Adobe Experience Cloud

Adobe

WHITEPAPER

Adobe Commerce 2.4.2 Performance Benchmarks

High performance storefronts, enterprise scale product catalogs

Table of Contents

Introduction

This document contains results of performance measurements of Adobe Commerce 2.4.2 running on a Cloud Pro 144 instance with XX Large profile and Multi Source Inventory. Below are more details on the customer profile used for performance testing.

All performance measurements are based on simulated day-to-day store activities for customers and business users. The values also reflect a close to maximum throughput for each case, but don't reflect unique business models, like private sales or flash sales.

This information aids e-commerce managers and technical staff to better understand the performance characteristics of the application and select an appropriate setup for an Adobe Commerce store using cloud environments and services.

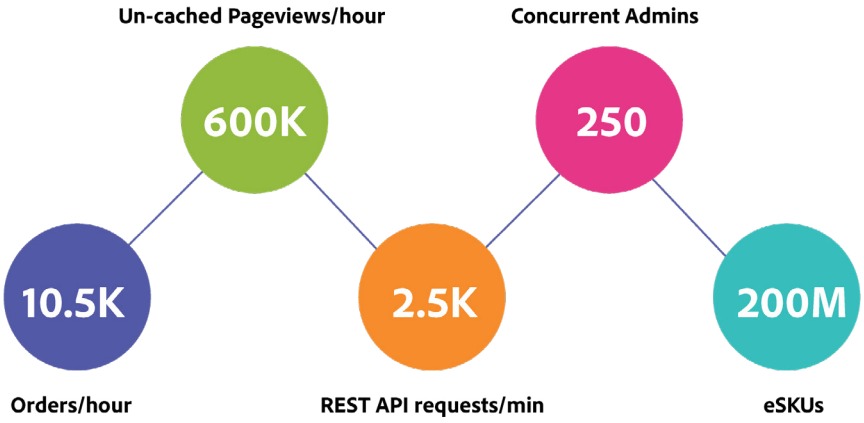
Key Results

Key Performance Metrics - Adobe Commerce 2.4.2

Adobe Commerce out of the box performance

Test Profile

SKUs	10M
Websites	4
Customer Groups	5
Categories	6K
eSKUs	~200M



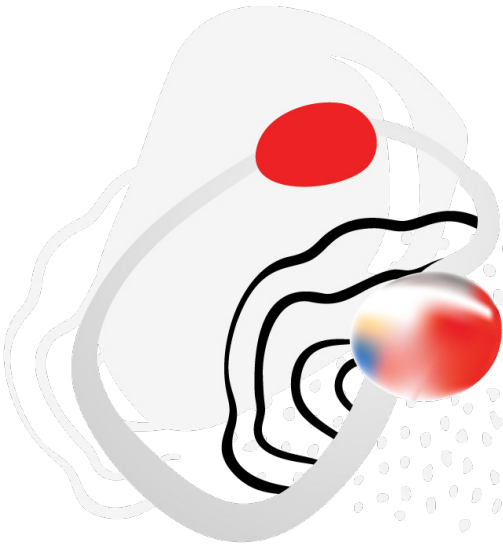
Data Profile Configuration

The test scenarios use the following data profiles. Each data profile includes a number of sites, products, and categories matching stores typically considered small, medium, large, and extra-large B2C/B2B installations.

All profiles are available through the Magento 2 GitHub repository,Profiles.

websites	4
customer_groups	5
store_views	5
simple_products	6,000,000
configurable_products	160,000 with 24 options
product_images	2000 images / 3 images per product
categories	6,000
cart_price_rules	20
cart_price_rules_floor	2
customers	10,000
tax rates	40,000
orders	150,000
eSKUs	~200,000,000

Note: you can find test data generation tools and the data profile configuration on https://github.com/magento/magento2/tree/2.4.2/setup/performance-toolkit.



Load Profile Details

Every experiment uses the profiles listed in Data Profile Configuration. These experiments use the following parameters.

- **Storefront and Admin actions:** Performance of actions completed by customers and business users managing the storefront

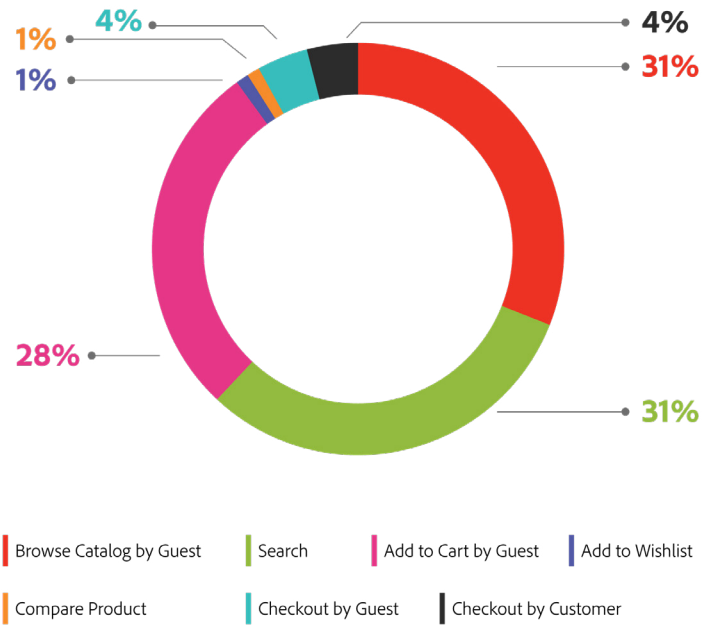
- **Load simulation:** starting from 1 user per core to 7 users per core of the application server [with certain cache hit rate more requests are served by caching sub-system (Fastly) rest reach application server]. All scenarios tested with no edge caching (Fastly disabled).

Note: the traffic profiles represent an average b2c scenario. For specific use cases like marketplace, flash sales, b2b, single product sites etc, the numbers might be significantly different.

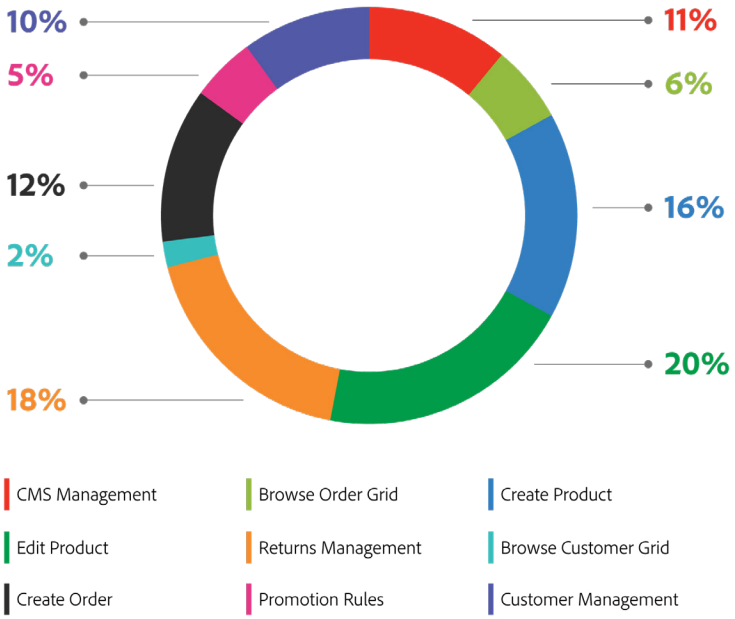
User scenarios

In order to make this test maximally close to real store load we perform requests to most areas of the website, emulating activities of browsing, adding to cart and purchasing products and performing store management. Graph below show the distribution of the simulated activity.

Frontend Scenarios (1000 concurrent users)



Admin Scenarios (250 concurrent admins)

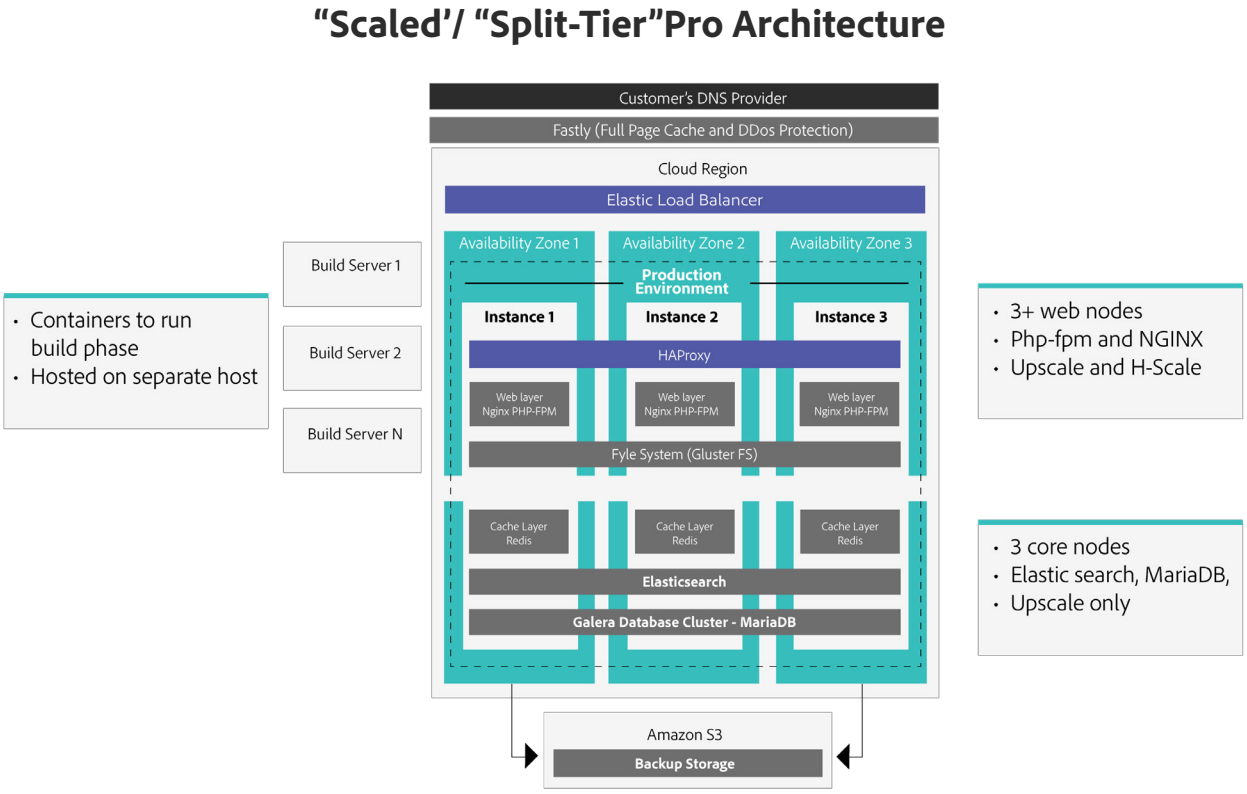


Environment Specification

Performance results provided in this document are captured on fixed size of environment having 144 CPU cores of calculation power. Please pay attention that today Adobe Commerce on cloud provides options of scaled environments with separated WEB and DB tiers and supports both horizontal and vertical scaling of your setup.

Cloud infrastructure schema

Load tests experiments run through JMeter using profiles against the Adobe Commerce on Cloud Pro 144 environment. The following image details the entry point of JMeter and Production infrastructure. For additional information, see the DevDocs Adobe Commerce on cloud guide – Pro architecture nullam ac tortor vitae.



Performance Testing and Measurements

This report includes graphs and tables of captured and calculated performance measurements. Each graph represents median performance results values.

Reading Load Testing Results

Graphs

The graphs map different measurements of performance tests for specific requests and responses. Each graph has a title for the test, legend for the tracked data.

How to interpret the graphs

The graphs show page load time (or whatever) depends on the number of traffic generating threads and cache ratio. When the page load time becomes unacceptable (we assume 2 seconds), you can deduct the maximum number of concurrent users the system can handle without caching. Environment used for testing comes with 144 CPU cores.

Types of Performance Measurements available in document

This document contains 3 types of performance measurement result: benchmarking (load tests), API, and client-side tests. All testing tools used for measurements are available through the Magento 2 GitHub repository, the Performance Toolkit.

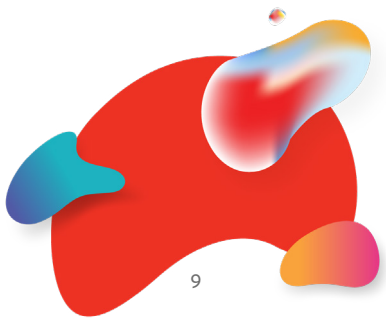
Load Testing [benchmark] results

Represented by graphs and rated against the following benchmarks:
Server-side response, multi-thread

- **Storefront:** non-cached 2 sec
- **Admin:** non-cached 4 sec

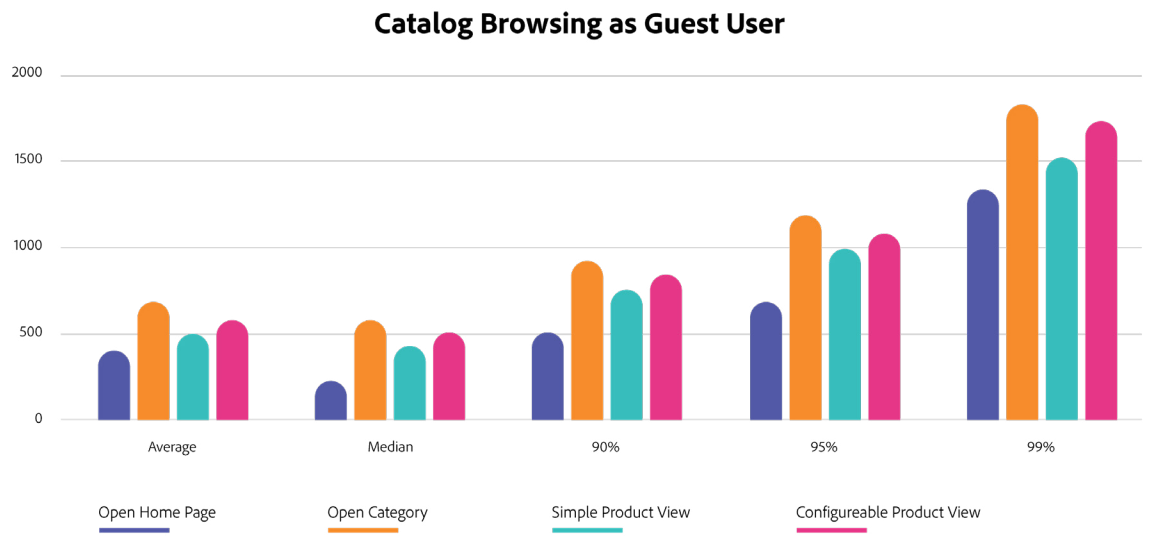
API performance tests

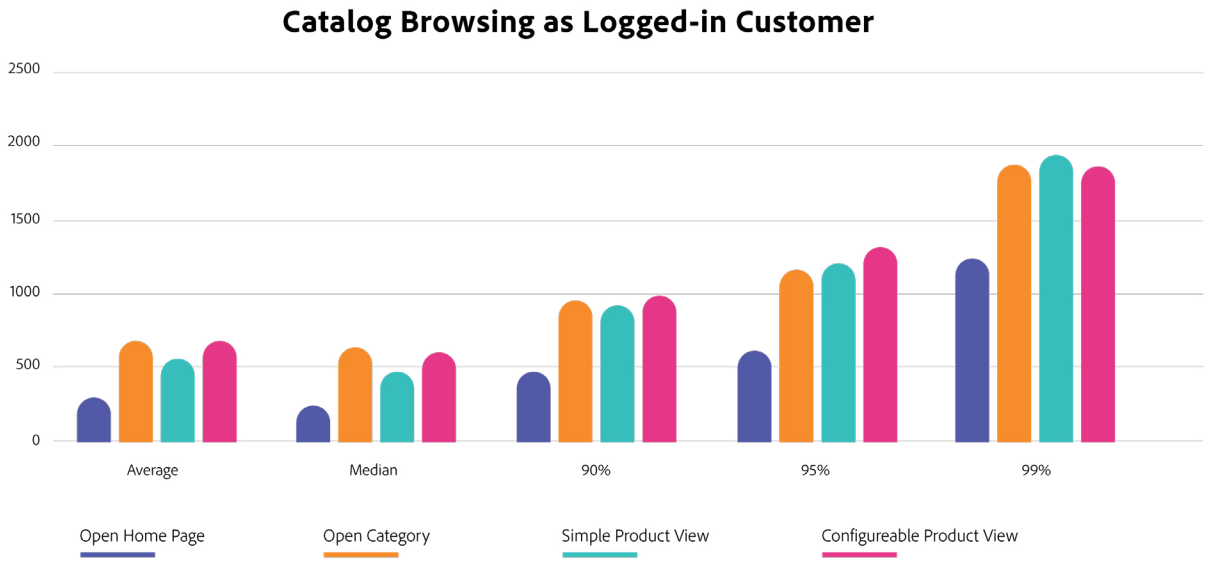
An API performance tests are isolated for load testing and executed in 250 concurrent threads. For extended performance experiments API collaboration can be made a part of load test.



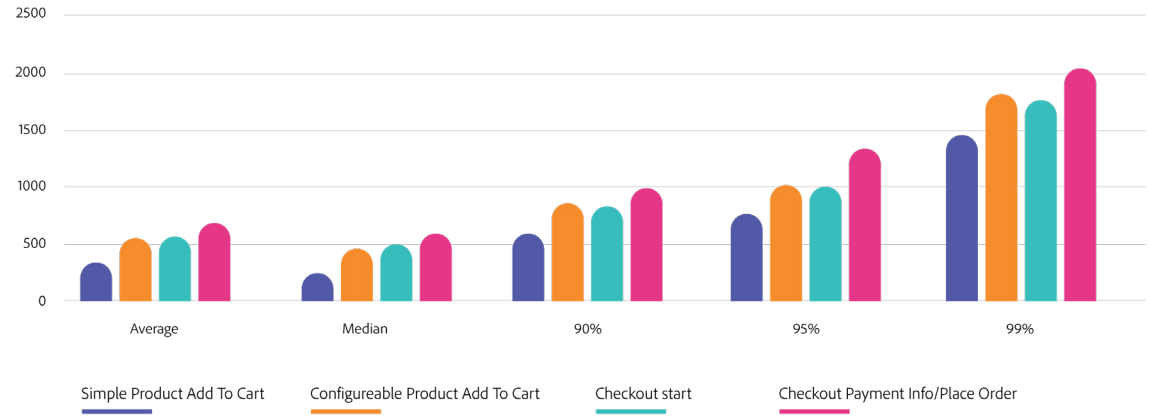
Load Test Emulation Results

1000 Concurrent Users on Storefront, 250 Concurrent Users on Backend/Admin, CDN cache disabled

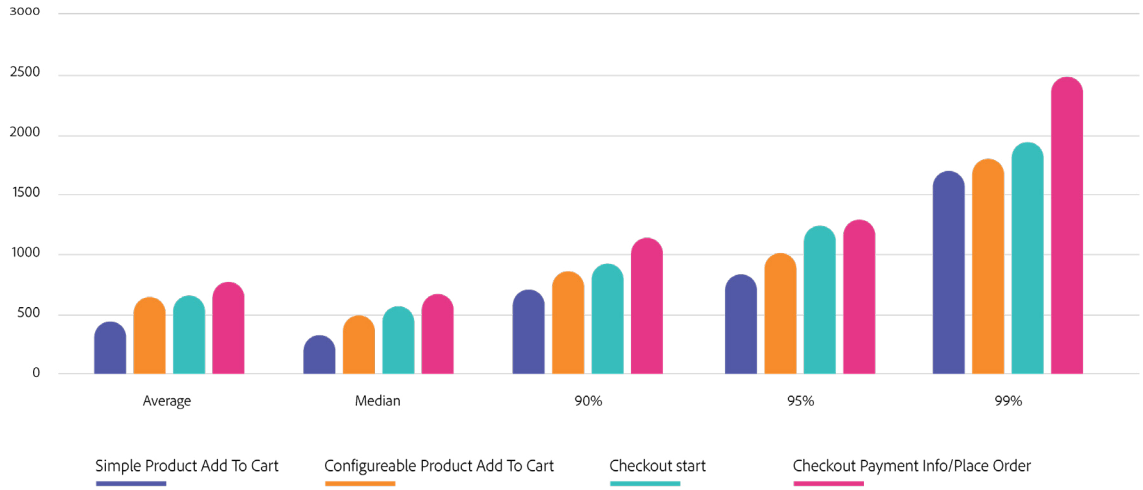




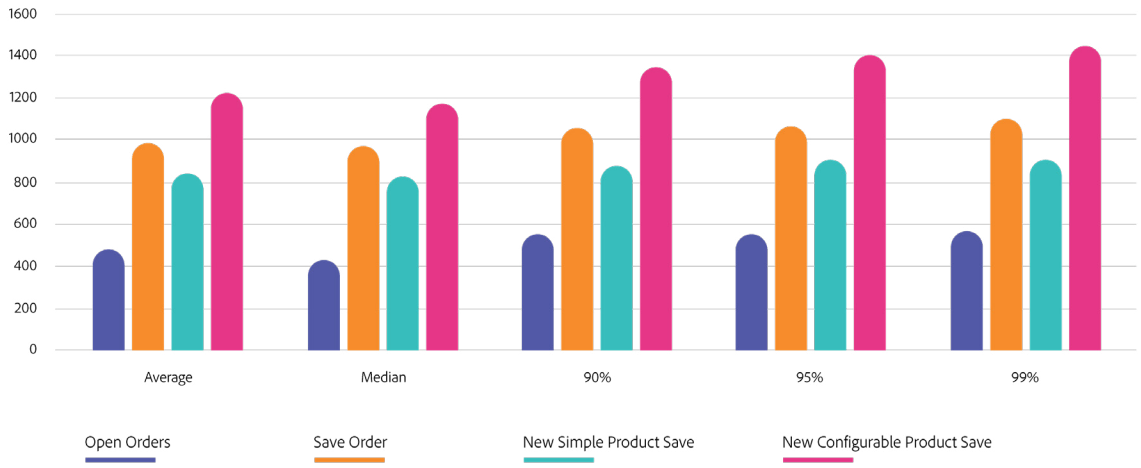
Purchase Flow as Guest



Purchase Flow as Logged-in Customer



Backend/Admin Operations



Adobe Commerce REST API Testing Results [ms]

50 concurrent threads

	Average	Median	90%	95%	99%
Get Orders	498	457	768	805	1024
Create product	629	425	1273	1320	1347
Create attribute set	1145	1282	1371	1371	1390
Update product stock info	180	144	340	367	374
Create Invoice	661	732	838	853	937
Check product	234	134	408	515	624
Create attribute group	187	85	485	485	574
Create attribute	358	361	622	622	655
Add attribute to attribute set	146	75	282	282	301
Create Shipment	1067	976	1580	1605	1652
Check product with extensible data objects	142	132	167	231	317

Store Indexing Time

Index	Time Completed
Design Config Grid	< 1 sec
Customer Grid index	1-3 sec
Category Products	1h 30m
Product Categories	< 1 sec
Product Price	4h 52min
Product EAV	disabled
Stock	18 min
Catalog Rule Product	40 min
Catalog Product Rule	< 1 sec
Catalog Search	1h 30 min
Product/Target Rule	1m 31sec
Target Rule/Product	< 1 sec
Sales Rule	< 1 sec
Total execution time	**6 hours 30min**

Conclusion

Adobe Commerce server-side response satisfies industry standards and has the following distribution:

- **90%:** < 0.7sec
- **95%:** < 1sec
- **99%:** < 1.7sec

With average load of 1000 threads and 0% cache hit ratio on 144 cores instance Adobe Commerce enables customers to serve **10.5k orders/hour** and **550k page view/hour** (demonstrating above response time)

Effective usage of cache layer guarantees 2-3 times increase in page views number per hour (up to **1.5M page views/hour** for selected environment)

Average REST API request processing time is below **300ms** (distribution from 100ms to 900ms)

Server-side performance metrics result in less than **1s** for category browsing scenarios and stands below **2s** for all critical storefront pages.