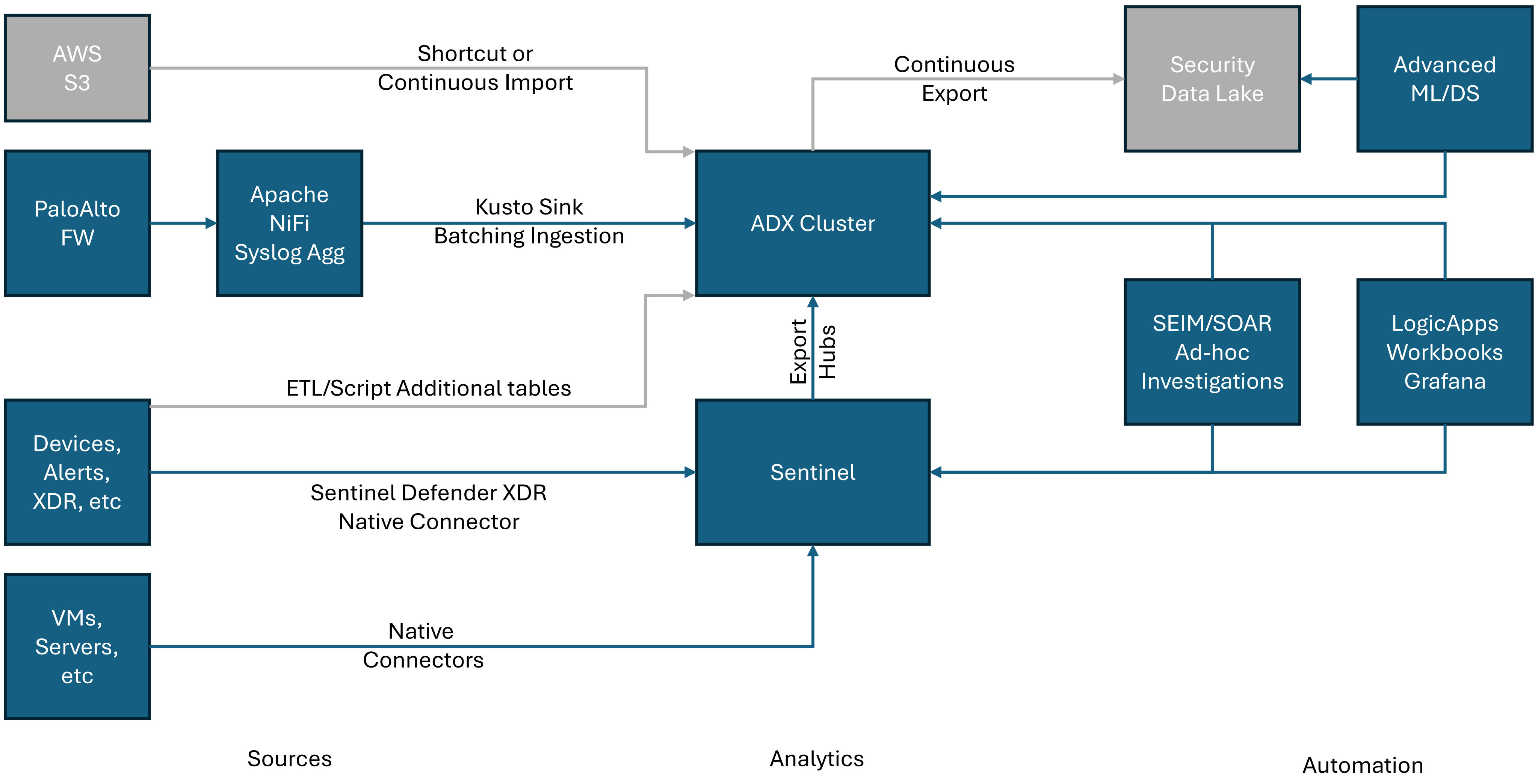
# Cloud Accelerate Factory (CAF)
# ILZ Fed Customer

Real-Time Intelligence Nomination

Partner: Cloud Fit Software

# High-level Architecture Diagram

## Cyber Workflow w/ available features in Gov Cloud



AWS S3
Shortcut or Continuous Import
PaloAlto FW
Apache NiFi Syslog Agg
Kusto Sink Batching Ingestion
ADX Cluster
Continuous Export
Security Data Lake
Advanced ML/DS
ETL/Script Additional tables
Export Hubs
SEIM/SOAR Ad-hoc Investigations
LogicApps Workbooks Grafana
Devices, Alerts, XDR, etc
Sentinel Defender XDR Native Connector
Sentinel
VMs, Servers, etc
Native Connectors
Sources
Analytics
Automation

# Sentinel + ADX

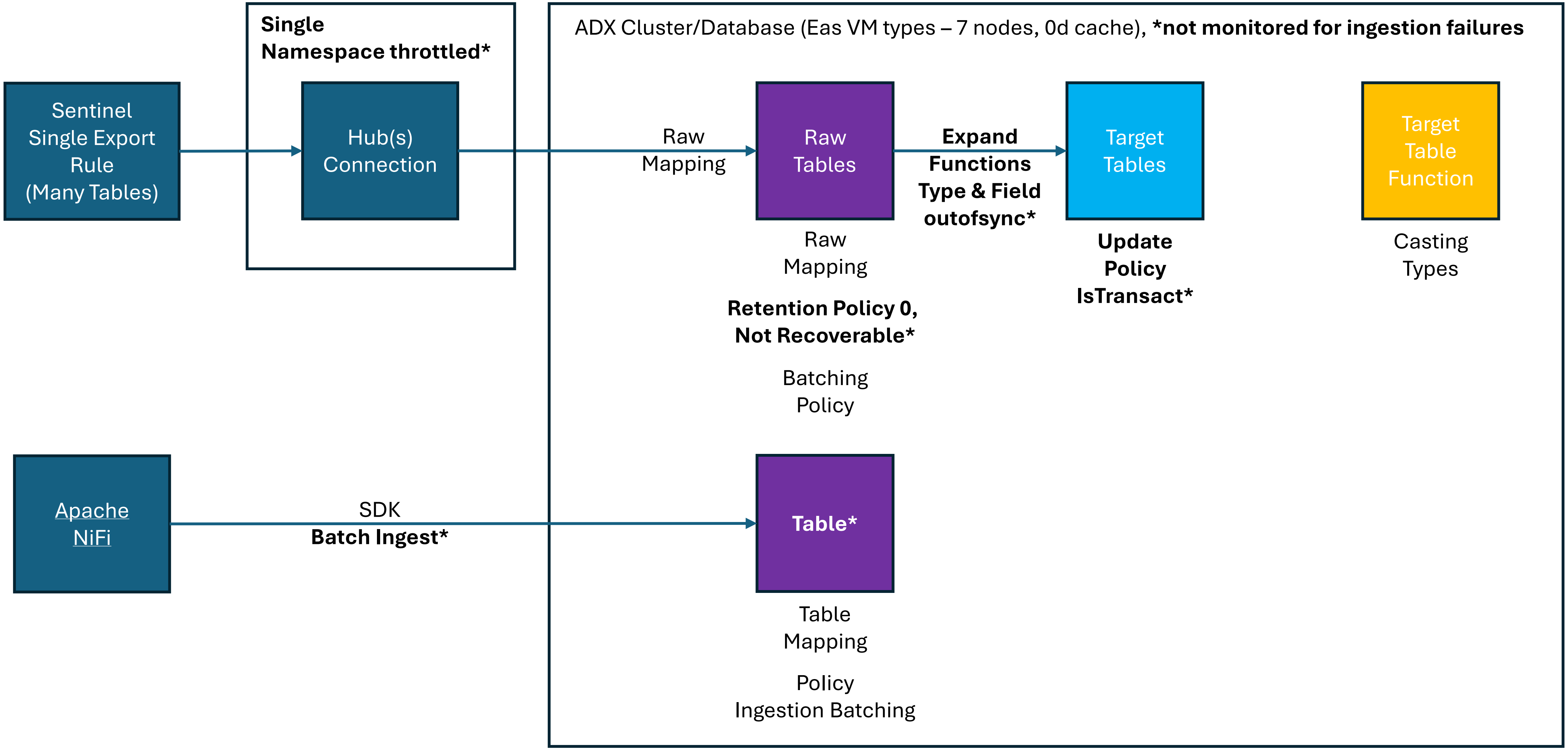
## Considerations

- Limit 10 export rules per LAW workspace (10-20 tables per rule), one hubs per table, many hubs per namespace. Reference Sentinel Tools ADX guide.
- Sentinel Export API payloads differs Sentinel table schemas as some columns are internal for Sentinel-only billing.
- Sentinel custom tables are not supported by Continuous Export feature.
- Use premium hubs and **monitor** for throttling.
- Scale by adding partitions, PUs, namespaces and/or hubs.
- Sentinel data not intended to ever be read/queried should be exported to blob storage to lower costs, instead of hubs & ADX.
- Land data raw then use update policy to flatten. If you choose to flatten on ingestion is simpler but use DropMappedFields mapping option to catch full record. Objective is to have ability to revert to the full-record.
- Minimize caching for raw layer. Maximize caching for silver & gold layers. ie. Target tables or materialized-views used for queries/reporting.
- Increase retention policy.
- Use Las vm-sku types if available in your region. Scale by adding nodes.
- Enable diagnostics and Optimized Auto-Scale.
- Monitor ADX using system views, Insights Blade and Azure Advisor.

*** Issues**

# ADX Dataflow (Before)

## Cyber Workflow w/ available features in Gov Cloud



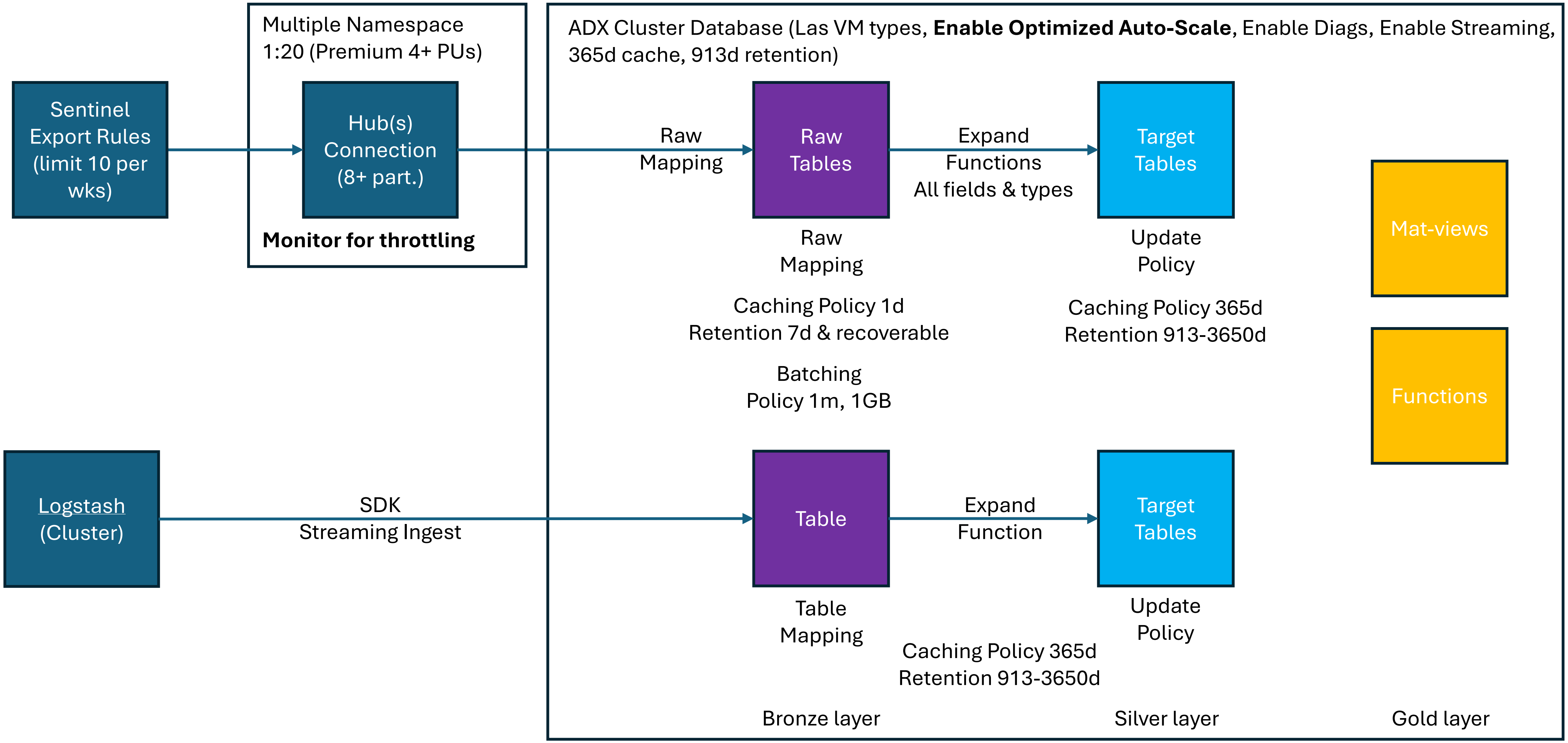
**Single Namespace throttled***

ADX Cluster/Database (Eas VM types – 7 nodes, 0d cache), ***not monitored for ingestion failures**

Sentinel Single Export Rule (Many Tables)
Hub(s) Connection
Raw Mapping
Raw Tables
**Expand Functions Type & Field outofsync***
Target Tables
Target Table Function
Raw Mapping
**Retention Policy 0, Not Recoverable***
Batching Policy
**Update Policy IsTransact***
Casting Types
Apache NiFi
SDK
**Batch Ingest***
**Table***
Table Mapping
Policy Ingestion Batching

# ADX Dataflow (After)

## Cyber Workflow w/ available features in Gov Cloud



Sentinel Export Rules (limit 10 per wks)

Multiple Namespace 1:20 (Premium 4+ PUs)

Hub(s) Connection (8+ part.)

**Monitor for throttling**

ADX Cluster Database (Las VM types, **Enable Optimized Auto-Scale**, Enable Diags, Enable Streaming, 365d cache, 913d retention)

Raw Mapping

Raw Tables

Raw Mapping

Caching Policy 1d
Retention 7d & recoverable

Batching Policy 1m, 1GB

Expand Functions All fields & types

Target Tables

Update Policy

Caching Policy 365d
Retention 913-3650d

Mat-views

Functions

Logstash (Cluster)

SDK Streaming Ingest

Table

Table Mapping

Expand Function

Target Tables

Update Policy

Caching Policy 365d
Retention 913-3650d

Bronze layer

Silver layer

Gold layer

**Presidential Mandate:** 12 months hot, 30 months cold. Guidance for Implementing M-21-31: Improving the Federal Government's Investigative and Remediation Capabilities, M-21-31

# Validations

- Get count for both systems (Sentinel vs ADX) where ingestion_time()>=ago(10m). This should match…very very closely in reference to the particular exported table. ie.

rawtable … targettable | where ingestion_time() >=(10m) | count

- PS > LAW table 50 cols > get schema > generates expand function dynamically. > generates the target dynamically.
- LAW Export API > outputs payload schema > raw > expect the expand function > flatten all fields to target.
- Raw Payload if 43 > all 43 fields expanded to target. (Get Data UI preview should show them populated for a recent raw json, therefore target should show them populated also)
- Check table(s) retention, cache, update policy is(not)transact, hub partitions, namespace is prem/stand – sku, PUs, etc, check for requests, **throttling**.
- Check adx metric insights blade – no failures and using system view .show ingestion failures | where FailedOn >=ago(10m)
- Scripts located here.

# Training Resources

These resources are available as self-guided or can be MS-proctored in a workshop setting.

- aka.ms/adx.docs > see Training card
- detective.kusto.io (can be proctored as a workshop event using aka.ms/kdahackathon)
- aka.ms/adxinaday
- aka.ms/adx.pluralsight (free-benefit)
- ADX with Azure Sentinel (MS-Internal asset)
- ADX Value Based Deliveries (MS-Internal VBDs)