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By Bill Alderson

SIMPLE GUIDELINES

FOR DOCUMENTING YOUR NETWORK INFRASTRUCTURE

Network documentation is like good dental hygiene. You know you should pay more attention to it, but because it's sometimes painful but necessary, it often gets neglected.

Unlike putting off a trip to the dentist, the consequences of a poorly documented network affect hundreds of users or customers. Most often, it results in confusion and involves extra time and effort when it comes to network expansion and troubleshooting. For some businesses, it has even hurt the bottom line.

For example, quick and efficient troubleshooting is a matter of systematically reducing the area for a fault domain. If several client systems lose connectivity to a server, the network analyst needs to determine the areas of the network involved quickly, and to identify the links and equipment in that data path. Without an up-to-date network diagram, he will be forced to employ brute force methods to reduce the number of affected systems. When faced with a 2 AM visit to a wiring closet full of unlabeled connections, most network analysts quickly come to appreciate the value of good network documentation. Few network analysts are lucky enough to build a network from the ground up. Usually, they inherit a network that comes from several sources. It may have been part of an acquisition or a departmental

consolidation. Previously, it may have been maintained by a vendor. Perhaps the company and the network have expanded so rapidly that network documentation is reduced to drawings on napkins or Post-It notes.

Whatever the case, documentation was probably created and kept at varying levels or degrees of care. One first step in proactive network documentation is to examine what information is available, and at what level of detail. You'll want to determine what information has been recorded, and to note where different sets of data overlap, and whether they agree or conflict with one another.

Network documentation can then be upgraded and maintained according to four simple guidelines:

- [Make it relevant](#)
- [Make it easy](#)
- [Make it current](#)
- [Make it safe](#)

1 Relevance - Even a medium-sized network can produce an overwhelming amount of administrative information. Cables, switch ports, servers,

administrators, users and fault statistics can each yield a large database. While deciding what information to track, you should avoid the temptation to retain too much. If an information base becomes too unwieldy, users won't update it and it will become obsolete quickly. Information should be categorized into categories such as essential, important, "nice to have", and so forth. Thus, for example, if part of a documentation scheme involves tracking port statistics, documentation overhead may be reduced by identifying business critical ports or users and only tracking same.

2 Ease of Use - Ideally, any network documentation should be automated. In fact, you can find numerous network discovery tools that map devices either by vendor-specific protocols such as Cisco's CDP (Discovery Protocol) or open standards such as the Simple Network Management Protocol (SNMP). These kinds of items are a good starting point, but they can't see under raised computer flooring or into wiring closets. Eventually, much of this information must be entered by hand. Entering this information works best when combined with a network build/maintenance process whenever feasible. This means that when a technician replaces or reroutes a cable, that data is also entered into a database, so that adding this information to the network documentation and printing cable tags should all be part of the same process. At the other end of the spectrum, tracking server and administrator information presents other challenges.

Often, documenting these areas means reaching across multiple departments and requesting their cooperation. Here, it pays to make information gathering as easy on the administrator as possible. One way of doing this is to create questionnaires that solicit pertinent information. Once an initial survey is completed, you can then resend completed questionnaires at appropriate intervals to help keep them up-to-date.

3 Keeping it Current - Maintaining currency for network documentation is something of a feedback loop. It only takes one or two instances where a technician refers to out-of-date documentation to cement an impression that currency is no priority. They will then be far less likely to enter their own updates, and the entire process can quickly spiral out of control. Automating data input through auto-discovery and input is an important part of keeping documentation current, but it is only a start. Making network documentation a priority by including it prominently in all installation, upgrade, and modification processes helps make that documentation a tangible and visible priority, not an afterthought.

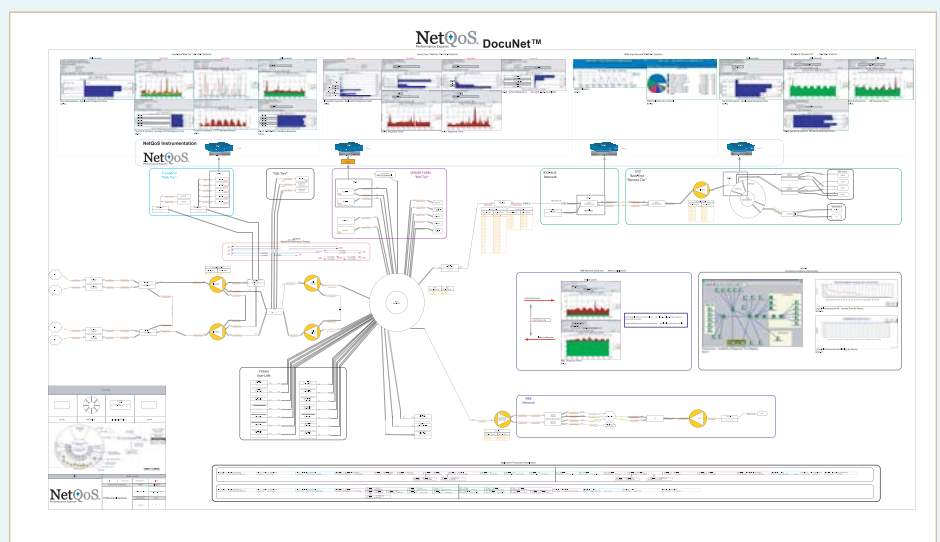
4 Keeping it Safe - Even the best documentation scheme can't help if it isn't available when it's needed. If an online system can't be reached during an outage, all prior effort is wasted. Thus, it goes without saying that all documentation should be mirrored, perhaps on an isolated system or NAS device that can be locked away. A safety

scheme should also take user access into consideration. Device information often contains sensitive information such as device passwords and SNMP community strings. This information should itself be password protected and encrypted whenever possible. This necessitates a chain of command for access control. For best results workable copies should be available on technician notebooks, so even during outages some access to the documentation remains possible. Tying all these areas together also means exercising some ingenuity. Some commercial (and open-source) applications can harvest data from various places such as SNMP traps and syslog messages and consolidate them into a single database. In other cases, home grown scripts or applications might be needed. Building plans and wiring diagrams might require other ways to

present that data in usable formats. Developing a methodology depends on the size of the network and the information sources available.

But without a doubt, network documentation is an activity that will repay itself many times over, if properly created and kept current thereafter.

Bill Alderson is an Executive NetAnalyst and Technology Officer at NetQoS, Inc.



EXAMPLE of a NetQoS DocuNet™ diagram mapping the network infrastructure of a NetQoS client.