BAC eCommerce – Microservices Architecture with Kafka + Druid (2025)

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User Experience

- Web/App Storefronts
- Livestream Commerce (Douyin/Taobao/Flipkart)
- Social Trust Commerce (Xiaohongshu/RED)
- Group Buying (Pinduoduo/Meesho)
- AR/VR Shopping & Drops
- Diaspora & Cross-Border Portals

Commerce Microservices

- Shopware Headless Core (B2C/B2B/C2C)
- Group Deals, Livestream, UGC, Loyalty, Wallet
- Inventory/Orders/Pricing/Promotions
- Hyperlocal O2O (Stores, Agents, Pickups)
- Payments/BNPL/KYC

Eventing & Data Mesh

- Apache Kafka (event bus, exactly-once where needed)
- Schema Registry (Avro/JSON/Proto)
- Kafka Connect (Debezium CDC from Shopware DB)
- Streams: orders, carts, group-joins, live-clicks, UGC, wallet, logistics

Analytics & Intelligence

- Apache Druid (real-time ingest from Kafka)
- Customer 360 & cohort/CLV dashboards
- AI Recommendations, Personalization, Fraud signals
- Observability: OpenTelemetry → Prometheus/Grafana
- Autonomous IT: Dynatrace/Open-source AIOps (avoid duplication)

State & Storage

- YugabyteDB (global relational, multi-region)
- ScyllaDB (low-latency reads/caches)
- Aerospike/Dragonfly (sessions, counters, wallet hot)
- MinIO (media/UGC/3D assets) + Longhorn/NFS

Network & Orchestration

- Kubernetes (Rancher) + GitLab CI/CD + ArgoCD
- OpenStack (Private Cloud) + Anycast GLB (Voxility + Cloudflare)
- OpenTelemetry, Kyverno/CIS hardening
- uCaaS: SMS/USSD/IVR for O2O & notifications

Updated to include Apache Kafka as the event bus and Apache Druid for real-time analytics, aligned with Shopware headless/microservices and the existing BAC stack.