QWORUM

The world's first
distributed Web application technology

Doğa Armangil, EPFL software engineer
d.armangil@qworum.net • +41 76 681 2196
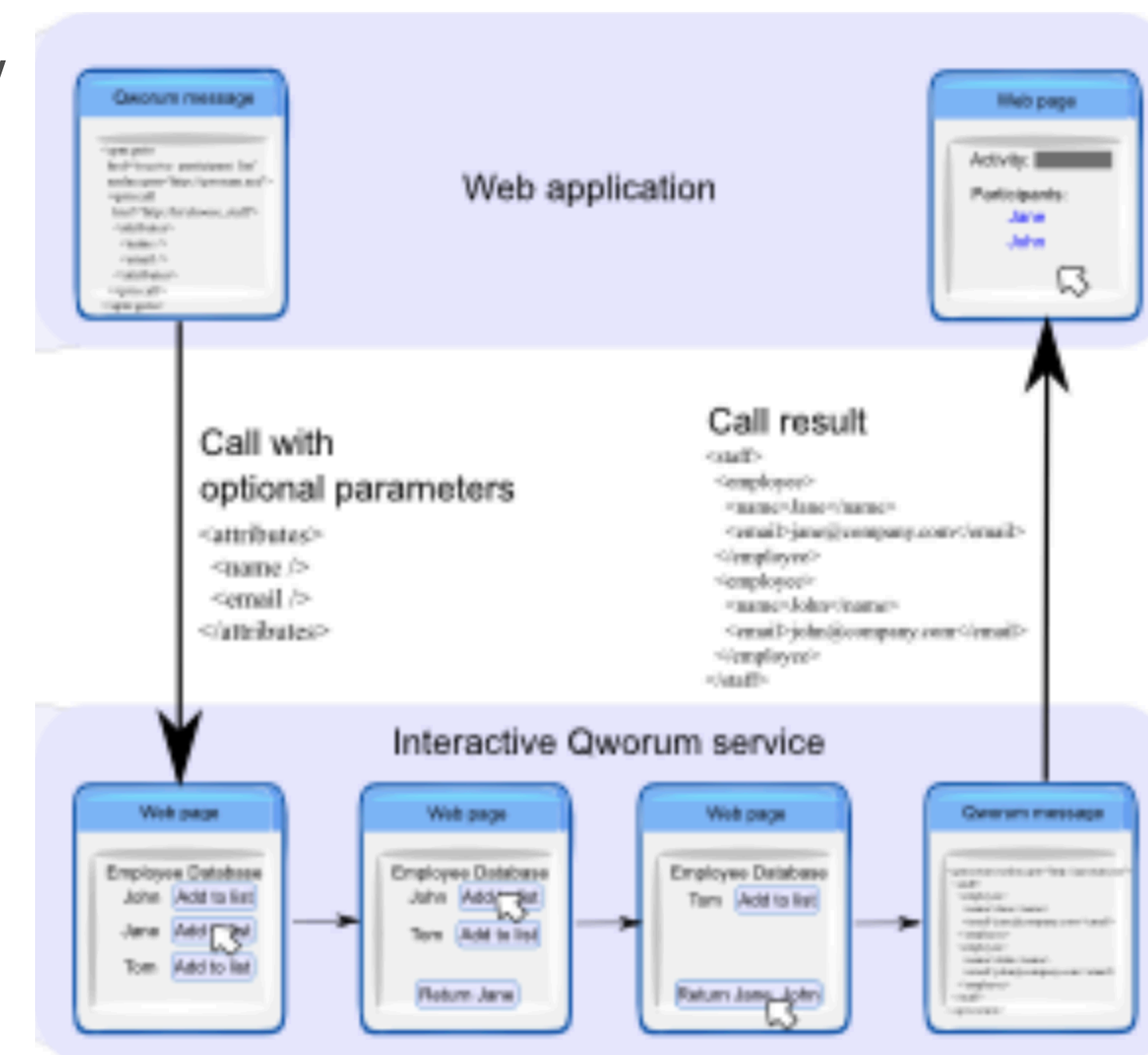Web: Qworum.net • Twitter: @QworumNet

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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 content, not applications.

In particular, **there is no module system for Web applications! In other words: no Web-scale micro-frontend technology.** 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 (this includes payment processing intermediation).

Value Proposition

○ **Application integration, improved developer productivity, and better user experiences**, all enabled by Qworum's module system and module marketplace.

○ Additional planned features for Web, mobile and desktop applications:

▶ Act as an intermediary for calls to public Web APIs that are available on APILayer and other API marketplaces.

▶ Facilitate fiat and crypto transactions between end-users and applications.
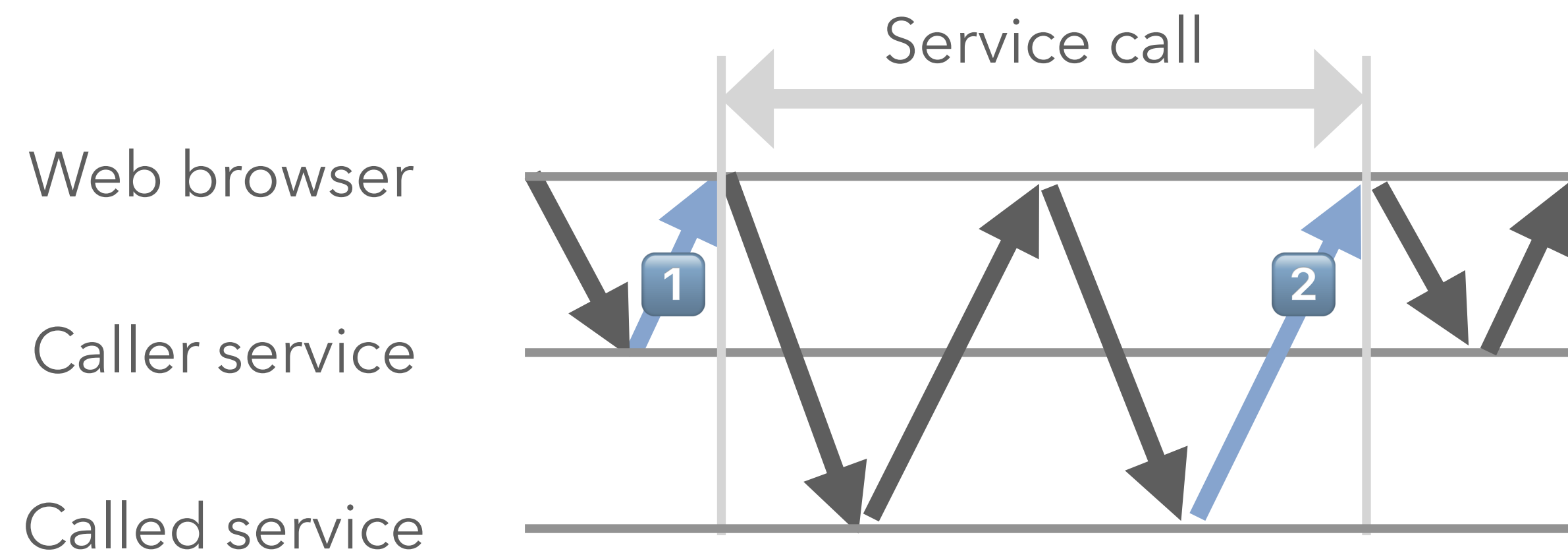
▶ User authentication and user data.

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 Web.

▶ Qworum attaches a **call stack** to each browser tab.

▶ The call stack is a new type of client-side storage that is different 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**).

Service call

Web browser

Caller service

Called service

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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.

Add items → Shopping cart service 2 — Process payment → Payment processing service 1

E-commerce application

Show cart

Business Model

Our customers are the owners of Web-based applications and services. They buy subscriptions for:

▶ enabling Qworum for their DNS domain.

▶ calling Qworum services that are listed on our marketplace.

▶ calling third-party non-Qworum Web APIs through Qworum.

Additional business models could be developed for enterprise customers, such as support, tooling, etc.

Our suppliers:

▶ the providers of Qworum services listed on our marketplace.

▶ browser vendors (we can compensate them for bundling Qworum with their browsers).

▶ cloud hosting providers.

▶ patent offices & patent lawyers.

Go-to-market plan

○ Efficient marketing & sales:

  ▶ Marking to SaaS & web service vendors, so that they sell on our

    marketplace.

  ▶ Direct enterprise sales.

  ▶ Add-ons for cloud hosting services (Netlify Build Plugins…) for gaining

    visibility.

  ▶ Bundling agreements with browser vendors.

  ▶ Integration with low-code Website development tools (Webflow, Wix,…)?

  ▶ Integration with other API marketplaces (APILayer…)?

Competitive Analysis

○ No direct competitor for Web modules:
Qworum can become **the de-facto standard for distributed Web applications and micro-frontends**.

○ Indirect competitors:

▶ API marketplaces (RapidAPI, APILayer…). **1** They can't offer interactive services (but our marketplace could integrate with theirs in the future, they could act as a distribution channel). **2** Applications may prefer to pass through us for non-Qworum APIs, because we provide easier access.

▶ Low-code Website building tools (Wix, Webflow …). **1** Qworum services can offer more functionality than their ready-to-use widgets. **2** They can act as our distribution channels.

▶ Payment processors (Stripe…). Applications may prefer to pass through us, because we provide easier access.

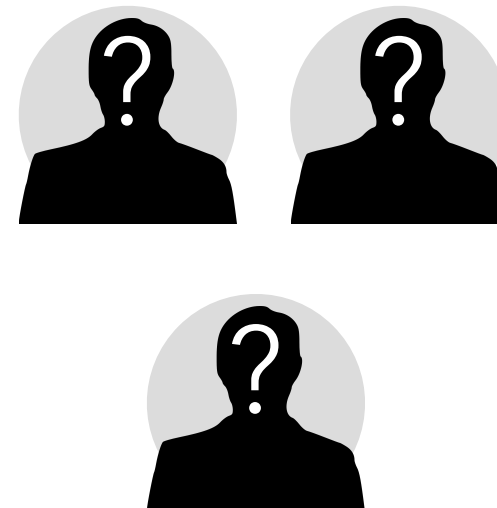▶ Identity providers (Firebase Auth…). Applications may prefer to pass through us, because we provide easier access.

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:

Team of browser extension developers and Web developers

Sales & marketing

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 non-Qworum Web APIs through us	500	7K	15K
Qworum service buyers	200	3K	8K

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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.

▶ Late-alpha implementations of these deliverables: browser extension, developer libraries, demo (Qworum application & 2 Qworum services). Marketplace and developer tools not yet implemented.

○ Next steps:

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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
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