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SEEE-SubEng Presentation term1

开发与实践讨论

Development and practical discussion

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SubEng（高通量可信数据引擎）

Subeng:High-throughput trusted data engine

- Term1 主要架构与选型
- 先迈一小步：Term1 主要完成的目标
- Term2 架构改进
- 再迈一大步：Term2 主要完成的目标
- 总结和展望

- Term1 main structure and selection
- Take a small step: Term1's main goal
- Term2 architecture improvements
- Another big step: Term2's main goal
- Summary and outlook

SubEng Term1 开发堆栈选型

基于Rust服务端 + Rust client + Vue/React web前端

Substrate Hackathon 考虑项目开发堆栈统一，后端优先基于RUST构建，Term1 主要组件包括:

- Web Restful API 开发 Actix 框架 （vs Rocket， 同步or异步）
- 数据库ORM中间件驱动层 Sqlx （vs Diesel ORM，同步or异步）
- 数据库使用 PostgreSQL （vs MySQL， MongoDB）
- 编码序列化框架 Serde （主要用于 Rust Struct 序列化）
- Merkle-Tree 组件 Merkle-cbt （基于Rust的完全二叉树）

SubEng Term1 development stack selection

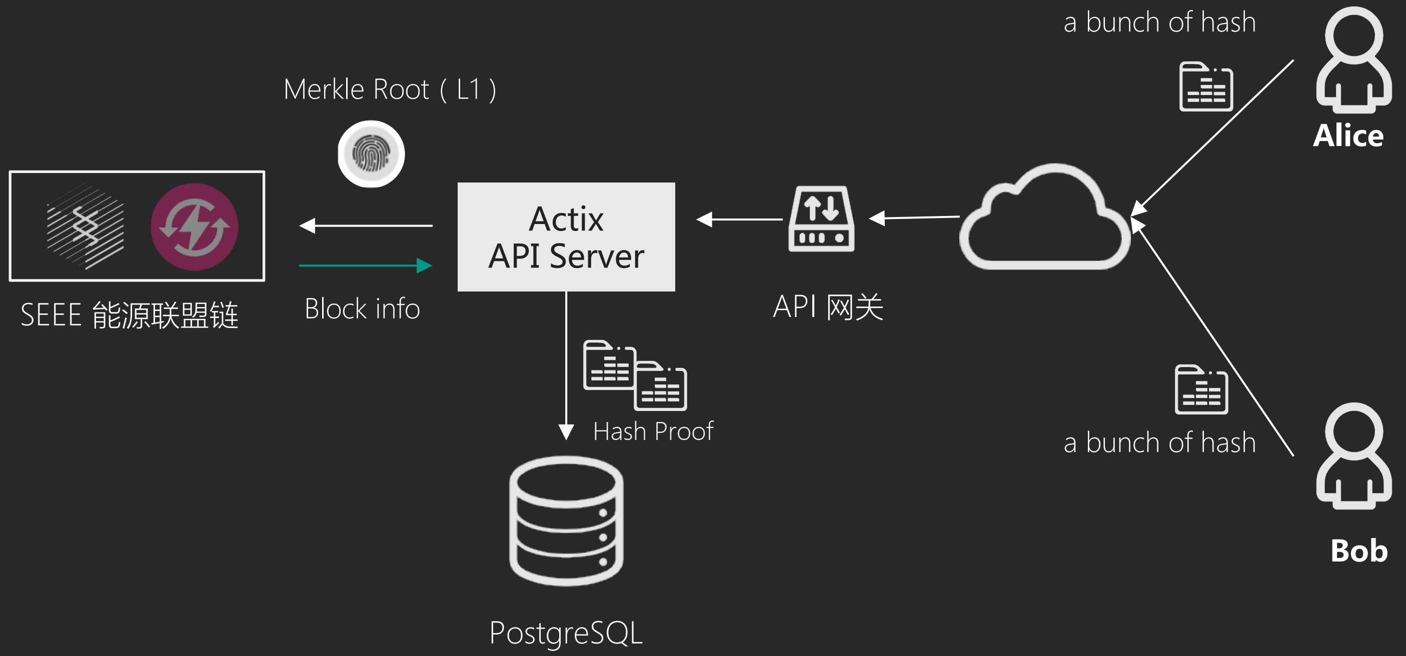
Rust Backend + Rust client + Vue/React web front end

Considers the project development stack to be unified, and the back-end is based on RUST first.

The main components of Term1 include:

- ✓ Web Restful API development Actix framework (vs Rocket, synchronous or asynchronous)
- ✓ Database ORM middleware driver layer Sqlx (vs Diesel ORM, synchronous or asynchronous)
- ✓ The database uses PostgreSQL (vs MySQL, MongoDB)
- ✓ Encoding serialization framework Serde (mainly used for Rust Struct serialization)
- ✓ Merkle-Tree component Merkle-cbt (Complete binary tree based on Rust)

SubEng Term1 主要系统架构 （先迈一小步）



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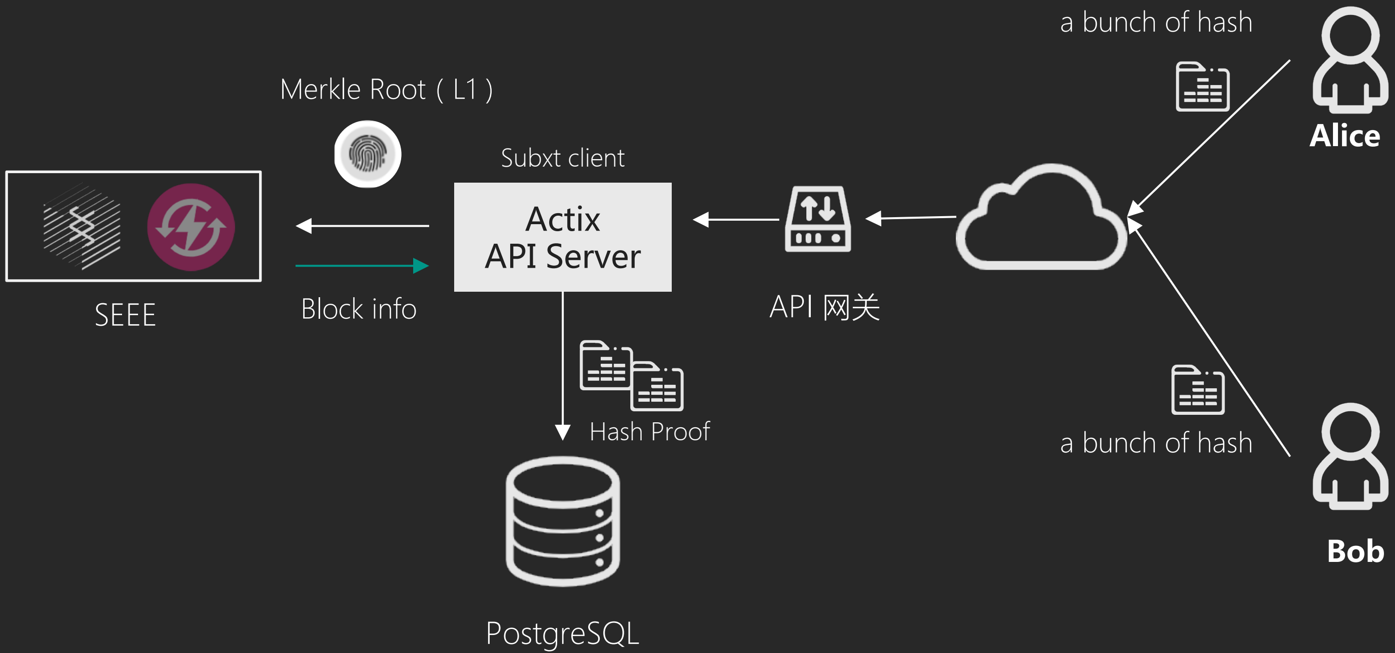
SubEng Term1 main system architecture (a small step first)



SubEng Term1 主要目标

Server 服务器端：

- Native Rust
- Async/await
- 实现 基本 rollsup 聚合批量数据上链（Merkle-tree）

Web 前端：

- Vue
- React （+ Yew ？）
- 实现基本的多文本和文件上链界面
- 实现基本的文本和文件上链校验

Main goals of SubEng Term1

Server server side:

- Native Rust (rust server & client)
- Async/await
- Achieve basic rollsup aggregation and batch data on-chain (Merkle-tree)

Web front end:

- Vue
- React (+ Yew?)
- Realize the basic multi-text and file on-chain interface
- Realize basic text and file on-chain verification

SubEng Term2 架构改进

实现4方面改进：

1. 上链从Term1 的L1 Mtree-root 升级到 L2 Mtree-root，实现性能级别提升
2. 服务器端映入Kafka 、 Pulser 、Redis 消息队列（优选轻量级队列）
3. API端提供更方便和更人性化的商用上链接口服务和管理
4. 管理端界面集成结构化数据库web端自服务定义、集成非结构化对象存储与管理，完成一站式上链服务

SubEng Term2 architecture improvements

①Upgrade from L1 Mtree-root of Term1 to L2 Mtree-root on the chain to achieve performance level improvement

②The server is mapped into Kafka, Pulser, Redis message queues (lightweight queues are preferred)

③API end provides more convenient and more user-friendly commercial uplink port service and management

④The management interface integrates structured database web-side self-service definition, integrated unstructured object storage and management, and completes one-stop on-chain service

SubEng Term2 实现目标（再迈一大步）

SubEng 服务计划6月正式在Polkadot主网、SEEE联盟链同步发布，并成为SubStack的第一项企业级主力服务，不断迭代演进

1. 实现SubStrate 海量数据上链的标准化服务
2. 集成到Polkadot主网
3. 对外提供商用链云服务

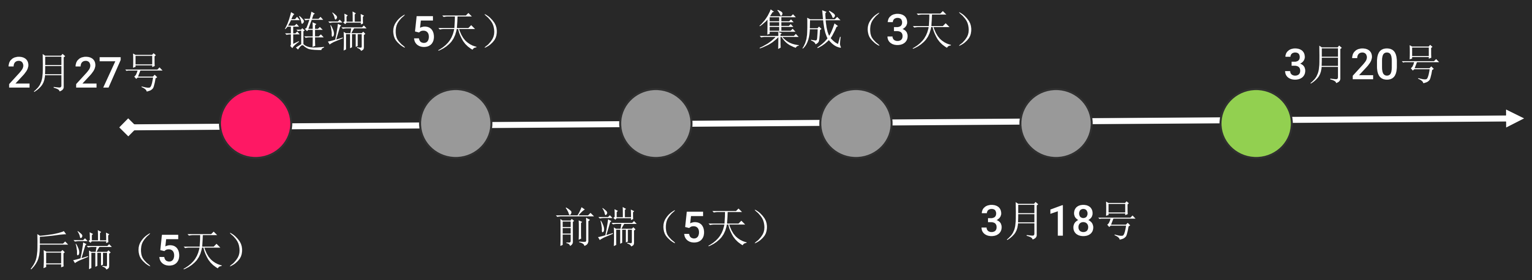
SubEng Term2 achieves its goals (another big step)

Prospect in future 6 month

The SubEng service plans to officially launch Polkadot/Kusama in July, and become SubStack's first enterprise-level service, continuously iteratively evolving

1. **Try to promote the standardized service of SubStrate mass data on the chain**
2. **Integrated into Polkadot mainnet**
3. **Provide commercial blockchain Bass services to the outside world**

工作计划



- 后端：5天完成基本API
- 链端：5天完成上链基本功能（a、push主动上链，b、Ocw被动pull上链）
- 前端：5天完成前端基本页面 + 访问控制网关
- 集成：3天完成综合集成

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学习资料链接 （Rust 相关组件基础）

Links to learning materials (based on Rust related components)

Rust 程序设计语言（第二版） 简体中文版

Rust Programming Language (Second Edition) Simplified Chinese Version

https://kaisery.github.io/trpl-zh-cn/

Rust 序列化反序列框架 Serde

Rust serialization and deserialization framework Serde

https://www.rectcircle.cn/posts/rust-serde/

Actix-web

https://web.datav.ai/rust/actix-web/

Sqlx

https://github.com/launchbadge/sqlx

Subxt

Subeng github repo：https://github.com/Substrate-Energy-Enterprise-Edition/subeng

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讨论

- 上链信息签名问题
- L2 二次聚合

Questions?

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