Server-side JavaScript

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What we will do in this session:

- Node.js basics
- A few heads up on language and technologies
- Ask questions (think about the topic) and get answers

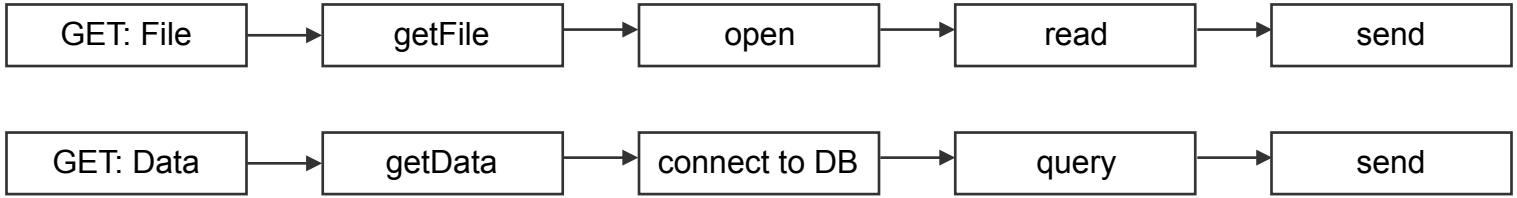

node
JS


npm

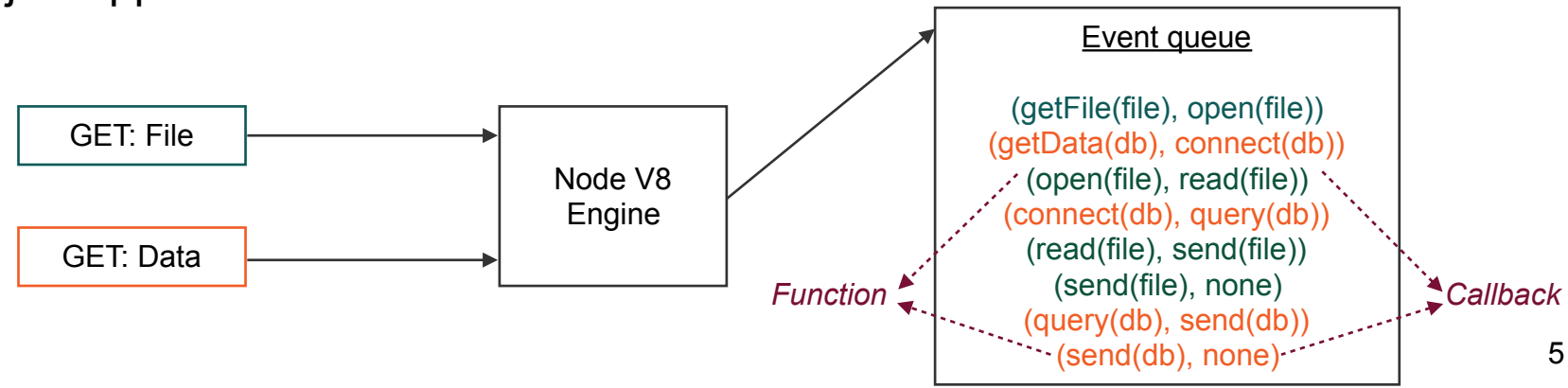
- JavaScript interpreter
- Single-core, ~1.8GB RAM
- Same language and concepts as for the front-end (event-based, asynchronous)
- Provides various libraries, for example to read/write files
- You can build:
  - Command-line scripts
  - APIs
  - Web applications with back- and front-end

Asynchronous, non-blocking execution

Traditional approach:

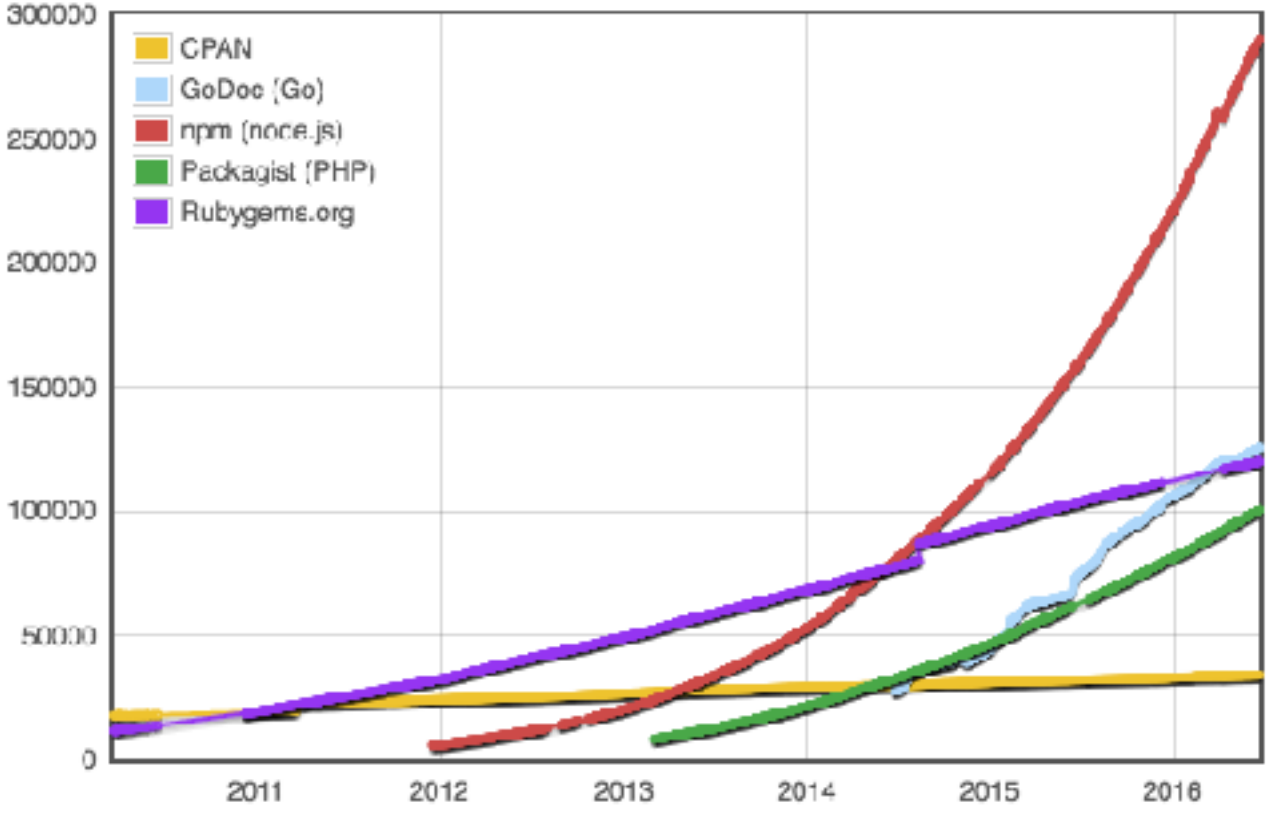


Node.js's approach:



- Node Package Manager (NPM)
- Provides a large number of packages for:
  - Front-end
  - Back-end
  - Scripting
- Imagine node.js to be your smartphone and NPM to be your app store.
- As every app store: some apps are good, some are not (look at documentation!).

NPM growth



http://www.modulecounts.com

Defining dependencies to NPM package using package.json

In a node.js application, the NPM **dependencies** and the description of the application are in a file called ***package.json***

```
{
  "name": "example",
  "version": "1.0.0",
  "description": "Example",
  "main": "index.js",
  "author": "Christian Dallago <code@dallago.us>",
  "license": "ISC",
  "dependencies": {
      "express": "^4.10.1",
      "pug": "latest",
      "mongoose": "latest"
  }
}
```

Installing NPM packages using command line

```
$ npm install --global parsjs
```

Where is my code executed?

- It is important to know where your code is executing because of performance reasons

- Node has different libraries than the browser
  References: https://developer.mozilla.org/en-US/docs/WebAPI VS https://nodejs.org/api/

Can node be parallelised?

Can node be parallelised?

Yes! An it’s easy!!

Can node be parallelised?

- This will come in handy when dealing with large datasets
- It should not be abused: It can lead to very inconsistent behaviours

  Reference: https://nodejs.org/api/cluster.html and https://www.sitepoint.com/how-to-create-a-node-js-cluster-for-speeding-up-your-apps/

But JavaScript syntax is terrible!

- There's a *new* JavaScript called *ES6/ES2015*. It introduces **a lot** of nice features such as nicer ways to handle variables (as constants or scoped variables) and much, much more!
  Reference: http://es6-features.org/#Constants

- You can use TypeScript (although it eventually transcribes to JavaScript and we all know: translations are never as good as the original!)
  Reference: https://www.typescriptlang.org

Recommended editors / IDEs

1. If you want a really cool, well curated IDE: https://www.jetbrains.com/webstorm/ (pss: it is free for you ;)). If you use WebStorm remember to .gitignore the .idea folder (unless you agree upon everyone using the same IDE settings and coding style, which will facilitate reviews)

2. If you think IDEs are for the weak and in high school they used to call you <eh - Max!> https://atom.io … Fun fact: Athom is written in JavaScript and runs in Electron (https://github.com/atom/atom)

Demo time

Question time