Connection Pooling

🎱 PgBouncer
Port 6432

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Transaction Pooling
• Max 1000 clients
• Pool size: 50
• Reserve: 10
• Auth: scram-sha-256

50 pooled
connections

Data Persistence Layer

🐘 PostgreSQL 15
Port 5432

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• Documents Table
• Signatures Table
• REPLICA IDENTITY FU
• Logical Replication

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Config:
• wal_level = logical
• max_connections = 200

🔴 Redis 7
Port 6379

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• Document Cache (TTL)
• Analytics Counters
• HyperLogLog (unique views)
• volatile-lru eviction
• AOF persistence

📦 MinIO
Port 9000 (API)
Port 9001 (Console)

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S3-Compatible Storage
• Document Content
• Signature Images
• Bucket: documents

WAL Stream
(logical replication)

CDC Pipeline

🔄 Debezium Connect
Port 8083

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PostgreSQL Connector
• Reads WAL Stream
• Captures Changes
• Publishes to Kafka
• pgoutput plugin

Publish CDC Events
(JSON)

✉ Apache Kafka
Port 9092

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Event Streaming
Topics:
• cdc.documents
• cdc.signatures

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Single broker (dev)

Subscribe
cdc.documents

Event Processing Layer

⚙ Event Processor
Quix Streams

Background Worker
• Transform CDC events
• Filter incomplete data
• Batch to Elasticsearch
• Idempotent indexing

Bulk Index
(async)

🔍 Elastics
Port 92

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Index: docu
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