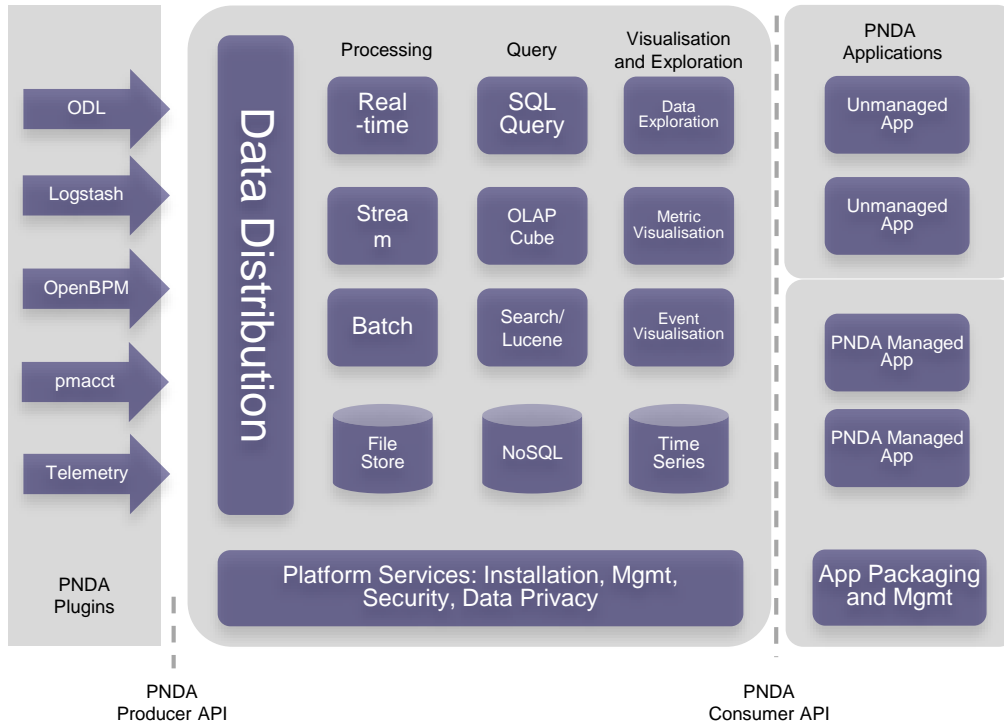# PNDA integration into ONAP DCAE

Frank Brockners, Donald Hunter

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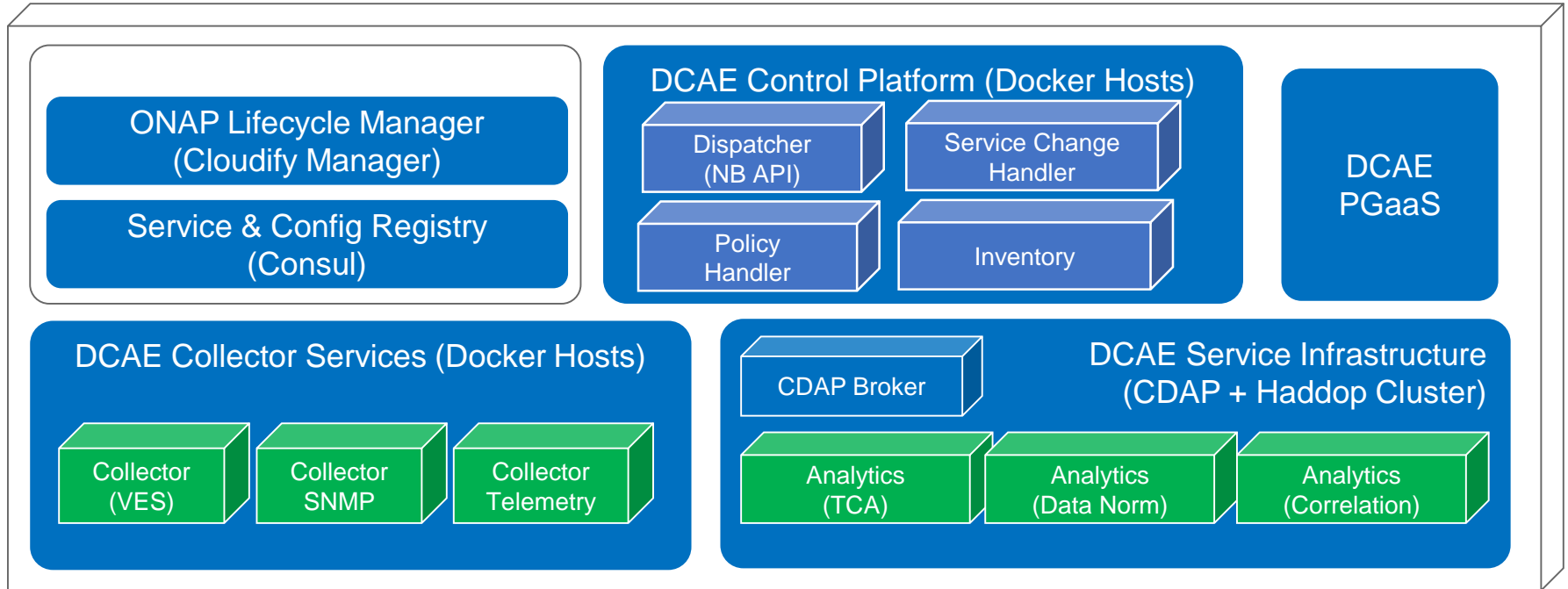# Platform for Network Data Analytics PNDA.io
Overview

- Simple, scalable open data platform

- Provides a common set of services for developing analytics applications

- Accelerates the process of developing big data analytics applications whilst significantly reducing the TCO

- PNDA provides a platform for convergence of network data analytics

ONAP Data Collection, Analytics, Events (DCAE)
Overview

- Open, plug-able platform for "sensing and making sense" for ONAP

- Functional requirements
  - Of ONAP
    - Interfacing with other ONAP components
    - "Model driven"
      - DCAE service components are modeled
      - Generated events are modeled
      - Operations are modeled
  - For ONAP
    - Able to incorporate the best collection and analytics technologies into a catalog
    - Able to collect, analyze, and generate actionable events following the requirements of control applications, e.g. delay, bandwidth, resource constrains, etc

DCAEgen2 – Overview

DCAE Control Platform (Docker Hosts)
- Dispatcher (NB API)
- Service Change Handler
- Policy Handler
- Inventory

ONAP Lifecycle Manager (Cloudify Manager)

Service & Config Registry (Consul)

DCAE PGaaS

DCAE Collector Services (Docker Hosts)
- Collector (VES)
- Collector SNMP
- Collector Telemetry

DCAE Service Infrastructure (CDAP + Haddop Cluster)
- CDAP Broker
- Analytics (TCA)
- Analytics (Data Norm)
- Analytics (Correlation)

DCAE Platform Components

DCAE Service Components

DCAEgen2 Components in R1 (Amsterdam)

- **Cloudify Manager**: Cloudify, through its army of plugins, is capable of relationship topology base resource orchestration in many levels and cross different technologies. It is the lifecycle management engine of DCAE. Various resource deployment, change, allocation, configuration, etc, operations are all done through Cloudify. [Note: This component is part of the Common Controller SDK, or ccsdk project.]

- **Consul**: Consul is a service discovery technology for distributed fault detection and KV store. DCAE uses Consul for service and configuration registry.   [Note: This component is part of the Common Controller SDK, or ccsdk project.]

- **Service infrastructure**: DCAE platform supports two kinds of infrastructures, the Docker container hosts and CDAP/Hadoop clusters. The former is for running containerized applications and services. And the latter is for running CDAP-Hadoop based big data analytics.

- **Dispatcher**: Dispatcher is a NB API provider for the DCAE Services. Service related triggers, such as deploying/undeploying services, changing configurations, etc all arrive at the Dispatcher, which then enriches the request, and invokes the right Blueprints and calling Cloudify Manager plugins to complete the necessary changes in virtual resources.

- **Inventory**: Inventory tracks DCAE related resource information such as various Blueprints and templates that are used by Cloudify Manager to deploy and configure components, as well as inventory information extracted from A&AI that is related to but not really part of DCAE, such as the relationships between virtual network resources and their physical infrastructures.

- **PGaaS**: Inventory is backed by a PostgreSQL database for data storage.

- **Policy Handler and Service Changing Handler**: They are the interfacing modules for specific external components such as Policy, SDC,..

- **CDAP Broker**: CDAP Broker interfaces between CDAP and Cloudify Manager, supporting carrying out various Cloudify CDAP operations onto the CDAP.

  See also: https://wiki.onap.org/pages/viewpage.action?pageId=3247121

PNDA – ONAP DCAE Integration
Perspectives

- Analytics/Big Data Processing for ONAP:
  DCAE in ONAP releases 1 and 2 (Amsterdam, Beijing) offers Hadoop with CDAP
  - CDAP provides abstraction layer on top of Hadoop
  - CDAP applications are written for CDAP and not transferable

- PNDA is a platform which streamlines the processing of developing analytics applications, is infrastructure and Hadoop distribution agnostic, and is 100% open source – making it similar in objective to CDAP

- Why PNDA in DCAE?
  - Customers have voiced a need to enable support for generic Hadoop applications in ONAP DCAE
  - Customers see PNDA's ease of install & use as a benefit

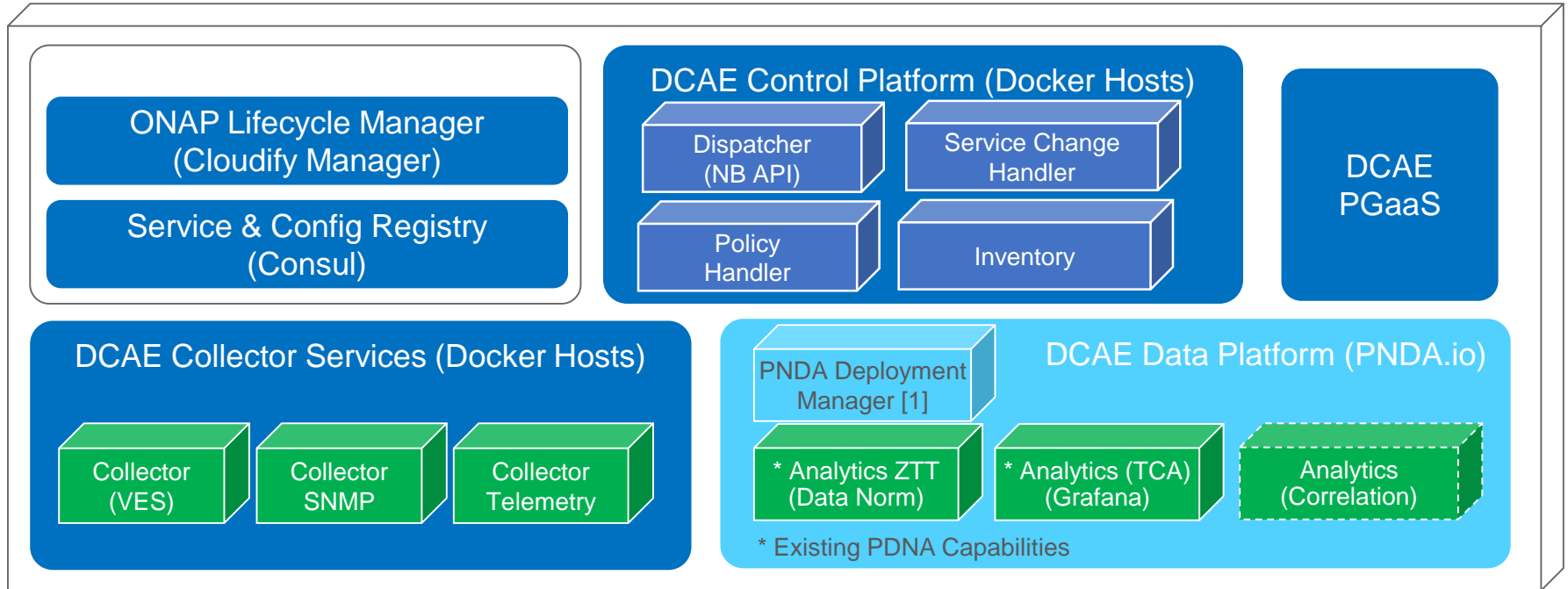# PNDA – ONAP DCAE Integration
Objectives

- Enable choice of big-data platforms within ONAP DCAE:

  Offer PNDA as an option for big-data processing for ONAP
  within the DCAEgen2 framework, providing an alternative to CDAP.

- Note: Objective is to offer PNDA as a real big data platform (incl. Hadoop), as opposed to integrate a developer focused option (e.g. offer "Red-PNDA").

PNDA within DCAEgen2