



# Peak Performance for **Salesforce B2C Commerce Sites** – A Quick Guide for Success



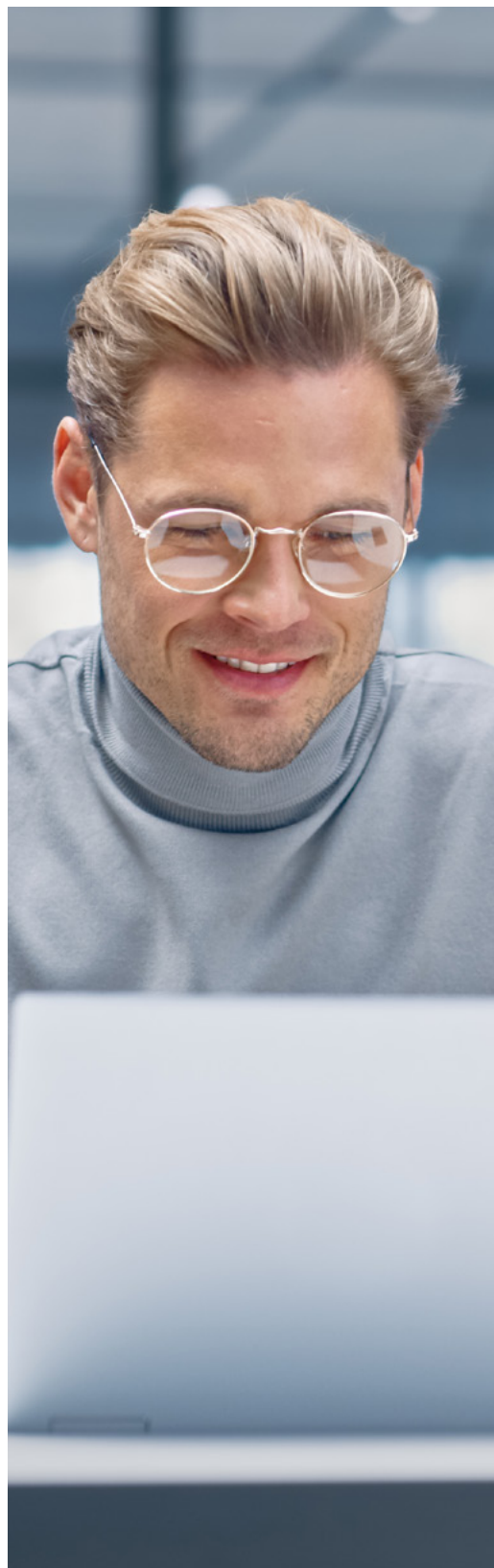


## No brainer: You need to monitor your site performance

### 3-2-1

That's all your e-commerce site gets to finish loading for your customer. After this, you land at the turning point where bounce rates skyrocket and your sales and marketing budgets are at stake. In fact, **40%** of customers will wait no more than **3 seconds** before abandoning a site. So how can you ensure that your successful sale dreams don't come crashing due to a poorly performing website?

Even if you are not on B2C Salesforce Commerce, the approaches stated here should typically work for you. While only **15%** of all websites in the world wide web are considered to have acceptable loading times, anyone with a website can work effectively to improve site performance. It is a crucial step before you launch any key sales event, a **flash sale** or a product release. To ensure peak site performance, limited downtime, returning shoppers and a delighted merchant, your technical architect need tools and approaches to analyze and continuously monitor the site performance.





## Selecting the right approach



Based on the merchant's site complexity, the approach that technical architects recommend vary. But a risk-based approach is commonly considered a safe bet. For this, it is important to **identify test tools** for both client and server aspects of the application, so that they can obtain the right tools to troubleshoot in case performance degrades. In addition, you need to demonstrate to admins how to **track performance** on live sites. This is true especially while installing new code and data, or when running jobs on the same point of delivery (POD) as a live production instance. If one POD instance takes a hit, it impacts the entire POD, therefore, one should plan the biggest performance hits for off-hours. **Plan for problems** and work backwards.

### Related Reading:

**Be Holiday Ready by  
making Your E-commerce  
Website & Application  
'Crash-Proof'**

If you are on Salesforce B2C Commerce, you will have access to technical reports in an exclusive dashboard. The Technical Reports dashboard gives insights about a site's server-side technical operations data, including pipelines and controllers.



# Your Technical Dashboard

## Average Response Time:



Average response time per request can be tracked here. Track controller response time to troubleshoot and identify your resource optimization.

## Non200-Level Responses:



This report plots trended frequency as a percent of total requests that resulted in a non200-level response code during the dashboard time period

## Response Time Distribution:



This report shows the number of requests by response time in 500-millisecond segments and review the performance of the system and controllers. A peak in response time combined with a high number of controller requests may mean a controller issue.

## Main Controller Requests:



This report shows performance metrics for system controllers and pipelines for the dashboard period. This is used to evaluate system performance and isolate controller and pipeline performance issues.

## Include Controller:



The Included Controller report shows metrics for all the include calls made across all the controller and pipeline requests for the dashboard time-period. This report helps evaluate performance and identify issues with include calls.

## Cache Hit Ratio:



Select the time period of assessment and view the:

- Cache Hit report, i.e., the percentage of responses retrieved from the web adapter page cache
- Cache Miss and Store, i.e., the percentage of responses created by an appserver, marked as cacheable, and stored in the web adapter page cache
- Cache Miss i.e., the percentage of responses not retrieved from the web adapter page cache

## Technical Details:



This dashboard, contained under the Main Controller Requests report, displays the technical reports for a single controller or pipeline.

## Include Controller Request:



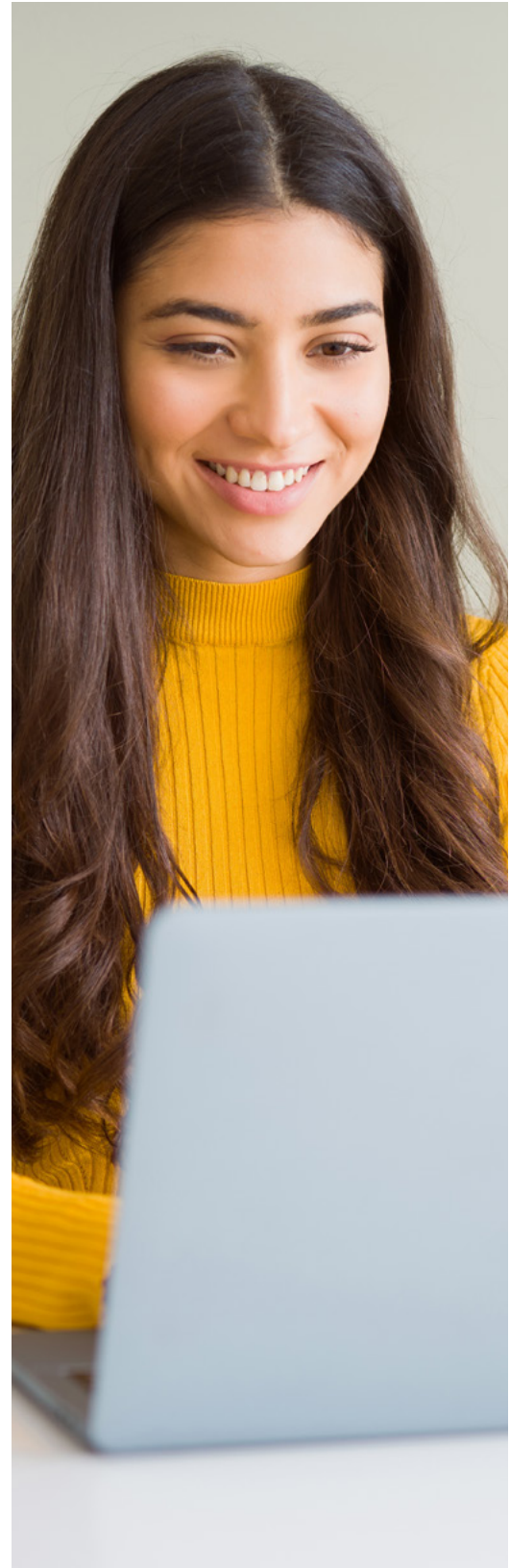
The Technical Details reports also have an Include Controller Report that shows performance metrics for the include calls made by the controller detailed in the dashboard. This is helpful while assessing the performance of each include call.





Another tool on the server side that provides insights into run-time performance in a Salesforce Commerce Cloud implementation is the Code Profiler. Using Code Profiler, an admin can perform impact analysis on the storefront in different modes, like, Production Mode, Development Mode, and Extended Script Development Mode. The performance impact varies from mode to mode and can be efficiently handled.

Controllers and pipelines process commerce business transactions on the server. Pipelines are code snippets that process business functions. The Pipeline Profiler helps analyze performance problems in the code and needs to be used during development and load testing. The Pipeline Profiler also works with controllers, which replace pipelines in more current applications. The Profiler UI supports both and gives the end point. The Pipeline Profiler collects data for controllers/pipelines that is processed by the application server at the point of activation, and only on controllers/pipelines that were invoked after being activated.





## Not on Salesforce B2C Commerce? Try open source

With several changes to the Google algorithm and increased focus on improving page experience to rank higher, Google provided us with an open-source solution: Lighthouse, an automated tool for improving the performance, quality, and correctness of web applications and pages. Lighthouse performs an audit of a website in four major areas and a score to measure performance, namely:



### Performance:

Metrics such as first paint and time to interactive are used to determine lag. Lighthouse can help prioritize which performance issues need to be addressed first.



### Accessibility:

Checks for issues that prevent your site from being accessed, especially by people who are blind or with vision impairment or low vision. Given the importance of the user experience to Google's Core Web Vitals update, this could mean images which without alt text, or a color contrast that makes it difficult to see certain parts of the page are flagged and need to be addressed.



### Best Practices:

Measures several areas, including HTTPS usage and correct image aspect ratios. It mainly focuses on checking if your website or app is served from a secure source and reflect findings in the final score



### SEO:

Outlines the bare minimum requirements for a decent SEO ranking. The tests ensures that your site is discoverable.

When auditing a page, Lighthouse runs a barrage of tests against the page, and then generates a report on how well the page did. Tests are run using a simulated mobile device that is configured to a fast 3G network and 4x CPU slowdown. The failing tests are then used as indicators on what actions can improve the webpage.

The best thing about Google Lighthouse is that you can run it against any web page, whether public or one that requires authentication, and it will audit performance, accessibility, and search engine optimization of web pages. For high traffic situations, such as during a flash sale, you can use Google Lighthouse to track application performance.



## Launched your site? What's next?

It is important to start a post launch monitoring program and troubleshoot away right from day one. Continuous monitoring ensures you get peak performance, limited downtime, repeat shoppers and delighted merchants.

Here is a checklist that you can follow in your Business Manager and monitor the following areas:



**Service status** – Check for time-outs, high-response times and errors. Adjust service profiles as per the requirement



**Jobs** – Check job run times and failures and enable email alerts to get notified when there is a job failure



**Log center** - Check the log file sizes. Logs will stop being imported to Log Center after 1M log messages per day. Ensure no personally identifying information/ payment card industry (PII/PCI) data appears in logs.



**Performance** – Monitor the production instance performance by looking out for the following KPIs to understand storefront activity and highlight inefficiencies in custom code:

- Storefront sessions (unique visitor versus robot)
- Request rate
- Order creation
- New basket versus session rate
- Basket creation to update ratio
- Third-party service call response
- HTTP response code
- Cache hit rate
- Average response time



**Quotas** - Check the quota dashboard for violations or warnings. Set up email alerts for quota violations.



**Deprecation log** – Check this regularly under site development



## Where to look for problems?

- **Infrastructure:** helps you understand how the various components work together
- **Session ID/request ID:** to track requests and sessions
- **Log files/Log levels:** to glean important information from the log files
- **Remote includes:** for additional application server requests
- **Web adapter log files:** for in-depth data on web adapter requests
- **Staging problems:** to identify and fix staging problems
- **Salesforce B2C Commerce performance:** helps monitor new code after deployment to identify and prevent performance problems
- **Database churn:** Helps you understand how spikes in database operations can relate to creating, updating, and deleting objects in a database
- **Reporting to customer support:** tells you whom you need to notify about specific issues and how to notify them







## Quotas in custom mode also play a major role

Quotas keep a SFCC site run fast and functional by monitoring resource usage in custom code. These resources can range from memory and application server threads to database table sizes and more. If your quota exceeds, the custom code inefficiently uses supported capabilities. It is important to note that it can take up to 20 minutes for B2C commerce to update an object's quota status. But the quota status is aggregated across all application servers of the instance. During an update, B2C Commerce checks object relation quotas and updates their status when relations are modified, but not when they are navigated. You will see the status of object relation quotas and API quotas for the last 24 hours or since the start of the server in the Business Manager.

Since salesforce operations enforces quotas be default on all instances, in case of a quota override, B2C Commerce Support can soften quotas on primary instances such as production, staging and development by resetting them from "error" to "warm". These softened quotas must be used by importing on a sandbox for testing after exporting them from the production instance. This, however, can impact performance, so proper approvals are necessary.

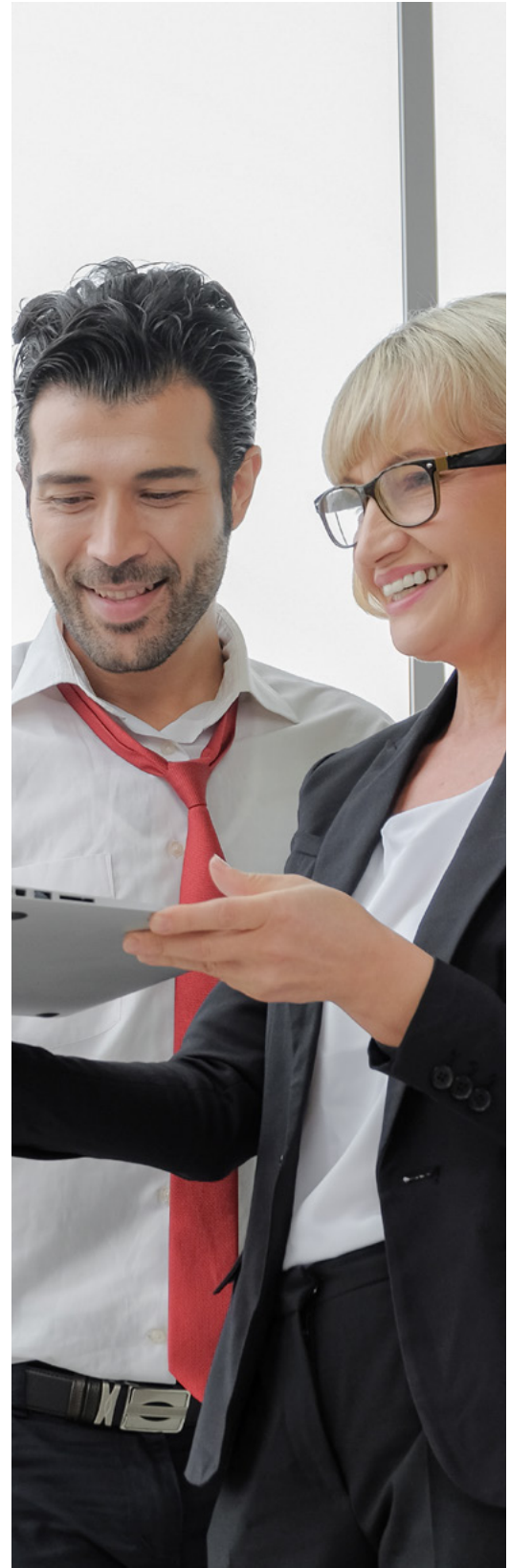


## Web services issues: Prevention is better than cure

To prevent web service issues, ensure that in the Business Manager, the cartridge containing the script is in the cartridge path, the web service is enabled and that the web service is set to “Live” and not “Mocked”.

## Avoiding database concurrency

When too many updates take place at multiple places at the same time, for instance, when an order status is updated from the storefront while simultaneously being updated by a job, performance may degrade as servers try to honor both requests. To avoid this type of database concurrency, optimistic concurrency control and optimistic control attributes on table records are two methods.





## Best practices for optimization

Here is some guidance on the best practices for the following architectural areas, besides building performance into an application.



### Client code

- Reduce or compress the amount of JavaScript and simplify CSS style sheets and HTML markup.
- Avoid injecting JavaScript into a document before the HTML has finished parsing.
- Use images optimized for the user's resolution.
- Use ECDN speed setting to minify client-side resources.



### Server

- Optimize TLS handshake time (using TLS 1.3) via ECDN speed settings.
- Use a caching strategy to optimize response times and avoid duplicate rendering.
- Use optimization tools to find performance hot spots within the implementation.



### Third-party integrations

- Ask third-party vendors to provide their service level agreements (SLAs) and check that they align with best practices.
- Track time-outs on back-end calls and use HTTP caching for non-personalized content.
- Use offline capabilities when a back-end system is unreachable. Use fallback implementations and customizations such as falling back to the standard tax tables when the third-party tax service is offline.
- Be aware that front-end integrations are not all the same.
  - Many result in a client-side performance impact.
  - A tracking pixel can reduce performance impact compared with an AJAX call.
- Clean up old code and cartridges, and update to new LINK cartridge versions.



## The last word

In this guide, you learnt about the various approaches to optimize site performance. Your approach can vary based on the merchant's requirements but you can do this by identifying the test tools, tracking performance and plan ahead for issues that may arise. You also understood the insights that the dashboard provides. Use these to understand what's happening with individual controllers and pipelines. Moreover, you also learnt about the areas you can monitor in the space of B2C Commerce. We hope you gained a sound understanding of the infrastructure which will help you troubleshoot issues and the best practices help you sail through every sale.

## About Aspire



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For more info contact: [info@aspresys.com](mailto:info@aspresys.com) or visit [www.aspiresys.com](http://www.aspiresys.com)

### USA

+ 1 630 368 0970

### SINGAPORE

+65 3163 3050

### INDIA

+91 44 6740 4000

### UK

+44 203 170 6115

### NETHERLANDS

+ 31 (0)30 800 92 16

### POLAND

+48 58 732 77 71

### MEXICO

+52 222 980 0115