VERITY EDGE

Continuity & Backfill Proof Document

Unplanned 73-Hour Outage — Lossless Recovery (v2, 2026-06-11)

Field	Value
Document type	Production continuity evidence (unplanned event)
Site	EU demo server (Hetzner, Helsinki — EU region)
Agent ID	demo-hetzner-01
Site ID	hetzner-demo
Outage start	2026-03-18 ~09:22 UTC
Recovery confirmed	2026-03-21 10:57 UTC
Total offline duration	~73 hours (3 days, 1 hour)
Payloads buffered	8,815
Payloads lost	0
Continuity verdict	PASS — lossless backfill confirmed

1. Overview

This document records an unplanned real-world continuity event on the Verity Edge platform. The agent at the EU demo site was unable to transmit telemetry to the backend for approximately 73 consecutive hours due to a backend authentication misconfiguration. During the entire outage period, the agent buffered all payloads locally using its offline SQLite buffer. Upon resolution, all 8,815 buffered payloads were transmitted and ingested with zero data loss.

This event constitutes unintended but valid production evidence that exceeds the documented acceptance test requirements (30/60/120-minute outage windows).

2. Outage Timeline

Timestamp (UTC)	Event
2026-03-18 09:09	Last successful heartbeat before outage (uptime 7d 0h)
2026-03-18 09:22	First buffered payload — backend returns HTTP 503 db_unavailable
2026-03-18 onward	Agent continues buffering every 30 seconds; queue grows
2026-03-19 – 2026-03-20	Agent operational on-site; all telemetry held in local SQLite buffer
2026-03-21 10:57	Backend authentication resolved; drain begins
2026-03-21 10:57:57	“Buffer drained” logged; first post-recovery OK sent confirmed
2026-03-21 11:01	All backlog sub-queues drained; normal 30-second cadence resumed

3. Evidence Log Excerpts

3.1 Final moments before outage

The following lines confirm the agent was sending normally immediately before the outage:

```
Mar 18 09:08:25  [2026-03-18T09:08:25.630Z]  OK sent - CPU 0%  MEM 14%  DISK 7%  uptime 7d 0h
Mar 18 09:22:56  [2026-03-18T09:22:56.130Z]  X send failed (11 consecutive): HTTP 503: {"error":
Mar 18 09:22:56  [2026-03-18T09:22:56.130Z]  Payload buffered (11 in queue)
```

3.2 Recovery and drain

The following lines confirm lossless backfill upon reconnection:

```
Mar 21 10:57:29  Draining 8815 buffered payload(s)...
Mar 21 10:57:57  Buffer drained
Mar 21 10:57:57  OK sent - CPU 8%   MEM 14%  DISK 7%  uptime 10d 1h
Mar 21 10:57:59  OK sent - CPU 63%  MEM 15%  DISK 7%  uptime 10d 1h
```

4. Acceptance Criteria Comparison

The Verity Edge acceptance test checklist defines three outage windows that must pass for a successful evaluation. This production event exceeded all three:

Test Scenario	Required	This Event	Result
Offline buffer holds	30 minutes	73 hours (146×)	PASS
Offline buffer holds	60 minutes	73 hours (73×)	PASS
Offline buffer holds	120 minutes	73 hours (36.5×)	PASS
Backfill lossless	No missing intervals	8,815 / 8,815 recovered	PASS
Continuity log	No silent gaps	Contiguous timeline confirmed	PASS

5. Buffer Capacity Analysis

The demo server has substantial remaining buffer headroom:

- **Total disk:** 37.23 GB
- **Disk used:** 7.4% (~2.75 GB)
- **Free disk:** ~34.5 GB
- **Buffer consumption rate:** ~200–500 MB per 24 hours (documented ceiling)
- **Estimated maximum buffer duration:** ~68–172 days at current device density

This demonstrates that the offline buffer is not a practical constraint for real-world outage scenarios encountered by SME edge sites.

6. Cause of Outage

The outage was caused by a credential propagation failure in the control-plane database authentication layer following a configuration change — a platform-side issue, not an agent or site-side failure. The agent behaved exactly as designed: it detected the connection failure, activated offline buffering, and recovered automatically when the backend became available.

The control plane has since been migrated to dedicated, EU-sovereign infrastructure (Hetzner, with TimescaleDB), and credential management has been hardened to prevent recurrence. This event validates the offline-resilient architecture under a real, unscripted failure condition.

7. Conclusion

This document provides production evidence that the Verity Edge agent maintained full telemetry continuity across a 73-hour unplanned outage. All 8,815 payloads were recovered without gaps. The agent required no manual intervention to initiate backfill.

This result exceeds the falsifiable acceptance criteria defined in the Verity Edge GA Playbook and the published Acceptance Test Checklist, and constitutes valid chain-of-custody evidence for NIS2 audit purposes.

Attribute	**Value**
Prepared by	Verity Edge (verityedge.eu)
Contact	Braam
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Evidence type	Unplanned production event — agent logs
Classification	Non-confidential / shareable with prospects