

Beltline.js: Building a Framework to Encourage the use of Metadata in Modern Web-Design

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1. Background

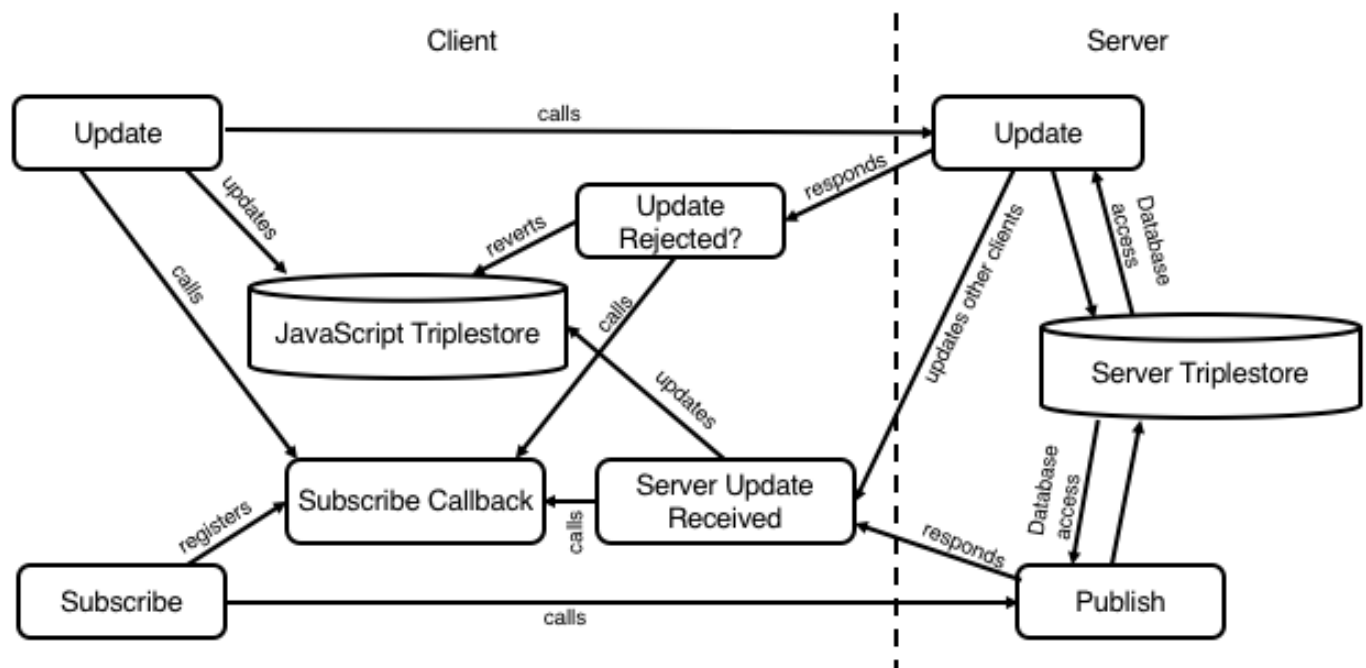
- JavaScript is a must-have skill for modern web-development.
 - Makes up 15% of github
 - Over 300k repositories
- The semantic web is currently underutilized in the web-development community.
- JavaScript frameworks like GraphQL have brought popularity to new programming paradigms by making it easy for a large community of developers to integrate them into their projects.

2. Goal

Design a JavaScript framework with the goal of increasing the use of RDF data. To be successful, it must be:

- Event-Driven:** It should not rely on a request-reply architecture
- Controllable:** A developer should be able to easily control how much data a client is given
- Integrable:** It should be easy for a developer to integrate Beltline into their current tech-stack.

3. Architecture



4. Architecture Description

BeltlineJS's *event-driven* architecture takes inspirations from **MeteorJS** by syncing a central server triplestore database with JavaScript triplestores on each client using **Socket.io**. A developer can *control* the flow of data by defining what data to fetch in the `subscribe` and `publish` methods. Beltline is designed to easily integrate into **ExpressJS** as well as other popular **NodeJS** frameworks. The client side integration is framework agnostic as `update` and `subscribe` can be called anywhere and `callbacks` update the UI.

5. Conclusion

Beltline not only provides a convenient solution for developers hoping to build event-driven web applications, it also encourages them to open a SPARQL endpoint for their data. Often, making a site semantic web compliant as an extraneous task for the developer, and her effort could be better spent developing new features. Beltline makes feature development and the exposure of semantic data one in the same by making metadata core to a JavaScript framework.