consensys

Designing a Gasless Swap Experience

Objective

Design and present the architecture of a **Web3 swap application** where **users can trade tokens without directly paying gas**. The goal is to assess your understanding of blockchain fundamentals, decentralized exchange flows, and full-stack architecture — particularly how **gasless execution** can be achieved using mechanisms such as **meta-transactions, relayers, bundlers, paymasters, or account abstraction (ERC-4337, EIP-7702)**. You should demonstrate how these components interact to deliver a secure, scalable, and intuitive user experience.

In addition to the technical architecture, we ask that you incorporate a light **business perspective** to show your ability to connect the technical solution with product and business objectives (e.g., monetization levers, cost drivers, operational considerations, strategic value, etc.).

Scope

Today, most decentralized swaps (like Uniswap or 1inch) **used to** require users to:

- ➔ Hold the native token to pay gas,
- ➔ Approve token spending manually,
- ➔ Interact with complex and sometimes confusing transaction flows.

We want you to rethink this experience, by designing **a "one-click" swap flow** where the user doesn't handle gas, but the system remains secure, scalable, and user-friendly as much as possible such as modern DEXs or CEXs.

Audience

Your presentation will be delivered to:

- ➔ A **Product Manager**, evaluating your ability to connect tech and business value

- ➔ One or more **Solution/Blockchain Architects**, evaluating technical depth and reasoning

We are not expecting a Go To Market GTM strategy or deep financial model but just a clear articulation of the business rationale behind your technical design.

Format & Deliverables

- ➔ **Preparation time:** 1 week
- ➔ **Presentation:** 30–45 minutes + 10–15 minutes Q&A
- ➔ **Deliverables:**
    - ◆ A short **slide deck or document** (max 15 slides) explaining:
        - Your architecture and assumptions.
        - Key technical decisions
        - Business rationale (Max 10-15% of the deck)
    - ◆ **Architecture diagram(s)** showing how on-chain and off-chain components interact.
    - ◆ **(Optional - nice to have)** simple code snippets, flowcharts, or pseudocode to illustrate key mechanisms.

You are free, and encouraged, to **make reasonable assumptions** where requirements are not explicitly defined (e.g., which chain, tokens, or relayer model you use). **Clearly state those assumptions during your presentation**.