Introducing Hapi

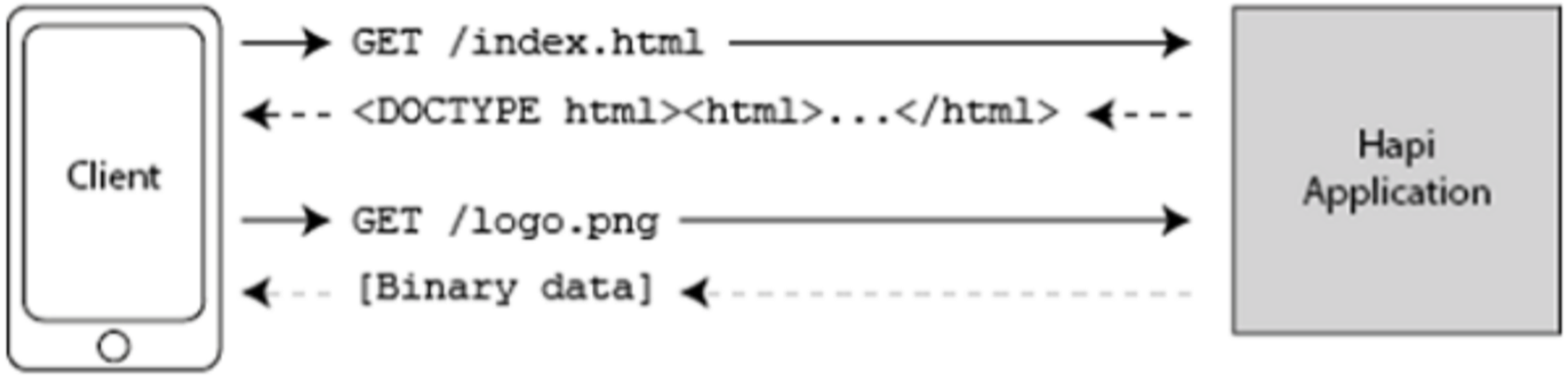
What is HAPI?

- hapi.js is an open source framework for building web applications with Node.
- Can be used for building:
  - Web App
  - API Server

“A rich framework for building applications and services hapi enables developers to focus on writing reusable application logic instead of spending time building infrastructure.”

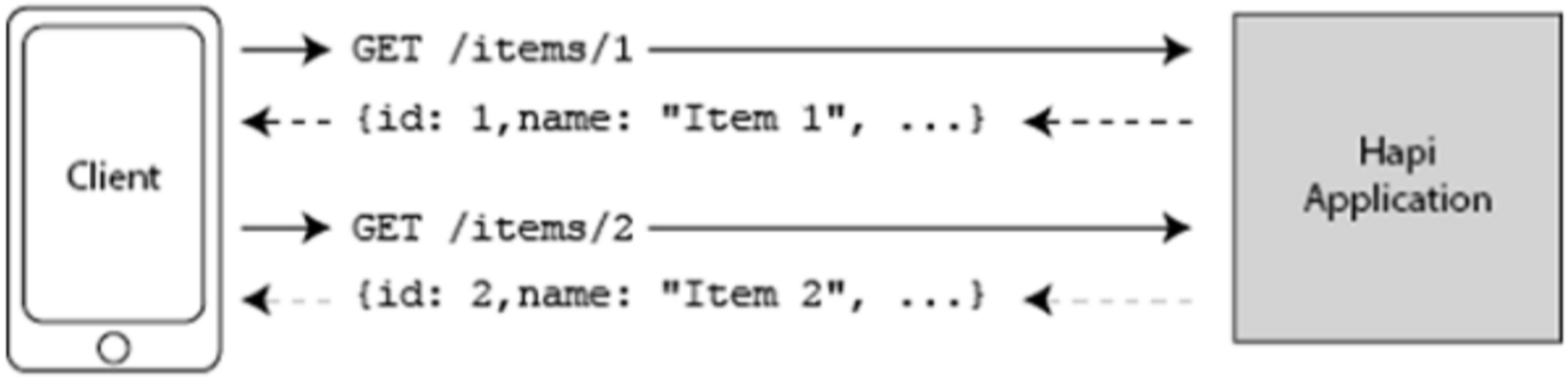
Web Application

- Application delivers a Conventional Web Application
- All data conveyed in HTML format
- Client is a Web Browser

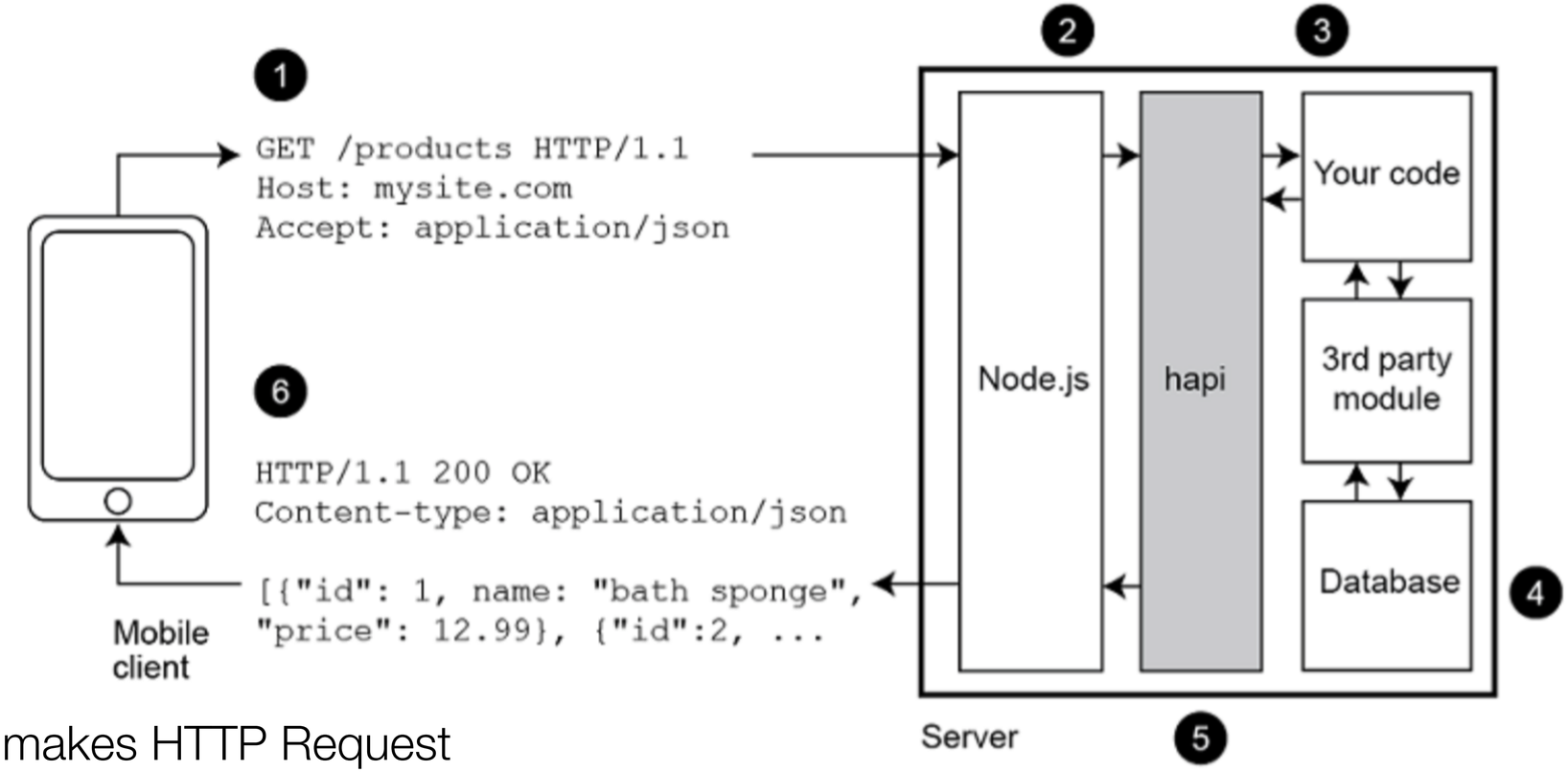


API Server

- Application delivers an Application Programming Interface
- All data conveyed in JSON format
- Client are other programs : mobile, test clients, js client apps



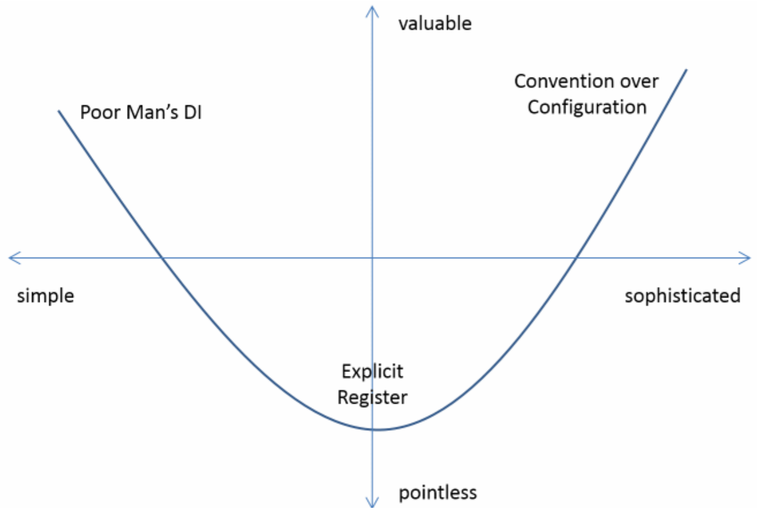
HAPI & Node



1. Client makes HTTP Request
2. Request received by Node and forwarded to api
3. Hapi authenticates user and routes request to correct function
4. Application logic executes, retrieves data from database
5. Data passed to Hapi reply function. Hapi validates, caches data.
6. Data transmitted over HTTP by node to client

Why Choose Hapi?

- Its Node
- Its Modular
- It favours Convention over Configuration (or Code)



Why Hapi? - its Node

- Node is strong for building APIs.
- JSON has become the de facto standard encoding for transferring data over the web.
- Working with JSON in JavaScript is a natural choice.
- The low- level implementation details of Node’s runtime let you scale your API to thousands of concurrent users without using expensive hardware.

Why Hapi? - Modularity

- Hapi plugin system lets you join together isolated chunks of applications like Lego and have them run as a single application.

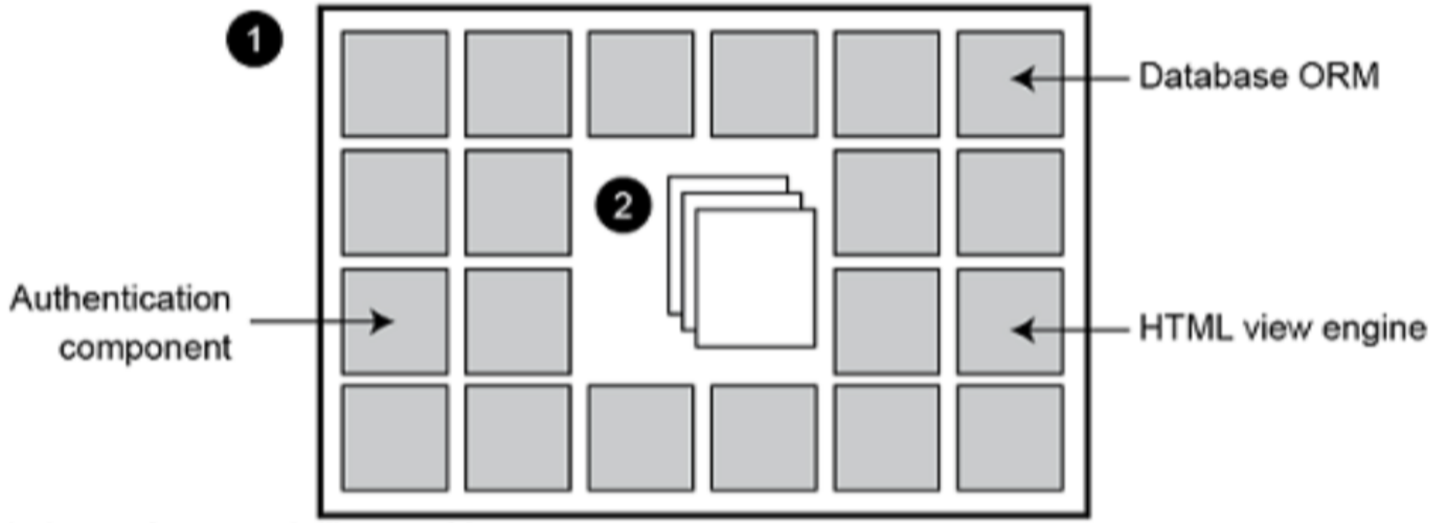
- These individual chunks or plugins can be developed, tested and distributed (as npm packages) totally independently, maybe by different developers or teams in a large organisation

- Plugins also let developers create functionality to share with the entire open- source community.

Why Hapi? - Convention over Configuration

- Configuration-over-code means that there aren’t lots of methods to remember to perform commonly required tasks
- Instead complex behaviours are wrapped up into simple configuration-driven APIs.
- You don’t need to start learning all these configuration options until you really need them because sensible defaults are always chosen for you by the framework

Types of Framework: Monolithic



- All Encompassing - Highly Opinionated

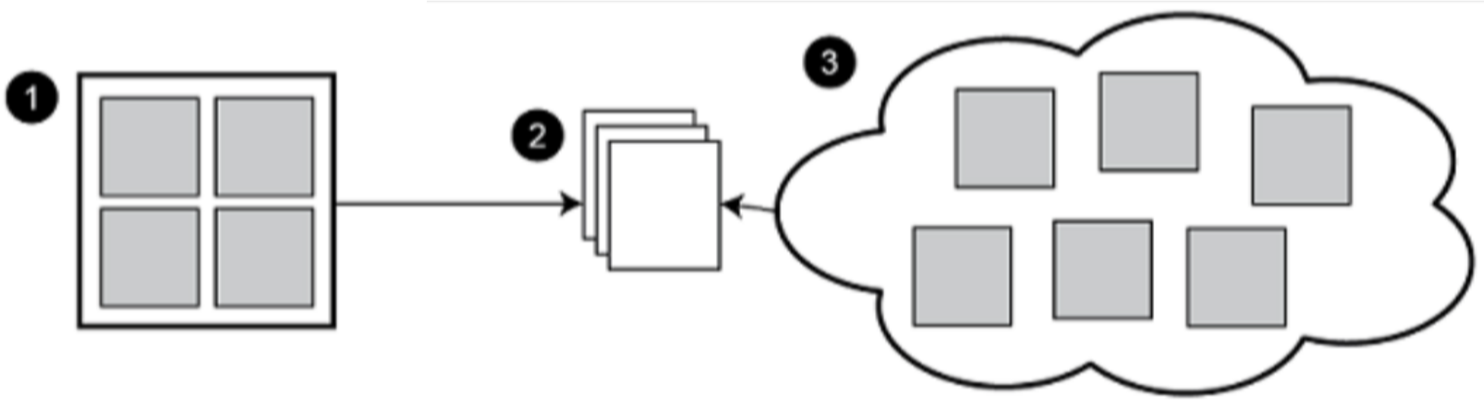
1. Large Application Library with Many Components

2. Application is tightly bound to the framework and may be challenging to use external software

Types of Framework: MicroFramework

- Lightweight, thin wrappers.

1. Small framework library with few components
2. Application is independent of framework
3. Application relies on many 3rd party libraries



Framework Spectrum

All Encompassing -
Highly Opinionated

e.g. Rails, Sails

- Highly Opinionated frameworks require you to do things in a predictable and consistent way

- MicroFrameworks are often thin wrappers around some native capability of the platform to offer convenient APIs for common tasks

e.g.Sinatra, Express

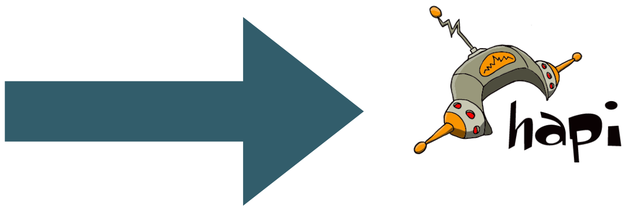
Micro Frameworks
- Lightweight

Hapi Philosophy

All Encompassing -
Highly Opinionated

e.g. Rails, Sails

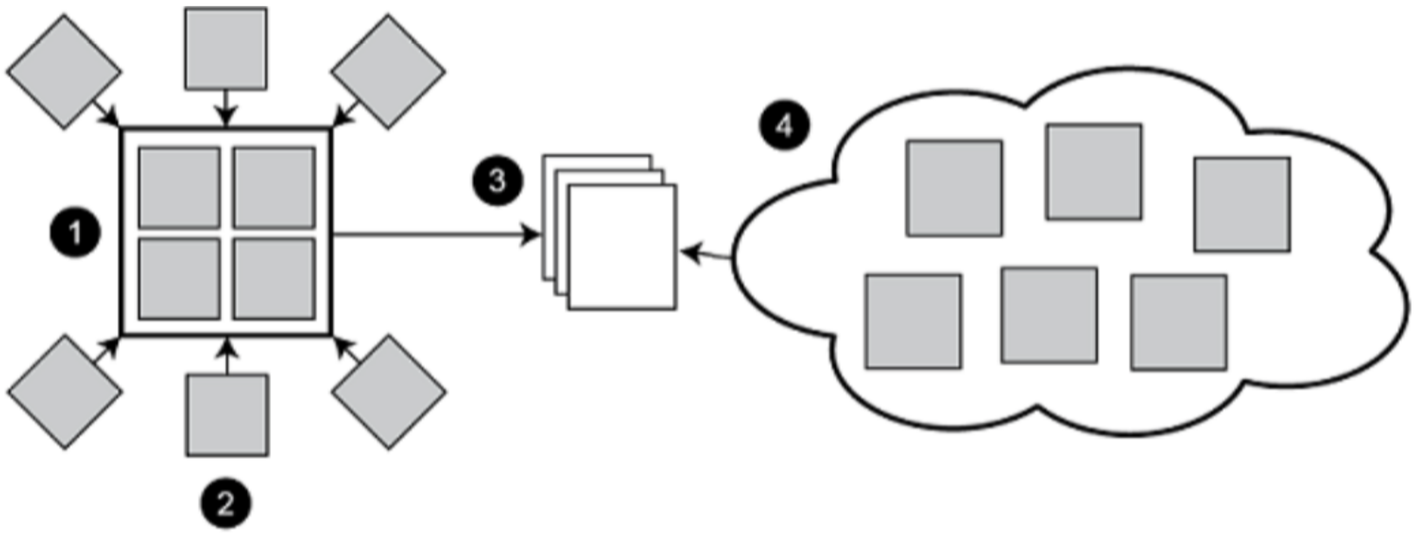
- Hapi threads a middle line between offering rich functionality out of the box while staying unimposing.
- The core library of hapi provides only the essential features that you will need when creating almost any modern web application.



e.g.Sinatra, Express

Micro Frameworks
- Lightweight

Hapi Approach



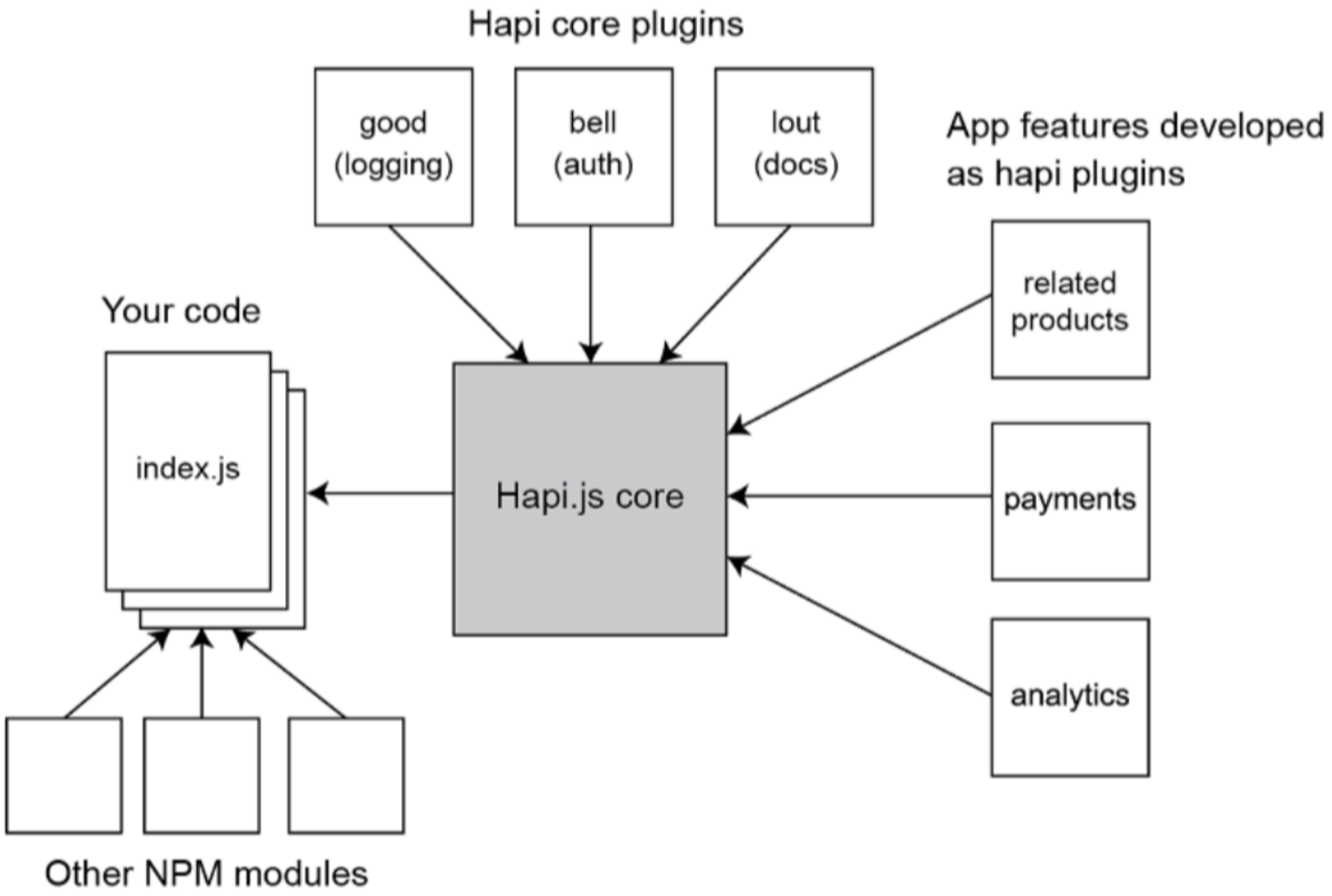
1. Small framework with few components

2. Frameworks core functionality extended with configurable official plugins

3. Application is independent of framework

4. Application relies on 3rd party libraries

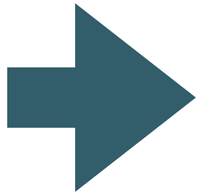
Example Hapi Application Structure



Hapi Plugins

https://hapijs.com/plugins

- Categories of plugins



Authorization
Authentication
Documentation
Encoding
Localization/Internationalization
Logging/Metrics
Messaging
Security
Session
Templating
Utility
Validation
The extended hapi universe

The extended hapi universe

- boom

  HTTP-friendly error objects

- inert

  Static file and directory handlers

- joi

  Object schema description language and validator for JavaScript objects

- vision

  Templates rendering support

- wreck

  HTTP Client utilities

Authentication

- hapi-auth-cookie

  A cookie-based session authentication scheme

- hapi-auth-jwt2

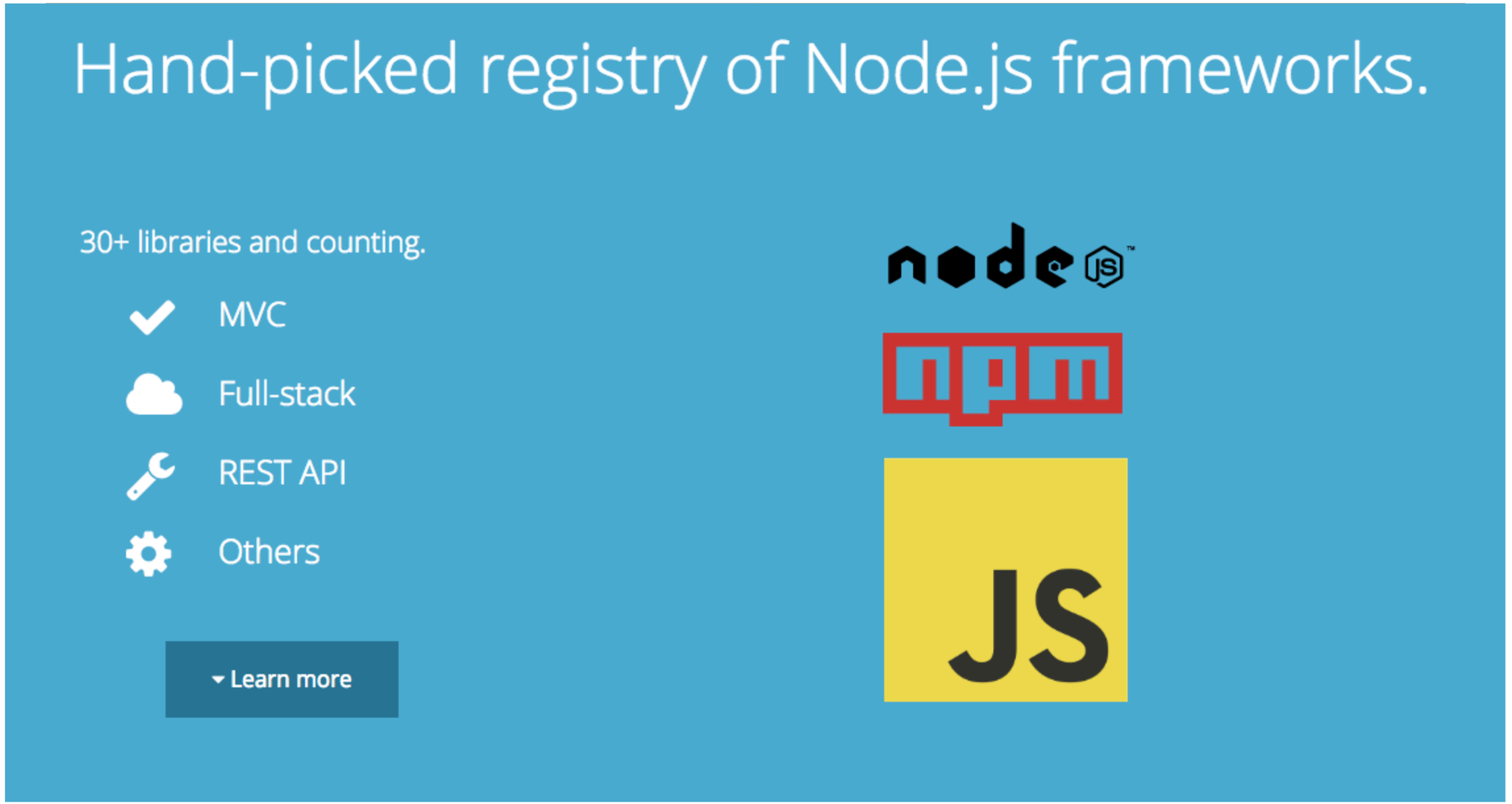
  Simplified JSON Web Token (JWT) authentication plugin

Utilities

- hapi-mongoose

  A lightweight mongoose connection and configuration plugin for Hapi 9+

http://nodeframework.com/



MVC frameworks

Sinatra-like

These frameworks offer rich configuration and are less opinionated than Rails-like or full-stack.

- Express Star 42,036
- hapi Star 10,693
- flatiron Star 1,341
- locomotive Star 877
- total.js Star 3,887
- koa.js Star 24,696
- TWEE.IO Star 118
- diet.js Star 367
- Flicker.js Star
- ZinkyJS Star

Rails-like

Present your project properly. Create your own art from included templates

- Nodal Star 4,583
- Strapi Star 10,950
- CompoundJS (former railswayjs) Star 1,636
- geddy Star 1,904
- Sails.js Star 20,130
- Adonis Star 5,499
- RhapsodyJS Star 64
- ThinkJS Star 4,734
- Trails Star 1,733
- KambojaJS Star 24
- JS-Web Star 3
- FoalTS (TypeScript) Star 132

Full-stack frameworks

That's where Node.js really shines. The full-stack MVC frameworks are bundled with scaffolding, template engines, websocket and persistence libraries to allow you build real-time scalable web apps.

- AllcountJS Star 408
- Derby Star 4,372
- Feathers Star 10,376
- SocketCluster Star 5,103
- SocketStream Star 3,562
- MEAN.js Star 4,677
- MEAN.io Star 11,517
- Meteor Star 40,710
- Meatier Star 3,101
- TWEE.IO Star 118
- Mojito Star
- Seeds.js Star 76
- SANE Star
- COKE Star 122
- Sleekjs Star 101
- Danf Star 56
- Catberry Star 772
- Nuke.js Star 25
- We.js Star 190
- seneca.js Star 3,271
- Keystone.js Star 13,925
- Horizon Star 6,768
- Apogeu Star 52
- monument Star 33
- x2node | Resources Star 4

REST API frameworks

For those who use rich-client/front-end MVC frameworks (or not) and just need to spin up a fast Node.js REST API server.

- Ivy Star 13
- Restocat Star 16
- actionHero.js Star
- Frisby Star 1,271
- restling Star 58
- restify Star
- restmvc Star 159
- percolator Star 119
- LoopBack Star 12,263
- Fortune.js Star
- facet Star 1
- Raddish Star 7
- Restberry Star
- Gugamarket Star 19
- Nest Star
- microlet Star
- Moleculer Star
- x2node | Web Services Star

Other libraries

Middleware, libraries and static site generators.

- Connect Star
- Kraken Star
- ewdGateway2 Star
- Wintersmith Star
- docpad Star
- Blacksmith Star
- romulus Star
- Petrify Star
- Tower.js Star
- Impress Star
- Rendr Star
- Backnode Star
- Sequelize Star
- Cylon.js Star
- Virgilio.js Star
- SHPS Star
- x2node | Database Operations Star
- Atlas.js Star