

Request for Stand-Alone Project: Open Broadband CloudCO-App SDK (OB-CAS)

Request for Stand-Alone Project

This page forms the basis for a Board of Directors (BoD) agreement for new stand-alone projects. The Board of Directors will review the Request Form, with any accompanying documents. Upon agreement to proceed, BBF staff, on behalf of the Board of Directors, will oversee the processing of the necessary legal agreements, procedures, membership rules, setup of software tools, etc.

If you are interested in proposing a new project, please reach out to BBF via info@broadband-forum.org.

Notice:

This Form has been prepared to assist the Broadband Forum. It is offered to the BoD as a basis for discussion and is not a binding proposal on the author(s), parent companies or any other company. The information is provided "as is" with no warranties of any kind. Information presented in this document is subject to change after further study. The author reserves the right to add, amend or withdraw any and all statements made herein.

Directions:

To submit a request for a new stand-alone project, copy this page by clicking the "... " menu button at the top right, then "Copy". Publish your new page with a title of the format: "Request for Stand-Alone Project: [Title and Acronym]".

Item	Details and description
Title	CloudCO-App SDK (CAS)
Type of project	<div><input checked="" type="checkbox"/> New project</div> <div><input type="checkbox"/> Extension of existing project(s)</div>
Project description	Introduction: <p>The introduction of SW-defined access networking has created an eco-system that is beneficial to multi-vendor interoperability across data, control and management plane, thanks to the BBF standardization and OB projects, such as OB-BAA.</p>

Focus of BBF specification work in access domain -and associated OB-BAA activities- was and is (still) mainly on multi-vendor network function disaggregation, virtualization and control.

Lately, big data analytics based on AI/ML technologies are being introduced to enhance the efficiency of controlling and operating networks, and where even autonomous networking may well be conceivable to become a reality in the next decade.

The BBF Automated Intelligent Management (AIM) project in CloudCO project stream has standardised a general framework description and architecture for such automated access network management based on closed loops and where AIM modeling functions (MF) play a decisive role in optimizing the network (TR-436). The first version of the AIM interface specification is about to be released as TR-486.

Existing work (if any):

Cloud infrastructure & utility software market today is abundant with various products and services. While it's good to have options, for individual AIM application developer it would be an overhead to make choices for each apps they develop. Also, divergent choices across apps would mean the hosting infrastructure would need have the superset of all these pre-requisites making it complex, resource intensive and difficult to maintain.

Project prerequisites:

TR.436 introduces Automated and Intelligent Management (AIM), to empower management and control functionalities and processes with automation capabilities based on intelligent decision making.

The AIM framework encompasses various degrees of intelligence including AI/ML, to help Network Operators and Service Providers operating and managing their network and services by enabling and improving automation, optimization and promptness of processes.

With Automation, Optimization and Promptness requirements/challenges is not same for any two operators, it becomes pertinent to realize each use-case as "Value Added Services/Applications".

Key requirements for such applications would be

1. Should remain lightweight without operator need to worry about the full fledged life-cycle management of individual apps. Take advantage of cloud native architecture principles to host the apps in existing operating environment of CloudCO components (e.g. Domain controller).
2. Should be hot deployable across different vendors operating environment. This can be realized by standardizing/blue print interfaces of the hosting environment.
3. For faster time to market & easier maintenance, the app development should be restricted to business logic for realizing its objective. It can reuse components from the hosting platform. The components could be:
 - Infrastructure components (e.g. datastores, messaging systems, authentication modules)
 - Functional components (e.g. Collection functions – IPFix collectors, PMA for network inventory)

	<p>Should be encapsulated as much as possible from vendor/technology specifics</p> <p>Project roles:</p> <p>The CloudCO-App SDK project will follow the same Agile based development methodology similar to other OB projects (e.g., OB-BAA).</p> <p>The story team is expected to be primarily driven by operator community while the development team will be driven by vendor community.</p> <p>The story team is expected to meet periodically and come up with the requirements for project. This includes new use-cases requiring sample applications, new services required in app sdk etc.</p> <p>The development team will undertake the design & development under AppSDK project to realize the requirements identified by story team. They will follow Agile methodology of developing with periodic sprints and demonstrating the capabilities to story team for approval.</p> <p>Project manager will be responsible for coordinating the overall project</p>
Project scope/phases	<p>CloudCO-App SDK project attempts to define an open source environment through which management applications (for example AIM MFs DEs) can interact with management reference platform service in a CloudCO network context.</p> <p>Objective of this environment is to lower the threshold for application developers to embed their SW app in an CloudCO/access management environment, with minimum dependency on the access controller / Infrastructure specifics.</p> <p>The open source environment could be created in BBF as a reference CloudCO-App platform with associated SDK/APIs blueprint, as follows:</p> <ul style="list-style-type: none"> • Define and select existing open-source APIs through which management apps can interact with in a CloudCO environment e.g Kubernetes, Kafka, Influx DB, Maria DB, Open Search • Create an open access cloud platform by leveraging selected microservice components that have been developed in OB-BAA project e.g. PMA core, IPFix microservice, NC/Y mediation <p>The proposal also includes developing couple of sample apps showcasing the usage of the CloudCO-App SDK and also realizing a use-case (e.g. Alarm correlation, Network inventory)</p>

Business need(s) and opportunities	<ul style="list-style-type: none"> • Enabling of an app ecosystem for automated intelligent access network management , that will facilitate plug and play integration of intelligent SW applications, e.g. leveraging AI • Faster time-to-market for such 3rd party or operator-in-house developed applications with no or less need for customized integration if app SDK is embraced by CloudCO vendors either providing host environments or the applications' SW
Business impact(s) (check as many as applicable)	<div><input checked="" type="checkbox"/> New Revenue</div> <div><input type="checkbox"/> New Services</div> <div><input checked="" type="checkbox"/> New Applications</div> <div><input type="checkbox"/> Infrastructure</div> <div><input type="checkbox"/> Faster Time to Revenue</div> <div><input type="checkbox"/> Scalability</div> <div><input type="checkbox"/> Other (specify):</div>
Savings (if applicable)	<div><input checked="" type="checkbox"/> OpEx</div> <div><input type="checkbox"/> CapEx</div> <div><input type="checkbox"/> Non-Recurring Costs</div>
Audience (check as many as applicable)	<p>Industry:</p> <div><input checked="" type="checkbox"/> Service Provider/Network Operator</div> <div><input type="checkbox"/> Equipment Manufacturer</div> <div><input type="checkbox"/> Component Manufacturer</div> <div><input checked="" type="checkbox"/> Software company</div> <div><input type="checkbox"/> Test company</div> <div><input type="checkbox"/> System Integrator</div> <p>Role:</p> <div><input type="checkbox"/> Marketing/BusDev</div> <div><input checked="" type="checkbox"/> Developer</div> <div><input checked="" type="checkbox"/> Architect</div> <div><input checked="" type="checkbox"/> Network Operations</div> <div><input checked="" type="checkbox"/> IT</div>

Deliverable type(s) (check as many as applicable)	<p>National/International institutions:</p> <p><input type="checkbox"/> Governments</p> <p><input type="checkbox"/> Regulators</p> <p><input type="checkbox"/> SDOs</p> <p>Media:</p> <p><input type="checkbox"/> Analysts</p> <p><input type="checkbox"/> Press</p> <p>Type:</p> <p><input type="checkbox"/> Tech Spec</p> <p><input type="checkbox"/> Implementation Agreement</p> <p><input type="checkbox"/> Architecture</p> <p><input type="checkbox"/> Data Model</p> <p><input checked="" type="checkbox"/> API</p> <p><input type="checkbox"/> Test Plan</p> <p><input type="checkbox"/> Liaison</p> <p><input type="checkbox"/> Best Practices Paper</p> <p><input type="checkbox"/> Positioning Paper</p> <p><input checked="" type="checkbox"/> Others (specify): SDK</p>
Relationship to BBF strategy (e. g., Ultra-fast, Agile, Valuable)	Network automation, Agile: Creation of valuable open source implementations through swift development methodologies which mainly serves the aim of an Agile and autonomous or semi-autonomous network.
Related BBF documents /projects	OB-BAA, TR-384 TR-436, WT-486
Related project dependencies from and proposed interactions with other SDOs /industry forums. Do any of these organizations (or members of) need to be direct contributors inside the project?	The resulting open source implementation may be readily reused by other open source projects without any additional licensing or IPR restrictions.
Other special considerations: for non-members, IPP, timing, etc.	
Target project completion date	2025 Q1
Supporting companies (please indicate if they are not BBF Members):	Nokia, Alticelabs, Outsys, Vodafone

Approval:

Project name:

Initiation date:

Leadership:

IPP:

Scope of Work:

Project deliverables:

Non-BBF members:

Project Charter

Project description	This OB-CloudCO-App SDK project proposal is about defining and developing in BBF an open platform software environment and associated software development kit (SDK) through which control/management software providers can easily hook in their cloud application running in this open CloudCO management environment. It allows for example to demonstrate AIM by plugging AIM MF apps -containing only core application code, while leveraging common cloud/CloudCO infrastructure services via pre-defined but open APIs.
----------------------------	---

Technical Proposal /Scope of work

Cloud infrastructure & utility software market today is abundant with various products and services. While it's good to have options, for individual AIM application developer it would be an overhead to make choices for each apps they develop. Also, divergent choices across apps would mean the hosting infrastructure would need have the superset of all these pre-requisites making it complex, resource intensive and difficult to maintain.

CloudCO-App SDK project attempts to define an open source environment through which management applications (for example AIM MFs DEs) can interact with management reference platform service in a CloudCO network context.

Objective of this environment is to lower the threshold for application developers to embed their SW app in an CloudCO/access management environment, with minimum dependency on the access controller / Infrastructure specifics.

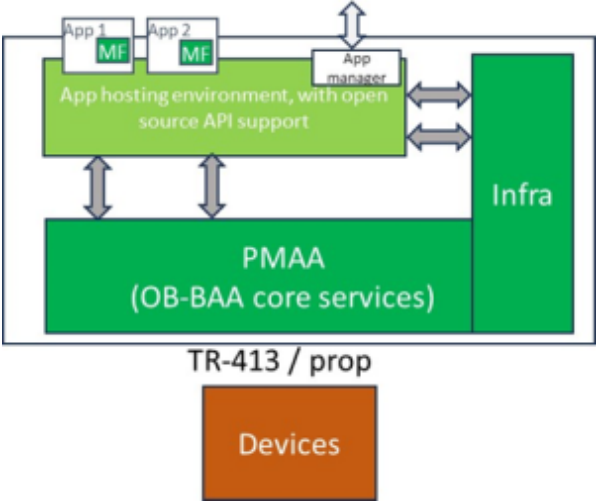
The open source environment could be created in BBF as a reference CloudCO-App platform with associated SDK/APIs blueprint, as follows:

- Define and select open-source APIs through which management apps can interact with in a CloudCO environment e.g Kubernetes, Kafka, Influx DB, Maria DB, Open Search



- Create an open access cloud platform by leveraging selected microservice components that have been developed in OB-BAA project e.g. PMA core, IPFix microservice, NC/Y mediation

The proposal also includes developing couple of sample apps showcasing the usage of the CloudCO-App SDK and also realizing a use-case (e.g. Alarm correlation, Network Inventory).

Project deliverables	<p>The CloudCO-App SDK project will have following deliverables:</p> <ol style="list-style-type: none"> 1. Packaging descriptors of Infrastructure components used in App sdk 2. Sample App reference realization using the App SDK. The app could be initially for a simple AIM use-case (e.g Alarm correlation). In future to used as reference to spin out more and more apps for complex use-cases <ol style="list-style-type: none"> a. Future evolution of App SDK will be about new app implementations based on new use-cases and associated SDK enhancements (new Infra components, existing component revisions etc.) 3. A sandbox environment which can host the AppSDK + Infra + Reference PMAA (OB-BAA core) + Device Simulators + Sample app to develop/test/build apps  <p>Note that while the project would be under the BBF umbrella, participation in this project would be open to non-members including the current participants in other open source projects. The development environment and best practices will be established by the project team. Also, the software resulting from this project must support easy reuse by other, possibly non-BBF, open source projects.</p> <p>The CAS project will follow a reuse – create philosophy in which existing software under RAND-Z licensing is reused rather than recreated. This is analogous to the approach that was taken for YANG model and OB-BAA SW layer development.</p>
IPR	See separate " Broadband Forum Project Participation Agreement " (attached here)