Top Page Speed: build a fast static html website with a CMS

BASE MUC

CO-WORKING

Digital Loop

“If I have seen further it is by standing on the shoulders of Giants”

Isaac Newton

Agenda

- What's High Availability/Responsiveness, how to reach it, and why we should care.
- WordPress 10k feets architectural overview, history and challenges
- Multi node deployment, advantages/disadvantages
- Static deployment, advantages/disadvantages
- Showtime!
- Q&A

Who am I?

- Brazilian
- Father
- Old nerd, I love movies, series, books, animes and mangas
- BSc in Computer Science, postgraduate in Project Management
- Working in the IT industry for the last 15 years in many different sectors
- Solution Architect
- Certified Professional Cloud Architect by Google
- Certified Data Engineer by Google

What's availability?

Quasi-formal: Given a system ready to receive work, availability is the ratio that, at any random point in time the system is capable to execute work.

It is normally described in percentages. Examples:

Availability	Downtime per year	Downtime per month	Downtime per week	Downtime per day
90%	36.53d	73.05h	16.80h	2.4h
99%	3.65d	7.31h	1.68h	14.4min
99.9%	8.77h	43.83min	10.08min	1.44min
99.99%	52.60min	4.38min	1.01min	8.64sec

What's responsiveness?

Responsiveness is the ability of any system to complete a task in a given time. E.g.: A web server should answer a request in less then 300ms.

The human brain doesn't have the cognitive capacity to perceive events < 500ms.

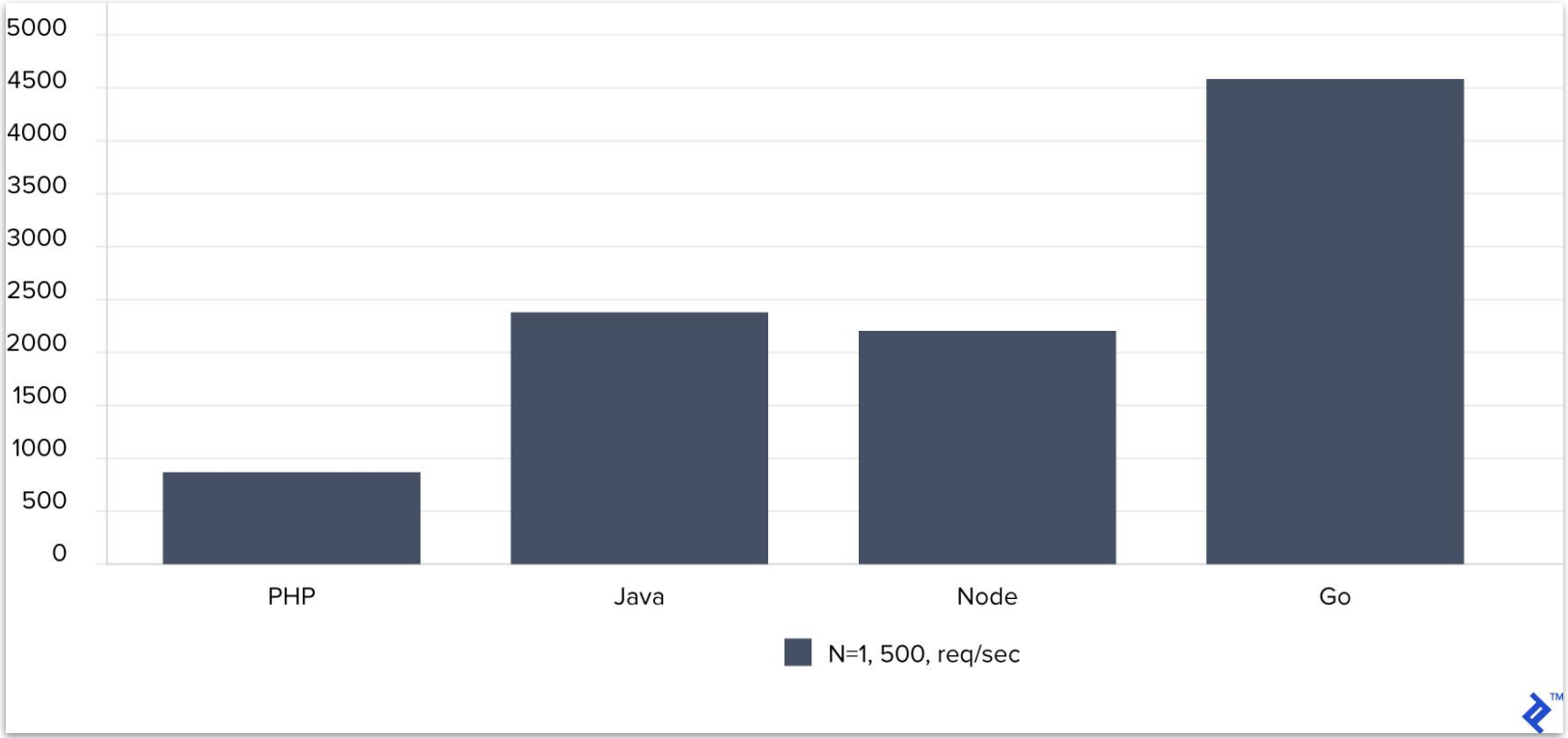
Availability and Responsiveness walk together.

The today's expectations are near real time responses, no delays. If your system answer a request in 3s or more, your brand image may suffer damages, and customers may look somewhere for the same service.

WordPress: the most popular CMS

- 60.4%! of the CMS market share, 33.5%! of all websites use WP.
- Based on PHP language and MySQL database
- Released on May 27, 2003
- With fame, comes consequences: security warning are issued regularly about both the PHP language and the CMS
- Most of the security issues are caused by outdated software and plugin versions
- PHP is not a particularly fast language
- The system was designed to scale up, and not to scale out.

PHP vs Java vs NodeJS vs Golang

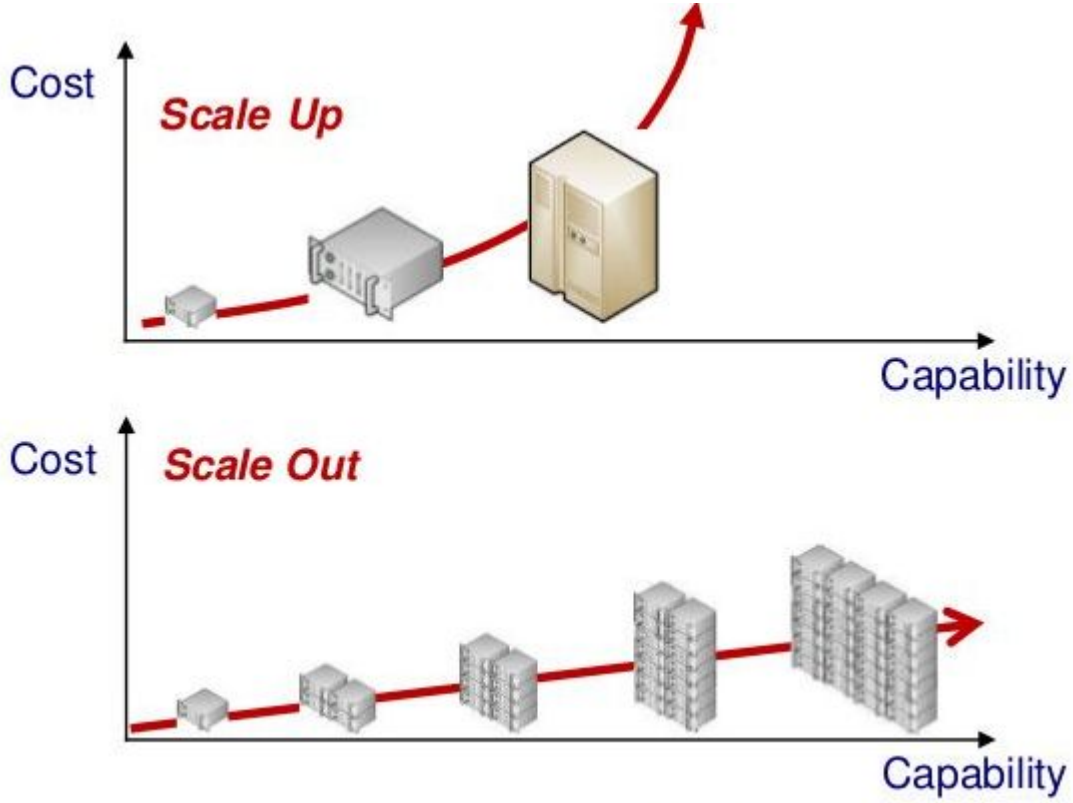


Some famous websites written in PHP...

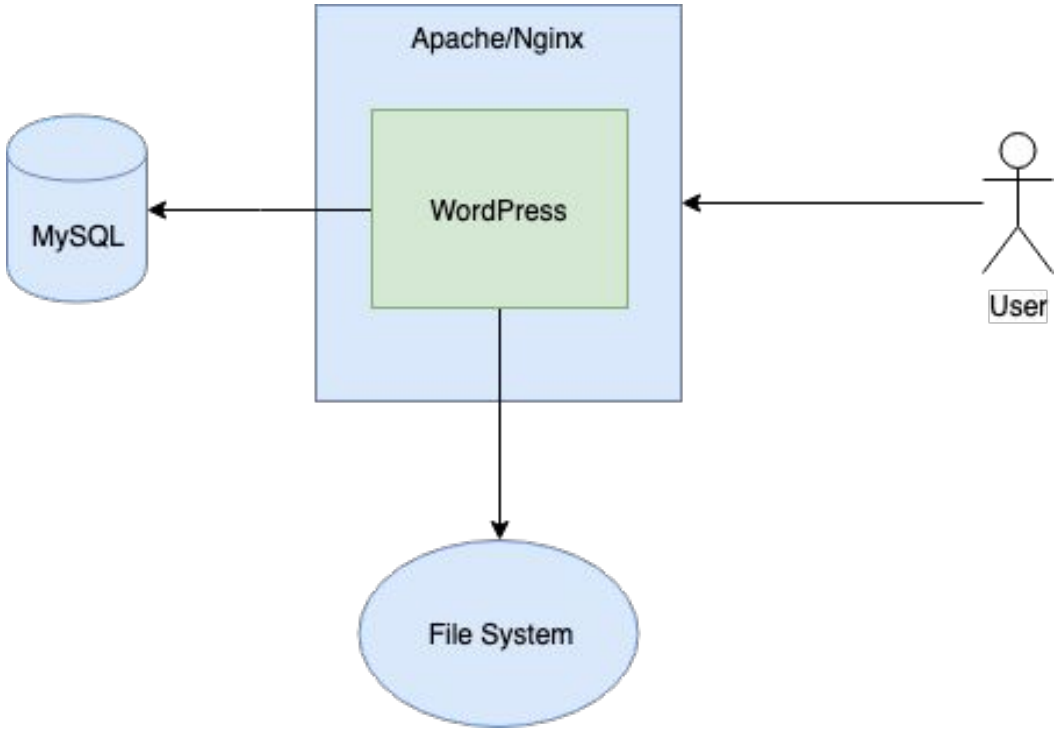
- Facebook
- Wikipedia
- Yahoo
- Flickr
- Tumblr

Ops, what's going on here? Engineering! PHP/WordPress are not bad opinions per se, depend on how you engineer your system.

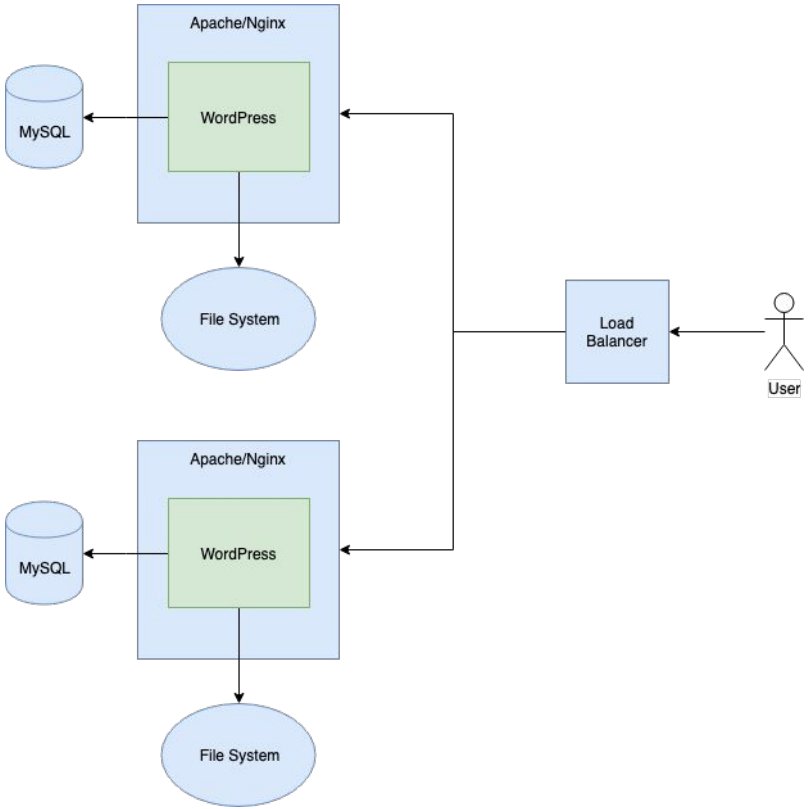
Scale up vs Scale out



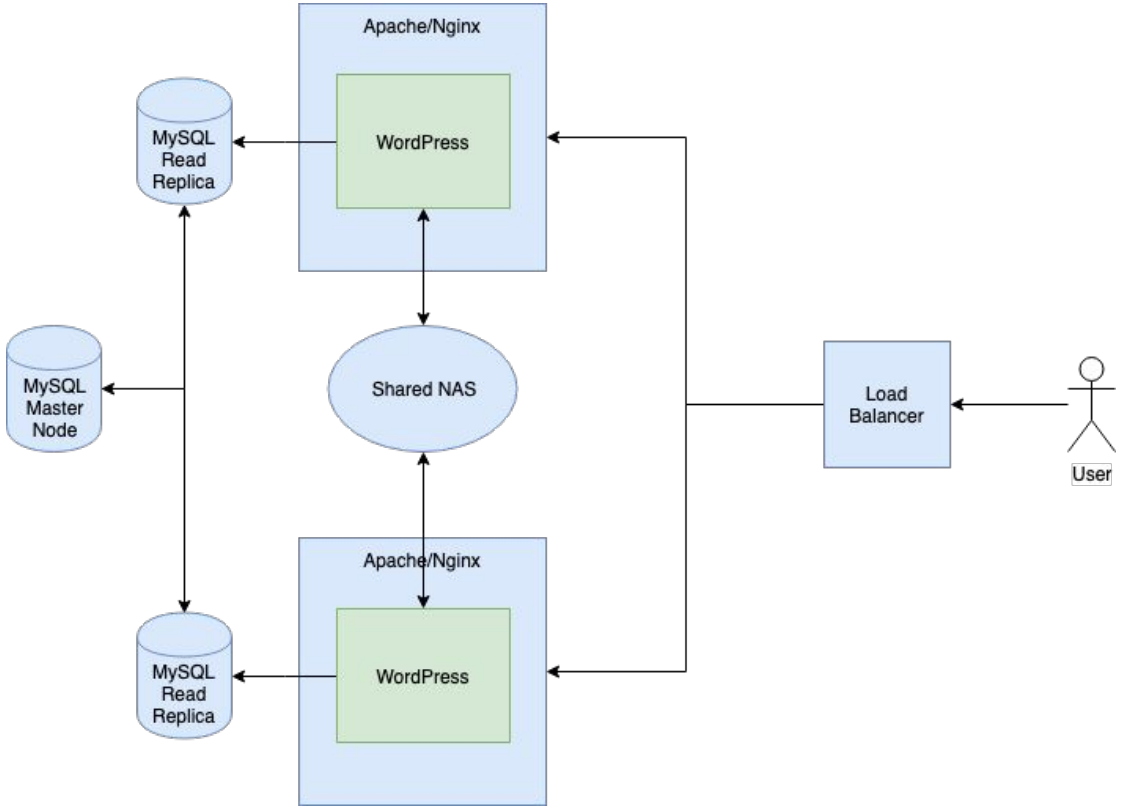
WordPress single node architecture



WordPress multi node attempt I



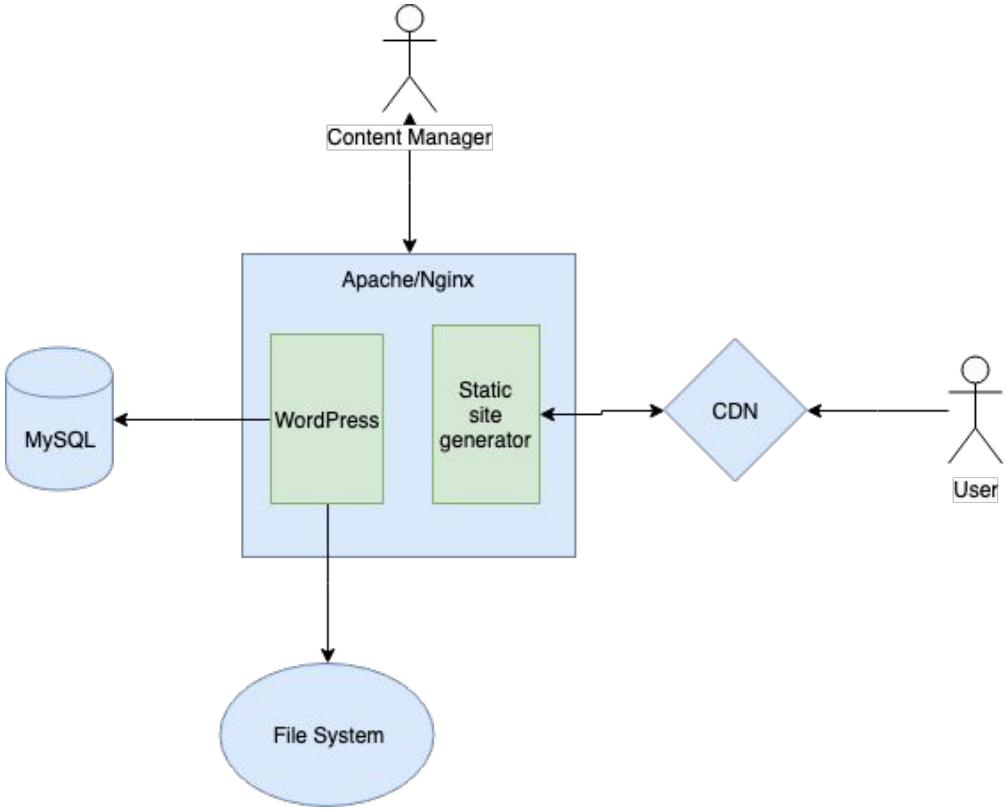
WordPress multi node attempt II



WordPress multi node pros/cons

- More complex
- More expensive
- In the cloud and with autoscaling, can scale from 10 to 10000 without human intervention
- In the cloud and with autoscaling, the price is proportional to number of requests. It can deactivate nodes if nobody is using it
- You can use all the WP plugins you are used to use and love
- It doesn’t solve problems with security!

Static deployment



Static generation/deployment pros/cons

- Simpler
- Less expensive
- Infinite scale (or as much your provider supports)
- Price proportional to transfer rate
- Not all plugin can be used! There are technical replacements
- Security problems solved!

Showtime!

Q&A

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Thanks!