

VIVIDCLOUD CASE STUDY

Dematic's Control Tower Innovation

Executive Summary

VividCloud partnered with Dematic to modernize the Control Tower platform, a next-generation warehouse intelligence solution. What began as a cloud migration quickly evolved into a comprehensive transformation of both the technical architecture and organizational approach. Through squad-based teams, branch-based deployment, and a scalable multi-tenant design, the project delivered a production-ready MVP in just 10 months. Key achievements included reducing equipment mapping from months to minutes through automated graph database technology, onboarding the first beta customer, and positioning Control Tower as Dematic's flagship product with a growing market pipeline.

Customer Challenge

Dematic faced interconnected organizational and technical hurdles that limited its ability to deliver modern warehouse intelligence solutions. Traditional functional silos caused delays as UI, backend, database, and DevOps teams struggled with coordination. Even small feature updates required complex multi-team choreography, with decision-making slowed by hierarchical escalation. Legacy infrastructure compounded these issues, relying on 50+ separate Tableau deployments and expensive SQL Server backends, each requiring custom maintenance. Data sources were fragmented across hundreds of warehouse systems running varied software and hardware versions.

Deployment processes also introduced chaos. Initially trunk-based, development quickly fractured into seven separate repositories with no standardized environments, resulting in the familiar scenario of code working in development but failing in production. Meanwhile, external pressures mounted: Tableau licensing costs were escalating, customers demanded unified visibility, and Dematic needed to leverage a new Google Cloud partnership while maintaining service to existing clients.



DEMATIC

Dematic is an American supplier of materials handling systems, software, and services.

As part of the KION Group, which generated approximately \$12.4 billion in revenue in 2024, Dematic continues to expand its global footprint and innovation leadership. With over 10,000 employees worldwide and engineering and manufacturing centers across more than 26 countries.

They design, build, and support intelligent automated solutions for manufacturing, food & beverage, warehouse logistics, and retail order fulfillment.

Industry: Robotics and Warehouse Automation

Location: Atlanta, GA

Website: [Dematic.com](https://www.dematic.com)

VividCloud Solution

VividCloud addressed both organizational and technical challenges with a dual-track approach. On the organizational side, functional silos were replaced with cross-functional squads, each owning features end-to-end. This reduced handoffs and empowered teams to deliver faster. Guilds were introduced to preserve technical alignment, with weekly sessions allowing database and ETL experts to share best practices and build consensus.

Branch-based deployment replaced the unstable trunk-based model. Feature work occurred in isolated branches, with systematic promotion through development, staging, and production. Infrastructure-as-Code using Terraform ensured consistent environments, while automated testing and validation gates reduced integration conflicts and deployment risk.

Technically, the solution modernized data ingestion and analytics pipelines. Using Apache Airflow (Cloud Composer) for orchestration, the team managed more than 55 disparate sources, processing billions of rows of data. A medallion data architecture (bronze, silver, gold) supported real-time and batch analytics. Multi-tenant BigQuery datasets with automated schema management simplified scaling across customers.

For IoT and streaming workloads, the platform supported JSON message ingestion from both legacy and modern systems. MQTT, Pub/Sub, and DataFlow enabled real-time telemetry capture, while Cloud Functions provided batch insertion with tenant-level dataset routing. Neo4j graph database technology enabled automated warehouse equipment topology mapping, reducing discovery time from months to minutes.

On the application side, a multi-tenant architecture was built from scratch on Google Cloud using serverless technologies. Twelve microservices exposed over 100 APIs, with security enforced through GCP IAM and Auth0. A single production environment could now serve multiple clients, replacing the costly one-deployment-per-customer model.

VividCloud also emphasized observability and monitoring from the outset. Logging, metrics, and distributed tracing were designed into the platform, giving engineering squads full visibility into system behavior across environments. This proactive approach to monitoring reduced mean time to resolution (MTTR) for issues and provided data-driven insights into performance bottlenecks, ensuring stability as the customer base grew.

Security and compliance were another core priority. The team implemented role-based access controls, secret management, and automated compliance checks to align with Dematic's enterprise standards. By embedding these practices directly into the deployment pipeline, VividCloud delivered not only a scalable and high-performing system but also one that met regulatory and customer security expectations from day one.

Enterprise Data Platform Integration

When an Enterprise Data Platform (EDP) project emerged mid-engagement, VividCloud aligned the two efforts by extending squad methodology. This enabled smooth integration into the medallion data model while preserving Control Tower functionality and avoiding further fragmentation.

Outcomes

The project produced measurable improvements across speed, technical capability, and market traction:

- Delivered a production-ready MVP in 10 months, onboarding Superior Uniform as the first customer.
- Leadership elevated Control Tower to flagship product status.
- Data platform integrated 55+ sources, processing billions of records.
- Automated warehouse mapping reduced topology discovery from months to minutes.
- Near real-time IoT telemetry processing across hundreds of diverse warehouse systems.
- Replaced 50+ Tableau deployments with a unified multi-tenant platform, reducing per-client infrastructure costs.
- Achieved 99%+ uptime with comprehensive monitoring and automated testing.
- Built a customer pipeline with two more signed clients and 12 active negotiations.

Conclusion

The Control Tower initiative demonstrates how organizational change paired with modern cloud-native architectures can unlock new competitive advantages. Cross-functional squads and branch-based deployment eliminated friction, enabling continuous delivery. The resulting platform unified disparate data, delivered near real-time analytics, and introduced automation that dramatically reduced manual processes. From prototype to market-ready solution in under a year, Dematic established Control Tower as a strategic differentiator and a foundation for future growth.

About VividCloud

VividCloud is a software development company focused on cloud and IoT. AWS is our cloud platform of choice, and we are an Advanced Tier APN Services Partner.

We bring fully managed teams that free our clients from day to day oversight responsibilities.

VividCloud is based in Brunswick Maine.

Contact Us



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