

Lecture 17

Types of Multistage network

- One side networks : also called full switch having input output port on the same side
- Two sided multistage network : which have an input side and an output side. It can be further divided into three class
 - Blocking: In Blocking networks, simultaneous connections of more than one terminal pair may result conflicts in the use of network communication links. Examples of blocking network are the Data Manipulator, Flip, N cube, omega, baseline. All multistage networks that are based on shuffle-exchange elements, are based on the concept of blocking network because not all possible here to make the input-output connections at the same time as one path might block another. The figure 2.6 (a) show an omega network.
 - Rearrangeable : In rearrangeable network, a network can perform all possible connections between inputs and outputs by rearranging its existing connections so that a connection path for a new input-output pair can always be established. An example of this network topology is Benes Network (see figure 2.6 (b) showing a 8** Benes network)which support synchronous data permutation and a synchronous interprocessor communication.
 - Non blocking : A non –blocking network is the network which can handle all possible connections without blocking. There two possible cases first one is the Clos network (see figure 2.6(c)) where a one to one connection is made between input and output. Another case of one to many connections can be obtained by using crossbars instead of the shuffle-exchange elements. The cross bar switch network can connect every input port to a free output port without blocking.

