

# Controller Design Studio-Dublin-[01]-Overview/Planning

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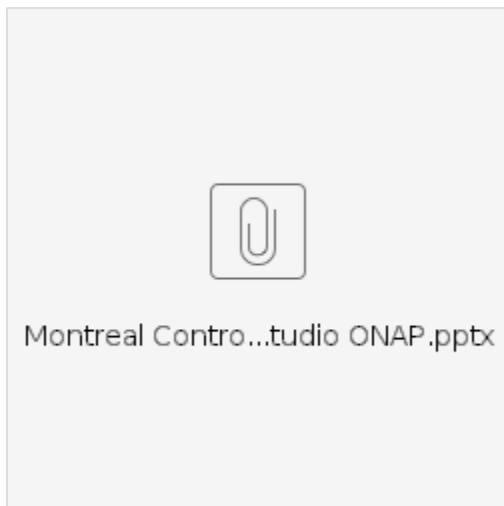
## Background

- For the ONAP Beijing release, the APPC project delivered the CDT design tool to support the APPC model driven design approach.
- For the next ONAP releases Casablanca, we are proposing to develop a common design tool to support both SDNC and Generic L4-7 NFs (APPC, VFC) Controller integrated with SDC. (For Casablanca CDS details access the following page: [Controller Design Studio Initiative - Casablanca Release](#))
- This common design tool, also called “**Controller Design Studio**”, will be built with associated data dictionary and an Ingredient Resource Resolution Microservice
- The common design tool models shall be backwards compatible to the current use cases supported in Amsterdam and Beijing release by Generic L4-7 NF (APP-C specific).

## Introduction

The system is designed to be self service, which means that users, not just programmers, can reconfigure the software system as needed to meet customer requirements. To accomplish this goal, the system is built around models that provide for real-time changes in how the system operates. Users merely need to change a model to change how a service operates.

Self service is a completely new way of delivering services. It removes the dependence on code releases and the delays they cause and puts the control of services into the hands of the service providers. They can change a model and its parameters and create a new service without writing a single line of code. This makes SERVICE PROVIDER(S) more responsive to its customers and able to deliver products that more closely match the needs of its customers.



## Architecture

The Controller Design Studio is composed of two major components: the GUI (or frontend) and the Run Time (or backend). The GUI handles direct user input and allows for displaying both design time and run time activities. For design time, it allows for the creation of controller blueprint, from selecting the DGs to be included, to incorporating the artifact templates, to adding necessary components. For run time, it allows the user to direct the system to resolve the unresolved elements of the controller blueprint and download the resulting configuration into a VNF. At a more basic level, it allows for creation of data dictionaries, capabilities catalogs, and controller blueprint, the basic elements that are used to generate a configuration. The essential function of the Controller Design Studio is to create and populate a controller blueprint, create a configuration file from this Controller blueprint, and download this configuration file (configlet) to a VNF/PNF.

## Detailed Architecture PowerPoint Package:



CDS-Architecture & Design.pptx

## SDC and CDS Integration Workflow Visio



CDS with SDC In...le Diagram.vsdx

## PTL Communications, Contacts & Email

Please click on the highlighted blue hyperlink for the ONAP **Communications, Contacts & Email** including the PTL leads for SO, SDNC, APPC, AAF and others.

## Open-Lab Access

Please ensure that all developers have access to the ONAP Open-lab. Click on the Openlab link below for the procedure to request access.

- [Openlab access for devs](#)

## Dublin Planning: Use Case(s)

Use Case (s)	Dublin Priority	Partners
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<b>Post Instantiation Use Case</b> <ul style="list-style-type: none"> <li>Multi Step Test and Turn Up</li> <li>Directive API (Validation) Modeling -- Generic Parser Model for JSON <ul style="list-style-type: none"> <li>Injecting Scripts</li> </ul> </li> <li>Rollback Modeling</li> <li>RESTCONF, NETCONF</li> </ul>	01	<b>BELL</b> for <b>POST Instantiation</b> Testing
<b>Instantiation Use Case</b> <ul style="list-style-type: none"> <li>Naming mS Enhancement</li> <li>Extended DD for A&amp;AI Capabilities</li> <li>Netbox Enhancement</li> </ul>	02	<b>HUAWEI</b> for <b>Instantiation</b> testing

## Dublin Planning: Feature Priority



CDS \_Dublin\_Scope.pptx

Feature(s)	Dublin Priority	Theme	Level Of Effort	ONAP Component	Partners
<b>Convert the Bundle Run Time Execution to Microservice (Blueprint processor Platform mS)</b> <ul style="list-style-type: none"> <li>Blueprint Process to support the multi controller blueprint artifact model</li> </ul>	01	Controller Design Studio	Difficult	CCSDK	<b>AT&amp;T</b> <b>BELL,</b> <b>IBM India (Sandeep)</b> <b>IBM Montreal (Krill)</b> <b>TechM (Soumendu)</b> <b>Huawei (Guarav)</b>
<b>Move Generic Resource API to DMAAP Event Process.</b> <ul style="list-style-type: none"> <li>Impact SO and SDNC to support DMAAP event for generic resource api.</li> <li>Instantiation -. <b>SHORT Term approach is to solve the SO to SDNC. <u>Walk through sequence diagrams.</u></b> <ul style="list-style-type: none"> <li><b>include Allotted Resource Refactoring. – Include Gil Bullard in the discussion.</b></li> </ul> </li> <li>Long Term approach need to be discussion in Architecture. [VID &gt; SO &gt; SDNC] <b>Post Dublin</b> <ul style="list-style-type: none"> <li>Dan T and Marc will take into architecture forum discussion.</li> </ul> </li> </ul>	02	Controller Design Studio	Moderate	SO, CCSDK	<b>AT&amp;T , BELL</b>

Generic Resource API and blueprint mS to support Asynch transaction via DMAAP event	03	Controller Design Studio	Moderate	CCSDK	AT&T, BELL
<b>Controller Design Studio [CDS] Evolution</b> <ul style="list-style-type: none"> <li>Controller Blueprint Management , Controller Catalog Management, Controller Data Dictionary Management</li> <li>create multi controller blueprint artifact</li> <li>CDT/CDS MS to CCSDK – Create US for Jenkin Jobs.</li> <li>SDC Integration with Controller Design Studio (CDS).</li> </ul> <a href="https://wiki.onap.org/display/DW/Generic+Designer+Support">https://wiki.onap.org/display/DW/Generic+Designer+Support</a> CDS with SDC Integration Lifecycle Diagram.vsd <ul style="list-style-type: none"> <li>Register new capabilities in CDS.</li> <li>DD Governance includes Approve &amp; Publish to code cloud, Reject with Reason. Dashboard for New DDs Pending for approval, Rejected and Approved.</li> </ul> <b>Controller Run Time Studio [Phase Approach]</b> <ul style="list-style-type: none"> <li>Blueprint Execution include Resource Input, Resource Assignment, Configlet Preview, Configlet Content Distribution.</li> <li>Multiple Threads running on the router for configlet content distribution</li> <li>No Ordering Stacking?</li> <li>Allow Multiple Lifecycle Change in parallel??</li> <li>Handling of Asynch Event Notification</li> <li>View MD-SAL Operation Viewing</li> <li>Dashboard Support for the pending, in-processed, completed and failed request/jobs/threads. Note: Include the User Group, User Id, Vnf Name</li> <li>Integrate with ECOMP Portal</li> </ul>	04	Controller Design Studio	Difficult	CCSDK, APPC	DESIGN TIME [Tech M,  AT&T, HUAWEI , IBM  BELL]  RUN TIME (IBM)  HUAWEI - (Yang /Adrian)
Complete the integration with APP-C with DD API		Controller Design Studio	Moderate	AAP-C	IBM
Ansible Server mS to CCSDK (helm chart common??) --- Should we go to OPEN Source ansible server? OpenSource Ansible server is heavy to run.  ---Needs discussion.  No High availability solution for ansible server.		Generic Controller Architecture	TBD		
Controller Resource Manager GUI (Cloud Params) - Nice to have		Controller Design Studio	Moderate	CCSDK, VID	
Handling Complex Objects for input and output - Dan Timoney	A1	Generic Controller Architecture	Difficult	CCSDK	AT&T
Merge ECOMP/ONAP (AT&T Internal) for Generic Resource API - Bruce Brandon	A2	Generic Controller Architecture	Moderate	CCSDK	AT&T
Generic Resource API to CCSDK - Nice to have - Bruce Brandon	A3	Generic Controller Architecture	Moderate	CCSDK, SDNC	AT&T
Extend Naming MS to support groove scripting or scripting	05	Controller Design Studio	Moderate	Policy Manager, CCSDK	BELL
Extend Data Dictionary to support assignment capability - Nice to have		Controller Design Studio	Moderate	CCSDK	
Generic Parser Model for XML - Nice to have		Controller Design Studio	Difficult	CCSDK	
Generic Parser Model for YANG Model - Nice to have		Controller Design Studio	TBD		
Add a mechanism in the blueprint to pass the capability sequence. (optional) by the default the DG specifies the preselected capability order.	09	Controller Design Studio	Easy	CCSDK	HUAWEI - Yang to check.
Automate JSON file generations for Instantiation use case and how to integrate the new capabilities. – Post Dublin		Controller Design Studio	Difficult	CCSDK	
<b>Netbox MS and Vlan Tag capabilities.</b> <ul style="list-style-type: none"> <li>A. generic adapter for handling the merging of JSON/XML to context memory — POST Dublin</li> <li>Extend Nextbox capabilities for vlan Tag — for Dublin</li> <li>Netbox as a mS – POST Dublin</li> </ul>	06	Controller Design Studio	Moderate	CCSDK, Netbox	BELL
Netbox capability enhancement for manual assignments.	07	Controller Design Studio	Easy	CCSDK, SDNC, Netbox	BELL
Data Dictionary Retrieval of the ONAP Environment Parameters from A&AI – Test the Instantiation Use Case (vFW)	08	Controller Design Studio	Moderate	CCSDK	AT&T BELL

