

Transport Layer



By

Dr M. Senthilkumar
Assistant Professor

Department of Computer Science

Government Arts and Science College, Avinashi - 641654

Transport Layer – Functions

- Reliable
- Connection-Oriented
- Stream Oriented
- Full Duplex
- End – to – End Communication

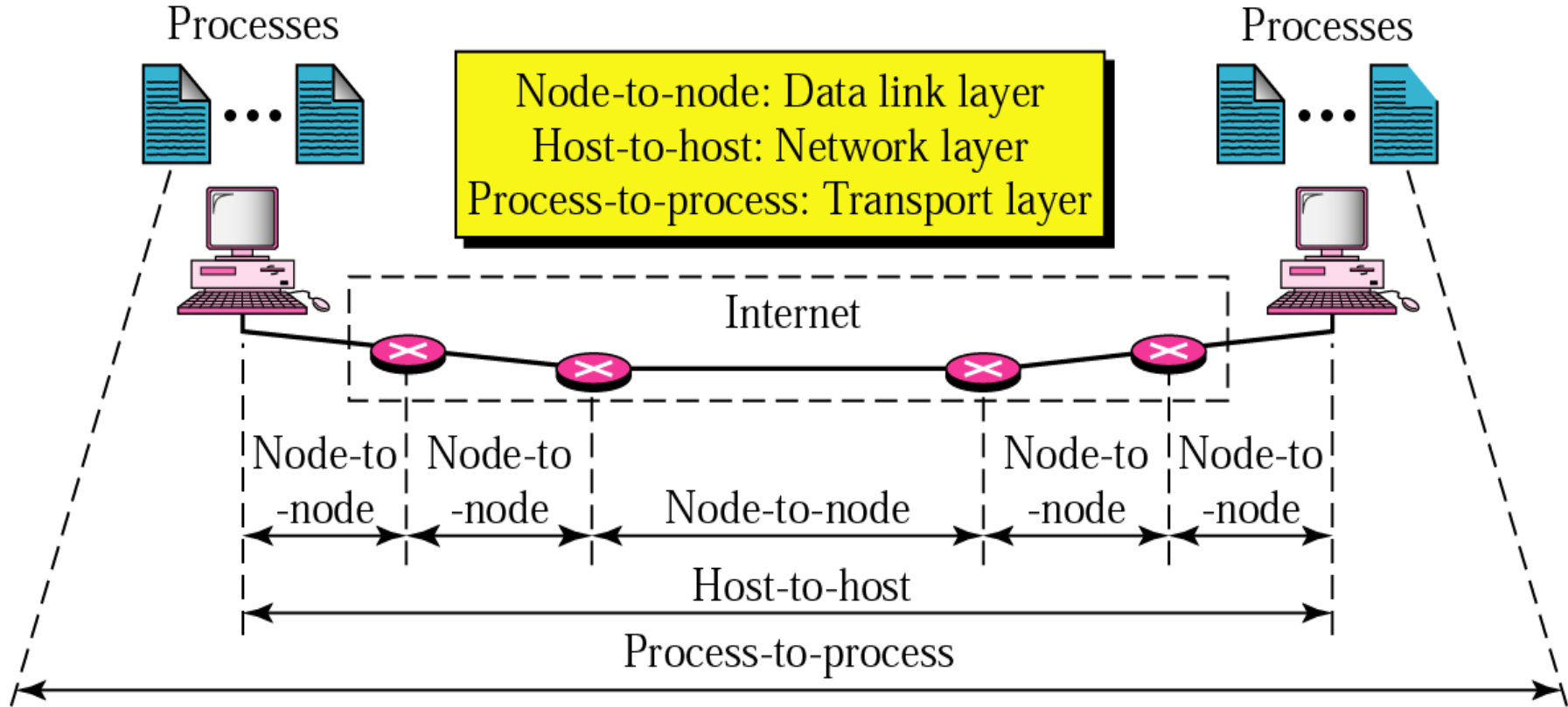
Transport Layer – Functions

- Service Point Addressing
 - Ports Addressing
 - Socket Addressing
- Connection Establishment
 - Virtual Connection
 - Handshake/ Agreement
- Connection Release
 - Terminate/ Close Connection

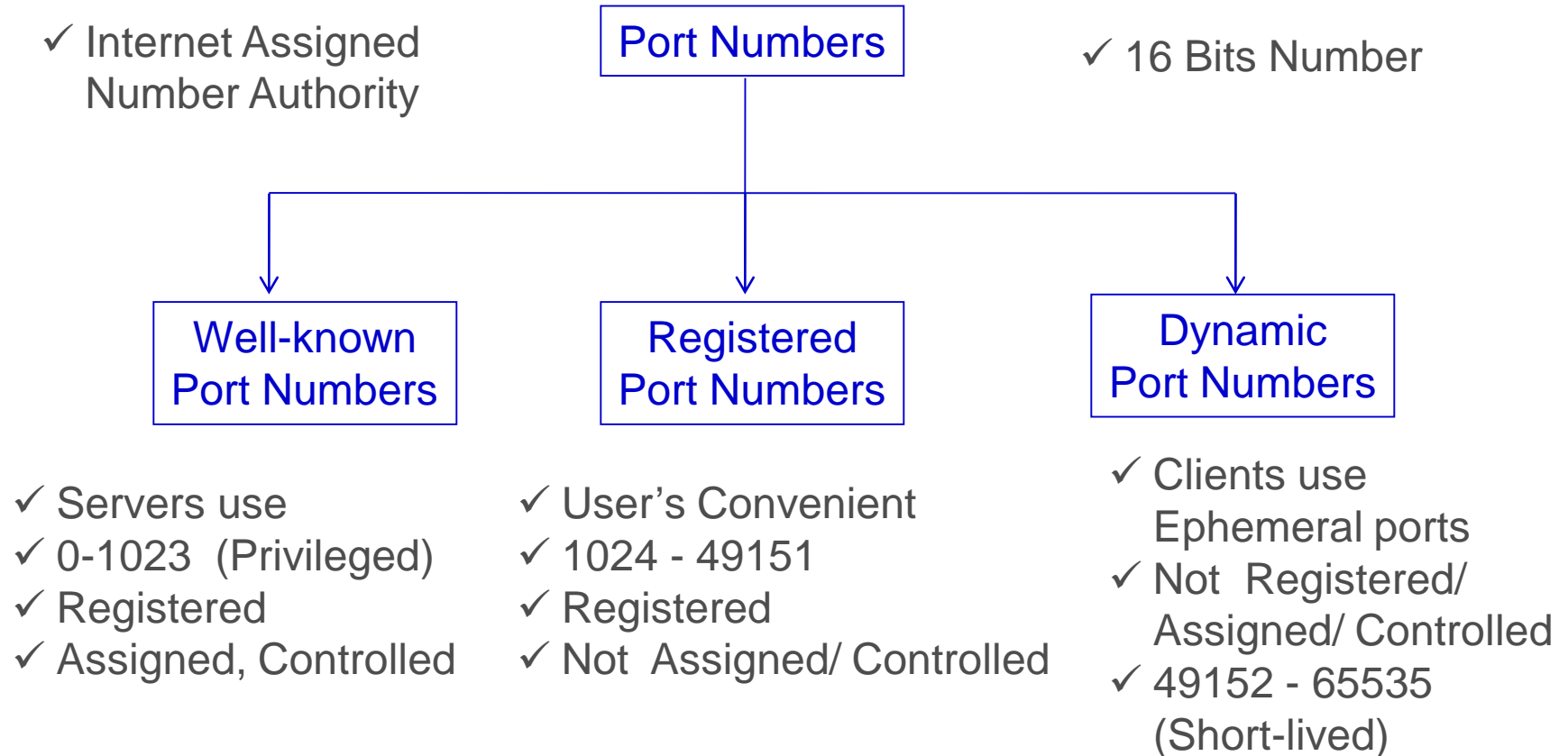
Transport Layer – Functions

- Segmentation
 - Breaks Message into Segments
- End-to-End Error Control
 - IP provides Unreliable Service
- End-to-End Flow Control
 - Avoid Buffer overflow
- Multiplexing and Demultiplexing sessions

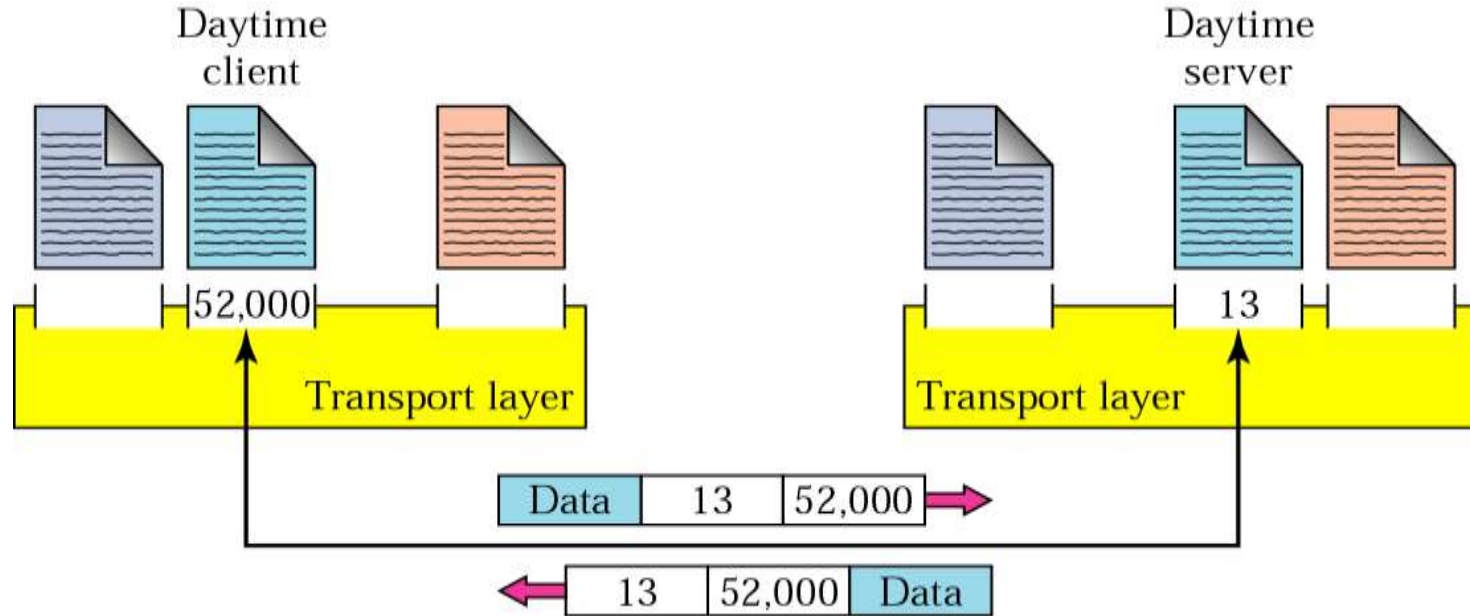
Transport Layer – End to End Delivery



Transport Layer - Addressing



Transport Layer - Addressing



Transport / Network Layer – Socket Addressing

- ✓ Process – to – Process delivery needs two identifiers
- ✓ IP address and Port number
- ✓ Combination of IP address and port number is called a socket address
- ✓ A socket is an endpoint of communication

Transport / Network Layer – Socket Addressing

- ✓ Client socket address uniquely identifies Client process
- ✓ Server socket address uniquely identifies Server process
- ✓ Transport – Layer Protocol needs a pair of socket addresses

Transport / Network Layer – Socket Addressing

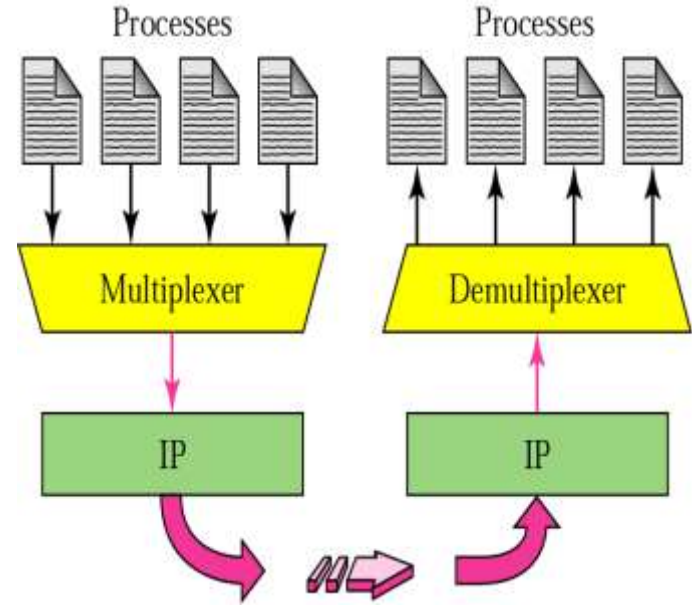
- ✓ Socket pair for a TCP connection is a 4-tuple

Socket 1: Sender's IP address, Sender's port

Socket 2: Receiver's IP address, Receiver's port

Transport Layer – Multiplexing – De-multiplexing

- ✓ Multiplexing (Many into One)
Among Several processes at Sender One Process is selected to send data
- ✓ De-Multiplexing (One into Many)
One Process at Receiver receives data among Several processes



References

- ✓ Books: Data communication and Networking, Behrouz A Forouzan, Fourth edition
- ✓ Computer Networks, Andrew S. Tanenbaum, 4th edition, PHI
- ✓ Data Communication and Networks, Achyut Godbole, 2007, TMH.
- ✓ Computer Networks: Protocols, Standards, and Interfaces, Uyles Black, 2nd ed, PHI
- ✓ Various relevant websites
- ✓ Dr. Ayman Abdel-Hamid, CS4254 Spring 2006

Thank You