

# PERFORMANCES ASSESSEMENT OF THE SCHEDULING MECHANISM FOR THE MANAGEMENT OF THE QUALITY SERVICE (QOS) IN THE IP NETWORK

**Mehri Houda**

*Unité de recherche Logistique Gestion Industrielle et de la Qualité (LOGIQ) -ISGI-Sfax B.P.  
BP n°954-3018 Sfax-TUNISIA*

**Abstract.** The scheduling mechanisms allow to ensure the sharing of resources according to specific policy of service whose nature guarantees provide to the applications which have competitive access to resources. Several scheduling algorithms are proposed to meet the requirements of real time and provide a service more sophisticated than FIFO scheduling which does not guarantee a particular application next to another. The FIFO service just offers the guarantee of a common big grain to all the other applications. To manage packets received and transmitted, a router will necessarily employ one or more queues. The scheduling and management of queues greatly determine the performance of routers and is an important element of QoS. The application of a type of queue has a significant impact on the concepts of Quality of Service. A router can be viewed as a collection of:

- Process entry who assemble packages, verify its integrity (checksum) and allow the classification according to criterion based on the IP address, port numbers or types of protocols encapsulated in IP datagrams.
- Process routing and re-transmission that determines the destination interface.
- Processes of output allowing the management of queuing, the scheduling and the transmission of packets towards the following nodes.

Each process operates on a package at a time and works asynchronously against the others. The connection between the process of entry, routing and output is via queue entry (ingress interface) and output (egress interface). These processes define 5 levels of processing that interact in the input interface to output interface. These processes rely on the use of entities which allow: The classification (IPs, ports, protocols ...), Routing to an output interface, the management of queues and scheduling, buffering sub-queues (software) and Buffering main queue (hardware).

**Keywords:** scheduling, queues, simulation, QoS, Routing, the IP networks, policing and control of rejection.