

Configuration Management

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This article discusses an activity that is one of the least appealing to those installing and managing infrastructure systems, and at the same time one of the most necessary to those maintaining these systems: documenting hardware and software configurations. Technically brilliant personnel historically lack the talent or the desire, or both, to clearly document the complexities of their work in a simple, succinct manner.

The Definition of Configuration Management

The formal definition of configuration management is as follows.

DEFINITION:

Configuration Management - a process to ensure that the inter-relationships of varying versions of infrastructure hardware and software are documented accurately and efficiently.

As it pertains to the infrastructure, configuration management refers to coordinating and documenting the different levels of hardware, firmware and software that comprise mainframes, servers, desktops, databases and various network devices such as routers, hubs and switches. It does not refer to application software systems, or the verification of various levels of application software in different stages of development, testing and deployment.

Infrastructure hardware such as Windows servers come in different models requiring different levels of operating system software. As models are upgraded, so also may the operating system need to be upgraded. Similarly, upgraded operating systems may require upgraded versions of database management systems software, and eventually upgraded applications software. Keeping all these various versions of hardware and software accurately updated is the primary responsibility of the owner of the configuration management process. In addition to the hardware and software of the data center, network equipment also needs to be documented in the form of circuit diagrams, network configurations and backbone schematics.

Motivating technically-oriented individuals to document configurations of what they have worked hard to implement, when they would much rather be planning and working on their next implementations, is not an easy task. Proper individuals must be selected carefully to be involved effectively in this activity, and be given tools and tips to help improve and streamline the process. In support of this notion, the next section offers eight practical tips for improving configuration management.

Practical Tips For Improving Configuration Management

Many of the best tips I have seen over the years to improve configuration management involve common sense about matching the documentation skill levels of technicians to the

task at hand. The Figure below lists eight practical tips for improving configuration management, followed by a brief explanation of each of these.

- 1.
1. Select a qualified process owner
 2. Acquire the assistance of a technical writer or a documentation analyst
 3. Match the backgrounds of writers to technicians
 4. Evaluate the quality and value of existing configuration documentation
 5. Involve appropriate hardware suppliers
 6. Involve appropriate software suppliers
 7. Coordinate documentation efforts in advance of major hardware and software upgrades

1. Select a qualified process owner – In most instances, a single individual should be selected to own the configuration process. The desired characteristics of this process owner are listed and prioritized in the Table below. This person should have a strong working knowledge of system and network software and their components, and a strong knowledge of software and hardware components. Other preferred attributes include knowledge of applications and desktop systems, and the ability to think and act tactically.

Characteristics of a Configuration Management Process Owner

<u>Characteristic</u>	<u>Priority</u>
1. Ability to evaluate documentation	High
2. Knowledge of systems software and components	High
3. Knowledge of network software and components	High
4. Knowledge of software configurations	High
5. Knowledge of hardware configurations	High
6. Knowledge of applications	Medium
7. Knowledge of desktop systems	Medium
8. Ability to analyze metrics	Medium
9. Ability to think and act tactically	Medium
10. Ability to work effectively with IT developers	Low
11. Inspires teamwork and coordination	Low
12. Ability to manage diversity	Low

2. Acquire the assistance of a technical writer or a documentation analyst – Most shops have access to a technical writer who can generate narratives, verbiage or procedures, or to a documentation analyst who can produce diagrams, flowcharts or schematics. Offering the services of one of these individuals, even if only for short periods of time, can reap major benefits in terms of technicians producing clear, accurate documentation in a fairly quick manner.

Another benefit of this approach is that it removes some of the stigma that many technical specialists have about documentation. Most technicians derive their satisfaction of work from designing, implementing or repairing sophisticated

systems and networks, not from writing about them. Having an assistant to do much of the nuts and bolts writing can ease both the strain and the effort technicians feel toward documentation.

One of the concerns raised about the use of technical writers or documentation analysts is their expense. In reality, the cost of extended recovery times by not having up-to-date documentation on critical systems and networks, particularly when localized disasters are looming, far exceeds the salary of one full-time equivalent scribe.

3. Match the backgrounds of writers to technicians – This suggestion builds on the prior improvement recommendation of having a technical writer or documentation analyst work directly with the originator of the system being written about. Infrastructure documentation come in a variety of flavors but generally fall in to five broad configuration categories of server, disk volumes, databases, networks and desktops. There are obvious sub-categories such as networks breaking out into local area networks (LANs), wide-area networks (WANs), backbones and voice.

The point here is that the more you can match the background of the technical writer to the specifications of the documentation, the better the finished product. This will also produce a better fit between the technician providing the requirements and the technical writer who is meeting them.

4. Evaluate the quality and value of existing documentation – Evaluating existing documentation can reveal a great deal about the quality and value of prior efforts at recording current configurations. Identifying which pieces of documentation are most valuable to an organization, and then rating the relative quality of the content, is an excellent method to quickly determine which areas need improvements the most.
5. Involve appropriate hardware suppliers – Different models of server hardware may support only limited versions of operating system software. Similarly, different size disk arrays will support differing quantities and types of channels, cache, disk volumes and densities. The same is true for tape drive equipment. Network components like routers and switches, and desktop computers, all come with a variety of features, interconnections and enhancements.

Hardware suppliers are often the most qualified and least involved in assisting with a client's documentation. This is not to say the supplier will generate, free of charge, detailed diagrams about all aspects of a layout, although I have experienced server and disk suppliers who did just that. But most suppliers will be glad to help keep documentation about their equipment current and understandable. It is very much in their best interest to do so, both from a serviceability standpoint and from a marketing one. Sometimes all it takes is to ask.

6. Involve appropriate software suppliers – Similar to their hardware counterparts, infrastructure software suppliers can be an excellent source of assistance in documenting which levels of software are running on which models of hardware.
7. Coordinate documentation efforts in advance of major hardware and software upgrades – The upgrading of major hardware components such as multiple servers or large disk arrays can render volumes of configuration documentation obsolete. The introduction of a huge corporate database or an enterprise-wide data warehouse could significantly alter documentation about disk configurations, software levels and backup servers. Coordinating the different documentation updates all at the same time with the appropriate individuals in advance can save time, reduce errors and improve cooperation among disparate groups.