



Learning Paths - Level 01

Performance Tuning

Session Breakdown

5 min	01	Introduction + Case Study Recap
8 min	02	Defining Performance
12 min	03	Performance Responsibility and Planning
7 min	04	Measuring Performance
4 min	05	Performance Tuning
6 min	06	Testing/Tuning Matrix
1 min	07	What's Next? + Q&A



Part 01

Introduction and Session Scope



What do we mean by *Performance Testing* and why is it important?

Introduction to Performance Testing

- Performance is driven by our choices more than anything else
- Should be part of the project plan
- What we can do will vary depending on deployment model
 - Liferay SaaS
 - Liferay PaaS
 - Self Hosted
- Some aspects we just *do*, others we need to test for
- Should be based on measurable values rather than “gut feelings”



What we are planning to cover in this session

Session Scope

- Defining Performance
- Performance Responsibility & Planning
- Measuring Performance
- Performance Tuning
- Testing/Tuning Matrix



Part 02

Defining Performance



Defining Performance

Key Factors

- Response Times
- Concurrent Users

I.e. <2s for 500 concurrent users, <4s for 10k users

Troublesome Expectations

- PageSpeed Rankings
- Unreasonable response times
- Unreasonable concurrent users



Part 03

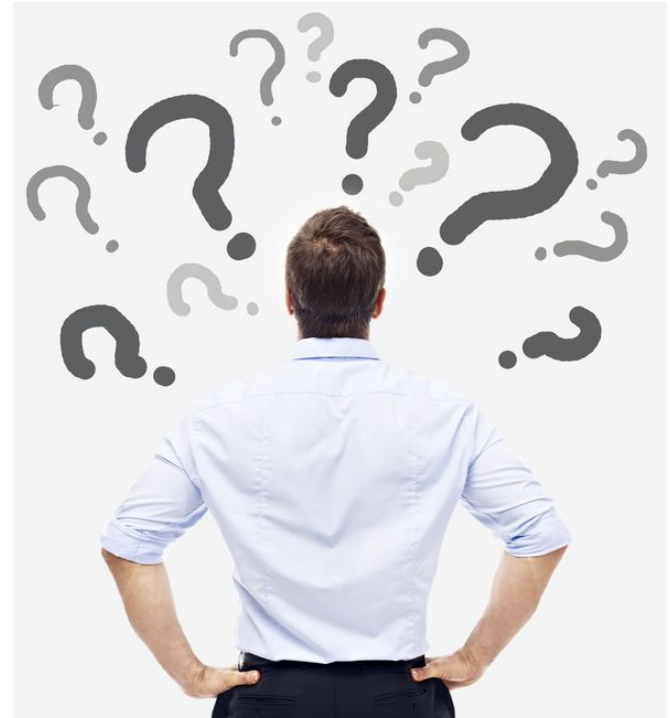
Performance Responsibility & Planning



Who Fixes It?

No amount of performance tuning can fix a poor implementation.

- Most performance problems come from poor implementation choices.
- Liferay can have performance problems at extremes.
- Warning signs for poor performance.



Poor Performance Warning Signs

- Thousands of sites based upon a site template with propagation.
- Thousands of pages, especially in conjunction with Staging or Publications.
- Lots of custom fields.
- Web content structures or Objects with hundreds of fields.
- Heavy Freemarker usage, often with services and/or parsing.



Performance Planning

- Plan on evaluating performance throughout the implementation.
- Review use of extremes.
- Evaluate each Freemarker template especially under load.
- Saving performance tuning till the end of the implementation increases risk of cost overruns or failures.



Part 04

Measuring Performance



Liferay Page Audits

The screenshot shows the Liferay Feature Flags configuration interface. On the left, a sidebar lists 'VIRTUAL INSTANCE SCOPE' categories: Release, Beta (selected), Deprecation, and Developer. The main content area is titled 'Beta' and includes a warning: 'Beta features are experimental and not supported. Use with caution.' Below this is a search bar and a 'Filter and Order' dropdown. Two feature flags are listed:

- Render Times in Page Audit (LPS-187284)**: Enabled. Description: List the page components render times in server side to identify low performing fragments, widgets or templates.
- Indications to Prevent Performance Issues (LPS-187285)**: Enabled. Description: Show indications in page audit and page editor when users add configurations that can affect performance (e.g., collection displays without pagination and mapping high resolution images in fragments). Dependencies: LPS-187284

Liferay Page Audits Continued

The screenshot shows the Liferay DXP home page with a 'Page Audit' overlay on the right. The page content includes the Liferay DXP logo, a search bar, and a large blue tree illustration with various icons. The 'Page Audit' overlay is titled 'Page Audit' and has a close button. It contains a 'Performance' tab and a 'PageSpeed Insights' tab. Below the tabs, there is a 'BETA' label and a search bar. A notification box states: 'Render times are approximate and subject to slight variations due to server status and load.' The audit results are listed as follows:

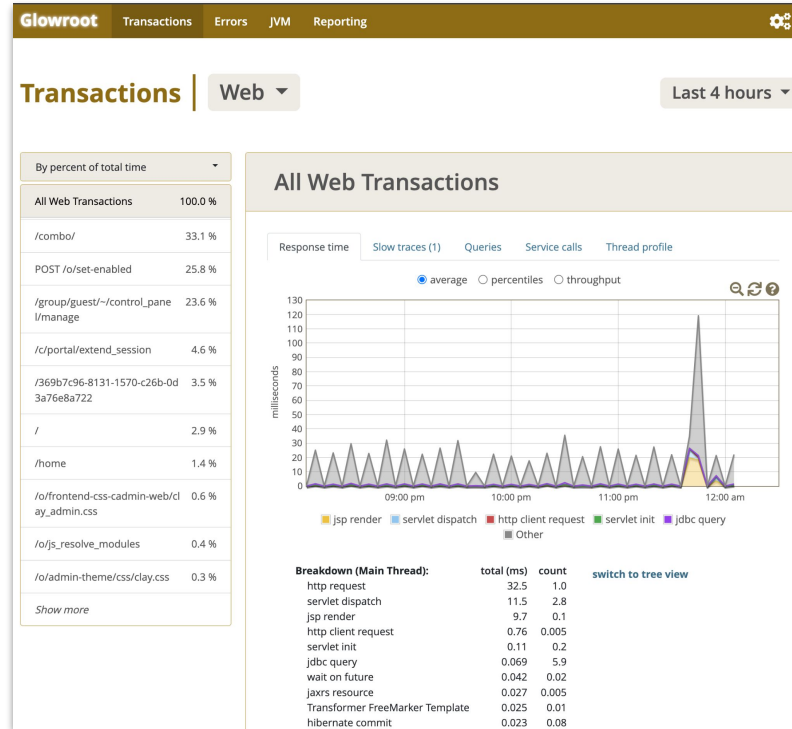
Element	Render Time	Fragment	Cached
Paragraph	1 ms	FRAGMENT	CACHED
Paragraph	0 ms	FRAGMENT	CACHED
Image	0 ms	FRAGMENT	CACHED

Load Testing Tools

- Use tools your team is familiar with.
- Test for meeting defined performance goals.
- Create tests that match typical usage scenarios.



APM Performance



Part 05

Performance Tuning Opportunities



Typical Tuning Steps

1. Liferay Deployment Checklist
<https://www.liferay.com/resources/product-info/Liferay+DXP+7.4+Deployment+Checklist>
2. JVM Tuning
3. APM Usage



Part 06

Testing/Tuning Matrix



What is available in each environment?

	SaaS	PaaS	Self Hosted
Deployment Checklist	✘	✔	✔
Glowroot APM	✔	✔	✔
Load Testing	✔	✔	✔
Page Audit	✔	✔	✔



If all you have is a hammer,
everything looks like a nail.

Thank you