Cipherstorm

Self-Healing &
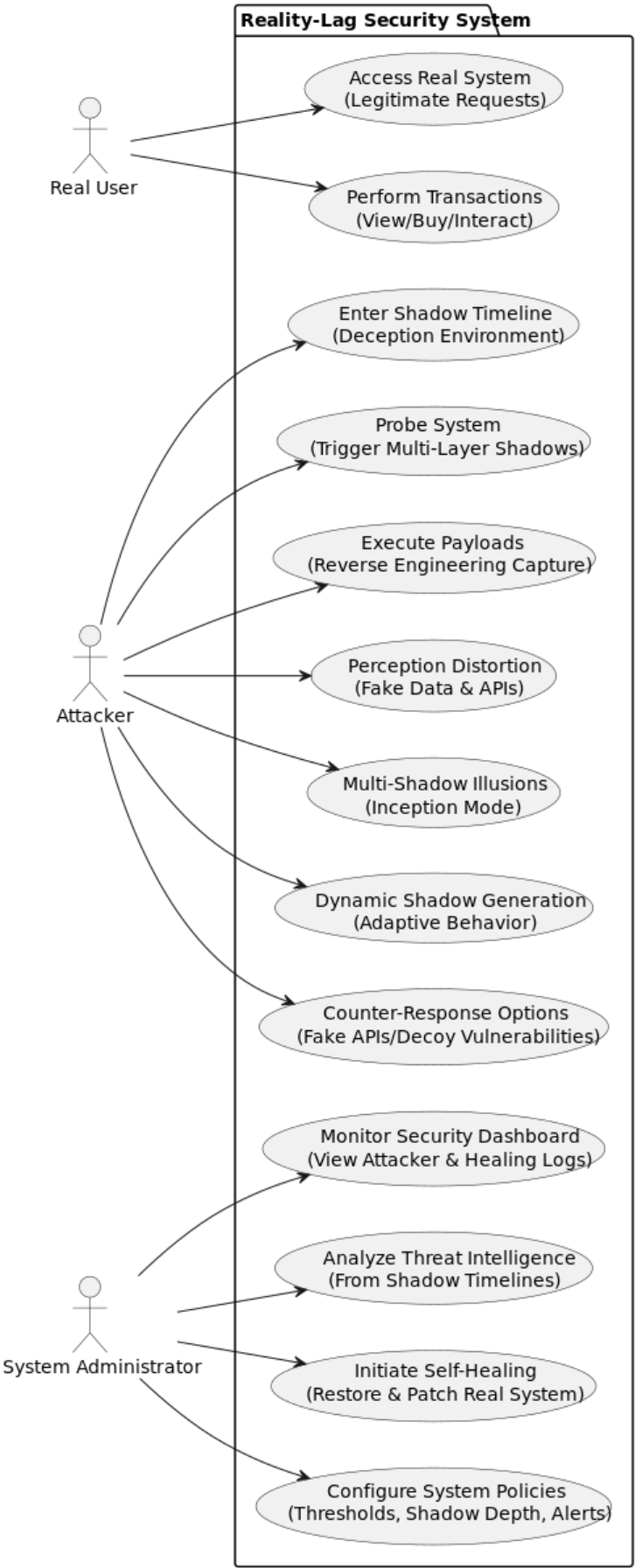Autonomous

dual-timeline

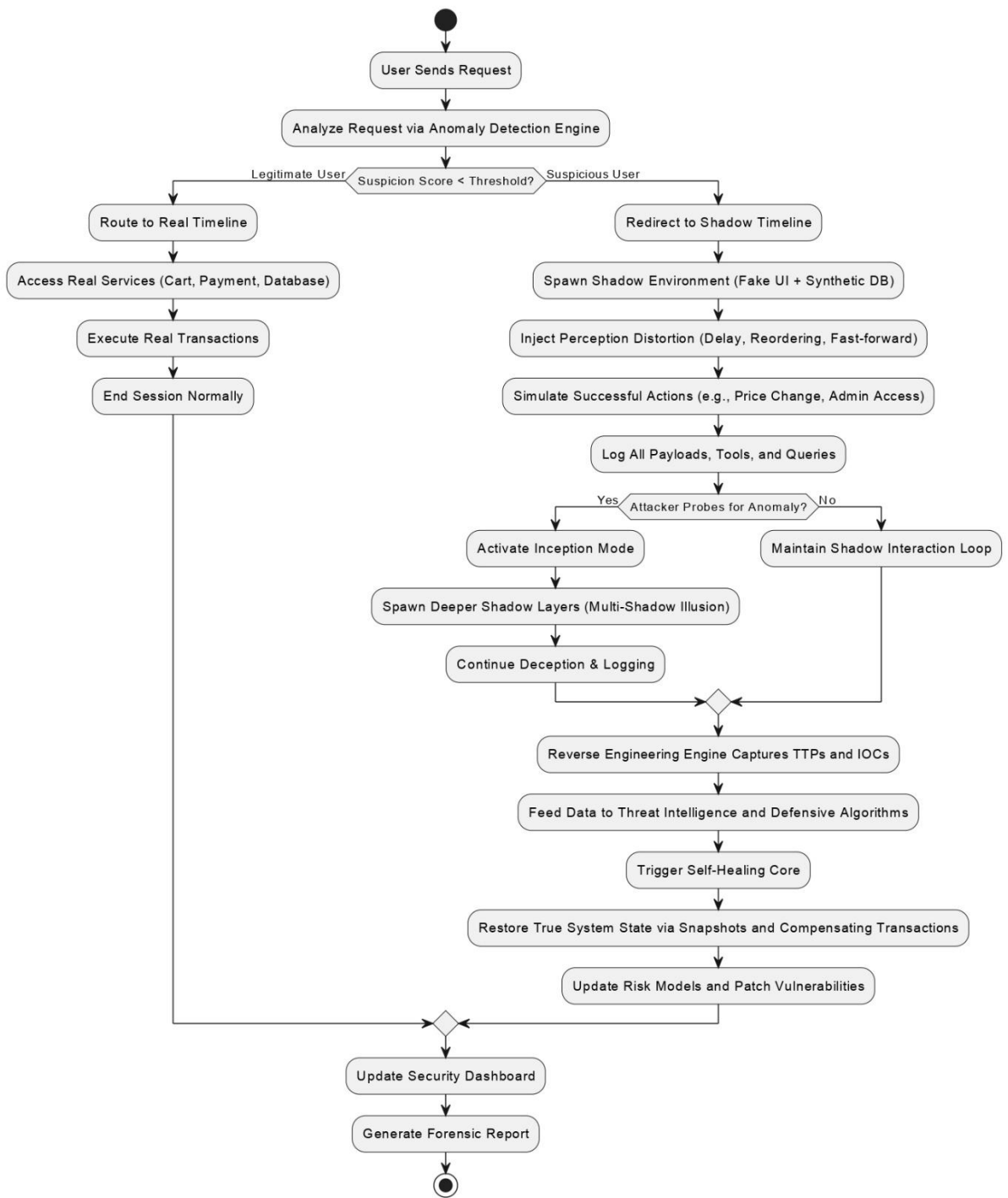neutralizes threats

Perception Warfare

Reality-Lag Security:

Shadow Timeline Defense with Self-Healing and Adaptive Deception

Reality-Lag Security - Vertical Use Case Diagram

Reality-Lag Security System

Real User
- Access Real System (Legitimate Requests)
- Perform Transactions (View/Buy/Interact)

Attacker
- Enter Shadow Timeline (Deception Environment)
- Probe System (Trigger Multi-Layer Shadows)
- Execute Payloads (Reverse Engineering Capture)
- Perception Distortion (Fake Data & APIs)
- Multi-Shadow Illusions (Inception Mode)
- Dynamic Shadow Generation (Adaptive Behavior)
- Counter-Response Options (Fake APIs/Decoy Vulnerabilities)

System Administrator
- Monitor Security Dashboard (View Attacker & Healing Logs)
- Analyze Threat Intelligence (From Shadow Timelines)
- Initiate Self-Healing (Restore & Patch Real System)
- Configure System Policies (Thresholds, Shadow Depth, Alerts)

Reality-Lag Security - Activity Diagram

```
                              ●
                    ┌──────────────────────┐
                    │   User Sends Request  │
                    └──────────────────────┘
          ┌──────────────────────────────────────────┐
          │ Analyze Request via Anomaly Detection Engine │
          └──────────────────────────────────────────┘

   Legitimate User  ◇ Suspicion Score < Threshold?  ◇  Suspicious User

┌──────────────────┐                    ┌──────────────────────┐
│ Route to Real     │                    │ Redirect to Shadow    │
│ Timeline          │                    │ Timeline              │
└──────────────────┘                    └──────────────────────┘

┌──────────────────────────────┐   ┌──────────────────────────────────────┐
│ Access Real Services (Cart,   │   │ Spawn Shadow Environment               │
│ Payment, Database)            │   │ (Fake UI + Synthetic DB)               │
└──────────────────────────────┘   └──────────────────────────────────────┘

┌──────────────────────────┐   ┌──────────────────────────────────────────┐
│ Execute Real Transactions │   │ Inject Perception Distortion               │
└──────────────────────────┘   │ (Delay, Reordering, Fast-forward)          │
                               └──────────────────────────────────────────┘

┌──────────────────────────┐   ┌──────────────────────────────────────────────┐
│ End Session Normally      │   │ Simulate Successful Actions (e.g., Price       │
└──────────────────────────┘   │ Change, Admin Access)                          │
                               └──────────────────────────────────────────────┘

                               ┌──────────────────────────────────────┐
                               │ Log All Payloads, Tools, and Queries   │
                               └──────────────────────────────────────┘

              Yes ◇ Attacker Probes for Anomaly? ◇ No

┌──────────────────────┐                    ┌──────────────────────────────┐
│ Activate Inception    │                    │ Maintain Shadow Interaction   │
│ Mode                  │                    │ Loop                          │
└──────────────────────┘                    └──────────────────────────────┘

┌──────────────────────────────────────────┐
│ Spawn Deeper Shadow Layers                 │
│ (Multi-Shadow Illusion)                    │
└──────────────────────────────────────────┘

┌──────────────────────────────┐
│ Continue Deception & Logging  │
└──────────────────────────────┘
                                            ◇

┌──────────────────────────────────────────────┐
│ Reverse Engineering Engine Captures TTPs       │
│ and IOCs                                       │
└──────────────────────────────────────────────┘

┌──────────────────────────────────────────────┐
│ Feed Data to Threat Intelligence and           │
│ Defensive Algorithms                           │
└──────────────────────────────────────────────┘

┌──────────────────────────────┐
│ Trigger Self-Healing Core     │
└──────────────────────────────┘

┌──────────────────────────────────────────────────────┐
│ Restore True System State via Snapshots and            │
│ Compensating Transactions                              │
└──────────────────────────────────────────────────────┘

┌──────────────────────────────────────────────┐
│ Update Risk Models and Patch Vulnerabilities   │
└──────────────────────────────────────────────┘
                                            ◇

┌──────────────────────────────┐
│ Update Security Dashboard     │
└──────────────────────────────┘

┌──────────────────────────────┐
│ Generate Forensic Report      │
└──────────────────────────────┘
                              ◉
```
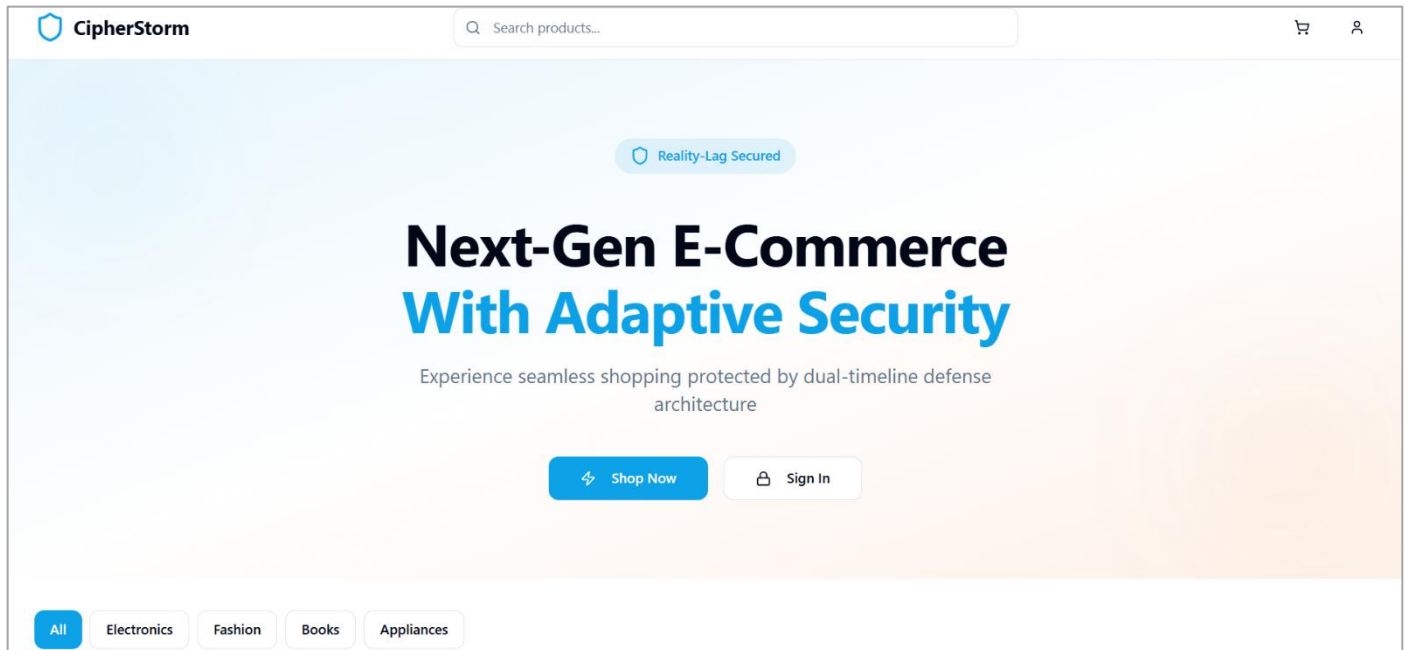
Figure 1: Next-Gen E-Commerce with Adaptive Security Landing Page
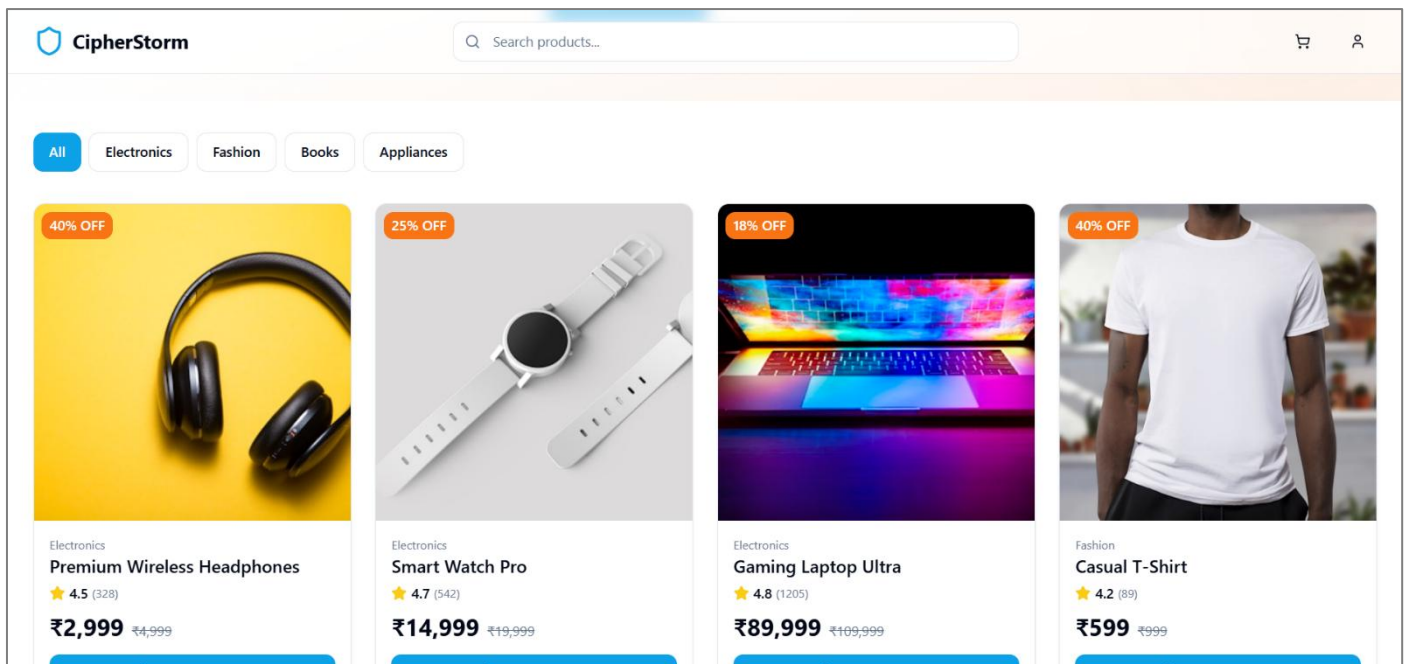

Figure 2: CipherStorm Product Listings
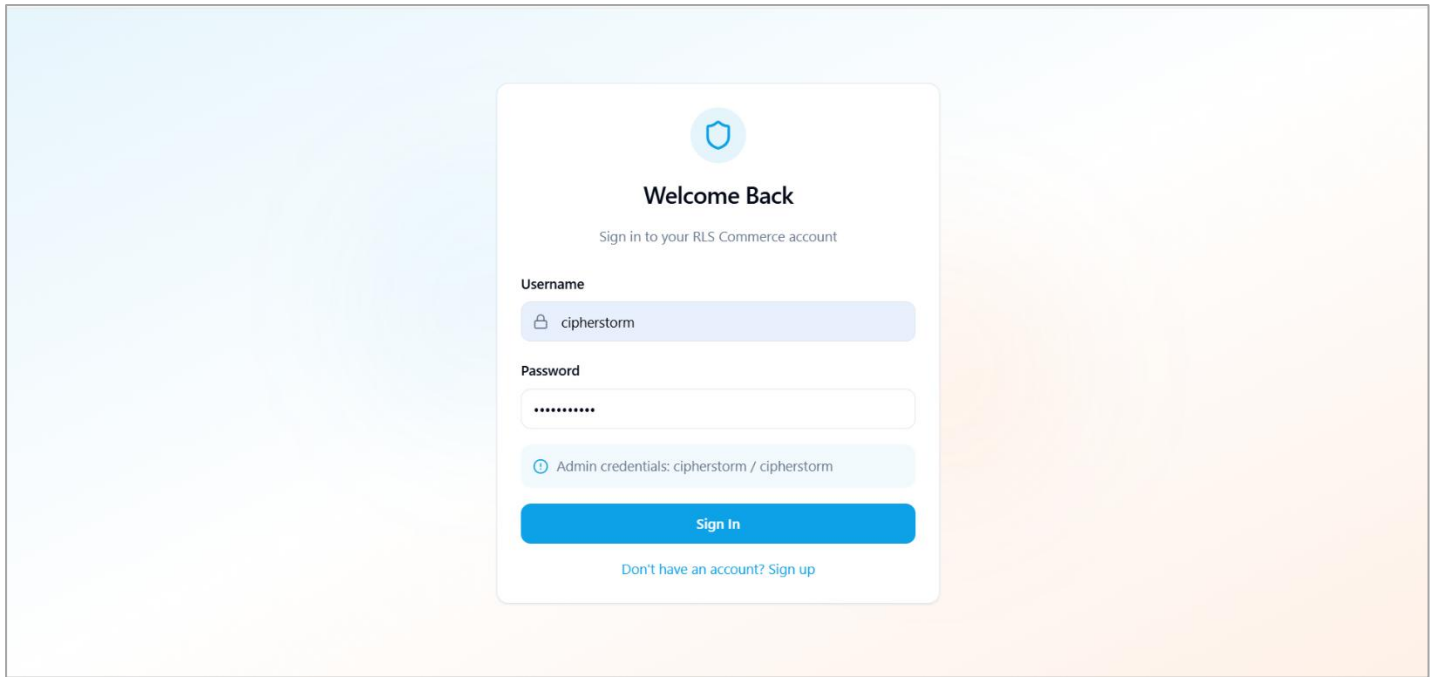
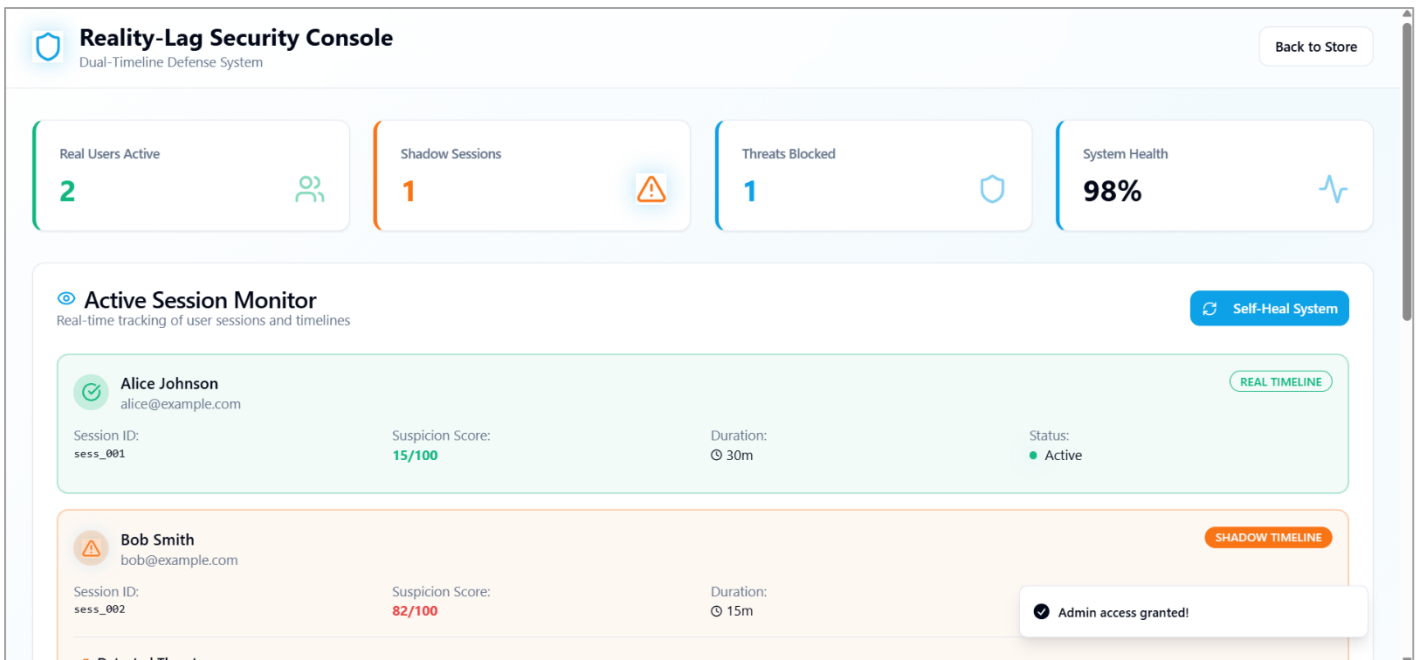**Figure 3: CipherStorm Admin access to monitor the dual timeline**

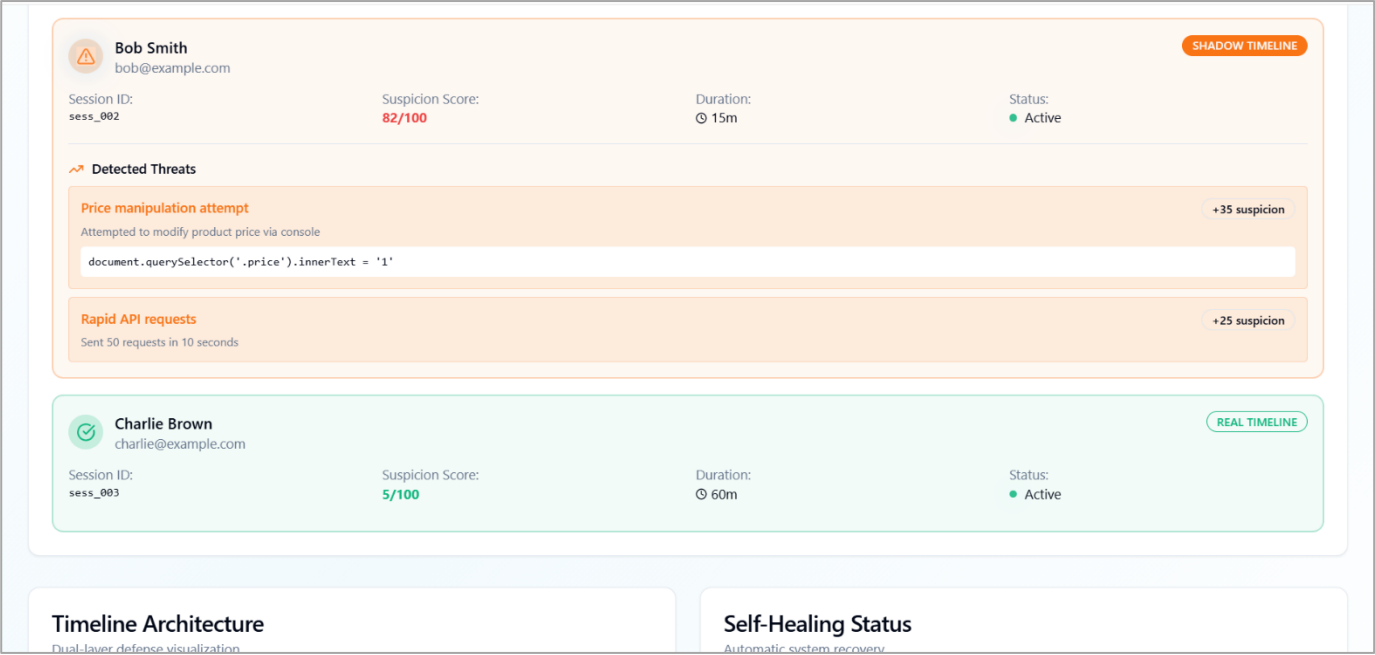**Figure 4: Reality-Lag Security Console Dashboard**

Bob Smith
bob@example.com

SHADOW TIMELINE

Session ID:
sess_002

Suspicion Score:
82/100

Duration:
⊙ 15m

Status:
● Active

⤳ Detected Threats

Price manipulation attempt
Attempted to modify product price via console

+35 suspicion

```
document.querySelector('.price').innerText = '1'
```

Rapid API requests
Sent 50 requests in 10 seconds

+25 suspicion

Charlie Brown
charlie@example.com

REAL TIMELINE

Session ID:
sess_003

Suspicion Score:
5/100

Duration:
⊙ 60m

Status:
● Active

Timeline Architecture
Dual-layer defense visualization

Self-Healing Status
Automatic system recovery

Figure 5 :Detailed View of Detected Threats for Bob Smith


```
document.querySelector('.price').innerText = '1'
```

Rapid API requests
Sent 50 requests in 10 seconds

+25 suspicion

Charlie Brown
charlie@example.com

REAL TIMELINE

Session ID:
sess_003

Suspicion Score:
5/100

Duration:
⊙ 60m

Status:
● Active

Timeline Architecture
Dual-layer defense visualization

Real Timeline
Legitimate users only

✓

Shadow Timeline
Deception layer active

🛡

Self-Healing Status
Automatic system recovery

Data Integrity
⊘ Verified

Snapshot Backup
⊘ Active

Threat Mitigation
⊘ Running

AI Analysis
⋀ Monitoring

Figure 6: Threat Detection and Timeline Status on the Security Console

CipherStorm

Q Search products...

My Account

👤 Profile Information

Full Name

Demo User

Email

✉ user@cipherstorm.com

Phone

📞 +91 9876543210

Edit Profile

📍 Shipping Address

Address

123 Cyber Street, Tech City, TC 560001

City

Tech City

Pincode

560001

Update Address

📦 Order History

No orders yet

View All Orders

🛡 Security Status

Session Security	**Protected**
Timeline Status	**Real**
Anomaly Score	**0/100**

Figure 7: My Account Page with Security Status