DCAE R10 M2 Architecture Review

1. Overview

DCAE project provides intelligence for ONAP to support automation (via open-loop and CL) by performing network data collections, analytics & correlation and trigger actionable rootcause events.

With Jakarta release, DCAE Platform component centered around Cloudify will be deprecated. All Microservice orchestration and lifecycle management will be handled through Helm/Kubernetes.

The **DCAE services components** includes all the **microservices - collectors, analytics and event processor** which supports active data-flows and processing as required by ONAP usecases. The architecture of DCAE targets flexible, micros-service oriented, model based component design and deployment. DCAE also offers support for multi-site collection and analytics operations which are essential for large ONAP deployments.

## 2. New component capabilities for Jakarta, i.e. the functional enhancements

- Complete DCAE transformation to Helm
    - Common Template Enhancement for dcaegen2-services-common (filebeat removal + general add-on capabilities)
    - Continue removal of Consul dependency & application config standardization via configmap
    - MOD Support for Helm chart generation/distribution
    - Deprecate Cloudify and related Handlers from ONAP deployment
    - Integration Testsuite migration to use helm chart

- Support TSC approved ONAP Usecases and Features (details documented here - DCAE R10 Jakarta M2 Release Planning)
- TSC/SECCOM Global requirements
    - STDIO complaince for Heartbeat and SNMPTRap MS
- TSC/SECCOM Best Practice
    - Integration base image alignment for VES/RESTConf/SliceAnalysis MS

- Reducing DCAE backlogs + security fixes

Following **new services** will be delivered as POC in R10

- ML MS (REQ-1074)
    - Repository : https://git.onap.org/dcaegen2/services/tree/components/**ml-prediction-ms** *(introduced as new subproject under existing repo)*

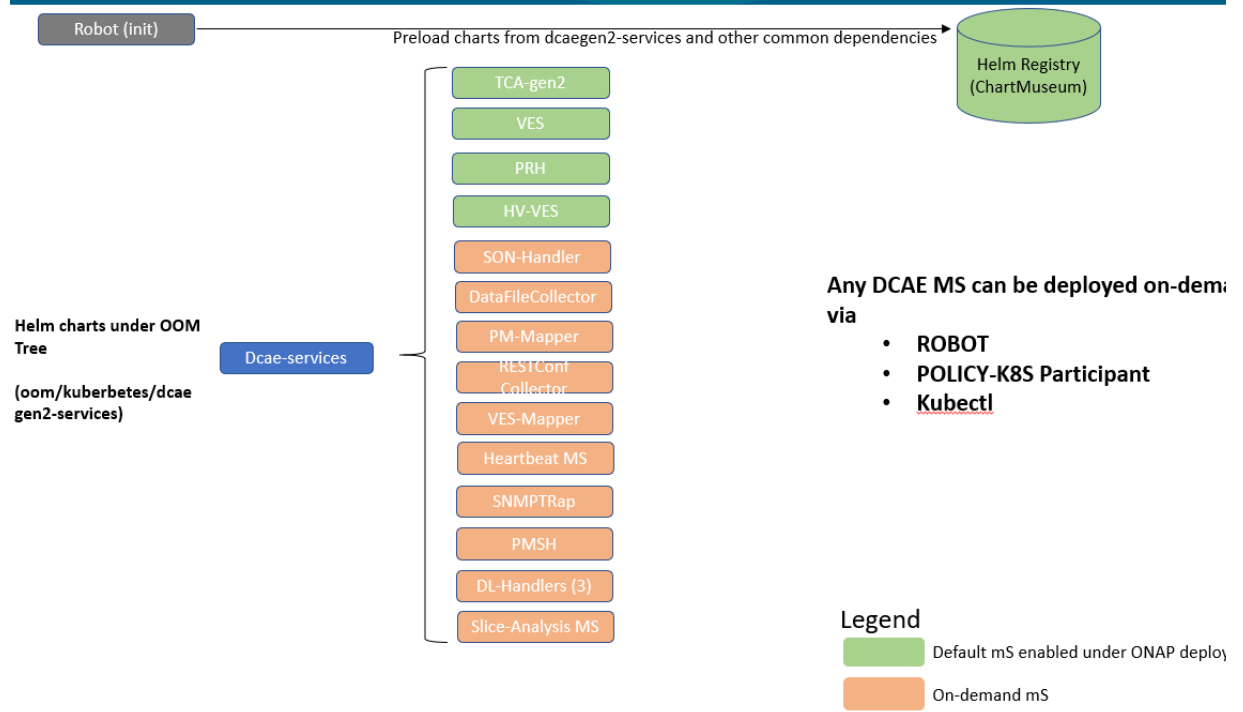**Refer DCAE R10 Jakarta M2 Release Planning#Scope for more details**

ONAP DCAE Architecture (Jakarta)
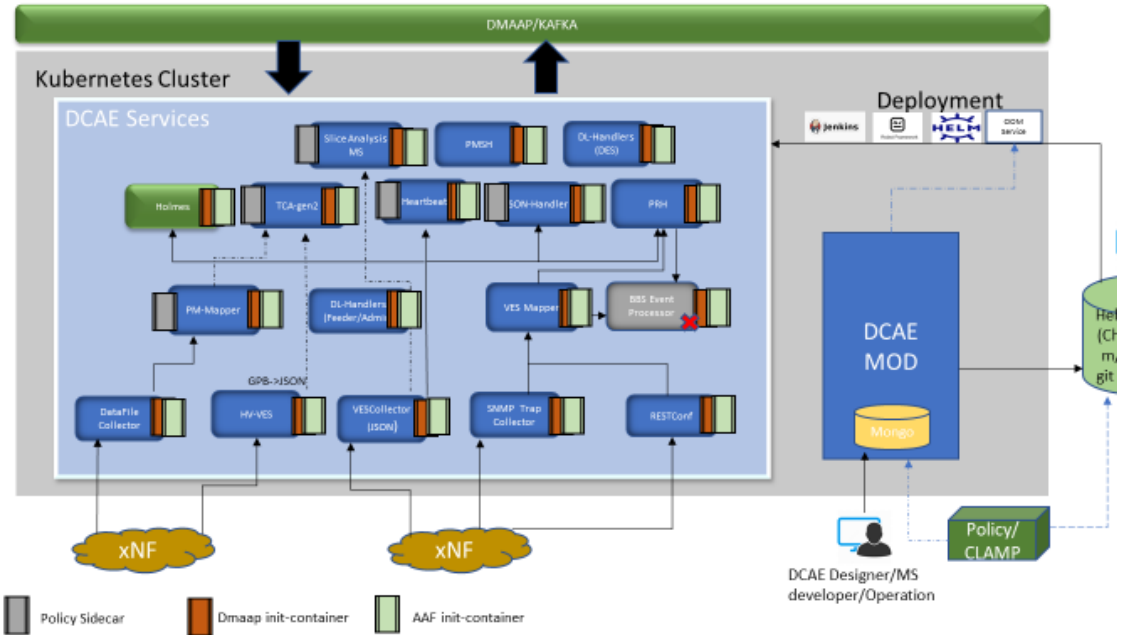
Following Platfrom components are deprecated and no longer part of DCAE deployment

- Cloudify
- Dashboard
- ServiceChange Handler
- Policy-Handler
- Deployment-Handler
- InventoryAPI
- ConfigBindingService*

ONAP DCAE Jakarta Deployment

Robot (init) → Preload charts from dcaegen2-services and other common dependencies → Helm Registry (ChartMuseum)

Helm charts under OOM Tree

(oom/kuberbetes/dcae gen2-services)

Dcae-services:
- TCA-gen2
- VES
- PRH
- HV-VES
- SON-Handler
- DataFileCollector
- PM-Mapper
- RESTConf Collector
- VES-Mapper
- Heartbeat MS
- SNMPTRap
- PMSH
- DL-Handlers (3)
- Slice-Analysis MS

Any DCAE MS can be deployed on-demand via
- **ROBOT**
- **POLICY-K8S Participant**
- **Kubectl**

Legend
- Default mS enabled under ONAP deploy
- On-demand mS

3. New or modified interfaces

New External interfaces

- None

Modified interfaces

- PMSH - Adds new API support for Subscription/Filters/Measurement group management (this will be consumed by Policy)
- Slice Analysis - API to provide resource availability for existing slice/subslice. OOF is consumer of the API and will use this data to determine reusability of slice. - NSI/NSSI Selection based on resource occupancy levels; SliceAnalysis will also subscribe to AAI notification to support User-intent triggered CL flow for Bandwidth assessment

Deprecated interfaces

- Cloudify API (used for LCM of DCAE MS)
- InventoryAPI (used for saving/retreving DCAE blueprints)
- DeploymentHandler API (used by CLAMP for triggering MS deployment)

4. Interface naming

DCAE R10 Jakarta M2 Release Planning#APIOutgoingDependencies

DCAE R10 Jakarta M2 Release Planning#APIIncomingDependencies

5. Reference to the interfaces

DCAE R10 Jakarta M2 Release Planning#APIOutgoingDependencies

Existing platform API's - https://docs.onap.org/projects/onap-dcaegen2/en/latest/sections/offeredapis.html

DCAE Platform

- Config Binding Service*
- Onboarding HTTP API (MOD)

DCAE Service Components

- VES-Collector
- HV-VES (High Volume VES)
- PRH (PNF Registration Handler)
- DFC (DataFile Collector)
- 3GPP PM Mapper
- PM Subscription Handler
- DCAE SDK
- RESTConf
- DES
- PMSH
- Slice-Analysis MS

Deprecation Notice: Following Platform API's will be deprecated once all MS migration to new SDK is completed in Jakarta release. For the interim time, the component will be retained in deployment using Jakarta version (no new enhancement/updates are planned)

- Config Binding Service

6. What are the system limits

Relies on k8s for loadbalancing and scaling. DCAE platform handles the control flow and do not carry the data/event; DCAE service components can be scaled and support state management through external DB and/or K8S state management.

As DCAE collectors are extensively used in all ONAP usecase, performace testing has been done on below collectors

VES Collector Performance Test

PM-Mapper performance baseline

Datafile Collector (DFC) performance baseline results

HV-VES Performance Test

7. Involved use cases, architectural capabilities or functional requirements

- Usecases - DCAE R10 Jakarta M2 Release Planning#JakartaUsecaseswithDCAEimpact
- Features - DCAE R10 Jakarta M2 Release Planning#JakartaFeatureswithDCAEImpact

8. Platform Maturity Targets

Jakarta Release Platform Maturity

Global Requirement and Best Practices - DCAE R10 Jakarta M2 Release Planning#BestPractices/GLOBALRequirements

9. Listing of new or impacted models used by the project (for information only)

No model changes planned for J release