Velocity 2009 Conference Review

Eric Goldsmith

Summary

The Velocity conference (http://en.oreilly.com/velocity2009) focuses both on Performance and Operations. My session picks and comments are biased toward performance in many cases, as is the focus of our team.

The details that follow are the sessions I attended and thought were compelling. I would encourage viewing the accompanying slides and/or videos.

The big takeaway this year was a focus on how performance and availability impact business metrics – with actual numbers to back it up.

Related Blog posts

- **Steve Souders** – http://radar.oreilly.com/2009/07/velocity-making-your-site-fast.html
- **Brady Forest** – http://radar.oreilly.com/2009/06/bing-and-google-agree-slow-pag.html
- **Nicole Sullivan** – http://www.stubbornella.org/content/2009/06/26/the-year-of-business-metrics-dont-make-your-users-run-away/
- **Dave Artz** – http://www.artzstudio.com/2009/06/web-performance-impact-on-revenue-velocity-09-highlights/

Details

Performance Impact on Business

Session	The User and Business Impact of Server Delays, Additional Bytes, and HTTP Chunking in Web Search
Presenters	Eric Schurman (Microsoft), Jake Brutlag (Google)
Slides	http://assets.en.oreilly.com/1/event/29/The%20User%20and%20Business%20Impact%20of%20Server%20Delays,%20Additional%20Bytes,%20and%20HTTP%20Chunking%20in%20Web%20Search%20Presentation.pptx
Video	http://blip.tv/file/2279751/
Key Takeaways	• Controlled tests with isolated populations changed one variable and measured impact. • Microsoft Bing server delay: 1 second slowdown = 2.8% revenue loss; 2 second slowdown = 4.3% revenue loss. • Negative impact of delay on user satisfaction persists long after delays removed • Page weight experiment results: payload at top of page has stronger effect - above the fold • Progressive rendering (via chunked encoding) brings more user satisfaction delta than some feature adds

Session	Performance-Based Design - Linking Performance to Business Metrics
Presenter	Aladdin Nassar (Microsoft - Hotmail)
Slides	http://assets.en.oreilly.com/1/event/29/Performance-Based%20Design%20-%20Linking%20Performance%20to%20Business%20Metrics%20Presentation.zip
Key Takeaways	• Goal: Identify last-mile, end-user performance goal and work backwards to identify design constraints • Goal: Link performance to ad revenue; quantify business *cost* of being slow • A/B performance testing is destructive (degrading user experience not allowed) • Collect usage and performance data from end-users via JS instrumentation • This data can be used to achieve results similar to A/B testing – but more difficult to do correctly (i.e. many moving parts) • Hotmail loads ads after onLoad event – results in fewer ad impressions, but business decision made to put user experience first over ad revenue • Interestingly, they report performance metrics as Mean + Stdev.

Session	In Search of…A better, faster, stronger Web
Presenter	Marissa Mayer (Google)
Slides	http://assets.en.oreilly.com/1/event/29/Keynote%20Presentation%202.pdf
Video	http://blip.tv/file/2290442/
Key Takeaways	• The extra time required to generate 30 search results per page instead of 10 resulted in 25% fewer searches (N*ote, they claim to have controlled for the case where fewer searches were required because of the larger results set*). • Usage decline gets worse over time for slow pages – and never fully recovers, even if page becomes faster. • Chunked transfer encoding allows content to be sent to, and displayed by, the user incrementally – makes the page *feel* faster. • Google sends search results header, while actual results are still being assembled. • Ads on search results page (top and right rail) are loaded before search results.

Session	Shopzilla's Site Redo - You Get What You Measure
Presenter	Philip Dixon (Shopzilla)
Slides	http://assets.en.oreilly.com/1/event/29/Shopzilla%27s%20Site%20Redo%20-%20You%20Get%20What%20You%20Measure%20Presentation.ppt ***(Note: this file is in PowerPoint 2007 format. If you can't open it, download it locally and change the extension to .pptx)***
Video	http://blip.tv/file/2290648/
Key Takeaways	• Moving images to a non-cookie domain increased revenue 0.5% • Site re-design and optimizations reduced page load time from 7 to 2 seconds • Site conversion increased 7% and PVs increased 25% • Unclear how much of these changes can be attributed to faster pages vs. site redesign

Operations

Session	Fixing Twitter: Improving the Performance and Scalability of the World's Most Popular Micro-blogging Site
Presenter	John Adams (Twitter)
Slides	http://assets.en.oreilly.com/1/event/29/Fixing%20Twitter_%20Improving%20the%20Performance%20and%20Scalability%20of%20the%20World's%20Most%20Popular%20Micro-blogging%20Site%20Presentation.pdf
Video	http://blip.tv/file/2300327/
Key Takeaways	• "Metrics + Logs + Science = Analysis" • Graph and report critical metrics in as near real time as possible • Turn data into information – use metrics (not guesses) to make decisions • Capacity Planning (via forecasting), not Fire Fighting!

Session	10+ Deploys Per Day: Dev and Ops Cooperation at Flickr
Presenters	John Allspaw (Flickr (Yahoo!)), Paul Hammond (Flickr)
Slides	http://assets.en.oreilly.com/1/event/29/10+%20Deploys%20Per%20Day_%20Dev%20and%20Ops%20Cooperation%20at%20Flickr%20Presentation.pdf
Video	http://blip.tv/file/2284377/
Key Takeaways	• Traditional view: Dev adds new features; Ops keeps the site fast and stable • New view: Dev & Ops enable the business; business *requires* change • Since change is the root cause of most outages, lower the risk of change through *tools* and *culture*. • Collect lots of metrics and *share* them

Session	Migrating www.aol.com from a Proprietary Web Platform to Open Source
Presenter	Mandi Walls (AOL)
Slides	http://assets.en.oreilly.com/1/event/29/Migrating%20www_aol_com%20from%20a%20Proprietary%20Web%20Platform%20to%20Open%20Source%20Presentation.pptx
Video	http://blip.tv/file/2286110/
Key Takeaways	• Migrating to a modern, open-source platform lets up leverage and build upon (and contribute to) the work of the larger community

Session	After the Click
Presenter	Jonathan Heiliger (Facebook)
Video	http://blip.tv/file/2279687/
Key Takeaways	• “We fail all the time. Goal is to make it transparent to users and make it OK for employees to keep trying.” • “People should be building technology for other people, not for the sake of technology” • "Facebook does not have QA , developers are responsible for the liability of his code" • "Facebook's perfect organization... Engineers live in ops, ops lives in engineering"

Performance

Session	Metrics that Matter – Approaches to Managing High Performance Websites
Presenter	Ben Rushlo (Keynote)
Slides	http://assets.en.oreilly.com/1/event/29/Metrics%20that%20Matter%20-%20Approaches%20To%20Managing%20High%20Performing%20Websites%20Presentation.pdf
Key Takeaways	• More JS and Ajax is making *Network Time* less telling of user experience. Use *User Time* instead. • Measure from multiple geographic locations • Impossible to assemble low-level metrics (e.g. CPU Util, hits/sec, etc.) and identify system health and/or user experience. Must measure from top-down and outside-in. • Must benchmark against competitors • Measuring site performance at the backbone eliminates the 'noise' of the last mile, keeping focus on the Web site. • When performing scripted testing, identify the top 2 – 5 key business paths to measure • Aggregating data via averages (arithmetic means) hides too much information – use geometric mean, median and/or percentiles (e.g. 85^{th}, 95^{th}). • Performance variability target recommendation: 95^{th} %-tile not more than 1.5x the median • Geographic variability recommendation: Fastest location not more than 2x slowest • Hourly variability recommendation: Performance at peak time not more than 1.2x off-peak

Session	MySpace Performance Tracker
Presenters	Yadid Ramot (MySpace.com), Jeremy Custenborder (MySpace.com), Chris Bissell (MySpace)
Sites	http://msfast.myspace.com/ http://developer.myspace.com/Community/blogs/devteam/archive/2009/06/23/MSFast.aspx
Key Takeaways	• IE plug-in (v6 and up) – *in pre-alpha state (v0.0.0.1)* • Measure the CPU hit and memory footprint of your pages as they render on the client's browser • Review screen shots of the page while it renders • Review the rendered HTML on each point of the page's lifecycle • Measure and show estimates of the time it takes to render each section of the page in different connection speeds • Validate the content of your page against a set of proven "best practice" rules of web development • Review downloaded files and show download time estimation on different bandwidths

Session	The Secret Weapons of the AOL Optimization Team
Presenter	Dave Artz (AOL)
Slides	http://assets.en.oreilly.com/1/event/29/The%20Secret%20Weapons%20of%20the%20AOL%20Optimization%20Team%20Presentation.pdf
Key Takeaways	• Review of several page optimization techniques • JS Beacon for collection of end-user performance and usage data • Initial data showing positive correlation between connection speed and usage • *Great opportunity to lend a hand with the analysis of this data*

Session	Performance Tools
Presenters	Eric Goldsmith (AOL), Simon Perkins (Simtec Limited), Stoyan Stefanov (Yahoo! Inc), Jim Pierson (Microsoft), Jan Odvarko (Freelance)
Slides	http://assets.en.oreilly.com/1/event/29/Performance%20Tools%20Presentation.zip http://assets.en.oreilly.com/1/event/29/Performance%20Tools%20Presentation%201.pptx
Video	http://blip.tv/file/2290513/
Key Takeaways	• HttpWatch now permits scripted execution • YSlow 2.0 allows custom rule sets and scoring to be defined • VRTA sits on top of the NetMon sniffer, so is browser independent

Session	Frontend Performance Engineering in Facebook
Presenters	David Wei (Facebook Inc.), Changhao Jiang (Facebook Inc.)
Slides	http://assets.en.oreilly.com/1/event/29/Frontend%20Performance%20Engineering%20in%20Facebook%20%20Presentation.zip
Video	http://blip.tv/file/2293221/
Key Takeaways	• Facebook typical page load time: 25% backend, 25% network, 50% rendering • Noting that the Facebook homepage is visited every 3-5 PVs, they implemented special-purpose client-side caching to reduce the load on their servers by 20%, and increase home page load time 3-4x • Overrode click event handlers in order to load new pages via AJAX. Saw 40-50% reduction in page render times.

Session	State of Performance
Presenter	Steve Souders (Google)
Slides	http://assets.en.oreilly.com/1/event/29/State%20of%20Performance%20Presentation.ppt
Video	http://blip.tv/file/2293304/
Key Takeaways	• Things are getting better, since last year… • but Web pages still don't feel fast • Now we have data relating performance to business metrics… • which should help with the prioritization of performance

Advertising

Session	High Performance Ads - Is It Possible?
Presenter	Eric Goldsmith (AOL), Artur Bergman (Wikia), Tony Ralph (Yahoo!), Bryant Mason (Microsoft Corporation), Sameer Ajmani (Google), Richard Bush (ADTECH)
Slides	http://assets.en.oreilly.com/1/event/29/High%20Performance%20Ads%20Presentation.zip
Video	http://blip.tv/file/2293389/
Key Takeaways	• Ad delivery/load time highly variable • Agencies, publishers, vendors, and publishers should adhere to IAB best practices • Ad monitoring/scoring tools needed – IAB Scoring WG • Asynchronous ad loading is the best mitigation we have today