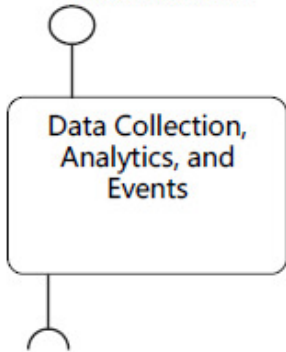# ONAP DCAE R3 Architecture Review

08/07/2018

Data Collection, Analytics, and Events

- Data collection interface
- Deployment interface
- Config binding interface

Data Collection, Analytics, and Events

- Data movement platform interface (DMaaP)
- Data enrichment interface (A&AI)
- Service model change interface (SDC)
- Policy interface (Policy)

Definition:

DCAE is the ONAP subsystem that supports closed loop control and higher-level correlation for business and operations activities. DCAE collects performance, usage, and configuration data; provides computation of analytics; aids in trouble-shooting and management; and publishes event, data, and analytics to the rest of the ONAP system for FCAPS functionality.

Provided Interfaces:
- Interface 1: Data collection interface (provided by DCAE collectors, consumed by VNFs and others)
    - Interface for various FCAPS data entering DCAE/ONAP.
- Interface 2: Deployment interface (provided by DCAE Deployment Handler, used by CLAMP and other northbound applications/services)
    - Interface for triggering the deployment and changes of a control loop
- Interface 3: Configuration Binding Service
    - Interface for querying the information of the services that are registered to DCAE Consul

Consumed Interfaces:
- Interface 1: Data movement platform interface (provided by DMaaP)
    - Interface for data transportation between DCAE subcomponents and between DCAE and other ONAP components
    - This interface can also be used for publishing events to other ONAP components.
- Interface 2: Data enrichment interface (provided by A&AI)
    - Interface used by DCAE collectors and analytics for querying A&AI for VNF information for the purpose of enriching collected raw data by adding information not contained in original data.
- Interface 3: Service model change interface (Provided by SDC)
    - Interface for DCAE Service Change Hander fetching control loop models and model updates.
- Interface 4: Policy interface (Provided by Policy)
    - Interface for DCAE Policy Hander fetching configuration and operation policies on control loop and control loop components from Policy.

Consumed Models: TOSCA models describing control loop construction (e.g. collection and analytics apparatus)

R3 DCAE ARC SUMMARY

- Platform Architecture remains similar to R2

- New services for R3

- S3P Enhancement

- Deployment strategy - minor updates.

R3 Service Additions

Collectors
- HV-VES
  - Inbound GPB over TLS/TCP
  - Outbound via Native Kafka (dependency on DMAAP project)
- DataFile collector*
  - Inbound 3gpp bulk data file collection over FTPES (SFTP*)
 - Outbound via DMAAP-DR (dependency on DMAAP project)

Event processors
- VES Mapper
  - Generic mapper capability to transform various input format into VES. R3 focus is for standardizing SNMP Trap collector json input to VES output.
  - Both input and output through DMAAP-MR
- PRH
  - Service to register the PNF when being instantiated. Queries/updates AA&I and publish event to SO
  - Both input and output through DMAAP-MR
- PM Mapper*
  - Service to convert 3gpp bulk data measurement into VES json
  - Input through DMAAP-DR and output through DMAAP-MR

Analytics
- TCA-gen2
  - New TCA based on spring framework – supports EELF logging, dynamic polling into DMAAP, enhanced metric collection. This will replace existing CDAP/TCA eventually
- PNDA Platform (Solution design targeted for R3)
  - Evaluating integration of PNDA platform with OOM/DCAE; requires support of VM for PNDA infrastructure setups

DCAE R3 ARCHITECTURE
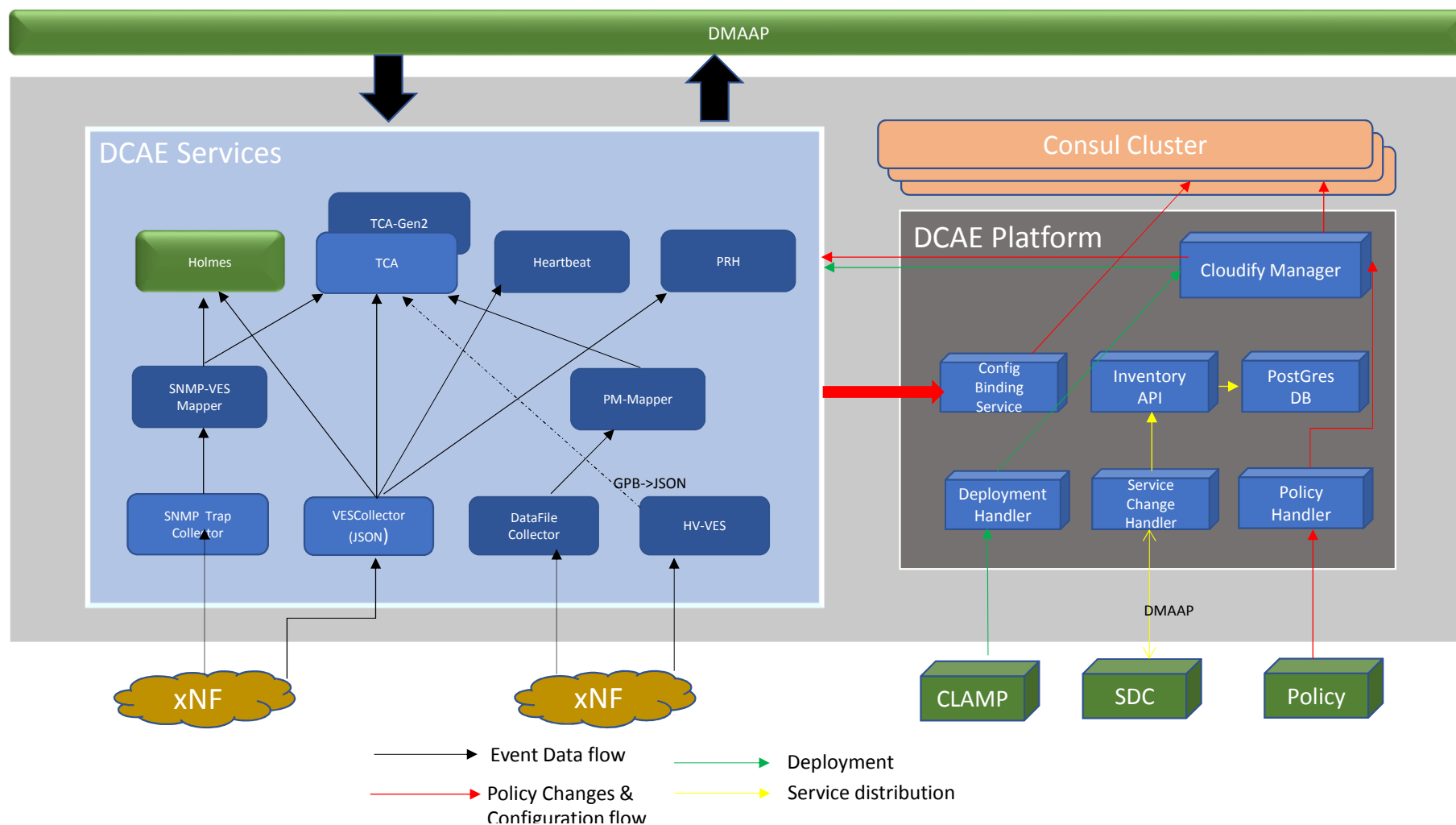
R3 Platform Enhancements

- DMAAP Bus Controller for dynamic topic provisioning support

  DMAAP DR support for service component

- AAF for DCAE Components certificate management

R3 Modelling Updates

VES 7.0.1

- VES Collector to support 5.4 and 7.1 input
- VES Collector o/p standardized to 5.4 for Fault and measurement domain
- VES Collector o/p standardized to 7.1 for all other domains

Component spec

New components/services to be modelled to allow TOSCA model generation (through SDC/Tosca_lab)

ONAP DCAE S3P Enhancement

Focus on OOM K8S deployment

- Security (1+)
  - Components enhanced to support HTTPS capability (DeplymentHandler, VESCollector, CBS, InventoryAPI, HV-VES*)
  - AAF generated cert (static/pre-assigned for R3)
  - VES Collectors - xNF can be secured (using preset server/client cert)
  - CII Passing badging
  - Sonar code coverage met except for R3 new services
  - CLM scan vulnerabilities TBA for new component

- Performance (Stretch 2)
  - Baseline performance and optimization of VESCollector (In-progress)
  - TCA baselining and optimization through TCAgen2

ONAP DCAE S3P Enhancement

- Manageability (1+)
  - EELF logging compliance (CBS, SCH*, InventoryAPI, TCA*)
  - Filebeat container deployed as sidecar for services

- Usability (1+)
  - Improved documentation
  - DCAE_cli virtual box environment for component owners to test onboarding.
  - API Documentation

- Resiliency
  - Same level as R2 (level 2); supported through Kubernetes. All DCAE components are containerized in R2.
- Stability
  - Same level as R2 (level2)
- Scalability
  - Same level as R2 (level 1) – horizontal scaling supported through Kubernetes deployment.

DCAE APIs

- VES:
  - https://git.onap.org/dcaegen2/collectors/ves/plain/swagger_vescollector.yaml
- Deployment Handler
  - https://git.onap.org/dcaegen2/platform/deployment-handler/plain/deployment-handler-API.yaml
- Config Binding:
  - https://git.onap.org/dcaegen2/platform/configbinding/plain/config_binding_service/swagger/swagger.yaml
- Internal APIs
  - Inventory API
    - https://git.onap.org/dcaegen2/platform/inventory-api/plain/swagger_inventory.yaml