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MAINSTREAM NETWORKING EQUIPMENT

Networking Equipment

Does it Matter If I Buy Off The Consumer Store Rack Or From a Mainstream Equipment Manufacturer?

It's easy to walk into any electronics store or office supply store and see new technology for sale that advertises low cost and similar capabilities to mainstream industrial networking manufacturers. The question, "Why should I pay more for something that will do what I want it to do?" easily enters your mind. For a large enterprise sized network it's easy to justify the reasoning of having the support and backing of a manufacturer that will be around a long time. A mainstream manufacturer will allow more management options, consistent reliability, and ease of support due to wide adoption of their products. If the network is required to maintain business it will be easy to quantify the cost of downtime. As advanced features become important the need to use a mainstream manufacturer increases. Some advanced features are proprietary and require using one manufacturer across the entire network to work consistently. The more complex the network design, the more you will rely on one manufacturer in order for it to work in large networks. So where would the lower cost products fit?

Capabilities Are a Significant Difference.

Larger networks are more complex. If you need to partition a network into multiple VLANs the higher priced networking products have this capability but not the cheaper low end products. Wireless is a clear example of products being released now with limited capabilities of the final standard. The details reveal there is a second wave of 802.11ac that will has all the features everyone is expecting from 802.11ac called Wave 2. Buying 802.11ac pre wave 2 is like running 802.11n on a 5 GHz radio with not much improvement over 802.11n. 802.11ac has a wider wireless channel on which to communicate than 802.11n but clients that can run it are few, initial deployment will be devices that have local power not the handheld devices that are most popular. When you add security, authentication and encryption, the complexity and management to support it become a major issue. Having one manufacturer for all your access points makes management simpler and using a controller based wireless solution is the best way to manage large wireless networks.

How About Management?

Being able to detect problems, see devices that are down quickly, and get the network working again are key in larger networks. If you have hundreds of users on 20 access points instead of a single access point with 20 users any downtime will cause a large outage. Quick detection and resolution means less downtime which means productivity remains high. Maintenance is much simpler with network management. If you have a large network and need to upgrade the firmware you can apply the new firmware to several devices at one time instead of going to each device and spending time upgrading. The same is true for configuration management. If a configuration change needs to happen across the entire network all devices can be changed at once with network management. Having to manage multiple manufacturer's gear will add time, is more complex, and much less efficient. Names like Cisco, Brocade, Juniper, Extreme, and HP are all going to be common in large enterprise class networks.

In What Case Would You Buy a Less Known Manufacturer?

If all you need is a network for a small office with 30 users or less where there are 5 total devices - a server, a wireless access point, internet router, and a couple of switches, you're not likely needing a lot of features and can get by with high speed connections without much quality of service and VLAN support. A critical difference in smaller network devices is understanding what features you need. Features like VLANs, layer 3 switching, QoS (quality of service), common management platform, and standardized firmware are critical in enterprise networks, but not as much in small networks.

How Should I Make My Decision?

Start with the number of users. You will need a one switch network with somewhere between one and thirty users. Two switches may be necessary if you need to reach a large area where copper cables can't extend.

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What Types Of Services Are The Manufacturers Going To Have?

Wired, wireless, local server, all remote services or internet, data only, voice, all are factors.

Is This An Extension Of a Larger Enterprise Network or Standalone?

Is this a remote office for a larger company? If so, there are probably standards in place for what they will support and what you should purchase to enable them to support your location. If the cost is reasonable always consider using a support organization instead of supporting yourself if the option is available. Having staff with time to take care of network issues will aid in faster problem resolution if you are self -supporting.

What Does The Network Need To Support The Services (from above)?

Is most of the network going to be using internet only? Is there a database server on the network that requires a lot of data to be sent over the network? If it's primarily internet only data then 100 Mbit switches should suffice. Small offices rarely have internet connections above 100 Mbit. Switches that run 10/100/1000 Mbit are common and might be within your budget, so consider buying a switch capable of 1 Gbit if its price is reasonable. Be careful to size your internet connections appropriately. Get bids from multiple internet providers to give yourself more choices from which to select and make sure they are giving you their best price. A word of caution, make sure your internet router connection into your network is working at the highest supported speed. Switches use auto negotiate to connect at the correct speed. Not all switches are equal at negotiating and your router may only connect at the lowest speed, 10 Mbit. Verify the port on the switch is connecting at the highest possible speed or have a technician check. If possible set the switch to the highest speed supported by the internet router. There's nothing worse than getting less bandwidth than you paid for due to a setting on a switch in your network.

The larger the network the more need for management and support. Downtime is costly and productivity needs to be maintained. In the example of costly downtime there are extreme cases but they are worth covering to understand the concept. For a call center or stock trading application where transactions are critical, without them there is no business, possibly millions of dollars may be lost. This requires standard networking equipment that's easily supported and has features for redundancy and Quality of Service to deliver the data. It's worth the investment to have support staff and tools in place to quickly move problems to resolution. In networks where they need more than 48 ports and have multiple services running on the network like wireless, voice, and need security to prevent unauthorized access, a mainstream manufacturer with advanced features would be required.

What Other Options Are There?

There is a huge market in used equipment. This could save you over 50% versus buying new and there are companies that are willing to support it. There are support options on used equipment but it isn't going to be as robust as the manufacturers support especially on complex networking issues. This is a cost versus need question. A smaller network would have less support needs than a larger one. Be sure to check the old configuration on any used switch to make sure nothing is enabled that could take your network down like dhcp, dhcp relay, or any management configuration. It's best to erase the configuration before installing it on your network.

This information should assist in defining what type of networking gear would best fit in your network. Justifying the additional cost of using a manufacturer offering advanced network services on their equipment versus a manufacturer providing minimal features on their equipment is a discussion worth having on your next networking equipment purchase. Making sure the equipment you buy fits your need is essential in making this decision.

Contact Finley Engineering IP Services, at 952-582-2912 or m.ockenga@fecinc.com for a complimentary discussion.