QWORUM

Distributed & modular Web applications
for enhanced developer productivity

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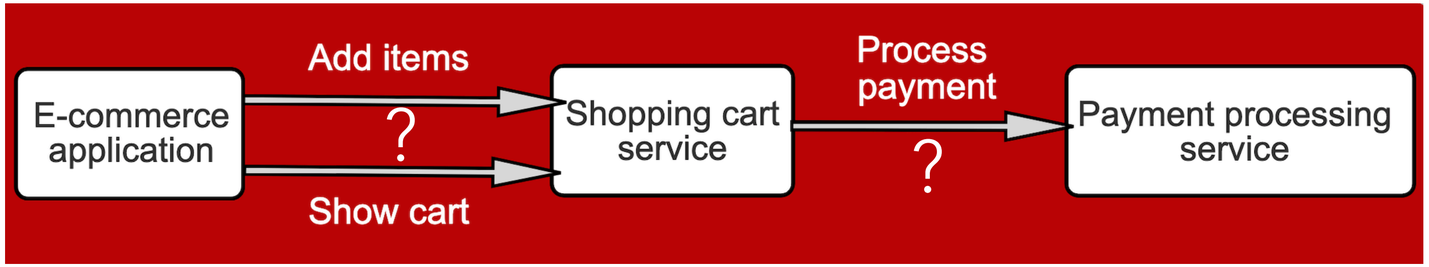
Problem & **Opportunity**

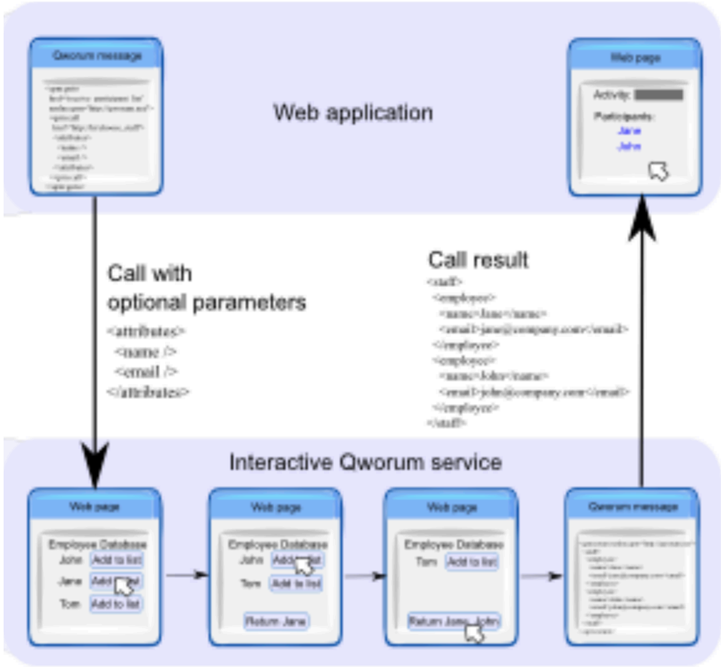
- The Web currently does not support Web applications as well as it could. This is because the Web was initially conceived as a medium for documents, not software.
- In particular, **there is no module system for Web applications!** For instance, an e-commerce site cannot use a third-party shopping cart service, it must implement the shopping cart functionality by itself.



- More generally, the problem we are trying to solve is: **how to enhance developer productivity for Web, mobile and desktop applications through new frontend capabilities?**
- Market size: $53B.

Value Proposition

- Qworum improves developer productivity.
- It offers a **module system for Web applications, and sells its own and also 3rd party modules**.
- Additional planned features for Web, mobile and desktop applications:
  - Facilitate calls to public Web APIs that are available on APILayer and other API marketplaces.
  - Facilitate fiat and crypto transactions between end-users and applications.
  - User authentication and user data.



The Invention (1)

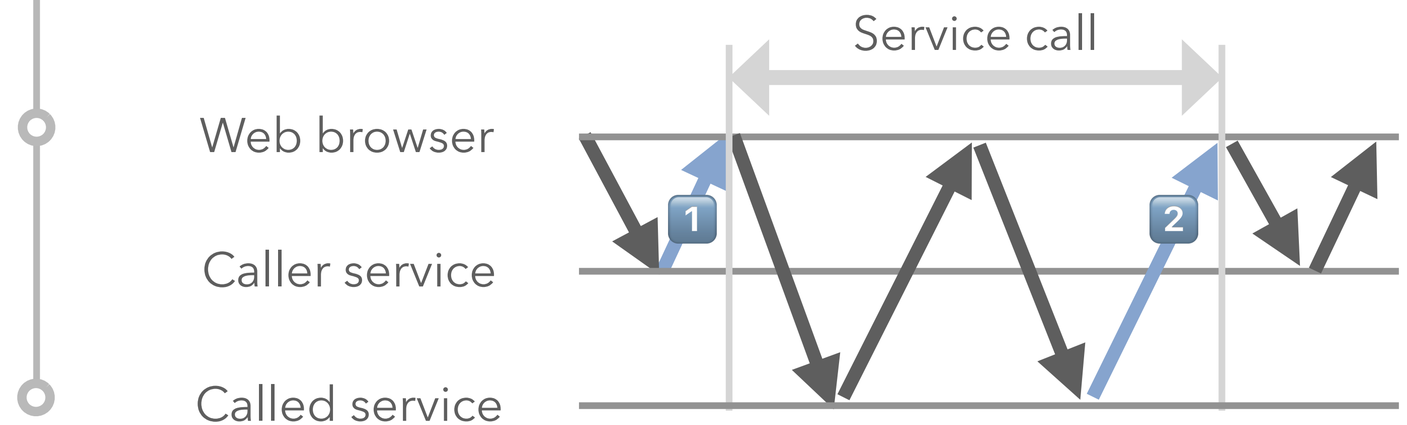
Module system for Web applications:

- Qworum's browser extension enables Internet-scale **distributed Web applications** that are composed of interactive modules that are available anywhere on the Internet.
- Qworum attaches a **call stack** to each browser tab.
- The call stack is a new type of client-side storage that is independent from localStorage, sessionStorage, IndexedDB, cookies.
- Browsers execute **Qworum scripts** (XML) received from Web servers. This updates the call stack and redirects the user to a new URL.
- Browsers must know how to handle Qworum scripts in addition to HTML pages. Currently this happens through our browser extension, but browsers could support Qworum modules natively as well.

The Invention (2)

How a Qworum service or application calls another Qworum service (see US patent US8266632B2):

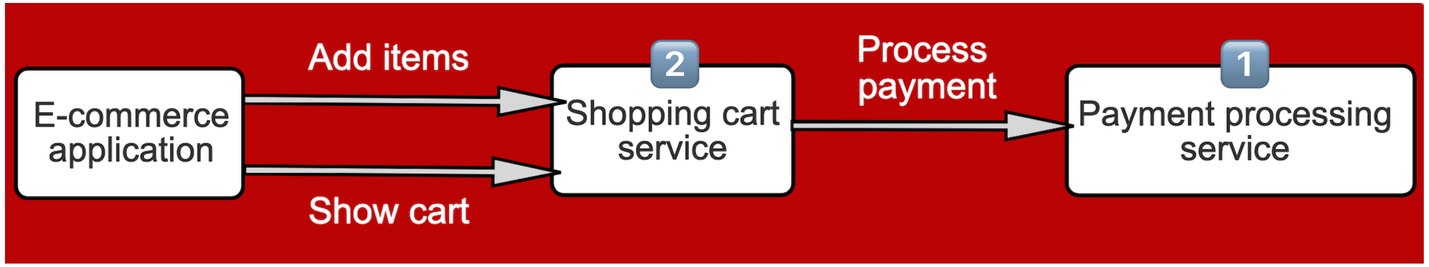
- The caller service sends a Qworum script to the browser instead of an HTML page (1).
- The browser interprets the Qworum script, and redirects the user to the called service.
- When the callee wishes to return a result, it in turn sends a Qworum script that returns the result to the caller (2).



The Invention (3)

US patent US8266632B2 has since expired. It only covers cases such as 1 where the called services don't need to share their state between several incoming calls from the same caller. This is for instance the case for a payment processing or user authentication service.

A second (probably patentable) innovation now allows Qworum to also support more complex services such as shopping carts where the called service must share its state between several incoming calls 2. For example, a shopping cart must remember all items that have been added to it, not only the last ones.



Business Model

- Customers:
  - The owners of Web-based applications and services (1️⃣ sell subscriptions for providing access to public Web APIs, 2️⃣ execute financial transactions on commission, 3️⃣ sell our own Qworum services in our marketplace).
  - Qworum services vendors (operate a service marketplace on commission).
- Suppliers:
  - Payment processors.
  - Cloud hosting providers.
  - Patent offices & patent lawyers (possible patent renewal fees).
  - Browser vendors (they will be compensated for bundling Qworum with their browsers).

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Go-to-market plan

- Efficient marketing & sales:
  - Provide add-ons for website hosting providers (Netlify Build Plugins…).
  - Enter bundling agreements with browser vendors.
  - Integrate with low-code Website development tools (Webflow, Wix,…).
  - Integrate our marketplace with other API marketplaces (APILayer…).
  - Presentations at developer & business expos & conferences.
  - Browser innovation may interest the technology press.
  - Direct sales to SaaS & web service vendors.

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Competitive Analysis

- No direct competitor for Web modules: **Qworum can become the de-facto Web standard for distributed applications**.
- Indirect competitors:
  - ▶ API marketplaces (RapidAPI, APILayer…). 1️⃣ They can't offer interactive services (but our marketplace could integrate with theirs in the future, they could act as a distribution channel). 2️⃣ Applications may prefer to pass through us, because we provide easier access.
  - ▶ Low-code Website building tools (Wix, Webflow …). 1️⃣ Qworum services can offer more functionality than their ready-to-use widgets. 2️⃣ They can act as our distribution channels.
  - ▶ Payment processors (Stripe…). Applications may prefer to pass through us, because we provide easier access.
  - ▶ Identity providers (Firebase Auth…). Applications may prefer to pass through us, because we provide easier access.

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Team

Doğa Armangil

Solo founder, CEO, CTO.

- EPFL software engineer.
- Patent author.
- Project manager.
- Browser extension developer.
- Mobile, desktop, web developer.
- Software designer & architect.

Future hires:

Developer team

Sales & marketing

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Financials & Metrics

"The most reliable way to predict the future is to create it."
— A. Lincoln

	Year 1	Year 2	Year 3
Sales [CHF]	100K	2M	3.5M
Cost [CHF]	280K	560K	1.4M
Earnings [CHF]	(180K)	1.4M	2.1M
FTE	4	8	20
Applications using payment services through us	1K	15K	50K
Applications using Web APIs through us	500	7K	15K
Qworum service buyers	200	3K	8K

Status & Timeline

Accomplishments:

- US patent US8266632B2 (expired): “Method and a system for the composition of services”.
- 2nd innovation, probably also patentable.
- Draft of the Qworum module system specification.
- Pre-beta implementations of deliverables: browser extension, developer libraries, developer tools, demo (Qworum application & 2 Qworum services). Marketplace not yet implemented.

Next steps:

- `Start`
- `Week 2` — Provisional patent
- `Month 1` — Specification of the Qworum module system finalized
- `Month 4` — First commercial version of the Qworum module system including the marketplace