ARCHITECTURAL CASE STUDY

Legacy Mainframe Integration

Legacy Infrastructure Does Not Have to Dictate Modern Operational Speed.

Extracting trapped supply chain data from General Motors' CIS system to drive modern, automated production planning.

1. Executive Summary

A Tier-1 automotive supplier operates a job shop managing hundreds of active part numbers, primarily low-volume, Class A sheet metal service parts. Their assemblies require dozens of components, yet critical delivery schedules and inventory data were trapped inside General Motors' legacy CIS mainframe. Intrinsic Systems engineered a custom ERP database from scratch and built a robust automation pipeline that systematically navigates 3270 terminal emulators overnight. This architecture extracts vital IMS data, populates the custom ERP, and generates automated daily reports—eliminating a massive manual bottleneck and establishing flawless, data-driven supply chain visibility.

2. Business Impact

- Replaced weekly EDI assembly schedules with nightly, component-level data refreshes
- Eliminated overnight manual data extraction bottlenecks that were impossible to scale
- Automated a master Production Schedule and a 16-week horizon Weekly Bucket Report
- Optimized warehouse utilization by automatically identifying and relocating slow-moving inventory to more efficient storage
- Aided GM in managing their consigned end-of-lifecycle inventory with precise, up-to-date profiling

3. The Operational Friction

The Tier-1 automotive client manages a highly complex consigned inventory model for General Motors. While some components are just-in-time, others are warehoused at the client's site for years before being assembled. Furthermore, the client needs to manage up to a year's worth of delivery schedules for these complex assemblies.

Before this solution, supply chain planners were flying blind. They received EDI delivery schedules only once a week, and critically, those EDI drops only covered the final assemblies—not the inbound components required to build them. To find component-level schedules, inventory, and lifecycle data, highly-paid staff had to manually query "green-screen" terminal emulators. To achieve the visibility they needed manually, a user would have to traverse six different mainframe screens for over 9,000 parts, while meticulously capturing and recording that data into another database. This manual version of the process would average at least a minute per part—equating to 150 hours of continuous manual labor *every single day*. Because this volume is physically impossible, planners were forced to rely on outdated or incomplete information.

4. The Software Gap

General Motors' CIS system is a legacy mainframe environment. It offers no modern API endpoints, no standard webhooks, and no direct database access. The critical supply chain data is locked behind a 3270 terminal interface designed exclusively for human operators. Compounding the issue, the supplier does not utilize a commercial ERP system; they had no central database capable of housing or structuring this massive influx of component data even if they could extract it.

> ### 5. Operational Software Gap Analysis
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> The supplier's production complexity evolved,
> their inventory management requirements evolved,
> but the OEM's legacy mainframe remained static.
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> This misalignment created an **Operational Software Gap:** a severe disconnect between the real-time, component-level visibility the business required, and the manual, assembly-only data the environment was capable of providing.

6. Architectural Execution

To bridge this gap, Intrinsic Systems engineered a programmatic pipeline capable of interfacing directly with the mainframe and a custom ERP database to process the results.

Custom ERP Database Design: Because the client lacked a commercial ERP, we designed relational database tables from scratch. This custom architecture was specifically engineered to house and structure the complex web of data gleaned from GM's mainframe.

3270 Terminal Automation & Data Pipeline: We deployed an automation layer that natively controls the 3270 emulation software, stripping away the friction of human navigation. Every night, the automation systematically looks up the status and delivery schedule for more than 9,000 parts (combining assemblies and components). For each individual part, the automation navigates six different screens to gather the current inventory level, lead time, delivery schedule, country of origin (necessary for labeling compliance), lifecycle details (such as whether a part replaces another or has been replaced), and detailed notes from both engineering and purchasing.

Even with robotic efficiency, navigating and parsing these tens of thousands of mainframe screens takes almost 3.5 hours to run overnight. However, this translates to a blazing processing speed of

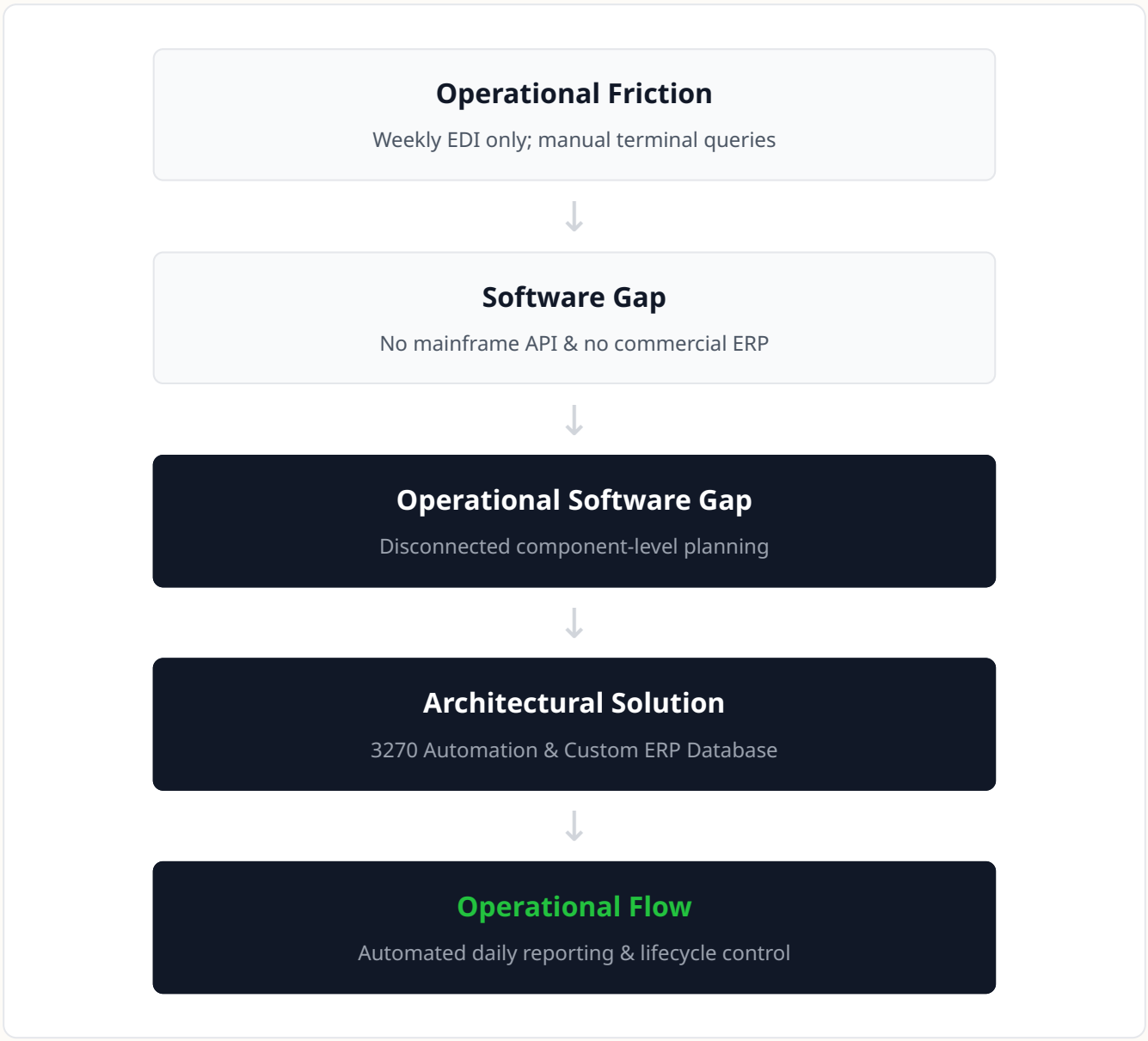
just **1.4 seconds per part**—a fraction of the time a human would require to perform the same sequence.

Automated Reporting Engine: After the nightly automation gathers the latest information, the system automatically runs custom-designed ERP reports so that planners arrive to fully refreshed intelligence every morning.

7. Final Outcomes

Today, the client never waits to know when something changes. They stay focused entirely on what needs attention to keep production moving. The operational transformation delivered two massive capabilities:

- **Production Planning:** A centralized *Production Schedule* report lists each assembly in order of its first due date, detailing the exact status of every required component. Planners also receive a *Weekly Bucket Report* detailing ship-in versus ship-out net inventory for a 16-week horizon, maintaining lean inventory while preventing stock-outs.
- **Warehouse & Lifecycle Management:** Improved inventory lifecycle management had a profound impact on the operation of the nearly 250,000-square-foot warehouse. It became much easier to pick parts for jobs that ran regularly once slow-moving components were permanently identified and moved out of the way. Additionally, vital warehouse space was freed up through a process of automatically identifying end-of-lifecycle parts and actively working with GM to disposition them.


Operational Friction
Weekly EDI only; manual terminal queries
Software Gap
No mainframe API & no commercial ERP
Operational Software Gap
Disconnected component-level planning
Architectural Solution
3270 Automation & Custom ERP Database
Operational Flow
Automated daily reporting & lifecycle control

8. Key Takeaways

- Operational bottlenecks are often caused by software-workflow misalignment.
- Commercial ERP replacement or implementation is not always necessary to achieve operational control.
- Sustainable architecture should avoid vendor lock-in.
- Automation should improve both throughput and traceability.
- Process control requires integrated telemetry; you cannot continuously improve what you do not measure.
- Legacy infrastructure does not have to dictate modern operational speed.
- True lean inventory management is impossible without automated, component-level data visibility.

9. Continue Exploring

Operational Software Gaps
https://intrinsic.systems/software-gaps

The Blueprint
https://intrinsic.systems/approach

Solutions
https://intrinsic.systems/solutions

Schedule a Strategic Assessment
https://intrinsic.systems/contact

specific system constraints and business requirements.