Backend Developer

Step by step guide to becoming a modern backend developer

OTHER ROADMAPS   SUGGEST CHANGES   SEND ME UPDATES
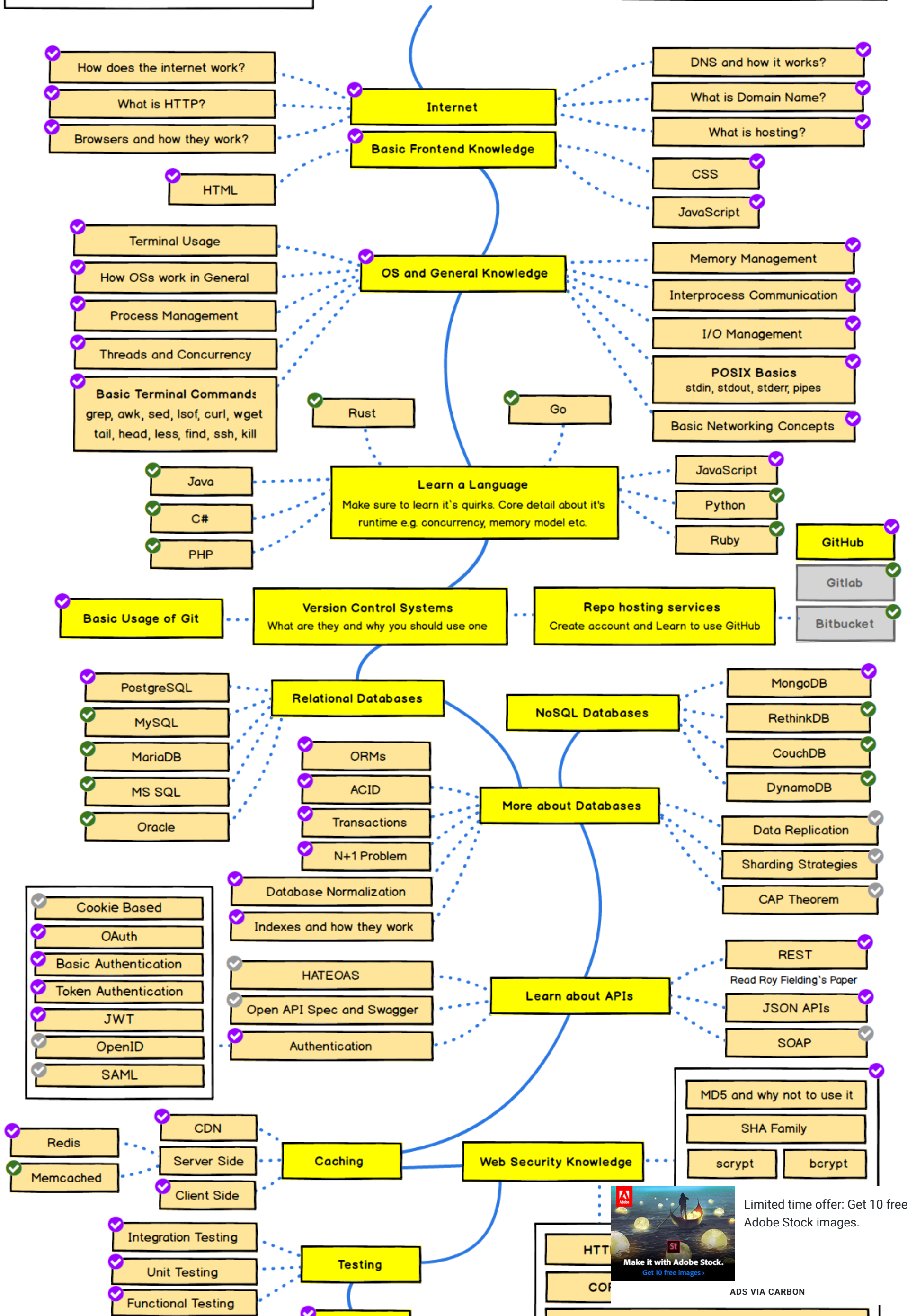
Backend

✅ Alternative Option - Pick this or purple
☑ Order in roadmap not strict (Learn anytime)
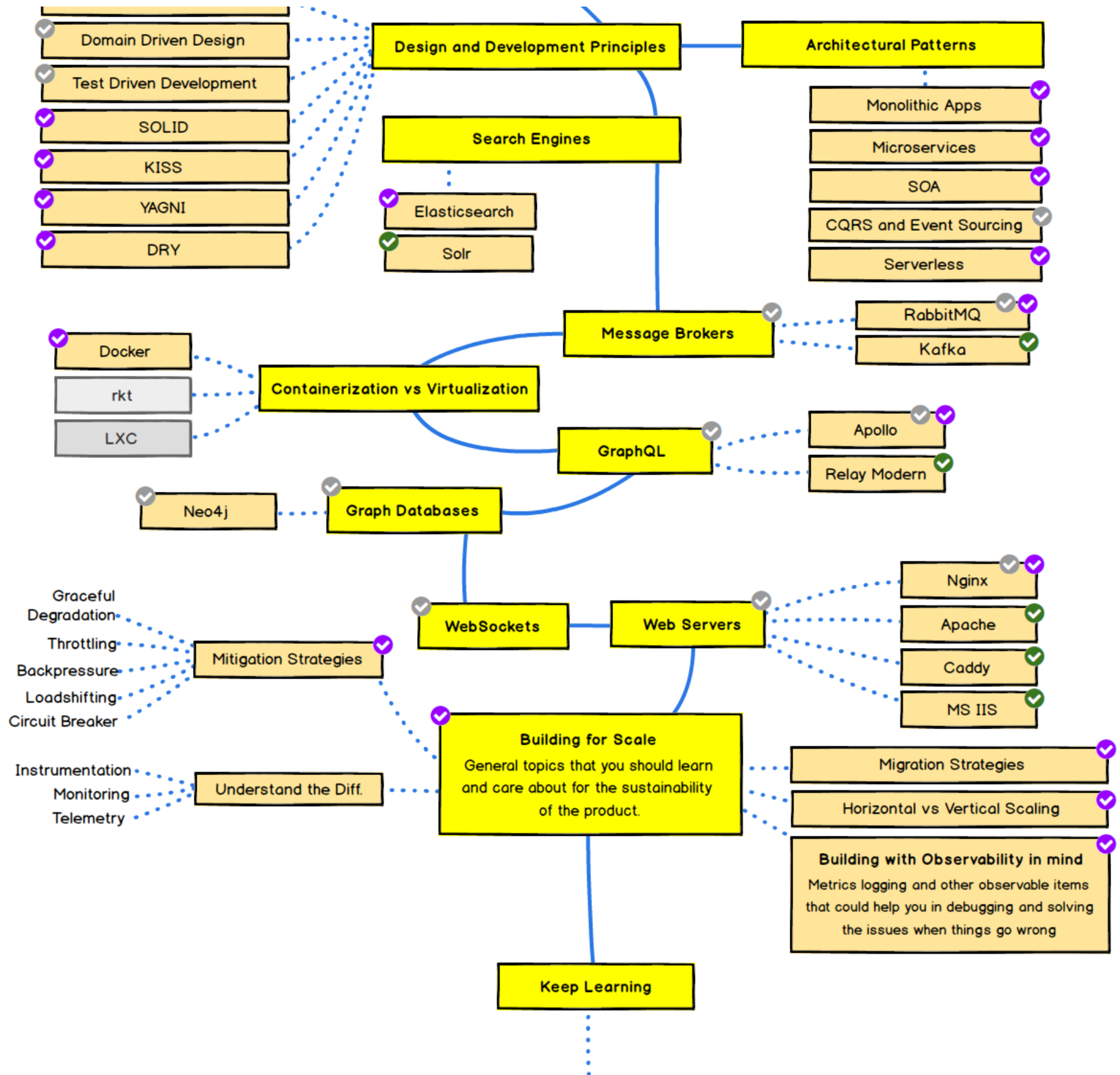⚫ I wouldn't recommend

along with resources and other roadmaps

http:// roadmap.sh

How does the internet work?
What is HTTP?
Browsers and how they work?

Internet

Basic Frontend Knowledge

DNS and how it works?
What is Domain Name?
What is hosting?
CSS
JavaScript

HTML

Terminal Usage
How OSs work in General
Process Management
Threads and Concurrency

Basic Terminal Commands
grep, awk, sed, lsof, curl, wget
tail, head, less, find, ssh, kill

OS and General Knowledge

Memory Management
Interprocess Communication
I/O Management
POSIX Basics
stdin, stdout, stderr, pipes
Basic Networking Concepts

Rust

Go

Java
C#
PHP

Learn a Language
Make sure to learn it's quirks. Core detail about it's
runtime e.g. concurrency, memory model etc.

JavaScript
Python
Ruby

GitHub

Gitlab

Bitbucket

Basic Usage of Git

Version Control Systems
What are they and why you should use one

Repo hosting services
Create account and Learn to use GitHub

PostgreSQL
MySQL
MariaDB
MS SQL
Oracle

Relational Databases

NoSQL Databases

MongoDB
RethinkDB
CouchDB
DynamoDB

ORMs
ACID
Transactions
N+1 Problem

More about Databases

Data Replication
Sharding Strategies
CAP Theorem

Database Normalization
Indexes and how they work

Cookie Based
OAuth
Basic Authentication
Token Authentication
JWT
OpenID
SAML

HATEOAS
Open API Spec and Swagger
Authentication

Learn about APIs

REST
Read Roy Fielding's Paper
JSON APIs
SOAP

MD5 and why not to use it
SHA Family
scrypt
bcrypt

CDN
Server Side
Client Side

Redis
Memcached

Caching

Web Security Knowledge

HTTP
COR

Integration Testing
Unit Testing
Functional Testing

Testing

Domain Driven Design

Test Driven Development

SOLID

KISS

YAGNI

DRY

Design and Development Principles

Architectural Patterns

Search Engines

Monolithic Apps

Microservices

SOA

CQRS and Event Sourcing

Serverless

Elasticsearch

Solr

Message Brokers

RabbitMQ

Kafka

Docker

rkt

LXC

Containerization vs Virtualization

GraphQL

Apollo

Relay Modern

Neo4j

Graph Databases

Graceful Degradation
Throttling
Backpressure
Loadshifting
Circuit Breaker

Mitigation Strategies

WebSockets

Web Servers

Nginx

Apache

Caddy

MS IIS

Instrumentation
Monitoring
Telemetry

Understand the Diff.

Building for Scale
General topics that you should learn and care about for the sustainability of the product.

Migration Strategies

Horizontal vs Vertical Scaling

Building with Observability in mind
Metrics logging and other observable items that could help you in debugging and solving the issues when things go wrong

Keep Learning

roadmap.sh by **@kamranahmedse**

Community created roadmaps, articles, resources and journeys to help you choose your path and grow in your career.

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