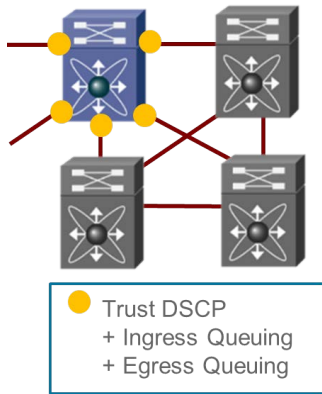


Role in Campus Network

The Cisco Nexus series switches with F3 modules are suited to the role of a core-layer switch in campus networks. As such, these switches typically connect directly to other switches or routers, as shown in Figure 1.

Figure 1 Cisco Nexus 7700 (F3 Module) Switches in a Campus Network



QoS Design Steps

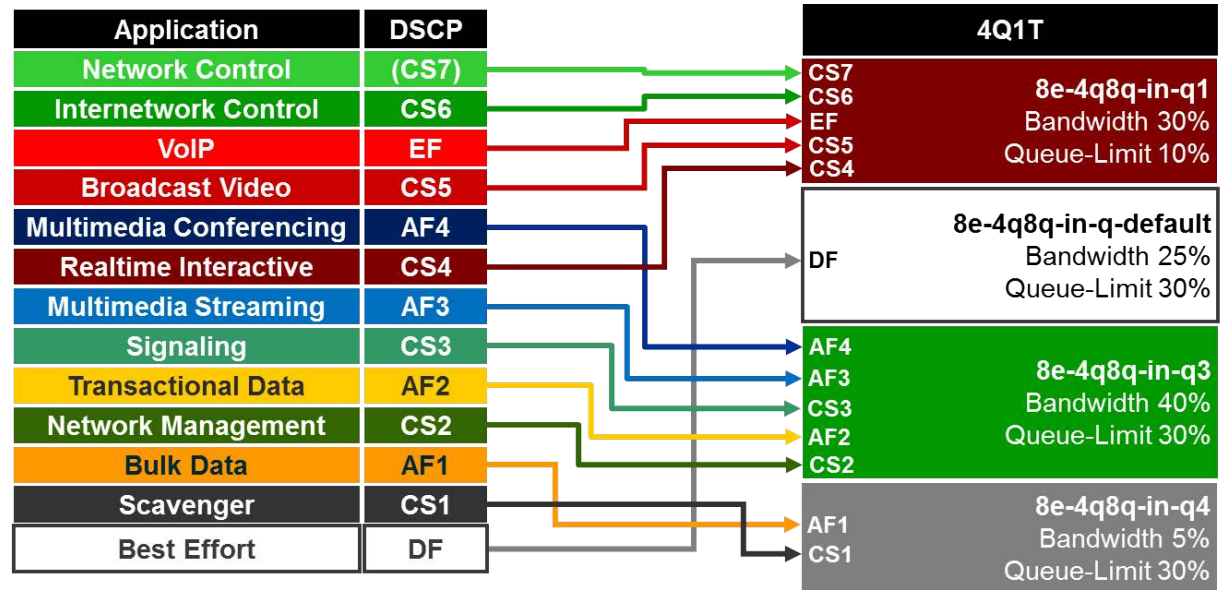
There are two main steps to configure QoS on Cisco Nexus 7700 series switches with F3 modules:

1. Configure Ingress Queuing
2. Configure Egress Queuing

Step 1: Configure Ingress Queuing

The 4Q1T ingress queuing model for the Cisco Nexus 7700 with F3 modules is shown in Figure 2.

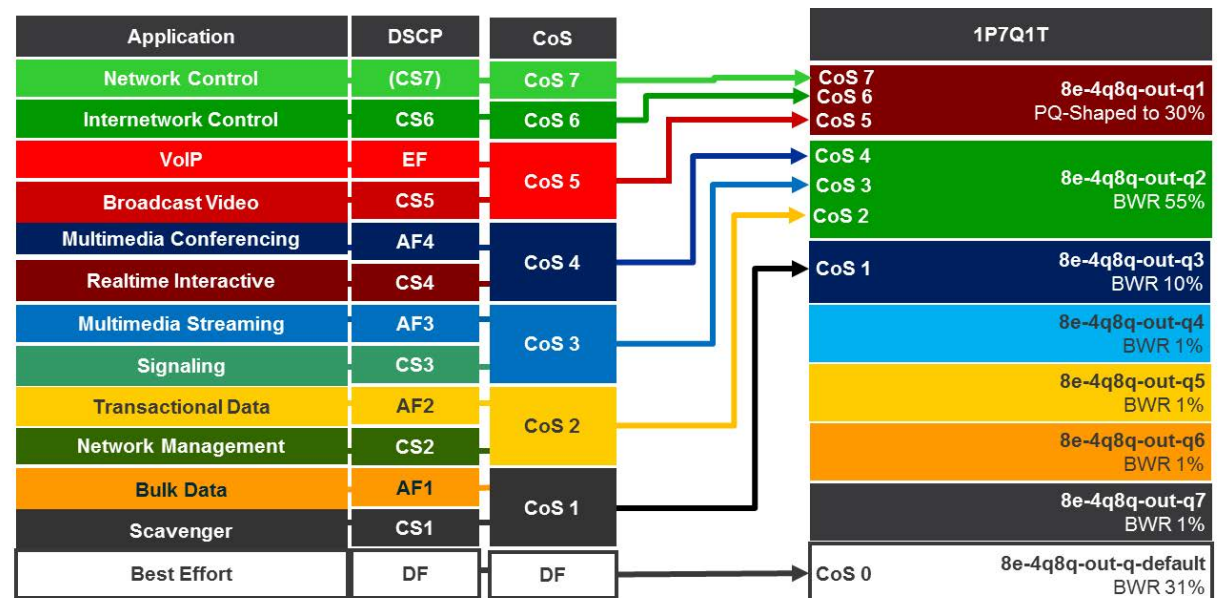
Figure 2 Nexus 7700 F3 (4Q1T) Ingress Queuing Model



Step 2: Configure Egress Queuing

The (CoS-Based) 1P7Q1T egress queuing model for the Cisco Nexus 7700 with F3 module is shown in Figure 3.

Figure 3 Nexus 7700 F3 (CoS-Based 1P7Q1T) Egress Queuing Model



Cisco Validated Design (CVD)

The Cisco Validated Design for Cisco Nexus 7700 series switches with F3 modules in the role of a core-layer switch in a campus network is presented on the reverse.

Step 1: Configure 4Q1T Ingress Queuing Policies

```

class-map type queuing match-any 8e-4q8q-in-q1
  match cos 5
  no match dscp 40-63
  match dscp 32, 40, 46, 48, 56

class-map type queuing match-any 8e-4q8q-in-q3
  match cos 2-4, 6-7
  match dscp 16, 18, 20, 22
  match dscp 24, 26, 28, 30
  match dscp 34, 36, 38

class-map type queuing match-any 8e-4q8q-in-q4
  match cos 1
  match dscp 8, 10, 12, 14

class-map type queuing match-any 8e-4q8q-in-q-default
  match cos 0

policy-map type queuing CAMPUS-F3-4Q1T-INGRESS
  class type queuing 8e-4q8q-in-q1
    bandwidth percent 30
    queue-limit percent 10
  class type queuing 8e-4q8q-in-q-default
    bandwidth percent 25
    queue-limit percent 30
  class type queuing 8e-4q8q-in-q3
    bandwidth percent 40
    queue-limit percent 30
  class type queuing 8e-4q8q-in-q4
    bandwidth percent 5
    queue-limit percent 30

```

service-policy type queuing input CAMPUS-F3-4Q1T-INGRESS

Note: Highlighted commands are interface specific; otherwise these are global.

Step 2 Configure (CoS-Based) 1P7Q1T Egress Queuing Policies

```

class-map type queuing match-any 8e-4q8q-in-q1
  match cos 5-7
  no match dscp 40-63
  match dscp 32, 40, 46, 48, 56

class-map type queuing match-any 8e-4q8q-in-q3
  match cos 2-4
  match dscp 16, 18, 20, 22
  match dscp 24, 26, 28, 30
  match dscp 34, 36, 38

class-map type queuing match-any 8e-4q8q-in-q4
  match cos 1
  match dscp 8, 10, 12, 14

class-map type queuing match-any 8e-4q8q-in-q-default
  match cos 0

policy-map type queuing 1P7Q1T-OUT
  class type queuing 8e-4q8q-out-q1
    priority level 1
    shape average percent 30
  class type queuing 8e-4q8q-out-q2
    bandwidth remaining percent 55
  class type queuing 8e-4q8q-out-q3
    bandwidth remaining percent 10
  class type queuing 8e-4q8q-out-q4
    bandwidth remaining percent 1
  class type queuing 8e-4q8q-out-q5
    bandwidth remaining percent 1
  class type queuing 8e-4q8q-out-q6
    bandwidth remaining percent 1
  class type queuing 8e-4q8q-out-q7
    bandwidth remaining percent 1
  class type queuing 8e-4q8q-out-q-default
    bandwidth remaining percent 31

```

service-policy type queuing output 1P7Q1T-OUT

293378

For more details on Cisco Nexus 7000 QoS design, see the Cisco Press book: **End-to-End QoS Network Design** (Second Edition)-Chapter 25

