

Tx1 Tx2 Tx3

(with TxPlan for Replay)

→ Synchronized Dataflow
- - → Asynchronized Dataflow

Input

Helios Architecture

Path Cache

Path Mapping Layer (PML)

Graph Mapping Layer (GML)

Cache Persistence

Frequency Update

Successful Lookup

Failed Lookup

Helios Engine

Traced Interpreter

Fallback

Native Interpreter

Output

SsaGraph

SSA Optimizer

Graph Construction

CF

DCE

CSE

GasChunk Integration

Trace Logs

Path Tracer

EVM Native Hooks

Shadow Stack

Frame Manager

Digest Record

TxPlan Generation

GasChunk Generation

ST1

ST2

ST3