

Medway Grid for Learning

Policies and Guidance

Service Monitoring Information

(Version 3.0 - 04/03/2002)

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Introduction

This document is intended to provide general information and guidance related to connecting school LANs to the broadband Grid for Learning network, and running school systems and servers effectively to deliver a reliable, high performance service. It also provides specific policies adherence to which is necessary for the smooth and effective running of the whole network.

1 Service monitoring information - Interpretation and Explanation

1.1 Scope

This document explains how to access the available network and server information, what the data represent, and how to make basic inferences from this information as to the expected service performance at school sites.

1.2 Intended Audience

This document is intended for ICT Coordinators, ICT Technicians, and other ICT contacts in schools with access to the Medway Grid for Learning Network support site at <http://support.medway.org.uk/> (a username and password is required for this site), who wish to view statistics relating to their school, and other schools on the network.

1.3 Overview

As part of the Medway Grid for Learning service ICT contacts in schools have access to service monitoring information which show the status of the network and the utilisation history of each of the circuits that make up the network. The current network status is available at <http://status.medway.org.uk/> and the utilisation graphs start at http://support.medway.org.uk/support/mrtg/mrtg_frame.asp

A password is needed for both sites, in addition Java support in your browser is required in addition to the usual minimum browser specification (Internet Explorer 5.01SP1 or above) for the status site.

1.4 Current Network Status

After browsing to <http://status.medway.org.uk/> you should login with the username "view" and password "salamander". Note that the first time you do this on any machine there will be a pause whilst a Java applet is downloaded to the browser. After logging in you will see an overall network diagram, double clicking on a site in the map, or in the list on the left, will enable you to see more detail. Exit this application by closing your browser window.

1.5 Utilisation Statistics

There are the following sections and specific statistics available -

1.5.1 Central and Remote Cisco Router

- each core site has a 7200 Central router with the following statistics:

- ❖ CPU usage
- ❖ Memory usage
- ❖ Running temp
- The percentage of time the CPU is not idle
- The amount of memory in use for router functions
- The current inlet and outlet air temperatures for the router

1.5.2 Central System Server Performance

- For each server
 - ❖ CPU usage - The percentage of time the CPU is not idle
 - ❖ Memory usage
 - Virtual memory - Total virtual memory, and available virtual memory
 - Physical memory - Total physical memory, and available physical memory
 - ❖ System Drive - Total drive size and amount of drive occupied with data
 - ❖ Swap Drive - Total drive size and amount of drive occupied with data
 - ❖ Data Drive - Total drive size and amount of drive occupied with data

1.5.3 Download speeds

The download speed graphs show the varying download rate which is measured from key sites across the Internet. This speed is measured from core network and does not necessarily represent a speed available at a school, however it does show the maximum speed which can be obtained under the conditions imposed by the remote server and the connection over the Internet.

1.5.4 For each school link

- Traffic analysis

1.6 General interpretation

There are four main factors which affect the speed of response when browsing web pages:

- ❖ Performance of remote server
- ❖ Available bandwidth to your workstation
- ❖ Latency between your workstation and the remote server
- ❖ Performance of your workstation

The performance of the remote server, and the Internet connection to the Medway network, is difficult to determine, however by eliminating other possibilities it can be assumed that any poor performance is a result of these factors.

Under normal conditions the performance workstations and LANs should not adversely affect the performance of an Internet connection. We recommend that as a minimum you should have a 100Mbps switched LAN, and workstations running Windows 2000 or later, on PC hardware with minimum 1GHz processors, ATA100 disk drives, all PCI / AGP architecture, and 256MB RAM.

In traffic analysis, the green shaded section of the graph shows the incoming data rate to the site at the end of the circuit, the blue line (not always visible) shows the outgoing data rate. Usually the incoming bandwidth will be much greater than the outgoing bandwidth as Internet browsing tends to generate large page downloads whilst only requiring short requests to servers to generate this traffic.

It is a good approximation that there is no deterioration in speed of response until circuit utilisation reaches 100%. This is because as long as utilisation is below 100% there is some proportion of time where the circuit is idle and could carry data, but there are no data to carry. This is analogous to CPU usage and processor idle time, where when CPU usage is less than 100% there is some proportion of time when the CPU is idle, and therefore applications do not slow down as a result of high CPU utilisation until it reaches 100%. Due to technical factors it is generally the case that utilisation of either circuits or CPUs rarely reaches exactly 100%, but 97% is a good real world approximation instead of 100%.

Latency is the time taken for a packet of data to travel between server and workstation which is not a result of the size of the packet. It is composed of two components, an irreducible minimum which is a result of the time required to route packets and transmit them over network circuits, and a variable amount due to traffic queuing in network devices waiting for a circuit to become available. The former part is generally fixed for a connection to a particular destination, the latter part varies according to the utilisation of each link, but again that component does not generally increase much until the link utilisation approaches 100%.