The Failures You Don’t See on Dashboards

A reliability case study in workflow latency and response time

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The Fog of War

Error rate: ✅
Latency: ✅
Saturation: ✅
Traffic: ✅

And yet… response time got worse.

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Boundaries

This talk is:

✔ A pattern: silent partial failures

✔ Reliability through workflow latency

This talk is not:

✘ A breach story

✘ A vendor teardown

✘ A specific company architecture

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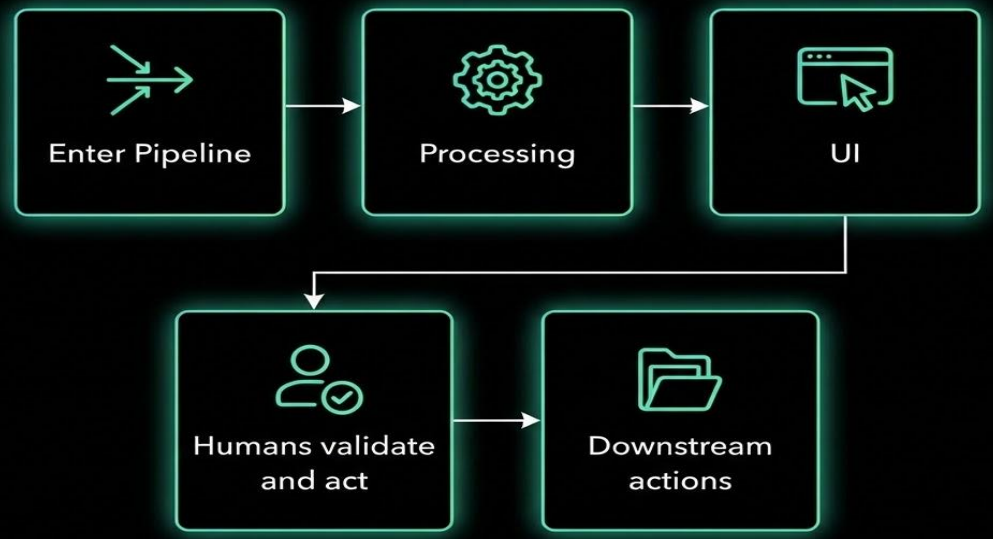
A Typical Workflow



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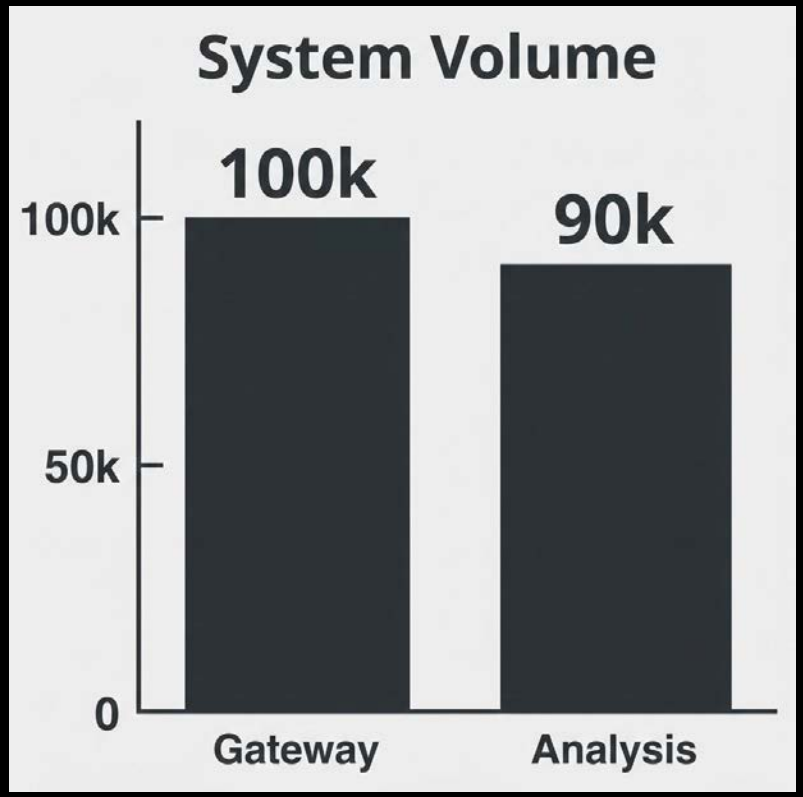
The Alert

An alert fires: Count Mismatch

Edge Gateway (Received: 100K) vs. Analysis Engine (Processed: 90K)

Two possibilities: Nothing happened OR we're not seeing it



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The Cost of Silence

Silent failure symptoms:

- **Compute Health = 100%**
- **Cognitive Load = Overwhelmed**
- Symptoms: Repeated cross-checks, manual sanity tests, extra escalations

Golden Signals: Necessary, Not Sufficient

They answer: "Is the service alive?"

Latency, Traffic, Errors, Saturation

They miss it: "Is the workflow explainable?"

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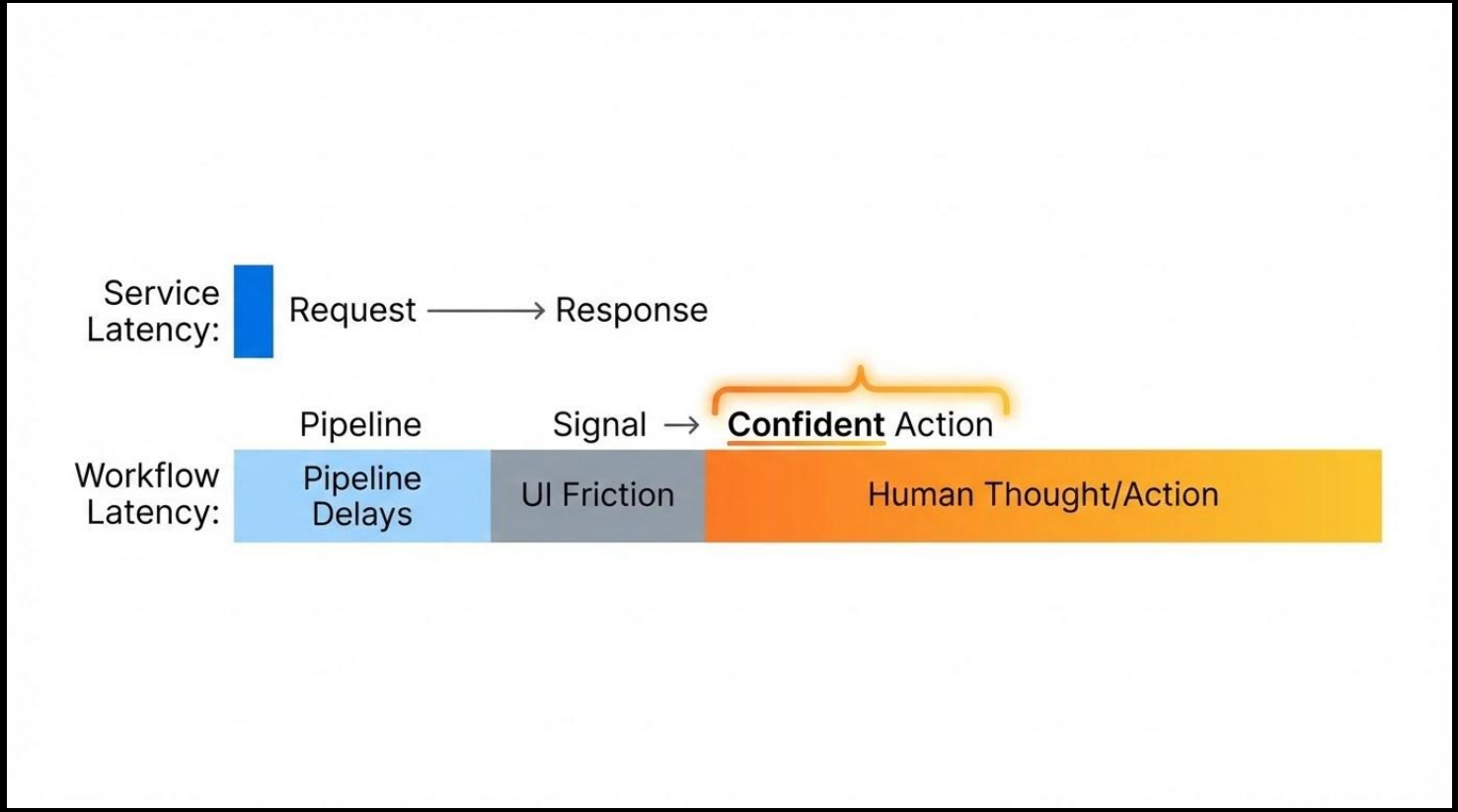
The Shift to Workflow Latency



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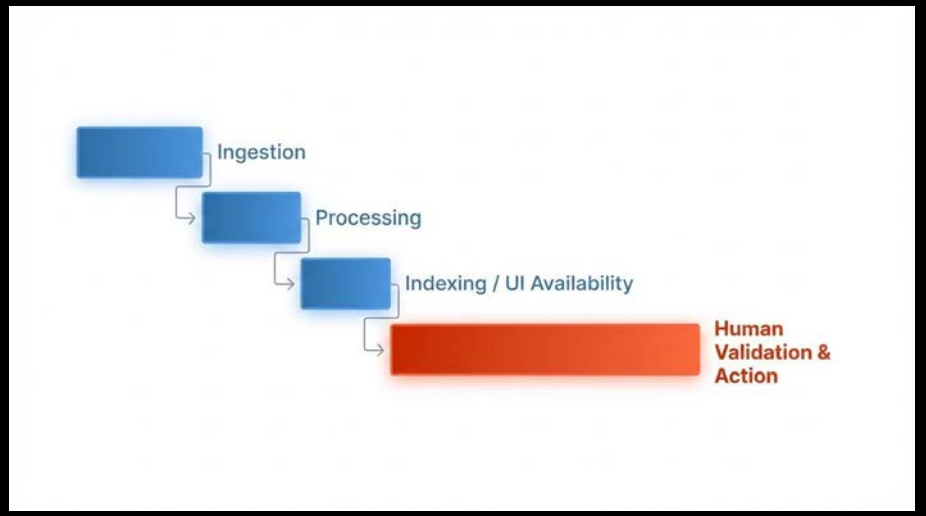
Trace the Workflow

Treat the workflow like distributed tracing

Define spans across systems

Measure end-to-end latency



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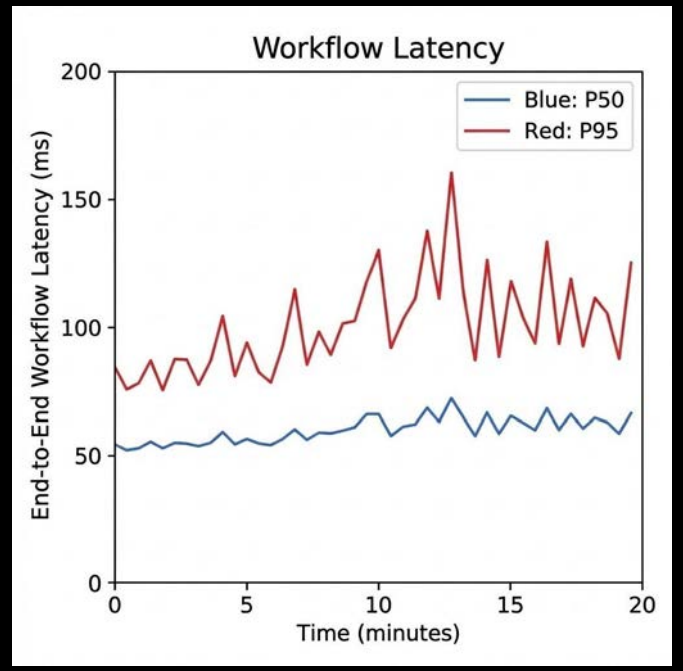
SLI 1 - Workflow Duration

P50/P95 time from ingestion to user-visible result

Budget for known batching/async

Alert on sustained degradation



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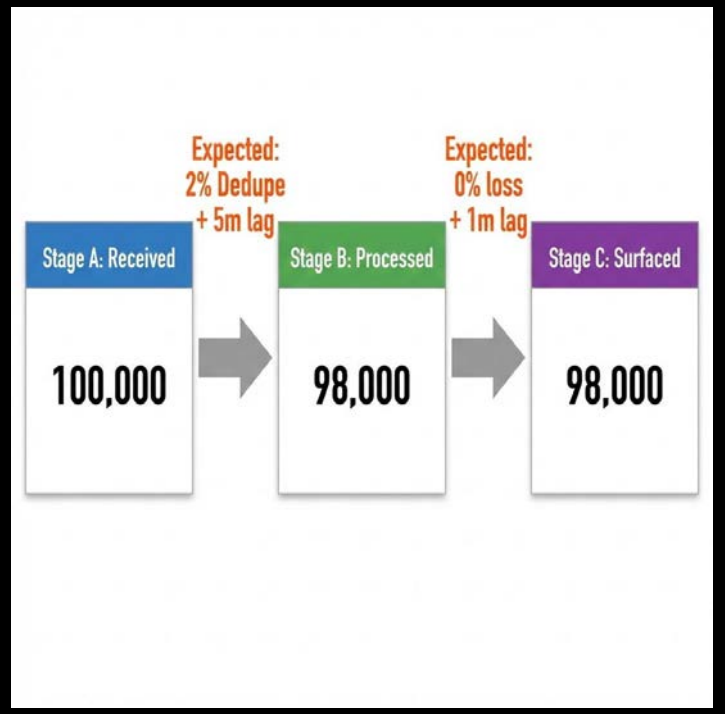
SLI 2 - Count Integrity

Compare:
Stage A (received) vs. Stage B (processed)

Define expected deltas + lag windows



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SLI 3 - The Canary

Synthetic events (known-good)

Canary through the workflow

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The Fifth Signal: Corroboration

Can the system:

- reveal coverage gaps?
- surface partial degradation?
- show what it knows and doesn't know?

Design Tactic 1 - Make Invariants Visible

Define invariants (what must be true)

Instrument them explicitly.

Design Tactic 2 - Partial Degradation States

Beyond UP/DOWN:

- Delayed
- Sampling active
- Telemetry missing

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Design Tactic 3 - Measure Human Friction

Friction telemetry:

- Number of pivots/cross-checks
- Repeated queries
- Escalation loops

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The Monday Checklist

1. Map a crucial workflow end-to-end
2. Define 2-3 invariants + expected deltas
3. Add one synthetic canary
4. Add a workflow SLO

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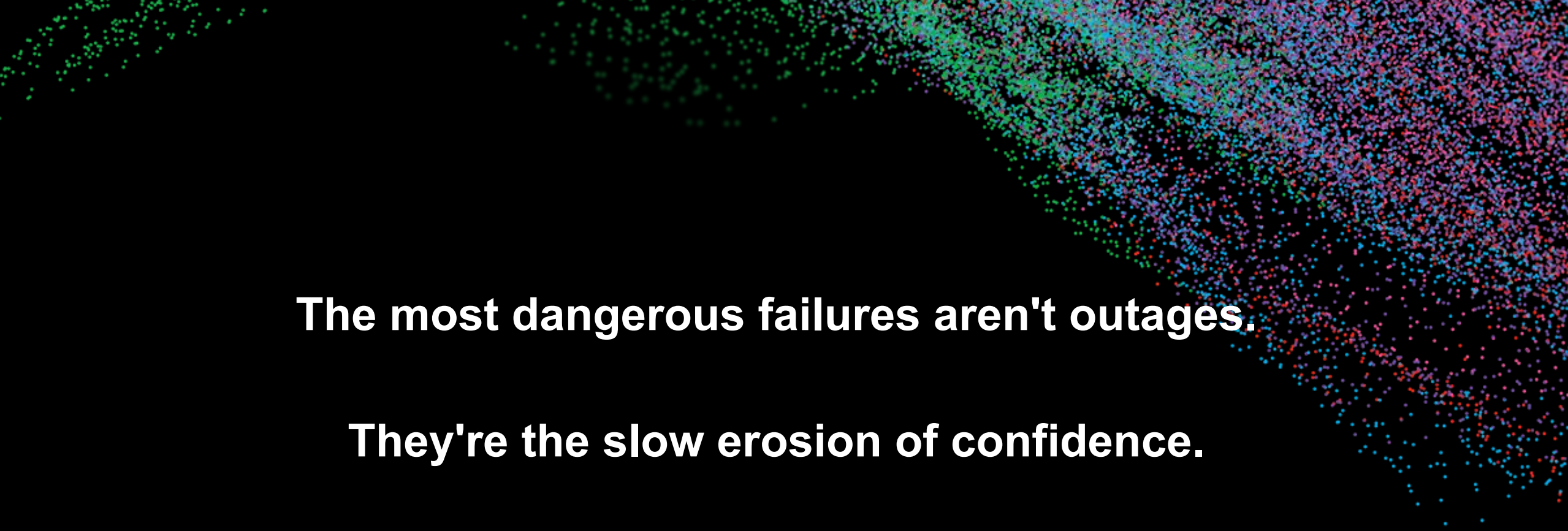

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