

PoC: TOSCA Defined Control Loops REQ-402

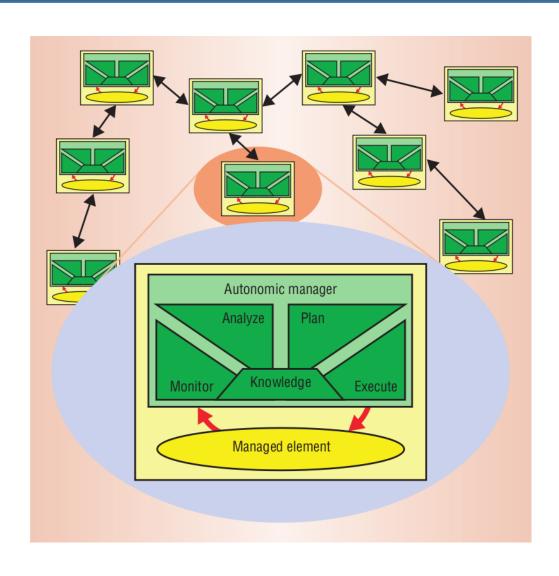
ONAP Architecture Committee Presentation 14th July 2020

Agenda

- Background
- Control Loops in ONAP Today
- Control Loops: Future roadmap
- PoC: TOSCA Defined Control Loops



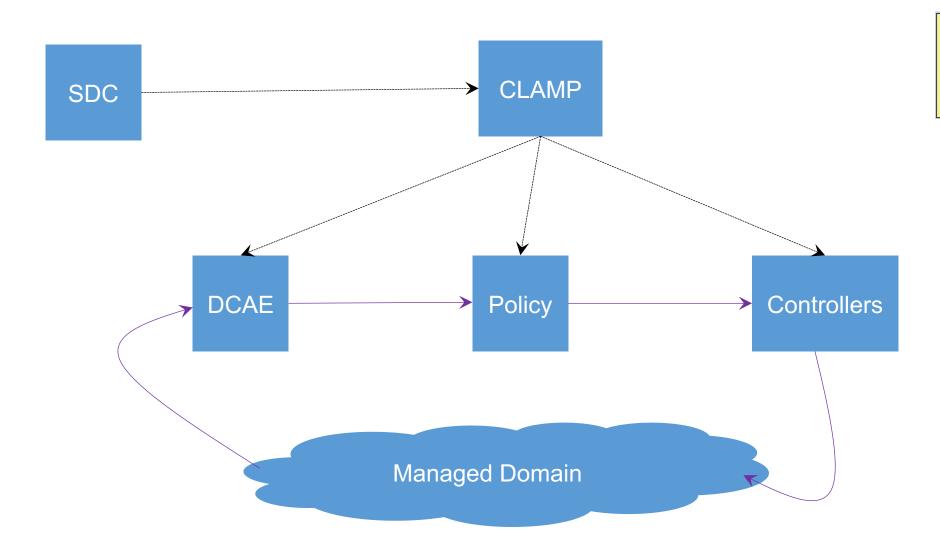
Back to our roots: Autonomic Management

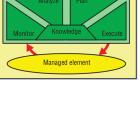


- Monitor (the DC in DCAE)
- Analyse (The AE in DCAE)
- Plan (Policy)
- Execute (Controllers)



The Classic ONAP Approach to Control Loops



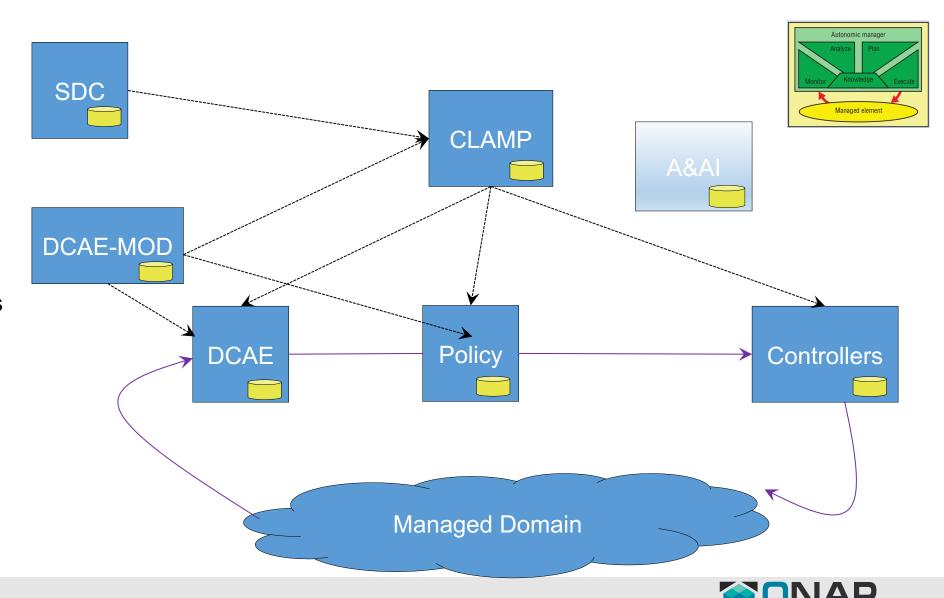




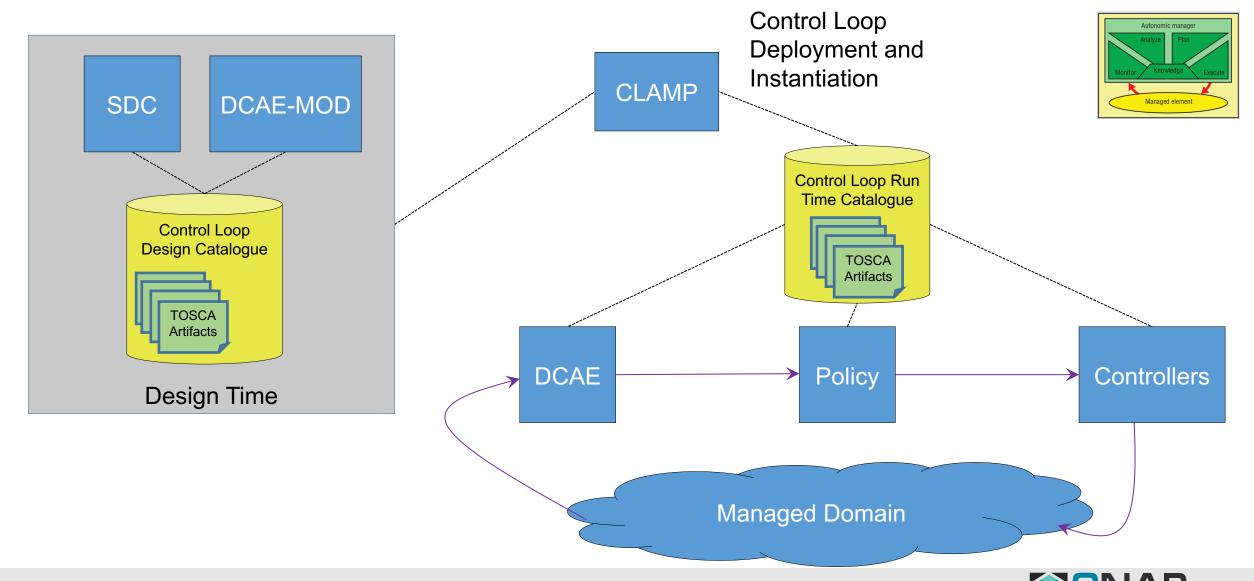
But.... where is the "Knowledge"?

We need to think about **Control Loop** information

- Control Loops as first class citizens in ONAP
- Management of Control Loops at design time and run time
- Control loop participants need to use common knowledge

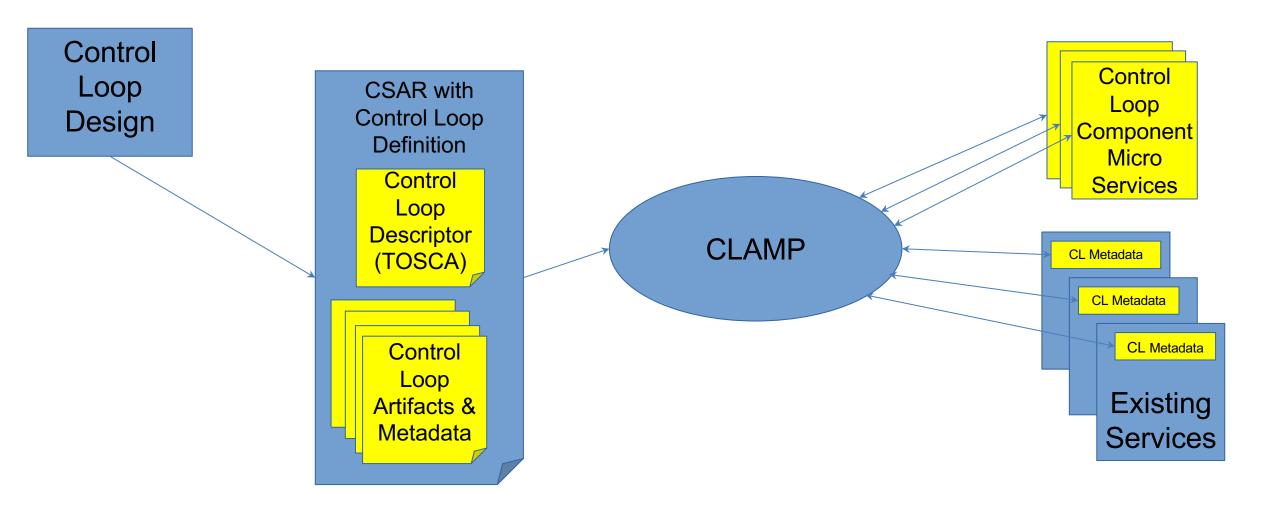


Catalogues: Native TOSCA in Long Term



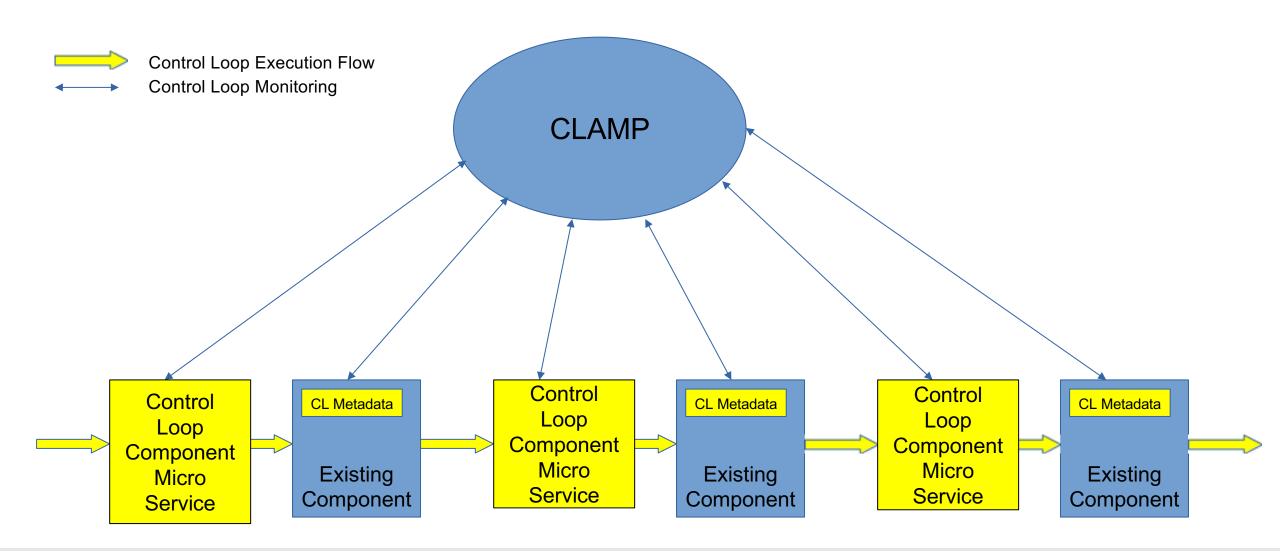


Deployment of Control Loops in Long Term



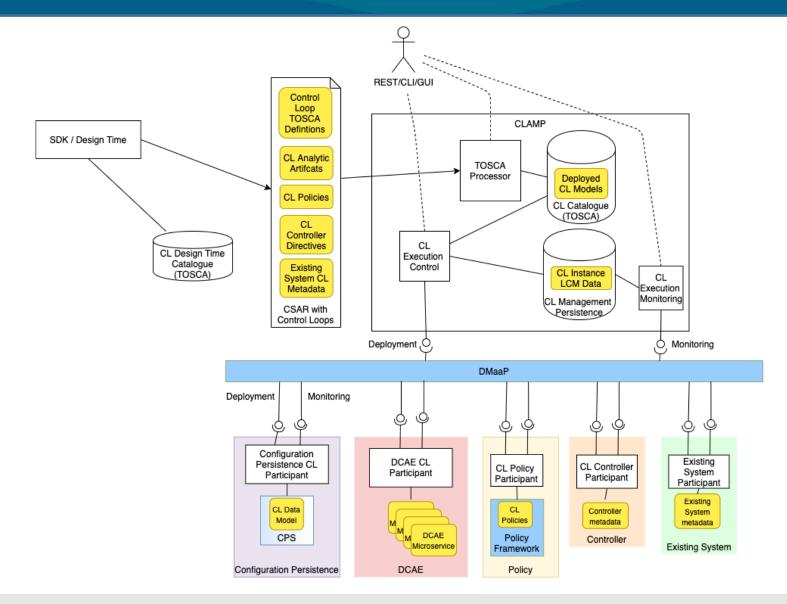


Supervision of Control Loops in Long Term



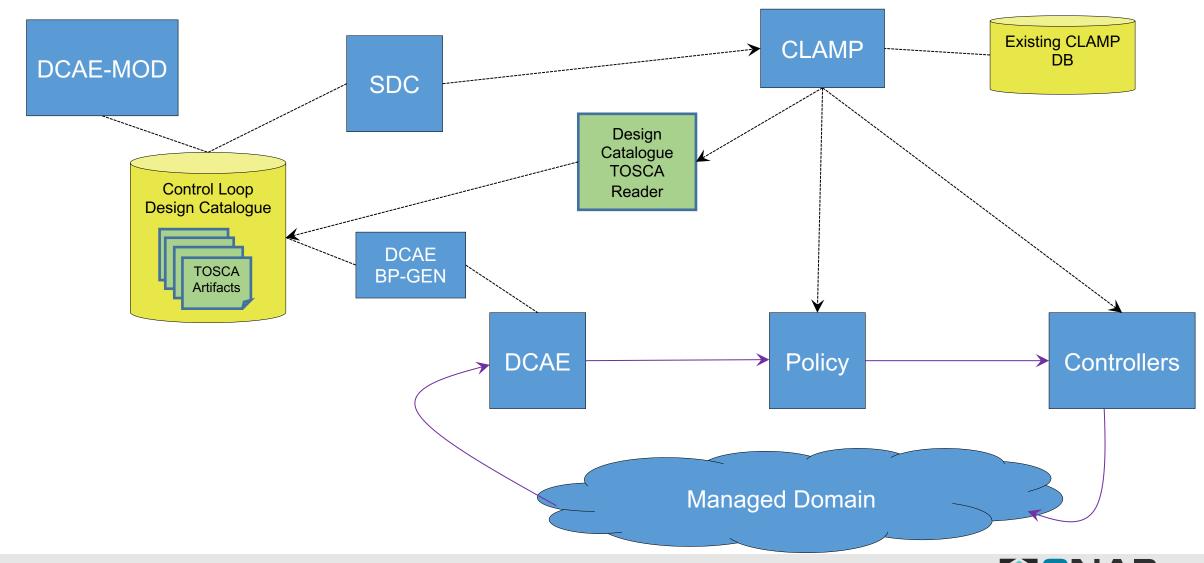


TOSCA Based CL Instantiation, Deployment, Monitoring in Long Term





POC: TOSCA Design Time Catalogue for Control Loops in Guilin





Current Control Loop Data and Interfaces

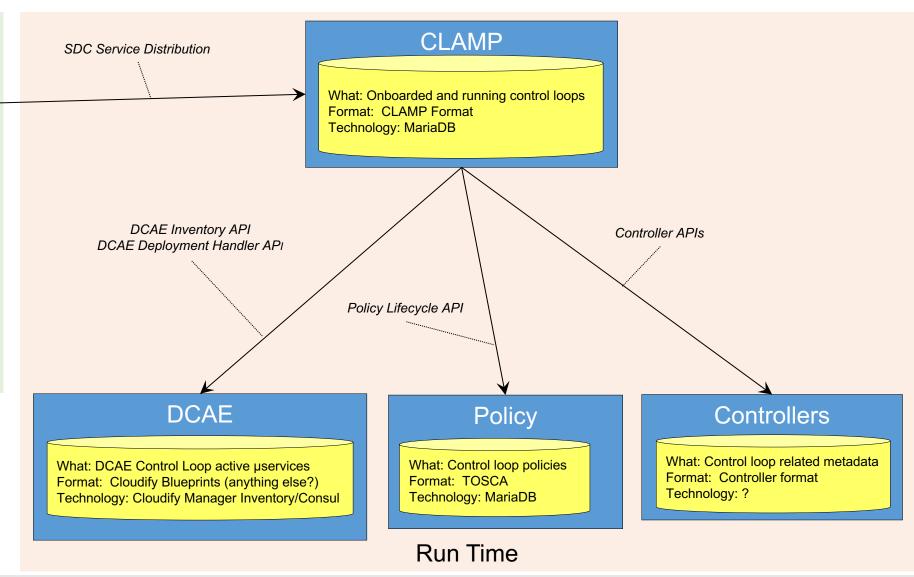
SDC

What: Implicit Control Loop Definitions, policies and Controller Metadata Format: SDC Format Technology: Cassandra/Something else?

DCAE-MOD

What: DCAE Control Loop µservice definitions Format: NIFI Format (Frankfurt) Technology: NIFI repo (Frankfurt)

Design Time







Target High Level Control Loop Data and Interfaces

CLAMP Control Loop Designer SDC Service Distribution What: Onboarded and running control loops What: Control Loop Definitions including (Run time Catalogue) Control Loop uservice definitions, Format: TOSCA Format policy definitions, and any other Technology: MariaDB Control Loop metadata (Design time Catalogue) Format: TOSCA Format Technology: Doesn't matter Control Loop Deployment API Control Loop Deployment API Control Loop Monitoring API Control Loop Monitoring API **Design Time** Control Loop Deployment API Control Loop Deployment API Control Loop Monitoring APX Control Loop Monitoring API A. N. Other System DCAE Controllers Policy What: Control loop related metadata What: Control loop policies What: Arbitrary Control Loop data What: DCAE Control Loop active µservices Format: Controller format Format: Doesn't matter Format: TOSCA Format: Cloudify Blueprints (anything else?) Technology: ? Technology: Doesn't matter Technology: MariaDB Technology: Cloudify Manager Inventory/Consul Run Time



Possible Guilin Control Loop Data and Interfaces

SDC

DCAE-MOD

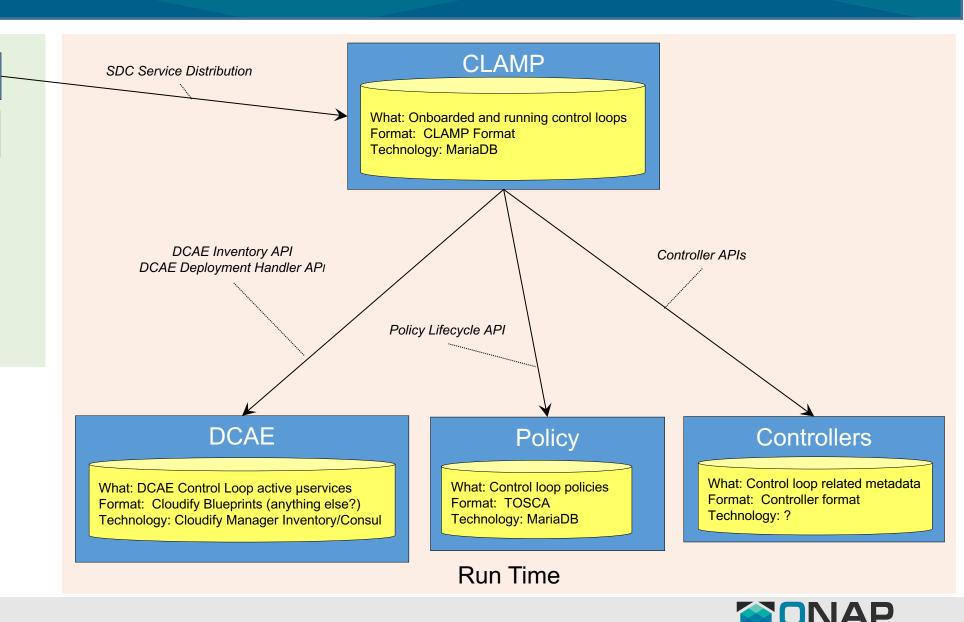
What: Control Loop Definitions including
Control Loop µservice definitions,
policy definitions, and any other
Control Loop metadata
(Design time Catalogue)
Format: TOSCA Format

Design Time

- How do we get DCAE-MOD and SDC data for a CL unified?
- What do we send to CLAMP?

Technology: Doesn't matter

- How does CLAMP transfer/translate the data for DCAE?
- Is everything else bar DCAE OK as it is today?





Guilin: TOSCA Defined Control Loop - Goals

Prove that Control loops can be defined and deployed using TOSCA

- Show that control loops can be described in TOSCA
- Build a design time catalogue for Control Loops
- Show that design time systems can populate the Design Time control loop catalogue
 - DCAE-MOD interacting with the deign time catalogue
 - SDC interacting with the design time catalogue
- Show TOSCA defined control loops being onboarded and deployed



Honolulu and Beyond: TOSCA component agnostic Control Loop

Full TOSCA based control loop orchestration

- Run time agnostic model
- Component deployment and monitoring is agnostic of component technologies
 - Components implement the Control Loop deployment and monitoring APIs
 - CLAMP passes packaged metadata opaquely to components
- Any arbitrary component can partake in a control loop once it implements the CL APIs



Guilin: TOSCA Defined Control Loop - Stories

- 1. Create a TOSCA definition for a Control Loop
- 2. Create Design Time Catalogue for control loops
- 3. Create REST interface towards Design Time Catalogue
- 4. Build interaction between SDC and Design Time Catalogue
- 5. Build interaction between DCAE-MOD and Design Time Catalogue
- 6. Build interaction between Design Time Catalogue and Run Time CLAMP



