

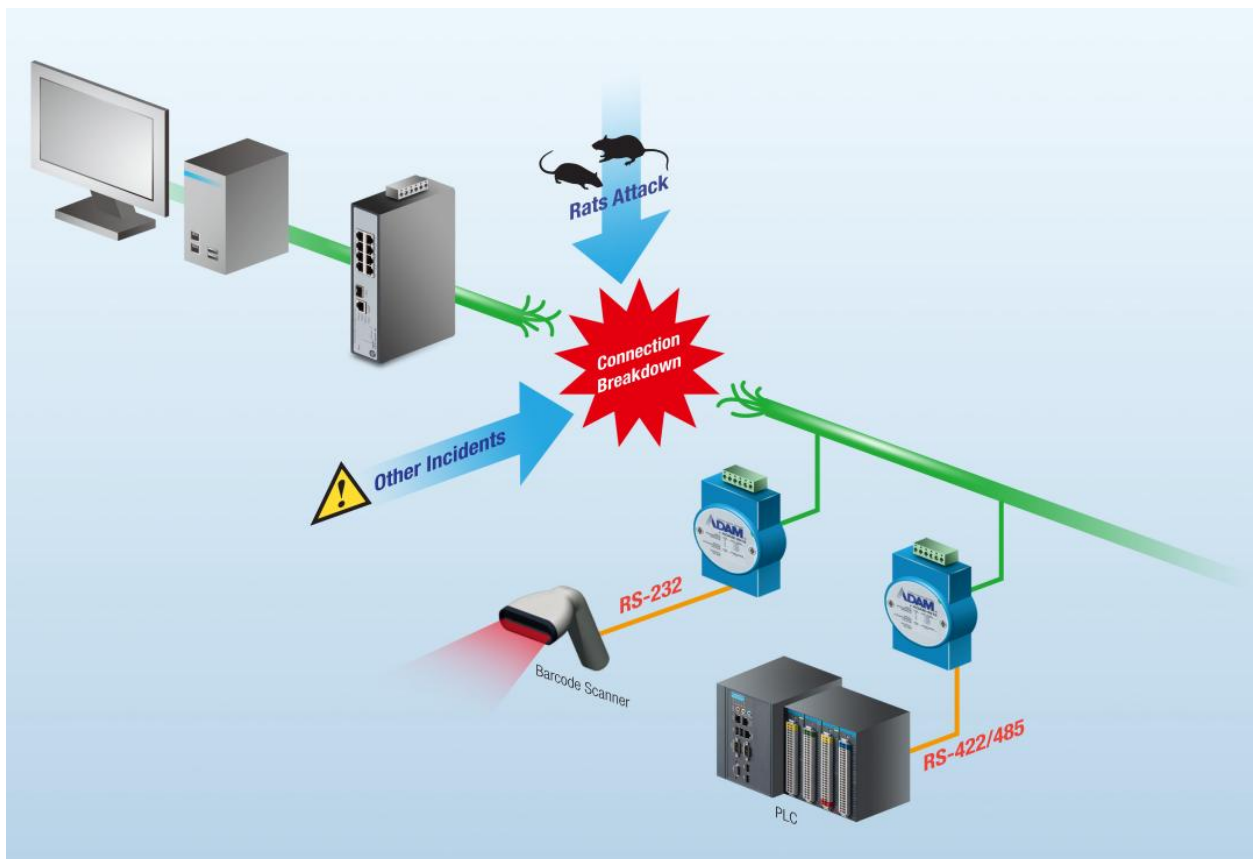
Building a High-Availability Device Network with Device Server



There are many factors to consider, when building a high availability device network, such as the MTBF of the devices within the network, the varying temperature of the operating environment, electro-magnetic interference etc. Each factor could take the system down for a while or permanently. We have to eliminate each factor one by one to make a strong and reliable system. We can use isolators or surge protectors to reduce the impact of electro-magnetic interference. We can use an air conditioned cabinet to control the temperature. And we can use a redundant topology to overcome the failure of a single device within the network or system. Using device servers with dual IP support is a good way to manage this redundancy.

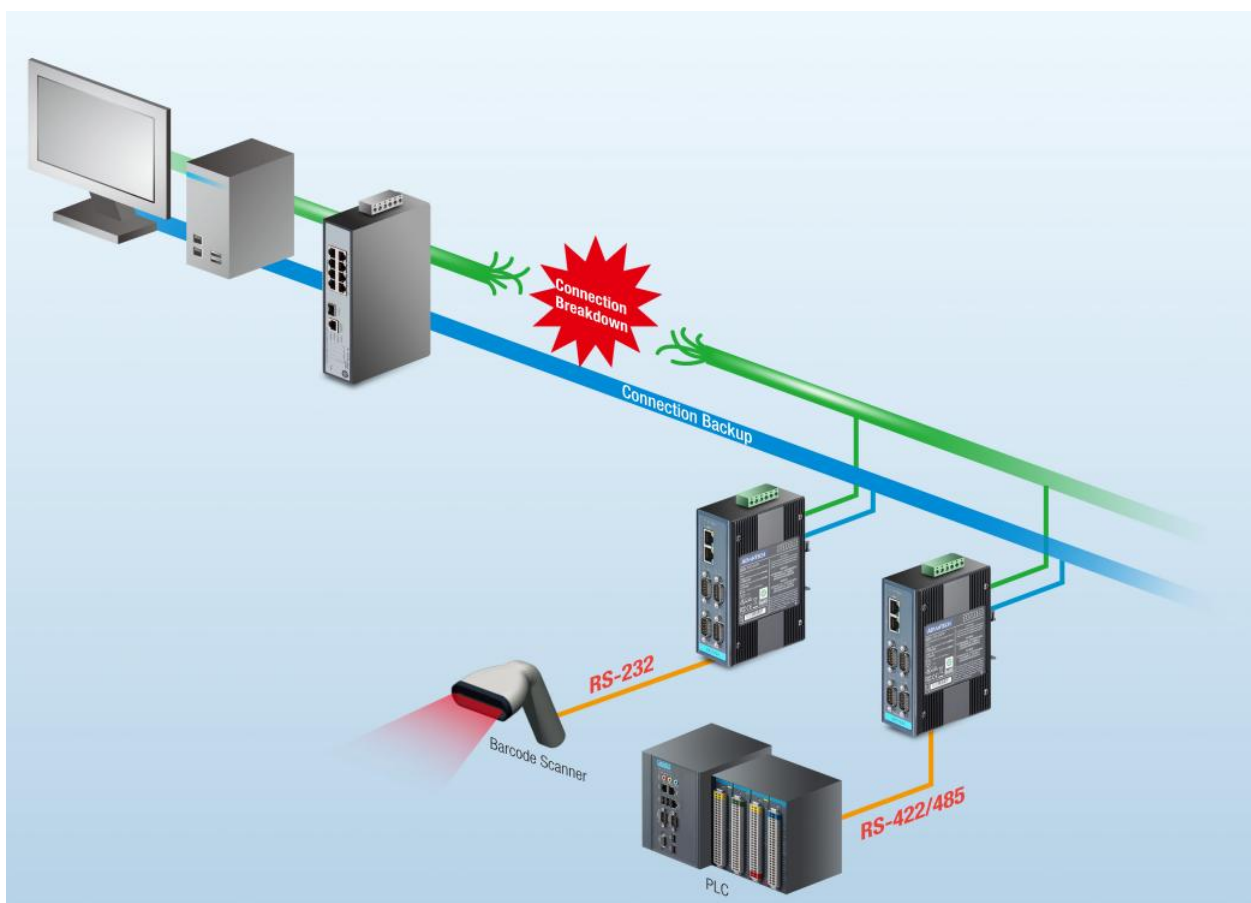
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In the past, SCADA software was installed on a single host PC to monitor and control all the devices. SCADA queries the status of the devices one by one. But sometimes, bad things happen by accident for example the cleaner may kick the Ethernet cable when sweeping. Or rats may chew power cables. When the host PC is down or communication is broken, the data cannot be retrieved and the whole data processing system is down.

**(Diagram 1)**

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To avoid such disasters, there are several optimized architectures. Here's one of the possible implementations to achieve by using device servers with dual IP addresses.



(Diagram 2)

With dual IP address device servers, the host PC can retrieve data, even after one of the networks is broken. When one of the physical Ethernet networks is down, the other IP address on device server can still be connected. To accomplish this, we can separate the network into two different domains and give different domain IP addresses to device servers. On the other hand, we can simplify the topology with a single domain IP address.

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When one of the Ethernet networks is broken, with the Advantech VCOM driver, the communication can be automatically switched to another network. This ensures communication can be recovered. If a TCP connection is used, the switching of the connection can be easily handled by software.

With a dual IP device server, the extra connection can be used as a redundant connection or both can be used as active connections. It's a flexible and cost effective method of building a high-availability device network.