Engineering Weekly, 2024-04-25

Introduction

We're mainly working on the migration. For our convenience, let us use the mental model of three modules; Network, Execution and Storage.

Network

First of all, we need to run RPC server. In `gram`, we used both RPC server over HTTP and gRPC server, but in `ramd`, we'll use JSON-RPC server only. It's very common in blockchain ecosystems so much so that it's safe to say that all blockchains are running it. gRPC server might be added in the future if it turns out we need it.

Then, we need to run P2P server. We'll use rust-libp2p with the same algorithms that we used in `gram`. Later, we're planning to use Protocol Buffers to serialize payload of communication between peer nodes.

We finished RPC server and currently working on P2P server.

Execution

When RPC server and P2P server receives messages, they forward them to Execution module. All successfully processed messages get gossiped to other peer nodes.

Currently, WASM VM supports two operations; creating a new live object and executing a live object. We're putting the finishing touches on messages forwarding and the creation operation, and will move on to the execution.

Storage

We're using RocksDB. It's a popular choice among blockchain projects in Rust. User-sent messages and WASM bytecodes are stored in a database.

We need to add a cache layer later. When a WASM bytecode is being executed, it modifies the cache layer as if it's a real database. Only when all messages in processing finish successfully, its changes are applied to our database. In other words, a rollback of failed execution is implemented as not applying its changes. (This is how blockchain transactions are implemented.)

Conclusion

We're in the middle of migration and now working on P2P server and WASM VM. Next tasks will be decided soon.

FAQ

Q: Any tasks I can contribute?

A: It's hard to find independent tasks for now. We'll update open issues after the migration is done.

Q: What kinds of task can I contribute?

A: Independent tasks are good to go. Please understand that it's hard to ask you to take on tasks that following ones have dependencies with unless you can afford to spend full time on them.

Q: What are the major steps ahead of us?

A: Currently, we're discussing our future roadmap. We're expecting to share it soon.