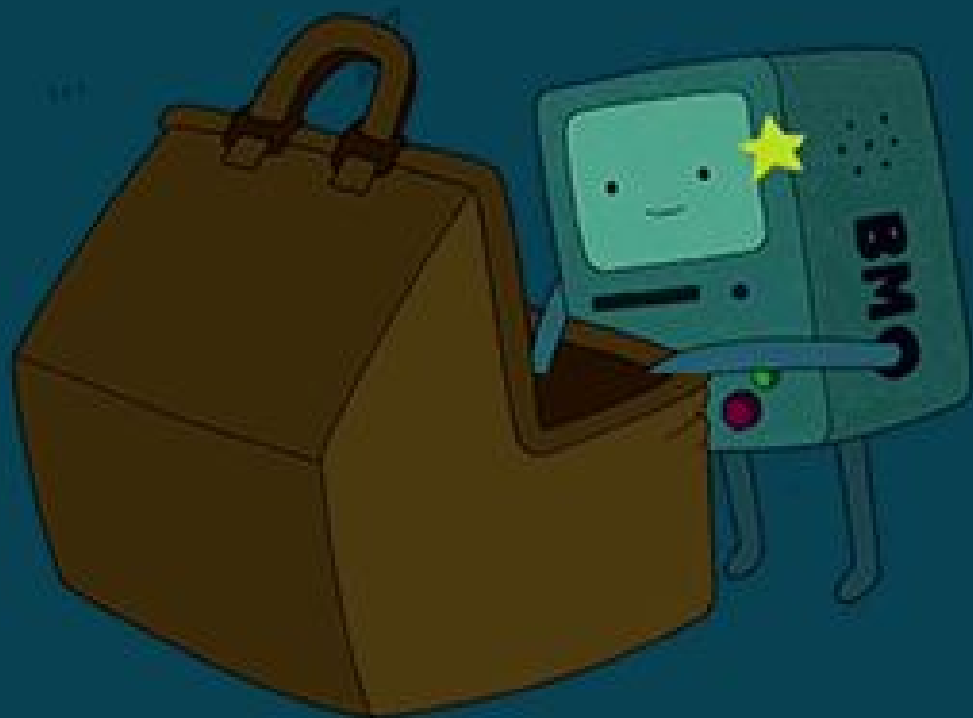
11:15am

- ✓ The API is working.
- ✓ Customer journey back to normal.



- ✗ 2 hours of downtime**
- ✗ 3 hours of customer impact**
- ✗ 2nd worst incident in the last 6 years**

Technical Learnings



GET → /xxx/yyy/service-test

```
{  
  "[supplier]-[product]": true,  
  "[supplier]-[product]": false,  
  "[supplier]-[product]": null  
}
```

HTTP 500



hxMetrics

Request Volume Request Duration Error Volume Error Percent < > 28d 7d 2d 6h 2h 30m 10m 2m 2014/05/28 07:51 2014/06/01 07:51

Summary of sql queries for hapi - production

63,593,986 requests



averaging 22.26ms



0.71

4,258 errors



0.01% error rate



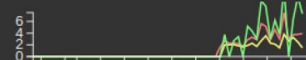
2589 ER_BAD_NULL_ERROR: Column 'Registration' cannot be null - undefined
1594 ER_PARSE_ERROR: You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the right syntax to use near ') AND internal_only = false AND preview_only = false AND ((start_date is null)' at line 1 - undef
65 ER_LOCK_WAIT_TIMEOUT: Lock wait timeout exceeded; try restarting transaction - undefined
5 ER_DUP_ENTRY: Duplicate entry 'MJzZ487' for key 'PRIMARY' - undefined
4 ER_BAD_NULL_ERROR: Column 'EMAIL_ADDRESS_' cannot be null - undefined
1 ER_CANT_AGGREGATE_: Illegal mix of collations (latin1_swedish_ci,IMPLICIT) and (utf8_general_ci,COERCIBLE) for operation '=' - undefined

SELECT `code`, CASE WHEN (details.type_id in (1, 5, 8, 9, 10, 11, 15, 29, 39)) THEN ? WHEN (details.type_id not in (14, 1, 5, 8, 9, 10, 11, 15, 29, 39)) THEN ? END as `date` FROM addons.addon_details `details` WHERE `code` in (?);

2,252 requests



averaging 3.74ms

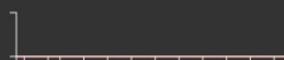


0

0 errors



0.00% error rate



SELECT `code`, CASE WHEN (details.type_id in (10, 14, 26)) THEN ? WHEN (details.type_id not in (10, 14, 26)) THEN ? END as `date` FROM addons.addon_details `details` WHERE `code` in (?);

63,558 requests



averaging 3.73ms



0

0 errors



0.00% error rate



SELECT `code`, CASE WHEN (details.type_id in (14)) THEN ? WHEN (details.type_id in (1, 5, 8, 9, 10, 11, 15, 29, 39)) THEN ? WHEN (details.type_id in (1, 5, 8, 9, 10, 11, 15, 29, 39)) THEN ? WHEN (details.type_id not in (14, 1, 5, 8, 9, 10, 11, 15, 29, 39)) THEN ? END as `date` FROM addons.addon_details `details` WHERE `code` in (?);

10,836 requests



averaging 4.29ms



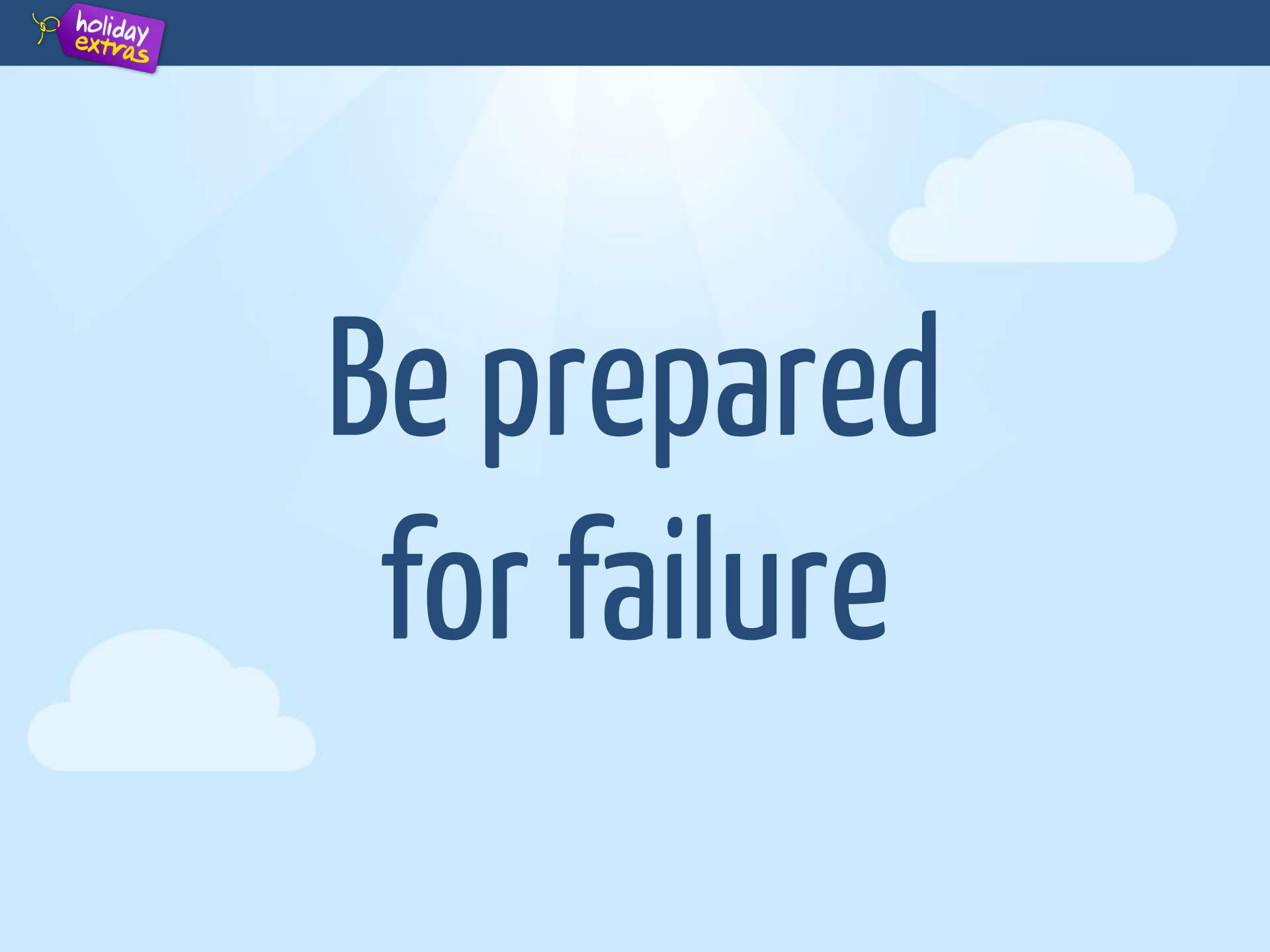
0

0 errors



0.00% error rate





Be prepared
for failure



The background is a light blue sky with stylized white clouds. A bright sun is positioned at the top center, with several rays of light extending downwards across the sky.

Thanks!