



Enterprise Managed Analytics

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Enterprise Analytics Management



The complexity and tempo of operations in contested and congested space requires approach to composing, deploying and managing data analytics across the enterprise

- ❑ Push analytics close to data sources for performance, bandwidth, security and resiliency benefits
- ❑ Integrate lower-level data and analytics result to develop enterprise-level insights
- ❑ Adapt enterprise data analytics posture to events in real-time

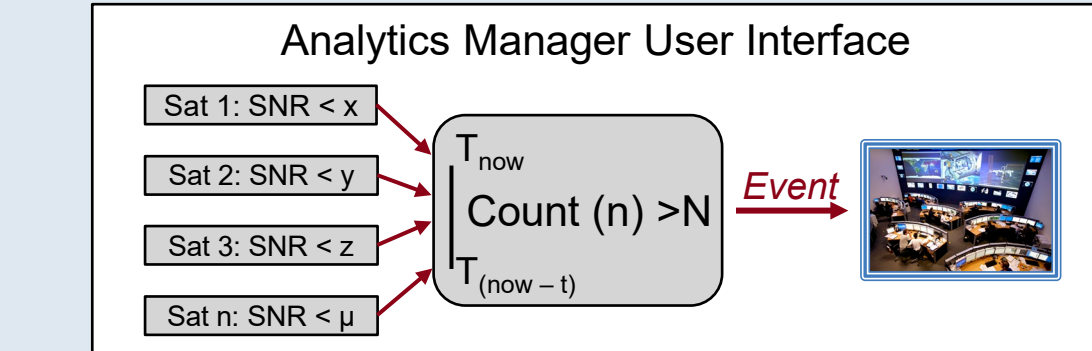


Hierarchically managed analytics essential for enterprise-level operations

Hierarchically Managed Analytics

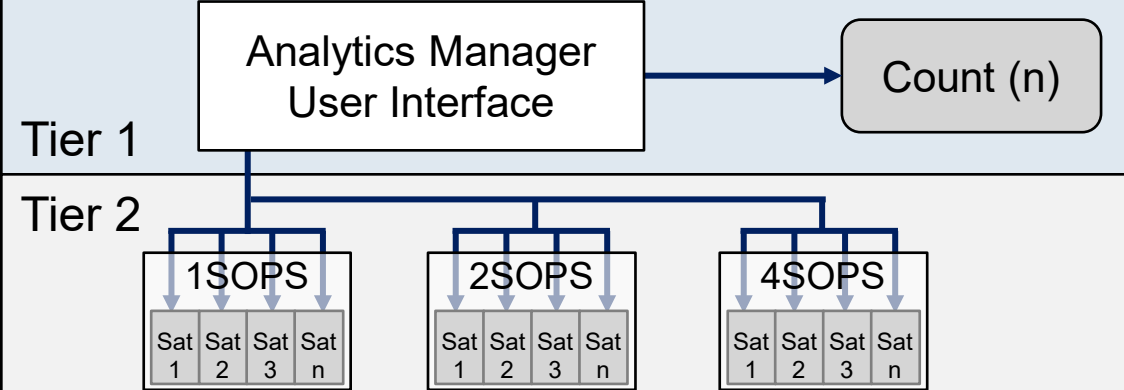


Compose

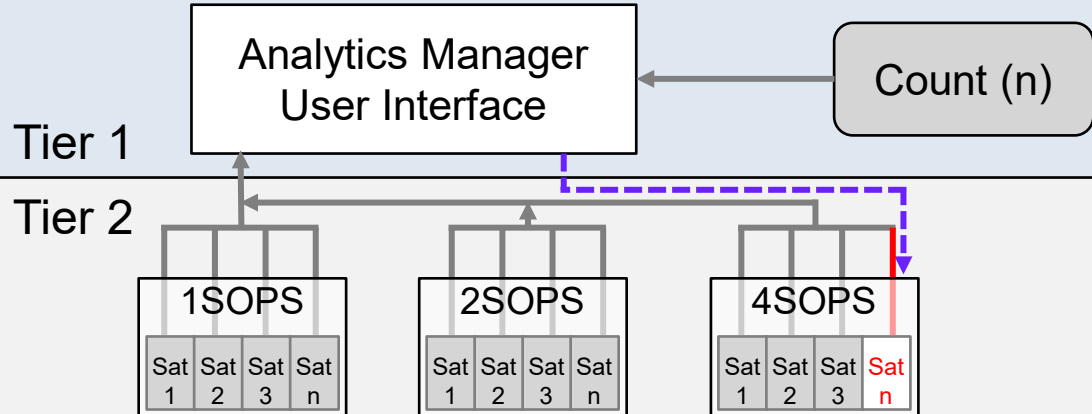


Tier 1

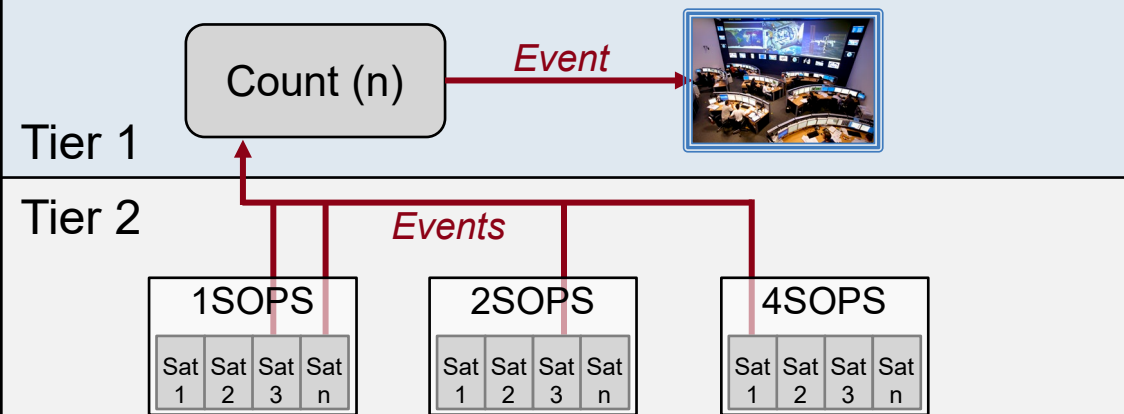
Deploy



Monitor & Manage



Run





Architectural Basic Building Blocks

Hierarchically-Managed Analytics

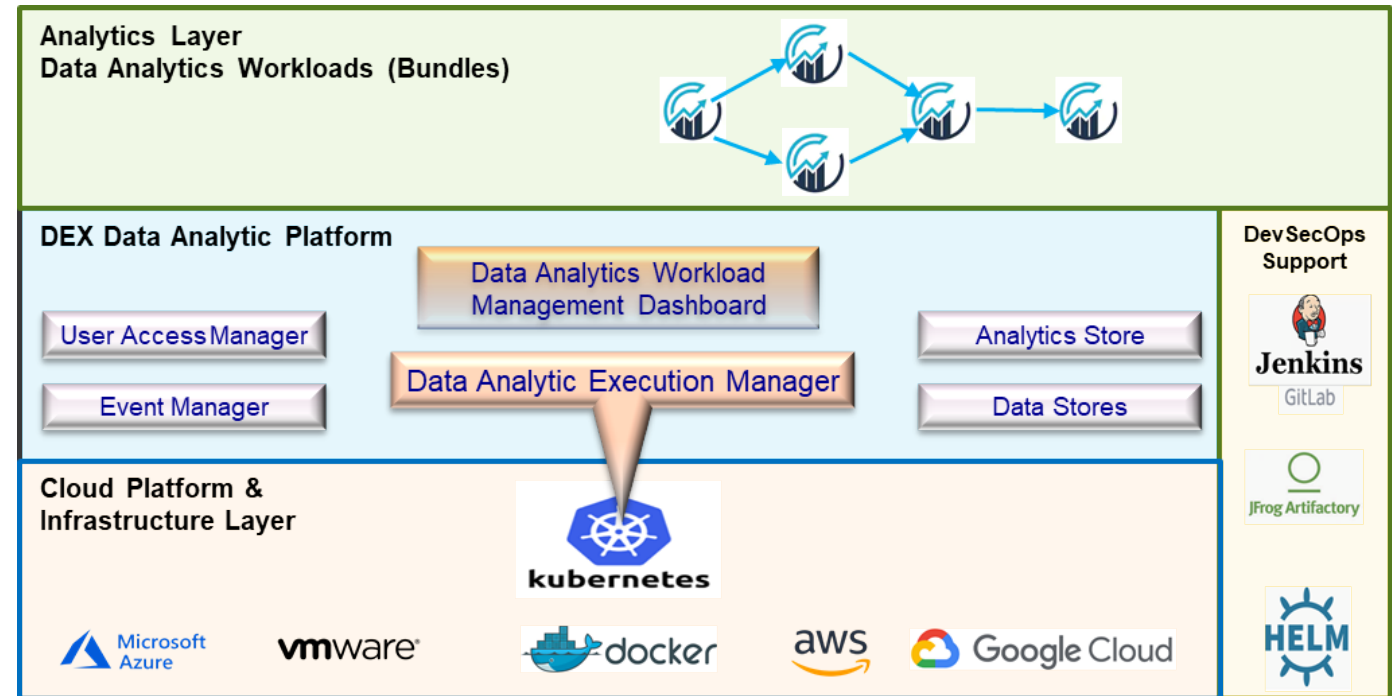
- Data analytics platform should be deployable to any virtualized environment
 - *Supported by range of cloud (public or in-premise) environments*
- Separate “analytics creation and configuration” and “analytics deployment and operation”
 - *Analytics created, deployed and monitored/managed from decision-maker’s organizational tier*
 - *Analytics deployed to the tier/environment closest to origin of data*
 - *Role-based access to analytics management functions: Create, Configure, Start, Stop, Monitor*
- Results of analytics automatically disseminated to enterprise stakeholders (i.e., analysts or decision makers) wherever they are located
 - *Timely and secure delivery of events, data, and insight produced by analytics to authorized users*



DEX: A Data Analytics Platform

Current State

- DEX is a thin layer built on Kubernetes to manage analytics life-cycle
 - *Deployable wherever Kubernetes is available*
- Bundles are inter-related analytics deployed and managed as a unit
 - *Analytics in the bundle communicate via data pipeline (allowing dataflow interactions)*



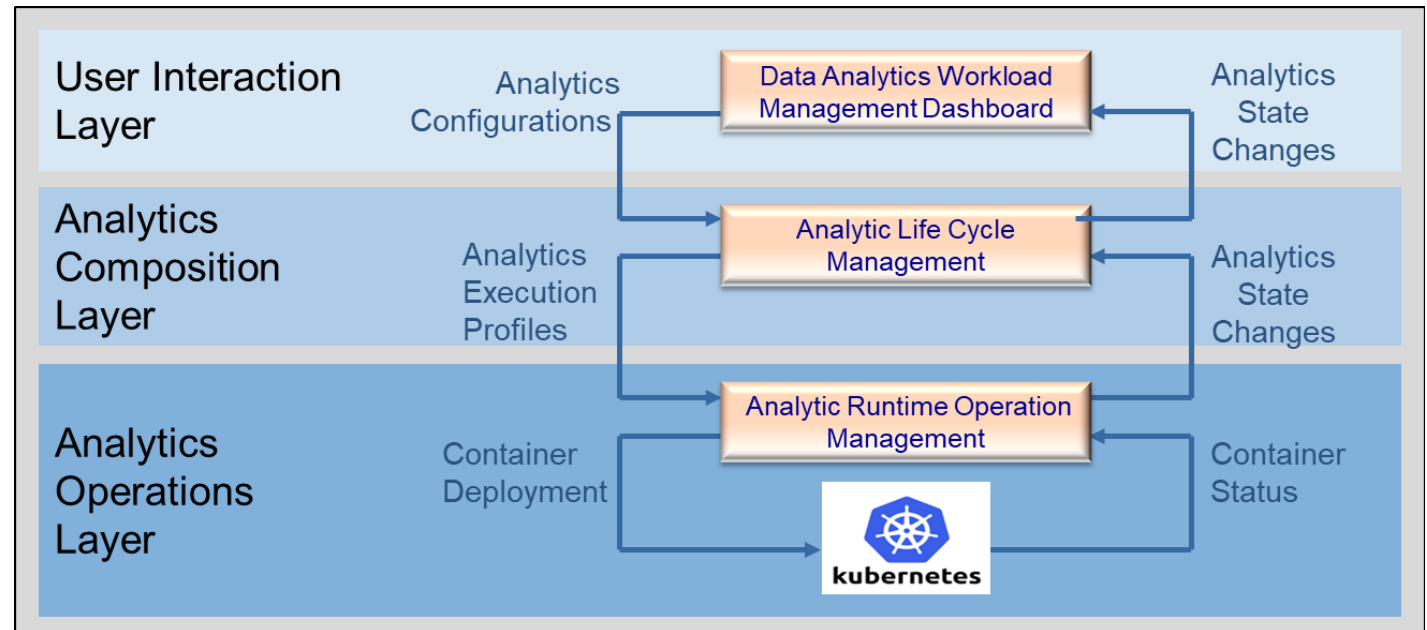
Multi-cloud, ... open-source, ... on-the-fly analytics composition



Analytic Deployment and Operation Life-Cycle Manager

Enabling Hierarchical Analytics Management

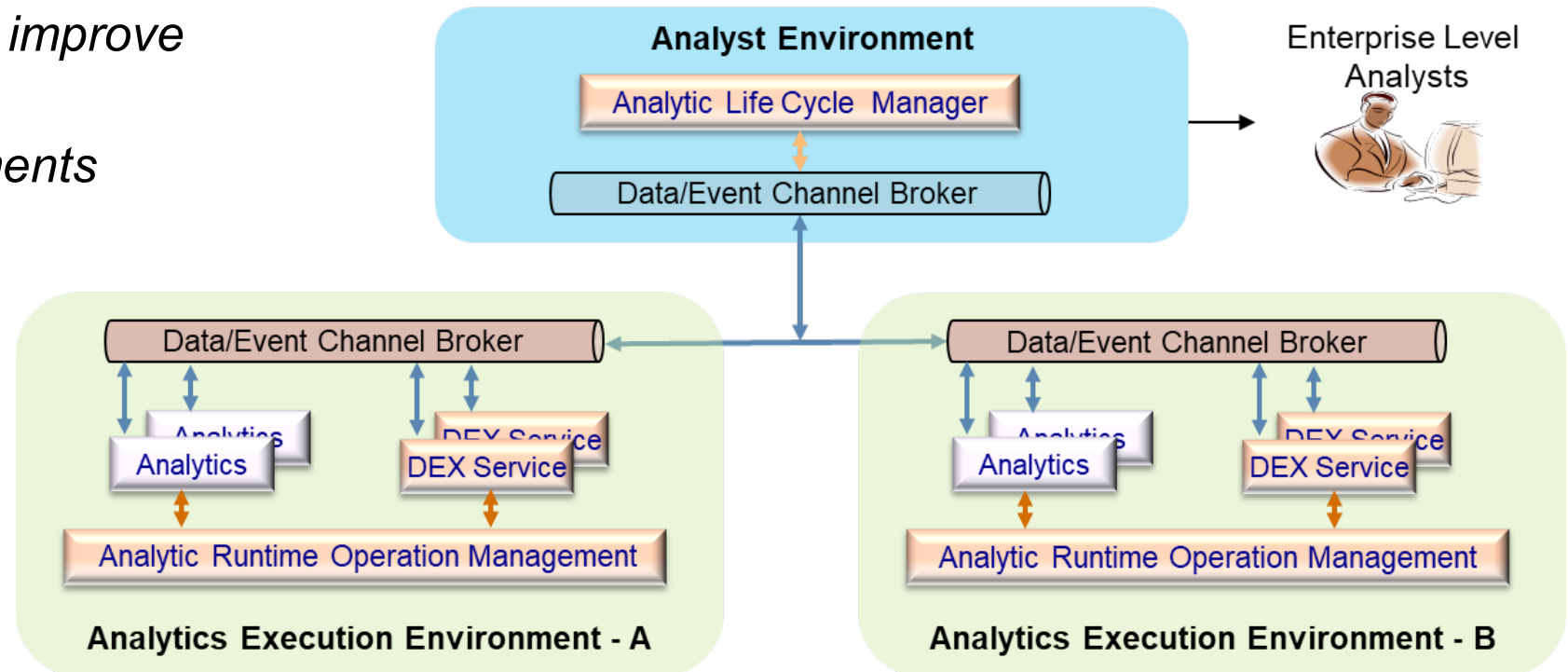
- API-only interactions between all three layers
 - Components can be deployed in separate locations or in a single location
 - Interactions are all REST interfaces
- Analytics configuration information maintained by Analytics Life Cycle Manager
 - Analytics Life Cycle Manager orchestrates multiple Analytics Runtime Operation Managements for federated execution of analytics
 - Other layers obtain analytics state from Analytics Life Cycle Manager





Need-Based Data Dissemination to Authorized Entities

- Analytics and DEX services produce data/insights/events that are disseminated to authorized subscribers, including external (to DEX) analytic applications
- Data/insight/event delivered when needed to avoid unnecessary data movement
 - Analytics moved where the data is to protect data owners and improve performance
 - Data moved to environments when requested by authorized users



Summary



- Contested and Congested space operations require changes to how the enterprise manages analytics
 - *Provide actionable information within reduced tactical response timelines*
 - *Analytics products readily disseminated to users across the enterprise on an as-needed basis*
 - *Adapt enterprise analytics posture quickly in response to real-time events*

By separating the analytics composition from the analytics execution environments DEX software components provide capabilities that enable hierarchical management of analytics across the enterprise