



## can we improve bti more this

[Third-Party Systems] → [API Gateway] → [Event Queues/Orchestrator]

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Sanctions	License	Rules	User Mgmt
Screening	Assignment	Engine	Module

↓ ↓

[Central Secure Data Hub]

↓

[Dashboard & Reporting]

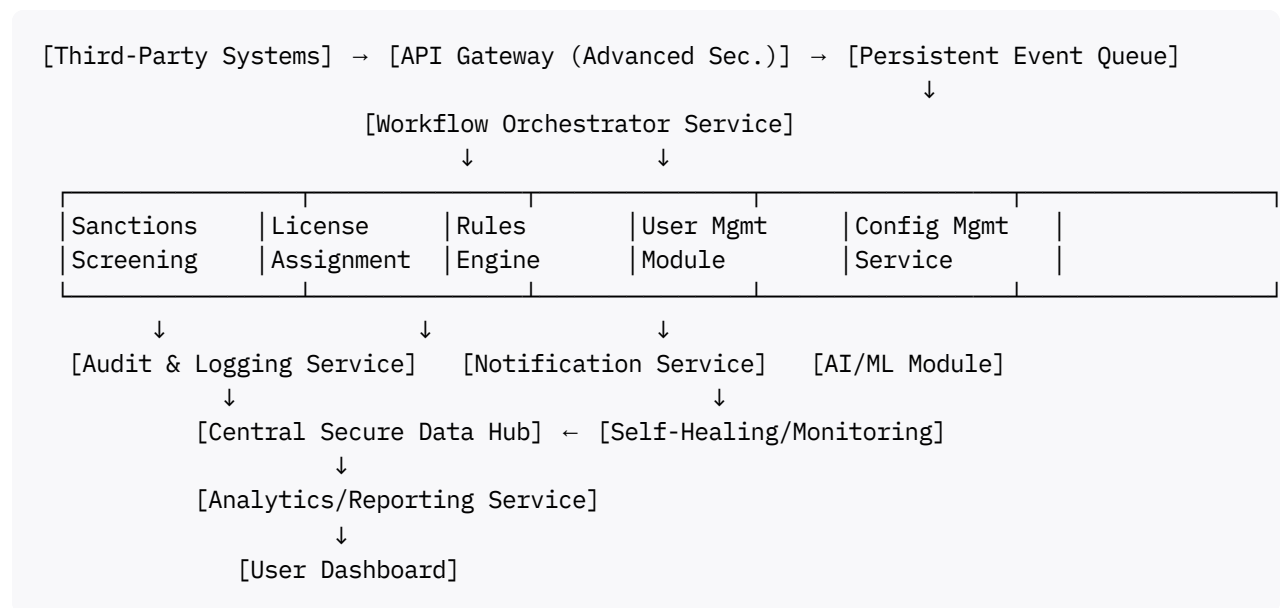
Absolutely—the architecture can be enhanced further for performance, flexibility, security, and ease of future innovation. Here are specific improvements and added modules to consider, along with an updated structure:<sup>[1]</sup> <sup>[2]</sup> <sup>[3]</sup> <sup>[4]</sup>

### Improvements & Expanded Components

- **API Gateway with Advanced Security:**  
Integrate API rate limiting, threat detection (WAF), and granular API access policies for different partners and use cases.<sup>[1]</sup>
- **Event Queues with Message Persistence:**  
Use persistent queues (Kafka, RabbitMQ with disk durability) for reliable processing and replay of events in case of failures or audits.<sup>[3]</sup>
- **Orchestrator Service Layer:**  
Introduce an orchestrator microservice to manage sequence, retries, and complex workflows between services (e.g., can handle multi-step compliance use cases, batching, SAGA patterns for transaction consistency).<sup>[2]</sup>
- **Dedicated Audit & Compliance Logging Service:**  
Separate immutable audit log microservice for all compliance-critical events, supporting regulatory reporting and forensic traceability.<sup>[5]</sup> <sup>[1]</sup>
- **Notification & Webhook Service:**  
Add a microservice for real-time user notifications, configurable webhooks to partners, SMS, or email alerts, supporting complex event-driven compliance notifications.<sup>[3]</sup> <sup>[1]</sup>
- **Data Analytics & Reporting Service:**  
Add a standalone analytics and BI microservice for compliance trends, KPIs, dashboard configurability, and export—decoupled from operational data storage for speed.<sup>[2]</sup> <sup>[1]</sup>

- **AI/ML Module (Optional, Extensible):**  
Provide pluggable endpoints for ML-based risk scoring, fuzzy matching in screening, and anomaly detection—experiment and upgrade without disturbing transactional modules.<sup>[6]</sup>
- **Configuration Management Service:**  
Store dynamic business rules, sanctions sources, and escalation paths independently—supporting real-time adjustment by privileged admins via dashboard UI (no deploy needed for logic changes).<sup>[4]</sup>
- **Self-Healing/Monitoring Module:**  
Include a system health and auto-recovery module: automatically restart failed services, alert ops, and re-route traffic in case of anomalies.<sup>[1]</sup>

## Enhanced Architecture Diagram



## Highlights of This Improved Architecture

- **Reliability:** Persistent queues, orchestrator, and self-healing modules ensure uptime and resilient processing.
- **Security & Traceability:** Dedicated auditing, strict API controls, and all data flows and changes are tamper-evident.
- **Flexibility:** Rules/config changes and AI improvements can be rolled out live—without waiting for a full redeployment.
- **User & Partner Empowerment:** Better analytics, real-time alerts, customizable reporting, and extensive integration options.

This advanced, modular, and scalable layout not only makes your solution robust but also truly unique and capable of agile improvement as compliance requirements evolve.<sup>[5] [2] [3] [1]</sup>

1. <https://redwerk.com/blog/scalable-software-architecture/>
2. <https://itsupplychain.com/top-7-software-architecture-patterns-for-scalable-systems/>
3. <https://www.linkedin.com/pulse/essential-system-design-principles-scalable-role-fault-joel-mutiso-ucp6c>
4. <https://www.linkedin.com/pulse/key-principles-solution-architecture-design-vintageglobal-lxuxe>
5. <https://moldstud.com/articles/p-addressing-compliance-and-legal-considerations-in-technical-architecture>
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