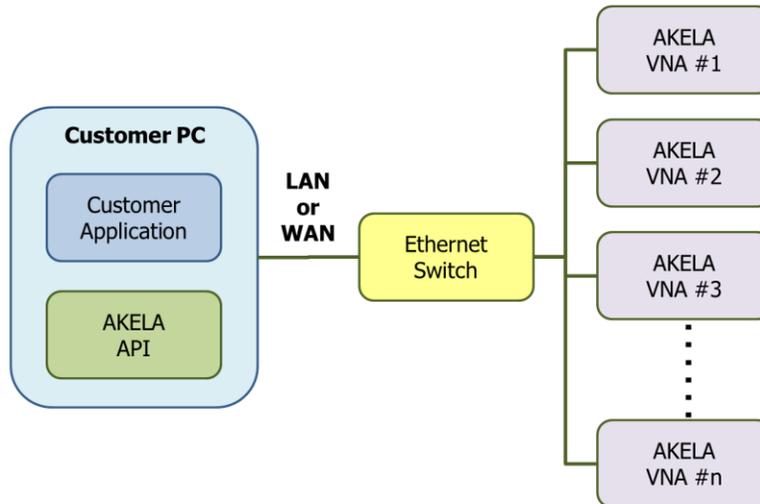


Technical Note:

Connecting Multiple AKELA VNAs to a Single Host Processor

Multiple AKELA VNAs can be connected to a single PC, but certain limitations must be considered. These include:

- Internet Protocol (IP) address limitation
- Network configuration
- Host processor capability



Below is a short explanation of each factor.

A. IP Addressing

The AKELA VNA unit has a fixed IP address, set by an internal dip switch. This address can be changed to one of 32 possible addresses. The address space available is under the private network address space 192.168.1.XXX, where XXX is a fixed IP address of 192 thru 223. An example address is 192.168.1.192.



Each AKELA VNA connected to the host processor must have a unique address to function properly. Methods that address the VNA units over a broadcast address, i.e. 192.168.1.255, **would be need to be handled carefully** by the host processor to avoid requesting data from VNA units that are inactive or busy.

AKELA is currently developing a DHCP client for the VNA. This capability will remove the restrictions enumerated above and allow the user's network to assign IP addresses to individual VNA units.

B. Network Configuration

Configuration of the network connected to the VNA units and the host processor will set the limit of data transmission from each piece of hardware connected. Each VNA unit communicates via a single 100 Megabit per second (Mbps) interface, which can be connected to a switched network.

Connecting directly to a host processor requires a cross-over Ethernet cable, or an auto-sensing Ethernet port on the host.

Adding multiple AKELA VNA units to a network requires sufficient network bandwidth to support the total amount of data being sent over the network by the VNAs. Bandwidth can be increased by connecting through a concatenated Gigabit Ethernet switch to a Gigabit Ethernet port on the host processor.

C. Host Processor

The capability of the host processor to handle multiple AKELA VNA units is also a factor in the performance of processing and displaying data. Since the data from each VNA unit requires being addressed, processed and displayed individually, there is a significant load on the computing resources within the host processor. The demand on these resources must be balanced versus the required performance of each VNA unit.

Either synchronous or asynchronous communication can be used between the VNA and the host, which can affect the load on the network at any given instant.

D. Conclusion



Taking these considerations into account, the only current hard limit to the number of AKELA VNAs that can be connected to a single host is 32 (the number of IP addresses); although, the forthcoming the DHCP client will remove this restriction and likely move the limitations to the host processor resources.

Total test time, the method of communication with the host processor, and the software architecture will affect data communication rates, which should be weighed carefully against the collection rate required of each AKELA VNA unit.

Balancing each of these factors will determine the maximum performance available from multiple VNA units on a single host processor.

