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ONAP - Control Loop in TOSCA PoC

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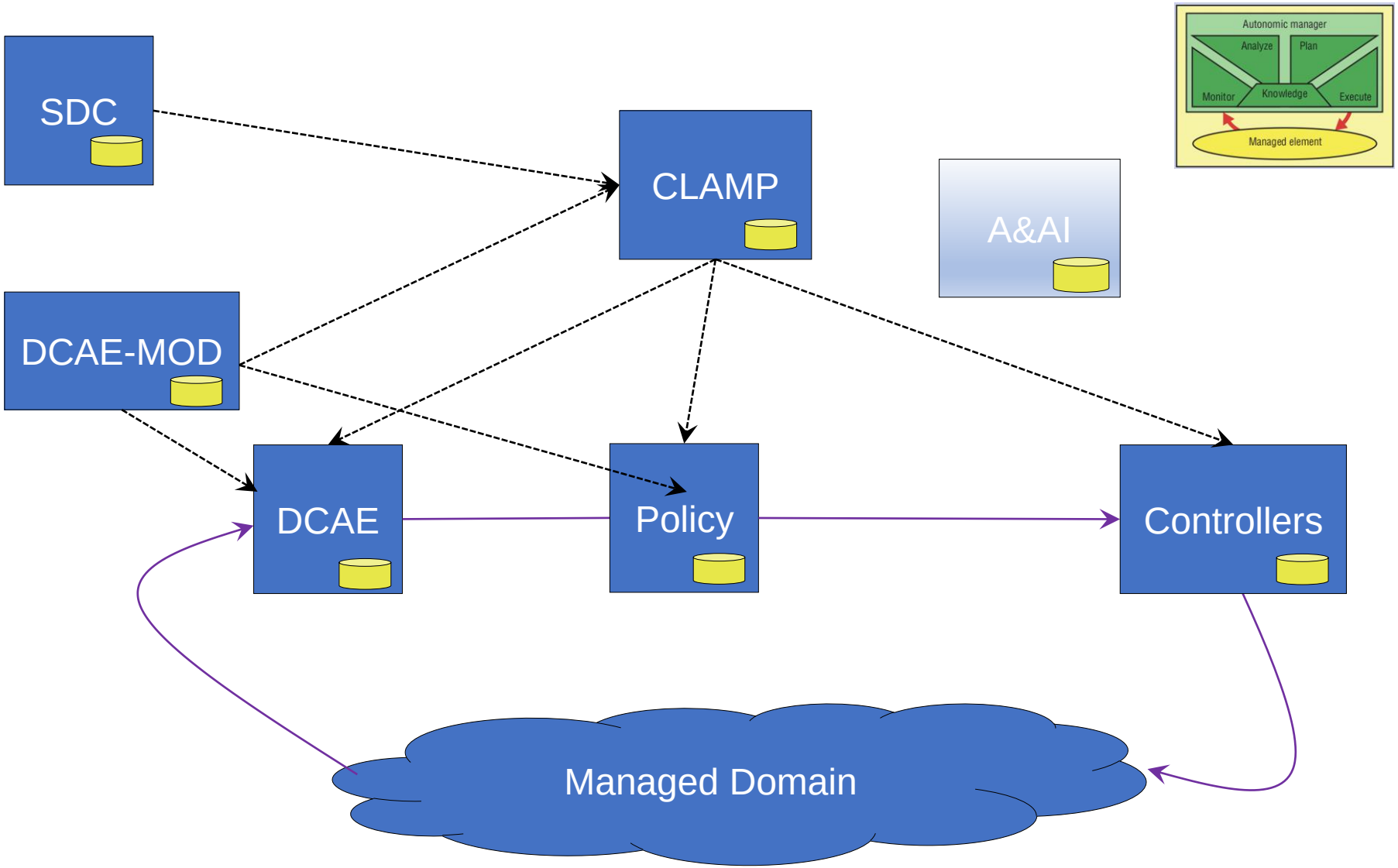
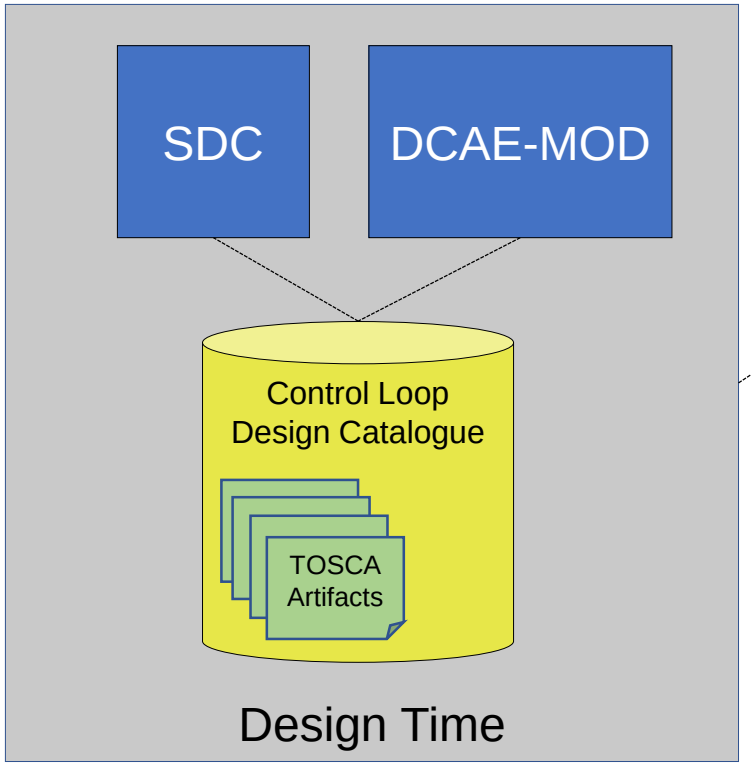
Background: Today…. where is the “Knowledge”?

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

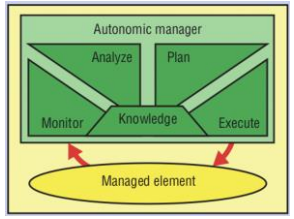
- Control Loops as first class citizens in ONAP
- Management of Control Loops at **design time** and **run time**
- Control loop participants need to use **common** knowledge



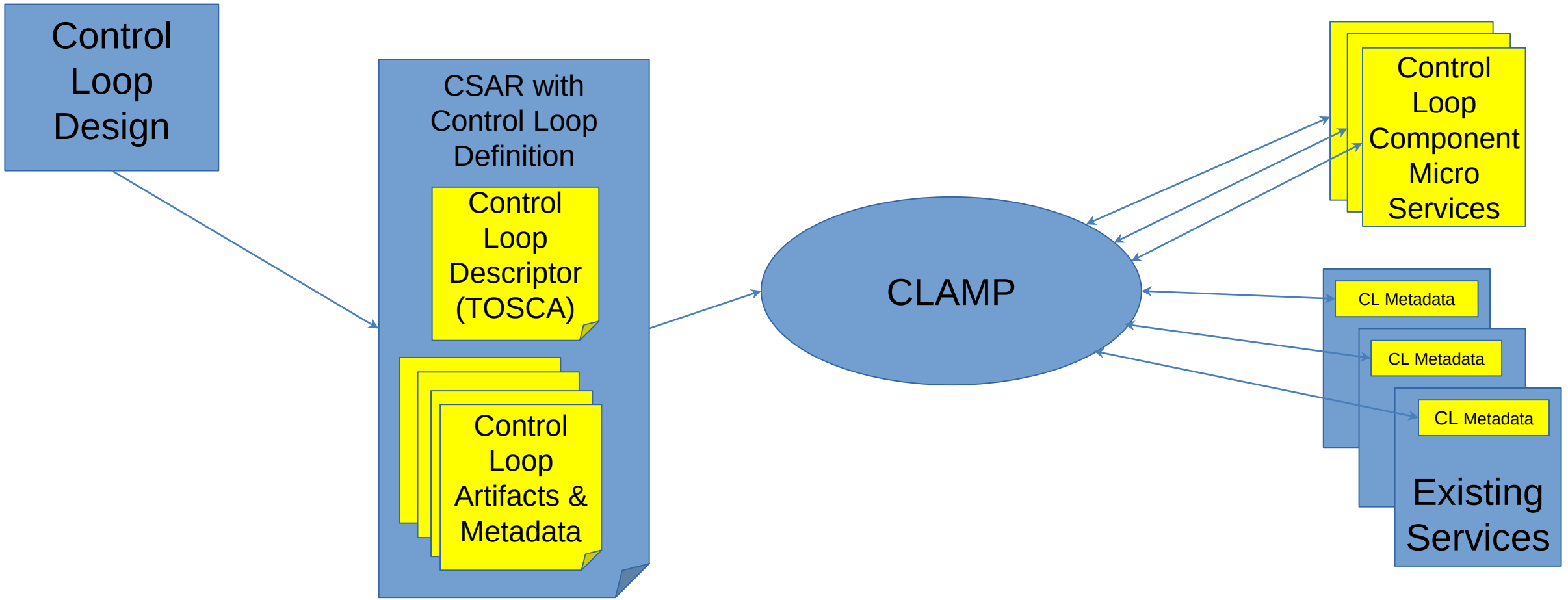
Catalogues: Native TOSCA in Long Term



Control Loop
Deployment and
Instantiation

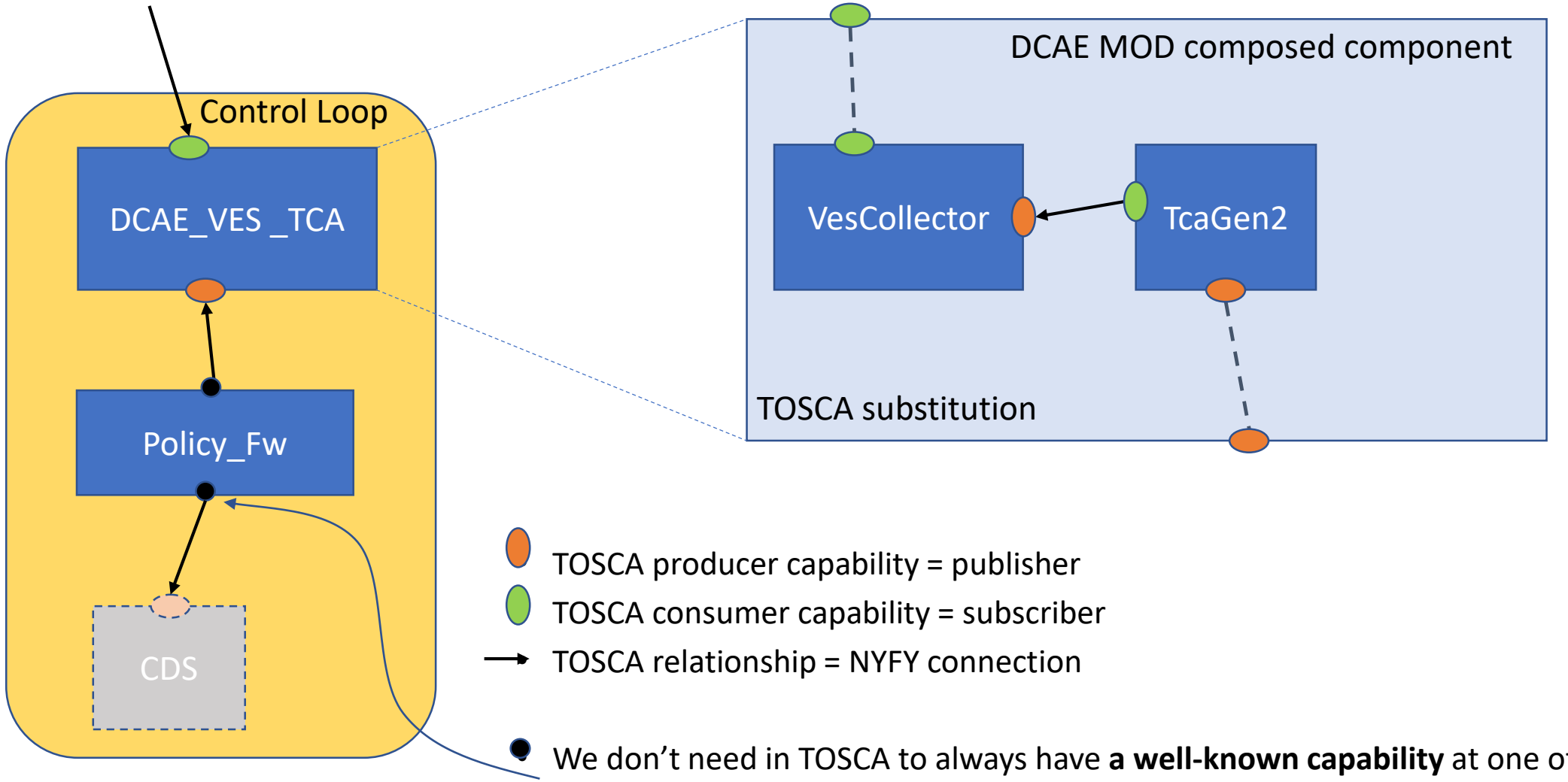


Deployment of Control Loops in Long Term



Guilin: TOSCA Defined Control Loop – Overall Goals

- Demonstrate Control loops can be defined and deployed using TOSCA
- Use a design time catalogue for Control Loops for a complete storage of all the artifacts from different DT systems
- Show design time systems can populate the Design Time control loop catalogue
  - DCAE-MOD interacting with the design time catalogue
  - SDC interacting with the design time catalogue
- Show TOSCA defined control loops being onboarded and deployed



TOSCA producer capability = publisher

TOSCA consumer capability = subscriber

TOSCA relationship = NYFY connection

We don't need in TOSCA to always have **a well-known capability** at one of the ends

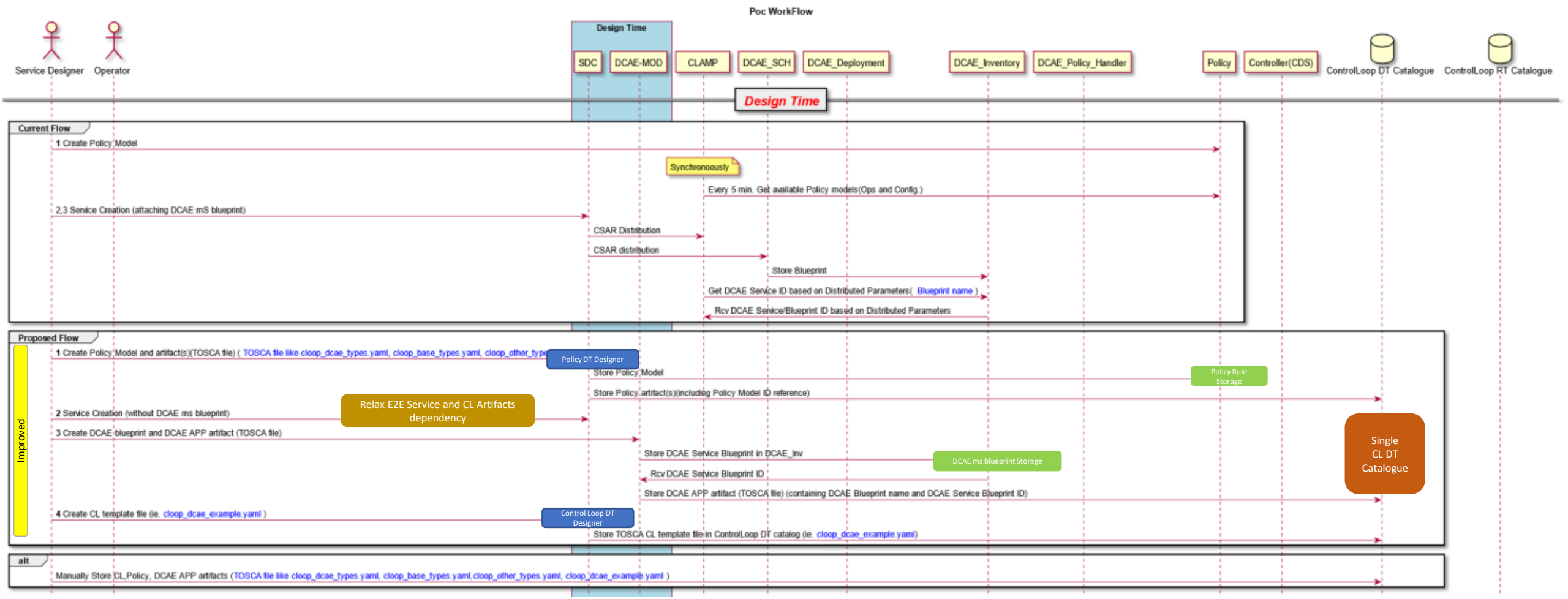
- Can be implied using a TOSCA requirement directly

TOSCA Artifacts: ONAP Rel Guilin POC

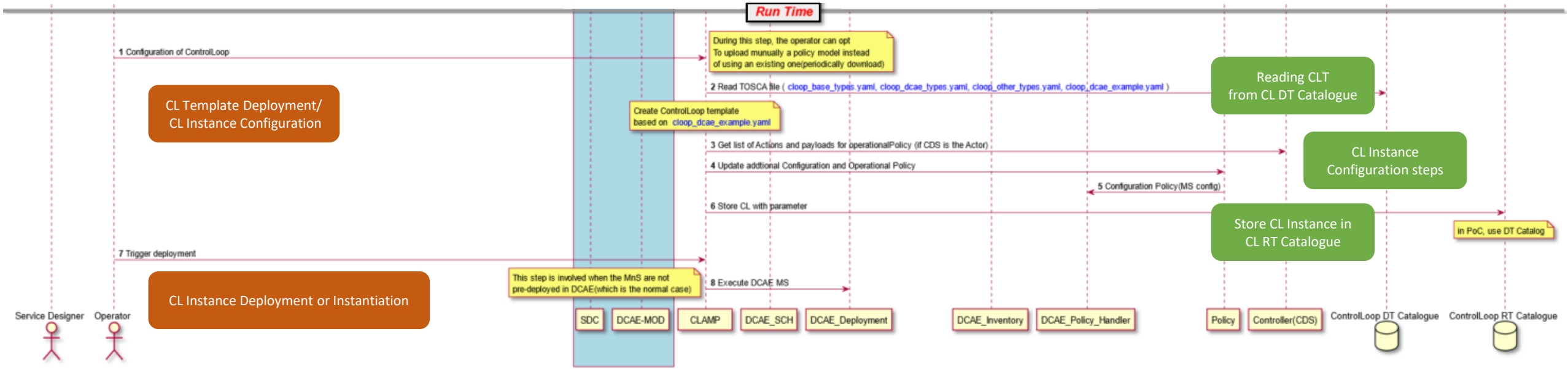
TOSCA ARTIFACTS

- BASIC types (cloop_base_types.yaml)
  - Fundamental types including the event producer and consumer capabilities, and base app type
- DCAE ms artefact (cloop_dcae_types.yaml)
  - Types modelled in DCAE, TCA_Gen_2 or PMSH *mapped to TOSCA (by DCAE)*
  - component composition not covered in Rel G
- Policy (cloop_other_types.yaml)
  - Other types used in the closed loop example (e.g. Policy)
  - Policy_Framework *and Apex_Policy_Framework mapped to TOSCA (by SDC)*
- Control Loop (cloop_dcae_example.yaml)
  - Control Loop example containing TCA_Gen_2 and Apex_Policy Framework app
  - Cloop created by CLAMP Designer

Reference Design Time Flow



Reference Run Time Flow



Rel G PoC topics

- REST API for DT CL Catalogue
  - CRUD operations from SDC or DCAE_MOD or manually by the operator
  - Get operation from CLAMP
- CL Template Deployment: Get CL template information, progress CL configuration then store CL instance in RT CL Catalogue
- CL Instance Deployment/Instantiation: Get CL instance from RT CL Catalogue and execute

Next Steps – ONAP Rel Honolulu

- Continue Control Loop PoC in Rel H to investigate further:
  - Integration with SDC, DCAE-MOD and CLAMP
  - Deployment/Instantiation of CL with **any** CL components/APP
    - CL component as DCAE ms instances (covered by current CLs)
    - CL component as metadata in existing ONAP component instances (e.g. CDS blueprint)
    - CL component as external component to ONAP
  - CL Monitoring

CL components/APP

- Generalize the concept of Control Loop component to include external component to ONAP
- An external CL Component/Application is a micro-service oriented and with a model- based deployment. An Application can be deployed dynamically
- An Application has a specific purpose, use case or domain but there is no intent to constraint an app to a specific function (e.g. Data collection or Analytic function). Application deployment must be Application logic agnostic
- An Application may interwork with ONAP platform/components to perform Network Automation
- An Application may be part of a ONAP Control Loop
- The support in ONAP of Application deployment and its involvement in ONAP Control Loop will:
  - provide a new capability to the platform expanding its boundaries
  - reinforce ONAP Architecture Principles about **Integration Friendly / Standard API:** Various service providers and users of ONAP should be able to quickly integrate ONAP with their existing OSS (and OSS applications)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