How to Audit and Boost Your Web Performance

#BoostWebPerformance

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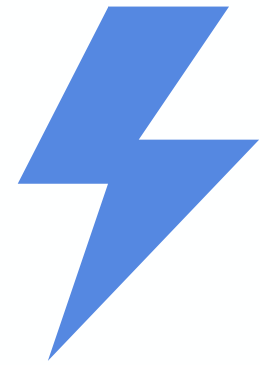
WHAT WE'RE COVERING TODAY

- What is Good Performance?
- Case Study: thetruth.com
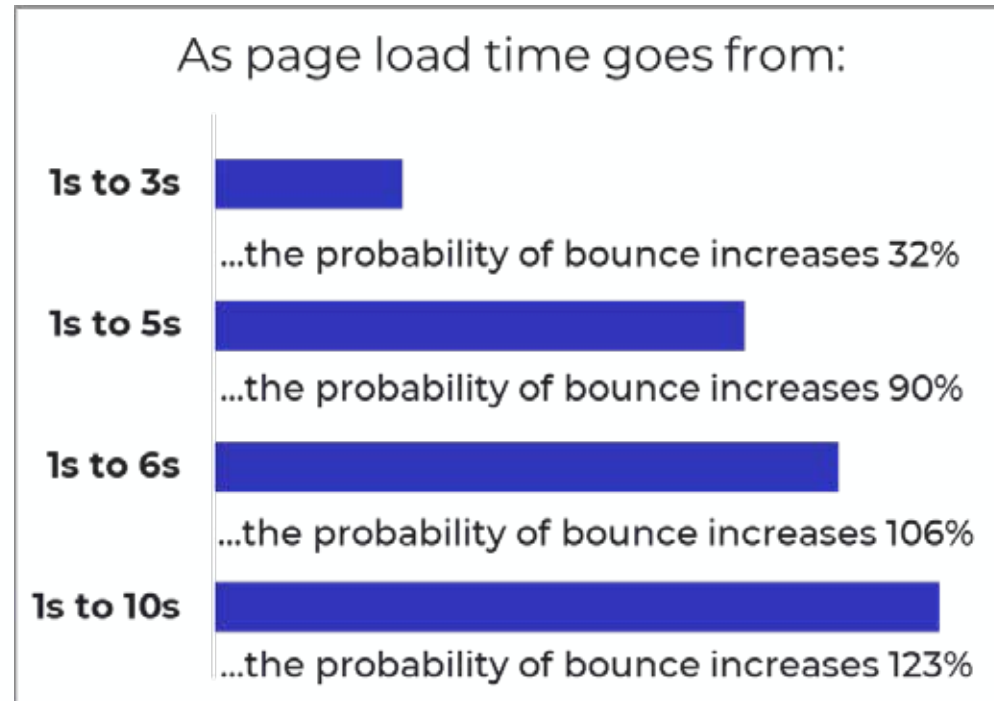- Tools You Can Use

WHAT DO WE MEAN BY PERFORMANCE?

How quickly the end user **perceives** and **receives** digital content on their device, and how fast they can **interact** with it

—

VERY FAST LOADS AS USER EXPECTATIONS ARE HIGH

- Users expect performance like Google, Facebook, Amazon, Twitter...

- Users expect to see loading within 3 seconds

- Bounce rates rise dramatically with each second of load time

As page load time goes from:

|	
1s to 3s	...the probability of bounce increases 32%
1s to 5s	...the probability of bounce increases 90%
1s to 6s	...the probability of bounce increases 106%
1s to 10s	...the probability of bounce increases 123%

Source: Google/SOASTA research 2017

HOW DO WE KNOW IF PERFORMANCE IS GOOD?

- Test simulating end user experiences on mobile and desktop

- Test using collected field data and simulated conditions

- Evaluate standardized metrics focused on...

  - Loading

  - Perception of load - visual stability

  - Interactivity

CORE WEB VITALS

- Developed by Google
- Subset of Web Vitals, attempt to focus on several key that measure aspects
- **SEO Impacts**
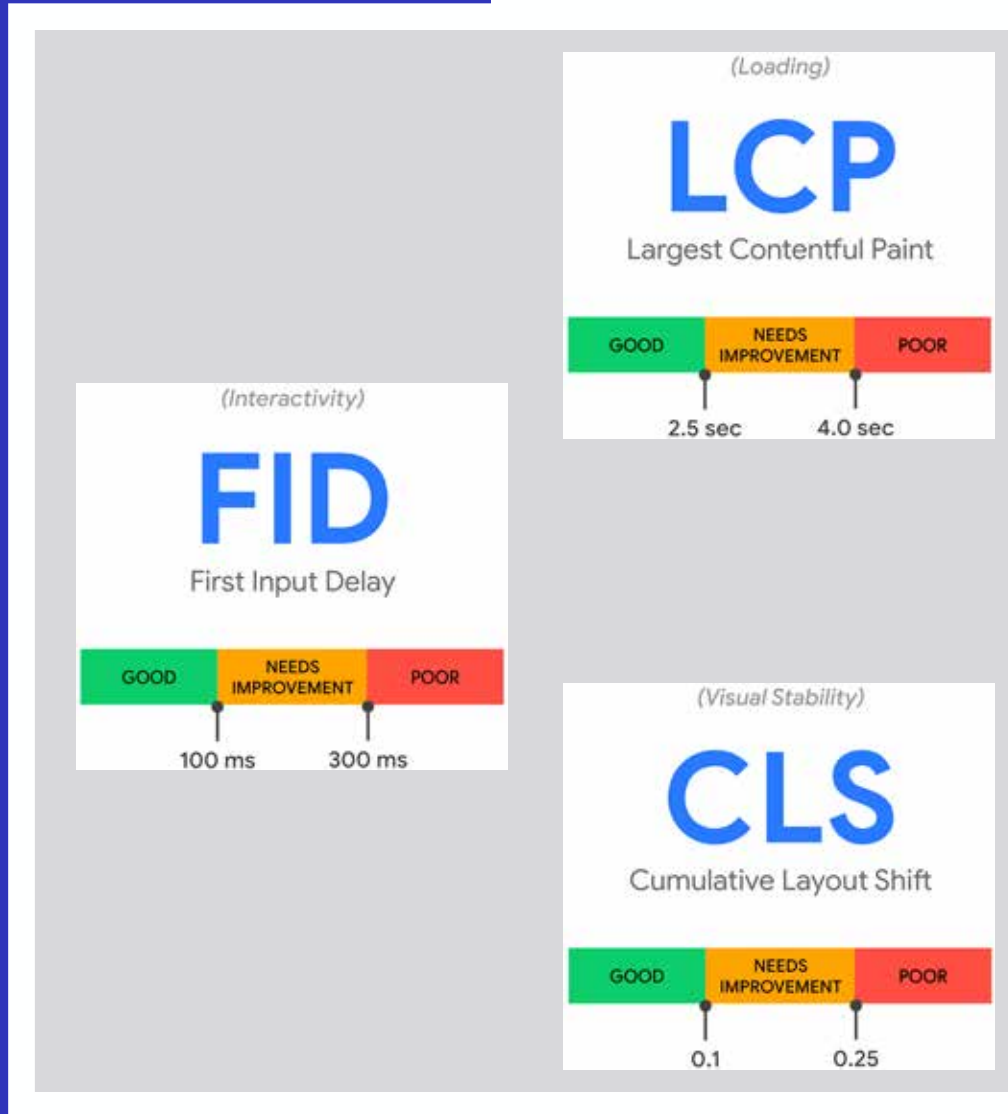
ADDITIONAL METRICS

Key for Performance

- Time to First Byte – **Good: < 0.2 sec**
- Start Render – **Good: < 0.75 sec**
- First Contentful Paint – **Good: < 1.8 sec**
- Speed Index – **Good: < 3.4 sec**
- Total Blocking Time – **Good: < 0.2 sec**
- Time to Interactive – **Good: < 5 sec**

Others of Interest

- Document Complete Time, Requests and Bytes
- Total Time, Requests and Bytes

GOOD PERFORMANCE IS GOOD UX

- User experience falls apart without good performance
- Design with speed in mind – **performant design**
  - Mobile first is not enough
  - Wow, delight and impress users… but…
    - Make it simple, fast, feel fast and reduce friction
- Manage against a "speed budget"
- Test early, test often
- Analytics – identify speed as a key UX metric
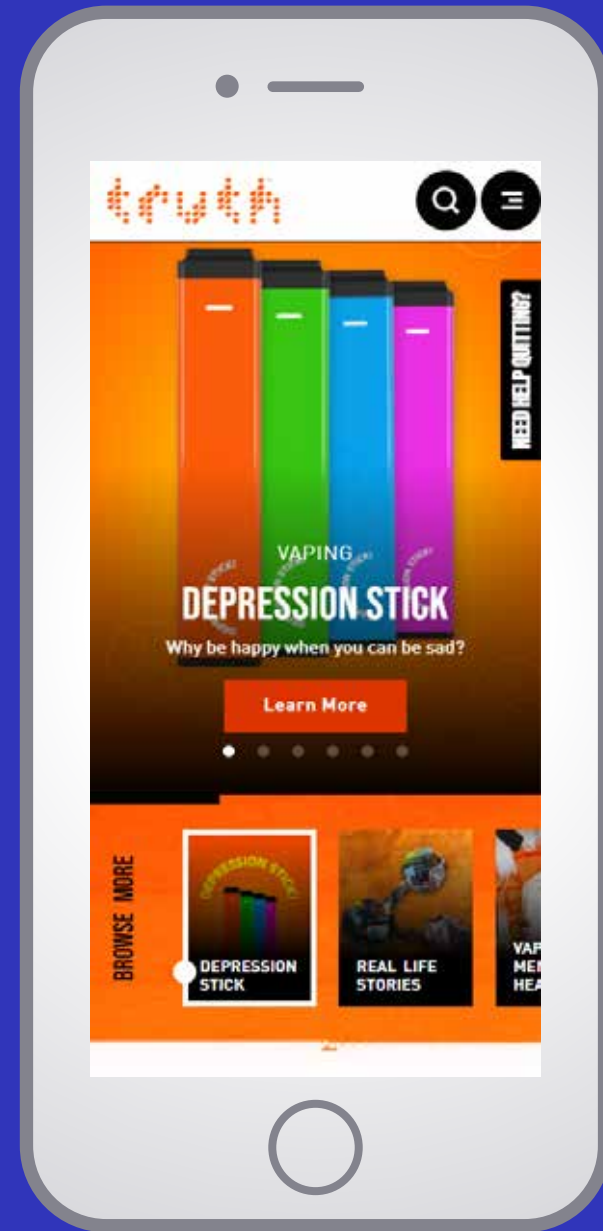
THETRUTH.COM

REDESIGN

Testing and enhancements following site redesign and re-platform on Drupal 8

CAMPAIGN LANDING PAGES

Testing and enhancements as part of campaign deployments

WHAT AFFECTED TRUTH'S PERFORMANCE?

The "front-end"

- **Markup and scripts** – HTML, JS, CSS, Fonts
- **Content** – Images and Media
- **Content Delivery Network**

The "back-end"

- Services and application layer
- Database
- CMS

PERFORMANCE CHALLENGES

- Not a key consideration during design or development

- Performance testing, auditing and tweaking post launch

- Fast turn-around for campaign work

Specific Development Challenges

  o Image rich designs

  o CMS template limitations

  o Big style and script files

  o FoUC

  o 3rd party scripts and beacons
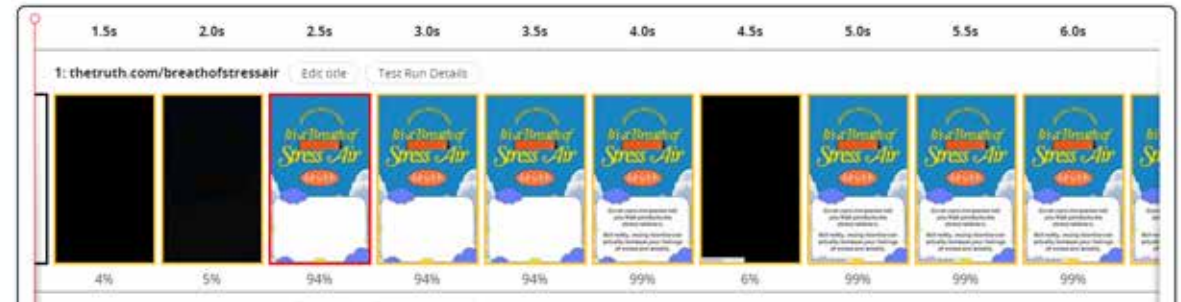
TESTING AND AUDITING

Process Establishment

- Determined key pages from analytics
- Established baselines
- Determined and prioritized recommendations
- Cyclical process implemented:
  - Determine/implement recommendations
  - Deploy changes
  - Retest and remeasure
  - Repeat

RECOMMENDATIONS

Quick Wins

- Image optimization
- Excess scripts, styles and fonts removal
- Excess request removal
- Preload requests
- Pre-connect to 3rd party domains

RECOMMENDATIONS

Going Deeper

- Script re-factoring and markup updates
  - Image lazy loading
  - Address FoUC
- Drupal
  - Cache tuning
- CDN
  - Cache tuning
  - Performance tools

RESULTS

Improvement Highlights

- **_Redesign effort_**
  - First Byte **(-25%)**
  - Start Render **(-37%)**
  - Speed Index **(-26%)**

- **_Follow on effort_**
  - Largest Content Paint **(-41%)**
  - Cumulative Layout Shift **(-13%)**
  - Total Blocking Time **(-22%)**

- **_Recent Campaign Work_**
  - First Contentful Paint **(-19.%)**
  - Largest Contentful Paint **(-19%)**
  - Total Blocking Time **(-14%)**
  - Total Bytes **(-19%)**
  - Total Requests **(-9%)**

RESULTS

Where We Fell Short

- Drupal templates
  - Unused styles and scripts still included
  - In-lining of key JS and CSS not achievable
  - FoUC still an issue
  - Contend with a lot of 3rd party cookies still

WHAT CAN YOU DO NOW TO IMPROVE YOUR SITE?

Testing and Monitoring

- Start a performance testing program
- Identify key pages from analytics
- Create baselines

CMS

- Turn on compression
- Minify CSS, JS and HTML
- Turn on caching

Content

- Optimize images – resize, smaller resolutions, modern file types
- Socialize the importance of performance

CDN

- If you don't have one, consider getting one

NEW RELIC

- Continual performance monitoring and SLA reporting
- Front to back-end diagnostics
- Alert system
- **Generous Observability for Good program**

Daily SLA report | Weekly SLA report | Monthly SLA report

⬆ Download this report as .csv

	01/02	01/09	01/16	01/23	01/30	02/06	02/13	02/20	02/27	03/06	03/13	03/20
⌄ End user tier												
Page views thousands	110	141	157	436	178	160	151	145	151	133	432	250
Load time sec	6.24	5.02	6.08	3.11	5.44	5.47	5.46	5.49	5.16	4.68	4.36	3.76
Apdex	0.85	0.89	0.85	0.94	0.87	0.87	0.87	0.87	0.88	0.9	0.91	0.94
% Satisfied	74.0%	80.5%	75.3%	89.2%	78.7%	78.1%	78.3%	78.3%	80.1%	82.4%	84.3%	88.6%
% Tolerating	22.1%	17.0%	20.4%	8.7%	17.0%	17.8%	17.5%	17.6%	16.4%	15.1%	14.0%	10.2%
% Frustrated	3.9%	2.5%	4.3%	2.1%	4.2%	4.0%	4.2%	4.1%	3.5%	2.5%	1.7%	1.2%

WEBPAGETEST.ORG

- Report top line metrics
- Visually compare tests
- Image analysis with Cloudinary
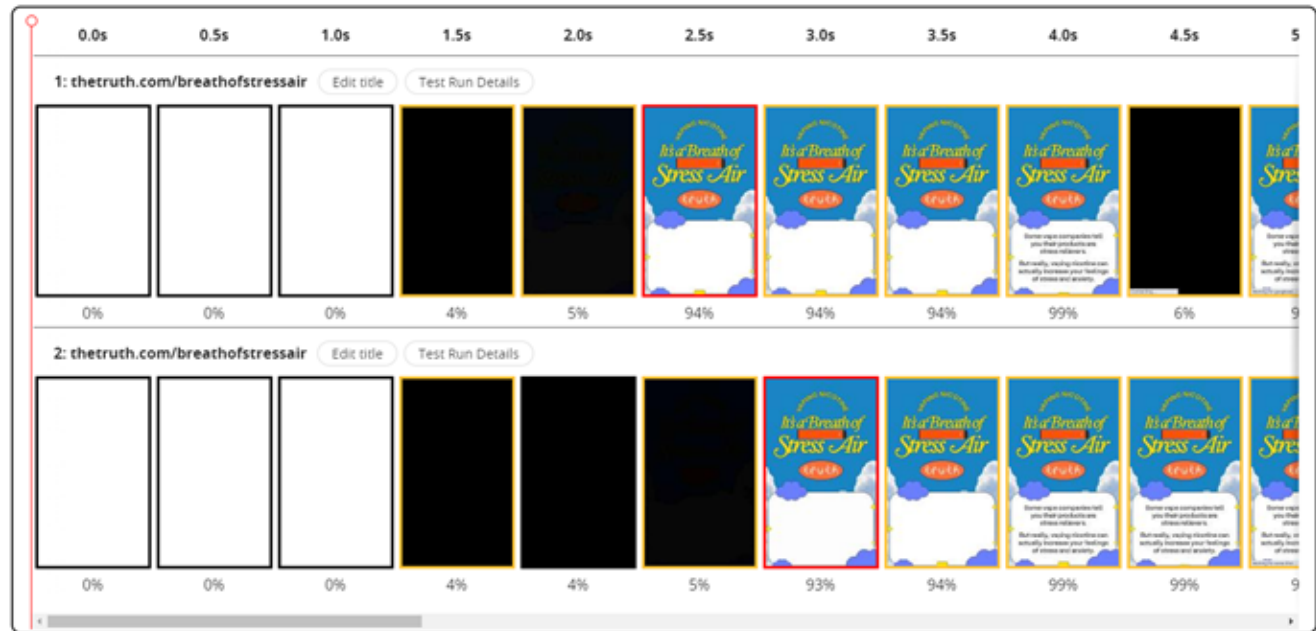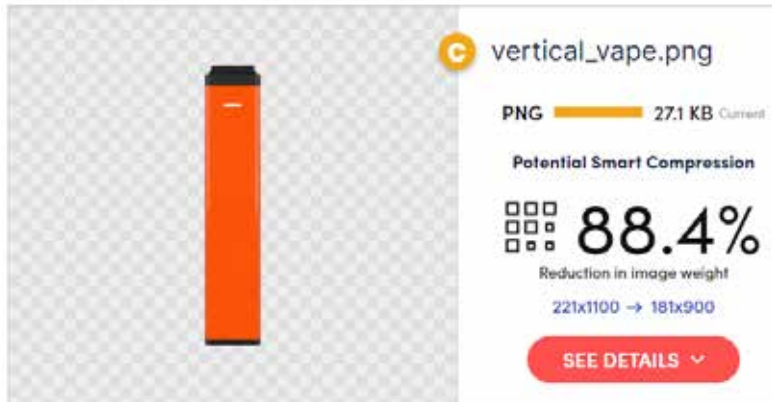
GOOGLE SEARCH CONSOLE

- Google's rating of your pages
- Example URL's to fix
- Opportunity to re-validate
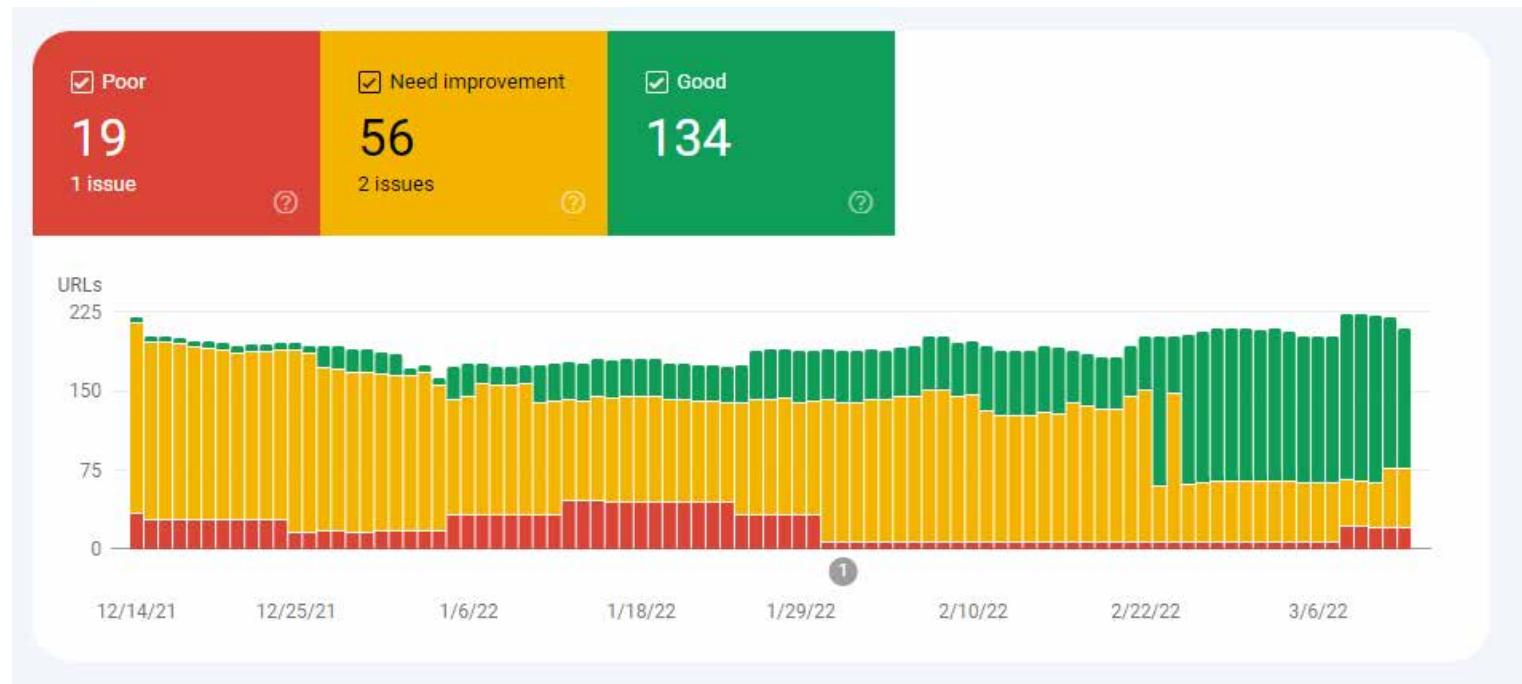
GOOGLE PAGESPEED INSIGHTS

- Core Web Vitals – using Chrome UX Report
- Example URL's to fix
- Opportunity to re-validate

BROWSER DEV TOOLS

- Elements/Inspector – markup and asset review
- Console – error messaging
- Network waterfall - modeling, examine requests
- Performance – profiler, filmstrip, web core vitals, long tasks
- Lighthouse (Chrome) – improvement recommendations

THANK
YOU