Web 2 - Továbbképzés

A tananyag részletes leírása alább olvasható (ENG).

Developing Scalable Apps

Overview

You will learn about challenges of building applications that can serve hundreds of thousands of users, and how you can prepare for them as a developer. Start by learning the fundamentals of cloud development and deployment. Then, build different apps leveraging microservices, clusters, and serverless application technology.

You will discover how to use the power of Cloud, run by Google, so you can focus on your application's features, not on managing infrastructure that runs your app. Let Google run and scale the infrastructure and do what you do best - write code!

Prerequisite Knowledge

You should have intermediate knowledge of HTTP(s) protocol, some level of REST API knowledge, and familiarity with object-oriented programming (either PHP/NodeJs/Java), app/web development with HTML and CSS, and the Linux Command Line.

Syllabus

Overview

The course [**phase 1]** consist of 6 introductions sessions, and a mandatory preliminary exam.
On successful take [**phase 2]** with 17 lessons with plenty of hands-on exercises implementing solutions to scale your app by yourself.

Phase 1

Part 1

Covering Git, experience a true version control system. Add content to a local and remote repository, create comments for your code, understand basic branching and merging and excluding content types from the repository.

Part 2

Some introduction to HTTP(s) and APIs generally. The Anatomy Of A Request: endpoint, method, headers, data. Browser extensions, how to use them.

Part 3

Create a small backend app, preferable in OOP and REST API. The API is organized around REST. The API has predictable, resource-oriented URLs, and uses HTTP response codes to indicate API errors. JSON is returned by all API responses, including errors.

Part 4

Build your path to the cloud. Getting the basics, understanding VM and power. Starting instances, playing around, understanding the cloud tools.

Part 5

What is a container? Learn the basics about Docker. Creating a container to host a static website. Automate workflow with docker-compose.

Part 6

Deploying the app, going into production, writing documentation, submit for QA review. Monitoring, alerting.

Phase 2

1. Getting Started

First lesson is more about concepts - less about scaling. Recap of phase 1, best practices, setting the track, and tools for all future components.

2. Advanced API Concepts

Some buzzwords: HTTP response codes, verbs, CURL, JSON. Throttling, versioning, pagination, sorting, filtering, authentication, authorization, JWT, OAUTH.

3. Scalability Basics

Concepts for data-intensive software design, components, Introduction to Cloud. Buzzwords: Event, async processing, threads, latency, distributed, decoupling, load balancer, fault tolerance, high availability, caching. Understanding, learning, and creating architecture diagram.

4. Async processing - Message Queues

Learning the core of queue it now, run it later concept. Separating application logic, being resilient, redundant, guaranteed, scalable middleware in your system. Learn how to operate at peak efficiency by offering a buffer layer, and how to identify performance issues.

5. Storing and Retrieving Data

Reaching the edge of the SQL world. Advantages and integration challenges of DB master-slave topology, RDBMs, Memcache, Varnish.

6. Advanced world of NoSQL database

Journey from SQL to NoSQL. Deep dive into use cases for Redis, ElasticSearch.

7. Monolith to Microservices at Scale

What are the important challenges? How do you break a monolith to microservices? Consistency, Debugging, Release Cycle, deployment, logging, debugging.

8. Performance tuning - Visualization

Learn how to identify slow queries, how indexes work, what are TCP stack limits, how you can tune kernel. Profiling, metrics, shipping logs, exploring, visualizing, discovering data. Understanding Service Level Objectives(SLOs), becoming a site reliability engineer.

7. Bringing the Cloud to you

You will discover what is Cloud Computing, it’s components. How to use the power of Google Cloud Platform, so you can focus on your application's features, not on managing infrastructure that runs your app.

8. Scaling, getting ready to serve Black Friday traffic

Learn and practice techniques that will show you skills to supercharge your app for viral campaigns. Buzzwords: load balancer, edge network, warm up cache, serverless, provisioning, orchestration, failover.

9. Serverless

Learn about developing: Event-driven, stateless, focus on code, pay for usage, maximizing elasticity, cost savings, and agility of cloud computing.

10. Architecture patterns

Oversee application architecture and deployment in cloud environments. Cloud adoption plans, cloud application design, and cloud management and monitoring. Orchestration.