Asynchronous Transfer Mode

Neeraj Kumar,Ayush Singla

Dronacharya College Of Engineering

Khentawas,Gurgaon

Abstract- **The synchronous Transfer Mode is an International Telecommunication Union-Telecommunications standards section for cell relay wherein information for multiple service types, such as voice, video, or data is conveyed in small, fixed sire cells. ATM are connection oriented. ATM standard is widely accepted by common carriers as mode of operation for communication. It is a form of cell switching using small fixed sired packets. ATM network will be organized as a hierarchy. Asynchronous transfer mode is quickly evolving to enable the full use of Broad Band Integrated Services Digital Network.**

I. INTRODUCTION

The Broadband Integrated Services Digital Network (BISDN) supports Digital transmission at rates greater than 1.44 Mbps. ATM is according to ATM forum, a telecommunications concept defined by ANSI and ITV standards for carriage of a complete range of user traffic, including voice, data and video signals. ATM is being developed as one of the techniques that will enable the BISDN to transport this wide variety of services. The standards also define the protocols required to interface other network services such s Switched Multimegakit Data Services (SMDS). ATM standards are written in such a way that services that are in use today and new services that are under development can use the same network. ATM provides functionality that is similar to both circuit switching and packet switching

Networks : ATM uses asynchronous time division multiplexing, and encodes data into small, fixed sized packets called cells. This differs from approaches such as Internet Protocol or Ethernet that uses variable sized packets and frames. It has connection oriented in which a virtual circuit must be established between two end points before the actual data exchange begins. ATM combines circuit switching routing of public telephone networks, packet switching of private data networks, and the asynchronous multiplexing of a packet switch.

II. ATM CONNECTION TYPES

There are two levels of ATM Connections :
1. Virtual path connections.
2. Virtual channel connections

It is indicated by two fields in the cell header which are Virtual Path Identifier (VPI) and Virtual Channel Identifier (VCI). A virtual path is a bundle of virtual channels, all of which are switched transparently across the ATM network based on common VPI. All VPIs and VCIs, however, have only local significance across a particular link and are remapped as appropriate at each switch. Virtual Path Identifier, identifies the next destination of a cell as it passes through a series of ATM switches on the way to its destination Virtual Channel Identifier identifies the next destination of a cell as it passes through a series of ATM switches on the way to its destination.

III. ATM NETWORK INTERFACES

An ATM network consists of a set of ATM switches interconnected by point-to-

point ATM linked or interfaces. ATM switches support two primary types of interfaces : UNI and NNI.

- UNI (User to Network Interface) : It connects ATM end systems (such as hosts and routers) to an ATM switch.
- NNI (Network to Network Interface) : It connects two ATM switches.

UNI and NNI Networks can be subdivided in public and private. A private UNI connects an ATM end point and private ATM switch. A private NVI has connection to two ATM switches within the same private organization.

IV. ATM CELL BASIC FORMAT

ATM transfers information in fixed sire units called cells. Each cell consists of 53 octets, or bytes. The first 5 bytes contain cell header information and remaining 48 contain the payload.

Advantage of Cells.
- Switches and interfaces are easiest to implement.
- Host hardware data units are typically fixed size.

Disadvantages of Cells
- What is the optimal cell payload size.

REFERENCES

1. Asynchronous Transfer Mode, 'Internet, February 26, 1997, Available http"//www.cisco.com

2.   De Prycher, Martin (1993)- Asynchronous Transfer Mode. Solutions
    for Broadband ISDN.

3. Asynchronous Transfer Mode – http://en.wikipedia.org