Web Application Frameworks

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Objectives

Compare 4 web application frameworks

- nodejs, rails (ruby), php, flask (python)
- Understand the merits and demerits of the various frameworks
- Attempt to rationalize the frameworks used by well-known organizations

Performance

Test Tools

- -- Apache Test bench
- -- Python script

Parameters

- #Requests
- Concurrency
- Server side computation
- Accessing mongoDb

Security

- 1) Script Injections xss
- 2) Request Forgery CSRF, OSRF
- 3) Cryptographic Security Sessions, passwords
- 4) Cookie Security Setting it as HTTP only

Development Issues

- Documentation : all 4 frameworks
- Libraries & Package Management :
 - crypto, mongodb
 - ruby-gems, npm, pip
- Project Scalability :
 - Integration with REST
 - Easy deployment aws, apache, etc
 - complex routes, application logic
- Development time :
 - Php high development time

Comparison

					
	Performance	Security	Libraries & Package Mgmt	Project Scalability	Development Time
node	1+*+1+*	2	2	3	1
php	4 + 4 + 3 + 3 (14)	0	2	0	0
rails	2+2+2+1 (7)	4	2	3	1
flask	3+1+4+2 (10)	2	2	3	1

Analysis

Node:

- Advantages:
 - o Good documentation, easy integration with cloud services, growing user-base
 - Good performance only asynchronous though!
 - One Language to Rule them all JavaScript
- Disadvantages:
 - Does not work well with large number of linear requests
 - Performance hit with synchronous operations encryption

Rails:

- Advantages:
 - Offers best security convention over configuration wins here!
 - Time to develop is less, availability of packages, support are high
 - Concurrency seems to be good probably because of Apache
- Disadvantages:
 - Poor server-side performance Interpreted language
 - DB interaction poor
 - Does not scale

Analysis contd...

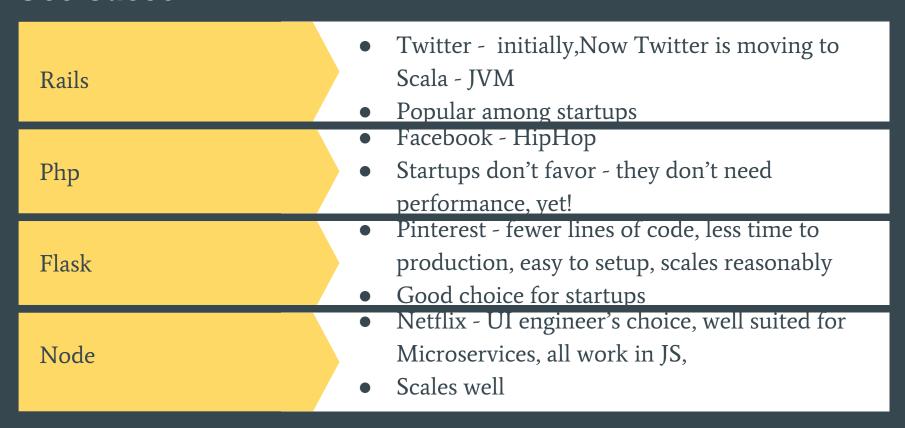
Php:

- Advantages:
 - Performance is better Bytecode/ compiled modules
 - Documentation good
- Disadvantages:
 - TIme to develop very high
 - Learning curve is steep
 - Difficult to integrate with new database systems, cloud services
 - Extremely Insecure

Flask:

- Advantages:
 - Reasonable security not as good as rails though!
 - Time to develop is less; availability of packages, support are high
 - Very efficient server-side computation
- Disadvantages:
 - Poor Concurrency GIL
 - DB interaction poor

Use Cases



Thank You!