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EXECUTIVE BRIEF

Legacy Systems Portfolio Brief

Needletail, CloudWars and eShopOnWeb. Executive decision brief for Meridian Holdings.

MERIDIAN HOLDINGS · EXECUTIVE BRIEF · SURVEY OF 2026-09-06

Read-only legacy systems assessment · Evidence-backed · Local-first methodology

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Legacy Systems Portfolio Brief

Needletail, CloudWars and eShopOnWeb. For the CTO and lead architects.
Reduced from the full engineering Dossier of 2026-09-06.

HOW TO READ THE LABELS

AUTOMATED	Tool-measured. Traceable to a named artifact.
PARTIAL	Tool-measured, then judged by an engineer.
MANUAL	Human work the survey informs but does not perform.
INFERRED	Lifted from code with file and line. States what, not why.

1. The decision

Meridian is asked to fund a Confirm and Characterize phase across all three systems, with a deadline-driven runtime move for eShopOnWeb inside it: interview the five authors who hold the history, resolve 118 package references against a live advisory feed, decide the version policy for the shared library, clear the coding patterns that block testing, pin the ten areas no test reaches, and retarget eShopOnWeb before its runtime leaves support on 2026-11-10.

Planning band: 11 to 20 engineer-weeks. No functional change.

It buys four things: a behavioural baseline on every system, so later changes can be proven; a known rather than unknown security posture; the authors' reasoning on record before it is lost; and uninterrupted vendor support for the one system that still has it. Declining leaves the legacy pair changeable only by unverified edits and puts eShopOnWeb out of support within the quarter.

The survey behind this brief is 58% tool-driven by section weight (4 sections automated, 7 tool-measured and human-judged, 2 manual). Every figure here is evidenced in the full Dossier; section pointers refer to it.

2. What Meridian owns

	NEEDLETAIL	CLOUDWARS	ESHOPONWEB
What it is	Data-access library, 3 modules, 29 files	Web application, 36 modules, 166 files, 7 projects	.NET 8 e-commerce application, 14 modules, 318 files, 10 projects
Age and activity	17 commits, one author, 2016 to 2025	24 commits, three authors, built August 2013, last change April 2015	641 commits, 83 authors, 2017 to 2025; 17 commits since 2024
Runtime status	Library active; test app end of life since 2026-05-12	5 projects maintenance-only; 2 end of life since 2016-01-12	All 10 projects on one target, active, support ends 2026-11-10
Dependency posture	2 packages, behind current, no known advisories	41 packages in pre-SDK manifests; advisories not checked	77 references, centrally versioned; advisories not checked
Verification posture	No tests; 0 of 2 areas reached	No tests; 0 of 7 areas reached	45 test files; 5 of 6 areas reached
Patterns that block change	12, all in one file	14, ten of them static state in the repository class	37, sixteen of them in the one untested area class
Relationships	The library CloudWars consumes	Uses Needletail at a 2013 version, with its own repository layer on top	No dependency on the other two found

Needletail and CloudWars are one problem with two faces. The library is small and still active, but one author wrote it, one 1,691-line file holds every rule it enforces and every pattern that makes it hard to test, and nothing tests it. The application has not changed in eleven years, runs on frameworks that stopped receiving fixes in 2016, keeps its game state in static fields, and consumes the library at a version thirteen years behind.

eShopOnWeb is a different kind of asset: layered, tested, centrally configured, with no platform rewrite among its six opportunities. Its risks are a calendar

(nine weeks of vendor support left), one area that is both untested and the hardest to test, and a history in which 83 authors mostly touched configuration while one person wrote the commercial path. Sections 3 and 7 of the full Dossier carry the figures and the 63 patterns.

3. The three findings that change decisions

By November, nothing in the portfolio is on a fully supported runtime. Three legacy projects are end-of-life already (two CloudWars projects since January 2016, Needletail's test application since May 2026), five CloudWars projects receive fixes only through the Windows lifecycle, and eShopOnWeb's single target leaves support on 2026-11-10. The eShopOnWeb move is one central edit across ten projects; the constraint is time, not scope. Leaving this alone means a disclosed vulnerability in any of those runtimes has no remediation path except in-house patching.

ASSUMPTION, TO BE CONFIRMED

which systems are internet-facing and handle personal or payment data. eShopOnWeb's account, two-factor and public-API surfaces suggest it does, which makes November a compliance date.

Evidence: Section 4a.

Verification is absent where it matters most. No test reaches any of the nine legacy areas, so no change to them, including a security patch, can be shown safe before release.

eShopOnWeb's suite reaches five of six areas; the sixth, its administration client, is also where 16 of its 37 migration-risk patterns sit. Across the portfolio, 63 such patterns must be cleared before behaviour can be pinned: static state in CloudWars' repository class, inline clock and network calls in its web project, directly constructed database connections in Needletail, synchronous waits in eShopOnWeb's admin client. Leaving this alone means every change to the legacy pair and to that client is an unverified edit. Evidence: Sections 4b and 7.

Each system's core is one person's work, and the code says what, not why. Needletail's hottest files are 100% one author's; CloudWars' configuration files 100% and 83% one author's, last touched a decade ago; 22 of eShopOnWeb's 25 concentrated files belong to one author, whose basket, cart and account code is the commercial path, with activity down to 17 commits since 2024. The 168 lifted rules state what the code does, never why, and one is enforced two ways: a catalog price cap of 1000 on one path and 10000 on another, both live. Leaving this alone means the reasoning is lost with the people. Interviews are days of effort and the most perishable item in the plan. Evidence: Sections 4c and 6.

4. The structural question

The portfolio has one architectural decision and one structural fact the architects should hold rather than delegate.

The decision: does CloudWars track Needletail or stay pinned? This is not a consolidation question. CloudWars already uses Needletail; the usage evidence is unambiguous, and CloudWars' repository layer is built on it, not beside it. It is pinned to a 2013 release while the library was still changing in January 2025 and now targets a modern standard with asynchronous interfaces and transactions.

- *Track.* CloudWars gains twelve years of library changes and inherits future package updates. Cost: its 31 repository methods must be characterized first, and their static state made instance-scoped before those tests can run in isolation.
- *Stay pinned.* No work now. Every upstream fix stays missing, and the next security patch to Needletail must be back-ported by hand to a 2013 build.

Recommendation: track, decided formally at the end of Phase 0. The dependency graph favours it, and both projects involved are rated "likely pinnable". Two facts must be confirmed first: whether anything besides CloudWars consumes Needletail (one consumer found; "shared component" implies more), and where the source for the two other Needletail packages CloudWars references lives, since only binaries were found. Evidence: Section 5.

The fact: eShopOnWeb's shared project is the bottom of its graph. Its models, interfaces and authorization constants are consumed from five areas, the domain core references them, and the wave analysis places the project alone in the last of six waves. Any change to it moves last and touches everything. No dependency cycle was found. Evidence: Section 5.

One further judgment: the survey's wave proposals move consumers first, which suits replacement. A runtime retarget of CloudWars' core runs the other way, foundation first; eShopOnWeb's retarget is exempt from wave order because its target is declared once.

5. The calendar

These findings get worse without anyone touching the code.

DATE	WHAT IT IS	STATUS
2016-01-12	End of support for .NET Framework 4.0, target of two CloudWars projects	Passed, ten years ago
2026-05-12	End of support for .NET 9, target of Needletail's test application	Passed, four months before this survey
2026-11-10	End of support for .NET 8, the single target of all ten eShopOnWeb projects	Nine weeks from the survey date
OS-bound	.NET Framework 4.5, target of five CloudWars projects	Maintenance only; follows the Windows lifecycle
April 2015	Last change to CloudWars	Eleven years without a commit; author availability decays with time

The runtime classification comes from an offline snapshot dated 2026-09-03 and treats any runtime whose stated end date has passed as end-of-life. Evidence: Sections 2 and 4a.

6. What we do not know, and what it would take

A static survey cannot see runtime behaviour, production data flows, actual usage, deployment topology or operational practice. Three blind spots are specific to this survey: no package advisory was checked in any system (118 references); the runtime classification is an offline snapshot dated 2026-09-03; and Needletail's code and history come from different checkouts, with three historical components absent from the export.

QUESTION	WHY IT MATTERS	METHOD AND ROUGH COST
Which systems are deployed, where, and on how many hosts?	Decides whether the runtime and advisory findings are live exposure or dormant debt	Ask operations. Hours
Are the five dominant authors available to Meridian?	Every "why" in the plan comes from them	Ask. If not, Phase 0 extends and characterization proceeds at higher risk. Hours
Does anything else consume Needletail?	Decides whether the version policy affects one system or several	Search Meridian's repositories and package feeds. Days

The full list, including fourteen bus-factor questions filed as open knowledge entries, is Section 11 of the full Dossier.

7. Recommended sequence

PHASE	TRACK	WHAT HAPPENS	DELIVERS	HOW YOU WILL KNOW IT WORKS
0. Confirm	All	Interviews; consumer map; advisory resolution; version-policy and price-cap decisions; note triage	The four mechanical opportunities; the version policy written down	Every open question has an owner
1. Characterize	Legacy	Clear the blocking patterns, then pin all nine areas	A characterization suite per area	Survey re-run shows zero legacy test deserts
1e. Characterize	eShopOnWeb	Clear the admin client's blocking patterns; pin it	Zero test deserts; the suite green as a baseline	Survey re-run shows the area reached
2e. Runtime move	eShopOnWeb	Retarget all ten projects to the next long-term-support runtime	Vendor support without a gap	Suite unchanged; done before 2026-11-10
2. Needletail lift	Legacy	Test app off .NET 9; current package published	A supported Needletail	Suite unchanged; a confirmed consumer builds on it
3. CloudWars runtime lift	Legacy	Retarget the end-of-life projects and the core cluster; migrate	All seven projects on supported runtimes	Suite unchanged; zero open advisories

		manifests; remove vendored folders		
4. Platform replacement (conditional)	Legacy	Only if CloudWars has a product future	A CloudWars that can be maintained	Phase 1 suite passes on the new platform

Phases 0, 1, 1e and 2e are the funding decision now. Phases 2 and 3 follow; Phase 4 is decided, not assumed.

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Meridian's intent for CloudWars. If it is to be retired or frozen, Phase 4 does not apply; the rest still does.

Evidence: Sections 8 to 10.

8. Decision requested

Scope. Phases 0, 1, 1e and 2e: interviews with the five dominant authors; a consumer map for Needletail; advisory reports for all 118 package references; a written version policy and a decided price cap; the blocking coding patterns cleared; characterization suites reaching all