

## Bottlenecks in Sybiz Vision

**Please note that information in this document may have changed since this document's creation. Document Creation Date: October 2003**

Bottlenecks are areas in your computer system that cause unnecessary slowdowns when storing data to a hard drive and reading it back to your own computer screen.

Similar to pouring water down a funnel into a bucket, if the funnel spout is too small, then water will take longer to reach the bucket than if the spout was larger.

In a computer system however we do not typically see just one bottleneck. There are many bottlenecks each one being able to slow down the data transfer within your computer system to a varying degree.

All computer systems have bottlenecks. For a computer system not to have a bottleneck would mean that everything throughout the computer system is receiving and then passing on data at precisely the same speed. This would be very difficult to achieve.

What we need to do is identify those bottlenecks that can be fixed, and will result in an increase in speed with minimal cost outlay. Bottlenecks can occur in each of the following areas:

- CPU of Workstation
- Memory of Workstation
- Hard Disk of Workstation
- Network Card of Workstation
- Network Cable to Hub from Workstation
- Hub or Switch
- Network Cable to Hub from Server
- Network Card of Server
- Hard Disk or Hard Disks of Server
- Memory of Server
- CPU of Server

Programs and the version of Windows can also be bottlenecks in themselves. For instance running Windows 95 and Windows XP on the same 2.4 GHz machine will show different speeds in which programs can be accessed, as Windows 95 is not utilise as many resources as Windows XP.

What needs to be considered when looking at removing bottlenecks is

- whether you will achieve a performance increase
- whether the bottleneck is only the only bottleneck or is one of many
- if the cost will justify the result

The first step is to determine how much processing work is achieved on the workstations. If the program is a large program that requires a large amount of resources on the local machine, and files are generally kept on the workstation, then investigating the workstation's environment for possible bottlenecks would be your highest priority. If however files are largely accessed and stored on a network's hard disk then looking at the file serving capabilities of the server and the network environment would be your highest priority.

From there an expert in networks and hardware, using custom tools and resources, is usually required to identify possible bottlenecks.

As an example of a bottleneck, if the CPU of Workstation is only a 266MHz Pentium with an old hard disk is accessing a network resource, then replacing the machine with an updated machine will resolve a bottleneck (being the processor, bus speed and CPU on the computer). However by removing this bottleneck we may not see an improvement in processing speeds. Why? The Network Cable going to the Server may only be

capable of running at 10MB per sec. This would create another bottleneck (in fact the bottleneck was always there but simply could not be seen as there was a larger bottleneck hiding it). We would then have to replace the network cable (and more than likely the hub or switch as well as the Network Card of the Server) to remove that bottleneck. If however our new machine primarily was processing data to files on the same machine then you would see a vast speed improvement when processing.

On the other hand if the 266 MHz machine was being used to log on to Terminal Services (a process where the server allocates memory for a Operating System to run on the server) then updating this machine would result in very little or no benefit in this instance.

The Support House (08 8377 3222) have technicians that can assist you with identifying possible causes of bottlenecks in your computer system and advise you of procedures that will increase the speed of your computer system.