Document 3 — AIOps with Conjugate Intelligence (CI)

Executive Summary

Classical AIOps correlates signals but struggles with **meaning** and **intent** . CI augments AIOps with service topology, SLOs, and change history bound together, so automations act in line with business priorities and are narratively explainable.

Problems Today

- Alert storms and paging fatigue; high MTTA due to context hunting.
- Swivel-chair analysis across metrics/logs/traces/tickets.
- Runbooks are tribal knowledge, inconsistently applied.

CI Approach (SpiralOS)

- **Topology-Aware Correlation:** Services, dependencies, recent changes, and SLOs are linked in one graph.
- **Intent-Aware Filtering:** SLOs and error budgets inform alert relevance and response priority.
- **Narrative Postmortems:** Every incident yields a replayable story with learnings and reusable remediations.

Key Capabilities

- **Noise Reduction:** Collapse symmetric symptoms into root-cause hypotheses using dependency graphs and recent changes.
- **SLO-Guided Actions:** Auto-throttle, scale, or rollback under pre-approved vows when error budgets are at risk.
- **Runbook Synthesis:** Convert successful manual sequences into parameterized, testable recipes.
- **Holarchic Replay:** Time-aligned replay of telemetry + decisions for learning and compliance.

Outcomes & KPIs

- **Alert Volume** ↓ 30–70%
- **MTTA/MTTR** ↓ 25–50%
- **Auto-Remediation Success Rate** ↑ with guardrails

- **On-Call Pages/Week** ↓ materially

Integration Path (Low-Friction)

1. **Observe & Correlate:** Ingest metrics/logs/traces (Prometheus/ELK/Datadog/etc.) + change events.
2. **Map Topology & SLOs:** Import service graph and SLO/error budgets.
3. **Enable Guardrails:** Define a small set of pre-approved actions (scale/rollback/feature-flag).
4. **Automate Carefully:** Expand actions by confidence; maintain human-in-the-loop for high-impact steps.

Risks & Mitigations

- **Over-trust:** Transparent confidence scores, narrative rationale, and mandatory approvals beyond thresholds.
- **Model Misses:** Continuous evaluation against incident outcomes; quick rollback of automations.

Example Walkthrough (Latency Spike)

Latency spikes in Service Y. CI correlates a dependency regression introduced 30 minutes earlier, checks SLO burn, toggles a feature flag under pre-approved vows, stabilizes latency, and proposes a targeted rollback. It generates a postmortem narrative and promotes the remediation to a reusable runbook.

Sector Examples

- **Manufacturing:** Detects line stoppages, correlates to MES updates, and auto-rolls back faulty configs.
- **Mobility:** Identifies real-time telematics anomalies linked to OTA updates; auto-flags rollback if safety impacted.
- **Energy:** Correlates SCADA telemetry drops to infra changes and applies guardrailed restarts without downtime.

Talking Points (for Erich & Echo)

- "AIOps becomes **intent-aware** : actions respect SLOs and business priority."
- "We don't just fix; we **teach the system** how to fix next time."
- "Every incident becomes a reusable pearl."