Web development innovations and trends

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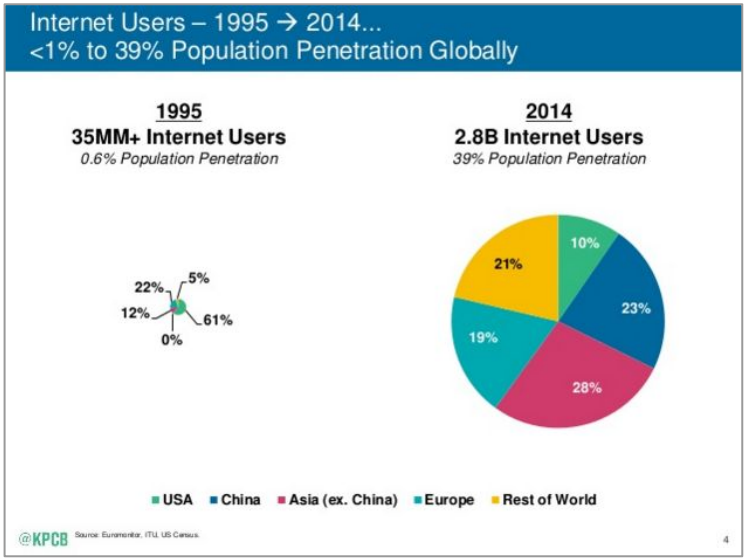
Who am I

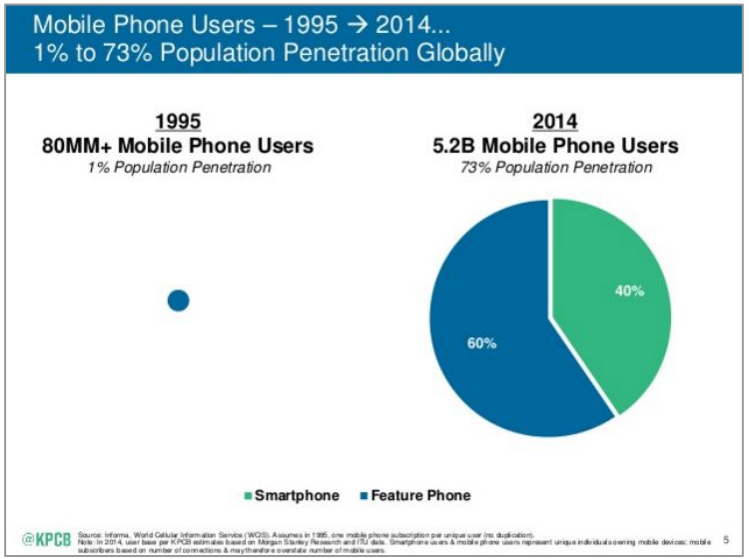
- PHP Product Architect in Upwork (upwork.com)
- Frameworks Days Cofounder (fwdays.com)
- 10+ years in Web Development

Internet trends

Internet is growing



Number of mobile phones and devices is growing

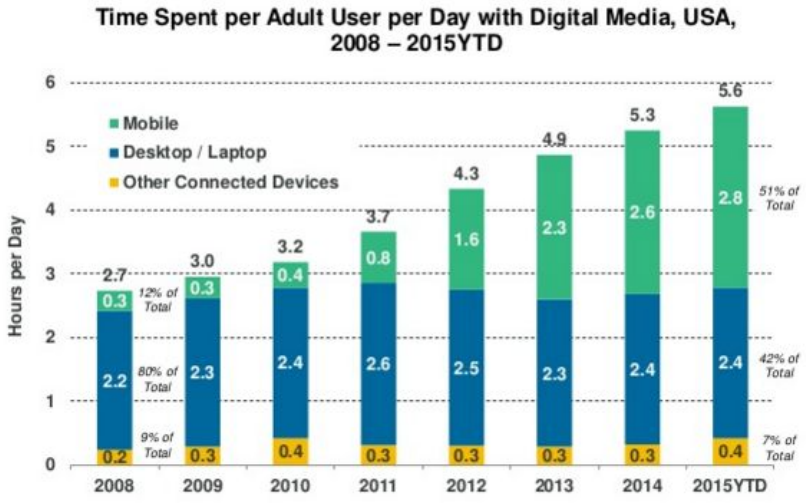


http://www.kpcb.com/internet-trends

Internet trends

Does Mobile kill Desktop?

Internet *Usage* (Engagement) Growth Solid
+11% Y/Y = Mobile @ 3 Hours / Day per User vs. <1 Five Years Ago, USA



 Source: eMarketer 9/14 (2008-2010), eMarketer 4/15 (2011-2015). Note: Other connected devices include OTT and game consoles. Mobile includes smartphone and tablet. Usage includes both home and work. Ages 18+; time spent with each medium includes all time spent with that medium, regardless of multitasking.

Frontend

- Frontend is growing
- HTML 5 / CSS 3
  - Web components
- Mobile first
- Frontend Frameworks
  - Twitter Bootstrap
  - Zurb Foundation
- Responsive design
  - Arguable
- JavaScript ecosystem is growing
- Frontend is separated from Backend

JavaScript

- ECMAScript 2015 (ES6) specification was released
  - http://es6-features.org/
  - https://babeljs.io/
  - http://kangax.github.io/compat-table/es6/
- Frameworks are still in trend
- AngularJS 1 / AngularJS 2
  - TypeScript
  - Shadow DOM
- ReactJS (library)
  - Virtual DOM
- EmberJS

Single Page Application (SPA)

- UI is rendered on client side
- Backend is only RESTfull API
- JavaScript is a key technology
- Application like interface

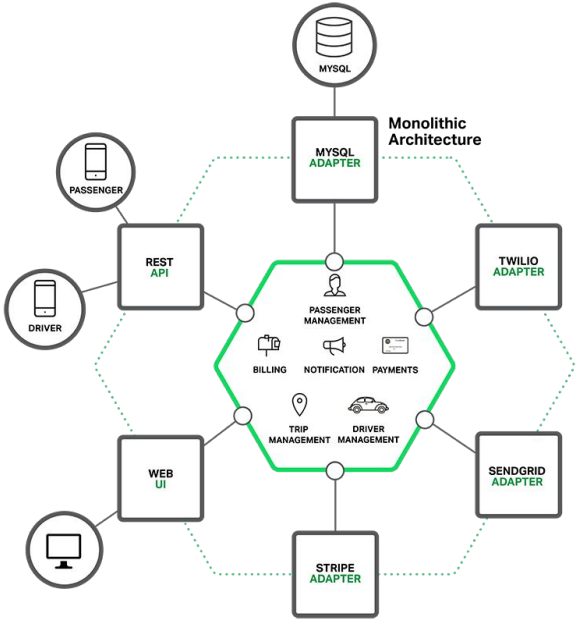
- Better UX
- Faster UI
- Mobile friendly UI

- More complex implementation
- Slower first load
- Difficulties with search bots
- Problems on slow connection

Microservices

Monolit approach

- Simple to develop
- Simple to test
- Simple to deploy
- Simple to scale



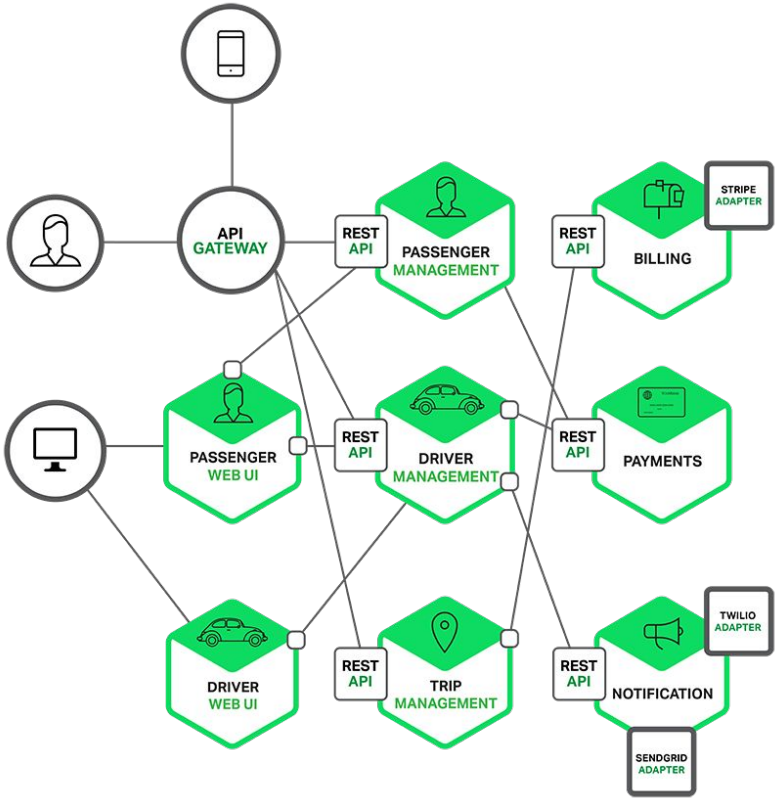
- Too large for any single developer to fully understand
- New features and bugfixes are difficult and time consuming
- Problems with reliability
- Application size slows down development
- Difficulties with Continuous Integration and Deployment
- Hard to adopt new technologies

Microservices

- Microservice typically implements a set of distinct features or functionality
- Most services consume REST APIs provided by other services
- Each service has its own database

- Amazon, eBay, Netflix do it

Good stuff to read

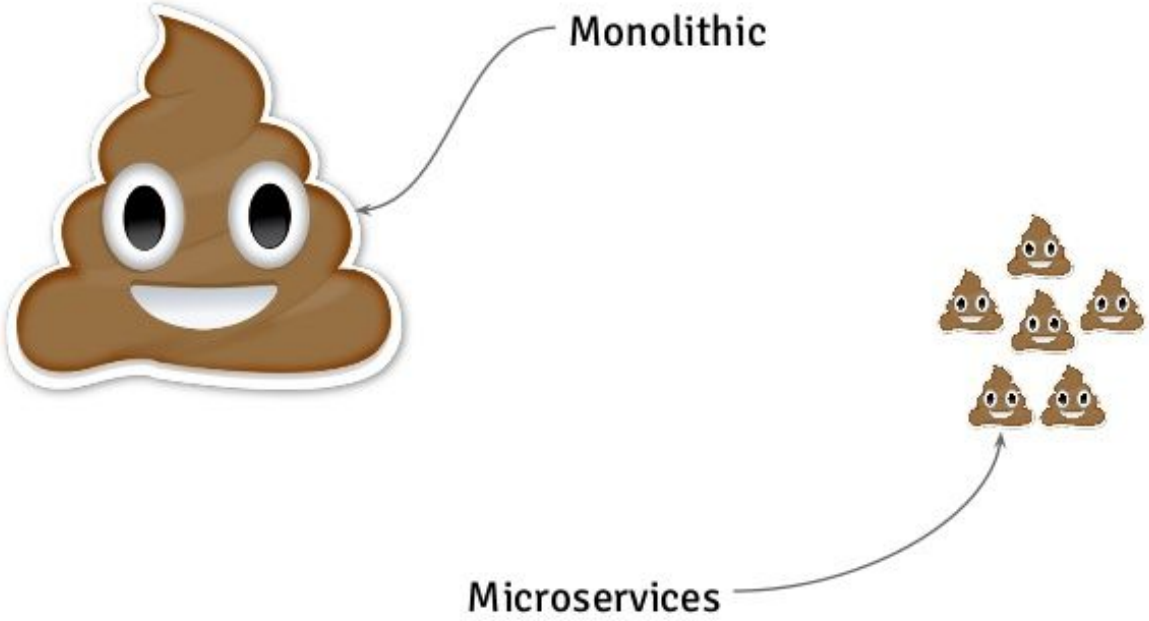


Microservices Pros & Cons

- Easy to understand, develop and maintain
- More reliable independent applications
- Independent deployment (CI, CD)
- Easier to change technology

- Additional complexity of creating a distributed system
  - Handle partial failure
- Update multiple business entities with partitioned database architecture
- Testing a microservices application is also more complex
- Implementing changes that span multiple services is hard
- Deploying a microservices-based application is also more complex.
  - Service discovery mechanism

Monolithic vs Microservices

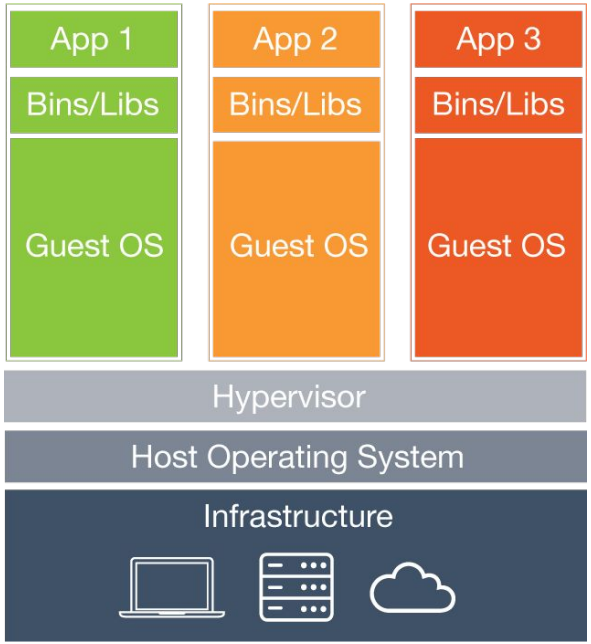


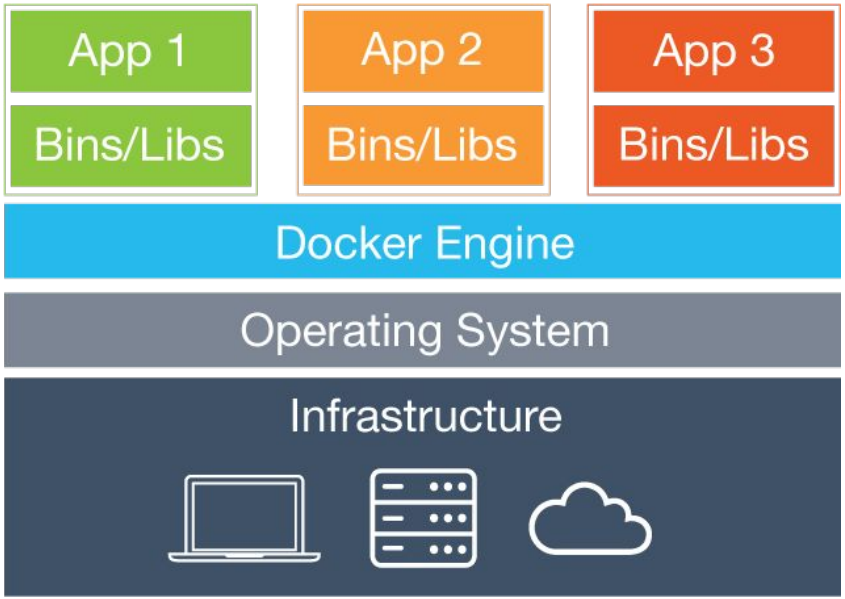
Docker

Docker is a lightweight container virtualization technology combined with a work flow for building and containerizing your applications.

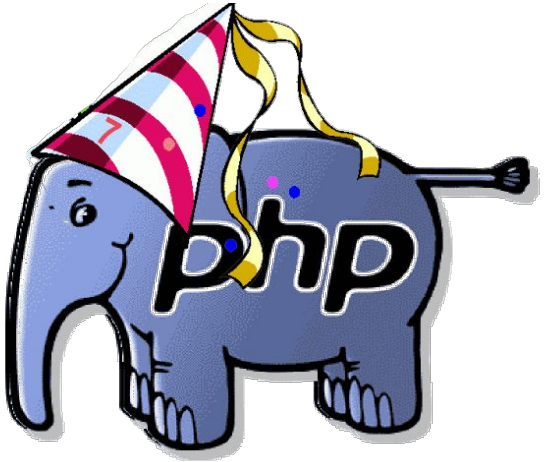
- Docker is fast
- Easier to run project everywhere
- Eliminate Environment Inconsistencies
- Share and Collaborate
    - Docker Hub

Docker vs Virtual Machines





PHP



- PHP 7
  - BC breaks are not significant
  - Performance improvements (benchmark)
  - Scalar type hints (rfc) and return types

```
function sendHttpStatus(int $statusCode, string $message) {
    header('HTTP/1.0 ' .$statusCode. ' ' .$message);
}
function isValidStatusCode(int $statusCode): bool {
    return isset($this->statuses[$statusCode]);
}
```

  - Fatals as Exceptions
- PHP Frameworks (Symfony, Laravel, Zend Framework, Yii)
- HHVM & Hack

More trends

- HTTP 2
  - Binary protocol
  - Data compression
  - Server push
- Functional programming
  - Easier to scale
- Security is a trend https://letsencrypt.org/
- Material design

DevOps culture

DevOps is a culture, movement or practice that emphasizes the collaboration and communication of both software developers and other information-technology (IT) professionals while automating the process of software delivery and infrastructure changes

- Involve admins into development
- Involve devs into release
- Build Automated tools
  - Docker, Ansible, Chef
- Measure, Log, Monitor and Alert
  - Graphite, Grafana
  - Logstash + Elasticsearch + Kibana
  - PagerDuty

Workflows

- Agile
  - Individuals and interactions over processes and tools
  - Working software over comprehensive documentation
  - Customer collaboration over contract negotiation
  - Responding to change over following a plan
- Scrum & Kanban
- Slack
- Continuous integration, Continuous delivery
  - QA automation
- Remote work

How to follow innovations

- https://github.com/trending
- http://stackoverflow.com/research/developer-survey-2015
- https://habrahabr.ru/company/zfort/
- https://www.google.com/trends
- http://dou.ua

Be a part of innovations

Thanks & questions

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