Application & Infrastructure Performance

Does it still matter in 2023?

18th July 2023,
The Mermaid, London

YES

Speaker

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eCommerce eXperience: **15++ years**
Adobe Certified Expert:
Magento Commerce Business Practitioner

„Don’t tell people how to do things, tell them what to do and let them surprise you with their results”

Gorge S. Patton

Application & Infrastructure Performance Tips & Tricks

01 What APM is & why should you use it?

02 APM Tool(s) in action: Real Life Use Cases

03 Deployment Markers, Service Maps, Dashboards

04 Lessons Learned

05 Q&A Session

Agenda

What APM is & why should you use it?

***APM**: is the monitoring and management of performance and availability of software applications.*

APM strives to detect and diagnose complex application performance problems to maintain an expected level of service.

APM is "the translation of IT metrics into business meaning"

Why to use APM Tools?

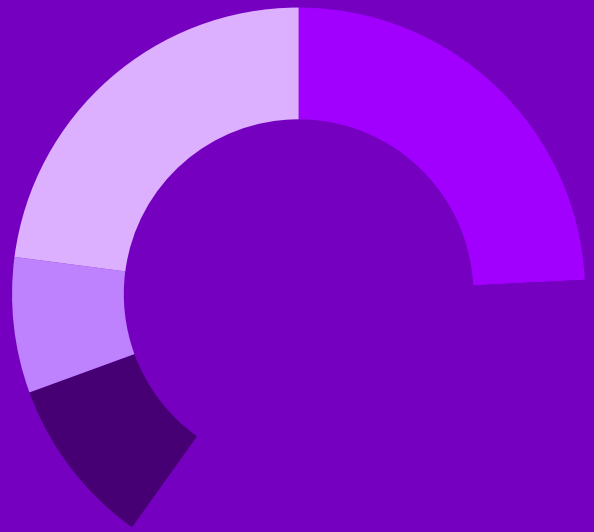
Why, why, why?

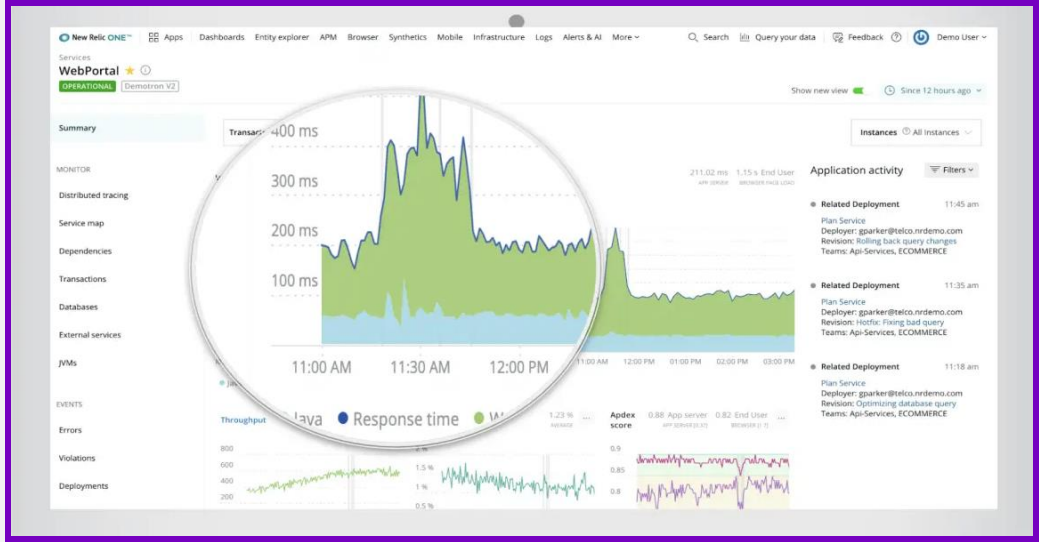
- *Digital experience monitoring - (active and passive)*
- *Application runtime architecture discovery and modeling*
- *User-defined transaction profiling (also called business transaction management)*
- *Application component monitoring*
- *Reporting & Application data analytics*

1 A complete view of your applications and operating environment

2 Discover hidden errors in minutes

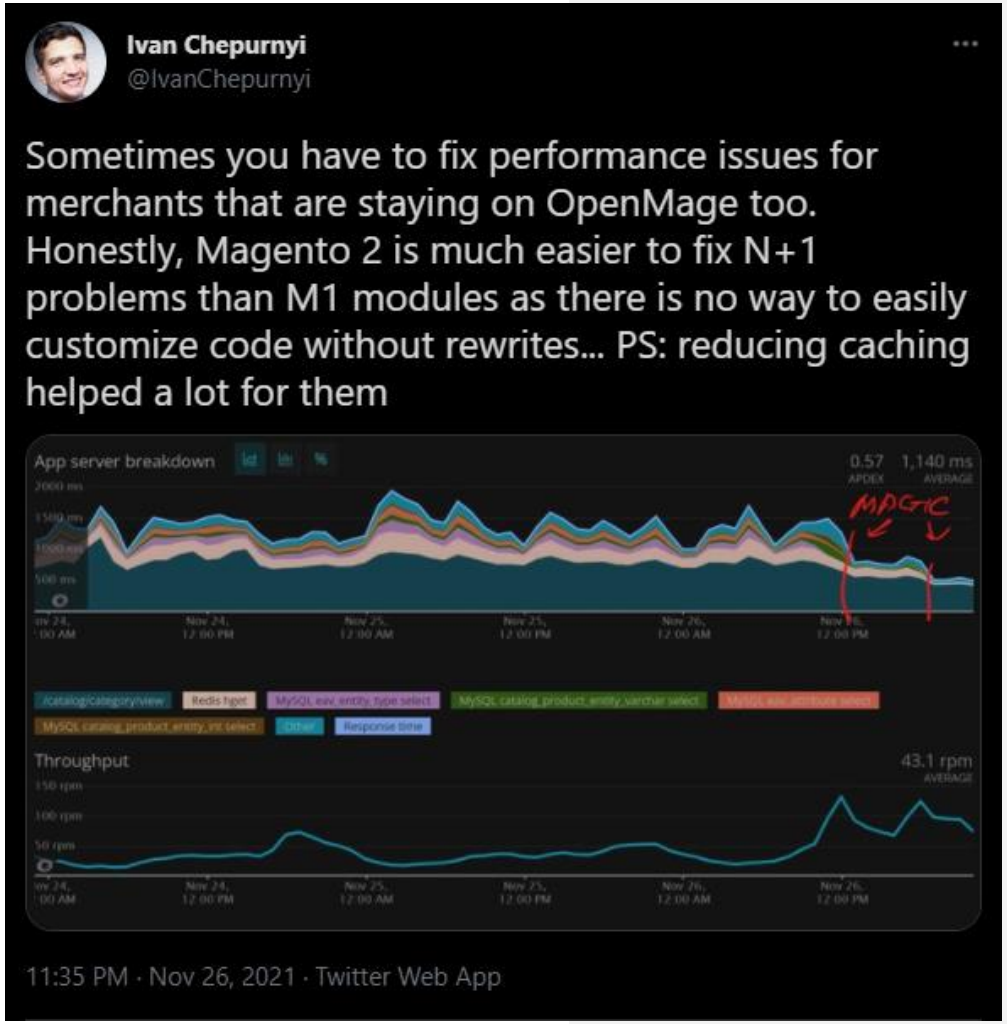
3 Faster incident handling, less finger pointing

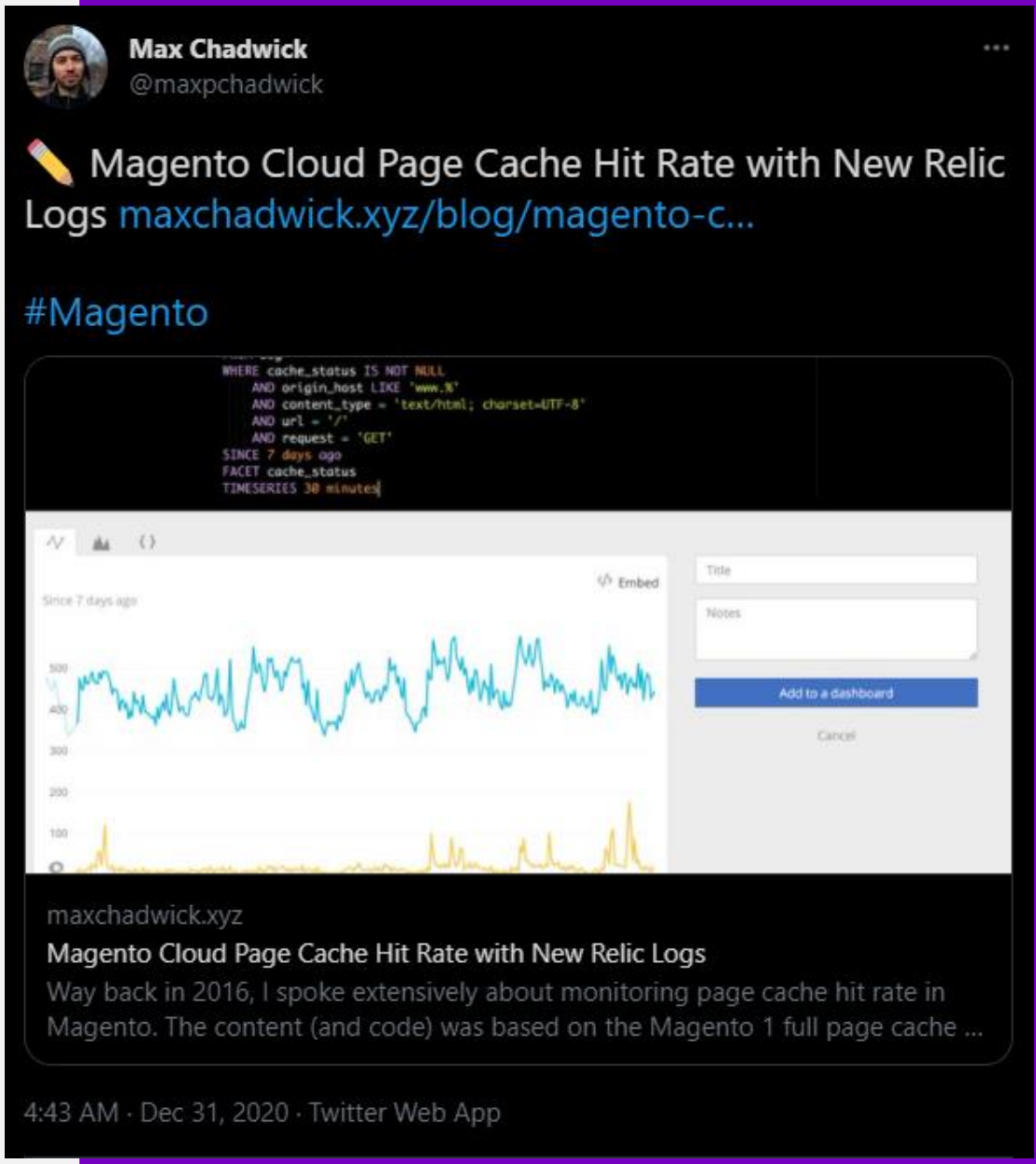




Why to use APM Tools?

Why, why, why?





Usage & Implementation Kick-Off

New Relic, Inc.

Founded in 2008; 15 years ago

PHP Monitoring

A PHP extension, which collects data from your application

$ sudo apt-get install newrelic-php5

Data Transfer

→ A local proxy daemon, which transmits the data to New Relic
→ PII Data is never transmitted to New Relic Servers

Agent Installation

RedHat or CentOS, Ubuntu or Debian or maybe a TAR Archive?

Adobe Commerce Cloud

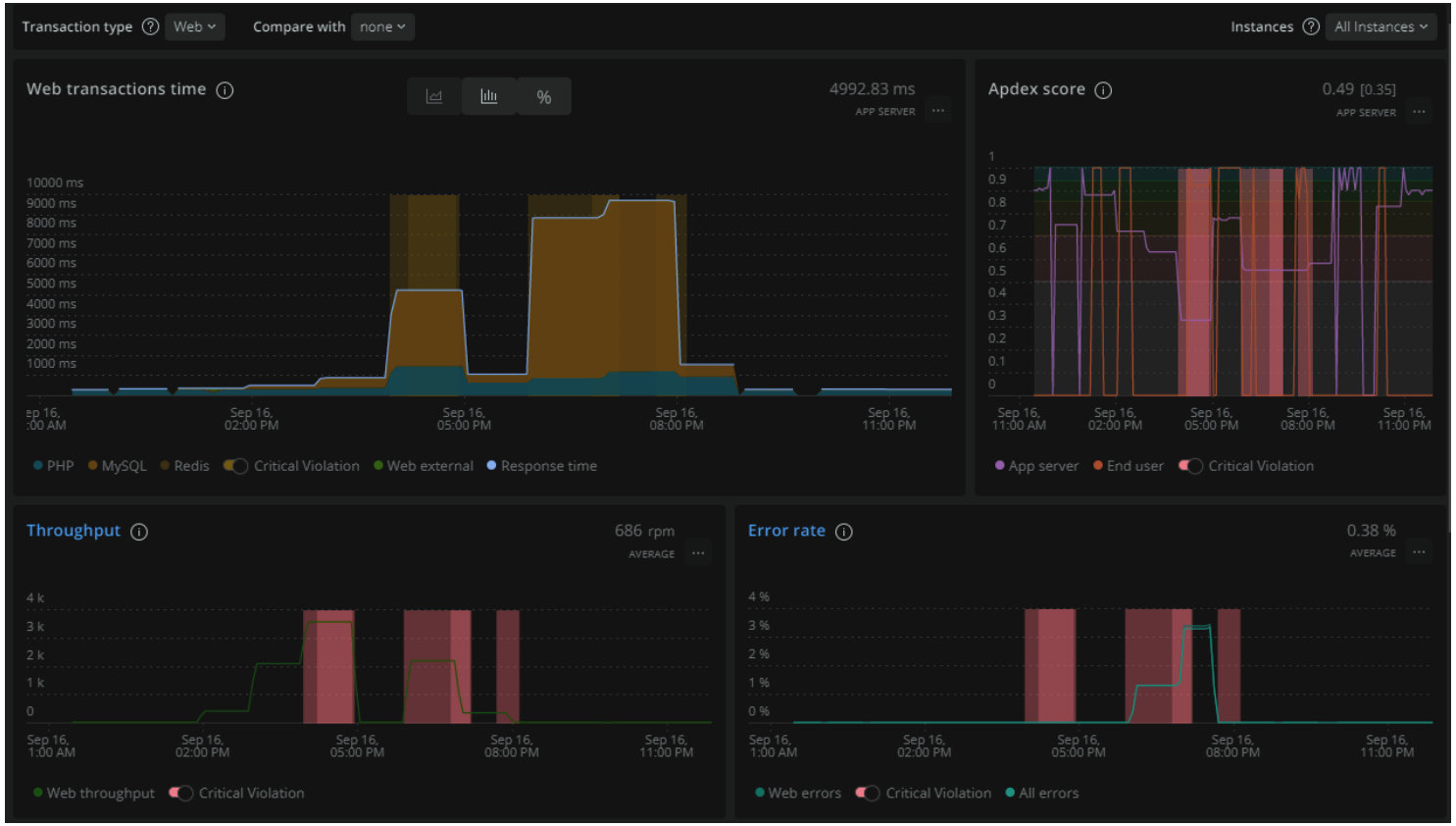
Merchants have faster access to data and out-of-the-box tools.

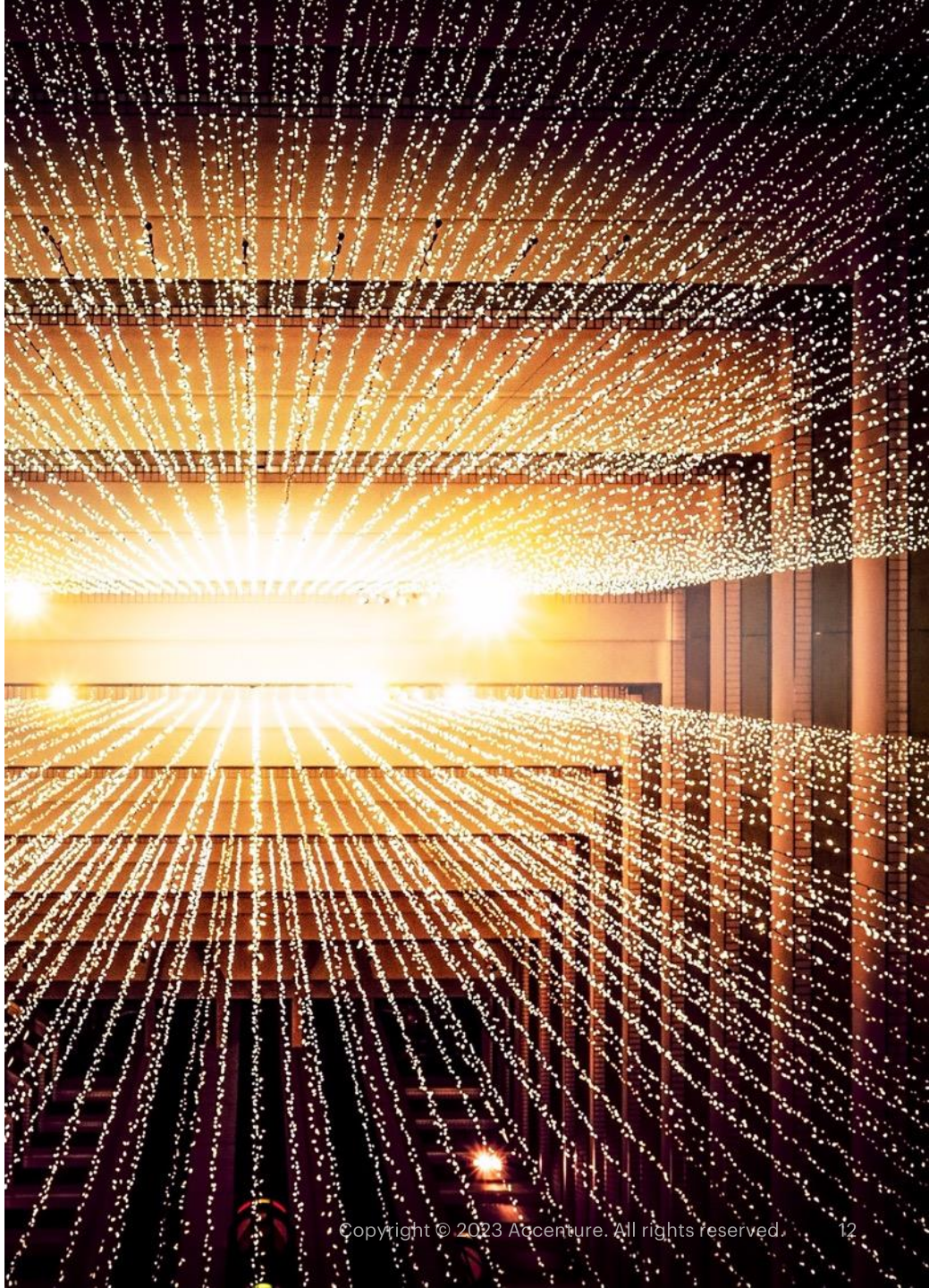
Is it only for PHP?

Monitor also: C, Go, Java, .NET, Node.js, PHP, Python, Ruby Applications!

APM Tool(s) in action: Real Life Use Cases

NewRelic in Action: Intro





NewRelic in Action: Use Case #1

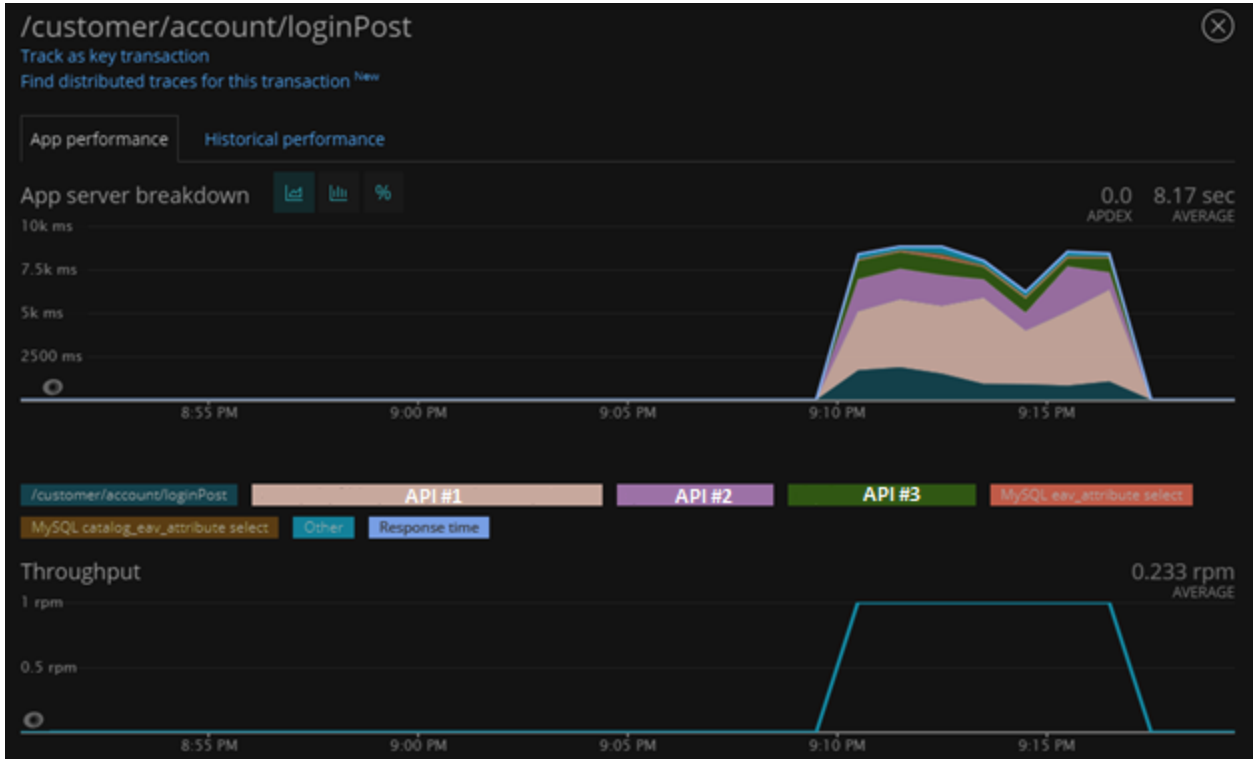
Tests Timeslots Reviewed:

- **Date**: DD.MM.YYYY 9PM - 9:30PM
- **NewRelic Traces**: https://one.nr/RandomUniqieURL
- **Execution Attempts**: 10 Transactions

Test: DD.MM.YYYY

- **Timeslot Review**: 30min
- **Execution Attempts**: 10 Transactions
- **NewRelic Traces**: NewRelic Traces
- **AVG Time:** 8,17s

What	Time (%)	AVG Call / TXN	AVG Time
API(s) Calls	79.8%	3	6.513s
Magento	20.2%		1.657s
Total	100%		8.17s



This Transaction (Customer Login) from Critical Business Path Flow shows that eCommerce Flows are strictly and inseparable tight with Performance of External APIs. Within this Smoke Test it has been shown that within 30min Timeframe and around 10 Transaction Attempts **External APIs Calls** were taking almost **80% of overall Login Step Time**. (Business Cause: Relevant Data should be loaded in real-time from relevant API Systems).

NewRelic in Action: Use Case #2

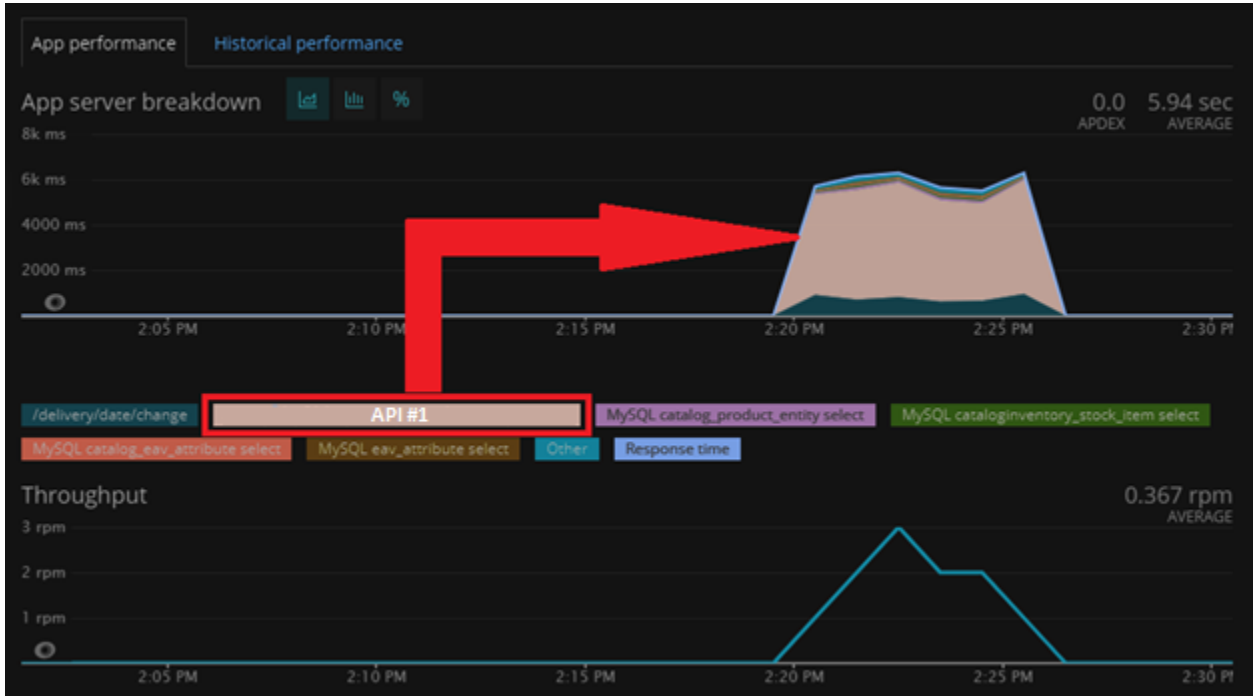
Tests Timeslots Reviewed:

- **Date**: DD.MM.YYYY 9PM - 9:30PM
- **NewRelic Traces**: https://one.nr/RandomUniqieURL
- **Execution Attempts**: 20 Transactions

Test: DD.MM.YYYY

- **Timeslot Review**: 30min
- **Execution Attempts**: 20 Transactions
- **NewRelic Traces**: NewRelic Traces
- **AVG Time:** 5,94s

What	Time (%)	AVG Call / TXN	AVG Time
API(s) Calls	79%	1	4.69s
Magento	21%		1.25s
Total	100%		5.94s



Reviewed Transactions: ***/delivery/date/change/*** (Custom eCommerce Feature) clearly show that **Magento is strictly depended on External API Endpoint Performance** on External System End

NewRelic in Action: Use Case #3

Tests Timeslots Reviewed:

- **Date**: DD.MM.YYYY 9PM - 9:30PM
- **NewRelic Traces**: https://one.nr/RandomUniqieURL
- **Execution Attempts**: XYZ Transactions

Test: DD.MM.YYYY

- **Timeslot Review**: 30min
- **Execution Attempts**: XYZ Transactions
- **NewRelic Traces**: NewRelic Traces
- **AVG Time:** 2,38s

What	Time (%)	AVG Call / TXN	AVG Time
Magento	85 - 90%		1.89 - 1.98s
API(s) Calls	10 - 15%	1	0.4 - 0.55s
Total	100%		2.38s

Analysis are showing of usage of *Magento_Banner* related calls that are taking between **80% to 90%** time of the Transaction. Those are standard Magento OOTB Flows linked with usage of Dynamic Blocks and Widgets based on Customer Segments

There are some official Magento Recommendations linked to the usage of the Dynamic Blocks / Magento Banner Feature (https://support.magento.com/hc/en-us/articles/360035285852)

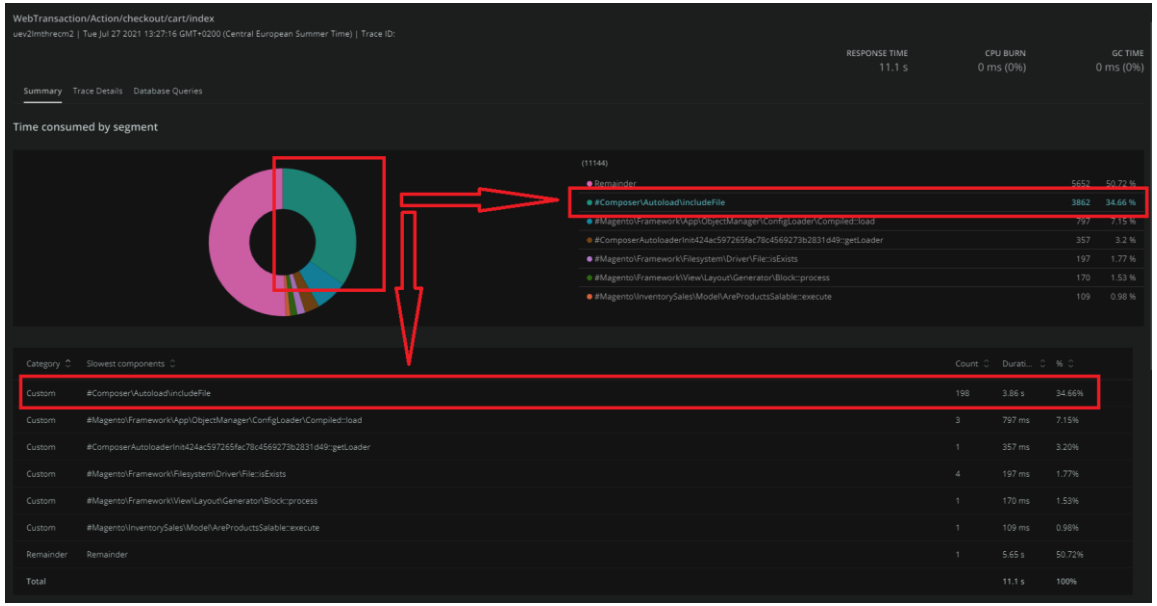
NewRelic in Action: Use Case #4 - OPCahce

Tests Timeslots Reviewed:

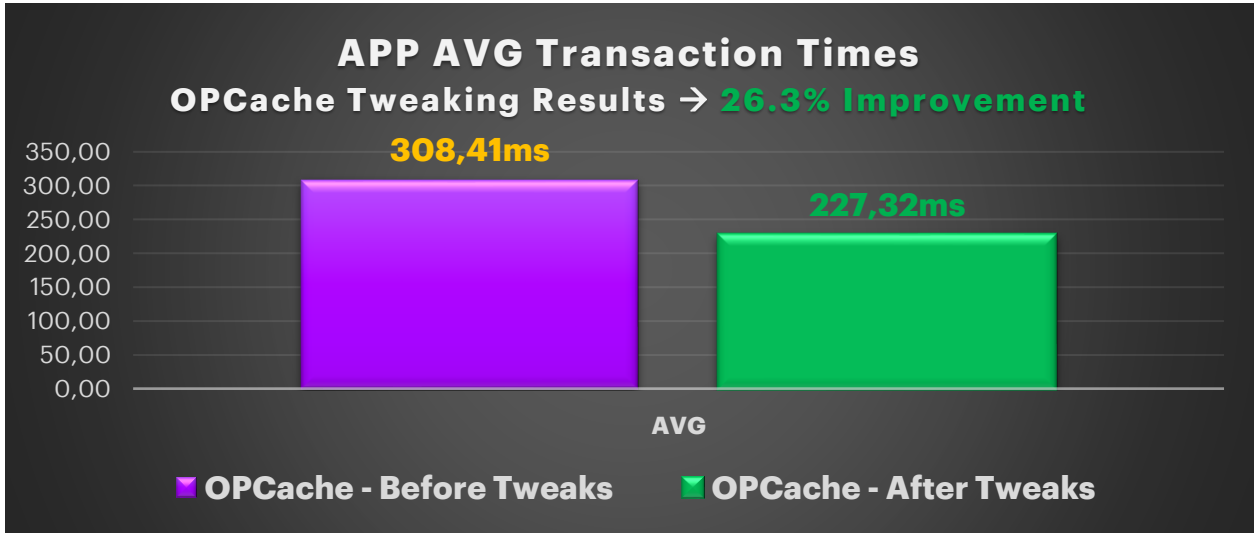
- **Date**: DD.MM.YYYY 9PM - 9:30PM
- **NewRelic Traces**: https://one.nr/RandomUniqieURL
- **Execution Attempts**: Heavy Load

Test: DD.MM.YYYY

- **Timeslot Review**: 60min++
- **Execution Attempts**: Heavy Load
- **NewRelic Traces**: NewRelic Traces
- **AVG Time:** ---

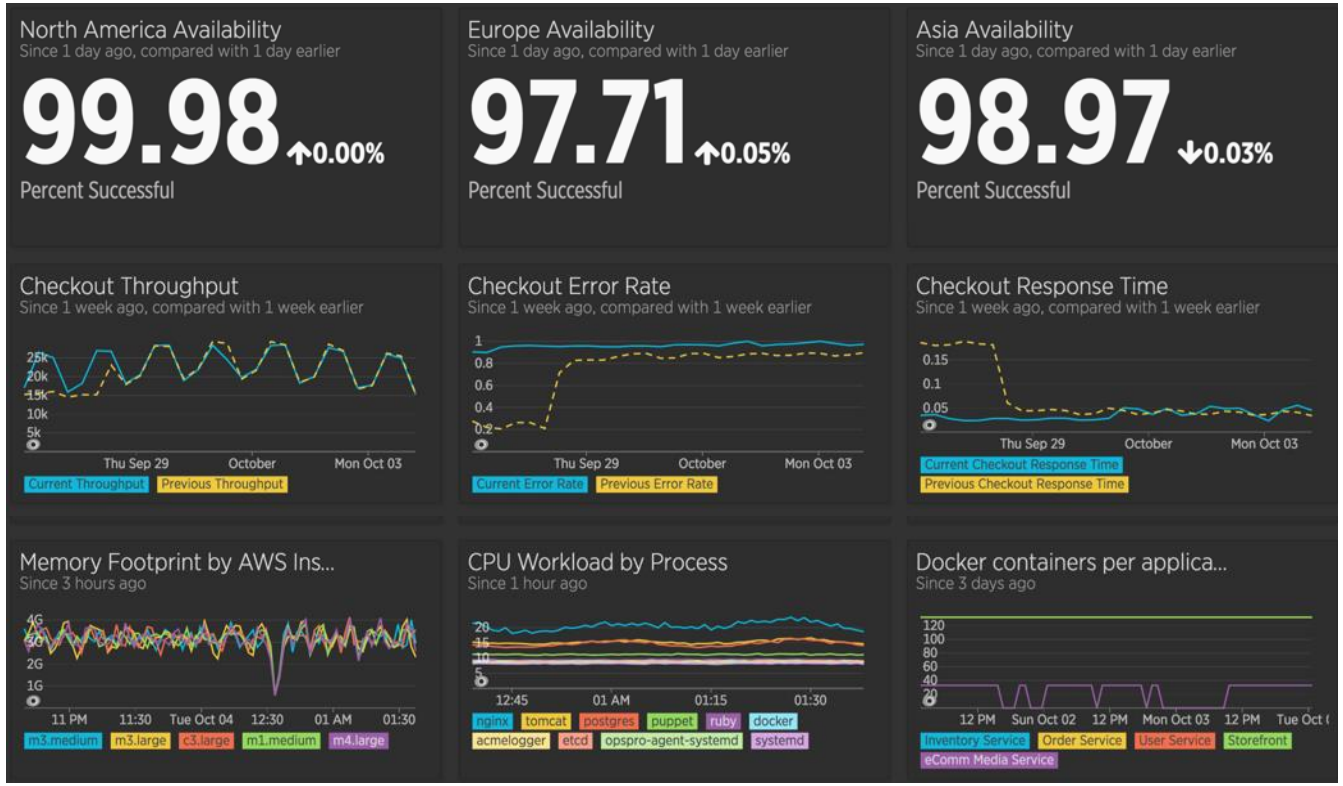


„It has been noticed that there were a lot of **Composer\Autoload\includeFile** slow traces within significant number of transactions that were executed within Smoke Test #01 Run. That lead Accenture Team to have doubts that **OPCache** works correctly".



Deployment Markers, Service Maps, Dashboards

Application and Infrastructure Performance

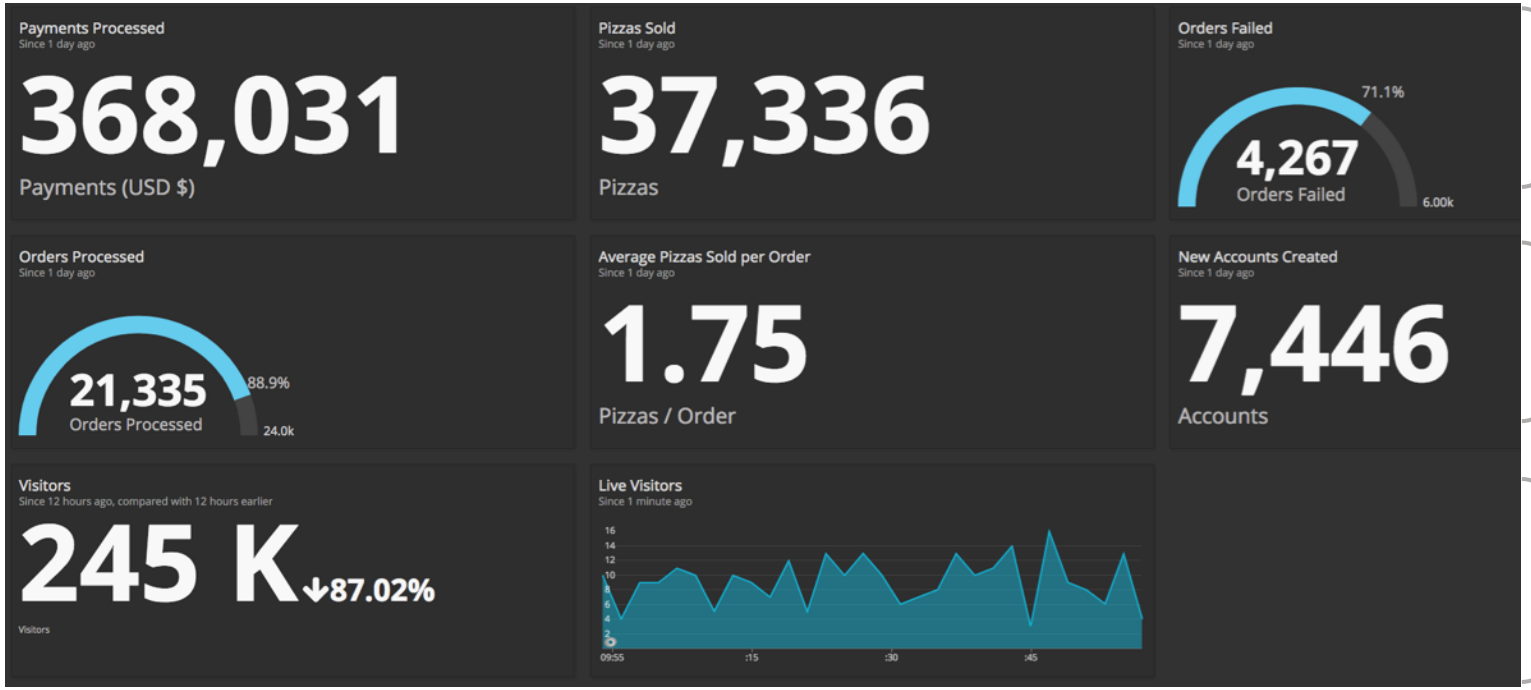


Are my apps available across all regions?

Are my critical transactions performing well?

Is my supporting infrastructure available?

Payment Success



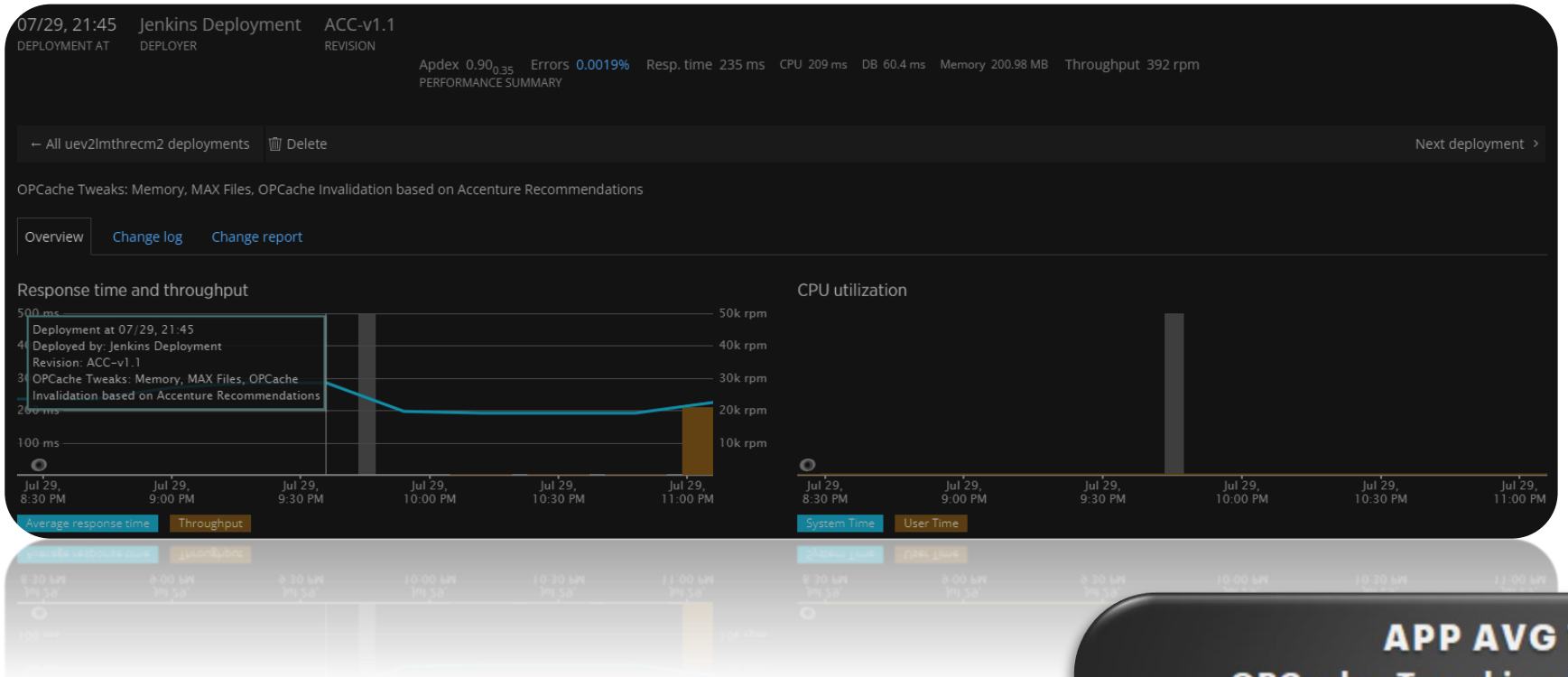
What is the revenue of digital orders?

What is the Payment Success rate?

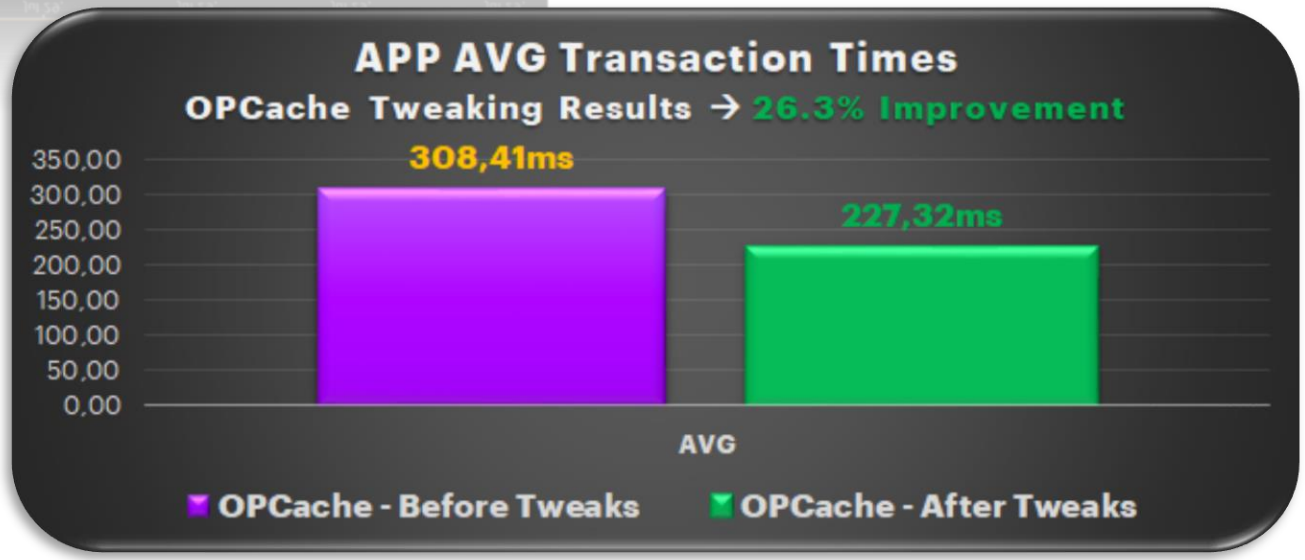
How are we performing against targets?

High Level: Performance Review

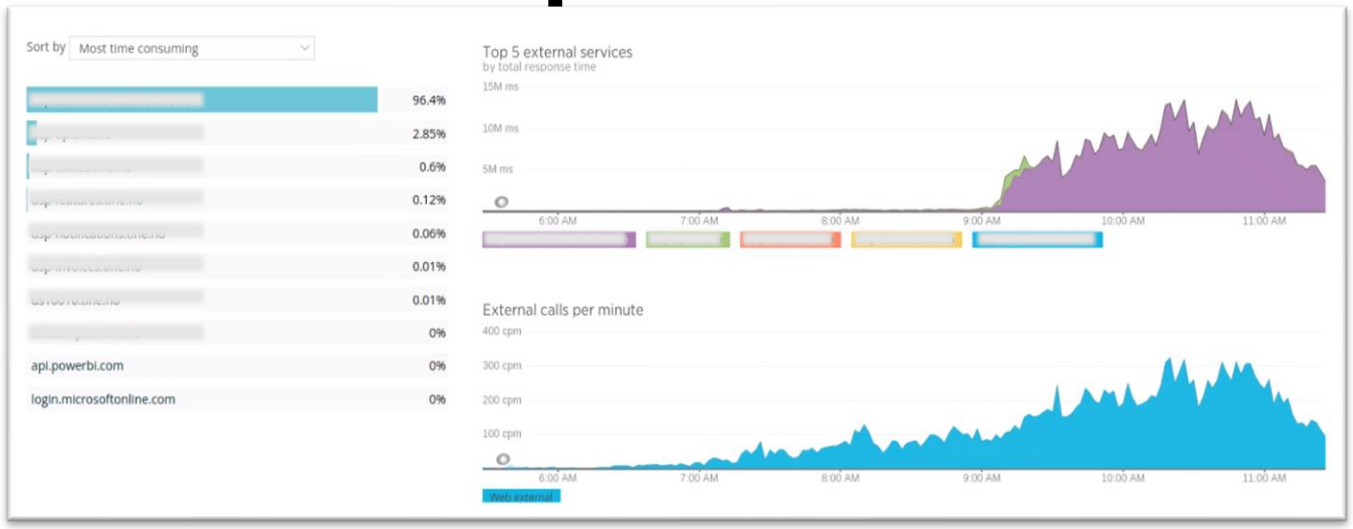
NewRelic in Action: Deployment Markers



„Deploying an app can be a risky event - when your app breaks, a bad deployment is often the cause. New Relic allows you to ***track deployments*** *so you can correlate deploy to your app's performance. Tracking deployments creates* ***deployment markers*** *that appear in APM charts"*

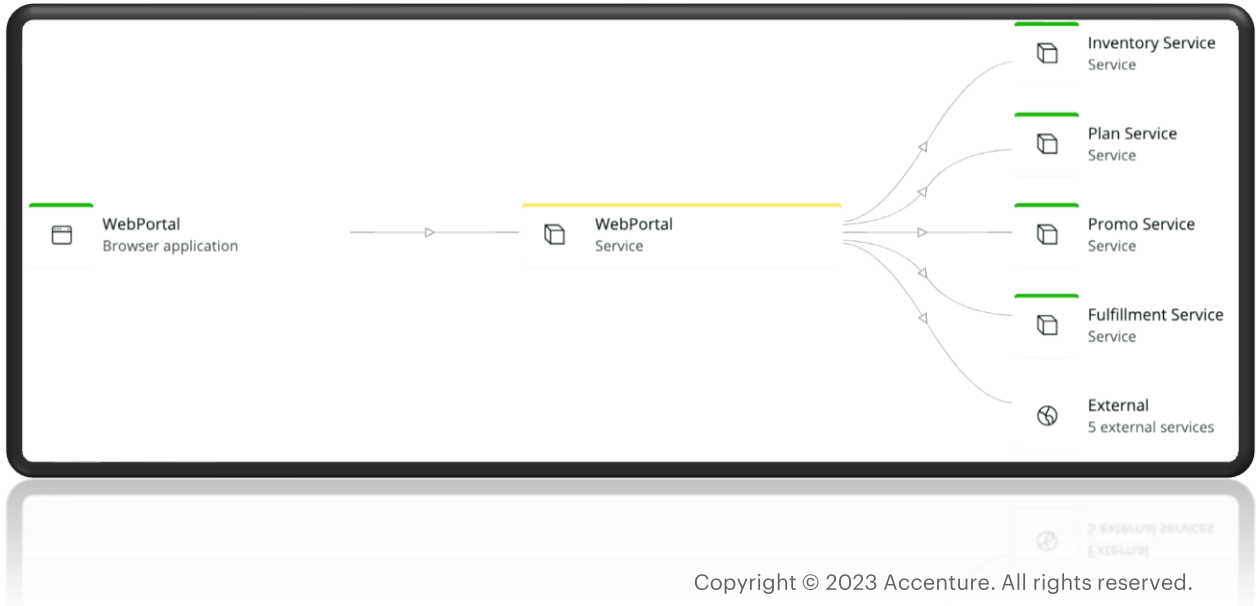


Service Maps & External Services

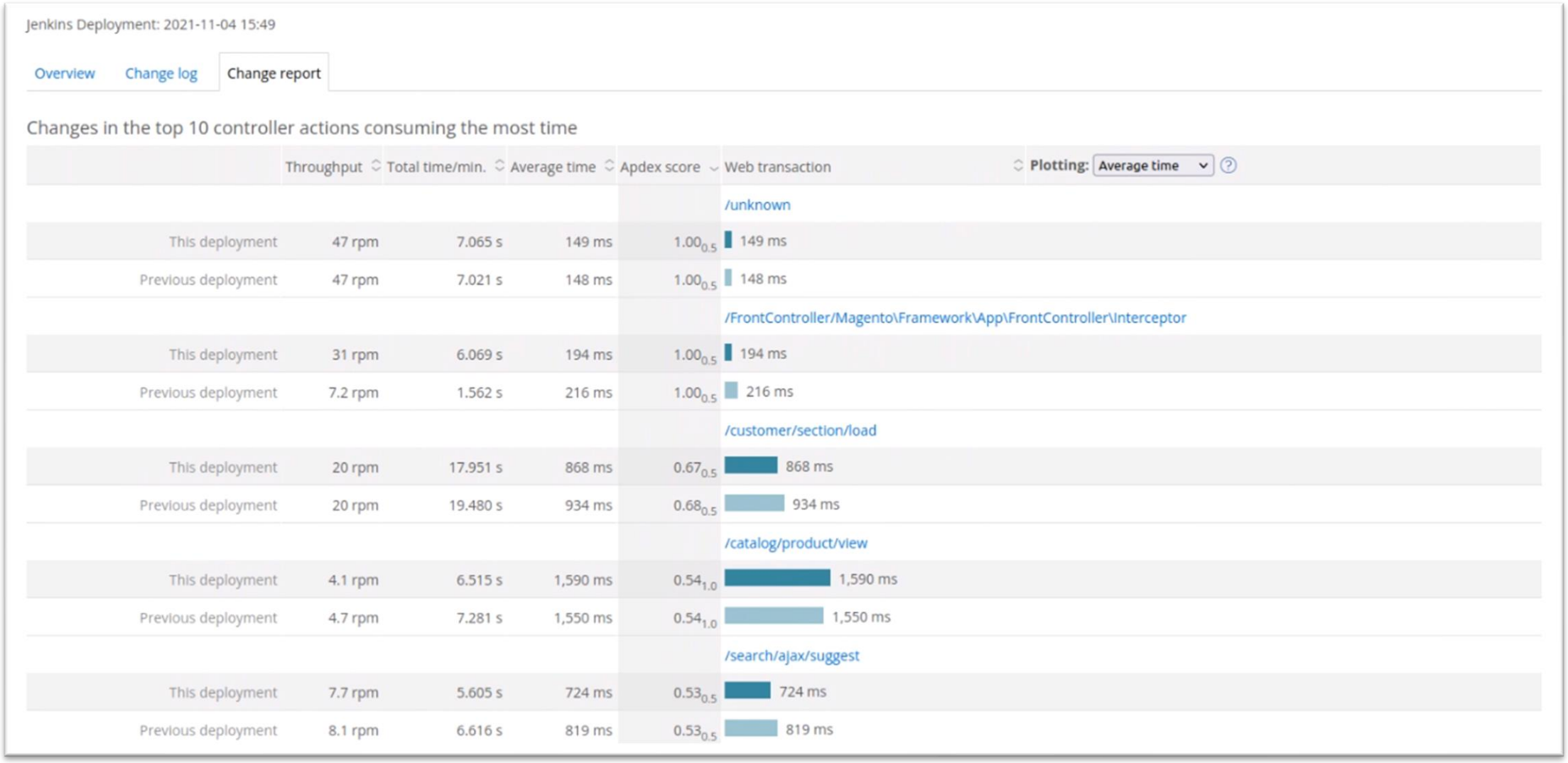


External services *page provides charts with your top five external services by response time and external calls per minute. You can also sort the list of external services by slowest average response time, most time consuming, or highest throughput (requests per minute).*

Service maps *are visual, customizable representations of your architecture. Maps automatically show your app's connections and dependencies, including applications, databases, hosts, servers, and out-of-process services.*



NewRelic in Action: Deployment Markers



Jenkins Deployment: 2021-11-04 15:49

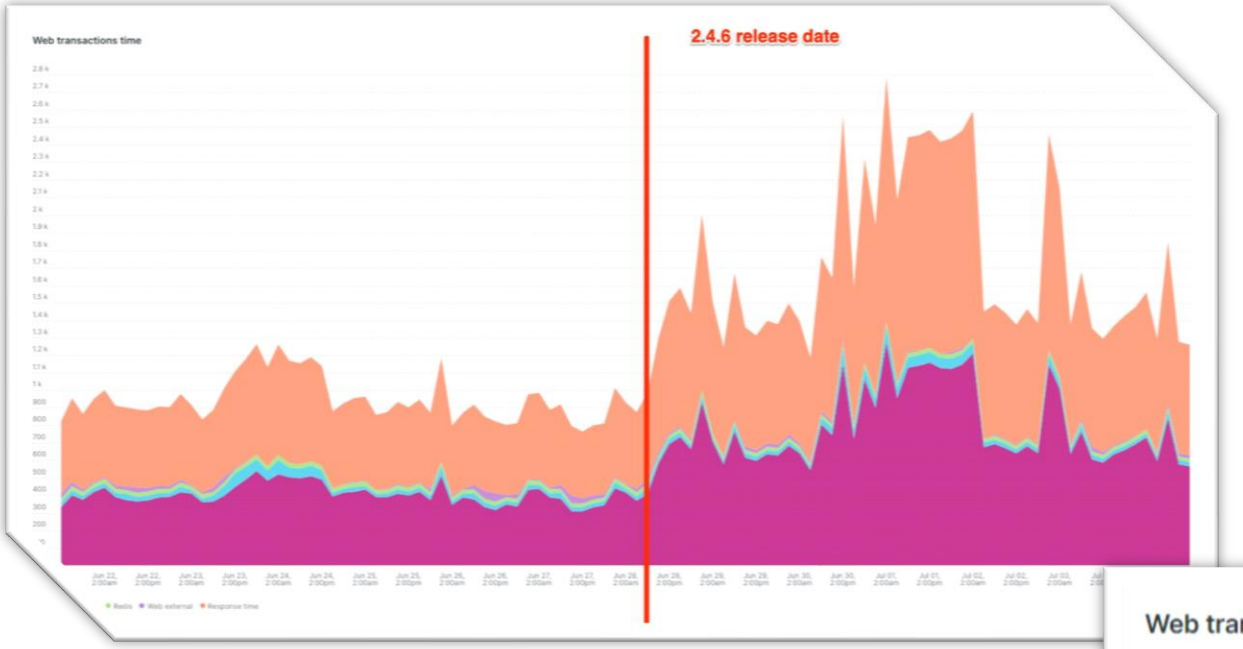
Overview | Change log | Change report

Changes in the top 10 controller actions consuming the most time

	Throughput	Total time/min.	Average time	Apdex score	Web transaction	Plotting: Average time
					/unknown	
This deployment	47 rpm	7.065 s	149 ms	$1.00_{0.5}$		149 ms
Previous deployment	47 rpm	7.021 s	148 ms	$1.00_{0.5}$		148 ms
					/FrontController/Magento\Framework\App\FrontController\Interceptor	
This deployment	31 rpm	6.069 s	194 ms	$1.00_{0.5}$		194 ms
Previous deployment	7.2 rpm	1.562 s	216 ms	$1.00_{0.5}$		216 ms
					/customer/section/load	
This deployment	20 rpm	17.951 s	868 ms	$0.67_{0.5}$		868 ms
Previous deployment	20 rpm	19.480 s	934 ms	$0.68_{0.5}$		934 ms
					/catalog/product/view	
This deployment	4.1 rpm	6.515 s	1,590 ms	$0.54_{1.0}$		1,590 ms
Previous deployment	4.7 rpm	7.281 s	1,550 ms	$0.54_{1.0}$		1,550 ms
					/search/ajax/suggest	
This deployment	7.7 rpm	5.605 s	724 ms	$0.53_{0.5}$		724 ms
Previous deployment	8.1 rpm	6.616 s	819 ms	$0.53_{0.5}$		819 ms

1. 2.4.6 Performance & ACSD-51892 Patch
2. Adobe Commerce's Enterprise Scalability
3. Redis on VMware with BlueField DPUs

Adobe Commerce 2.4.6-p1 & ACSD-51892 Patch



Sources:

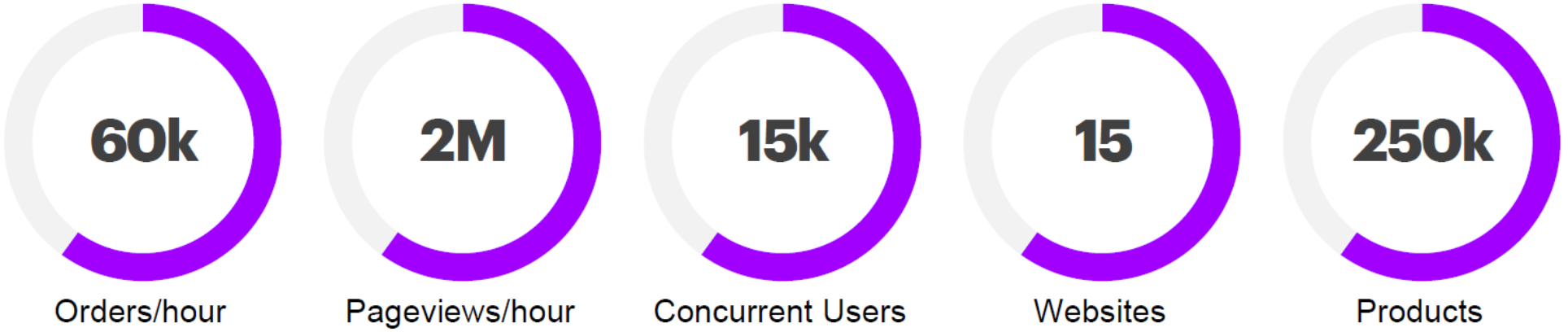
1. *GitHub: #37435 Deployment Config*
2. *Oleksandr Lyzun @ Twitter*
3. *Community Power & Knowledge Share*

FIX:

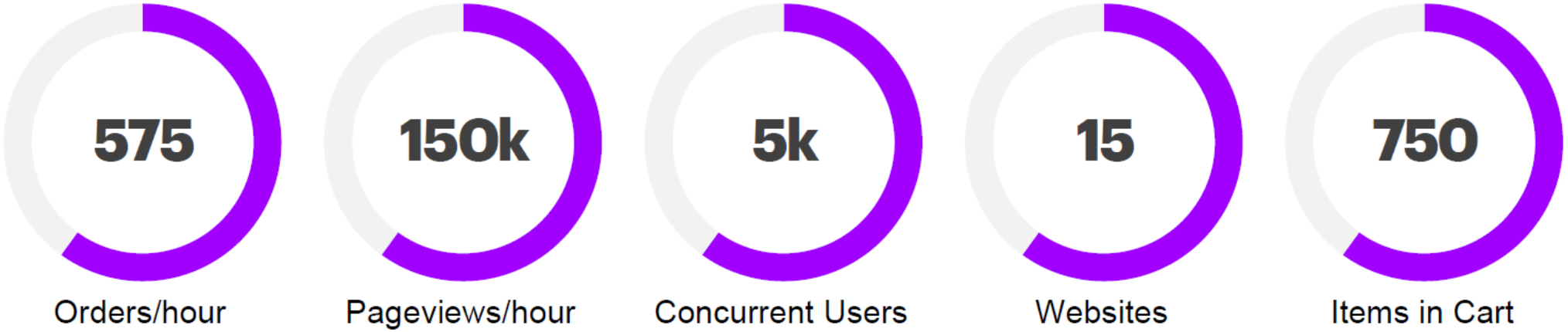
1. *Commit #6bc82de*
2. *Composer Patch: ACSD-51892*
3. *Pernament Fix: Part of 2.4.7 CORE*

Adobe Commerce's Enterprise Scalability

B2C



B2B

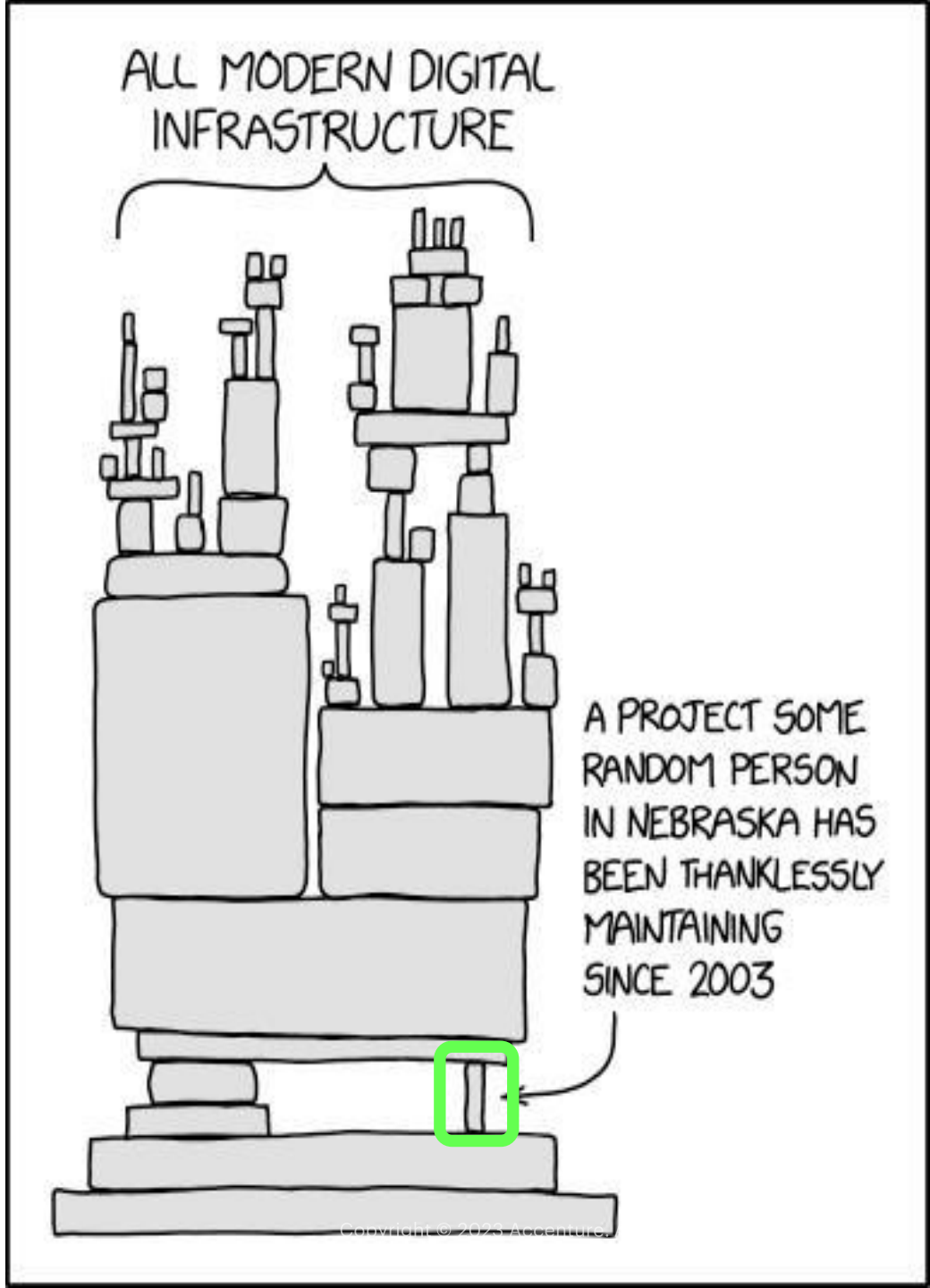


> **Source**: Accenture Adobe Commerce's Performance Benchmark

Lessons Learned

Tips & Tricks

BASICS Matters!



Tips & Tricks

Tips	Tricks
Optimalization >> Scalability	DON'T use AddAttributeToSelect(*)
Automatization is the King	Magic of MySQL EXPLAIN
Load in the Loop Problems / Phenomena	Hardware (IOPs) & Network Limitations!

Tips & Tricks

Code Quality - Performance: Count
$dataCollection->getSize() vs count($dataCollection)*

```
find ProjectXDirectory/ -type f -\( -name "*.php" \) -type f -not -name "*Test.php" -exec egrep -in "count\(.+\)" {} \; -print > /ScanResultsDir/ProjectX-CS-Performance-$Date.log
```

Standard MySQL Slow Query Log @ Adobe / Magento Open Source & Commerce

```
php bin/magento dev:query-log:enable --include-all-queries false --query-time-threshold 0.5 --include-call-stack false
php bin/mageno dev:query-log:enable --include-all-queries false --query-time-threshold 0.0020 --include-call-stack true
php bin/magento dev:query-log:enable --include-all-queries true --include-call-stack false
php bin/magento dev:query-log:enable --include-all-queries true --include-call-stack true
```

>

Interesting Facts

is_null($x) vs $x === null Performance (PHP 8.2.8)*

```
is_null($x) time: 15.149116516113 ms
$x === null time: 10.581016540527 ms
```

PHP Fiber Feature**

This feature is primarily targeted at library and framework authors to provide an event loop and an asynchronous programming API. — PHP Fibers RFC

>

Experimental Performance Review Script

Source: https://github.com/PiotrSiejczuk/m2-performance-review/
(Use with Causion, AS-IS)

Q&A Session

Thank you

Meet Magento 2023
UK, London, 18.07.2023

MM UK

Application
& Infrastructure Performance

Does it still matter in 2023?

Deck: https://github.com/PiotrSiejczuk/MM23UK

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