

Audience

The primary audience for this case is network engineers, network administrators, RTS engineers, and system engineers.

The secondary audience for this case is network designers and project managers.

Fair share with Fair Queuing

Abstract

The case reviews the performance of Network when configured using Fair Queuing in RealTime router and also defines the working of Fair Queuing.

Case Study

With the increase in network traffic the probability of a data packet not able to access network resources also increases. In such a scenario Fair Queuing can be used. Fair queuing enables data packet passing through a network device to have a fair share of network resources. It allocates bandwidth and buffer space properly. It provides larger packets with more bandwidth. This case tells how you can use a Fair Queuing to configure

RealTime router. This case achieves nearly perfect fairness in terms of throughput, requires minimal work to process a packet, and is simple to implement in hardware.

IPERF Utility

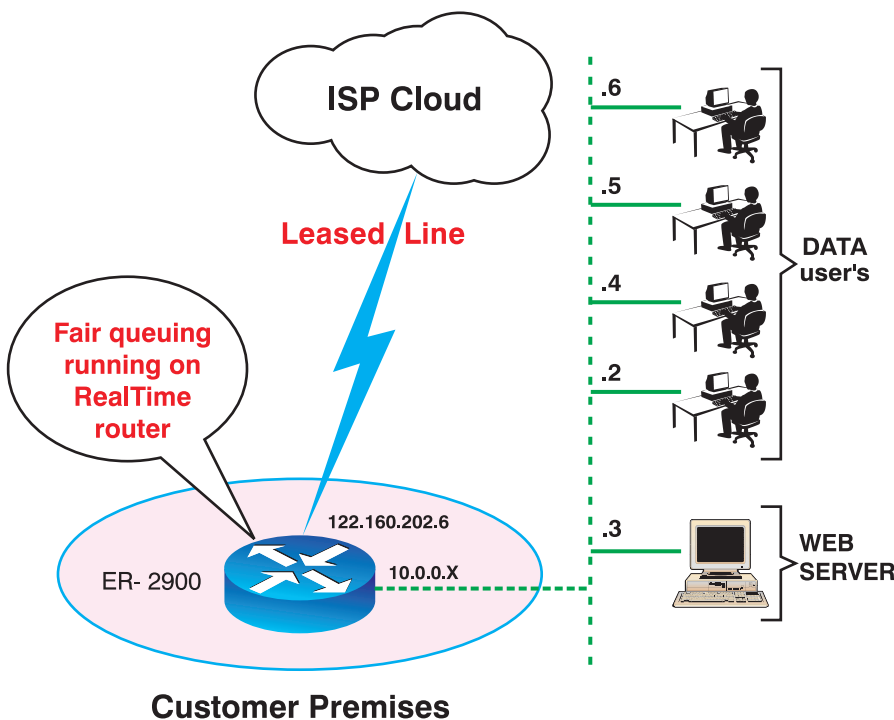
RealTime uses Iperf as a tool to measure network quality, and bandwidth performance. Iperf is a command line tool that measures TCP & UDP bandwidth, characteristics, delay, jitter, and datagram loss. It involves server and client functionality, and measures the throughput between server and client.

<http://openmaniak.com/iperf.php>

Fair Queuing

Fair Queuing is a scheduling algorithm used in networks to allow multiple packets to share link capacity. It enables allocation of bandwidth and buffer space properly. Fair queuing automatically sorts individual traffic streams without define access lists. It can manage one way or two way streams of data such as traffic between pairs of applications or voice and video. It automatically smoothes out bursts to reduce, average latency.

This figure describes how Fair Queuing is running on a RealTime router. It also describes how Fair Queuing can be use to provide each users with fair share of network resources.





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RealTime™

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RTS CASE STUDY

These are the steps to configure a RealTime ER-2900 router as per case scenario.

Step 1: Configure the fast Ethernet 0 interface on RealTime router

From the global configuration mode, configure interface fast Ethernet 0 on RealTime router. Refer to the interface chart.

1.1 RTS (config) #interface fast Ethernet0

1.2 RTS (config-if-eth) #ip address 10.0.0.1 255.0.0.0

1.3 RTS (config-if-eth) #no shutdown

1.4 RTS (config-if-eth) #exit

Step 2: Configure the serial 1 interface on RealTime router

2.1 RTS (config) #interface serial 1

2.2 RTS (config-if-serial) #ip address 122.160.202.6 255.255.255.0

2.3 RTS (config-if-serial) #encapsulation cisco-hdlc

2.4 RTS (config-if-serial) #no shutdown

2.5 RTS (config-if-serial) #exit

Step 3: Apply fair queuing on fast Ethernet 1

3.1 RTS (config) # interface fastethernet 1

3.2 RTS (config-if) #fair-queue

Step 4: Save the RealTime router configurations

RTS# write

The objective of this work is to measure the network performance, and to demonstrate that the use of Fair Queuing will improve the network efficiency. The above scenario can also be implemented by using RealTime Systems, ER-1900, and ER-2700 routers.

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