

A new dapp framework

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Current problems: too many boilerplates

[illegible][illegible][illegible]

Current problems: memory allocations

- Is malloc/free really the best solution?
 - free consumes unnecessary cycles
- Maybe a special GC works better
 - Uses new memory when available
 - GC only when 4MB boundary is hitted
- Maybe we can even static allocate everything

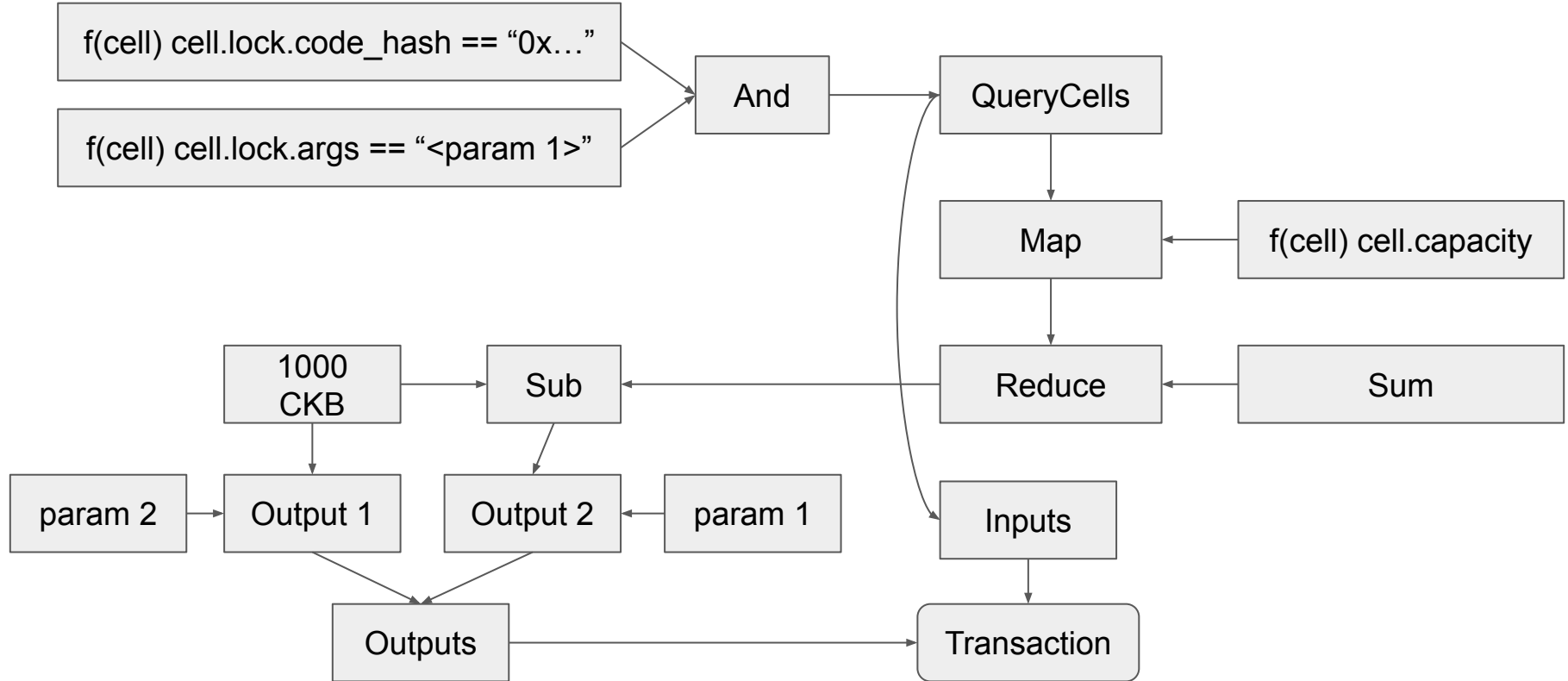
Current problems: generators

- Every dapp needs to index cells
- A large overlapping between generator and validator code.

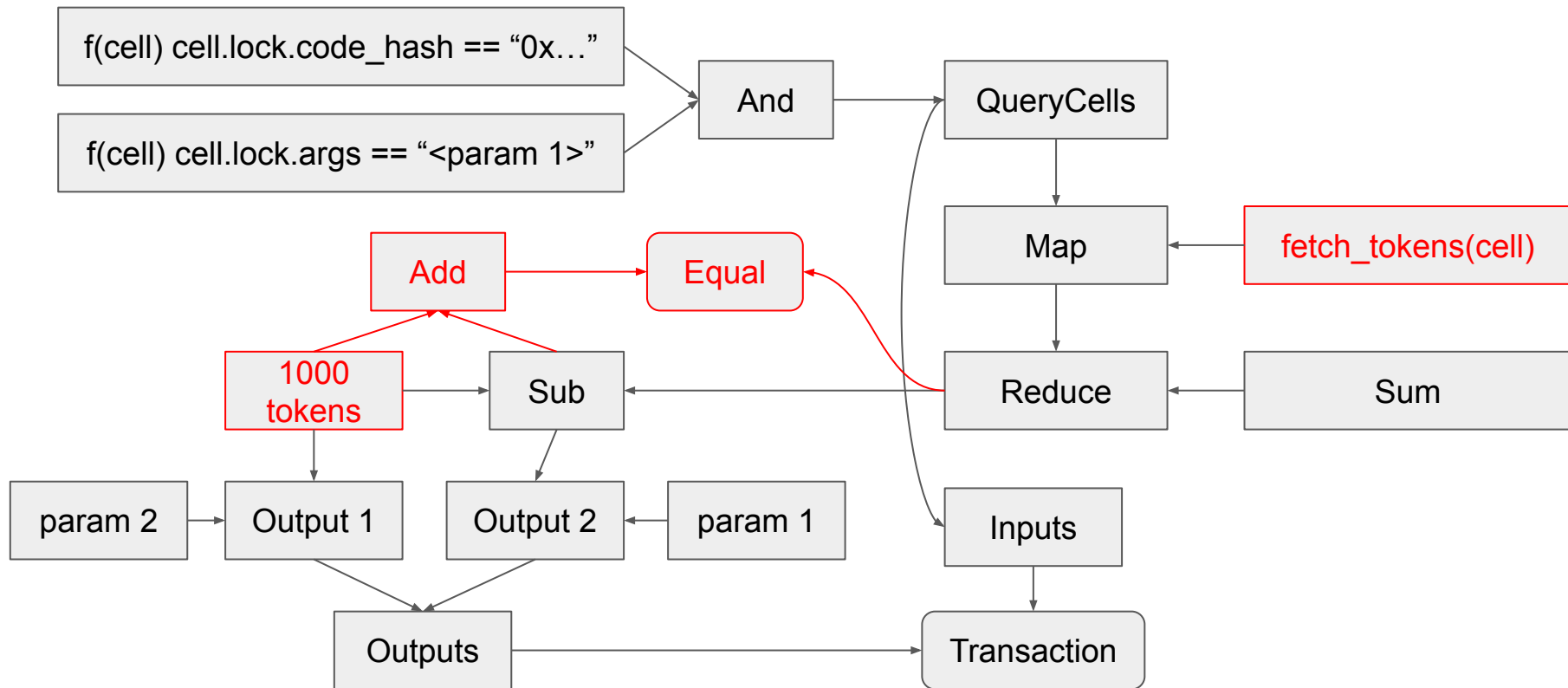
Solution

- A dapp framework that unifies generators & validators
- AST(Abstract syntax tree) based

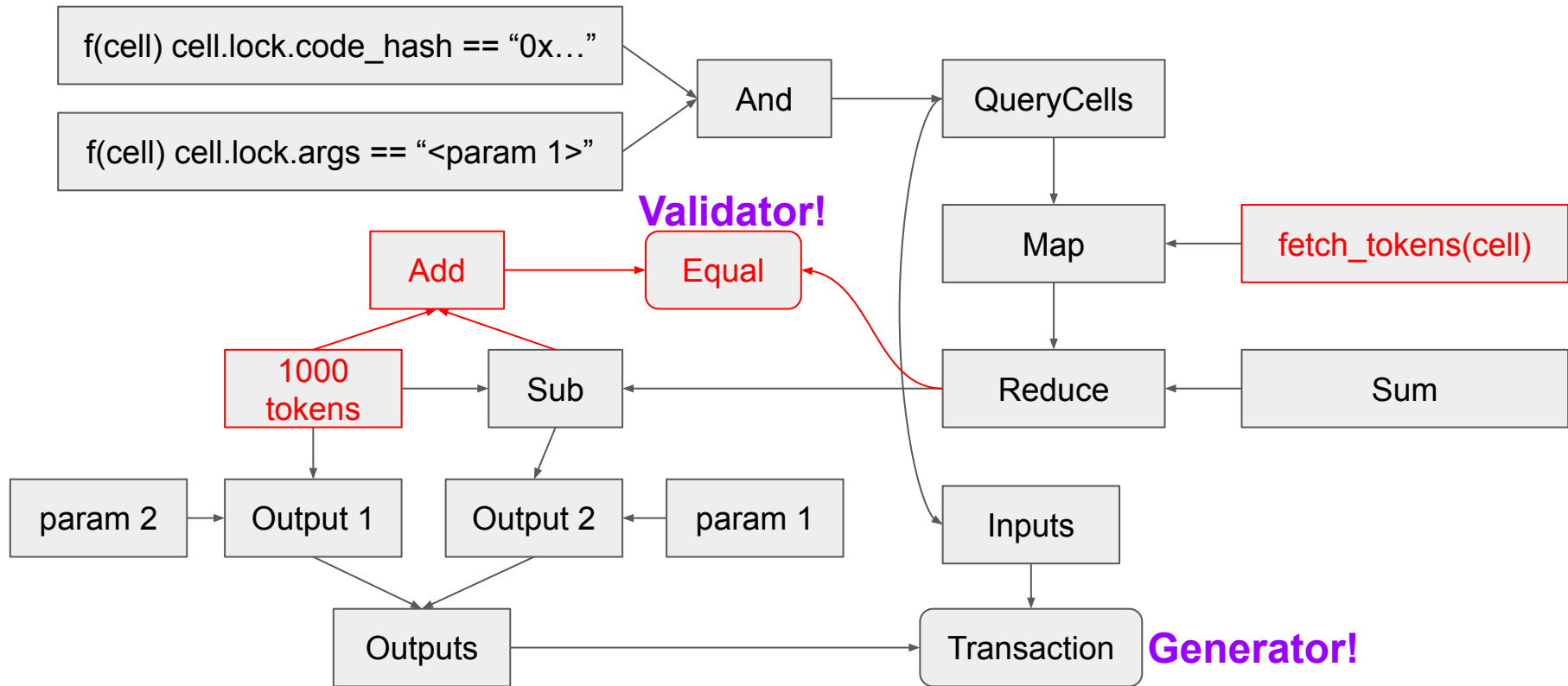
An (Simplified) Example



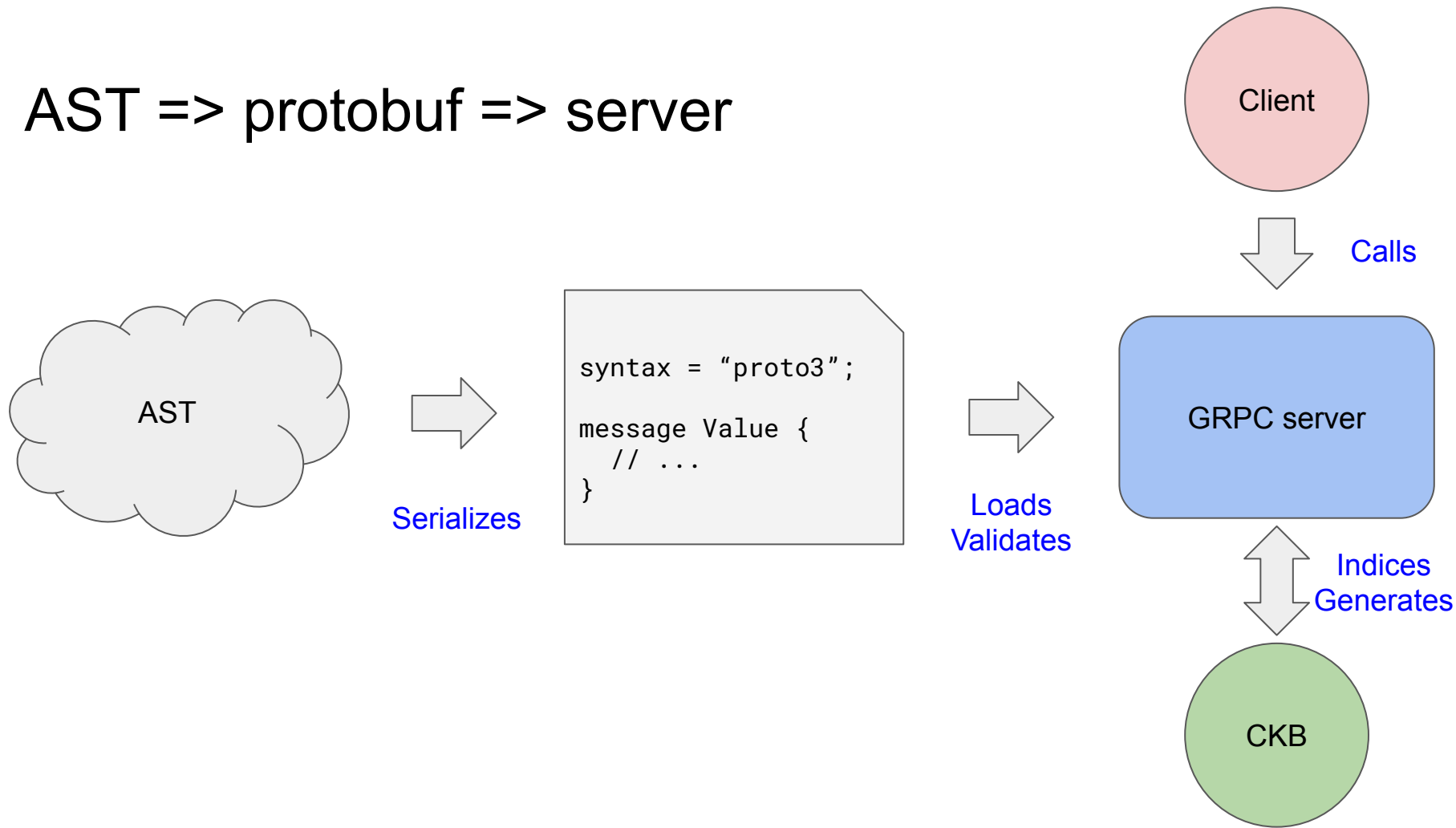
If this is UDT...



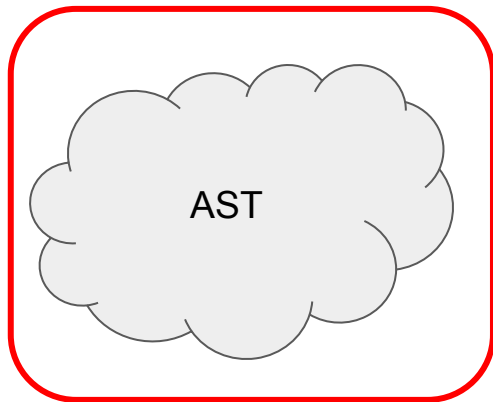
If this is UDT...



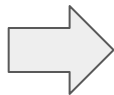
AST => protobuf => server



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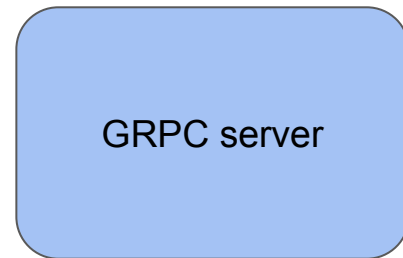
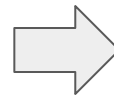


Serializes

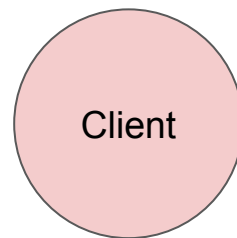


```
syntax = "proto3";  
message Value {  
    // ...  
}
```

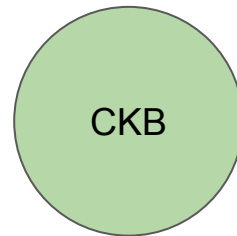
Loads
Validates



Calls



Indices
Generates



Only requirement from dapp developer!

Why AST based?

- Don't get into language syntax yet
- Enables more use cases
 - Languages that compile to AST
 - DSLs
 - GUIs

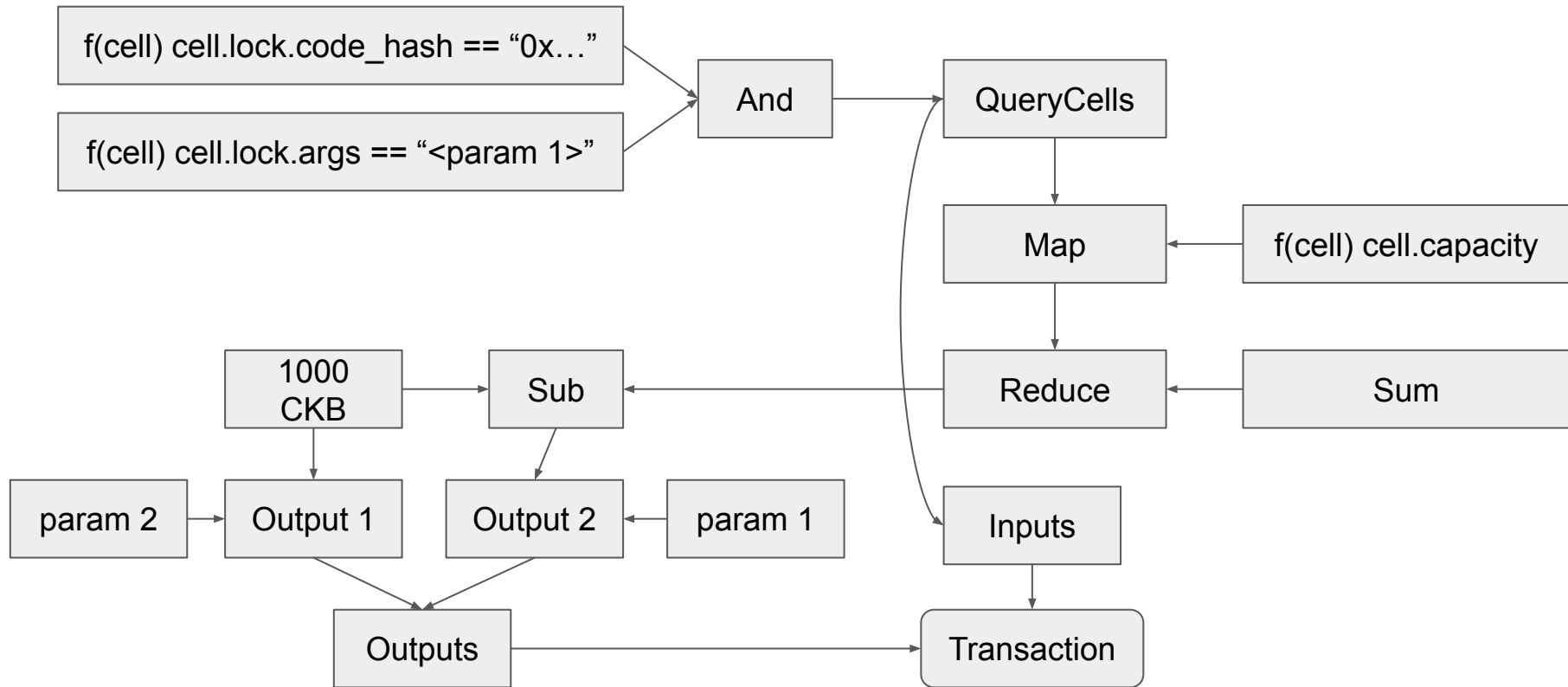
SQL

```
select SUM(capacity(*)) from cells where code_hash = "0x..."
```

- All we need to generate, is **which cell to use**.

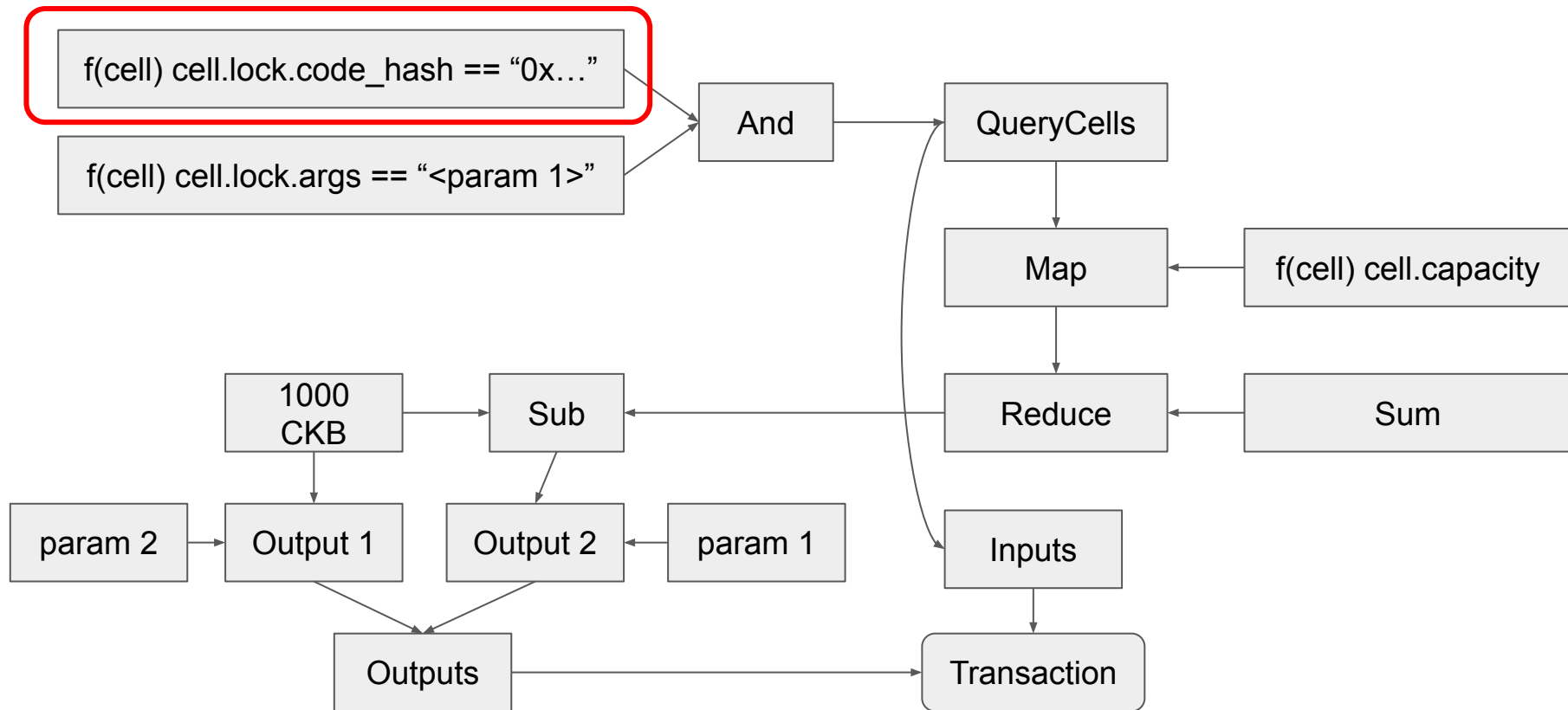
More Examples

Back To This

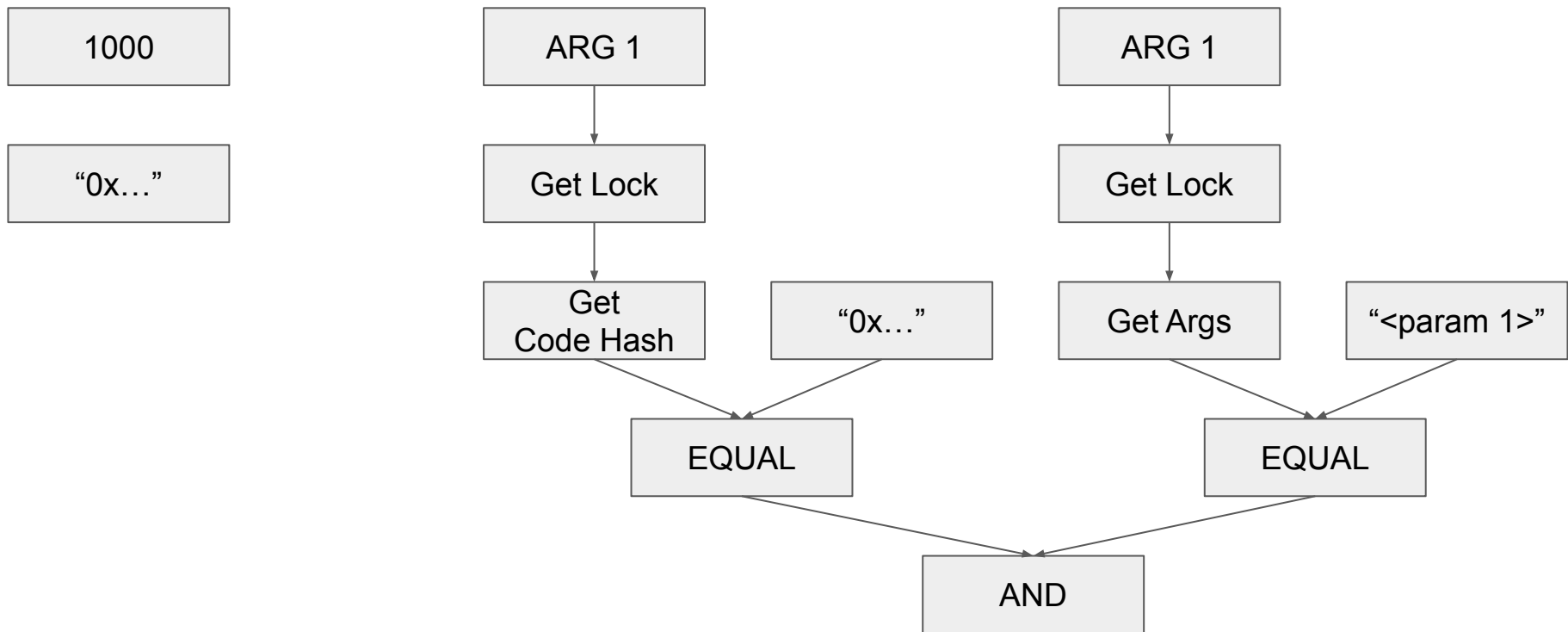


Question 1

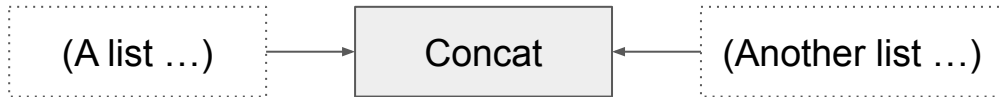
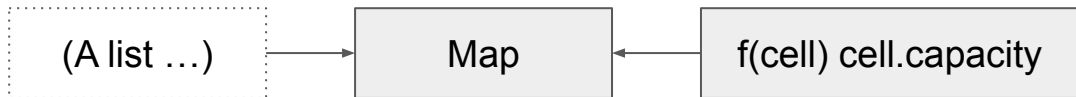
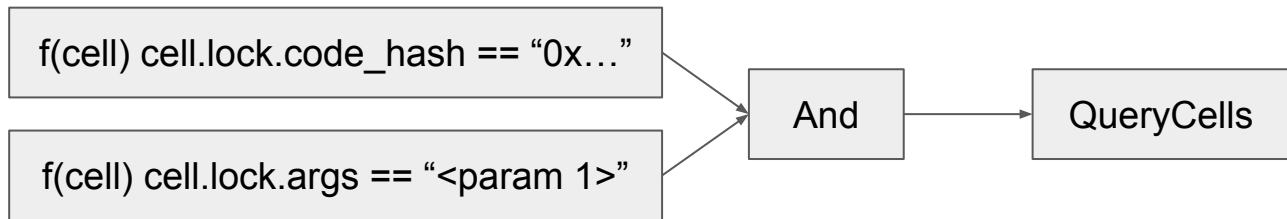
How is this represented?



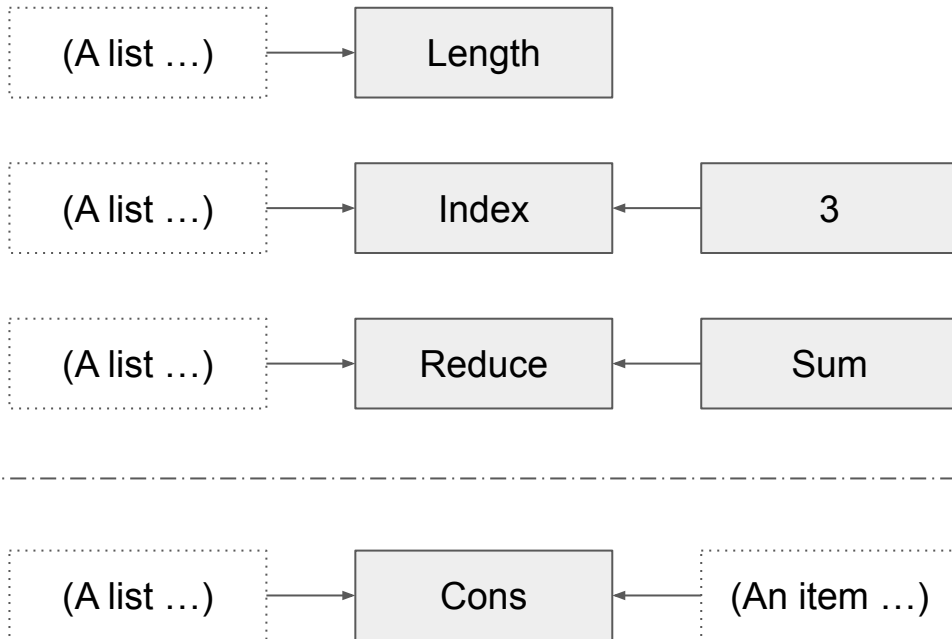
Anything is a value



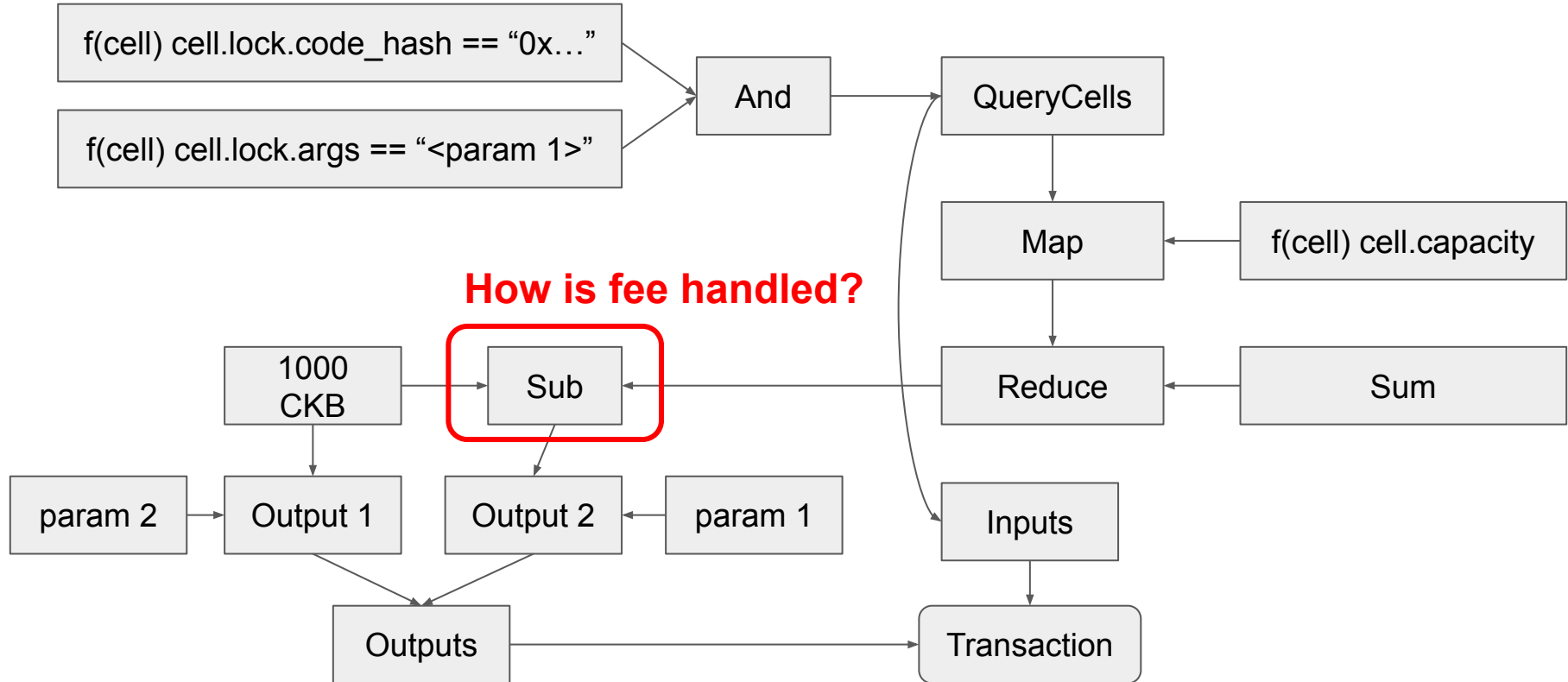
Or a list



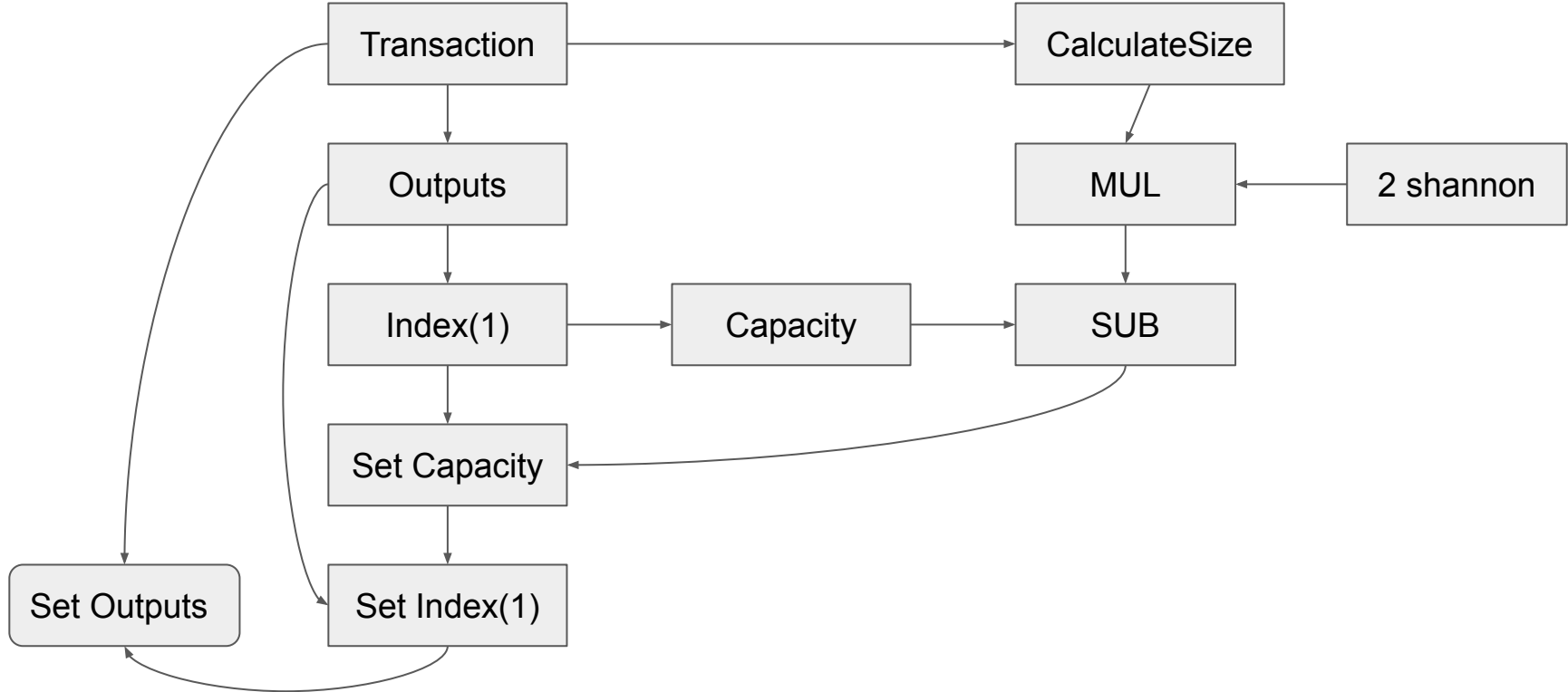
Values \Leftrightarrow Lists



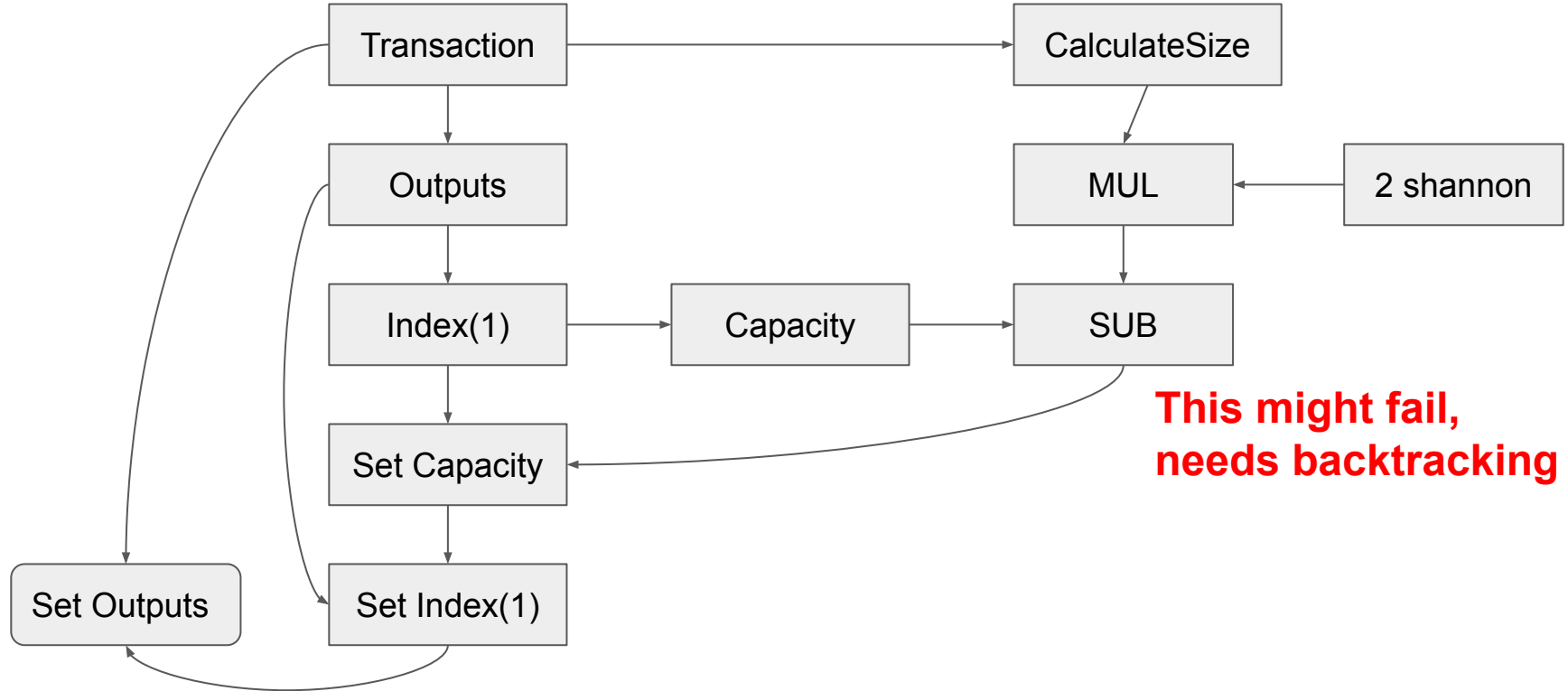
Question 2



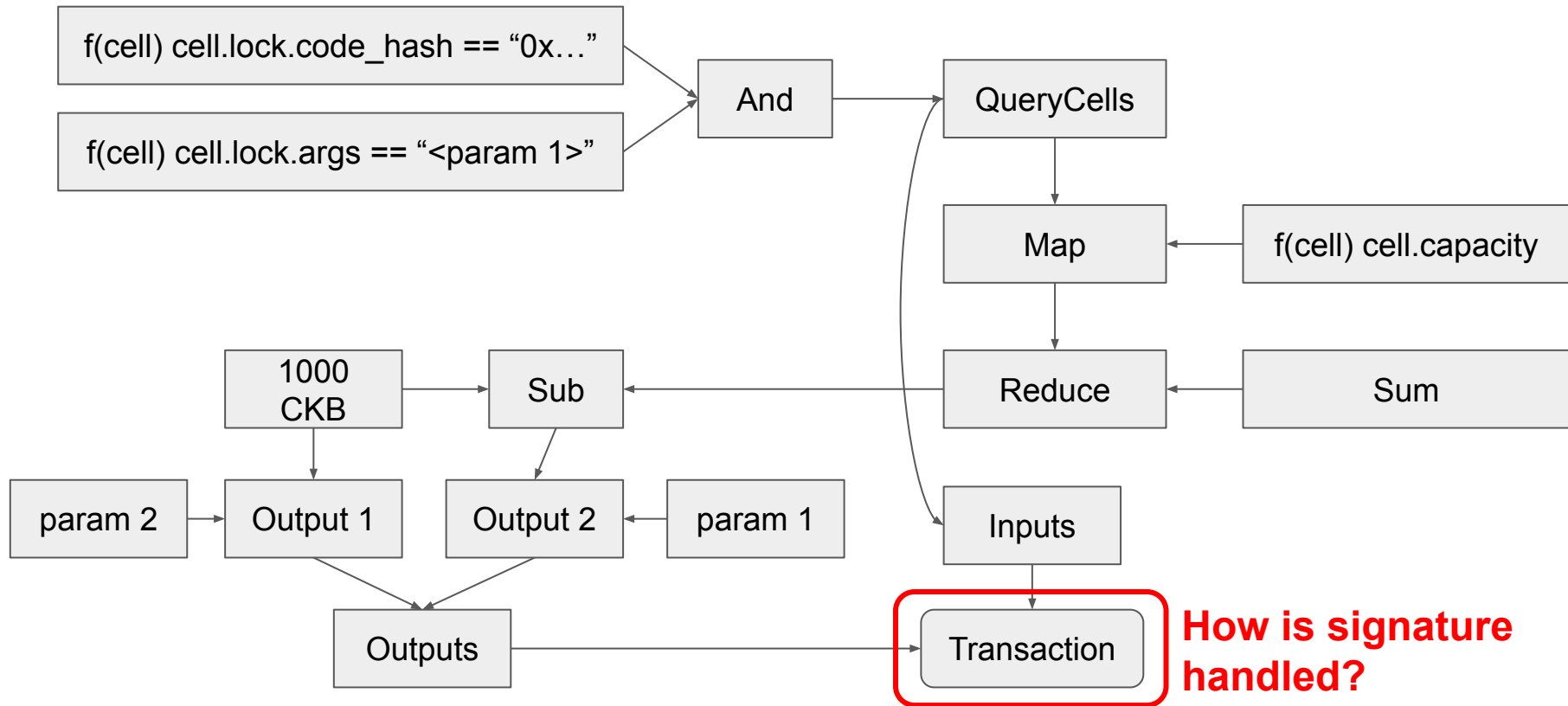
Transform transaction



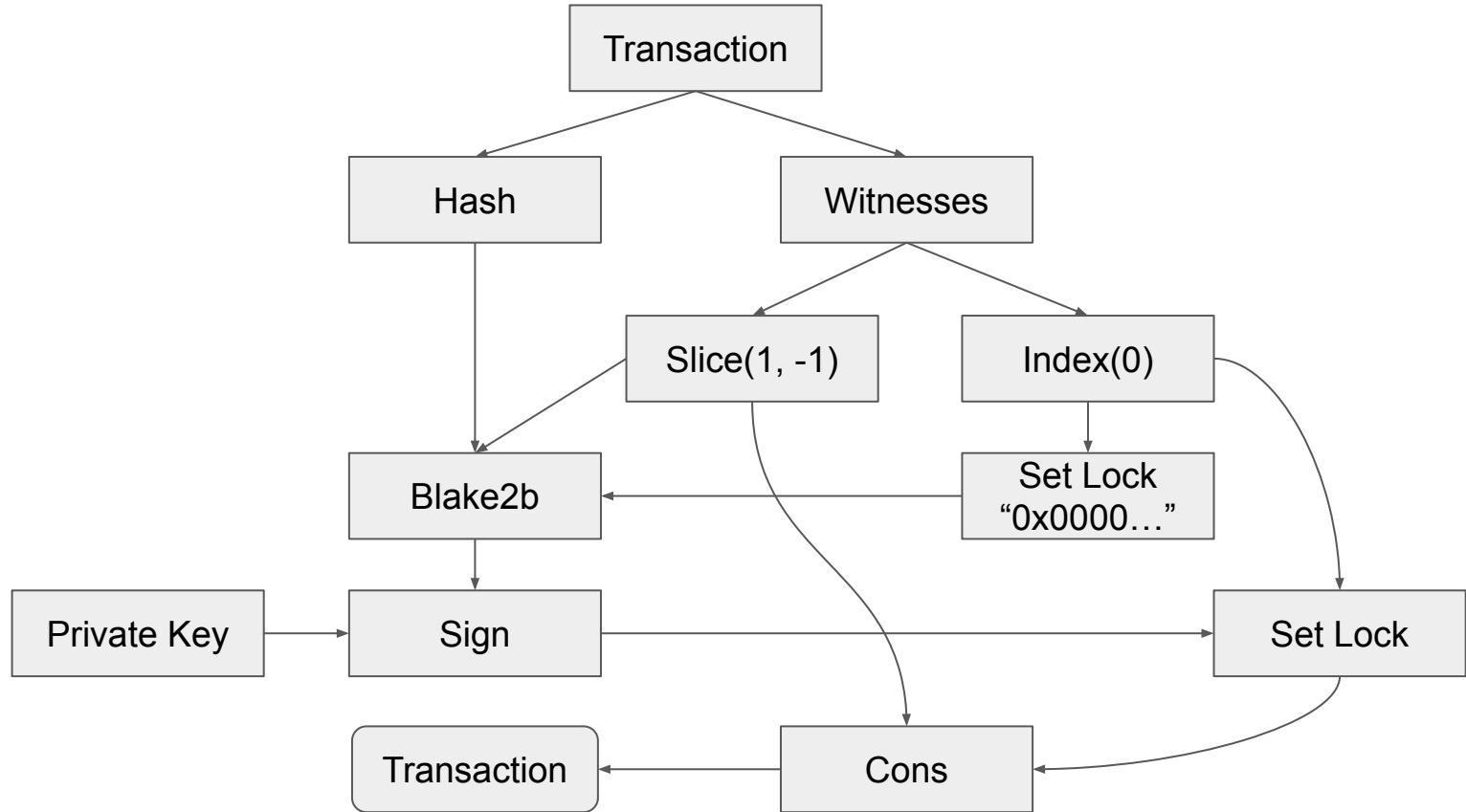
Transform transaction



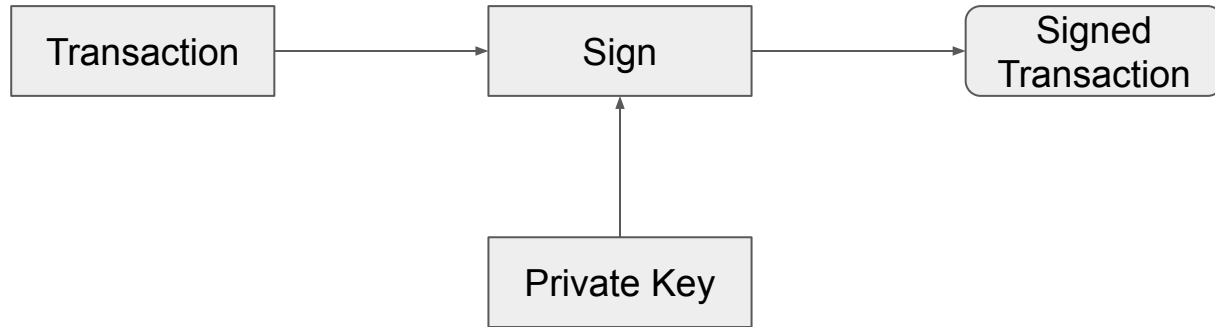
Question 3



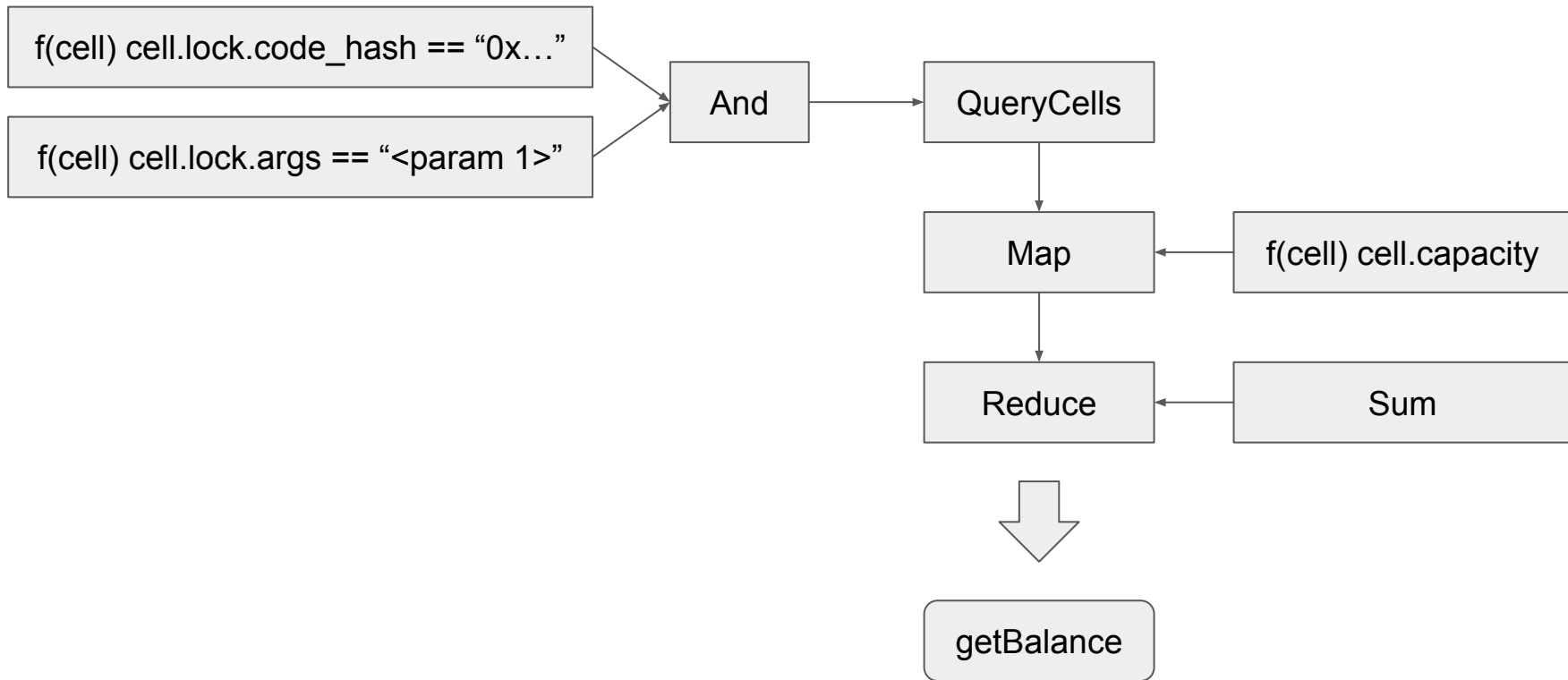
Complex operations in AST



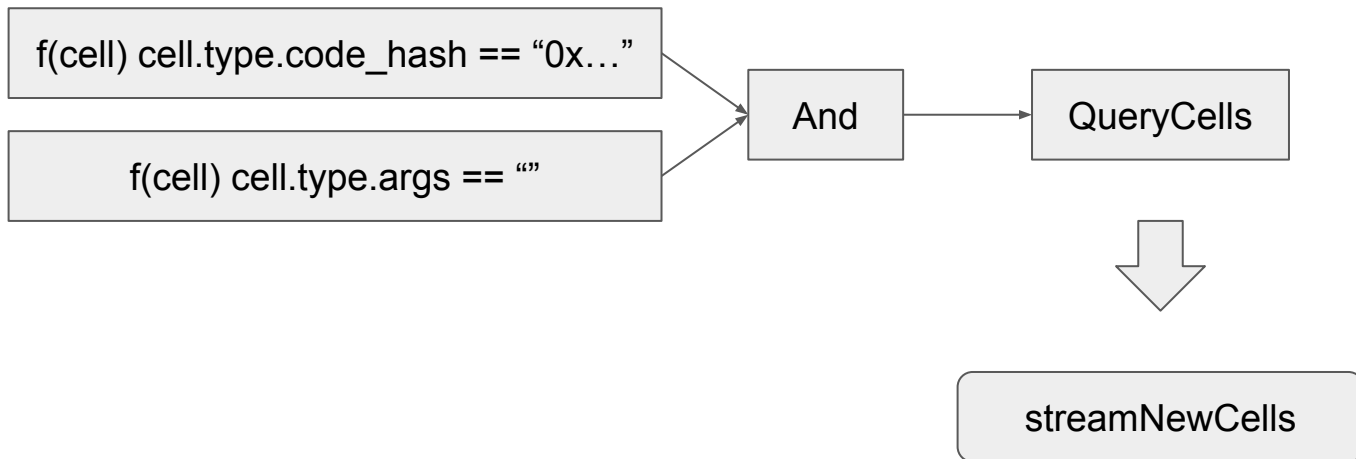
Or wrap common ones in AST node



Simple RPC Request



Streaming Events



Goal: extract, aggregate and transform cells

- Cell indexer
- Balance aggregator
- Nervos DAO interest reporter
- Event publisher
- Transaction generator
- Cell transform logic validator
- ...

Inspired from SQL, more powerful than SQL

Questions?