Unifying Engineering and Service to Power Global Growth

How Generac connected engineering, manufacturing and service through a unified digital backbone to support fast, global industrial growth.

Generac Power Systems, Inc. is a global energy technology company that has evolved far beyond its original roots as a residential home-standby generator manufacturer. Over the past 15 years, the business has expanded aggressively through acquisitions and innovation, building a portfolio that spans industrial backup power, grid-support technologies, battery storage, and fully integrated energy ecosystems.

Today, Generac operates in more than 30 countries with multi-plant manufacturing across the United States, Europe, Asia and Latin America, serving hyperscalers, data centers, hospitals, telecommunications networks and critical infrastructure worldwide.

The Challenge: Industry Pressures and Deep Lifecycle Gaps

Generac's rapid evolution into industrial markets brought two powerful pressures to the forefront: the rise of hyperscalers and the aggressive expansion of its product portfolio. Hyperscalers introduced expectations for precision, predictability and lifecycle visibility that far exceeded the capabilities of a dealer-driven operating model. At the same time, portfolio expansion multiplied product variants, configurations and service requirements across dozens of plants and global markets. These pressures didn't simply strain the organization. They also disrupted the service model and exposed structural weaknesses that had been manageable in a smaller business but were now impossible to ignore.

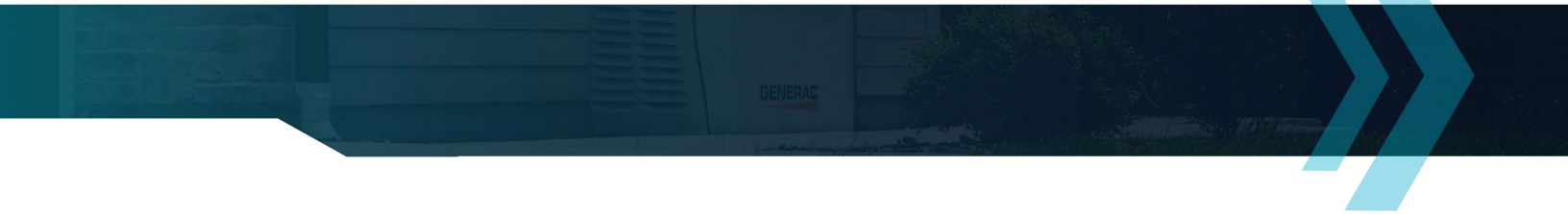
Although Generac already had Windchill in place as a strong engineering backbone, the lifecycle itself was disconnected. Engineering, manufacturing and service were operating in parallel rather than in sequence, each with its own processes, interpretations and data realities. Engineering data lived in Windchill, but service processes were built around copies, reconstructions and manual interpretations of product information. The result was a lifecycle that looked connected on paper but behaved disconnected in practice.

These pressures surfaced several critical issues. Serviceable parts were created without engineering lineage, breaking traceability from the moment they were introduced. Technicians were working from static documents and outdated PDFs, often without authoritative configurations. Leadership lacked lifecycle insight and predictability, making cost control and service readiness reactive rather than intentional.

Multi-plant manufacturing amplified inconsistencies, as regional builds and plant-specific configurations made manual service processes impossible to scale. Even the ERP implementation revealed gaps, requiring changes to support a governed, engineering-derived SBOM approach.

The challenge was not disconnected systems, but rather disconnected lifecycle management. And the pressures of hyperscalers and portfolio complexity made that disconnect untenable. It became clear that Generac was facing a program challenge as much as a technical one. The organization needed a unified, lifecycle-driven way of working that tied engineering, manufacturing and service together from day one.

The human impact also made the urgency unmistakable. Service teams were overwhelmed, launching products without the data required to support them, reacting to issues instead of anticipating them, and firefighting without authoritative information. The pressures of industrial customers collided with the limitations of a disconnected lifecycle, creating a moment of reckoning for the business.



"It was rushed and stressful," Boettcher recalled. "They were putting out one fire while the next one started."

Generac needed a governed, connected, lifecycle-driven operating model that could support hyperscalers, multi-plant manufacturing and a rapidly expanding industrial portfolio. The challenge, therefore, was not simply to fix a process. It was to rebuild the lifecycle itself so the company could grow without adding complexity.

The Solution: A digital thread linking product, service and operations

Generac already had a strong PLM backbone in Windchill, with engineering teams designing in CAD and managing structured product data, but engineering and service were not yet connected through it. The company made a strategic decision to extend that backbone into service and build a true digital thread linking engineering, service, technical publications and downstream systems.

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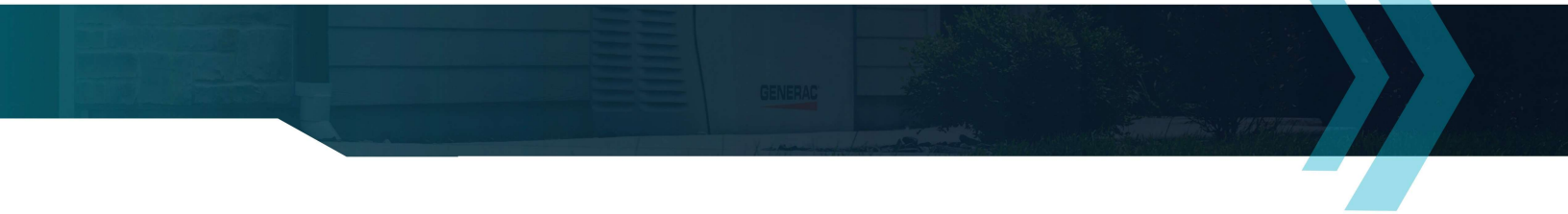
>
> **Michael Boettcher, Systems Administrator, Generac Power Systems, Inc.**

This transformation centered on implementing Windchill Service Parts to create a service BOM (SBOM) directly derived from the engineering BOM (eBOM). This architectural choice ensured that every serviceable part maintained a clear lineage back to engineering while keeping its product context.

"Because the SBOM is derived directly from Creo data in Windchill, our service teams no longer have to interpret or rebuild engineering designs for instructions and parts lists," Boettcher explained. "They get the full engineering context automatically, so no translation, no re-entry and no drift."

Generac also replaced its legacy documentation process with Arbortext, allowing technical publications teams to build and reuse content linked to the SBOM. They can derive illustrations, parts lists and procedures directly from CAD data inside Windchill. Whenever engineering updated a product, service content updated with it without any manual resync or static PDFs.



The company's success hinged not only on technology but on enterprise-level change management. The first attempt at SBOM adoption failed due to unclear workflows and limited buy-in. Without clear workflows, cross-functional ownership or a governed operating model, the initiative stalled. The second attempt succeeded because Generac treated it as an organizational transformation, not a technical rollout.

"Service leadership became co-owners of the operating model," Boettcher said. "That made all the difference. Engineering, service and technical publications collaborated from day one, and every step was validated with real service teams."

Benefits: Accuracy and visibility across every stage of the lifecycle

The impact of Generac's service digital thread has been transformative. Products now launch with complete SBOMs, accurate parts structures, finished illustrations and published service information. Service teams have authoritative data, engineering context and confidence in every part they order or recommend.

"Leadership could finally put real dollars to what service was spending and what they were getting out of it," Boettcher noted. "Our service teams are no longer firefighting."

Traceability has improved dramatically. Every service part now connects directly back to engineering, eliminating guesswork and reducing downstream rework. Arbortext authoring surfaces engineering data issues early, preventing errors from reaching the field.

Reuse across the portfolio has also accelerated, as many of Generac's industrial products share engines, alternators, control systems and enclosures. Once a service structure is validated, it can be reused across similar configurations.

Perhaps most importantly, the digital thread has given Generac the predictability and lifecycle insight required to support industrial customers at scale.

"Before the digital thread, we had no real handle on service part lifecycles," Boettcher said. "Now we can finally manage service lifecycles with intention instead of reaction. We've moved from reacting to problems to anticipating them. Connecting our engineering and service worlds has transformed how we work. We now make decisions based on truth, not interpretation, and that shift has unlocked an entirely new level of performance. It changed our trajectory. We now innovate faster, support customers with greater precision and grow without adding complexity."

Looking Ahead: Driving smarter products through real-world feedback

Generac's service digital thread is now the backbone for a new wave of innovation. The company is implementing Codebeamer to capture the voice of the customer and feed service insights directly back into engineering, completing the lifecycle loop from design to build to service to learning. The digital thread also sets the foundation for online service portals, automated content delivery, richer lifecycle analytics and emerging AI-assisted service experiences.

"Connecting engineering and service through a true digital thread changed everything for us," Boettcher said. "We didn't just fix a process. We rebuilt how we work. With the digital thread in place, our teams are aligned, our data is trusted and we're ready for whatever comes next."

Benefits

- **Connected Engineering-Service Data** - Engineering and service now work from the same governed product data with no drift.
- **Day One Service Readiness** - Products launch with complete SBOMs, illustrations and service content already in place.
- **Full Traceability -** Every service part links directly back to engineering for authoritative accuracy.
- **No Manual Re Entry** - SBOMs derive automatically from Creo data, eliminating translation and rework.
- **Always Current Service Content** - Arbortext updates service documents instantly whenever engineering changes.
- **Fewer Downstream Errors** - Issues surface during development instead of after products reach the field.
- **Reusable Structures** - Validated service structures can be reused across similar product configurations.
- **Leadership Predictability** - Executives now have visibility into readiness, lifecycle costs and change impacts.
- **Proactive Lifecycle Management** - Service teams can plan for obsolescence and manage parts availability intentionally.
- **Scalable Operating Model** - A repeatable digital thread now supports hundreds of products and global teams.

Customer Overview | Generac

Industry	Energy
Headquarters	Waukesha, Wisconsin
Employees	8,000+ worldwide
Revenue	$4 billion
PTC Products	Windchill, Windchill Service Parts, Arbortext, Codebeamer