



# WEB DEVELOPMENT

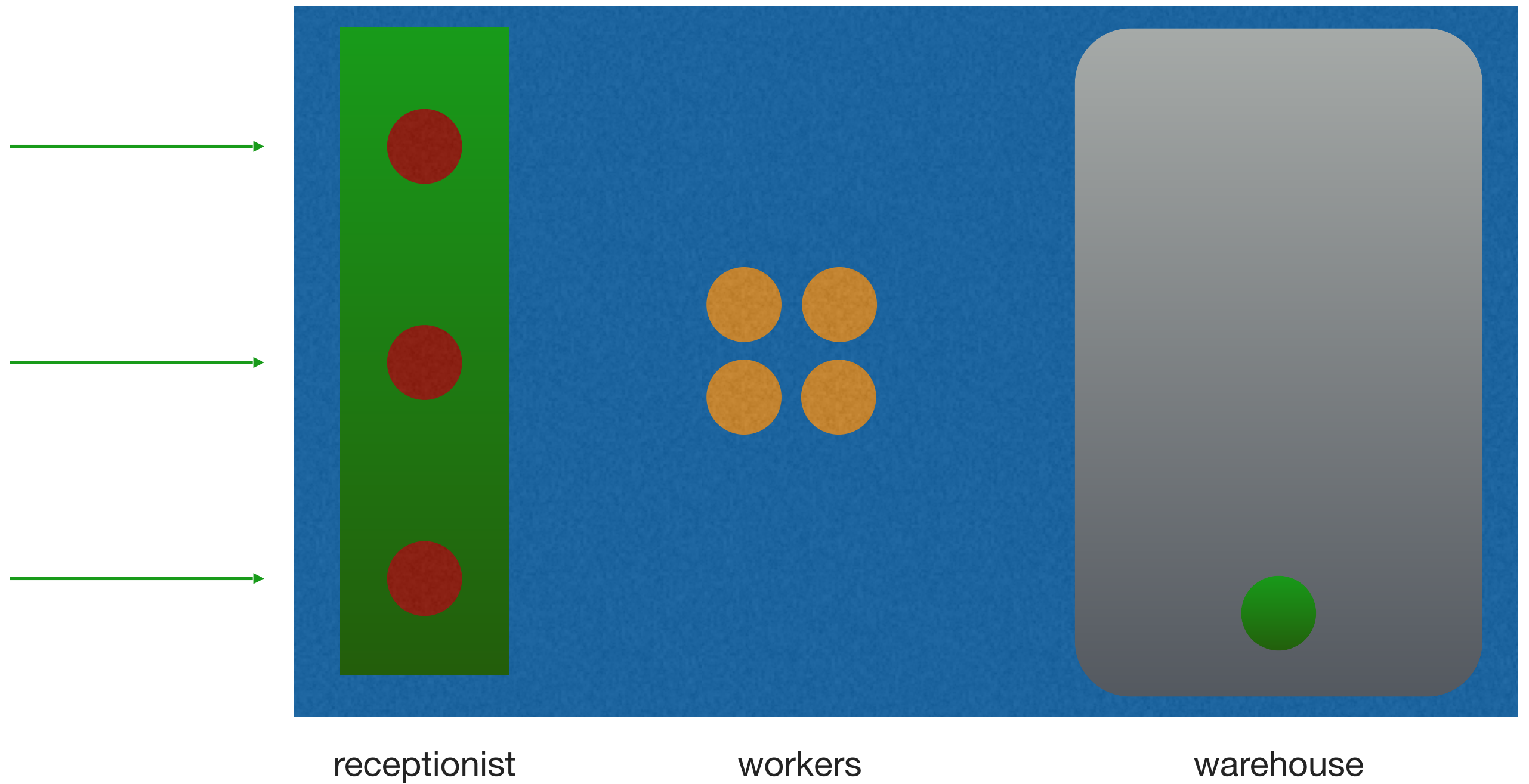
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## Lesson 0

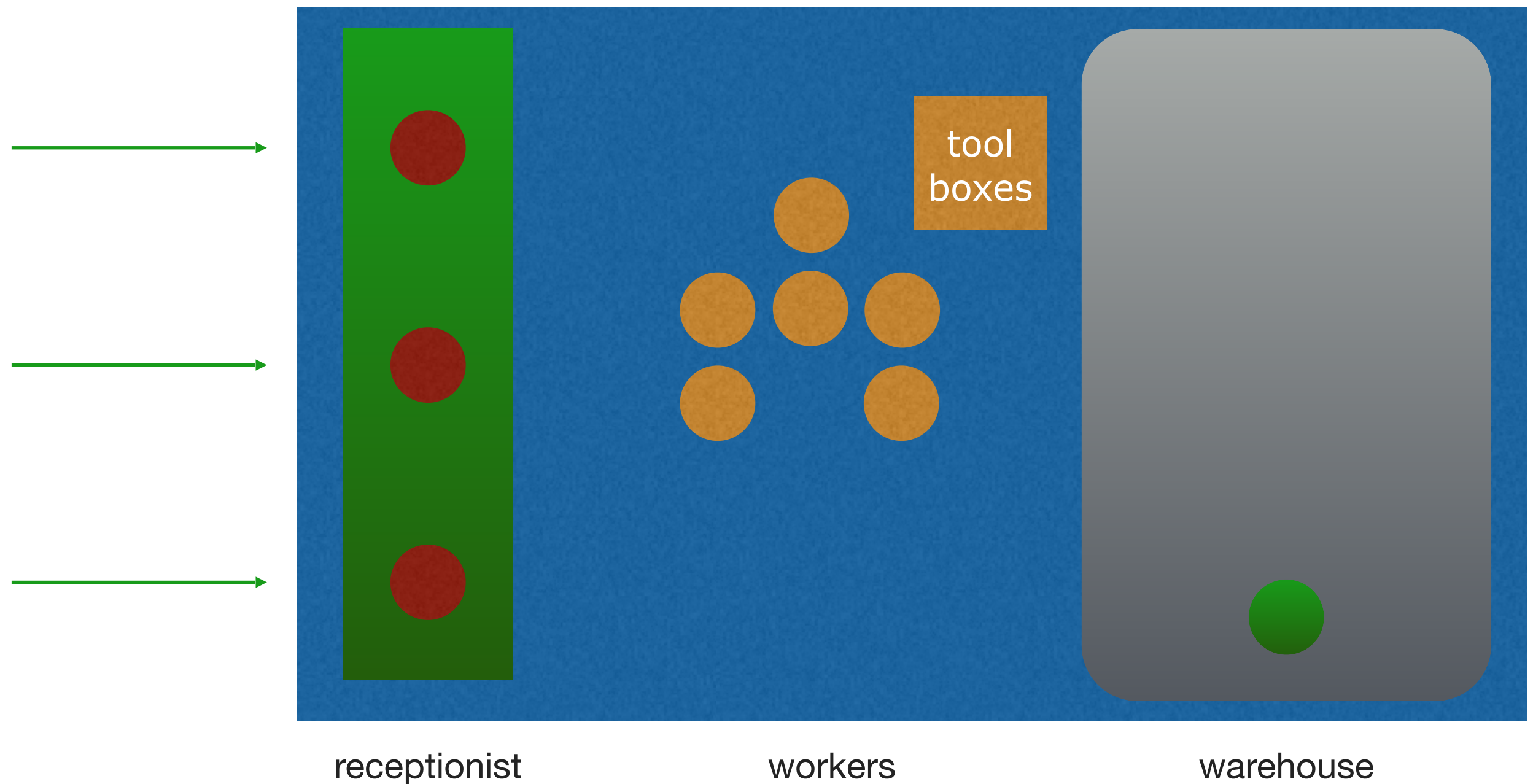
# What is the web site?

# How the Web works?

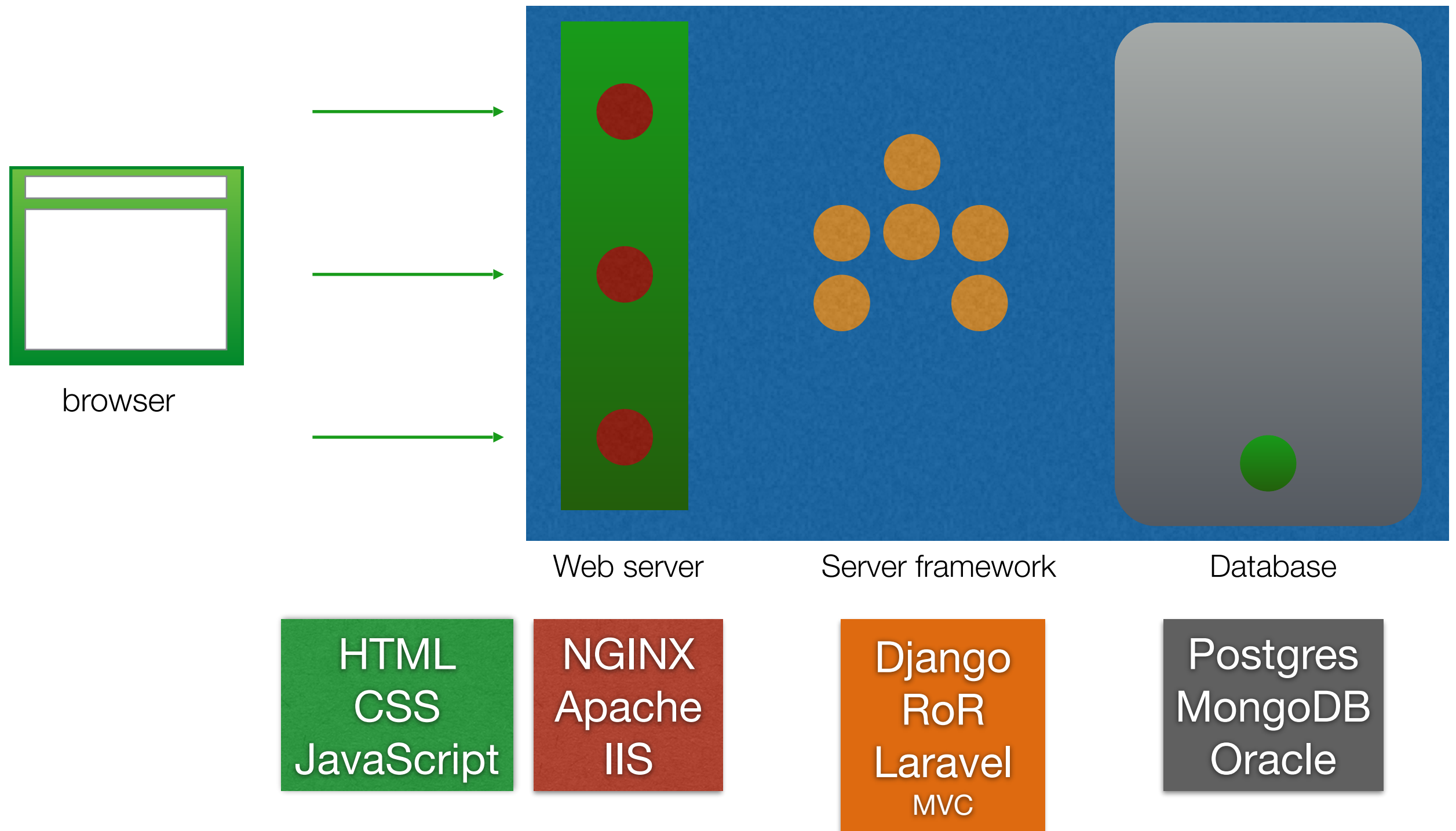
# Furniture store



# Making the store more responsive

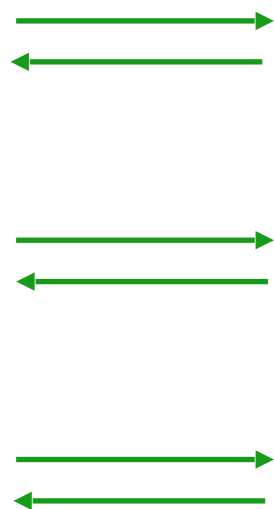


# Web development terminology





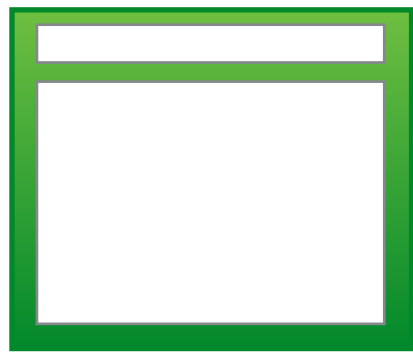
browser



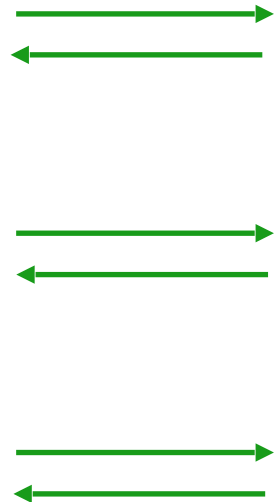
# Hosting

AWS  
Microsoft Azure  
Heroku  
ps.kz  
hoster.kz

	Web server	Server framework	Database
	HTML CSS JavaScript	<b>Python</b> Django, Flask	MySQL Postgres Microsoft SQL
	HAML LESS SASS CoffeScript TypeScript	<b>Ruby</b> Rails, Sinatra	SQLite MongoDB Oracle
	jQuery React Angular Ember Vue	<b>PHP</b> Laravel, Yii	Redis Memcached Cassandra
		<b>Java</b> Spring, Play	
		<b>C#</b> <u>ASP.NET</u>	



browser



Hosting

AWS  
Microsoft Azure  
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Web server

Server framework

Database

HTML  
CSS  
JavaScript

HAML  
LESS SASS  
CoffeeScript  
TypeScript

jQuery  
React  
Angular  
Ember  
Vue

NGINX  
Apache  
IIS  
Unicorn  
Thin  
Puma

**Python**  
Django, Flask

**Ruby**  
Rails, Sinatra

**PHP**  
Laravel, Yii

**Java**  
Spring, Play

**C#**  
ASP.NET

MySQL  
Postgres  
Microsoft SQL  
SQLite  
MongoDB  
Oracle  
Redis  
Memcached  
Cassandra

front end

back end

server

client side

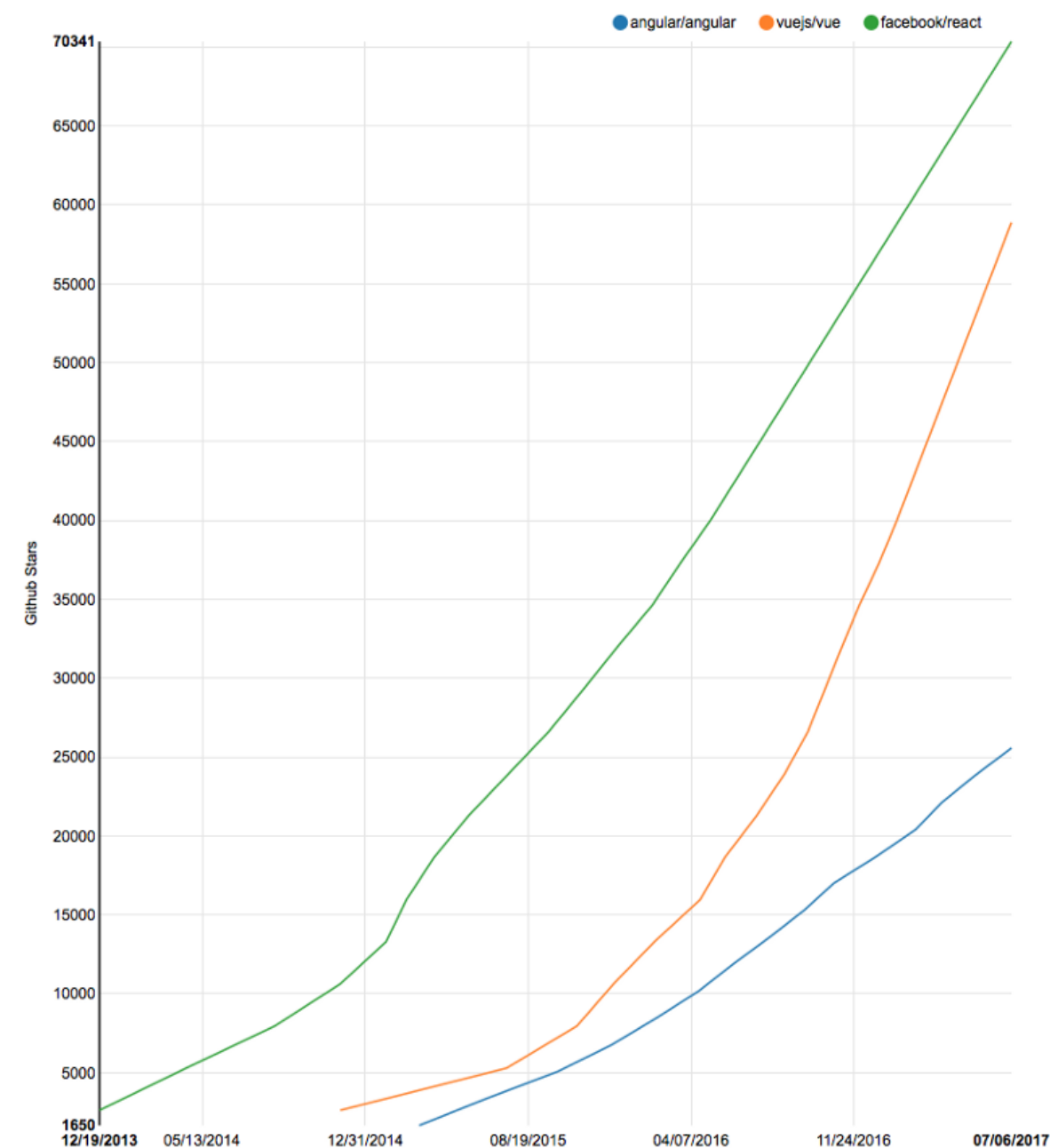
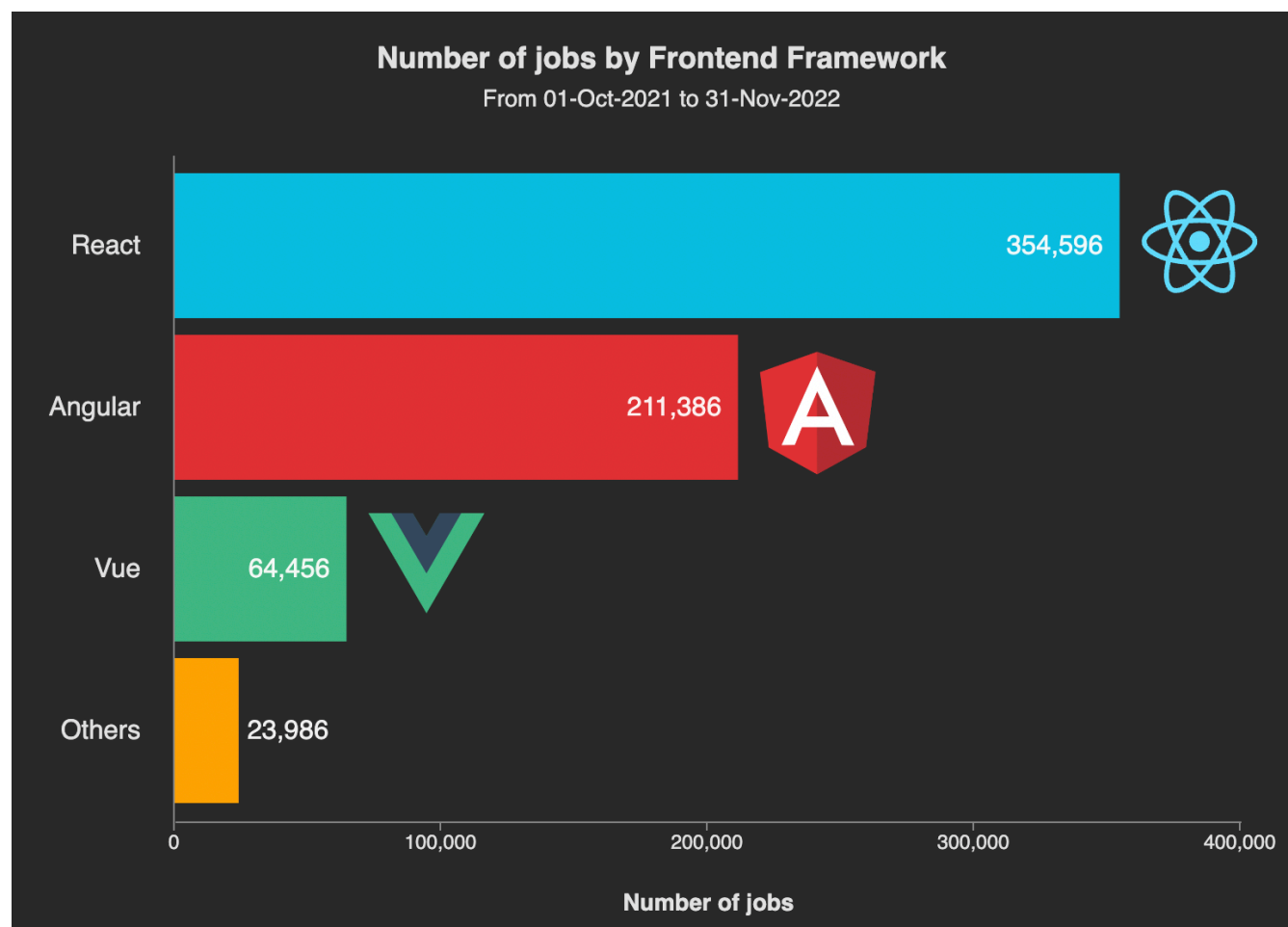
server side



# Technologies

# Front end frameworks

1. React — Facebook
2. Angular — Google
3. Vue - Google employee
4. ...

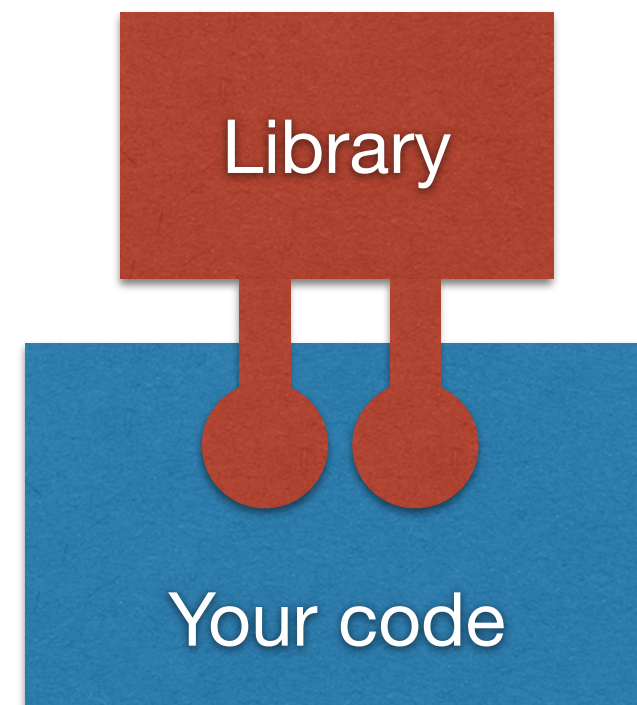
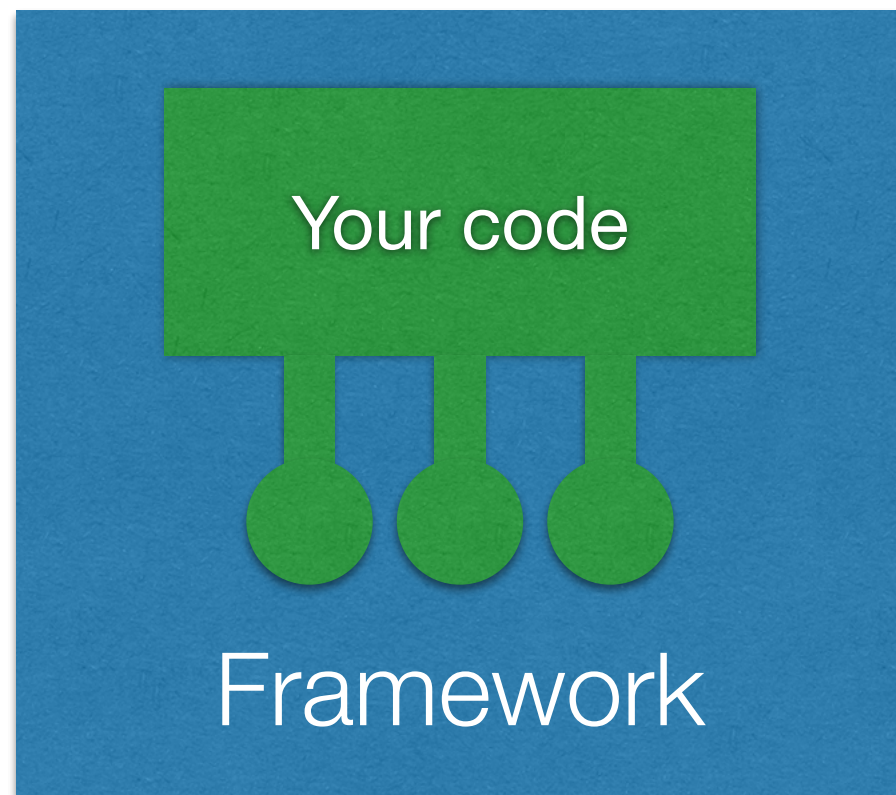








# Framework & Library



# Back end frameworks

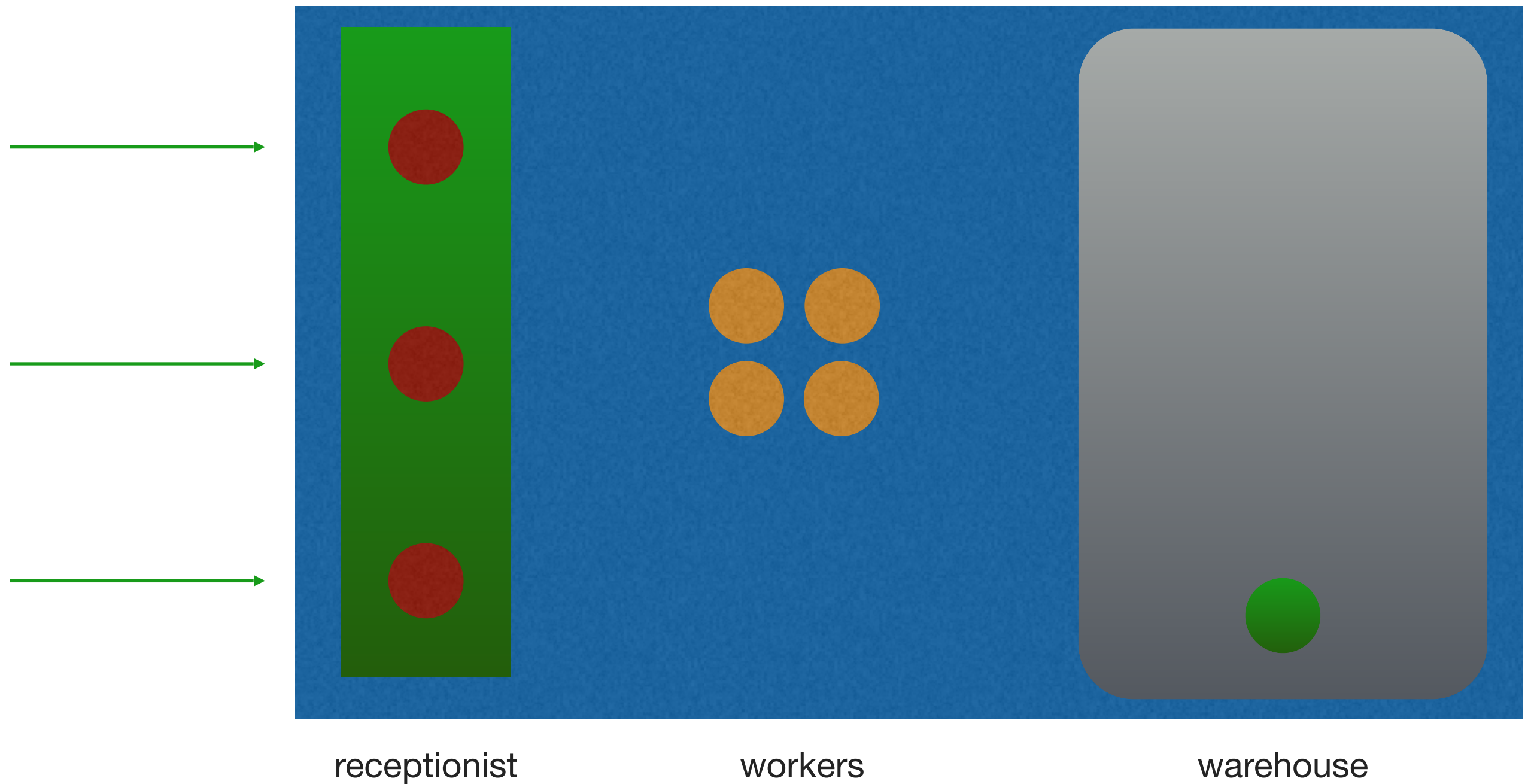
	Pros	Cons
<b>PHP</b>	Designed for beginners. Easy to build functional web apps.	Some PHP apps could lack structure.
<b>Ruby</b>	OOP and shorter codes (with Rails). Great TDD.	OOP and shorter codes. Lots of things happening in the background.
<b>Python Django</b>	Easy to learn Python. Great community. Lots of code "already written".	Need to learn the framework.
<b>ASP.NET MVC</b>	Uses common design patterns. Flexible. Runs compiled code.	Compiled. Need to learn C# or VB.
<b>Node.js</b>	Uses sockets.	Not as mature

# Back end frameworks

Django	Rails
Python	Ruby
MVT	MVC
Explicit is better than implicit	Convention over Configuration
beginners	seasoned professionals

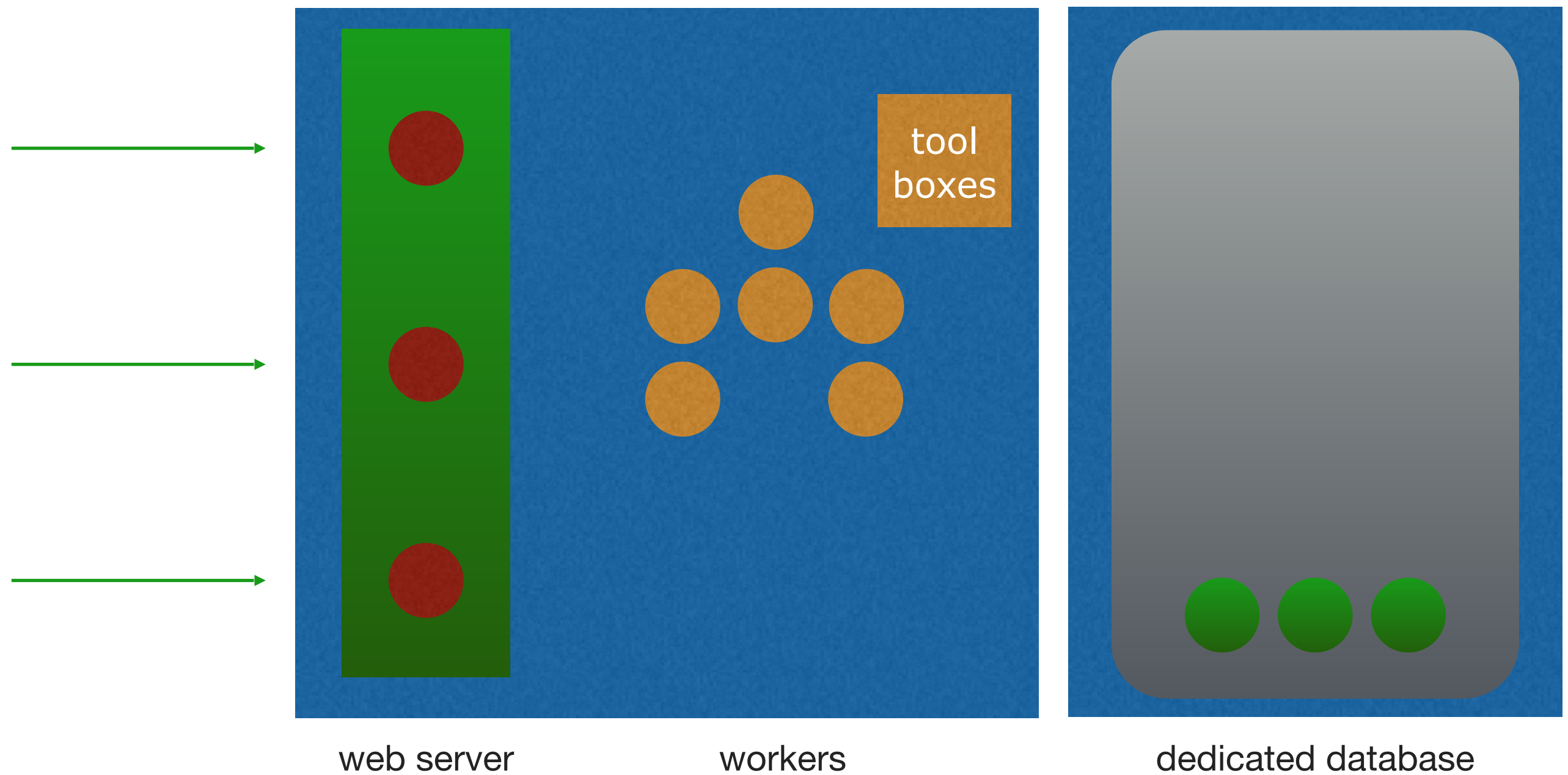
# Scaling concepts

# Furniture store

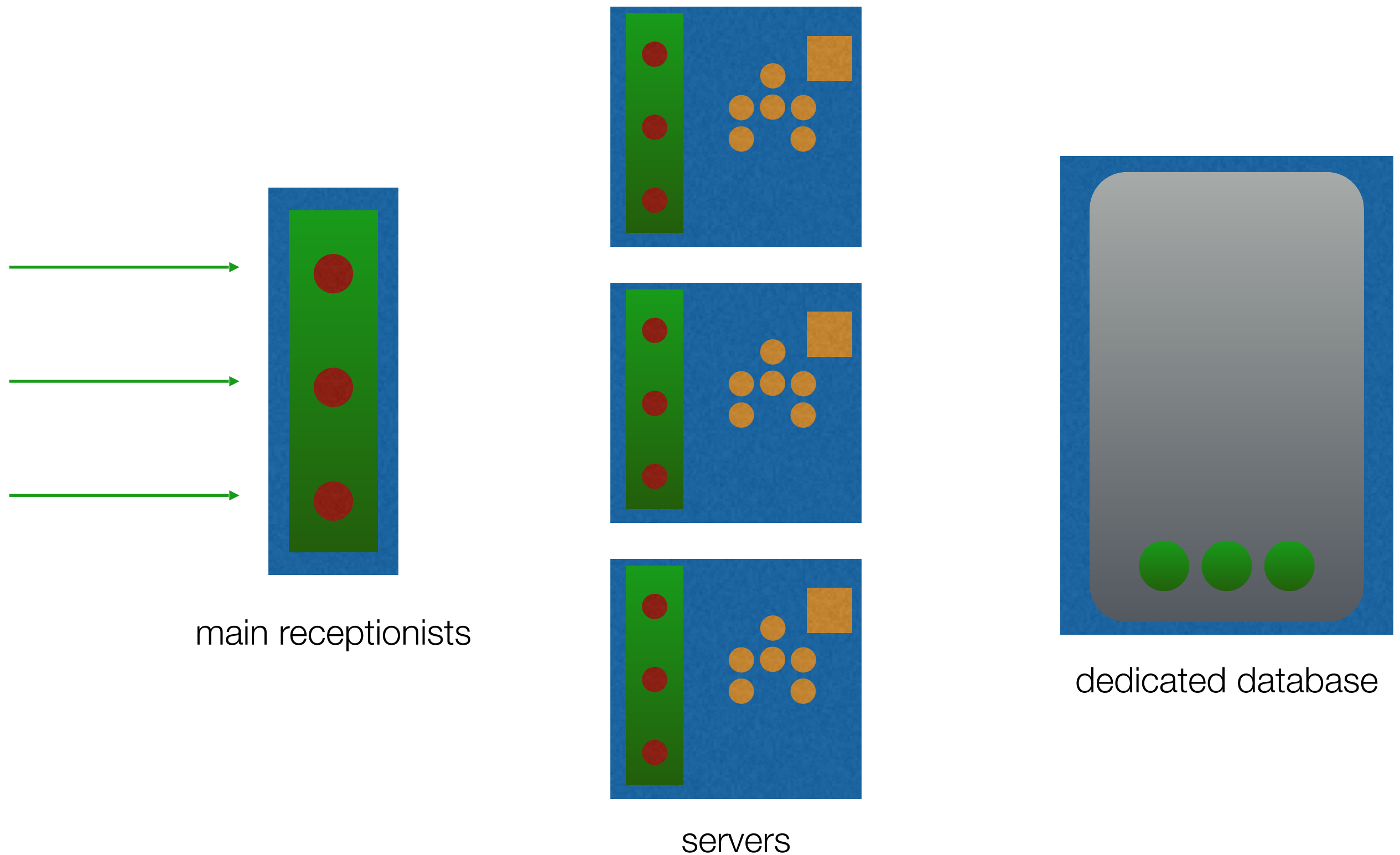




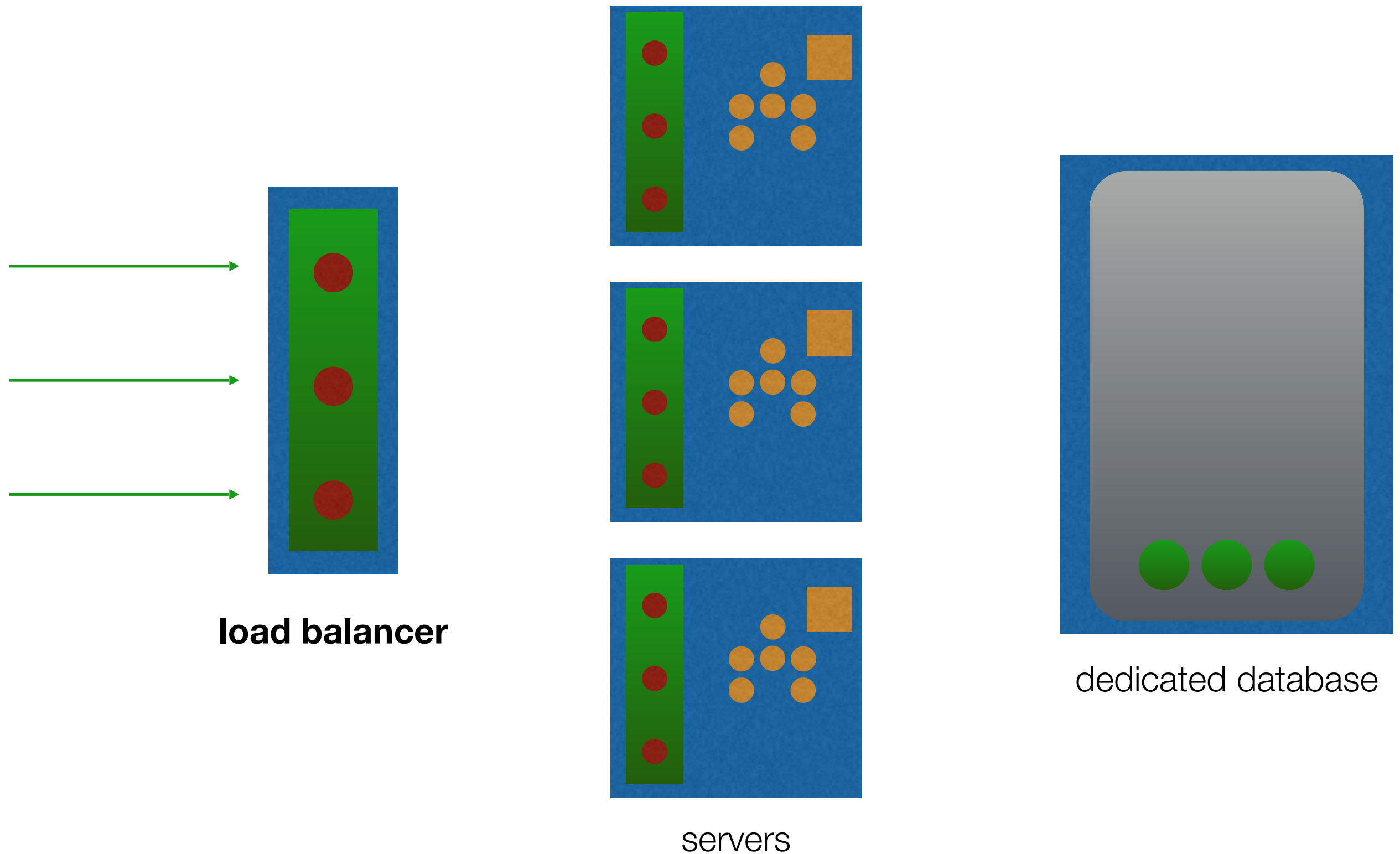
# Separating the data store



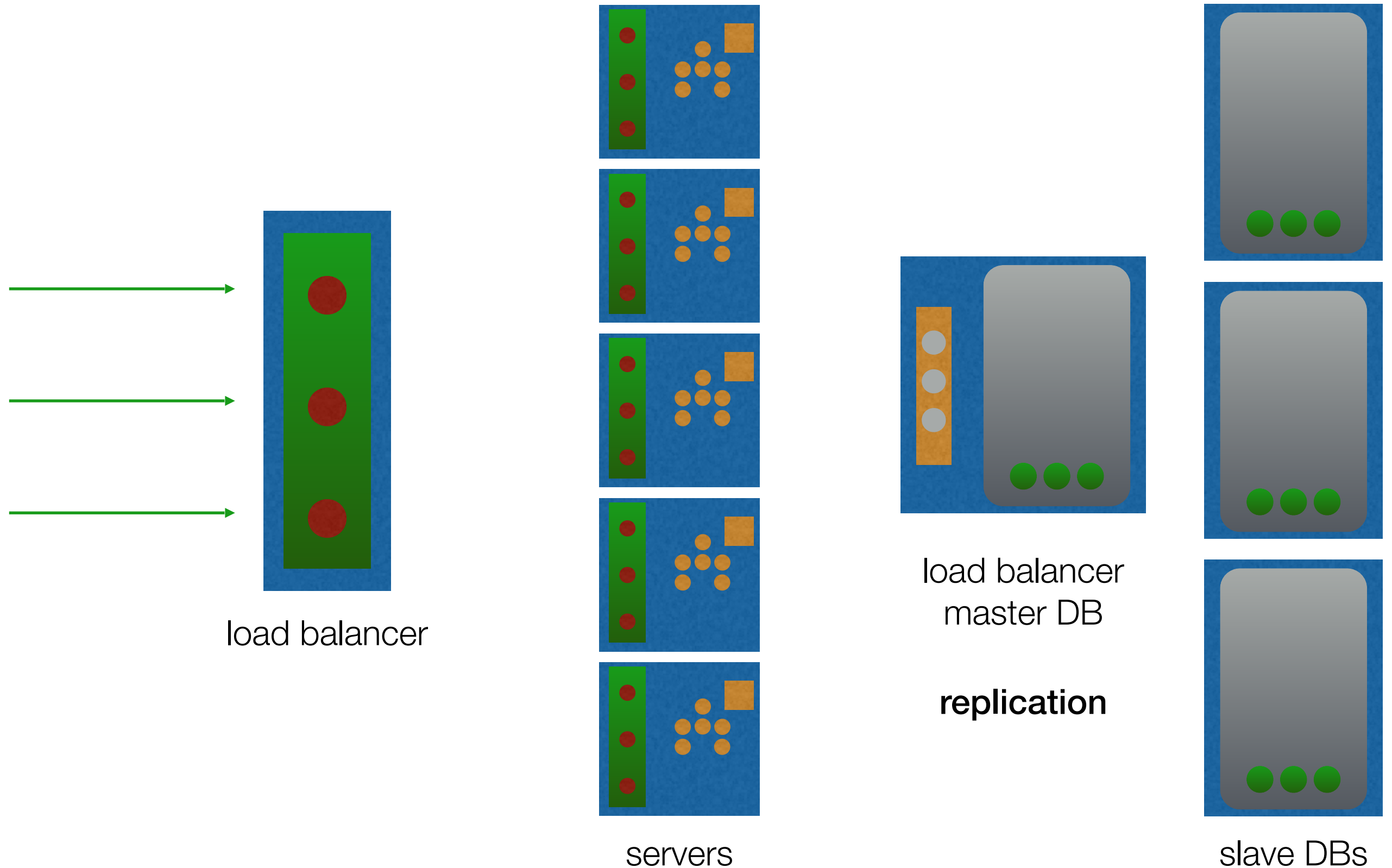
# Scaling the server



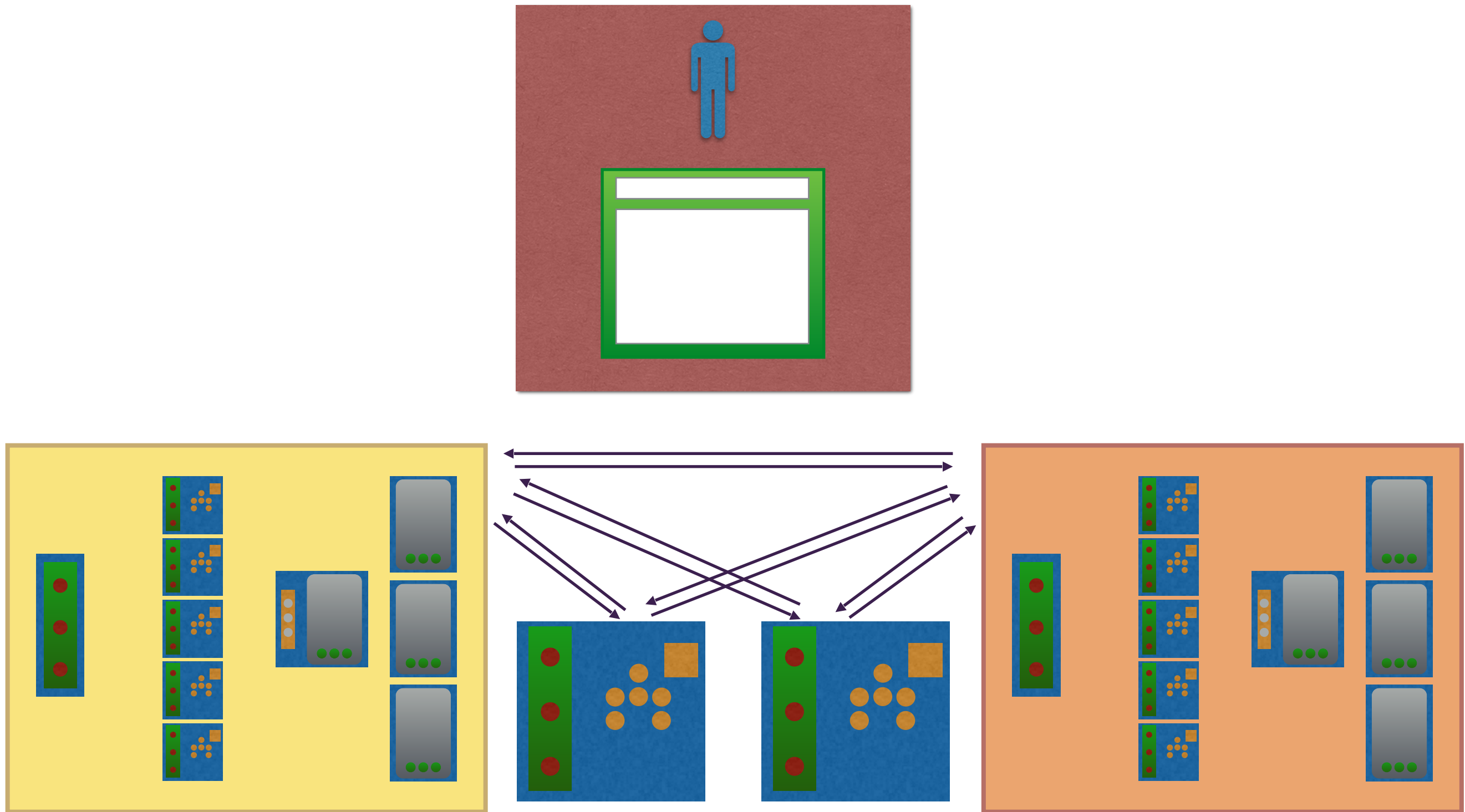
# Scaling the server



# Scaling the data store



# Modularization and APIs



# What is API?





API — is like an artist performing on stage, and its users are the audience



# RESTful API

1. REST (REpresentational State Transfer) — is an architectural style for developing web services
2. API (Application Program Interface) — is code that allows two software programs to communicate with each other



# API endpoint for Companies

1. `/getAllCompanies`
2. `/addNewCompany`
3. `/showCompanyDetail?id=23`
4. `/deleteCompany?id=23`



The URL is a sentence, where resources are nouns and HTTP methods are verbs.

1. `/companies` (GET)
2. `/companies` (POST)
3. `/companies/23` (GET)
4. `/companies/23` (DELETE)



# Data formats

- JSON

```
{  
  "root": {  
    "age": "18",  
    "isStudent": "true",  
    "name": "Nick"  
  }  
}
```

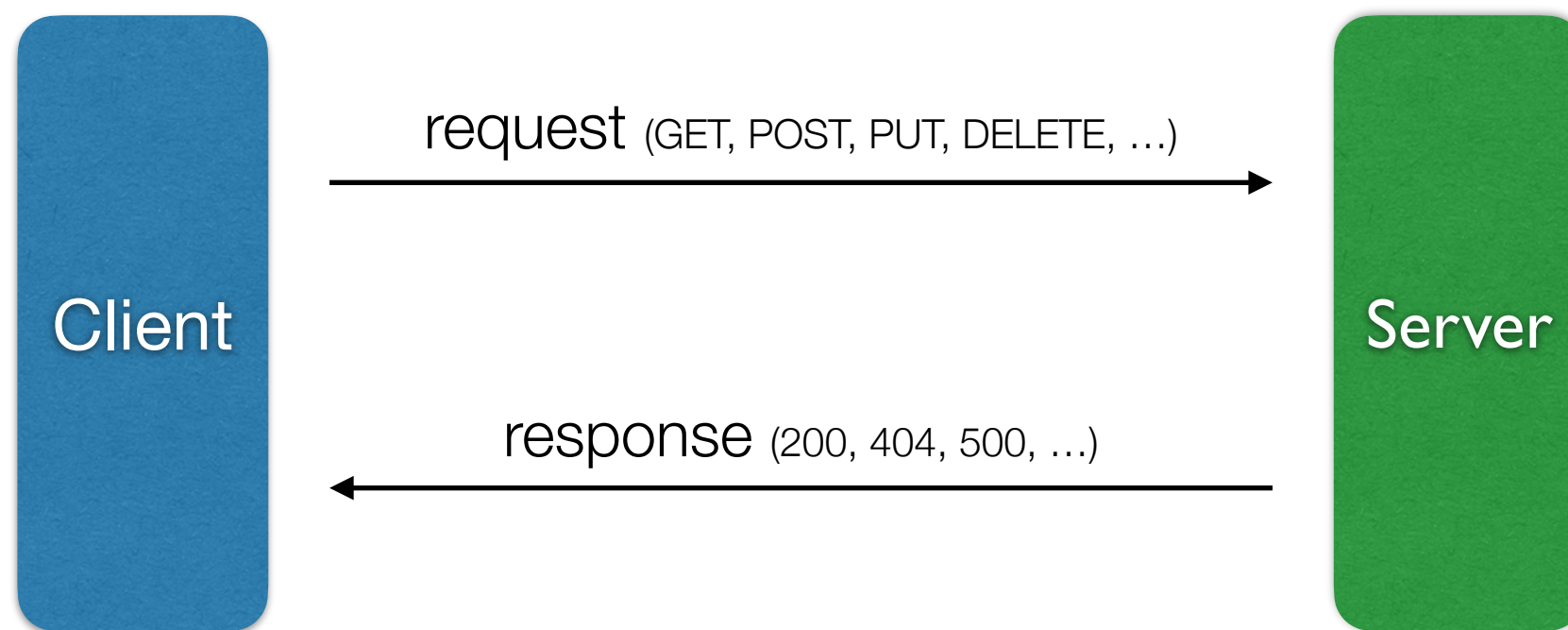
- XML

```
<?xml version="1.0" encoding="UTF-8"?>  
<root>  
  <age>18</age>  
  <isStudent>true</isStudent>  
  <name>Nick</name>  
</root>
```

- CSV

```
name,age,isStudent  
Nick,18,true
```

# Client Server Communication



# Protocols

- TCP/IP — Transmission Control Protocol / Internet Protocol
  - communication among computers on Internet
- HTTP — Hyper Text Transfer Protocol
  - Communicates with browsers to send web page packets
- HTTPS — Hyper Text Transfer Protocol Secure
  - HTTP with Secure Sockets Layer (SSL)
- FTP — File Transfer Protocol
  - Used by FTP Clients to transfer file packets

# HTTP response status codes

- 2xx — Success category
  - 200 Ok
  - 201 Created
- 3xx — Redirection Category
  - 304 Not Modified
- 4xx — Client Error Category
  - 400 Bad Request
  - 401 Unauthorized
  - 403 Forbidden
  - 404 Not Found
- 5xx — Server Error Category
  - 500 Internal Server Error
  - 503 Service Unavailable

# Questions?