Oct 5, 2021

IICS CDI-Elastic & Advance Serverless

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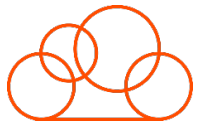
Housekeeping Tips

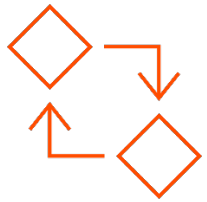
- Today's Webinar is scheduled for 1 hour
- The session will include a webcast and then your questions will be answered live at the end of the presentation
- All dial-in participants will be muted to enable the speakers to present without interruption
- Questions can be submitted to "All Panelists" via the Q&A option and we will respond at the end of the presentation
- The webinar is being recorded and will be available on our INFASupport YouTube channel and Success Portal - where you can download the slide deck for the presentation. The link to the recording will be emailed as well.
- Please take time to complete the post-webinar survey and provide your feedback and suggestions for upcoming topics.

Feature Rich Success Portal



Bootstrap trial and POC Customers

Enriched Customer Onboarding experience



Product Learning Paths and Weekly Expert Sessions

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Success Portal

https://success.informatica.com

Communities & Support

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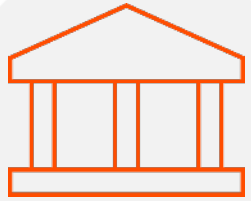
Documentation

https://docs.informatica.com



University

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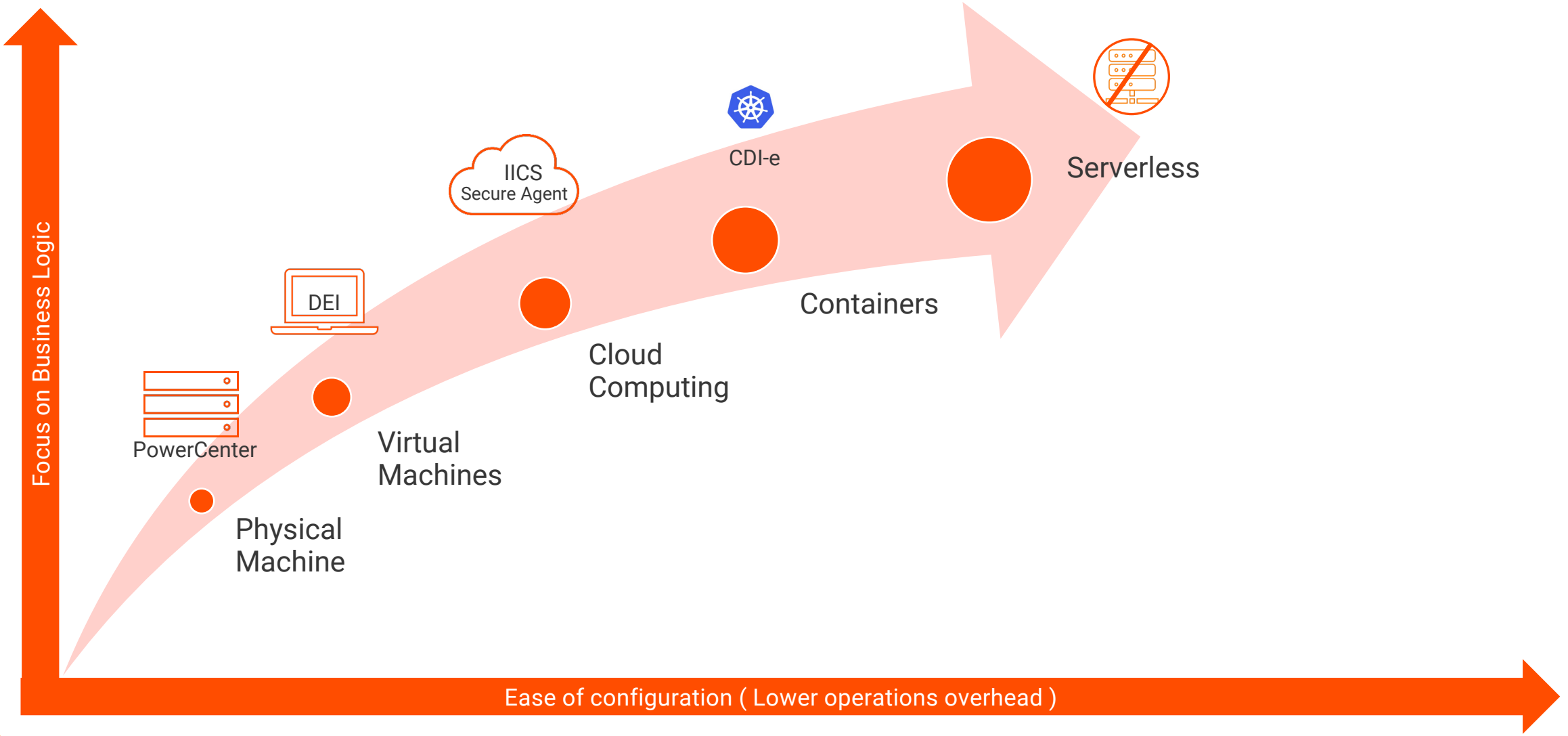
Agenda

- Introduction
- CDI-E & Advance Serverless
- Elastic architecture & Execution Flow
- Elastic cluster & Lifecycle of cluster
- Advance Serverless
- Auto Scaling
- Overview of performance benchmarking
- Demo
- Q&A

Introduction

Paradigm Shift in Computing Evolution



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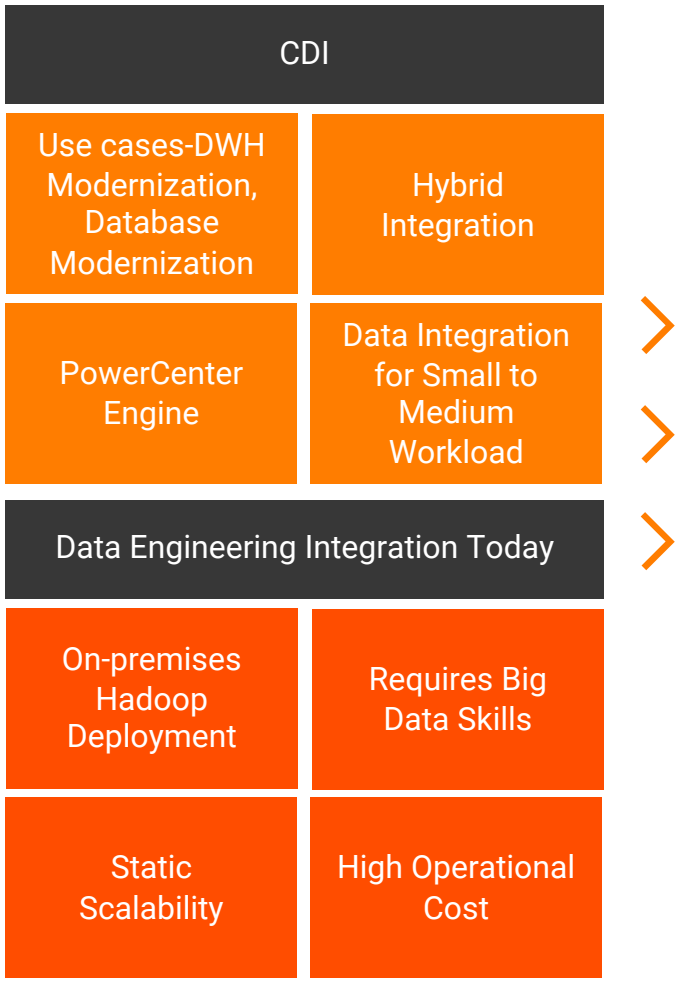
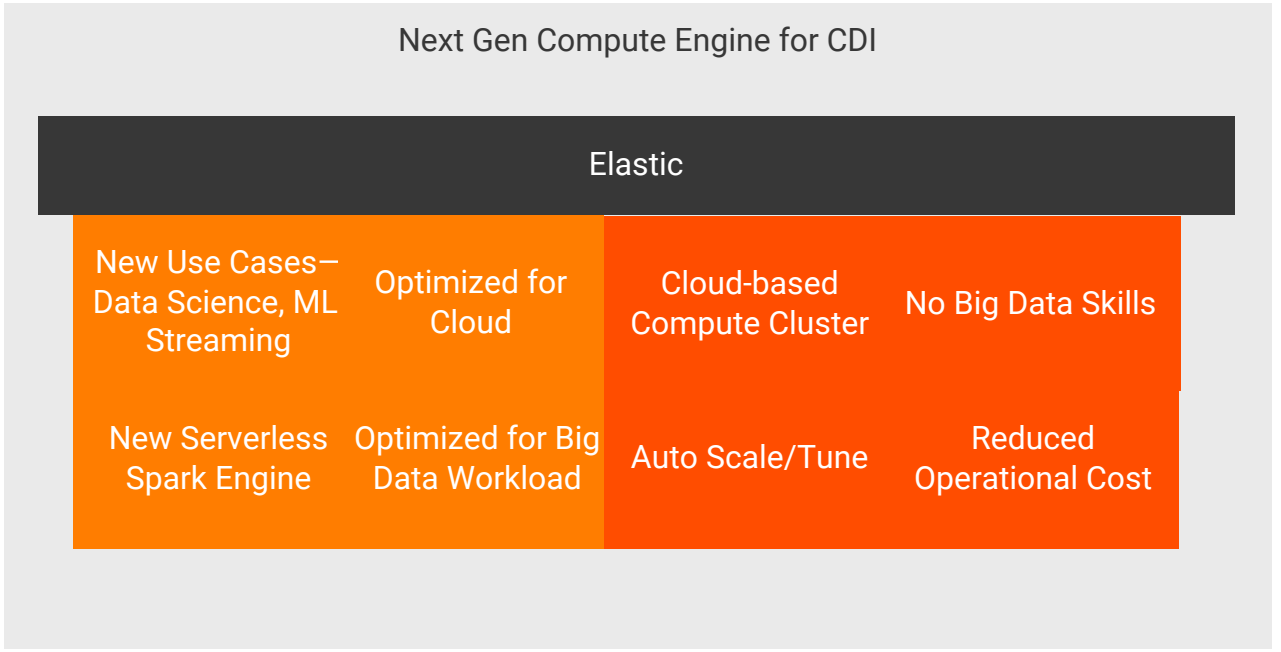
CDI-Elastic evolution





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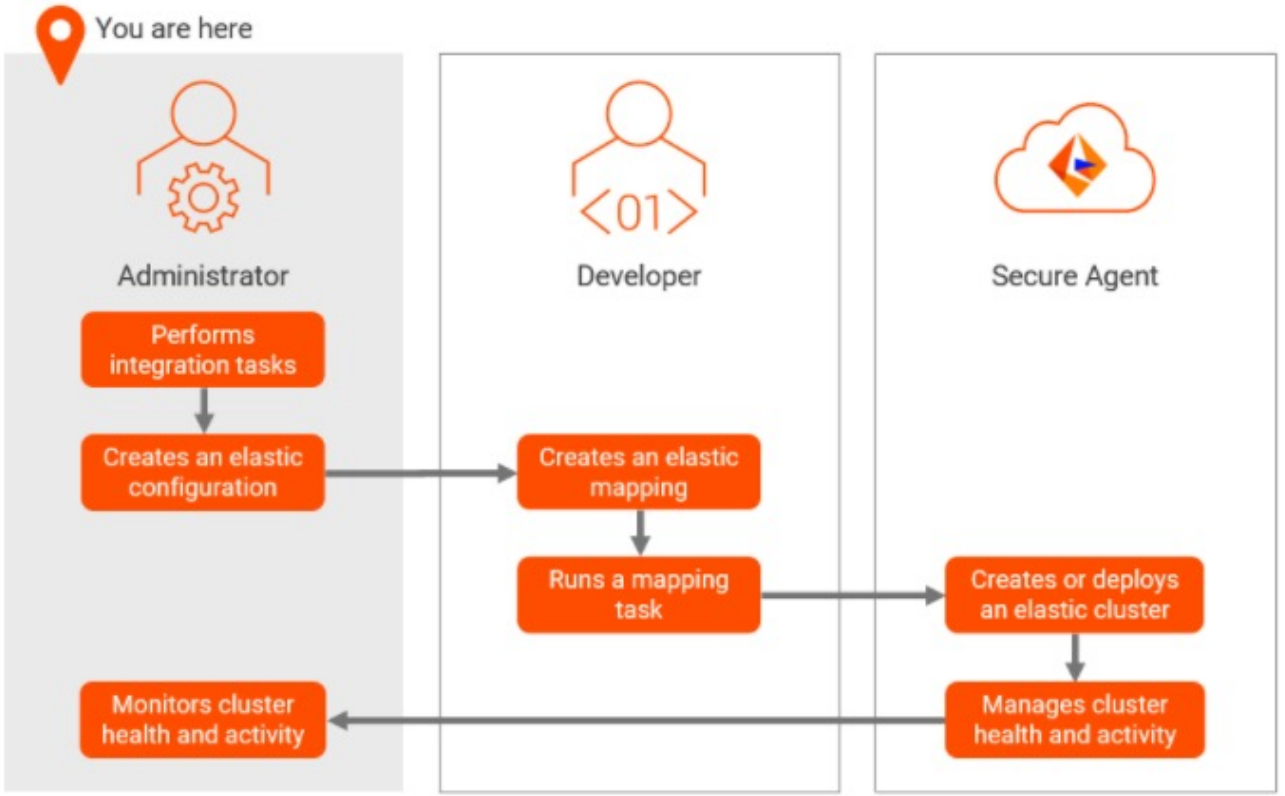
CDI-Elastic

- Data Integration Elastic allows an user to run elastic jobs in a fully managed environment.
- The Elastic clusters allow Auto Scaling thereby reducing server maintenance activities and operational costs.
- Developers need to only design & run the flow, the management would be done by an auto scale cluster
- Preferred for Med-High workload data volume
- Available on AWS, Azure & GCP
- Supports CDI-E, CDQ-E



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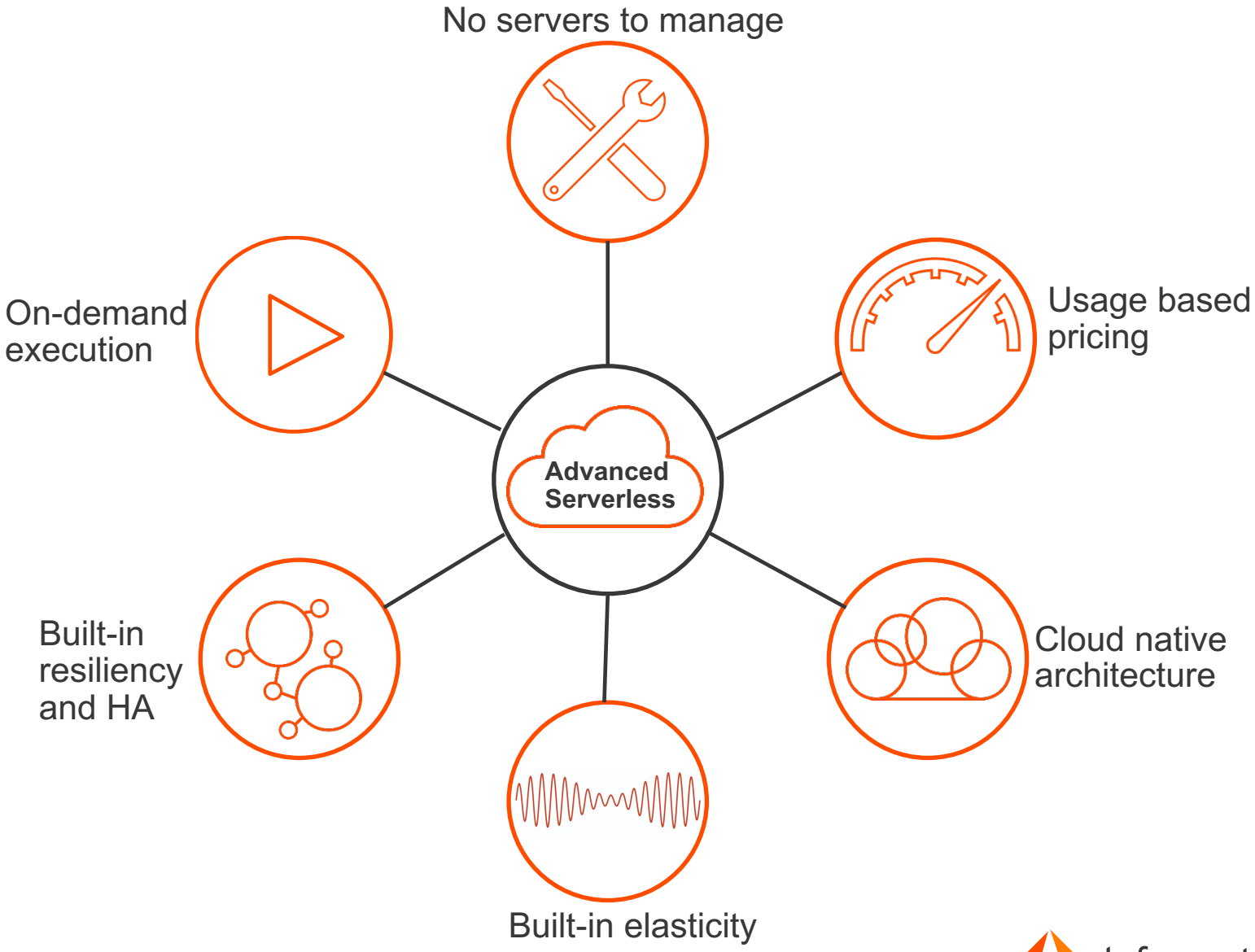
Advanced Serverless

- No servers to manage. Informatica manages both agent & server
- Demand/Event driven Continuous Scaling
- Built-in resiliency and high availability
- Consumption based pricing
- Built in elasticity
- Cloud native architecture
- Preferred for both Low-Med & Med-High workload volume
- Supports CDI, CDI-E, CDQ



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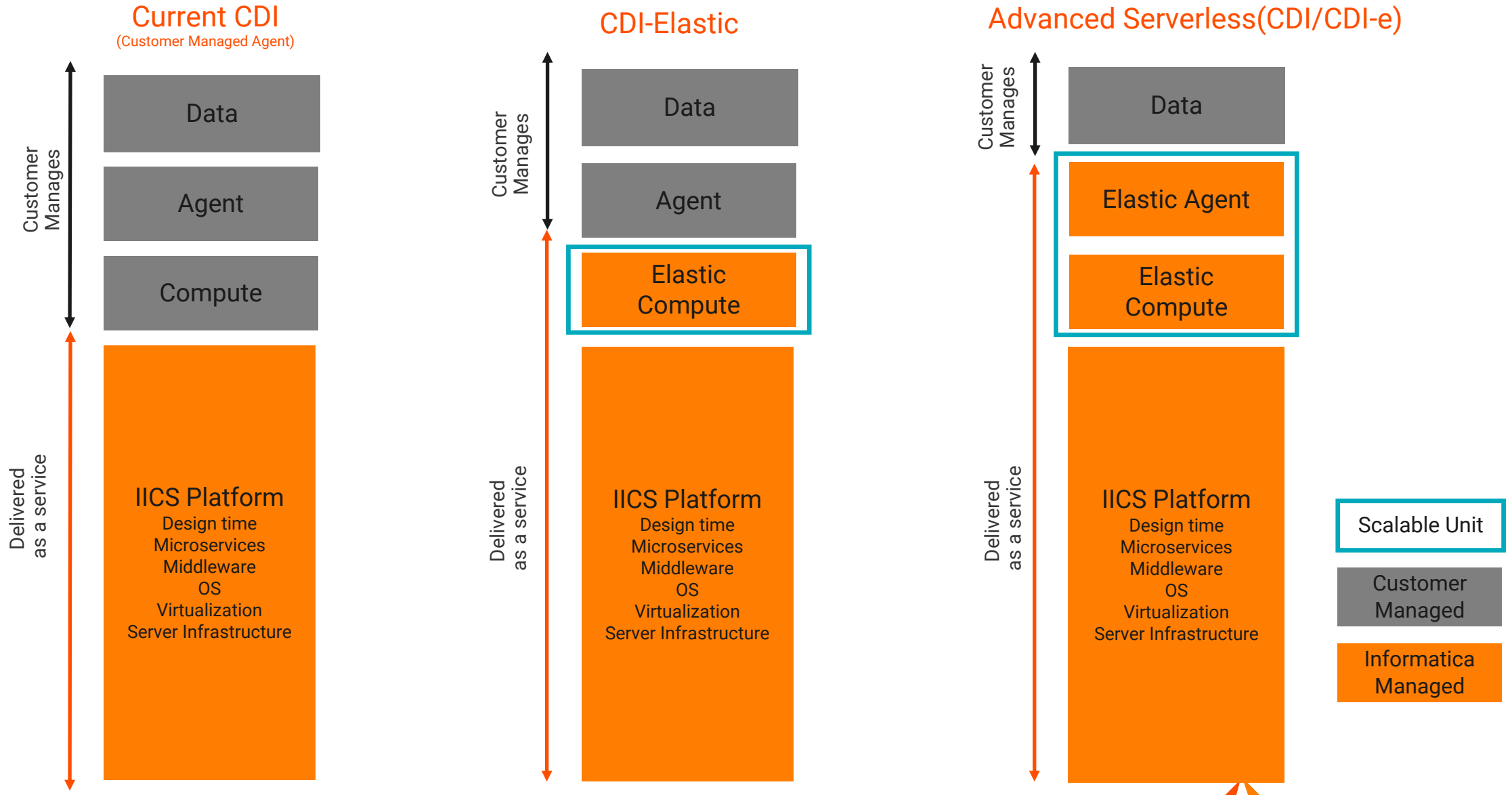
CDI-Elastic & Serverless



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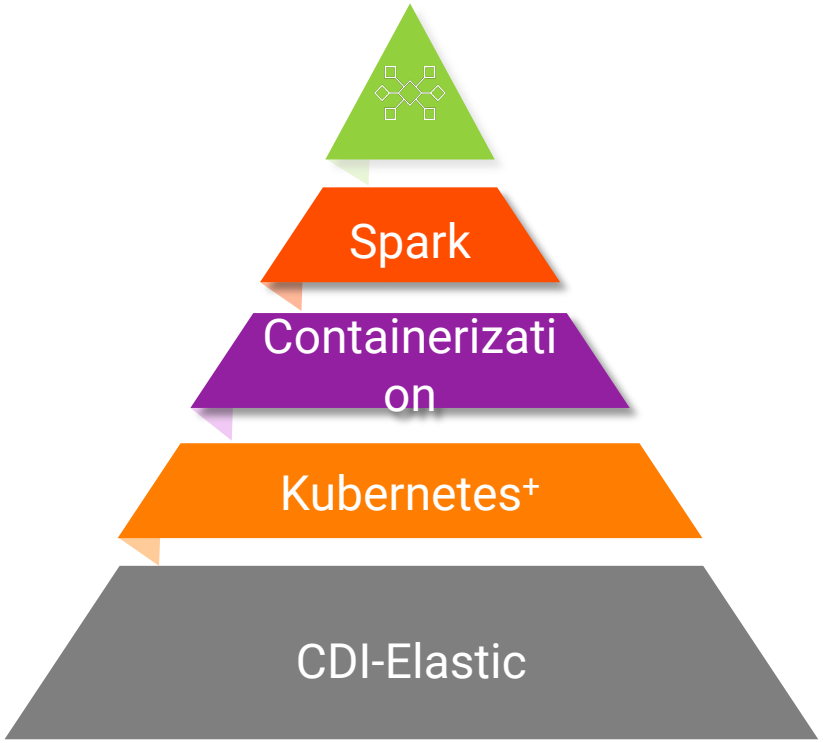
CDI-Elastic

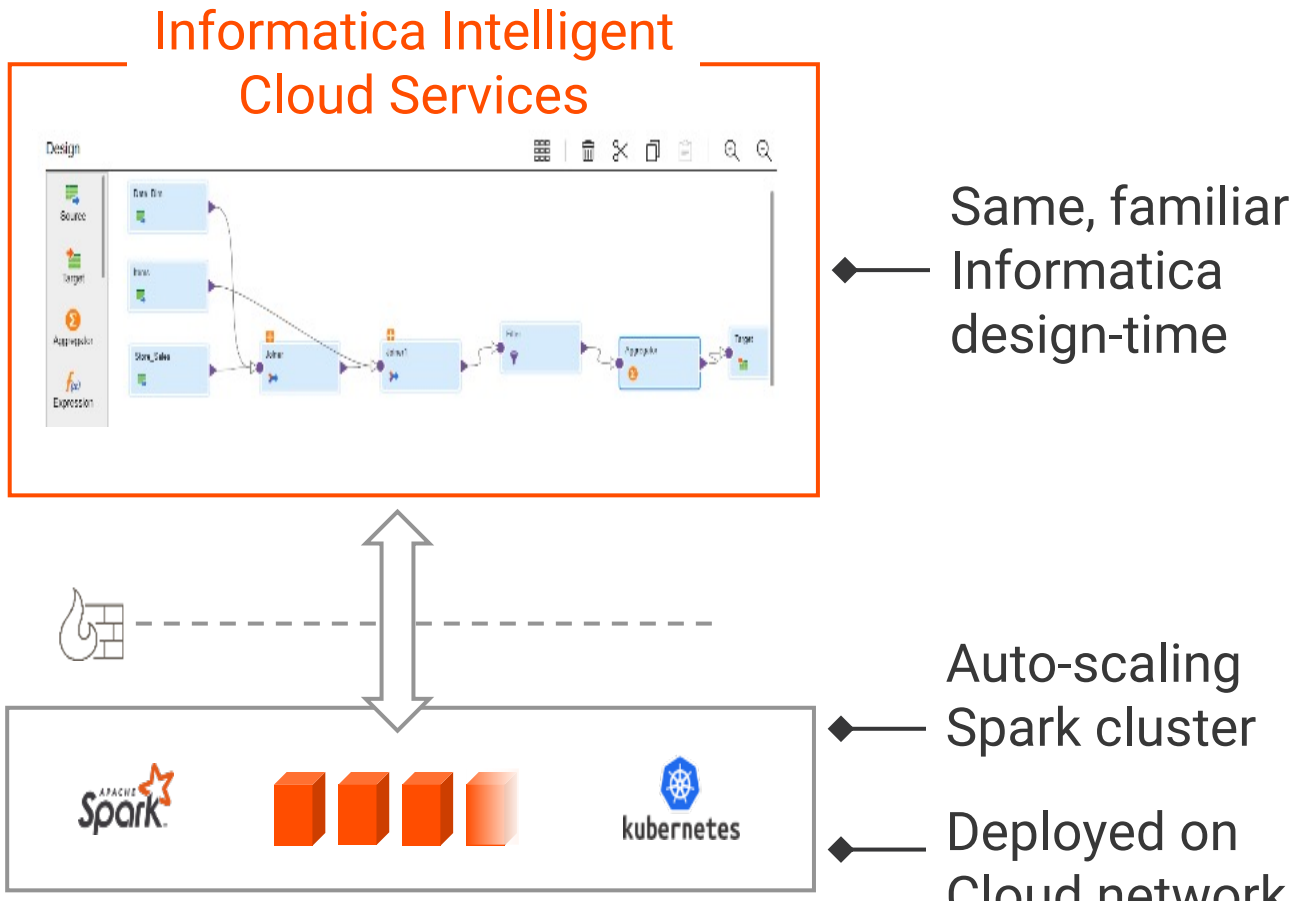
Architecture

Elastic Cluster

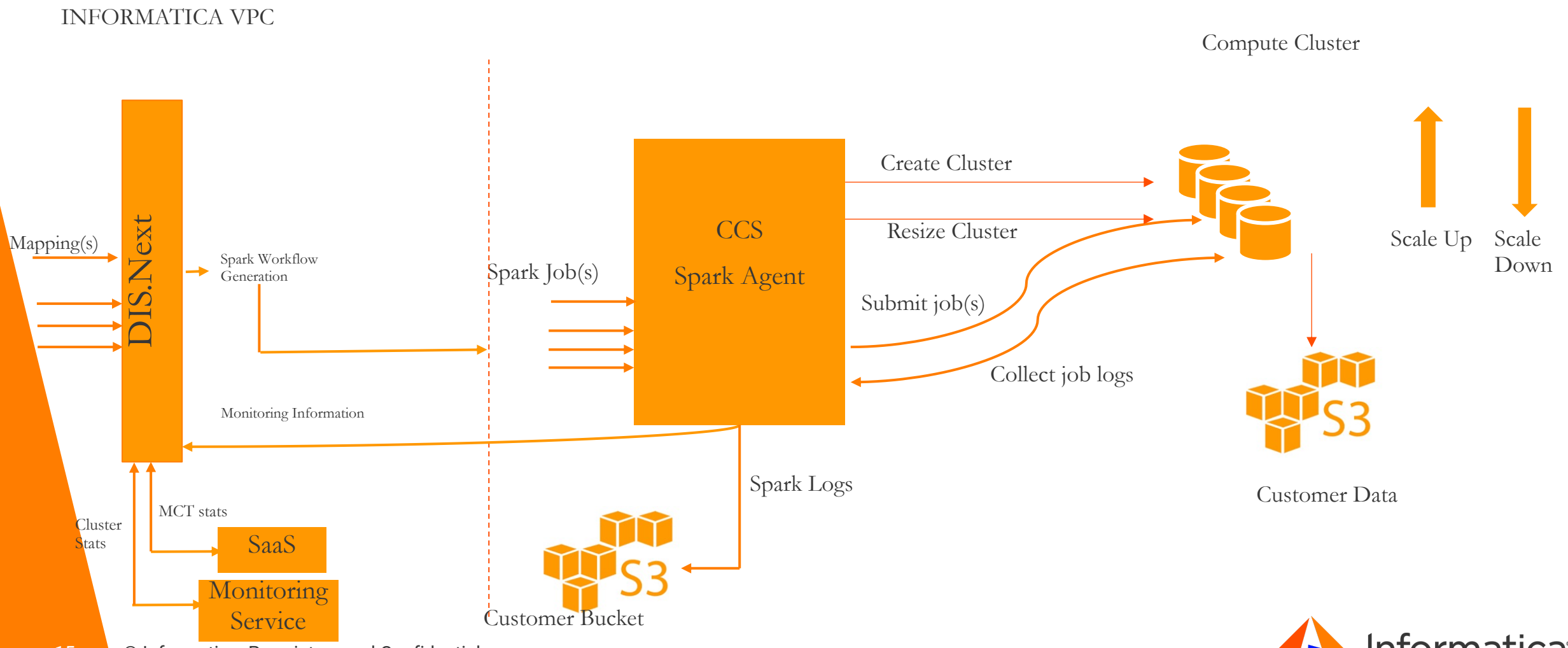
Lifecycle of Cluster

Elastic Architecture





CDI-E Execution Lifecycle



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Elastic Cluster

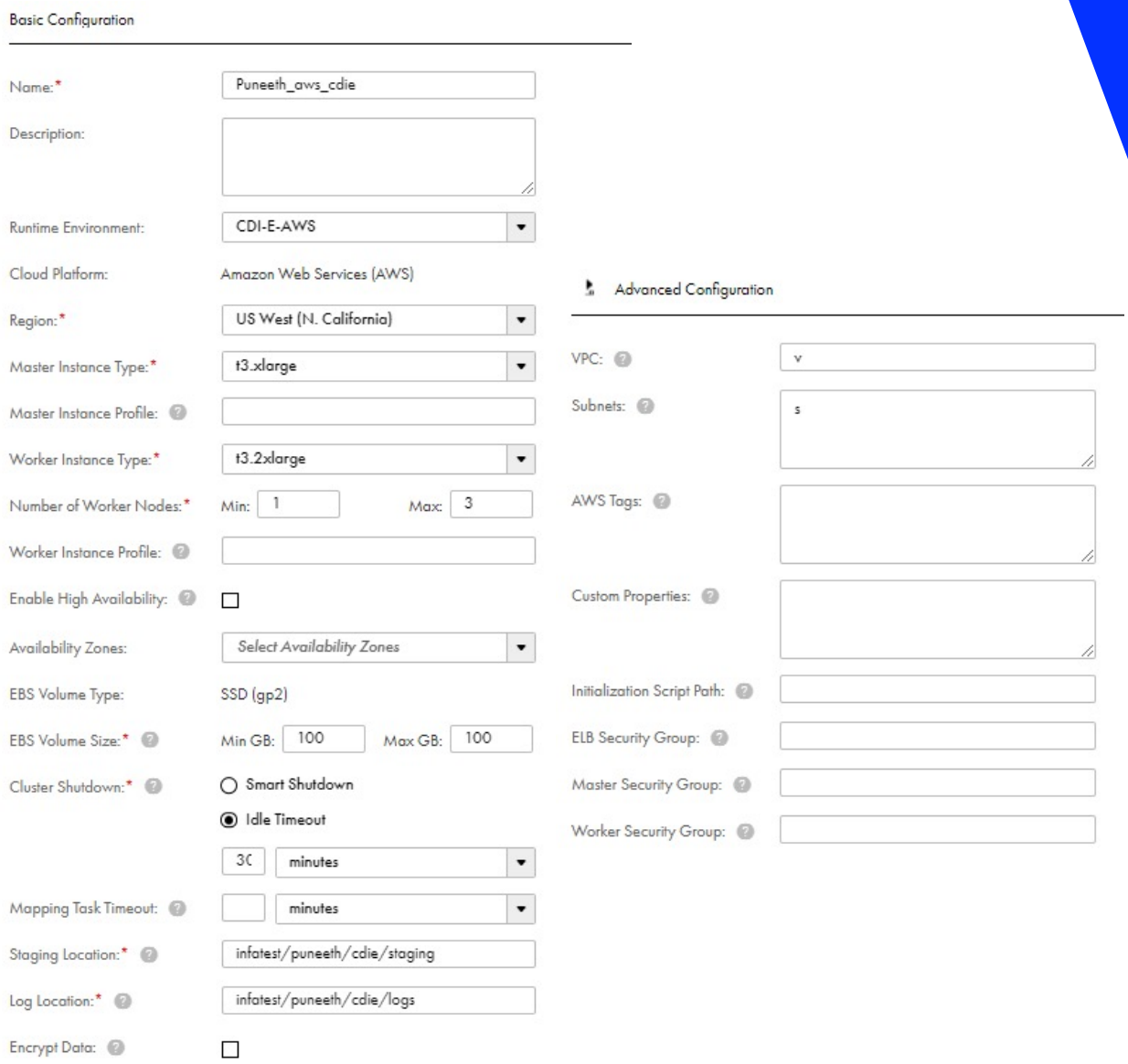
- Auto-scaling technology scales the cluster up or down based on the size of the workload.
- The elastic cluster consumes resources only while running jobs.
- CLAIRE®, Informatica's AI engine, uses machine learning to auto-tune the jobs that run on the cluster to achieve optimal job performance.
- High availability, recovery, and resilience ensure that jobs can continue running smoothly during interruptions.
- The data remains in the customer’s cloud environment.

Elastic Cluster Configuration

How to configure the elastic cluster

Elastic Cluster Configuration

- The Elastic cluster configuration is done by the Administrator of the IICS cloud org
- Based on the cloud formation setup, the configuration is done
- Along with these basic config details, there are advance properties also available.



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Lifecycle of Elastic Cluster

- A cluster lifecycle is the sequence of events that occurs on the elastic cluster.

1. The agent creates an elastic cluster – Based on the elastic configuration.
2. Jobs run on the cluster - The agent pushes the elastic job to the cluster and leverages the Serverless Spark engine to process the data logic in the job
3. The agent stops the cluster - After the Secure Agent stops the cluster, the agent verifies that all cluster resources are deleted.
   - The agent restarts the cluster when another elastic job is submitted

Major Advantages of CDI-E

Simplicity

- Easy drag-and-drop design
- Hierarchy Processing Transformation
- Dynamic Data Partition
- High-performance, metadata-aware connectors
- Intelligent Structure Discover
- Integrated data quality and data profiling

Productivity

- Next best recommendation
- Dynamic mapping
- Auto tuning
- Automatic data quality rules
- 70% time savings
- AI-powered, CLAIRE-based

Scalability

- Elastic Spark on Kubernetes-based processing engine
- Advanced Push Down Optimization
- Move workloads freely between clouds
- Purpose-built tools and experiences for all user personas
- Run elastic mapping on GPU

Advanced Serverless

Cloud Data Integration Processing Anywhere

Cloud Data Integration

Cloud-native and codeless data integration with intelligence and automation

Cloud Data Integration Elastic

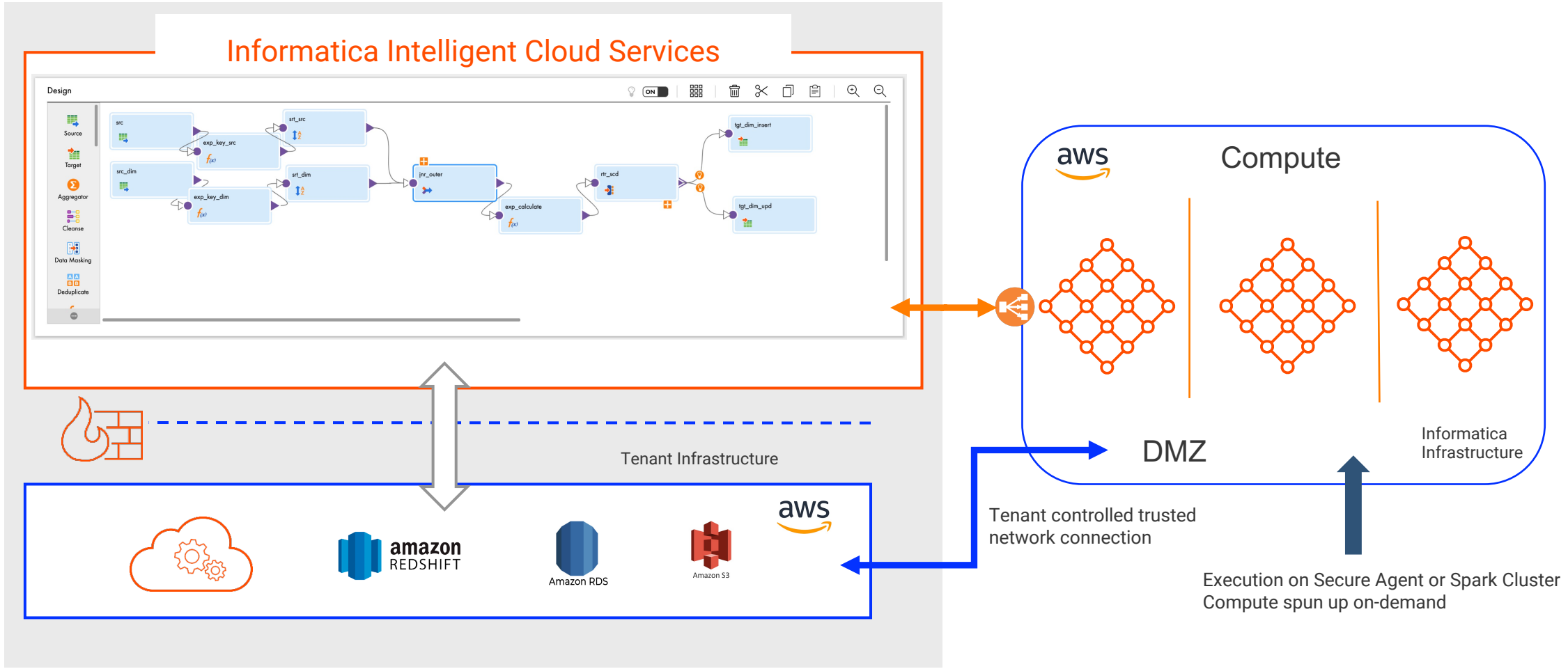
Adds Spark processing with auto tuning and auto scaling capabilities

Advanced Serverless Deployment

Fully managed scale-out environment with no clusters or software to manage and high-performance data integration with built-in elasticity

Advanced Serverless Execution Model

CDI / CDI-Elastic



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When to use Advanced Serverless?

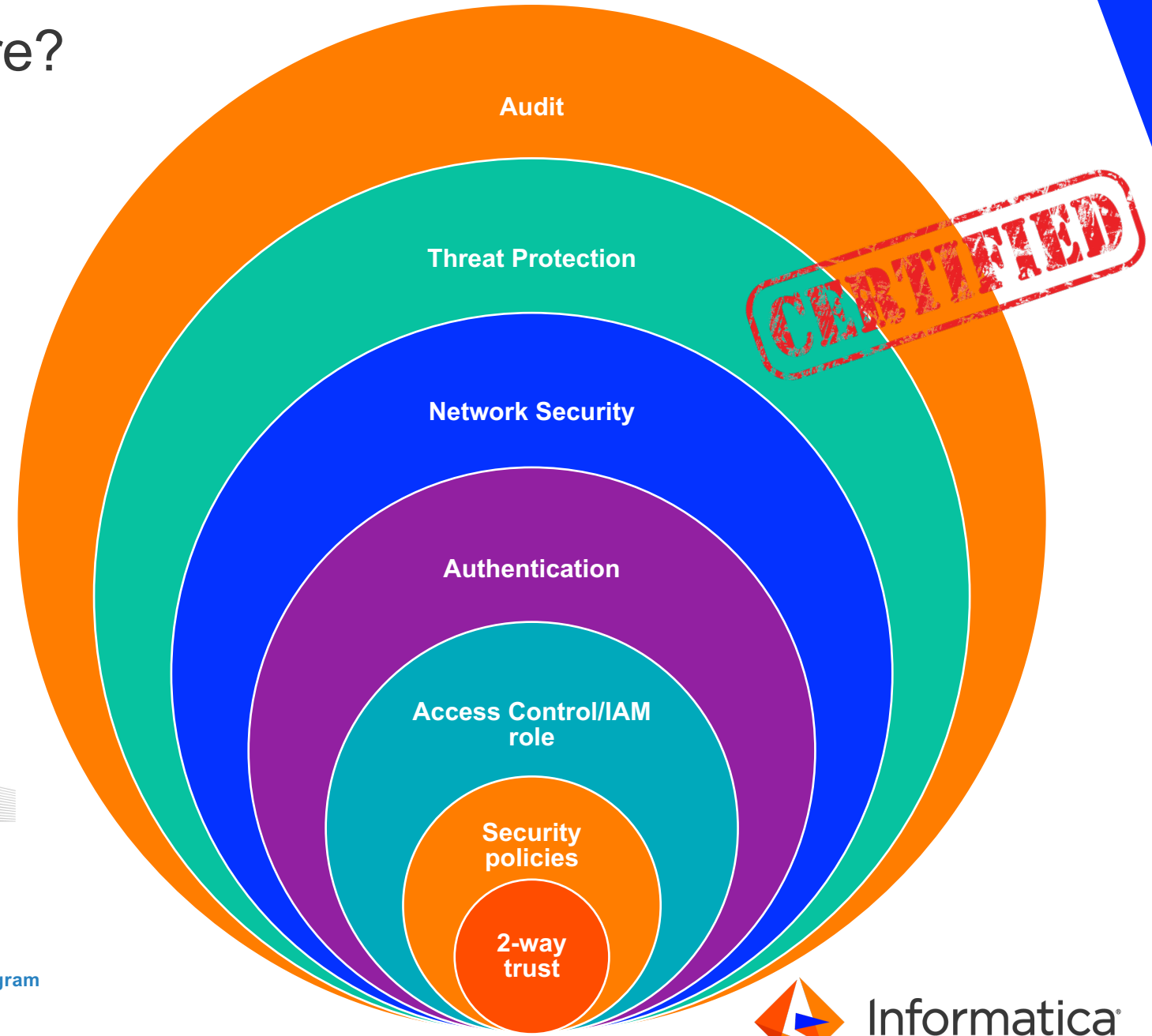
When Users have a need to …

1. Reduce infrastructure maintenance and secure agent administration overhead
   - No more procuring, provisioning, patching
2. Dynamically or seasonally changing infrastructure needs
   - Flexibility to meet changing workloads
3. Jump start projects or do quick POCs
   - Start building data pipelines on Day 1 instead of waiting to secure, provision infrastructure
4. Process lots of concurrent workloads
   - Serverless scales to process infinite concurrent workloads whereas with SA you are limited to processing capacity of the host

Is Advanced Serverless Secure?

Defense in Depth Architecture

- 7 layers of Enterprise Grade Security protection to get to tenant data
- Tenant Data flows within the trusted networks they control
- Serverless compute in DMZ is part of our SOC2 certification boundary
- Trusted secure link used to link to tenant's network and controlled using tenant's security group and policies
- Serverless [Security Whitepaper]



AICPA SOC 2 Formerly SAS 70 Reports

SOC 3

HIPAA / HITECH

cloud security alliance®

Privacy Shield Framework

ISO/IEC 27001:2013 Aligned Program

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Auto Scaling

Cluster Auto Scaling

- CDI-E utilizes auto scaling to address the challenges like over or under utilization of cluster, thus saving data analysts valuable time and operational costs without sacrificing performance
- The minimum & maximum number of nodes are responsible for maintaining the cluster scaling
- Auto scaling adds or removes worker nodes to the cluster based on the demand of the workload
- CDI-Elastic provides idle time-based or smart termination of clusters (cluster lifecycle management) as a part of cluster management and scale-down for auto scaling clusters

Auto Scaling in Elastic Mapping

How the cluster scales up when the load is high

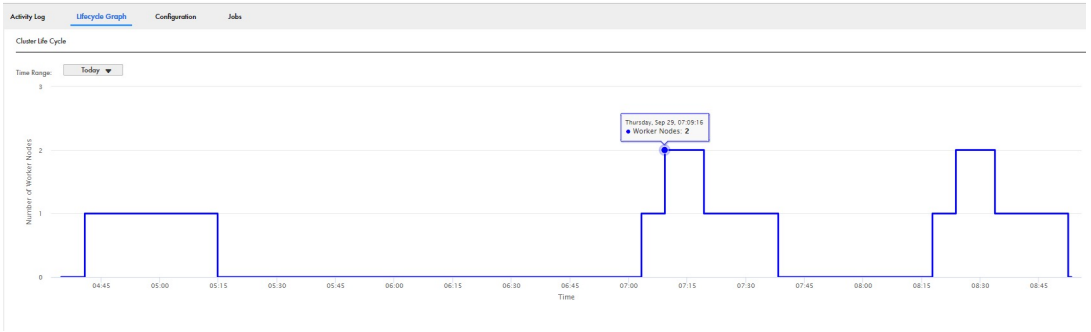
- The Elastic mapping is used to convert a csv file with 10M rows to a json file

Spark Job Name	Duration (HH:MM:SS)	Total Tasks	Failed Tasks	Input Size / Records	Output Size / Records	Status
▼ Job-0	00:00:53	7	0	776.75 MB / 10426213	1.51 GB / 10426213	Success
Stage-0	00:00:53	7	0	776.75 MB / 10426213	1.51 GB / 10426213	Success

Cluster Activity Log (15) Up to date Updated 8:38:54 AM PDT

Time ▼	Activity	Master Instance Type	Worker Instance Type	Master Nodes	Worker Nodes	Total Nodes
Sep 29, 2021, 8:33:45 AM	Scale Down	t3.xlarge	t3.2xlarge	1	1	2
Sep 29, 2021, 8:23:45 AM	Scale Up	t3.xlarge	t3.2xlarge	1	2	3
Sep 29, 2021, 8:17:45 AM	Start	t3.xlarge	t3.2xlarge	1	1	2
Sep 29, 2021, 8:12:45 AM	Starting			0	0	0

- Lifecycle of the cluster while the task is in progress



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Performance Benchmarking

Client Case Study - Pharma

Initiative

- Automate clinical trials and vaccine data processing

Challenge

- Current clinical and vaccine data processing process is hand coded
- The data volumes are unpredictable, large, and a single job volume could be ~2.5 TB
- Current process takes over 24 hours to run and fails frequently due to lack of compute resources
- A lot of administrative overhead

Approach

- Replace their hand-coded solution with CDI-E
- Integrate the solutions with rest of the integration stack

Business value

- Reduced data management costs
- Reduce time to provide data to business users for analysis and reporting
- Process clinical data faster and provide vaccine reports faster

Client Case study - Fintech

POC Driven by CDI-Elastic Hierarchical Processing and Auto Tuning

- **Fintech company** is a publicly traded investment management firm.
- Use case: This Fintech receives a wide variety of data products such as Index Data, Reference Data, Sustainability Data, Fund Data , Market Data etc from multiple data vendors. This data comes in various formats, both structured and semi structured. In 2019, This Fintech kicked off an initiative to modernize the data platform by shifting a lot of vendor data processing into Cloud Native infrastructure (On-prem K8s platform).
- **This POC driven by CDI-Elastic** aimed to demonstrate the power, ease of use and other key features with the help of developing data pipelines using 3 distinct data sets with varying degrees of complexities. The Informatica POC showcased ***our solution being able to process 200,000+ complex JSON and XML files in under 40 minutes opposed to the 72 hours*** that it takes today.

Demo

Usage of Hierarchy Processor Tx in Elastic Mapping

References

- CDI-E Elastic
  https://network.informatica.com/onlinehelp/IICS/prod/admin/en/index.htm#page/oo-iics-administrator_cdie/Introduction_to_Data_Integration_Elastic_administration.html
- Serverless
  https://network.informatica.com/onlinehelp/IICS/prod/admin/en/index.htm#page/gg-iics-rte/Serverless_runtime_environments.html
- Pre requisites
  AWS - https://network.informatica.com/onlinehelp/IICS/prod/admin/en/index.htm#page/oo-iics-administrator_cdie/AWS_integration_tasks.html

  Azure - https://network.informatica.com/onlinehelp/IICS/prod/admin/en/index.htm#page/oo-iics-administrator_cdie/Microsoft_Azure_integration_tasks.html

  GCP - https://network.informatica.com/onlinehelp/IICS/prod/admin/en/index.htm#page/oo-iics-administrator_cdie/Google_Cloud_integration_tasks.html
- Hierarchy Processor Transformation
  https://network.informatica.com/onlinehelp/IICS/prod/CDI/en/index.htm#page/jj-cloud-transformations/Hierarchy_Processor_transformation.html

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