White Paper: Hybrid SAP GATP Integration for Tryders Systems

Bridging SAP ECC and S/4HANA in a Petrochemical Environment

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Executive Summary

Tryders Systems, a multinational petrochemical company specializing in semi-finished and finished products, faces a complex digital transformation challenge. The organization is adopting a phased migration to SAP S/4HANA while retaining its mature SAP APO Global Available-to-Promise (GATP) module on an existing SAP ECC backbone for critical supply chain functions. This white paper outlines a strategic architecture for integrating SAP APO GATP with both SAP ECC and S/4HANA systems concurrently. It examines the role of the Core Interface (CIF), potential redesign necessities, and recommends an optimal planning engine, providing a roadmap for maintaining operational continuity while advancing the S/4HANA journey.

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1. Introduction: The Tryders Systems Challenge

Tryders Systems operates in a volatile petrochemical market characterized by:

- Complex product hierarchies (feedstocks, intermediates, finished polymers/specialty chemicals).
- Global multi-modal logistics (marine, pipeline, rail, bulk trucking).
- Critical constraints: shelf-life, hazardous material regulations, and tank/terminal storage limits.
- High-volume, mixed-mode manufacturing (continuous process, batch).

The decision to phase the S/4HANA upgrade, rather than a "big-bang" cutover, creates a temporary but critical hybrid landscape. GATP, as the nerve center for order promising and allocation management, must function seamlessly across both ERP environments without disruption to customer service.

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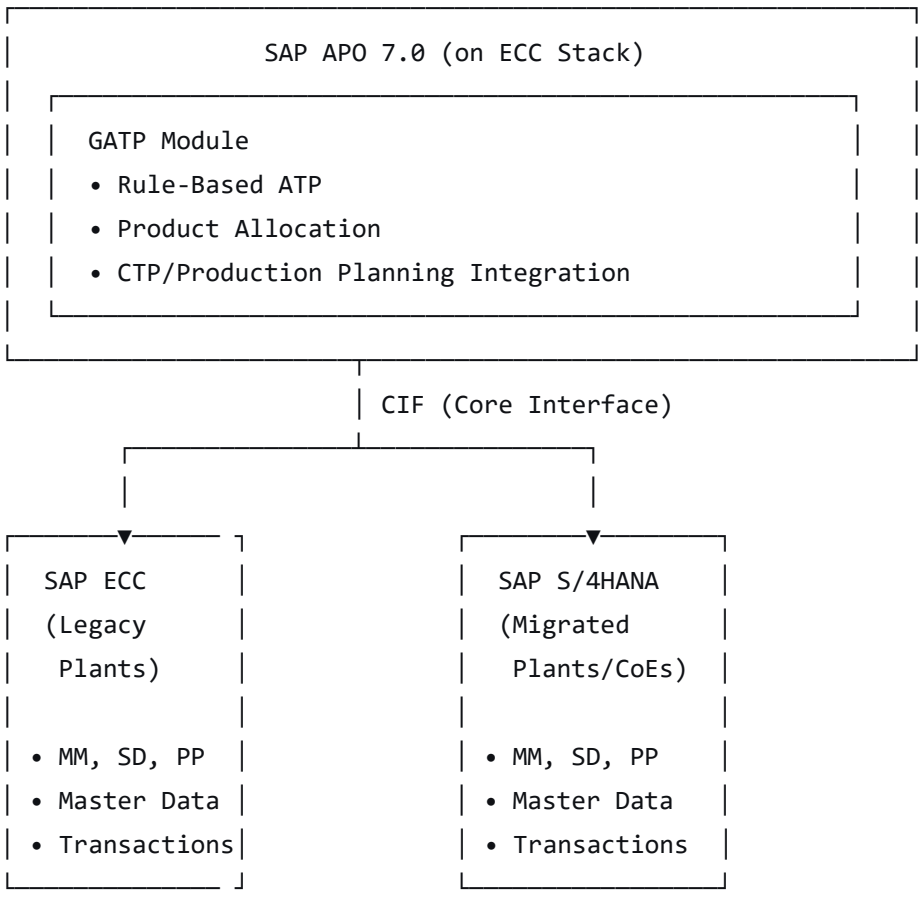
2. Target Hybrid Integration Architecture

The proposed architecture centers on a **single, central SAP APO (ECC-based) system** serving as the system of record for Available-to-Promise, supporting both the legacy ECC plants and the newly migrated S/4HANA plants.



Key Principle: The APO system remains the single source of truth for ATP checks and product allocations during the transition period. Sales orders from both ECC and S/4HANA are routed to APO GATP for consistent rule-based promising.

3. The Role and Redesign of the Core Interface (CIF)

The CIF is the bidirectional integration bus between SAP APO and the ERP systems (both ECC and S/4HANA). In a hybrid state, its configuration becomes paramount.

3.1. CIF in a Hybrid Landscape

- **Multiple RFC Connections:** APO will maintain separate, parallel CIF connections—one to the source ECC system and one to the new S/4HANA system.
- **Logical System Separation:** Each ERP system (ECC and S/4) must have a unique logical system name (LSNAME). APO's `CFM1` transaction will manage integrations to both.
- **Master Data Synchronization:**
    - **Material Masters:** Must be consistently replicated from both ERPs to APO. A clear naming/numbering convention is essential to avoid conflicts.
    - **Locations (Plants, DCs):** All locations involved in GATP must be created in APO with correct source system assignment.
    - **Customer & Product Hierarchy:** Critical for allocation. Must be harmonized across both ERPs before replication to APO to ensure a single allocation pool works correctly.

3.2. Necessity for CIF Redesign

A significant redesign of the CIF integration model is **highly probable** for Tryders Systems, driven by:

1. **S/4HANA Simplified Data Models:** S/4HANA's material ledger (MATDOC), universal journal, and redescribed tables (e.g., `VBAK`, `VBAP` to CDS views) require updated CIF integration models (`/SAPAPO/EXTMODEL`). The standard CIF models for ECC will not fully suffice.
2. **Advanced ATP (aATP) Considerations:** While using classic GATP in APO, planning for a future move to S/4HANA Embedded aATP may influence the design. A clean, modular CIF redesign eases the eventual decommissioning of APO.
3. **Transaction Flow:** The `ATO_PROCESS` (order-to-delivery process) may need customization to handle the different backend system calls for ECC (via `RFC`) vs. S/4HANA (potentially via `ODATA` or `API` for certain functions).
4. **Performance & Queues:** With two active ERP systems pushing changes, the CIF inbound queues (`SAPAPO/CPIC`) and `QOUT`/`QIN` schedulers require monitoring and tuning to handle increased load and prevent bottlenecks.

Recommendation: Implement a **"Dual CIF Bridge"** design. This involves creating two distinct, optimized integration streams—one for ECC (using traditional `ALE`/`IDoc` patterns) and one for S/4HANA (leveraging `Core Data Services (CDS)` views and the `SAP S/4HANA Cloud SDK` or `OData Services` where appropriate). This future-proofs the integration.

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4. Planning Engine Analysis and Recommendation

Choosing the right planning engine within GATP is critical for Tryders' complex constraints.

Feature	Rule-Based ATP (Classic)	Advanced Backorder Processing (BOP)	S/4HANA Embedded aATP (Future State)
Primary Strength	Real-time, sequential check against defined rules.	Post-processing, optimization of existing backlogs.	Real-time, deep integration with S/4 logistics.
Constraint Handling	Good for shelf-life, transportation lanes, quotas.	Excellent for complex multi-level, multi-constraint optimization.	Native handling of S/4 stock, production, procurement.
Allocation Management	Excellent. Core strength of APO GATP.	Can re-plan within allocation boundaries.	Replicates APO-style allocation in S/4.
Integration Complexity (Hybrid)	**LOW** - Mature, works with both ECC & S/4 via CIF.	**MEDIUM** - Requires careful data context from both systems.	**NOT APPLICABLE** - Would require full S/4 move.
Performance	Very fast for single-order checks.	Batch-oriented, for planning runs.	Very fast, leverages HANA in-memory.
Fit for Tryders (Hybrid Phase)	**BEST FIT.** Provides stability, proven logic, and seamless dual-ERP support.	**COMPLEMENTARY.** Use for weekly/monthly allocation optimization and backlog cleansing.	**STRATEGIC TARGET.** Plan for post-migration adoption.

Recommendation: Hybrid Planning Engine Strategy

1. **Primary Engine: Rule-Based ATP:** This should be the workhorse during the hybrid phase. Its maturity and straightforward integration via CIF make it the safest choice for real-time order promising across both ECC and S/4HANA. Existing business rules for petrochemicals (allocations, substitution, shelf-life ATP) will continue uninterrupted.
2. **Secondary Engine: Advanced BOP:** Deploy BOP for periodic (e.g., nightly) optimization runs. It can solve complex bottlenecks that arise from the hybrid landscape—e.g., optimally fulfilling orders when supply is split across ECC and S/4HANA plants, respecting all constraints and maximizing service level.
3. **Roadmap to S/4HANA Embedded aATP:** Initiate a parallel proof-of-concept for S/4HANA Embedded aATP. Develop a business case comparing its capabilities (like HANA-accelerated ATP) against the APO GATP/BOP combination. This prepares Tryders for a structured sunset of APO post full S/4HANA migration.

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5. Implementation Roadmap & Critical Success Factors

1. **Phase 1: Assessment & Design (Months 1-3)**
    - Inventory all GATP rules, allocations, and CTP scenarios.
    - Finalize the Dual CIF Bridge design.
    - Define a clear Material/Location master data governance for the hybrid state.
2. **Phase 2: Build & Test (Months 4-8)**

    - Configure the new CIF connection to S/4HANA.
    - Extend APO master data and planning models to incorporate S/4HANA plants.
    - Rigorously test integrated scenarios: Order from S/4 plant with allocation managed in APO; cross-system substitution; etc.
3. **Phase 3: Pilot & Rollout (Months 9-12)**
    - Pilot with one business unit or region on S/4HANA.
    - Monitor CIF performance and GATP consistency meticulously.
    - Phased rollout to remaining S/4HANA units.
4. **Critical Success Factors:**
    - **Strong Data Governance:** A single, harmonized view of customer and product hierarchy across both ERPs is non-negotiable.
    - **Performance Monitoring:** Implement proactive monitoring for CIF queues, RFC performance, and GATP check times.
    - **Business Process Alignment:** Ensure supply chain planners operate a unified process, agnostic of the underlying ERP system.

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6. Conclusion

For Tryders Systems, a hybrid APO GATP integration is a viable and strategic approach to enable a controlled S/4HANA transition. Success hinges on a deliberate redesign of the CIF into a dual-bridge architecture and the selection of a robust, dual-engine planning strategy leveraging Rule-Based ATP for real-time checks and BOP for optimization. This approach de-risks the transformation, protects the core order promising function, and builds a clear pathway towards the full potential of SAP S/4HANA's supply chain capabilities.

Disclaimer: This document provides a strategic framework. Detailed technical implementation must be scoped and validated through a joint workshop with Tryders Systems' IT and business teams.