**SIBIRI INNOVATION (OPC) PVT LTD**
Corporate Architecture · Standards · Engineering Documentation

**DOC REF:** SBR-EVT-004
**VERSION:** 2.2.0
**RELEASE DATE:** September 26, 2026

INTEGRATION ARCHITECTURE VERIFIED STANDARD

# Webhooks, Asynchronous Queues & Event Mesh Runbook

## HMAC-SHA256 Payload Signing, Dead-Letter Queues & Exponential Backoff Retries

| | |
|---|---|
| **Document Scope:** | Event-driven message broker and webhook delivery systems. |
| **Target Audience:** | Integration Architects, Backend Engineers, DevOps Engineers |
| **Classification:** | Public · Royalty-Free Engineering Reference · ISO/IEC Aligned |

## 1. EXECUTIVE SUMMARY & STANDARDS ALIGNMENT

Technical guide for building resilient webhook and queue pipelines. Covers cryptographic HMAC payload verification, Redis/RabbitMQ background workers, exponential backoff retries, and dead-letter queue recovery.

## 2. SECURITY & DELIVERY GUARANTEE

Every outgoing webhook is cryptographically signed using HMAC-SHA256 headers, allowing receivers to verify payload integrity and reject unauthorized forged requests.

- Header `X-Sibiri-Signature` containing hex-encoded HMAC hash of the raw JSON body.
- Automatic retry schedule: 1m, 5m, 15m, 1h, 6h before escalation to dead-letter storage.
- Idempotency keys embedded in every event payload to prevent duplicate processing.

## INSTITUTIONAL GOVERNANCE & ENGINEERING SLA

This document represents the official architectural baseline maintained by SIBIRI INNOVATION (OPC) PVT LTD. All client deliveries, source code handovers, and academic installations adhere strictly to the protocols outlined herein.