When Should Automated Payments Pause?

Oracle uncertainty, scoped holds, and payment recovery

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Abstract

A missing meter update should not ordinarily stop every payment. Drawing on Chapters 5 and 12 of Target Money, this paper proposes a payment hold limited to the obligations whose evidence is materially uncertain, with wider suspension reserved for uncertainty that cannot be isolated. It compares the expected loss from an erroneous release with the cost of holding and reviewing a legitimate payment.

Keywords · oracle risk, conditional payments, payment holds, stablecoin settlement

The case for a scoped hold

An oracle supplies external information to a payment system. A signature authenticates a reporting source while leaving measurement accuracy open. Two reports can agree because both use the same meter or intermediary. The relevant question is whether the evidence is sufficiently reliable for the decision at hand, including whether its age, coverage, and provenance meet the agreement.

A rule for paying, holding, and resuming

Let q be the estimated probability that an obligation is materially incorrect, L the incremental loss from paying it before review, and H the incremental cost of a hold, including delay to the recipient and review. Hold when q × L exceeds H, subject to contractual requirements that override the comparison. Evaluate L relative to post-review payment, net of realistic recovery. When q is poorly identified, apply a documented range and escalate cases that straddle the decision. Separate supported amounts from disputed amounts wherever the contract permits.

A utility invoice has 900 units supported by independent readings and 100 attached to a disputed meter. If the incremental unrecoverable loss on that portion is 80 and its estimated error probability is 0.20, expected loss is 16. A hold costing 8 is justified on those assumptions. Paying the supported 900 can protect the supplier from an unnecessary delay. For a shared reporting outage, assess all obligations relying on that source. A time limit triggers authorized review, and fresh evidence or a recorded adjudication supports release. If a transfer already cleared, reconcile through the agreed adjustment or recovery process.

Application and evaluation

Replay historical decisions using only evidence available at each cutoff. Compare unconditional release, a system-wide pause, and a scoped hold at equal payment volume. Report erroneous releases, days of valid payments held, unresolved exposure, and time to resume. Stress correlated failures and test sensitivity to uncertain error rates. The example is illustrative. A stablecoin can settle an approved amount, while the decision rule also works on conventional rails.

Relationship to earlier papers

The metered-usage paper studies settlement schedules and reconciliations. This paper asks whether to release funds at all while evidence is uncertain. The voucher paper evaluates eligibility enforcement at checkout. Here the unit is an affected obligation and the response can narrow or widen as evidence changes.

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