Wavelength-Division Multiplexing

- up to 128 wavelengths in the range between 1200 and 1600 nm
- transfer rates of several Gbps per wavelength
All-Optical Switch

- reconfigurable wavelength-selective switch
- wavelength routing
- no optical-to-electrical conversion
- no conversion of wavelengths
Possible Switch Design

DE-MUX

n x n

Crossbar

n x n

Crossbar

MUX

Input Ports

Output Ports
Wavelength Routing Network

Applications:
- telecommunication networks, gigabit networks
- embedding of virtual topology into physical topology
Representing Network and Connection Requests

★ model the network as a symmetric directed graph \( G = (V, E) \)

★ a connection from \( u \) to \( v \) is established by reserving a wavelength (color) on all edges along a directed path from \( u \) to \( v \) in \( G \)