Atlas Pipeline

Architectural Overview

Basic Atlas Domain Pipeline

A **Basic Atlas Domain Pipeline** contains the following

1) **Atlas message bus API** with domain specific API to publish events (Ticket, Order, Trade, Asset, Position etc)

2) **Event Service/Store** that stores all incoming events. Can replay events and also throttle events based on criteria (ClientID, Event Type, Timeframe etc)

3) **A domain transaction writer** service that persists transaction in a temporal store

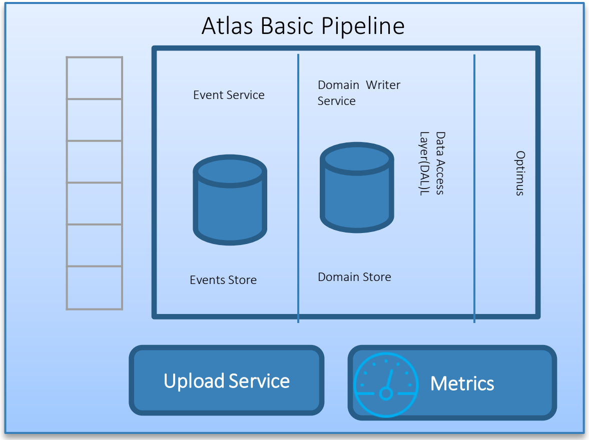
4) **A DAL (Data Access Layer)** that allows access to the underlying transactions

5) **Optimus, a query interface** that allows domain specific queries

6) **Upload service** can upload events/transactions from external sources. (Not built yet)

7) **Pipeline Metrics** recorded and available via system dashboard. (#of events processed per client, event type, throughput etc.)

8) All relevant domain processing data is available in the domain model.



Basic Atlas Domain Pipeline Benefits

A domain pipeline allows us to

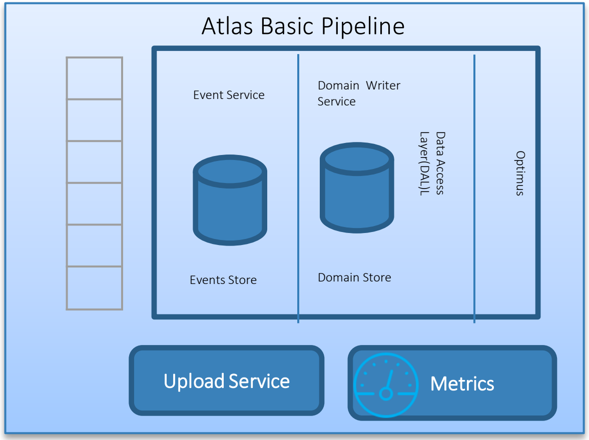
1) Build and deploy domain specific pipelines independently.

2) Plug-in multiple domain pipelines to build more complex pipelines such as Order pipeline, Trade Pipeline, PnL pipeline etc.

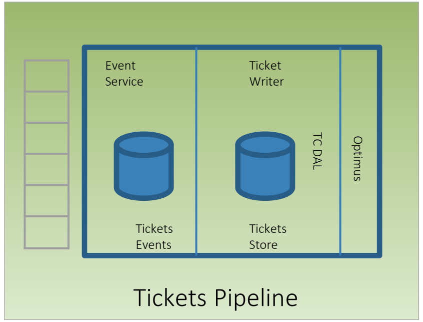
3) Processing of business logic confined to domains with clear interfaces/events for intra-domain interaction.

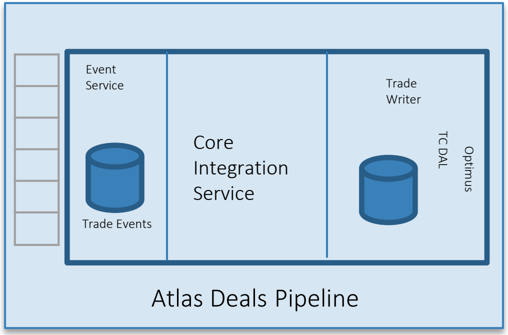
4) Each pipeline can scale independently

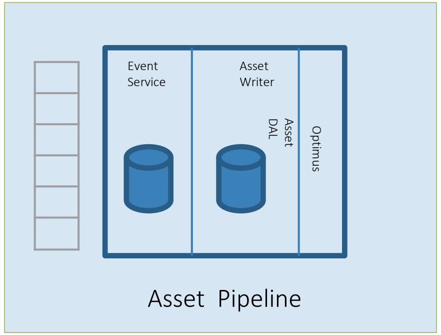
5) Ability to plug-in domain specific business processing logic via services. E.g. Asset Impact Processing service (responsible for applying asset impact due to business events) will be inserted into Asset Domain Pipeline to enrich it with further business processing functions



Current Domain Pipelines Being Built







Ticketing Pipeline

1) Built for TC<GO>

2) Can be used to capture/process any tickets in Atlas.

3) Provides complete audit of changes to a ticket.

Implements Ticketing model

Atlas Deals Pipeline

1) Being built for Atlas IRS POC.

2) Provides deal management functions via core integration service.

3) Will be used for CFD deal management with Core

4) Provides complete audit of changes to a deal contract.

Implements Trade and Deal Model

Atlas Asset Pipeline

1) Being built for Atlas CFD.

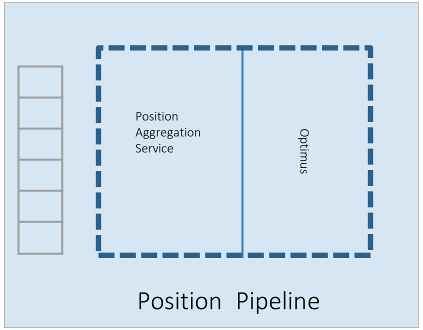
2) Provides asset servicing

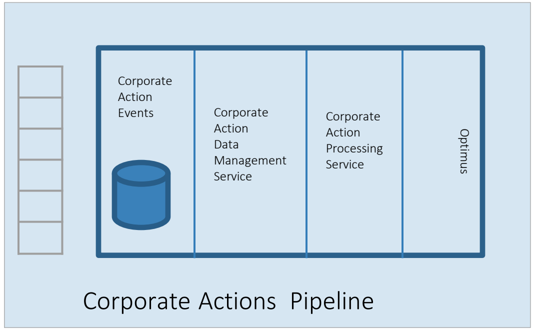
3) Records versioned transactions that is used for Position and Pnl

Implements the Asset Model

Complete	🟩
In Progress	🟦

Current Domain Pipelines Being Built




Corporate Action Events
Corporate Action Data Management Service
Corporate Action Processing Service
Optimus
Corporate Actions Pipeline

Atlas Position Pipeline

1) Being built for Atlas CFD initiative as a skeleton pipeline for now.

2)Aggregates positions on-the-fly based on asset events

Atlas Corporate Pipeline

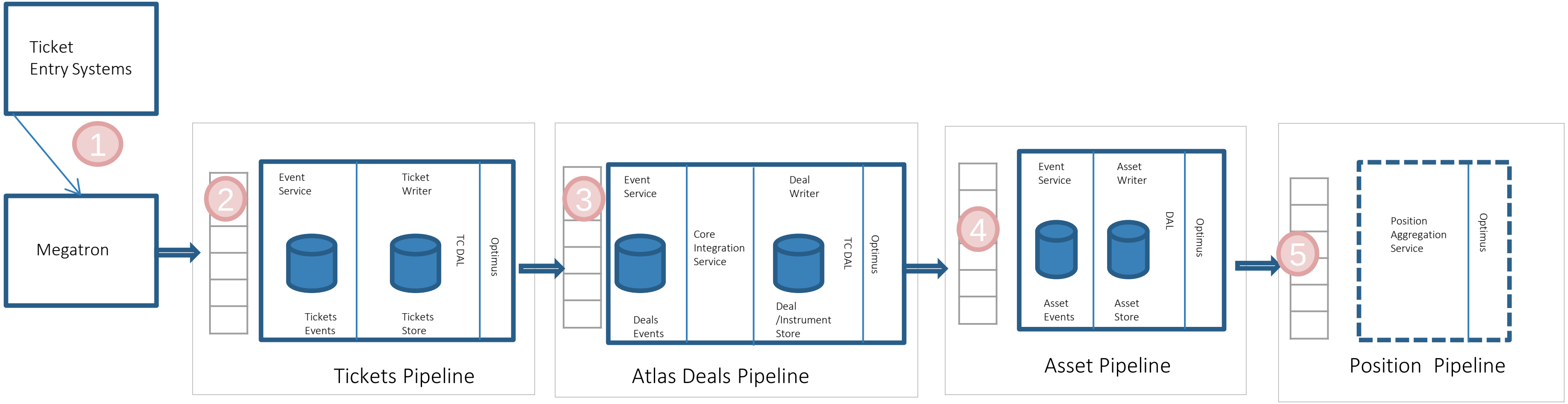
1) Being built for Atlas CFD initiative.

2) CA Data Management Service - fetches & cleanses CA Announcement Terms from Core source.

3) CA Processing Service – applies asset impact.

Implements Corporate Actions Data Model

CFD Pipeline



1. A ticket message gets converted to ***Atlas Ticket event*** and fed into the Atlas Ticketing pipeline.

2. Atlas Ticket pipeline captures the ticket in Atlas ticket domain and forwards it to Atlas Deal pipeline.

3. 3.1 Atlas deal pipeline uses the ticket event to create a new CFD Deal (Contract) using ***Core Derivatives Service*** and saves deal ID/version and terms in Deal /Instrument domain.
   3.2 After saving the deal it forwards the enriched ticket message with Deal ID filled in and uses Optimus to create an Asset Event that gets forwarded to Asset pipeline. An enriched ticket with deal ID filled in also gets forwarded to the ticket pipeline and saved as a new version.

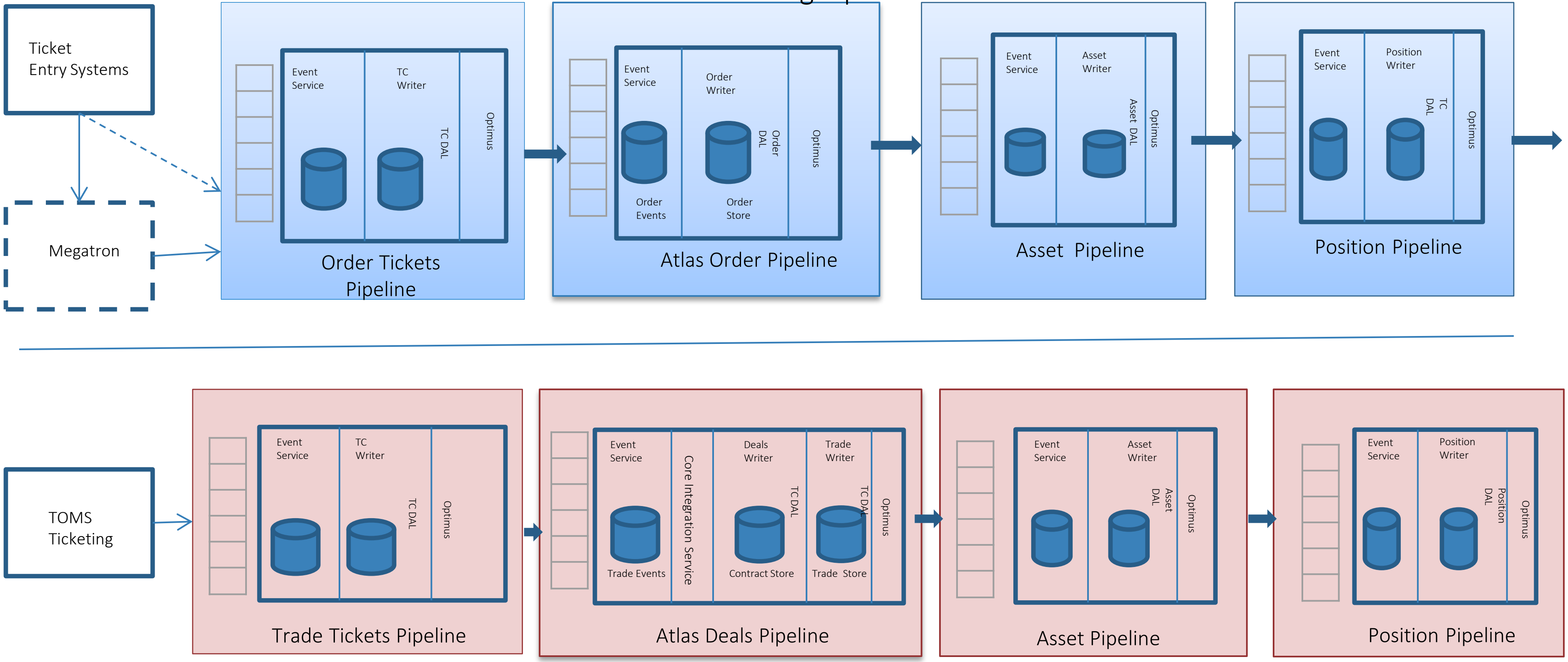
4. Atlas Asset pipeline receives a asset event, creates the necessary Asset and forwards the asset event to position keeping service.

5. Once position keeping processes the Asset event it is forwarded to downstream.

Note: we need to figure out CFD Deal Matching Service for closing a CFD deal

Production Build Future

Order Processing Pipeline



Ticket Entry Systems

Megatron

Order Tickets Pipeline

Event Service

TC Writer

TC DAL

Optimus

Atlas Order Pipeline

Event Service

Order Events

Order Writer

Order DAL

Order Store

Optimus

Asset Pipeline

Event Service

Asset Writer

Asset DAL

Optimus

Position Pipeline

Event Service

Position Writer

TC DAL

Optimus

TOMS Ticketing

Trade Tickets Pipeline

Event Service

TC Writer

TC DAL

Optimus

Atlas Deals Pipeline

Event Service

Trade Events

Core Integration Service

Deals Writer

TC DAL

Contract Store

Trade Writer

TC DAL

Trade Store

Optimus

Asset Pipeline

Event Service

Asset Writer

Asset DAL

Optimus

Position Pipeline

Event Service

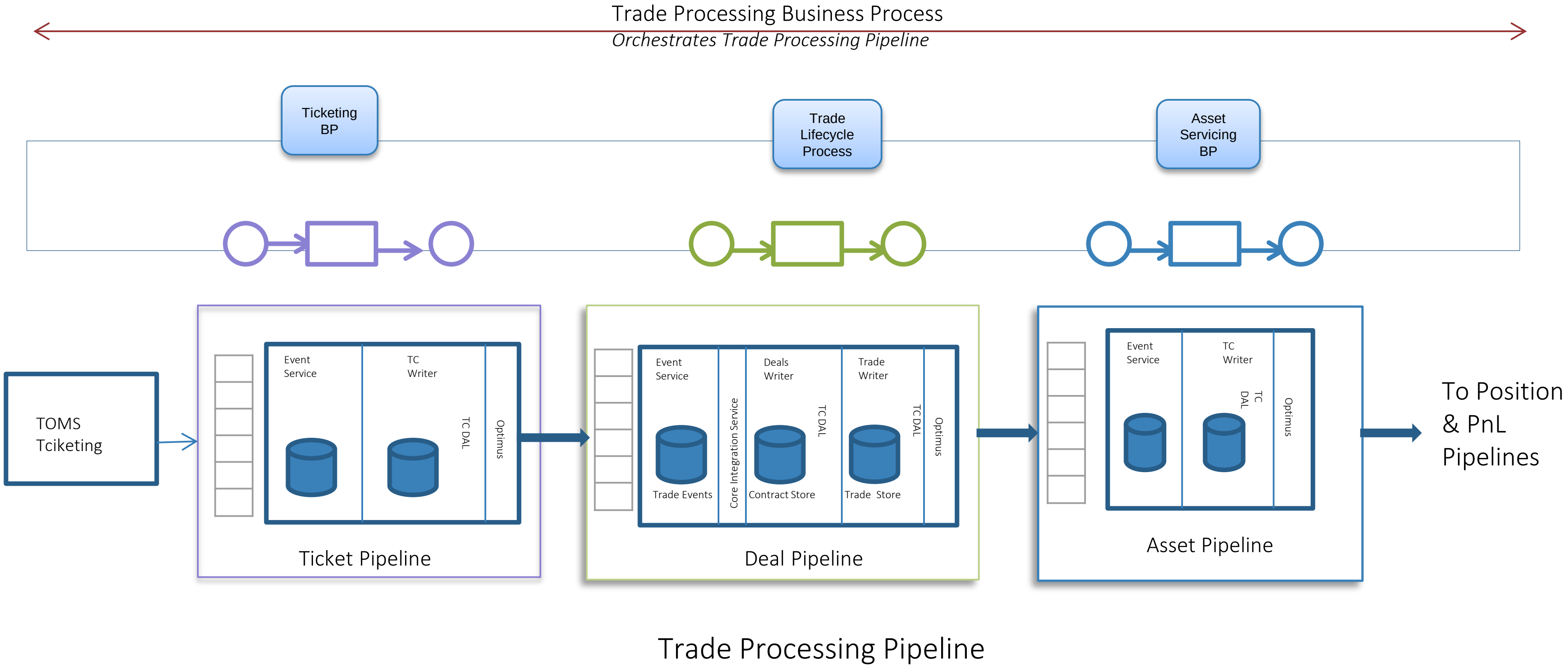
Position Writer

Position DAL

Optimus

Trade Processing Pipeline

Future Production Builds with Orchestration



APPENDIX