



CareCircle

Verifiable On-Chain Caregiving
Coordination on Casper.

A Submission for the Casper Hackathon 2026

Modern Caregiving Has a Trust Gap

Millions of people rely on informal caregiving networks—family members, neighbours, and volunteers. This vital social fabric is strained by a lack of coordination and verifiable trust.



No Verification: How can you be certain care tasks were actually completed?



Poor Coordination: How do you manage tasks effectively among multiple caregivers?



No Documentation: How do you document care activities for insurance or legal needs?



Eroding Trust: How do you build confidence in community care networks?

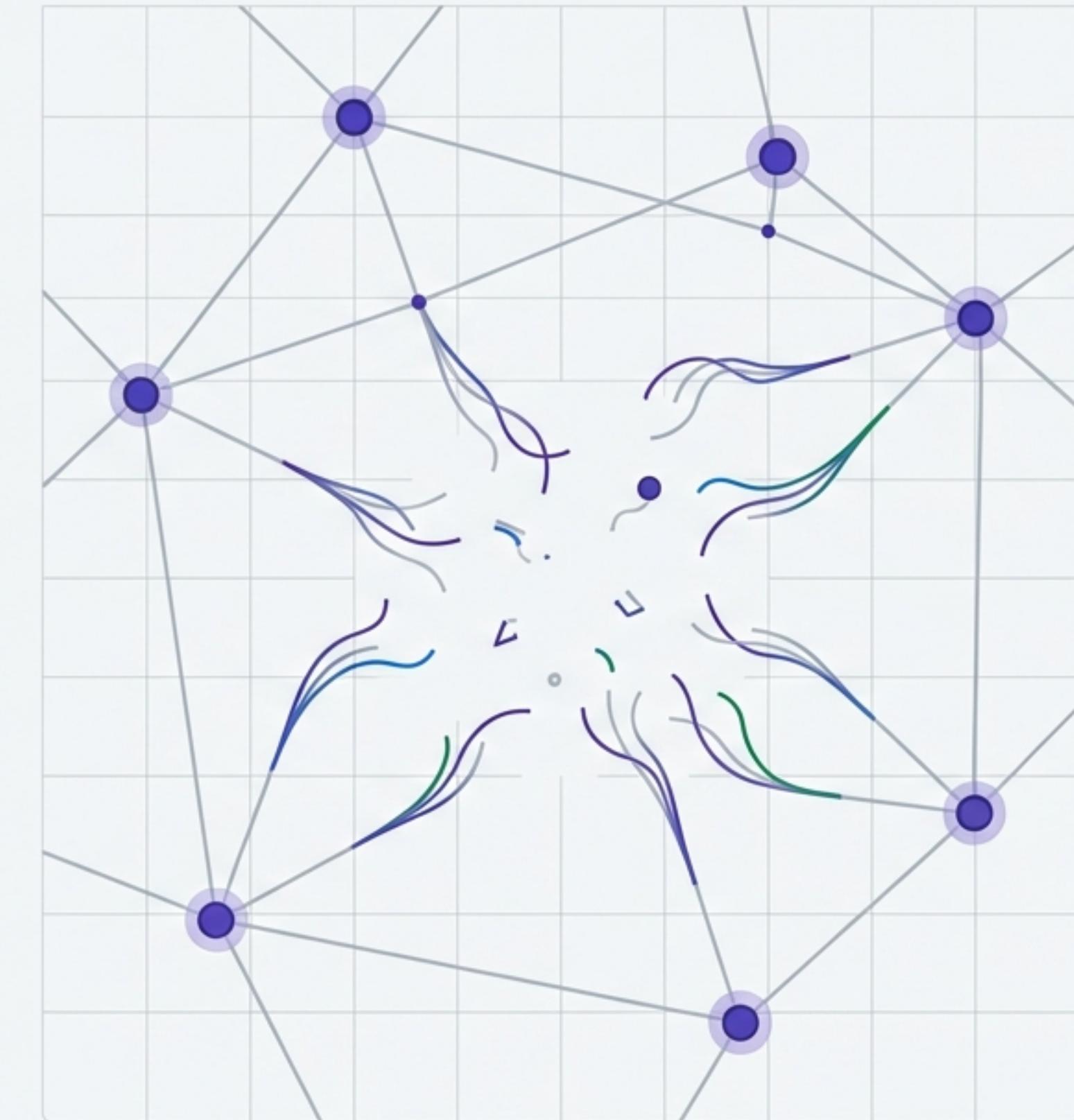


Figure 1: The Fractured Care Network.

CareCircle Closes the Gap with On-Chain Accountability.

We use the Casper blockchain to create a transparent, coordinated, and verifiable ecosystem for care.



Verifiable Proofs: Record immutable proofs of task completion, signed by the caregiver's wallet.



Seamless Coordination: Manage 'Care Circles'—groups of people sharing caregiving responsibilities.



Transparent Task Management: Assign tasks with clear priorities, assignees, and deadlines.



Verifiable Transparency: Create an on-chain activity log that anyone can audit and trust.

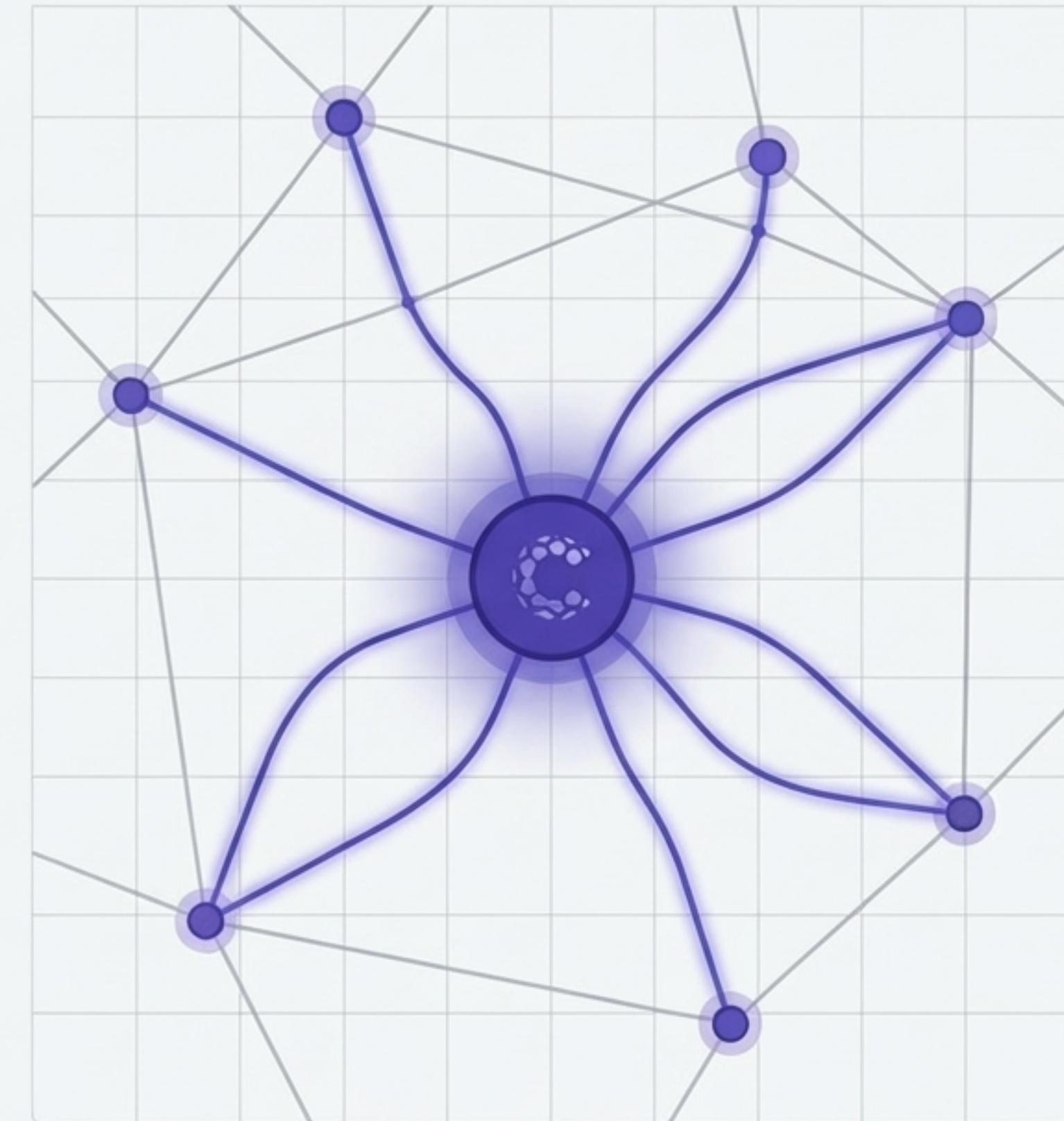


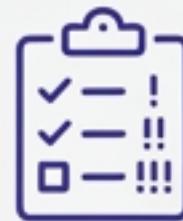
Figure 1: The Connected Care Network.

A Complete Platform for Coordinated Care



Care Circles

Create and manage private groups for family, friends, or volunteers.



Task Management

Assign tasks with four priority levels (urgent, high, medium, low).



Wallet-Signed Proofs

Task completion requires a cryptographic signature, proving identity and intent.



On-Chain Records

Every completion is recorded as a transaction on the Casper blockchain.



Explorer Integration

Instantly view any proof on the Casper Testnet Explorer.



Member Management

Securely add or remove circle members with on-chain records.

See It in Action: Live on Google Cloud.



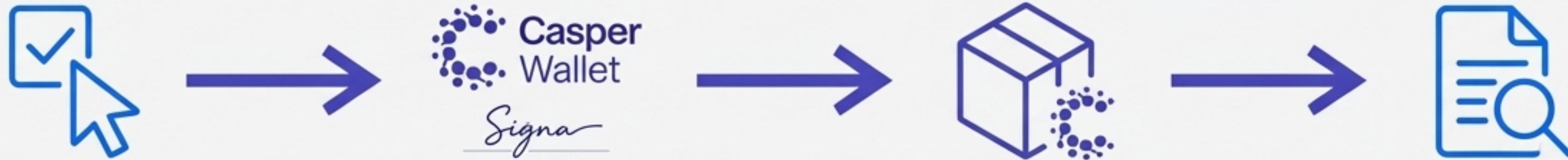
Live Demo URL: <https://carecircle-web-fozkypxpg-a.uc.a.run.app>

Quick Start Instructions

1. Visit the URL or scan the code.
2. Click 'Load Existing Circle'.
3. Enter Circle ID: **1**
4. Explore tasks with live, on-chain proofs.

Three side-by-side screenshots of the CareCircle web application interface. The left screenshot shows a list of tasks under the 'Tasks' tab, each with a checkbox, priority level (Low, Medium, High), team member, and due date. The middle screenshot shows a detailed view of a task with a 'Completed' status message. The right screenshot shows a modal dialog box confirming the completion of a task, with a link to 'View transaction details'.

The Anatomy of a Verifiable Proof



Action (UI)

A user clicks "Complete" on a task in the React frontend. A loading state shows "Signing completion".

Signature (Wallet)

The Casper Wallet SDK builds a deploy containing the `task_id`, `entry_point: "complete_task"`, and the user's public key. A wallet pop-up requests the user's signature.

Execution (Blockchain)

The signed transaction is submitted to the CareCircle smart contract on the Casper Testnet. The contract validates the signer is the assignee and emits a `TaskCompleted` event.

Proof (Explorer)

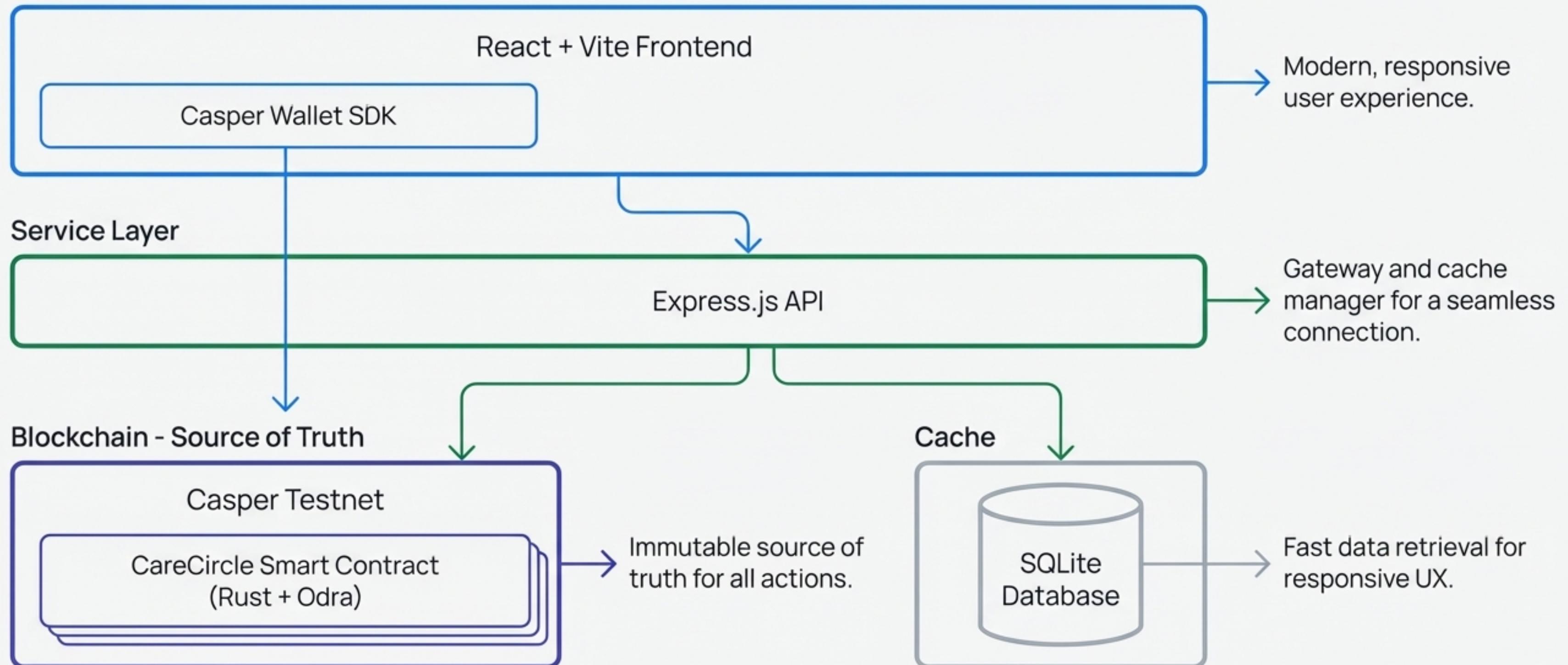
The transaction hash is returned and stored. The UI updates with a link to 'testnet.cspr.live', where the immutable record can be verified by anyone.

The Immutable Record

This transaction is the verifiable proof. It proves that a specific wallet (`completed_by: "0202b4..."`) completed a specific task (`task_id: 123`) at a specific time (`timestamp: 1704393600`).

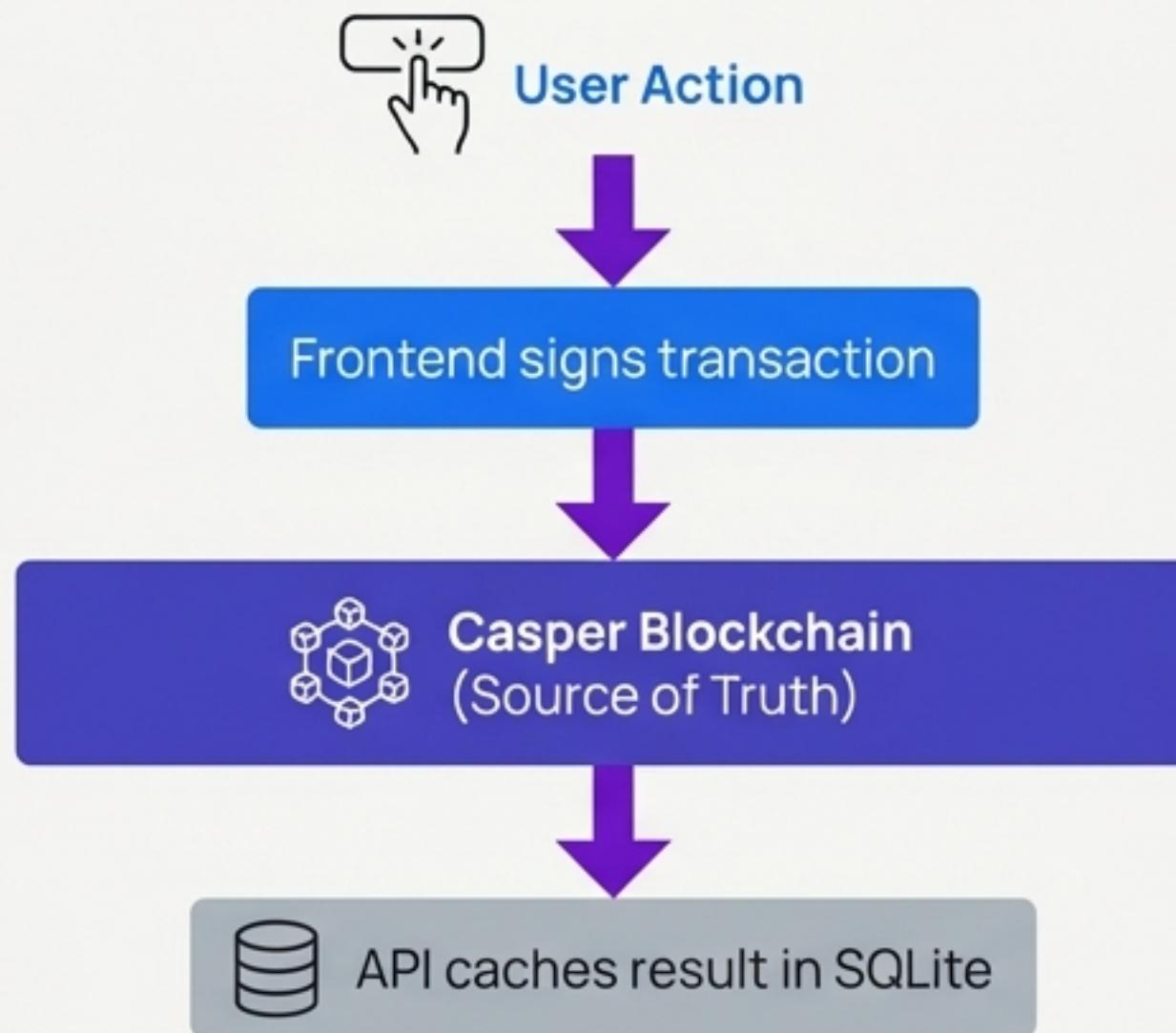
A Hybrid Architecture for Performance and Trust.

User Interface

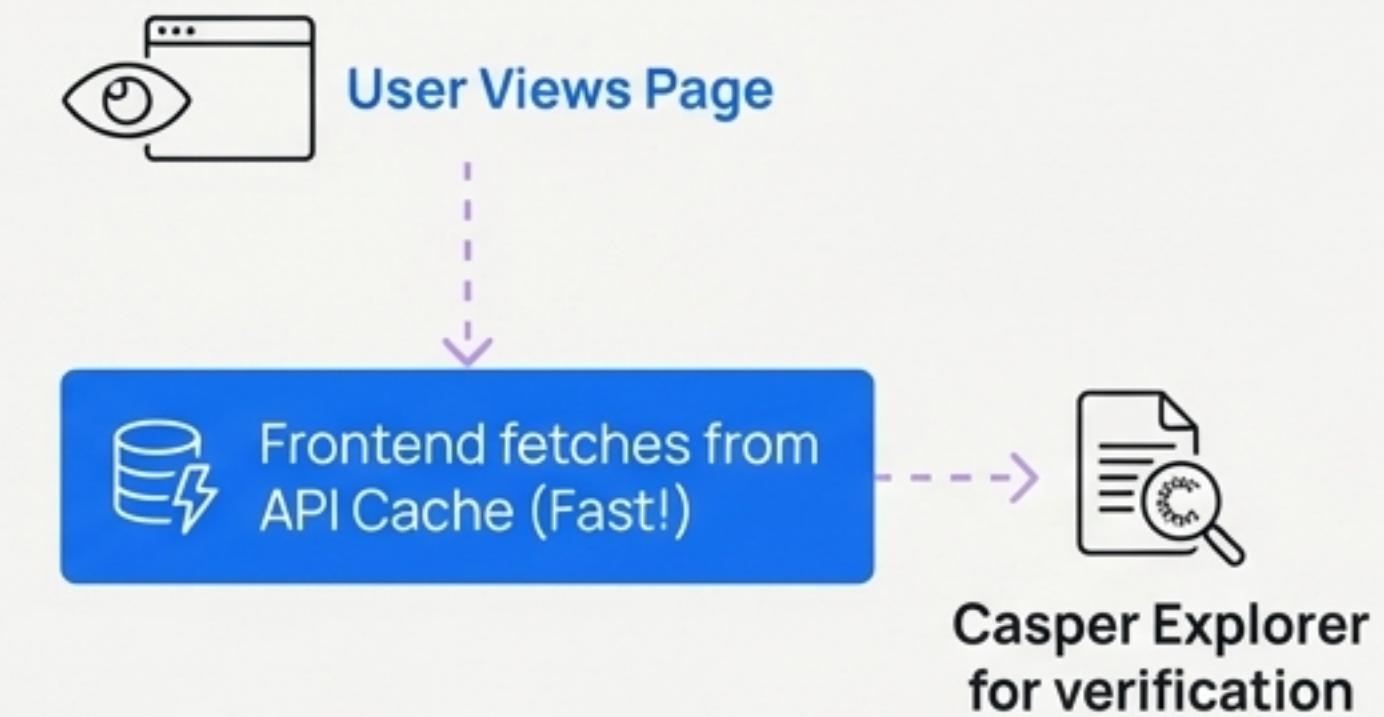


Balancing a Responsive UI with On-Chain Truth

Write Path (Prioritising Integrity)



Read Path (Prioritising Speed)



This design provides the instant feel of a traditional web application while retaining the uncompromising verification and trust of the Casper blockchain.

The On-Chain Logic: The CareCircle Smart Contract.

Written in Rust using the Odra framework.

Key Entry Points

`create_circle(name)`: Establishes a new caregiving group.

`add_member(circle_id, member)`: Manages circle membership on-chain.

`create_task(...)`: Defines a new caregiving task.

`complete_task(task_id)`: The core function that generates the verifiable proof of completion.

On-Chain Events

`CircleCreated`.

`MemberAdded`.

`TaskCreated`.

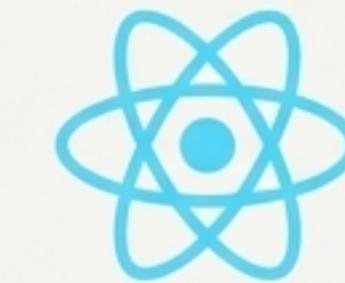
`TaskCompleted` : The immutable event log. Contains `task_id`, `circle_id`, `completed_by`, and `timestamp`.

Built with a Modern, Robust Technology Stack.

Blockchain



Frontend



Backend & Data

Express.js



Deployment & Docs



Our Key Innovations on the Casper Network.



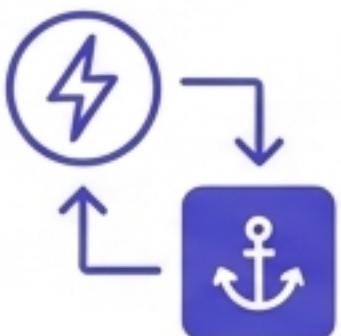
Signed Proof of Action

We go beyond simple transactions. Every completed task is a proof of identity, action, and time, cryptographically signed by the caregiver's wallet.



Event-Driven On-Chain Architecture

The smart contract emits detailed events for all significant activities, creating a rich, auditable, and transparent history.



High-Performance Hybrid Model

Our architecture leverages a fast off-chain cache for a smooth user experience, while anchoring all actions to the Casper blockchain as the ultimate source of truth.

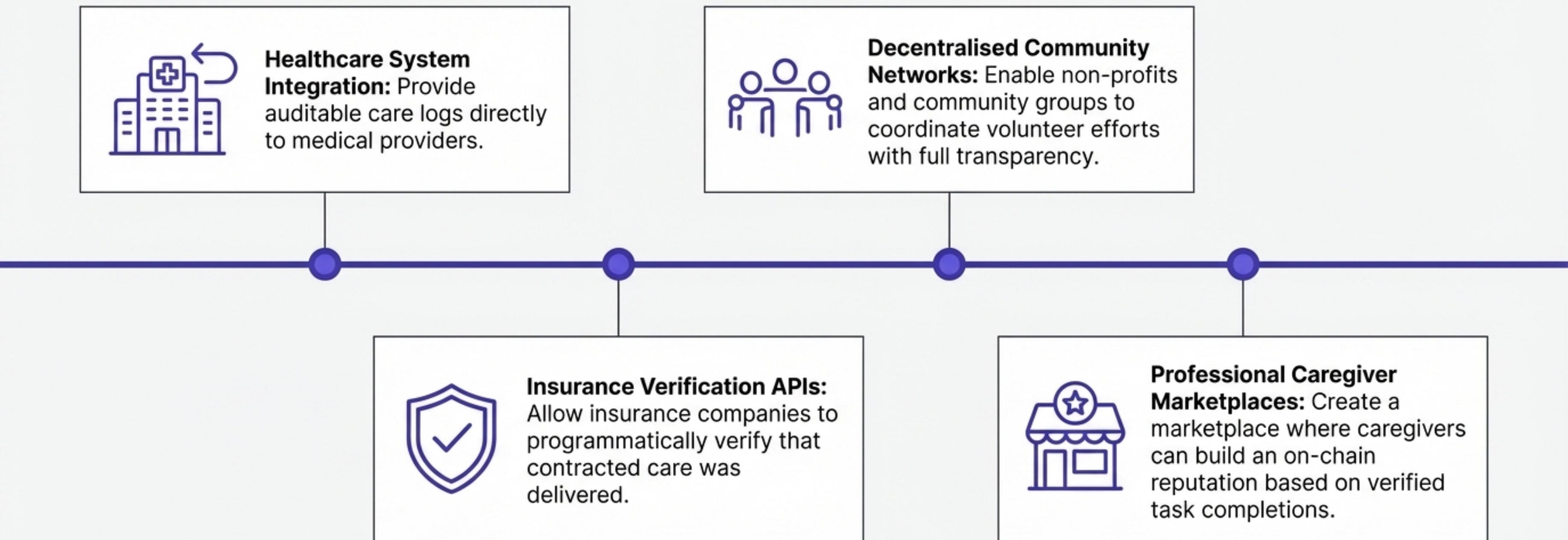


User-Centric Design

We focused on creating a clean, intuitive interface that abstracts away blockchain complexity, making verifiable care accessible to anyone.

The Future of Verifiable Care

The CareCircle protocol establishes a foundation for a new ecosystem of trust-based services.



Explore the Project.

Live Application

<https://carecircle-web-fozkypxpg-a.uc.a.run.app>

API Documentation

<https://carecircle-api-fozkypxpg-a.uc.a.run.app/docs>

Smart Contract Events

<https://testnet.cspr.live>



Deployed & Live on Google Cloud Run

Bringing Verifiable Trust to Caregiving.

Powered by the Casper Network.



Built with ❤ for the Casper Hackathon 2026