

# INF5050 - Protocols and routing in internet

Multiprotocol Label Switching (MPLS) /  
Generalized Multiprotocol Label Switching (GMPLS)

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# Outline

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- ▶ Background
- ▶ MPLS Fundamentals and Terminology
- ▶ Control and Forwarding Plane
- ▶ Generalized MPLS
- ▶ GMPLS Recovery techniques
- ▶ Summary
- ▶ Resources

# Background

- ▶ What is MPLS?
  - ▶ Mechanism that directs data from one network node to the next based on on path labels rather than network addresses.
  - ▶ with such mechanism, we avoid lookups in a routing table
  - ▶ MPLS switches packets (IP packets) instead of routing packets to transport the data
- ▶ Why MPLS?
  - ▶ Provide a highly scalable mechanism that was topology driven rather than flow driven
  - ▶ Load balance traffic to utilize network bandwidth efficiently
  - ▶ Allow core routers/networking devices to switch packets based on a simplified header
  - ▶ Remove the complexity and overhead of network managements (Assemble and reassemble IP packets)

# MPLS Fundamentals



# Summary

- ▶ MPLS
- ▶ GMPLS

# Resources

- ▶ Generalized Multiprotocol Label Switching: An Overview of Signaling Enhancements and Recovery Techniques  
IEEE Communication Magazine, July 2001. A. Banerjee et. al.
- ▶ Internet Traffic Engineering Using Multi-Protocol Label Switching (MPLS). Computer Networks 40, Elsevier, 2002 D.O. Awduche and B. Jabbari.