ComputeNext Service Provider
(CNSP beta version 0.7)

Contents

Introduction

ComputeNext marketplace enables cloud services to be provisioned from geographically diverse cloud providers operating on one or more cloud platforms. This document describes the API that a cloud service provider should support to enable fulfillment and life cycle management of the service catalog and consumed through the ComputeNext Cloud Brokerage Platform.

Note

This document describes the beta version of the API. The API definition and the associated structure will change as the API gets finalized.

Terminology

Cloud Brokerage: Cloud Brokerage is the framework that enables the search, discovery, fulfillment, managing and tracking the efficient use of cloud services for a customer’s service need.

Cloud Service Provider: A vendor that offers a service in the cloud computing paradigm with service delivered in IaaS, PaaS or SaaS models.

ComputeNext Service Provider (CNSP): A cloud service provider onboarded to offer their services via appropriate APIs to the ComputeNext platform

ComputeNext Service Provider (CNSP) API: A REST interface specification to describe the services and its artifacts offered by a Cloud Service Provider

CNSP-compatible service endpoint: ComputeNext compatible endpoint defines the contract between the CNSP connector and the Service Provider.

ComputeNext Service Provider (CNSP) API

In the current implementation, to on-board a service provider in ComputeNext marketplace a connector is to be available / developed. The connector will be the mediator between the ComputeNext system and the service provider platform. The connector understands the ComputeNext System API request, convert the request to service provider compatible so that the service provider understands and perform the appropriate action.

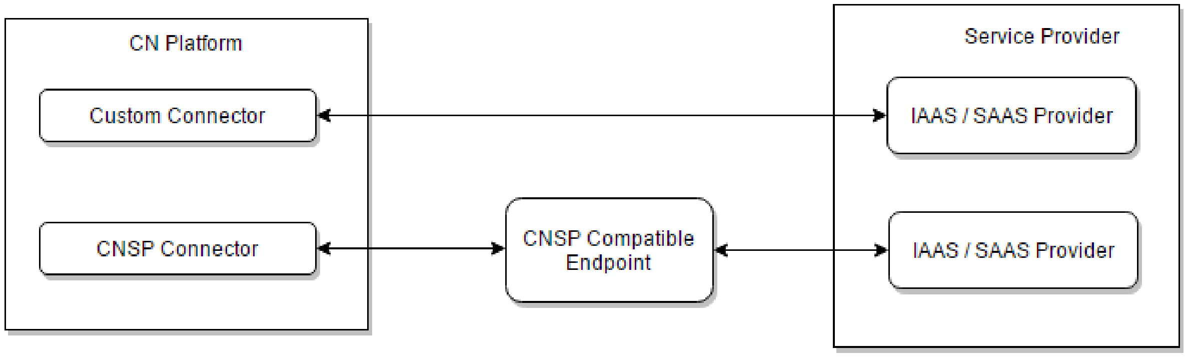
Once the connector for a service provider is developed, the offers supported by the SP need to be added to the system. In the current implementation this is done by adding the catalog details to JSON file, this JSON data is pushed to the system.

With the current implementation there is no way a service provider can get them on-boarded to ComputeNext markeplace themselves without the help of ComputeNext team.

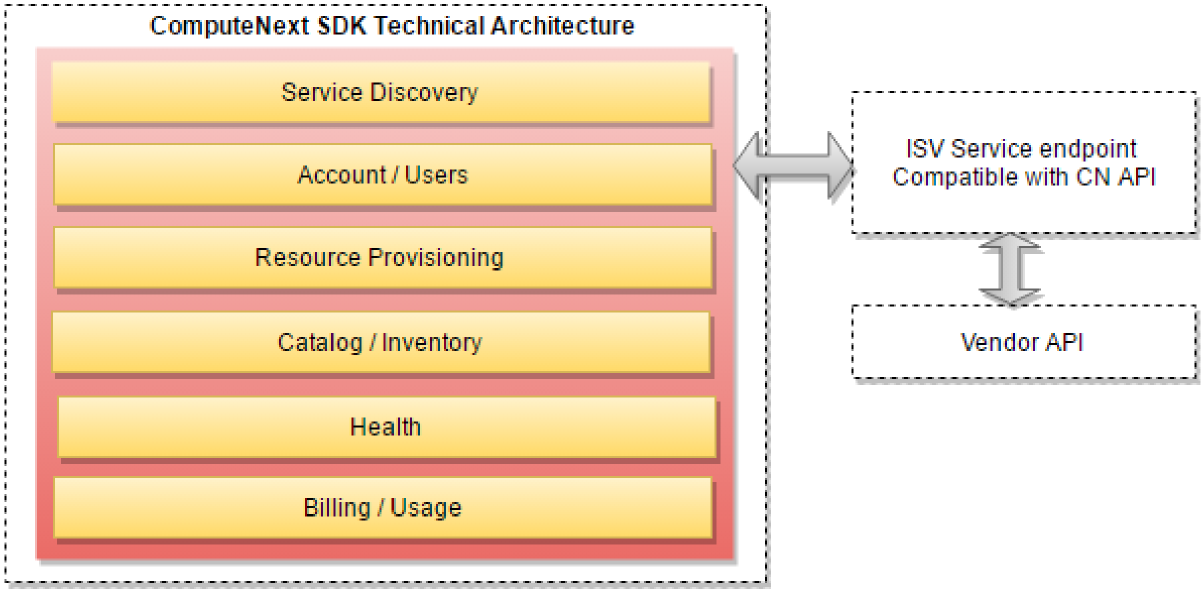
Computenext Service provider connector(CNSP) enable a way for service providers to get themselves on-boarded without the help of ComputeNext Team.

CNSP connector contains cloud abstracted API, wrapper around a large number of cloud service providers, abstracting the difference. The service providers will need to develops API endpoints (CNSP Compatible endpoints) in order to understand the API calls from CNSP connector.

Architecture



CNSP Connector



Below are services APIs that are implemented in CNSP API, the cloud service provider should develop the CNSP compatible API endpoints to listen from the below service APIs.

Category	API	Descriptions
Service discovery API	/apiv1/discovery	When a CSP registers their endpoint with ComputeNext marketplace, the service discovery API is used to obtain metadata information about the states and supported actions of the different types of services and their artifacts offered by the CSP to the Brokerage platform.
Account / Users Management API	/apiv1/account	API methods to create and manage account and user life cycle in the CSP's cloud services.
Resource provisioning	/apiv1/resource	Cloud Resource refers to services and artifacts offered by the CSP. The API methods enable the creation and lifecycle management of the cloud resources in a CSP.

Catalog / Inventory	/apiv1/catalog	API methods to get attributes and properties of the particular cloud service and artifacts offered by the CSP along with the service inventory made available to the marketplace. These attributes include human-readable informational data presented to the customer, parameters/options selectable by the customer to use variations of the service and metadata to configure the service during different lifecycle events (create, start, stop, upgrade, terminate, etc.)
Health	/apiv1/health	API methods to provide service endpoint health as well as health of service and artifacts offered via the Monitors the services availability and the resource endpoints
Billing / Usage	/apiv1/billing	Helps to get the billing and usage details from CSP.

Authentication

CNSP connector authenticates with the CNSP compatible API endpoint using HTTP basic authentication (the Authorization: header) on every request and will reject any request that do not contain a username and password. The CNSP compatible API endpoint is responsible for checking the username and password and returning a 401 Unauthorized message if credentials are invalid.

Request / Response

When SP endpoint receives a request from CNSP connector, it should synchronously perform the necessary action on the resource and respond to the request.

Account / Users Management

Action	**API**	**Sample**

Create Account	POST /apiv1/account	**Request**
		{
		    "name": "Computenext",
		    "companyType": "business",
		    "username": "goog-test.yourdomain.com.example.com",
		    "password": "testPassword",
		    "externalId": "8b9927ae-d133-426b-9f57-f2a011974df9",
		    "domainName": "goog-test.yourdomain.com.example.com",
		    "profile": {
		        "first_name": "sai",
		        "last_name": "baba",
		        "email": "sai@example.com",
		        "culture": "US",
		        "language": "EN",
		        "company_name": "company",
		        "default_address": {
		            "first_name": "sai",
		            "last_name": "baba",
		            "address_line1": "sterrt updated",
		            "address_line2": "address2",
		            "address_line3": "",
		            "city": "Boston",
		            "region": "WA",
		            "postal_code": "90012",
		            "country": "US",
		            "phone_number": "231321312"
		        }

```
    }
}
```

Success Response

```
{
  "result": {
    "providerresponse": {
      "accountid": "C025ishad",
      "customerDomain": "goog-test.yourdomain.com.example.com"
    },
    "success": true,
    "message": "Account created successfully"
  }
}
```

Error Response

```
{
   "result":{
      "providerresponse":{
         "errorcode":"BZSMS1134E",
         "errormessage":"Invalid credentials provided.",
                 "respcode" :401
          },
      "success":false,
      "message":"Authentication failed"
   }
}
Or


{
  "result": {
```

		"providerresponse": {
		"respcode": 409,
		"errorcode": 409,
		"errormessage": "Resource already exists"
		},
		"success": false,
		"message": "Resource already exists"
		}
		}

Update Account	PUT /apiv1/account	**Request**
		{
		"name": "Computenext",
		"companyType": "business",
		"username": "goog-test.yourdomain.com.example.com",
		"password": "testPassword",
		"externalId": "8b9927ae-d133-426b-9f57-f2a011974df9",
		"domainName": "goog-test.yourdomain.com.example.com",
		"profile": {
		"first_name": "tpay3",
		"last_name": "tpay3",
		"email": "sai@example.com",
		"culture": "US",
		"language": "EN",
		"company_name": "company",
		"default_address": {
		"first_name": "tpay3",
		"last_name": "tpay3",
		"address_line1": "sterrt 3 updated",
		"address_line2": "address2",
		"address_line3": "",
		"city": "Seatle",
		"region": "WA",
		"postal_code": "90012",
		"country": "US",
		"phone_number": "123456789"
		}

		},
		 "requestor":{
		 "accountid":"C01y8xij6"
		 }
		 }
		 Response
		 {
		 "result":{
		 "providerresponse": {
		 "accountid":"123456789",
		 "respcode" :200
		 },
		 "success":true,
		 "message":"Account updated successfully"
		 }
		 }
		 Error Response
		 {
		 "result": {
		 "providerresponse": {
		 "respcode": 409,
		 "errorcode": 409,
		 "errormessage": "Resource already exists"
		 },
		 "success": false,
		 "message": "Resource already exists"
		 }
		 }

Delete Account	DELETE /apiv1/account	**Request**
		{
		"accountid":"32323232"
		}
		Response
		{
		"result":{
		"providerresponse": {
		"accountid":"123456789",
		"respcode" :200
		},
		"success":true,
		"message":"Account deleted successfully"
		}
		}
		Error Response
		{
		"result":{
		"providerresponse":{
		"errorcode":"BZSMS1134E",
		"errormessage":"The account doesn't exist.",
		"respcode" :404
		},
		"success":false,
		"message":"Account deletion failed"
		}
		}

<table>
<tr>
<td>Get an Account</td>
<td>GET /apiv1/account/:accountId</td>
<td>

Request

```
Get accountid from URL param
```

Response

```
{
  "result": {
    "providerresponse": {
      "accounts": [
        {
          "accountid": "C025ishad",
          "domainName": "goog-test.
yourdomain.com.example.com",
          "profile": {
            "default_address": {
              "address_line1": "sterrt 3
updated",
              "city": "Seatle",
              "region": "WA",
              "postal_code": "90012",
              "country": "US"
            },
            "first_name": "tpay3",
            "last_name": "tpay3",
            "company_name": "company"
          }
        }
      ],
      "respcode": 200
    },
    "success": true,
    "message": "Account retrieved
successfully"
  }
```

</td>
</tr>
</table>

		}
		Error Response
		{
		"result":{
		"providerresponse":{
		"errorcode":"BZSMS1134E",
		"errormessage":"The user is not authorized.",
		"respcode" :500
		},
		"success":false,
		"message":"Account retrieval failed"
		}
		}

Get All Accounts	GET /apiv1/account	**Request**
		Response
		{
		"result":{
		"providerresponse": {
		"respcode" :200,
		"accounts":[
		{
		"accountid":
		"123456789",
		"domainName":
		"test.com",
		"profile": {
		"first_name": "firstName",
		"last_name": "lastName",
		"email":
		"Email",
		"company_name": "company",
		"default_address": {
		"address_line1": "address1",
		"city": "city",
		"region": "region",
		"postal_code": "postal",
		"country": "country",
		"phone_number": "231321312"
		}

		}
		},
		{
		"accountid": "123456789",
		"domainName": "test.com",
		"profile": {
		"first_name": "firstName",
		"last_name": "lastName",
		"email": "Email",
		"company_name": "company",
		"default_address": {
		"address_line1": "address1",
		"city": "city",
		"region": "region",
		"postal_code": "postal",
		"country": "country",
		"phone_number": "231321312"
		}
		}
		}
		]
		},
		"success":true,

```
    "message":"Accounts retrieved successfully"

 }

}
```

Error Response

```
{

   "result":{

      "providerresponse":{

         "errorcode":"BZSMS1134E",

         "errormessage":"The user is not authorized.",

         "respcode" :500

      },

      "success":false,

      "message":"Account retrieval failed"

     }

}
```

Create User	POST /apiv1/account/user	**Request**
		{
		"first_name": "John",
		"last_name": "Doe",
		"email": "example@goog-test.yourdomain.com.example.com",
		"password":"testPassword",
		"name_prefix": "Mr",
		"name_suffix": "",
		"employee_number": "6A7777B",
		"language_preference": "EN_US",
		"work_phone": "111-111-1111",
		"mobile_phone": "111-111-1112",
		"home_phone": "111-111-1113",
		"fax": "111-111-1114",
		"job_title": "Director",
		"webSite_address": "www.example.com",
		"time_zone": "America/Central",
		"customerDomain":"goog-test.yourdomain.com.example.com",
		"RoleSet": "admin",
		"requestor":{
		"accountid":"C01y8xij6"
		}
		}
		
		Response
		{
		"result": {
		"providerresponse": {
		"customerid": "C01y8xij6",
		"userid": "101376303828067817904",

		"customerDomain": "goog-test.yourdomain.com.example.com"
		},
		"success": true,
		"message": "User created successfully"
		}
		}
		Error Response
		{
		"result": {
		"providerresponse": {
		"respcode": 412,
		"errorcode": 412,
		"errormessage": "Domain user limit reached."
		},
		"success": false,
		"message": "Domain user limit reached."
		}
		}

Update user	PUT /apiv1/account/user	**Request**
		{
		    "first_name": "John",
		    "last_name": "Doe",
		    "email": "jdoe@example.com",
		    "name_prefix": "Mr",
		    "name_suffix": "",
		    "employee_number": "6A7777B",
		    "language_preference": "EN_US",
		    "work_phone": "111-111-1111",
		    "mobile_phone": "111-111-1112",
		    "home_phone": "111-111-1113",
		    "fax": "111-111-1114",
		    "job_title": "Director",
		    "webSite_address": "www.example.com",
		    "time_zone": "America/Central",
		    "requestor":{
		       "accountid":"32323232",
		       "userid":"123456"
		    }
		}
		Response
		{
		  "result": {
		    "providerresponse": {
		      "respcode": 200,
		      "userid": "123456"
		    },
		    "success": true,
		    "message": "User updated successfully"
		  }

		}
		Error Response
		{
		"result":{
		"providerresponse":{
		"errorcode":"BZSMS1134E",
		"errormessage":"The user doesn't exist.",
		"respcode" :404
		},
		"success":false,
		"message":"User updation failed"
		}
		}

Other action on user	PUT /apiv1/account/user/resource	Assign resource to user, un-assign resource to user
		Request
		{
		"action":"assign",
		"instance":{
		"id":"instance_id"
		},
		"requestor":{
		"accountid":"12121222",
		"userid":"323232323"
		}
		}
		
		//to revoke
		{
		"action":"revoke",
		"instance":{
		"id":"instance_id"
		},
		"requestor":{
		"accountid":"12121222",
		"userid":"323232323"
		}
		}
		
		//If any parameters based on provider ex: if suspending send seatid etc..
		Response
		{
		"result": {
		"providerresponse": {

```
         "respcode": 200,
      "resourceid": "48970",
      "instanceid": "1246927"
    },
    "success": true,
    "message": "Subscription entitled
successfully"
  }
}
```

Or

```
{
  "result": {
    "providerresponse": {
      "respcode": 204,
      "instanceid": "1246927"
    },
    "success": true,
    "message": "The given subscription
revoked successfully for the subscriber"
  }
}
```

Error Response

```
{
  "result": {
    "providerresponse": {
      "respcode": 404,
      "errorcode": "BZSUS1926E",
      "errormessage": "The subscriber
already has a seat for the subscription."
    },
    "success": false,
    "message": "Entitling of subscription
failed"
```

		}
		}
		
		Or
		{
		"result": {
		"providerresponse": {
		"respcode": 403,
		"errorcode": "BZSSS1452E",
		"errormessage": "The user is not authorized to perform this operation."
		},
		"success": false,
		"message": "Revoking of the given subscription for the subscriber failed"
		}
		}

Delete User	DELETE /apiv1/account/user/:userid	**Request**
		Get userid from URL param
		Response
		{
		  "result": {
		    "providerresponse": {
		      "respcode": 200
		    },
		    "success": true,
		    "message": "User deleted successfully"
		  }
		}
		Error Response
		{
		  "result": {
		    "providerresponse": {
		      "respcode": 404,
		      "errorcode": 404,
		      "errormessage": "Resource Not Found: userKey"
		    },
		    "success": false,
		    "message": "Resource Not Found: userKey"
		  }
		}

Get a user	GET /apiv1/account/user/:userid	**Request**
		`Get userid from URL param`
		Response
		`{`
		`  "result": {`
		`    "providerresponse": {`
		`      "users": [`
		`        {`
		`          "userid": "112430998669590765446",`
		`          "profile": {`
		`            "default_address": {`
		`              "email": "admin@goog-test.yourdomain.com.example.com"`
		`            },`
		`            "first_name": "baba",`
		`            "last_name": "sai"`
		`          }`
		`        }`
		`      ],`
		`      "respcode": 200`
		`    },`
		`    "success": true,`
		`    "message": "User details retrieved successfully"`
		`  }`
		`}`
		Error Response
		`{`
		`  "result": {`
		`    "providerresponse": {`
		`      "respcode": 404,`

		"errorcode": 404, "errormessage": "Resource Not Found: userKey" }, "success": false, "message": "Resource Not Found: userKey" } }

Get All user	GET /apiv1/users/:domain	**Request**
		Get domain from URL param
		Response
		{
		"result": {
		"providerresponse": {
		"users": [
		{
		"userid": "111790794531298499340",
		"customerid": "C04antbmr",
		"profile": {
		"default_address": {
		"email": "admin@goog-test.yourdomain.com.c1.com"
		},
		"first_name": "disney",
		"last_name": "disney"
		}
		},
		{
		"userid": "108085833454206557230",
		"customerid": "C04antbmr",
		"profile": {
		"default_address": {
		"email": "sai@goog-test.yourdomain.com.c2.com"
		},
		"first_name": "John",
		"last_name": "Doe"
		}

		}
		],
		 "respcode": 200
		 },
		 "success": true,
		 "message": "User details retrieved successfully"
		 }
		 }
		 Error Response
		 {
		 "result": {
		 "providerresponse": {
		 "respcode": 404,
		 "errorcode": 404,
		 "errormessage": "Domain not found."
		 },
		 "success": false,
		 "message": "Domain not found."
		 }
		 }

Resource Provisioning

Action	API	Sample

Create a Resource	POST /apiv1 /resource	**Request**
		{
		"requestId" : "123321",
		"action" : "create",
		"resource" : {
		"type" : "saas",
		"CNId" : "",
		"url" : ""
		},
		"parameters" : {
		"name" : "Google-Apps-For-Business",
		"license" :1,
		"domain" : "goog-test. yourdomain.com.example.com",
		"partnumber": "Google-Apps-For-Business"
		},
		"requestor" : {
		"accountid" : "C01y8xij6",
		"userid":""
		}
		}
		Success Response
		{
		"result": {
		"providerresponse": {
		"providerInstanceId": "84867403",
		"orderId": "ti4S577Onm",
		"instanceStatus": "SUSPENDED",

		"userName": "admin@goog-test.yourdomain.com.example.com",
		"licenseQuantity": 1,
		"expireDate": 1516271359605
		},
		"success": true,
		"message": "Resource created successfully"
		}
		}
		Error Response
		{
		"result": {
		"providerresponse": {
		"respcode": 409,
		"errorcode": 409,
		"errormessage": "Resource already exists"
		},
		"success": false,
		"message": "Resource already exists"
		}
		}

Additional Action on Resource	PUT /apiv1/resource	**Request**
		{
		  "requestId" : "sample requestId",
		  "action" : "update.delete",
		  "resource" : {
		    "type" : "SAAS",
		    "CNId" : "sample CNId",
		    "url" : "sample url"
		  },
		  "instance" : {
		    "id" : "84867403"
		  },
		  "requestor" : {
		    "accountid" : "C01y8xij6",
		    "userid":"12121212"
		  },
		  "parameters" : {
		    "license" : 2
		  }
		}
		NOTE : 1) To update license use "action" as update.quantity
		2) To suspend resource use "action" as update.suspend
		3) To reactivate resource use "action" as update.reactivate
		4) To delete resource use "action" as update.delete
		Success Response
		{

		"result": {
		"providerresponse": {
		"respcode": 200,
		"instanceid": "84867403"
		},
		"success": true,
		"message": "License updated successfully"
		}
		}
		Error Response
		{
		"result": {
		"providerresponse": {
		"respcode": 400,
		"errorcode": 400,
		"errormessage": "Seat reduction is not allowed"
		},
		"success": false,
		"message": "Seat reduction is not allowed"
		}
		}

Get Resource details	GET /apiv1/resource/:accountid/:resourceid	**Request**
		`Get accountid and resourceid from request parameters`
		Success Response
		`{`
		`  "result": {`
		`    "providerresponse": {`
		`      "respcode": 200,`
		`      "resources": [`
		`        {`
		`          "resource": {`
		`            "type": "saas"`
		`          },`
		`          "parameters": {`
		`            "name": "Google-Apps-For-Business",`
		`            "license": 4,`
		`            "domain": "goog-test.yourdomain.com.example.com",`
		`            "status": "ACTIVE"`
		`          }`
		`        }`
		`      ]`
		`    },`
		`    "success": true,`
		`    "message": "Resource fetched successfully"`
		`  }`
		`}`
		Error Response
		`{`
		`  "result": {`

		"providerresponse": {
		"respcode": 403,
		"errorcode": "BZSSS1452E",
		"errormessage": "The user is not authorized to perform this operation."
		},
		"success": false,
		"message": "The user is not authorized to perform this operation."
		}
		}

Get All Resouces	GET /apiv1/resource	**Request**
		Success Response
		`{`
		`  "result": {`
		`    "providerresponse": {`
		`      "resources": [`
		`        {`
		`          "resource": {`
		`            "type": "saas"`
		`          },`
		`          "parameters": {`
		`            "name": "Google-Apps-For-Business",`
		`            "license": 4,`
		`            "domain": "goog-test.yourdomain.com.c1.com",`
		`            "status": "ACTIVE"`
		`          }`
		`        },`
		`        {`
		`          "resource": {`
		`            "type": "saas"`
		`          },`
		`          "parameters": {`
		`            "name": "Google-Apps-For-Business",`
		`            "license": 1,`
		`            "domain": "goog-test.yourdomain.com.c2.com",`
		`            "status": "ACTIVE"`
		`          }`
		`        },`

```
    {
     "resource": {
      "type": "saas"
     },
     "parameters": {
      "name": "Google-Apps-For-Business",
      "license": 1,
      "domain": "goog-test.yourdomain.com.c3.com",
      "status": "SUSPENDED"
     }
    }
   ],
   "respcode": 200
  },
  "success": true,
  "message": "Resources fetched successfully"
 }
}
```

Error Response

```
{
 "result": {
  "providerresponse": {
   "respcode": 403,
   "errorcode": "BZSSS1452E",
   "errormessage": "The user is not authorized to perform this operation."
  },
  "success": false,
```

		"message": "The user is not authorized to perform this operation." } }

Service Discovery

Service Discovery APIs are not released in this API.Service Discovery is not part of this beta version and would be released in the final version.

Catalog

Catalog APIs are not released in this API. Catalog is not part of this beta version and would be released in the final version.

Health

Health APIs are not released in this API. Health is not part of this beta version and would be released in the final version.

Billing

Billing APIs are not released in this API. Billing is not part of this beta version and would be released in the final version.