Case Study: Metex Limited — a modern website and in-house email marketing for a specialist engineering consultancy

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At a glance

In about a week, K.I.S.S. Rule moved Metex Limited off Squarespace onto its own cloud server, with a modernised website, an in-house email marketing system for around 900 contacts, and a moderated "Ask Barry" question-and-answer feature.

Client	Metex Limited, Katikati, New Zealand
Industry	Engineering consultancy and training (materials, metallurgy, failure analysis)
Challenge	Send regular, compliant email campaigns to ~900 contacts; modernise a Squarespace site the owner could not easily grow
Solution	Self-hosted listmonk mailing system on Amazon SES, a new WordPress site, and a custom "Ask Barry" plugin, all on one AWS server
Results	Live with no downtime for email; 10/10 deliverability test score; automatic bounce and unsubscribe handling; nightly off-site backups
Delivered by	Terry Evans, K.I.S.S. Rule Co. Limited

The client

Metex Limited is a specialist engineering consultancy based near Katikati in the Bay of Plenty. Its founder, Barry, spent four decades in heavy engineering and metal-product manufacturing, specialising in hot forging, heat treatment and failure analysis, before founding Metex in 2017.

Metex advises engineering firms on materials, manufacturing and repair methods, and investigates why metal components fail. It also runs a one-day intensive course, *Failure Prevention & Material Awareness*, for everyone from apprentices and welders to engineering managers.

Barry's clients and past course attendees are his best source of new work. Staying in regular touch with them, without it becoming a chore or a compliance risk, was the heart of this project.

The challenge

Barry wanted to email his contact list every fortnight with training dates and consultancy news. He had around 900 addresses, a Squarespace website, and business email on Google Workspace. He did not have a way to send bulk email that would reach inboxes, stay within the law, and keep the list healthy without constant manual work.

His requirements were clear:

- **Every email must carry working unsubscribe links**, and opt-outs must be honoured immediately, as New Zealand's Unsolicited Electronic Messages Act requires.
- **The list should prune itself.** Dead addresses and spam complaints must be removed automatically, so the emails are not reported as spam.
- **Barry's normal email must not change.** Replies still land in his Google Workspace inbox.
- **Sending should use Amazon's email service (SES)** for strong deliverability and reporting.
- **He wanted to send to some or all of his contacts**, grouped by interest.

As the project grew, two more goals joined the list. The website needed a modern, wider design that Barry could edit himself. And Barry wanted to trial an "Ask Barry" feature: readers send engineering questions, and he publishes the best answers for everyone, without opening the site to spam.

Our approach: prove it first, then build

We proved every part of the system in a test lab before it touched Barry's real contacts or his live website.

1. **Choose proven software, not custom code.** Rather than build a mailing system, we chose **listmonk**, a mature open-source newsletter manager. It already handles lists, templates, unsubscribes, double opt-in and bounce processing. Custom code was kept for the one thing nothing off the shelf did: Ask Barry.
2. **Build a full proof of concept in the lab.** We ran listmonk in Docker on our own test server, sending through our own mail server to 200 fake contacts on a catch-all domain, plus a handful of real reviewer addresses. That let us test every recipient journey safely: subscribing, confirming, unsubscribing, permanent removal and resubscribing.
3. **Check deliverability before going live.** The branded campaign template scored **10 out of 10** on a standard spam-filter test, and passed SPF, DKIM and DMARC checks at Gmail and Outlook.
4. **Give Metex its own infrastructure.** Barry's systems moved into a dedicated AWS account owned by Metex, with its own server, mail service, DNS and backups, completely separate from any other client.
5. **Cut over carefully.** The mailing system, the DNS and finally the website moved in stages, each tested before the next. Links in emails already sent kept working throughout.

What we delivered

Metex now runs three connected services on one secure cloud server that it owns.

A modernised website at metex.co.nz. A clean one-page design in Metex blue, yellow and red, wide on desktop and tidy on phones, with a menu that stays visible as you scroll. Barry edits the text and images himself in WordPress. A plain-English privacy policy covers the New Zealand Privacy Act.

An in-house email marketing system. Barry writes campaigns in a visual editor with a branded Metex template, chooses which interest lists to send to, sends himself a test, and then sends. Every email carries one-click unsubscribe and "manage preferences" links. New subscribers sign up on the website and must confirm by email before receiving anything (double opt-in). Bounced and complained-about addresses are removed automatically. Requests to be removed permanently are respected forever, even if an old spreadsheet is imported again later.

"Ask Barry". Readers send engineering questions through a form protected against bots. Questions arrive privately. Barry answers the most useful ones as public Q&A posts, and readers can discuss them in comments that he approves first. Because it is an experiment, the whole feature switches off and on with one click, without losing anything.

All three are backed up every night to secure off-site storage, along with every setting needed to rebuild the server from scratch.

How Barry uses it day to day

Barry's routine needs no technical knowledge.

- **Sending a newsletter:** log in to the mailing system, create a campaign, write it in the Metex template (adding images if he likes), pick the lists, send a test to himself, then click Start. Around 900 emails go out in about a minute and a half.
- **Answering a question:** a notification email arrives for each new question. He opens it in WordPress, clicks *Create Q&A draft*, writes his answer under "A reader asks…", and publishes. If a question is better answered privately, he simply replies to the email.
- **Approving comments:** comments on Q&A posts wait in a queue until he approves them, with spam already filtered out.
- **Editing the website:** click into the text on the page and type.
- **Removing someone permanently:** a short, documented procedure blocks the address for good rather than deleting it, so it can never be re-added by mistake.

Everything else, including bounces, complaints, unsubscribes, security updates, certificate renewals and backups, happens automatically.

Results

Metex went live on its own infrastructure with no interruption to Barry's email and no broken unsubscribe links.

Area	Outcome
Deliverability	10/10 on a standard spam-filter test; SPF, DKIM and DMARC passing at Gmail and Outlook
Email security	Barry's domain now enforces the strictest DMARC policy (`p=reject`), so spoofed "Metex" email is refused
List hygiene	Hard bounces and spam complaints blocklisted automatically, proven with Amazon's bounce simulator

Area	Outcome
Compliance	Double opt-in for all new subscribers; one-click unsubscribe in every email; permanent-removal requests honoured
Continuity	Unsubscribe links in emails sent before the move kept working throughout the migration
Ask Barry	208 automated tests and 56 end-to-end checks passing before release; one-click on/off
Resilience	Nightly off-site backups of all data and configuration; server proven to recover cleanly after a full restart
Ownership	Everything runs in Metex's own AWS account, with no per-subscriber newsletter fees

Lessons learned

A few things are worth knowing for anyone planning a similar move.

- **Test the whole recipient journey, not just the send.** The most valuable testing was clicking through as a subscriber: confirming, unsubscribing, blocking and coming back. It caught real issues before any client saw them.
- **Keep every domain in an email aligned.** In early testing, Outlook filed a perfectly authenticated email as junk because its sender, reply-to address, links and images used four different domains. In production, everything sits under metex.co.nz.
- **Old emails live on.** Links in emails already sent point at the old system. We kept the old address answering on the new server, so nobody who unsubscribes from an old email is ignored.
- **DNS changes take longer than the settings say.** After moving a .nz domain's nameservers, some networks kept using the old provider for up to 24 hours. During a nameserver move, every record change should be made at both providers until a full day has passed.
- **Browsers remember redirects.** Even after DNS updated, some browsers kept bouncing between the old and new site. Clearing cached files fixed it. Visitors with fresh DNS never saw it.

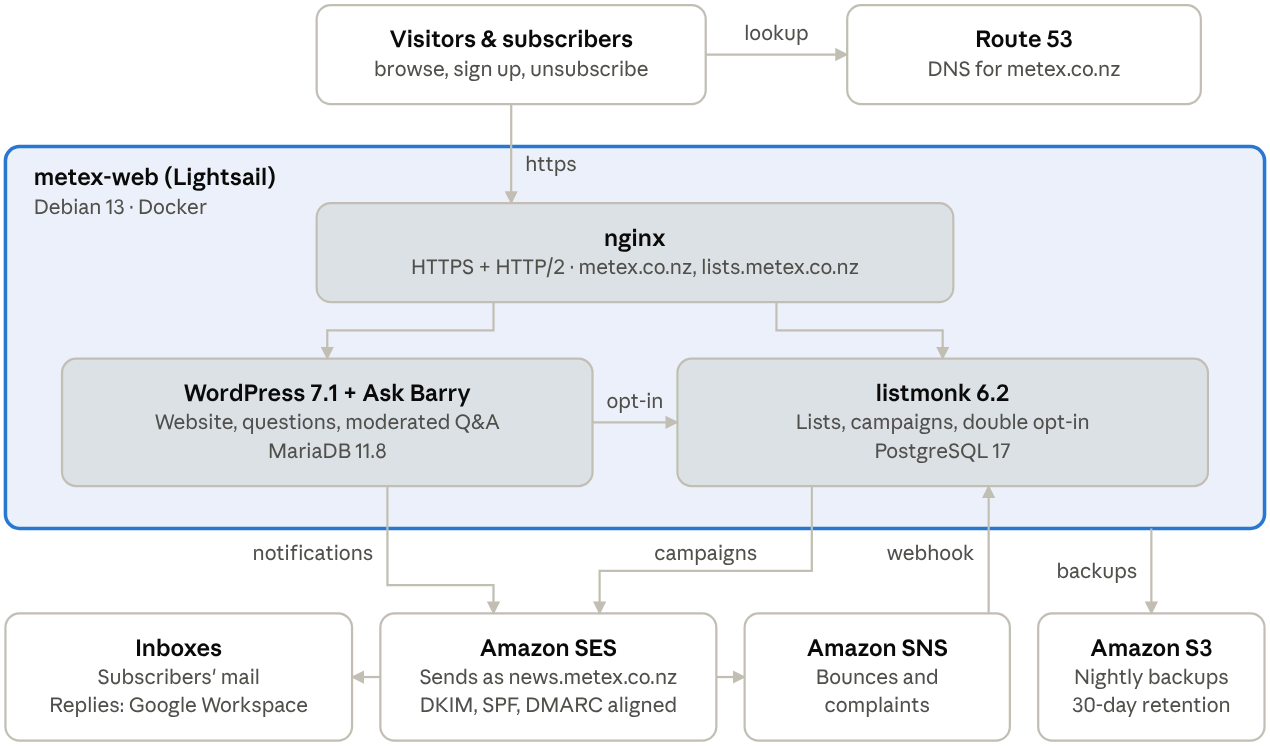
- **Double opt-in should open a page.** Confirming by visiting a page proves a person agreed, and stops corporate link scanners from "confirming" people automatically.

Technical deep dive

For technical readers: everything runs on one Debian server in Metex's own AWS account, with Amazon SES for sending, Route 53 for DNS and S3 for backups.

Architecture

One Metex-owned server; AWS handles sending, DNS and backups



Metex architecture · one server, four AWS services

Visitors reach both sites through nginx; campaigns and site notifications leave through SES, and bounces return through SNS to listmonk.

Hosting

- **Server:** AWS Lightsail, Debian 13, Sydney region, 2 GB RAM plus 2 GB swap. Automatic security updates, with needrestart so patched libraries are what actually runs.

- **Containers:** Docker Engine with Compose. listmonk with PostgreSQL 17, and WordPress with MariaDB 11.8, each its own stack. Every container port is bound to 127.0.0.1, because Docker's published ports otherwise bypass the host firewall.
- **Edge:** nginx on the host terminates TLS (Let's Encrypt via certbot, auto-renewing) and serves HTTP/2. www and the temporary build hostname redirect to the canonical metex.co.nz.

Email authentication and Amazon SES

- Marketing mail is sent from a dedicated subdomain, `news.metex.co.nz`, verified in SES with Easy DKIM (2048-bit) and a custom MAIL FROM (`bounce.news.metex.co.nz`). SPF and DKIM both align under DMARC, while Barry's own mail stays on Google Workspace.
- The root domain enforces DMARC `p=reject`, with aggregate reports monitored in GlockApps.
- listmonk and WordPress each have their **own** SES SMTP credentials, using classic IAM SMTP credentials (not SES Mail Manager), so either can be revoked without affecting the other.

Mailing system: listmonk 6.2

- **Throughput:** listmonk's speed is concurrency × per-worker rate. It's tuned to about 10 messages per second, safely under the SES limit of 14.
- **Bounces and complaints:** SES feedback goes to an SNS topic, which posts to listmonk's webhook. Raw message delivery must be **off**, because listmonk verifies SNS signatures. Hard bounces and complaints blocklist on the first event, verified with the SES mailbox simulator.
- **Consent:** one public, double opt-in list for website signups; private lists for internal segments, populated from JSON attributes via queries. Every message carries RFC 8058 one-click List-Unsubscribe headers. A pre-import script validates CSVs (format, duplicates, role addresses, BOM).
- **Migration:** the lab database moved with `pg_dump` / `pg_restore`, preserving subscriber and campaign IDs. The old list hostname was served by the new server, first via a proxy on the old host while DNS caches expired, then directly with an expanded certificate, so one-click unsubscribes from earlier emails kept landing.
- **Branding:** custom public-page templates (served via `--static-dir`) add a "back to the Metex website" button to confirmation and unsubscribe pages.

Website: WordPress 7.1

- The official WordPress image on PHP 8.4, patched for the October 2026 "php2shell" vulnerabilities.
- Secrets (SMTP, Turnstile) are passed as environment variables into `wp-config` constants, never stored in the database. Theme and plugin file editing is disabled, core updates are automatic, and admins use two-factor login.
- Apache's `remoteip` trusts only the Docker bridge, so rate limits and anti-spam see real visitor IPs. Site email goes through SES via WP Mail SMTP, configured by constants.
- The design is the Twenty Twenty-Five block theme with Metex colours, wide layouts and a sticky header in custom CSS.

The Ask Barry plugin

Ask Barry was built with Claude Code from a written brief: a verify-first phase that checked every assumption against the real WordPress, listmonk and Cloudflare behaviour, then test-first development.

- **Spam defences:** nonces, a honeypot, a signed minimum-time check, Cloudflare Turnstile verified server-side, and salted-hash rate limits. Comments are always held for moderation (compatible with Antispam Bee), and comment posting via the REST API and XML-RPC is blocked.
- **Privacy:** questions are a private post type, never exposed publicly, in search or in the REST API. The plugin registers WordPress personal-data export and erasure for question data.
- **Newsletter opt-in:** the optional checkbox calls listmonk's public subscription API, which sends its own double opt-in email, at most once per address every 30 days.
- **Quality:** 208 automated tests against WordPress 7.1 with the real Antispam Bee, plus 56 end-to-end checks. It ships as a release zip installed via *Upload Plugin*, so the live server has no development tooling.

DNS migration

The zone moved from GoDaddy to Route 53. It was imported from a cleaned zone file, compared record by record against the old provider, and checked for DNSSEC before the nameserver switch. The website cutover was then a single A-record change at a 60-second TTL. Because .nz delegations are cached for 24 hours, the old provider's zone needs to match until a full day has passed.

Backups and operations

A nightly systemd timer produces five archives: the listmonk database and uploads, the WordPress database and files, and a server-configuration archive (compose files, nginx, certificates, custom templates and system settings). They're uploaded to a private S3 bucket in Sydney with a 30-day lifecycle, using an upload-only IAM user. The job fails closed: if any upload fails, it exits with an error, keeps local copies and skips pruning.

Could this work for your business?

If you want to stay in touch with your clients by email without paying per-subscriber fees, or you want your website and mailing list on infrastructure you own, the same approach scales from a sole trader to a membership organisation. We are already applying it to New Zealand bridge clubs.

Talk to Terry Evans at K.I.S.S. Rule Co. Limited: terry@kissrule.com · kissrule.com.