OULU UNIVERSITY OF APPLIED SCIENCES

JAMSTACK – STATIC WEBSITE WITH DYNAMIC CONTENT

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Introduction

When creating a website the major question is whether to make it static or dynamic and server-based. For most use cases the content of the website has to be updated from time to time, so the dynamic approach is chosen. But how often the content really has to change? If the answer is *not all the time*, wouldn't it make more sense to serve a pre-built static website to decrease the operating costs while increasing performance?

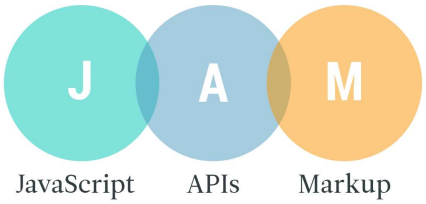

FIGURE 1. The "JAM" abbreviation

Objectives

The objective of this thesis was to research the modern web development architecture, JAMstack, and to create a static blog site according to its ideology. The implemented static website was to include features typical to a dynamic website such as a content management system and an ability to comment.

Methods

JAMstack is based on client-side JavaScript, reusable APIs and prebuilt Markup. The blog site was developed with the static website generator GatsbyJS to programmatically build the website for every content and code change. React was used to create the front-end and GraphQL to query data. The entire project including the code and content was hosted in a Git repository which the service platform Netlify was connected to, to detect changes and automatically re-build and deploy the website on its CDN.

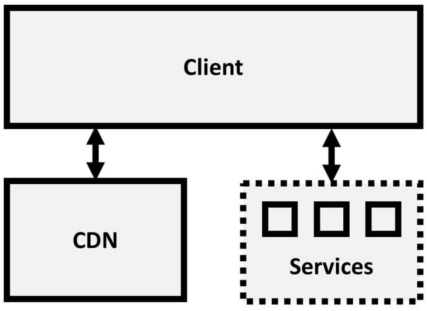

FIGURE 2. JAMstack architecture

Blog posts were created and managed with Netlify CMS which pushed the content into the Git repository as Markdown files. To provide real-time commenting, Disqus was embedded into each blog post created.

Results

As the result of this thesis, a complete published blog site was created that also fulfilled the requirements specified in the beginning. The performance and functionality of the implementation was tested and confirmed desirable by both programmatically simulating and in a real-world condition. The implementation was achieved to be operating cost-free.

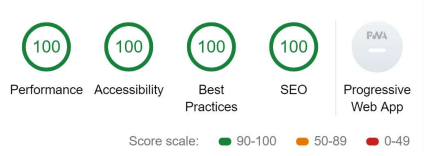

FIGURE 3. Google Lighthouse score

Conclusions

JAMstack is a rather new approach towards web development and so it may entail more development work when compared to, for example, creating a WordPress website. On the flip side, more freedom is given to the developer and software bloat can be better avoided. As a conclusion based on the done research and development work, JAMstack architecture was found to be an efficient option for small to medium-sized websites.

Thesis
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