PLANCKNET

Production-Grade Execution Kernel

Execution & Liquidity Stress Testing with Step-by-Step PnL Decomposition

The Problem

Institutions cannot explain why portfolios break.

Black-Box Risk Metrics

VaR and Vol aggregate risk into single numbers that hide failure modes. When something breaks, you can't see what.

Liquidity Blindness

Models assume you can always trade. Execution costs during stress events are handled with crude add-ons or ignored entirely.

Non-Reproducible Tests

Stress tests are one-off reports, not repeatable experiments. You cannot "debug" a crash or replay the exact failure path.

THE RESULT

When a portfolio loses money in a crisis, teams cannot determine:

- Was it market moves?
- Was it liquidity costs?
- Did control rules fail?

Prevention is impossible.

Why Existing Solutions Fail

Backtesting

Replays history but can't answer "what if" questions. Past-only, non-experimental.

Can't test controls that didn't exist

Compliance Scenarios

Checkbox-driven regulatory tests. Not designed as analytical tools.

No decomposition or debugging

Internal Quant Infra

Custom simulators can exceed $2M/year. Often brittle, opaque, non-standardized.

Buy beats build

THE GAP: No tool allows controlled, repeatable stress experiments with decomposed PnL attribution.

Why We Win

Not replacing everything — owning the experimental layer

VS BACKTESTING

Past-only replay

Backtesting shows what happened in 2008. Can't change liquidity, can't test controls that didn't exist.

PlanckNet

Experimental: change regimes, inject shocks, test controls

VS MONTE CARLO

Distributions, not replay

MC gives you distributions. When something breaks, you can't replay the exact path. Can't debug randomness.

PlanckNet

Deterministic: same seed = same crash = debuggable

VS VENDOR SUITES

Monolithic black boxes

MSCI/Bloomberg sell suites. Can't decompose, can't integrate cleanly, can't run controlled experiments.

PlanckNet

API-first kernel layer, runs alongside existing tools

Our Moat: Deterministic execution + Decomposed attribution + Formal specification = Audit-ready experimental layer

The Solution

A deterministic execution kernel for controlled stress testing.

CORE ARCHITECTURE

RPO — Risk Propagation Operator

How factor shocks travel through correlation matrices

LSO — Liquidity Shock Operator

Execution costs based on market depth and urgency

Drift Guard System

Per-portfolio circuit breakers with rolling PnL budgets

Deterministic Kernel

Seeded RNG ensures identical runs = identical results

KEY DIFFERENTIATORS

Causal, Not Random

Same seed → same crash path. Fully debuggable, audit-friendly replay.

Decomposed PnL

Every step separates: Market shock vs. Liquidity cost vs. Guard intervention.

Experimental Lab

Test risk controls before crises. "Show me where it breaks and replay it."

It's Not a Slide Deck. It's a Running Engine.

Live demo = real kernel behavior exposed via API + console

Step-by-Step Output

Scenario Regime Progression

Deterministic Replayability

POST /v1/simulate with same seed = identical timeline

LIVE DEMO FEATURES

✓ Multi-portfolio batched execution

3 archetype strategies: RP, CONC, DEF

✓ Real-time visualization

Equity curves, shock charts, KPIs

✓ API-first architecture

FastAPI + bearer auth, integration-ready

✓ Kernel V18.3.4.2

1,700+ lines formal specification

Use Cases

Pre-trade risk intelligence — understand behavior before crises occur

Strategy Comparison

Compare portfolios under identical stress regimes to identify superior risk-adjusted approaches.

Control Validation

Test circuit breakers and risk guards before deployment, not during crises.

Liquidity Attribution

Quantify what portion of tail losses come from liquidity costs vs. market moves.

Tail Risk Analysis

Understand recovery dynamics and path-dependent behavior under extreme scenarios.

Regulatory Stress Testing

Generate reproducible, audit-friendly stress test results.

Audit-friendly deterministic replay

Market Opportunity & Why Now

MARKET DRIVERS

Post-2023 Regulatory Pressure

SVB, Credit Suisse failures increased demand for explainable, reproducible stress testing.

Liquidity Risk Focus

Recent crises showed liquidity, not market moves, as the primary failure mode. Models must capture this.

Portfolio Complexity

Multi-asset, cross-border portfolios require sophisticated simulation tools that existing vendors can't provide.

Infrastructure Cost

Internal quant infrastructure can exceed $2M annually and is often brittle. Buy beats build.

TARGET MARKET

Segment	Cycle	Priority
Hedge Funds	3-6 mo	Primary
Asset Managers	6-9 mo	Primary
Banks	9-12 mo	Secondary

Initial buyers: Quant research teams, Risk innovation, Advanced PMs

Business Model

Enterprise SaaS — Paid pilots → Annual licenses → Expansion

PRICING STRUCTURE

Paid Pilot
90 days • Hypothesis-driven
$5-10K/mo

Annual License
12 months • Full platform access
$100-150K ARR

Enterprise
Multi-year • Custom integration
$200K+ ARR

HYPOTHESIS-DRIVEN PILOT

1. Diagnostic Call
Understand current stress testing process

2. Define Hypotheses
"X% of tail losses come from liquidity"

3. Execute Pilot (90 days)
Structured deliverables + IC walkthrough

4. Measure Impact
Decision-making change, not feature usage

5. Convert to Annual
Expansion path to more desks/assets

Traction & Team

WHAT WE'VE BUILT

Working Simulation Engine (V18.3.4.2)
Production-grade kernel, not mockup

Live API + Console Demo
Integration-ready REST API

Design Partner Pipeline
Risk team conversations in progress

Academic Advisor
Methodology validation in progress

FOUNDING TEAM

Quant / Mathematics Lead
Risk modeling, simulation logic, mathematical foundations

Engineering Lead
Deterministic execution, infrastructure, API design

Business Lead
Institutional fintech, go-to-market strategy

The Ask

PRE-SEED ROUND

$200K

Raising

Instrument	**SAFE**
Valuation Cap	**$2.5M – $3.0M**
Discount	**20%**
Implied Dilution	**~6-8%**

USE OF FUNDS (9 MONTHS)

50%	25%	15%	10%
Team	Pilots	Infra	Buffer

9-MONTH MILESTONES

- Validation suite, API hardening, first design partner
- Whitepaper, 2-3 paid pilots underway
- First ARR, Seed prep with case studies

Live Demo Available Upon Request