

Network Components

Purpose:

This document provides a basic overview of the various components that make up a local area network

There is also information about connecting the schools computer network to the Department of Education and Training's Wide Area Network using an ISDN line.

This Document

Read this document if you wish to understand the purpose of each network component.

*Some Definitions:***File Server**

Is a computer facilitating the sharing of data and resources. In the case of OASIS there will be one server to be shared between the Admin and Library networks

Workstation

A computer that connects to a network.

Network Card

Allows the connection of workstations and file servers via cable to a hub.

Communication Media



This is a cable that allows the transfer of data between workstations. It is generally coaxial cable or UTP cable. Optical fibre is used to connect buildings.

Hub



Allows the connection of workstations together.

Router



A device that allows a fast connection between networks. In this case it is a connection between the school's network and the Department of School Education's network.

Patch Panel



Each port on a patch panel is connected to a socket mounted on a wall or desk somewhere in a building. This allows a computer to be plugged into the socket, with the corresponding port is plugged into the hub. This allows information to pass from the router, to the hub, to the patch panel, then to the workstation.

Cabinet



This is a secure lockable cabinet which holds hubs, patch panels and cables.

LAN

LAN stands for **L**ocal **A**rea **N**etwork. This refers to a group of computers connected using communication media and/or hubs. In this case each school is a LAN.

WAN

WAN stands for **Wide Area Network**. This refers to a network that connects smaller LANs together. In this case the Departments network is a WAN as it connects all schools, state and district offices together in one large network.

Internet

The Internet is a collection of networks interconnected which allow them to function as a single, large virtual network to share information quickly and easily.

Intranet

An Intranet is like a 'controlled' version of the Internet, designed to let a group of people with something in common (e.g. within the Department of Education and Training) to communicate internally in the same manner as the Internet, but with restricted access.

Browser



A browser is a piece of software used to view web pages. The two main browsers are Netscape and Internet Explorer.

WWW

WWW stands for World Wide Web. It is a naming convention that allows computers around the world to communicate.

URL

URL stands for Uniform Resource Locator. This in its simplest terms is a web page address. Eg. <http://www.dse.nsw.edu.au> is a URL.

Network – Fileserver



A network can incorporate a fileserver. These typically have a network operating system such as Novell or Microsoft NT. These allow management of resources on a network, and provide greater security for saving data.

Network – Peer to Peer

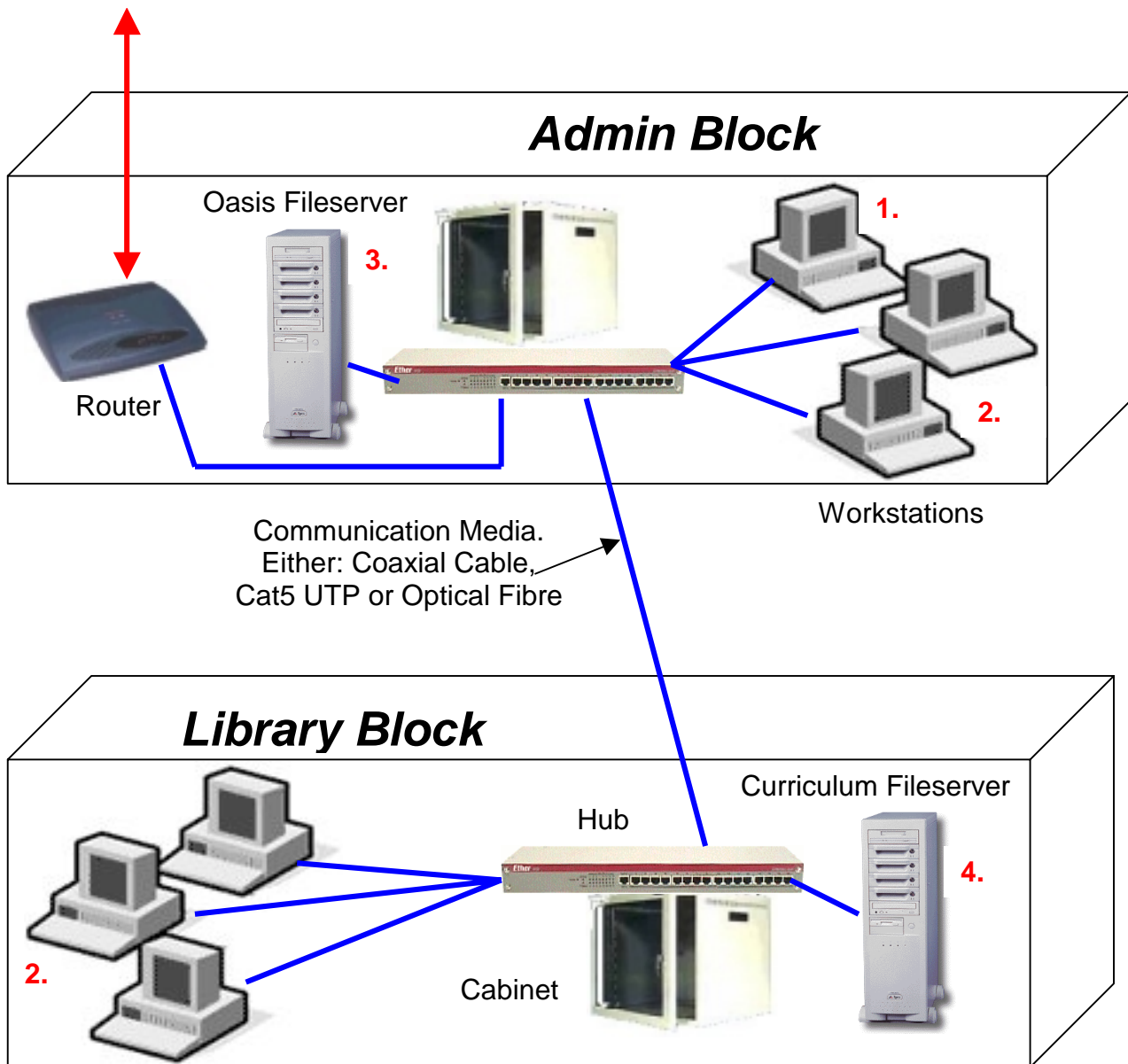
A connection of workstations that share resources on each workstation such as printing. There does not need to be a fileserver in a peer to peer network.

Internet Protocol (IP) Address

An Internet Protocol (IP) address is a unique set of numbers allocated to each workstation on the network, which allows it to communicate with the Internet. Each school has been provided with a range of IP addresses to allocate to workstations. An IP address has four sets of numbers in the format aa.bb.cc.dd where dd is the workstation number that schools should allocate a different number to each workstation starting from 31. So a typical set of IP addresses is 10.15.140.31, 10.15.140.32 and so on. When configuring workstations to access the Internet, schools should keep a record of the IP address allocated to each workstation.

Typical Layout of a School's Network

ISDN connection to the Department's *Intranet* and to the *Internet*



1. Workstations that are Internet ready can access the Department's Intranet and the Internet. These can include a mixture of operating systems such as Windows, Macintosh and Acorn. They can also access your schools Curriculum server if you have one.
2. Windows and DOS based workstations can also access the OASIS server.
3. The OASIS server is shared between Admin and Library, and can be located anywhere on the network.
4. You can incorporate existing servers and networks into the network by connecting them to the hubs. Once the router is connected to a hub on the network, all workstations across the school can access the Internet.

Network Cards and Cables

At the back of the computer you will need a connection of some description to attach to the network. There are two types of connections you may have to your network. These are via BNC connections with black coaxial cable, or UTP Category5 (Cat5) cable (generally blue in colour).

The network card is the device on your computer that allows you to plug in your cable

This is the network card

This is a connection using a BNC connection. This is typical of the old OASIS workstations.

T-Piece

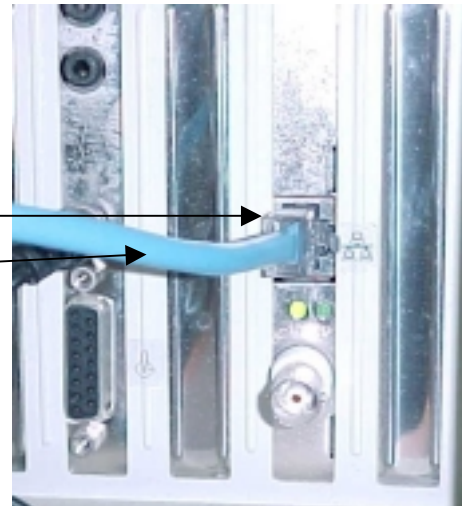
Coax Cable



This is a connection with UTP Cat 5 cable. The socket looks similar to a phone connection.

Socket

UTP Cat 5 Cable



This is also a UTP Cat 5 connection on a Macintosh computer.

