

1. Introduction

1.1. Project/Component Working Name: SailFin 2.0 / Converged Load Balancer

1.2. Name of Document Author/Supplier:
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Version	Date	Comments	Author
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2. Project Summary

2.1. Project Description:

Converged Load Balancer distributes incoming network traffic for Telco applications over SIP and HTTP protocol; over a group of SailFin server instances. This group is commonly referred to as "cluster".

This one pager describes the enhancement proposed to CLB, that would allow :

(a) Partitioning of external network traffic versus the internal network traffic. External network traffic is serviced at the public interfaces of the cluster - Virtual IP. Thereafter this traffic is load balanced onto any of server replicas over their internal network interfaces. Any request-response messaging would occur over the internal network interfaces that connect the server replicas.

2.2. Risks and Assumptions:

Increases the complexity of the component.

3. Business Summary

3.1. Problem Area:

(a) Network partitioning would help realize segregating the traffic over two independent network paths, such that -

Customer would be able to realize configuring and managing each such path independently of the other.

In absence of this solution, the single network interface would be load would both type of traffics - incoming traffic from clients / user agents and internal communication between two server replicas to service such messages when being load balanced.

3.2. Justification:

- (a) Front-end, Back-end separation would facilitate provisioning of independent network (even private) path between server replicas over which actual load oriented traffic flows while servicing the messages.

4. Technical Description:

4.1. Details:

The section describes the solution for the enhancement proposed.

4.1.1. Front-end, Back-end Network Partitioning

This segregation can be achieved either of the ways :

(a) Two-tier deployment

Here the fronting tier is the pure load balancing cluster which is configured to face the external / public network traffic. The Back-end cluster is the pure application tier, with its server replicas are connected over dedicated internal network path.

The front-end cluster configuration would need to configure certain listeners which connect over the internal network path. CLB would use these listeners when connecting over to back-end cluster while load balancing the traffic.

(b) Self-Load Balancing deployment

Here in, each server replica would be connected over a external/public facing network and an internal network path over another NIC, such that CLB would use the listeners on the internal network for load balancing the traffic.

CLB Interfaces that capture the external and internal endpoints :

- connid

Pushed as a parameter onto topmost VIA while load balancing the request to another replica. Records the connection information between client / user agent and front-end. It would be used for dispatching the request back to client.

- CLBConstants.CONN_ID

Message attribute which records the connection information between front-end and back-end. Used by CLB back-end to dispatch the response back to originating replica.

4.1.1.1 Multi-Home

SailFin 2.0 cluster deployment would need to occur over multi-home machines, where at least two network cards, NICs, are available such that one can be configured for receiving incoming traffic from from IP sprayer and other used for front-end and back-end communication.

4.1.1.2 Configuration support

This section enlists the changes to sun-domain_1_4.dtd shipped with SailFin 1.5. HTTP service and SIP service would allow tagging the listeners as either internal or external. The set of internal listeners would be used by Converged Load Balancer for load balancing of the incoming traffic.

Refer section 4.5.1, 'Exported Interfaces" detailing the changes.

http-listener : This is sub-element of http-service.

<i>Attribute</i>	<i>Default</i>	<i>Description</i>
<i>external</i>	<i>false</i>	<i>Identifies whether the HTTP listener can be used for external traffic connection. Default is false, which implies that the listener would be used for internal traffic for HTTP load messaging.</i>

sip-listener : This is sub-element under sip-service.

<i>Attribute</i>	<i>Default</i>	<i>Description</i>
<i>external</i>	<i>false</i>	<i>Identifies whether the SIP listener can be used for external traffic connection. Default is false, which implies that the listener would be used for internal traffic for SIP load messaging.</i>

4.1.1.3 Generation of CLB configuration from domain.xml

Admin back-end while rendering the converged load balancer configuration, converged-load-balancer.xml, would need to collate only those server listeners which are marked "external=false".

PE/EE Impact

Impacts cluster-profile/EE profile deployments.

4.2. Bug/RFE Number(s) :

4.3. In Scope:

4.4. Out of Scope:

4.5. Interfaces:

This section illustrates the interfaces impacted with the change.

4.5.1 Exported Interfaces

Interface: sun-domain_1_4.dtd

(a)Element : http-listener

Comments: A new attribute called "external" will be introduced for "http-listener" element. The default value for SailFin 2.0 deployments would be "false".

```
server-name CDATA #REQUIRED
redirect-port CDATA #IMPLIED
xpowered-by %boolean; "true"
- enabled %boolean; "true">
+ enabled %boolean; "true"
+ external %boolean; "false">
```

(b) Element : sip-listener

Comments : A new attribute called "external" will be introduced for "sip-listener". The default value for SailFin 2.0 deployments would be "false".

```
address CDATA #REQUIRED
port CDATA #REQUIRED
transport (udp_tcp | tls) "udp_tcp"
- enabled %boolean; "true">
+ enabled %boolean; "true"
+ external %boolean; "false">
```

4.5.2 Imported interfaces

4.5.3 Other interfaces (Optional)

4.6. Doc Impact:

The load balancer admin guide, Administration Reference.

4.7. Admin/Config Impact:

Changes to GUI to capture the listener category as external or internal.

4.8. HA Impact:

Converged Load Balancer would only use the HTTP and SIP \ listeners marked as internal for load balancing the messages over the cluster.

4.9. I18N/L10N Impact:

None

4.10. Packaging & Delivery:

4.11. Security Impact:

None.

4.12. Compatibility Impact

(a) Network Partitioning support in SailFin 2.0 is equivalent to SailFin 1.5 deployment with all existing listeners being assumed internal. As such there is no support in SailFin 1.5 to segregate the listeners into external and internal.

4.13. Dependencies:

The admin core / GUI need to support the new features.

5. Reference Documents:

1. CLB FSD

<http://wiki.glassfish.java.net/attach/FunctionalSpecsOnePagers/ConvergedLB-FSD.pdf>

2. SailFin Administration

http://wiki.glassfish.java.net/PageInfo.jsp?page=FunctionalSpecsOnePagers/sailfin_admin.doc

6. Schedule:

6.1. Projected Availability:

With SailFin 2.0