**ASI RESPONSE**

It’s a complex issue and ASI are not networking specialists, but hopefully, this will provide a little insight. Performance comes in multiple forms similar to our highway system.

You have the power of the car (The Computer Server and Workstations)

The congestion of the highways (The Network Design)

The navigation system (Computer Memory of Workstations and Server)

**Web Server**

If you house your own website with your own computer, this is recommended to be a separate server. ASI farms this process out along with email services for a low monthly fee.

**Email Server**

If you have Microsoft exchange for emailing, that could be a separate server.

I tried M/S Exchange and this was so costly to maintain that I replaced this software.

For $40 per month, Earth Link, Go Daddy or other companies can handle all the email software and virus protection. By farming out the Email server, I don’t have to pay an IT person to upgrade all the M/S software and related Spam and Virus Protection for Exchange each month.

**Communications Server**

If you have more than two wireless computers in the plant for plant data collection and bar code scanning, then Microsoft recommends a separate server for communications.   Normally, the plant computers will be diskless thin clients whereby all the computer processing is performed by the server.   Full computers in the plant allows the plant personal to view internet data and other software that can slow down the entire network.   You don’t want to overtax the server, which is why a separate server known as a terminal services server handles all the communications between the plant computers and the main server.

It adds more brain power for the entire data processing system.

**Data Server  / Disk Drives**

For Advantzware, Progress Software Corp recommends separate disk drives.

One disk drive is used for Microsoft operating software, Virus, Spam Control, etc.

One disk drive is used for Progress Software and Advantzware Programming Code.

One disk drive is used for Advantzware Data.

Multiple disk drives allow your computer multiple read-write disk drive heads retrieving data simultaneously.

One disk reads the M/S Operating commands.

One disk reads the Advantzware/Progress commands.

One disk reads the Data.

**Data Server Computer & Workstation Memory**

Each computer should have minimum of 4GB but 8GB or 16GB of memory would be preferred.

The Server should have at least 8GB, but 16 to 32GB of memory improves performance.

One client that had constantly reported slowness, had only 2GB or memory on their workstations. Progress did a performance test and the computer needed more than 2GB just to run other software. Most workstations run Microsoft Office, Email Outlook Software, Spam Control, Virus Protection and maybe Music. That alone could require over 2GB of memory and that is before Advantzware is even loaded. The result of low memory is the computer must use disk space as a subset for memory. This requires constant accessing the disk drive to pull in needed program logic to run a program. That is time that is not needed if there is enough memory on the computer.

**Network Traffic**

If your server and computers have the proper firepower, it’s meaningless if the data cannot get to the brains of the operation, the server. It could be like having a Ferrari but limited to your driveway. The network hardware must be configured properly and network software must be configured. As for software, most systems now support internet traffic, communications traffic, phone traffic and data traffic. The software should be configured so that data, voice, communications and internet can be segregated with their own traffic lanes. Likewise, hardware should be properly configured. 10 Megabytes per second was the norm just 10 years ago and now 100MB per second and faster are the norm. Networking cards need to support the networking cable speed.

Another possible issue is that network cabling be configured with intelligent router with direct line access to the server. In other words if you have multiple routers connected in a triangle it is like multiple roads leading to a circle. I think of Chevy Chase in the movie European Vacation as he rides around the circle again and again. In computer terms, it is called data collision and the data does not know how to go to the server. The result is poor response time.

When computers are hundreds of yards from the server, you need a router (also known as network switch) to connect multiple workstations or to boost the signal.  They are best configured line ducks in a row. For example, if we have 20 people in accounting, 20 people in the plant and 20 people in customer service, it would be best to connect each department to their own network switch and each switch with one path to the server.  
This will eliminate data collision.