



## Mid-Size Mobile Studio Cuts Post-Launch Bugs by 42% with iXie's AI-Driven Emergent QA Pipeline

### About the Client

The client is a mid-size mobile studio known for tribal strategy and city-builder titles, with an established player base across iOS and Android, seeking to modernize their QA pipeline. Their flagship game features deeply interconnected systems — resource economies, population morale, combat raids, and diplomacy — creating emergent bugs that manual testers consistently missed across long play sessions.

### Client's Requirements

- **Cascade detection.**  
Automated detection of cross-system cascading failures across resource, morale, combat, and diplomacy layers.
- **Emergent-state coverage.**  
Test coverage for emergent late-game states across resource, morale, and combat systems simultaneously.
- **Strategy-variant balance.**  
Detect balance regressions across player strategy variants before each patch ships.
- **Late-game performance.**  
Profile high-population late-game states to catch performance degradation pre-release.
- **Scalable regression.**  
A CI/CD-integrated regression suite to replace full manual re-test cycles on every patch.

## Expected Deliverables

- **Cascading system failures.**  
No automated path existed to detect bugs that only emerged when resource, morale, combat, and diplomacy systems interacted simultaneously under stress.
- **Emergent late-game blind spots.**  
Manual testers could not consistently replicate the extended game-state conditions where the most complex bugs lived.
- **Balance drift across strategies.**  
Players pursuing aggressor, economist, or diplomat archetypes hit different balance curves, and manual playtesting could not cover all variants per patch.
- **Late-stage performance degradation.**  
High-population city states introduced memory and frame-rate issues that only manifested in late-game builds, undetected until post-release.
- **No scalable regression baseline.**  
Every patch triggered a full manual re-test cycle, creating bottlenecks that delayed release cadence.

## Our Solution

- ❖ **Emergent Behavior Agent.**  
AI agents simulated diverse player archetypes across 500+ game-state permutations, exposing cascade failures that manual testers consistently missed in extended-session scenarios.
- ❖ **Balance Regression Engine.**  
ML models tracked economy and combat balance deltas across every patch, auto-flagging statistical outlier deviations before builds were approved for release.
- ❖ **CI/CD Test Orchestrator.**  
A prioritised regression suite triggered automatically on every build, replacing full manual re-test cycles with an intelligent, weighted test queue that surfaced the highest-risk coverage first.
- ❖ **Late-Game Performance Profiler.**  
Automated stress simulation pushed game states into high-population city configurations, capturing memory and frame-rate degradation before players encountered it.
- ❖ **Cross-System State Validator.**  
Targeted agents validated interactions across resource, morale, combat, and diplomacy systems simultaneously, catching emergent states that no single-system test pass could surface.

## Tools We Leveraged



Capabilities: Agentic Simulation · ML Regression Detection · CI/OD Integration



## The iXie Impact

**42%**

Reduction in post-launch bugs

**3x**

More game-state coverage vs manual

**58%**

Faster regression cycle per patch





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