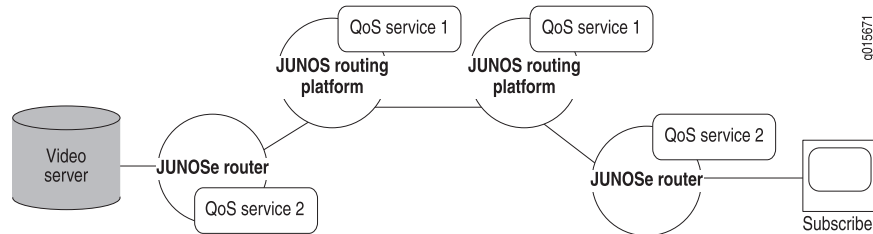


## Overview of SRC Aggregate Services

Combining services lets the SRC software treat the services within an aggregate service as a unit. When an aggregate service becomes active, it tries to activate all the services within it.

An aggregate service can distribute the activation of a number of services within the aggregate across one or more SAEs in an SRC network. This specialized service is ideal for supporting voice over IP (VoIP) and video on demand. To deliver these types of features to subscribers, you can configure bidirectional or unidirectional quality of service (QoS) services based on policies provisioned across a number of interfaces on one or more SAE-managed network devices in an SRC network. Figure 1 on page 1 shows a sample aggregate service that provides end-to-end QoS for video on demand, with QoS service 1 and QoS service 2 activated on Juniper Networks routers in the path between the video server and the subscriber.

**Figure 1: Sample Configuration of an Aggregate Service**



The services included in an aggregate service manage policies in the usual manner. The aggregate service does not directly manage any policies on a network device.

## Fragment Services

The services that make up an aggregate service are referred to as fragment services. This term provides a way to distinguish between services that are included in an aggregate service and those that are not. The fragment services can be any type of service that the SAE supports, except another aggregate service.

## Subscriber Reference Expressions for Fragment Services

The configuration for each fragment service includes a subscriber reference expression, a phrase that identifies the subscriber sessions that activate the fragment service. The subscriber reference expression defines the subscriber session by subscriber IP address, distinguished name (DN), interface name, login name, or associated virtual router.

To use aggregate services requires that the network information collector (NIC) be configured. Use a configuration scenario that provides a key for the type of subscriber reference expression defined for the fragment service. For example, if the subscriber reference expression is a DN, the NIC key is also a DN. In this case, you could use the NIC configuration scenario OnePopDnSharedIp, which uses a DN as a key.

For more information about the NIC configuration scenarios and the types of resolutions performed by these scenarios, see NIC Configuration Scenarios.

## **Mandatory Services**

A fragment service that must be active for an aggregate service to become active is called a mandatory service. When you configure an aggregate service, you specify which services, if any, are mandatory. For example, you could specify that rate-limiting services for a video-on-demand connection be mandatory to ensure call quality.

## **Redundant Services**

When you configure an aggregate service, you can configure fragment services to provide redundancy for each other. Fragment services that share the same redundancy group name provide redundancy.

For an aggregate service to become active, at least one fragment service from each redundancy group must become active. For example, if you configure two services, S1 and S2, and assign the same redundancy group name to each of these services, S1 and S2 provide redundancy for each other if one becomes disabled.

While an aggregate service is active, the SAE tries to keep all fragment services within it active. An aggregate service and any of its active fragment services become inactive if a mandatory fragment service or an entire redundancy group becomes inactive.

## **Aggregate Service Sessions**

An aggregate service session coordinates the activation of the services within it. It runs on the same SAE where it starts. The aggregate service session is created in the router driver that hosts the subscriber session that starts the service. An individual service session for a fragment service can be activated in the same SAE or another SAE on the SRC network.

Understanding how aggregate service sessions are managed can help you troubleshoot service activation or service deactivation issues that might arise. The SRC software provides a set of configurable timers that helps control session management.

For information about the timers that you can use to troubleshoot aggregate services, see Configuring Timers for Aggregate Services (SRC CLI) .

## **Session Activation**

An aggregate service becomes active when:

- All mandatory services are active.

If a mandatory service does not start, the SAE deactivates any fragment services that are active.

- If there are no mandatory services, at least one service is active.

If any fragment services that are not mandatory services do not become active, the aggregate service continues to try to start them. How long the aggregate service tries to activate fragment services depends on the settings for activation-deactivation time.

When an aggregate service becomes active, it monitors the services that are part of the aggregate service.



**NOTE:** Depending on your implementation, accounting software could detect that a fragment service session became active even though the associated aggregate service did not become active, resulting in the fragment services being deactivated.

You can configure your accounting software to ignore the activation of the fragment session when an aggregate service session fails. This way, a customer is not billed for an aggregate service that was not received.

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## **Session Deactivation**

When the SAE deactivates an aggregate service, the aggregate service session tries to deactivate the services within it. The SAE deactivates an aggregate service when all fragment services stop. If one of these services remains active, the aggregate service stays in memory until the service session ends. The SAE periodically tries to stop the active fragment session until the maximum retry time is reached, at which time it deactivates the aggregate service. As a result, the aggregate service session can remain in memory after the associated subscriber session ends.

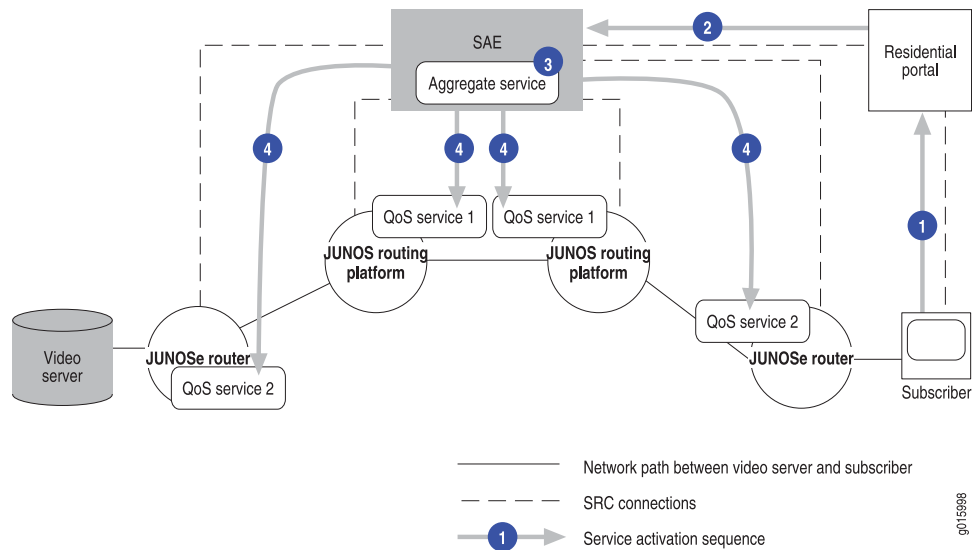
## **Session Monitoring**

An aggregate service session exchanges keepalive messages with a session management process for remote fragment services. This way, if a service session is removed from a router while the SAE is not managing the router, such as when the Common Open Policy Service (COPS) client stops on a JUNOS router or the configuration database is reset on a JUNOS routing platform, the SAE associated with the router receives notification that the keepalive message failed.

## **Service Activation**

Aggregate services are activated in a way similar to any other service, but with the additional requirement of activating the associated fragment services. Figure 2 on page 4 shows a sample service activation for a video-on-demand service.

**Figure 2: Aggregate Service Activation**



The following process describes the service activation for a video-on-demand service, with Steps 1–4 illustrated in Figure 2 on page 4.

1. A subscriber requests a video-on-demand service through a residential portal.
2. The residential portal requests the service through the SAE.
3. The SAE activates a subscription for the associated aggregate service, and a session for the aggregate service becomes active.
4. The aggregate service coordinates with the SAE, and the SAE tries to activate the fragment services that have been configured for the aggregate service.

The aggregate service becomes active when:

- All mandatory services are active.
- If there are no mandatory services, at least one fragment service is active.
- For redundant fragment services, at least one fragment service configured for a redundancy group becomes active.

The aggregate service initiates accounting, if accounting has been configured.

After the aggregate service becomes active, it monitors fragment services to ensure that they are still active. When the subscriber or the video server ends the video-on-demand session, the aggregate service tries to terminate active fragment services.

#### Related Topics

- How Parameters Are Passed from Aggregate Service to Fragment Service
- Overview of Services for the SRC Software
- Login Events
- Before You Configure an Aggregate Service
- Configuring Service Fragments for an Aggregate Service (SRC CLI)

- Using Python Expressions in a Subscriber Reference Expression
- Defining Attributes for Service Activation (SRC CLI)

