

Example: Configuring Hierarchical CoS Shaping-Rate Adjustments for Subscriber Local Loops

This example shows how you can enable shaping-rate adjustments for static logical interface sets that represent subscriber local loops:

1. Configure static logical interface sets to serve as CoS hierarchical scheduler nodes for subscriber local loops.

This example uses a single scheduler node that represents two subscriber local loops. The scheduler node is a static logical interface composed of two logical interfaces. The underlying physical interface is port 0 on a Gigabit Ethernet EQ DPC in slot 4, PIC 0:

```
[edit]
interfaces {
  interface-set ifset-of-logical-interfaces {
    interface ge-4/0/0 {
      unit 1;
      unit 2;
    }
  }
  ge-4/0/0 {
    description "access interface ge-4/0/0";
    hierarchical-scheduler;
    stacked-vlan-tagging;
    unit 1 {
      description "DSL type ADSL1 = 0x01";
      proxy-arp;
      vlan-tags outer 1 inner 1; # S-VLAN tag is '1' and C-VLAN tag is '1'
      family inet { # Specify a secondary loopback address
        unnumbered-address lo0.0 preferred-source-address 192.168.7.3;
      }
    }
    unit 2 {
      description "DSL type ADSL1 = 0x01";
      proxy-arp;
      vlan-tags outer 1 inner 2; # S-VLAN tag is '1' and C-VLAN tag is '2'
      family inet { # Specify a secondary loopback address
        unnumbered-address lo0.0 preferred-source-address 192.168.7.4;
      }
    }
  }
}
```

2. Begin configuring hierarchical CoS on the static logical interface set that serves as the hierarchical scheduler node for the group of subscriber local loops.

```
[edit]
class-of-service {
  interfaces {
    interface-set ifset-of-logical-interfaces {
      output-traffic-control-profile tcp-premium-with-4-queues;
    }
  }
}
```

```

    }
}

```

3. Configure the traffic-control profiles that can be applied to the scheduler node:

```

[edit]
class-of-service {
  traffic-control-profiles {
    tcp-basic-rate { # Specify a scheduler map and traffic controls
      shaping-rate 10m;
    }
    tcp-premium-with-4-queues { # Specify a scheduler map and traffic controls
      scheduler-map smap-premium-4q;
      shaping-rate 20m;
      guaranteed-rate 10m;
      delay-buffer-rate 5m;
    }
  }
}

```

In this example, the **tcp-premium-with-4-queues** traffic-control profile is applied to the interface set. The other profile provides a lower shaping rate and no guaranteed rate.

4. Configure the scheduler map **smap-premium-4q** that is referenced in the traffic-control profile for the scheduler node:

```

[edit]
class-of-service {
  scheduler-maps { # Define the queues that comprise each scheduler node
    smap-premium-4q { # Map each queue in the scheduler node to a scheduler
      forwarding-class be scheduler be_sch;
      forwarding-class af scheduler af_sch;
      forwarding-class ef scheduler ef_sch;
      forwarding-class nc scheduler nc_sch;
    }
  }
}

```

5. Configure the four schedulers (referenced in the scheduler map) that define the four output queues for the scheduler node:

```

[edit]
class-of-service {
  schedulers { # Define scheduling characteristics of each queue
    be_sch { # Transmit rate and buffer management parameters
      transmit-rate percent 10;
      buffer-size remainder;
      priority low;
    }
    ef_sch { # Transmit rate and buffer management parameters
      ...
    }
    af_sch { # Transmit rate and buffer management parameters
      ...
    }
    nc_sch { # Transmit rate and buffer management parameters
      ...
    }
  }
}

```

```
    }
  }
}
```

6. Enable ANCP to communicate with the DSLAM to adjust the CoS shaping rate for the scheduler node.

You must enable the ANCP feature for performing CoS traffic shaping adjustments, configure the DSLAM as an ANCP neighbor, and specify the DSLAM-assigned identifier for the subscriber local loop represented by the scheduler node:

```
[edit]
protocols {
  ancp {
    qos-adjust; # Enable ANCP to adjust CoS shaping rates
    neighbor 10.2.3.4; # Configure the DSLAM as an ANCP neighbor
    interfaces { # Identify subscribers for which ANCP can adjust shaping rates
      interface-set {
        ifset-of-logical-interfaces {
          access-identifier "dslam port 2/3"; # DSLAM ID for the local loop
        }
      }
    }
  }
}
```



NOTE: If ANCP is not yet enabled, the process starts when you commit a configuration that contains the `protocols ancp` stanza.

7. You can display the configured shaping rate and the adjusted shaping rate for each logical interface set configured for hierarchical CoS, issue the `show class-of-service interface-set` operational command.

- Related Topics**
- Hierarchical CoS Shaping-Rate Adjustments Overview
 - CoS Shaping-Rate Adjustments for Subscriber Local Loops Overview
 - Guidelines for Configuring CoS Shaping-Rate Adjustments for Subscriber Local Loops
 - Enabling CoS Shaping-Rate Adjustments for Subscriber Local Loops

