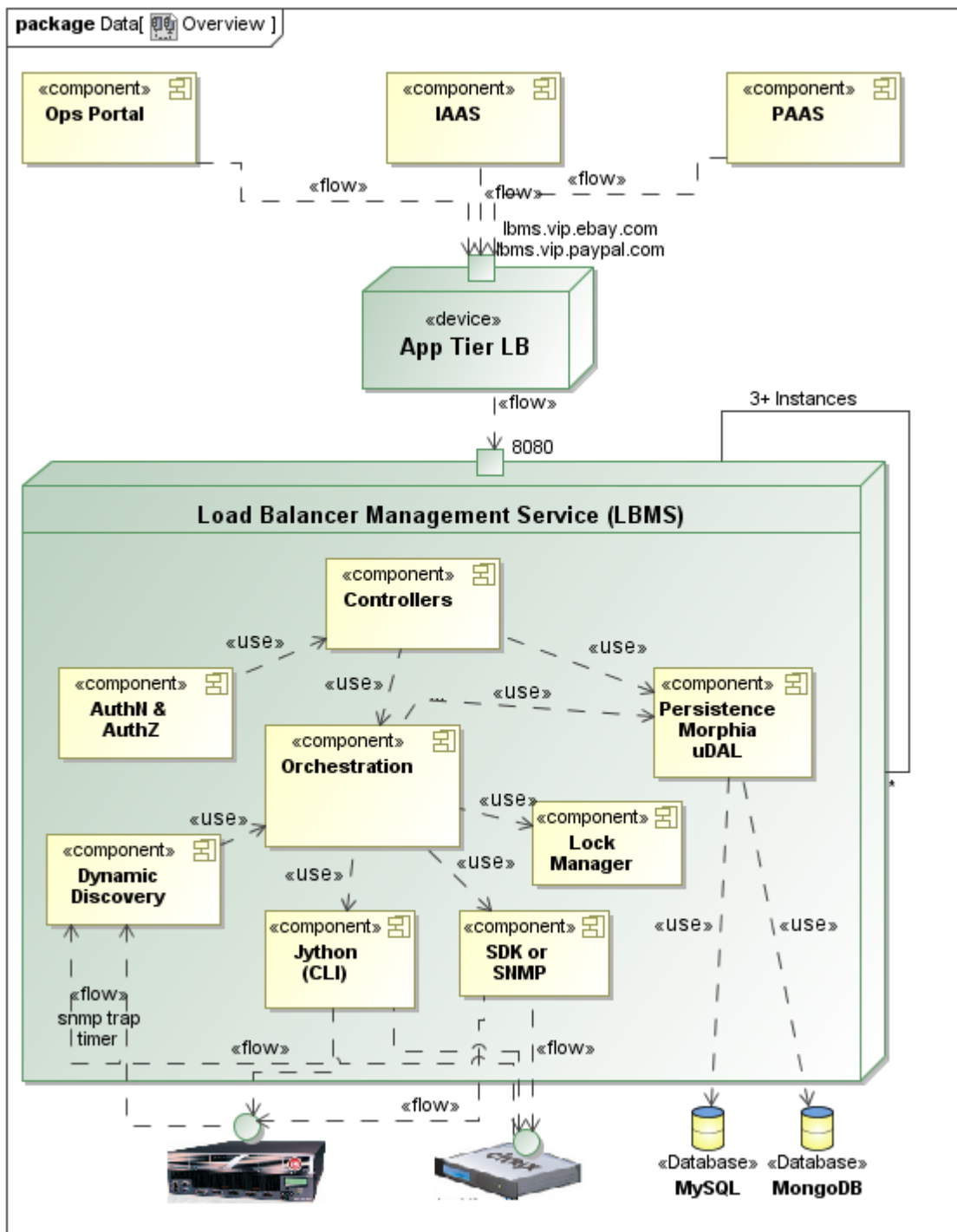


eBay's - LB Management Service (for OpenStack)

1. Overview

eBay Load Balancer Management Service (LBMS) provides a RESTful Service to manage complete life cycle for Load Balancers. It does not expose APIs directly to Cloud users and the service has to be consumed by upper level Services like IAAS, PAAS, Ops Portal etc. But the admin APIs could be consumed by System Administrators and Cloud Administrators. Currently, it supports Big-IP(10.2.0 build 1789.207, 10.2.2 build 969.21) and Netscaler(9.2 build 48.6, 9.3 build 51.5) load balancers with two versions each.



2. Functionality

Tenant Core Features:

1. CRUD: Virtual IPs, Pools, Servers, Services, Monitor, SSL Certificate
2. Metric Read
3. Read L7 Rules, Bind L7 Rules to VIP
4. Discovery of load balancer: Base configuration (model, version), Network Configuration (vlan, interface, route..) pools, vips, L7 rules, SNMP configuration, Floating IP
5. Auto-Discovery for finding external Config Changes
6. Use Floating Name instead of actual LB Name
7. Support for Active/Standby
8. Fetch Running Sessions and Pause/Cancel/Resume Session

Tenant Extension Features (Big-IP only):

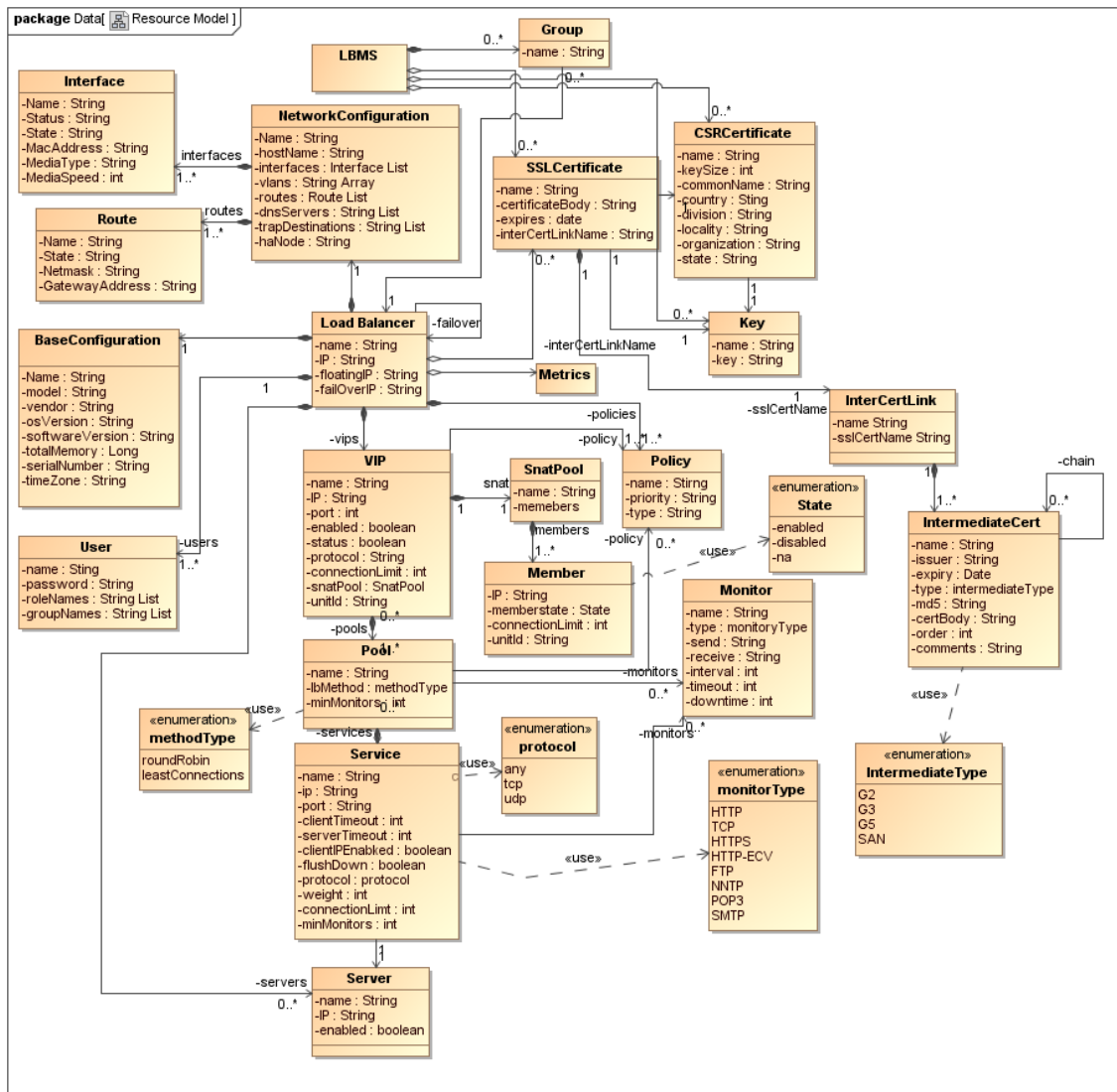
1. Read Profiles
2. Active/Active
3. SNAT Pool

Operator Features:

1. Register LB
2. Fail-over/fail-back
3. Back Up, Restore and Sync Config
4. Clean-up Old Versions
5. Nightly Report for Compatibility Check
6. Timer triggered report for Unreachable LBs
7. Password Change
8. LB Group Management
9. ECV Check - Monitoring
10. Audit Log Cleanup

3. Resource Model

The resource model is abstracting the LB concepts between all the vendors. As of now, the SnatPool is the only resource which is vendor specific and it will be re-factored as extension resource.



4. APIs & Pay Loads

The following table describes each API and Pay Load that are provided by LBMS as REST API and JSON.

Note:

400 (Not Supported).

* - DELETE method can not used to delete multiple resources as spec and the multi-delete is handled through "POST".

Method	Safe?	Idempotent?
GET	Yes	Yes
PUT	No	Yes
DELETE	No	Yes
POST	No	No

URI Path	Description
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/groups	Groups are used to combine one more LBs logically.	<pre> {"group": [{"name": "WebTierLBGr {"name": "AppTierLBGroup"}, {"na } </pre>
/groups/:groupName	Manipulates on the given groupId.	<pre> group : { "name": "groupName", "loadbalancers": [{ "name": "lb1" }] } </pre>

/loadbalancers/:lbid	<p>The lbid is the LB Name and it could be either one of the following.</p> <ol style="list-style-type: none"> 1. Floating Name 2. Primary Name or Secondary in case of Active/Stand By 3. LB1 name or LB2 name in Active/Active 4. LB1 or LB2 or LBn in case of N+1. <p>Device Registration should support all these above name types. For Active/Stand By, we have to discover both Active/Standby if the LB is registered using Floating Name.</p>	same as above and will return jus
/loadbalancers/:lbid/vips	All Virtual IPs will be fetched for the given LB.	<p>list all vips</p> <pre>{ "vip": [{ "status": "OUT_OF_SEF "diamond.crt", "enabled": false, "p "clientTimeout":360 }, { "status": " "shopnow.crt", "enabled": true, "p</pre>
/loadbalancers/:lbid/vips/:vipid	Manipulates a single VIP resource.	get details about vipid. same as a

/loadbalancers/:lbid/pools	Fetches all the pools for the lb and one or more pools will be created/updated.	list all pools <pre>{ "pool": [{ "status": "OUT_OF_SEI" "/loadbalancers/lb-1/pools/test-po "port": 8080,/"Netscaler only featu "IN_SERVICE", "name": "nugget- "/loadbalancers/lb-1/pools/test-po "monitors":["/loadbalancers/lb-1/r</pre>
/loadbalancers/:lbid/pools/:poolid	Operates on single pool instead of multiple pools like above api. We need at least one service to create a new pool.	get details about poolid /loadbalancers/lb-1/pools/testpool <pre>{ "pool": { "status": "OUT_OF_SEI "/loadbalancers/lb-1/pools/test-po "port": 8080,/"Netscaler only featu }</pre>

<p>/loadbalancers/:lbid/pools/:poolid/services</p>	<p>Used for managing all the services under a pool. If the servers were not already added to LB, the server will be created before the service creation. If the user does not specify the service name, then the name will be formed by combining "IP: PORT".</p>	<p>list all services under poolid</p> <pre>{ "service": [{ "name": "192.168.2.131:8080", "monitors": [{ "url": "/loadbalancers/lb-1/monitors/http", "protocol": "HTTP", "clientIpEnabled": true, "ip": "192.168.2.131", "port": 8080 }] }] }</pre>
<p>/loadbalancers/:lbid/pools/:poolid/services/:serviceid</p>	<p>Manipulates single service in a pool. By default, the service will created as "disabled" and it has to be enabled.</p>	<p>get details about serviceid</p> <pre>/loadbalancers/:lbid/pools/test-poolid/services/test-serviceid { "service": { "name": "test-service03", "clientTimeout": 360, "monitors": [{ "url": "/loadbalancers/lb-1/monitors/http", "protocol": "HTTP", "clientIpEnabled": true, "ip": "192.168.2.131", "port": 8080, "status": "DOWN" }] } }</pre>

/loadbalancers/:lbid/servers	Sometimes, the server will be added to LB before creating the new services.	fetch details for all the servers <pre>{ "server": [{ "name": "svr_192.168.249.10", "status": "OUT_OF_SERVICE", "ip": "192.168.249.10" }] }</pre>
/loadbalancers/:lbid/servers/:serverId	same as above and deals with one server at a time.	list all the attributes for the LB Id <pre>/loadbalancers/lb-1/servers/svr_1</pre> <pre>{ "server": { "name": "svr_192.168.249.10", "ip": "192.168.249.10", "enabled": true } }</pre>
/loadbalancers/:lbid/policies	Used for managing L7 rules.	List all policies. <pre>{ "policy": [{ "name": "redirect-1", "url": "\"/ebay/" }, { "name": "case-convert", "rule": "\"/H/" }] }</pre>
/loadbalancers/:lbid/policies/:policyid		get details about policyid <pre>{ "policy": { "name": "lptestPolicy5", "url": "\"/ebay/" } }</pre>

/loadbalancers/:lbid/monitors	This API could be used to create or modify multiple monitors in one time before creating the services that need Monitor.	list all monitors <pre>{ "monitor": [{ "name": "lbr_mon_test", "type": "lbr_mon_test" }, { "name": "6.1_tcp", "type": "TCP" }] }</pre>
/loadbalancers/:lbid/monitors/:monitorid	Monitors are used to check the health of the services and the monitor should be created before using with the Service.	get details about monitorid
/loadbalancers/:lbid/metrics	Used to fetch Load Balancer level metric. VIP, Pool and Service Level metrics are returned as references and we need to make another call to fetch more details.	get list of all metrics <pre>{ "loadbalancermetric": { "sslPerSec": 0, "currentSslSessions": 0, "cpuPercentage": 10, "ssl2048KeyExchangesPerSecond": 13, "clientTraffic": 8311825182, "serverTraffic": 2830194023, "clientConnections": 8, "serverConnections": 8, "memoryUsed": 330, "memoryUsedPercentage": 40, "requests": 465727, "responses": 465699, "references": { "hrefs": ["/loadbalancers/10.16.184.13/metrics", "/loadbalancers/10.16.184.13/metrics"] } } }</pre>
/loadbalancers/:lbid/config	Used for Base Config(i.e. Device Info)	<pre>{ "configuration": { "hostName": "qa-lab01", "model": "NS9.2: Build 48.6.c1", "totalMemory": 16384 } }</pre>
/loadbalancers/:lbid/network		get network configuration of lbid <pre>{ "network": { "hostName": "lab-lb1", "mediaType": "Copper", "mediaSpeed": 1000000000, "gatewayAddress": "10.16.56.1", "trapDestinations": ["10.3.7.40", "10.3.7.40"] } }</pre>

/loadbalancers/intercertchains	Intermediate Cert Chains are managed with in LBMS data base and will be applied to main cert when it is required.	get all the intermediate cert chain {"intercertchains":[{"name":"interc {"name":"rootlink","type":"ROOT", CERTIFICATE-----", "note":"root cert","issuer":"Verisign' {"name":"g5link","expiry":"3915-03 CERTIFICATE-----", "note":"g5 cert","issuer":"Verisign' {"name":"intercert02","intermediat "name":"g5cert","expiry":"3915-03 CERTIFICATE-----", "note":"g5 cert","issuer":"Verisign' }
/loadbalancers/intercertchains/:interCertChainId	Cert chains are managed separately and will be attached the main cert. The same chain could be used for more than one main cert.	fetch the details like link name, er /loadbalancers/intercertchains/int {"intercertchains":{"name":"interc {"name":"rootlink","type":"ROOT", CERTIFICATE-----", "note":"root cert","issuer":"Verisign' {"name":"g5link","expiry":"3915-03 CERTIFICATE-----", "note":"g5 cert","issuer":"Verisign' }
/loadbalancers/:lbid/certs	Focused on the certs that are relevant to this LB.	list all the SSL Certificates used b
/loadbalancers/:lbid/certs/:certId	The Certs are first uploaded to LBMS storage and then applied to one or more LBs.	fetch the details about the SSL Cr
/loadbalancers/:lbid/certs/:certId/intercertchains/:interCertChainId	The Intermediate certs also added to LBMS first and then applied to main cert.	fetch all the details for the given li
/loadbalancers/:lbid/users	LBMS does not create roles and it mainly focusing on changing password only.	list all the users in the LB {"user":[{"name":"webadmin","role {"name":"lbms","roleNames":["sup
/loadbalancers/:lbid/users/:userId		get the details for the given user i {"user":{"name":"webadmin","role
/loadbalancers/actions		list the supported actions (like syr
/loadbalancers/actions/:actionId/		400
/loadbalancers/:lbid/actions/synch		400

/loadbalancers/:lbid/actions/backupconfig		400
/loadbalancers/:lbid/actions/cleanUpOldVersions/{maxNumberOfDaysToKeep}		400
/lbaudit/actions/cleanUpAuditLogs/{maxNumberOfDaysToKeep}		400
/loadbalancers/:lbid/oldVersions		get all the back up versions of a c
/loadbalancers/:lbid/configFile/{versionName}		get the config file of a certain vers
/loadbalancers/:lbid/actions/forceStandByOnReboot		400
/loadbalancers/:lbid/actions/forcefailover		400
/loadbalancers/:lbid/actions/forcefailback		400
Extensions:		
/loadbalancers/:lbid/snatpools		list all snatpools
/loadbalancers/:lbid/snatpools/:snatpoolname		Get detail of a SnatPool
/loadbalancers/:lbid/vips/:vipid/snatpool/:snatpoolid		400
/loadbalancers/:lbid/snatpools/:snatpoolname		Lists all the SNAT Pool related at

5. Deployment Model

Networking Diagram [Deployment]

