Utilize Underlying Hardware Features for Node.js

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Background

Node.js:
- A runtime environment enabling JavaScript to be executed on the server side.
- Runs on top of Google's V8 engine.
- Provides an event-driven, non-blocking I/O model despite being single-threaded.
- Uses an event loop for handling operations and sending them to the kernel.

medium.com
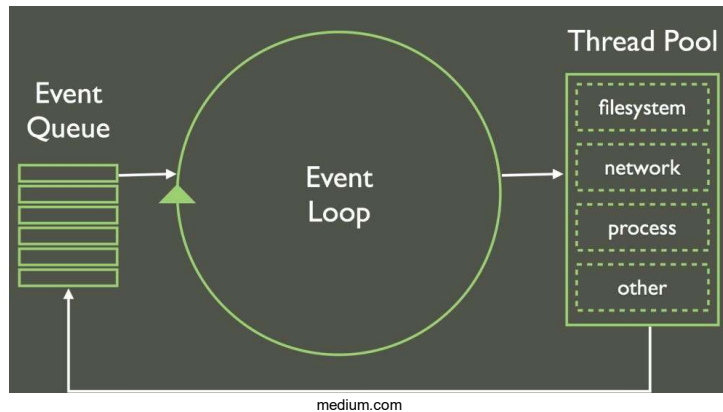
Advantages:
- I/O intensive network applications, like webservers and real time applications benefit from the Node.js infrastructure.
- Code reusability on server and client side.
- Improved performance due to V8 engine.
- Highly scalable.

Drawbacks:
- CPU-bound tasks can block the event loop causing performance degradation.

* All figures originated from the web.

Motivation

Node.js applications are found on many different types of hardware such as GPUs, NUMA, Cloud, IoT and embedded systems.

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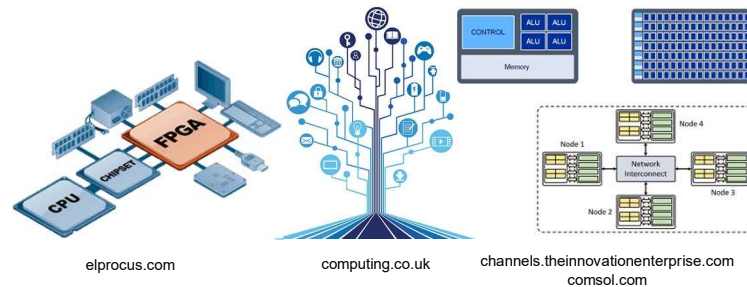
Hardware features affect the applications' performance producing different results based on the underlying hardware.

node.js on a Raspberry Pi by **Smart Mobile Studio Team**
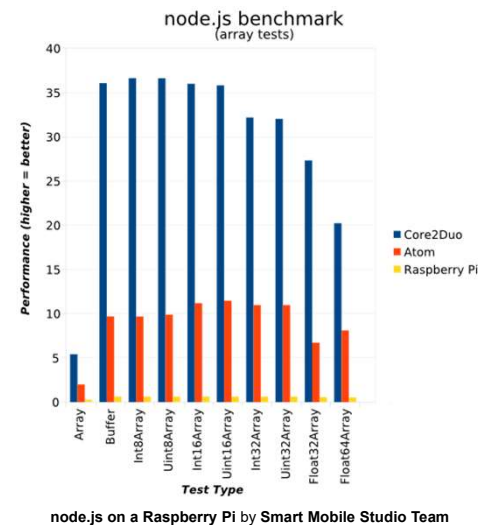
Proposed Work

- Investigate hardware characteristics that Node.js does not fully exploit.
- Find ways to utilize Node.js on the underlying hardware.
- Performance evaluation.