

Quality of Service and MPLS – Technologies and Applications

- Duration: 30 hours
- Lecturer: Joberto S. B. Martins
(www.jsmnet.com)
- Target Audience: masters and graduation students, network engineers and designers involved in IP network research and design.

Why a QoS Course?

Quality of service (QoS) provisioning in IP networks is a challenging task for network researchers, designers and managers. Such challenge has been fostered by a new set of multimedia applications, huge data applications and a decentralized implementation paradigm that presumably requires an IP-centric style for networking.

MPLS (Multiprotocol Label Switching) is an IP forwarding technology which is able to support advantageously a number of important applications such as VPN, traffic engineering, optical networks (GMPLS) and QoS.

In actual R&D scenario QoS and MPLS technologies are continuously evolving and may be intermixed. The fact is, researchers, designers and managers deal with a rich set of technological alternatives and have to make technological choices and technically integrate various existent alternatives.

The proposal of this QoS course is to elaborate on the technical solutions for QoS and MPLS including:

- QoS technical alternatives applicability and project issues.
- MPLS technology and main applications.
- Optical networking in the context of quality of service.
- Main management and research issues related with the technical aspects discussed.

The adopted approach is to provide a global view of the problem focusing on the more strategic issues and to discuss QoS applications using MPLS.

Topics

- 1. Quality of Service – Principles and Target Applications
 - 2. Router QoS Basic Review
 - 3. QoS with Differentiated Services Architecture (DiffServ) – Principles and Applicability
 - 4. MPLS (MultiProtocol Label Switching)
 - 5. MPLS Applications – Traffic Engineering and VPN (Virtual Private Networks)
 - 6. GMPLS – Generalized MPLS
 - 7. Management Frameworks (QoS context)
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Additional Information

- Evaluation: 60% exam + 40% technical paper (topics to be proposed during course)
 - References:
 - [1] Aidarous, S., Plevyack, T., Martins, J. S. B., et alli; Managing IP Networks – Challenges and Opportunities, IEEE Press, John Wiley, 360 pp., 2003.
 - [2] Martins, J.S.B., Quality of Service and MPLS – Technologies and Applications Course Notes, 2006.
 - Obs.: papers, sites and other online resources will be indicated and made available at “*Unifacs OnLine*”, a distance learning tool supporting the course.
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