WTFM: Documentation and the System Administrator

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Blade 8000 Modular System

Project Name
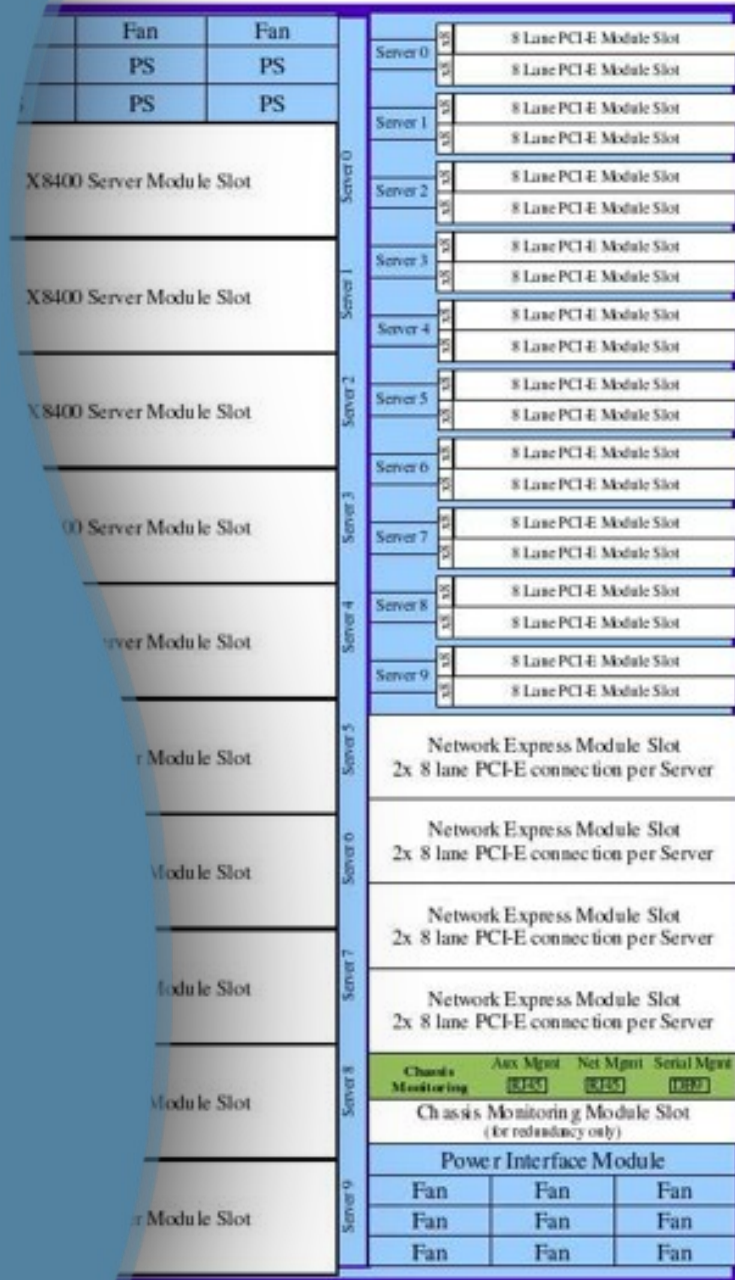
About This Presentation

Most of you hate documentation. You hate having to write it, you hate the process of writing it, and you hate having to read it.

This presentation tries to provide you with information and tips to change your opinion, or at least move you to grudging acceptance.

Presentation Contents

- Improving Your Documentation
  - Why Bother With Documentation?
  - What You Should Document
  - General Guidelines
  - Common Problem Areas

- Improving Documentation for the Products You Use

- Resources and References

Why Bother With Documentation?

This section describes some of the reasons why creating and maintaining documentation can benefit you and your organization

Why Bother?

- Documentation aids memory

"NOW, JUST WHEN THE HECK DID I INTEGRATE _THAT_ INTO THE SYSTEM?"
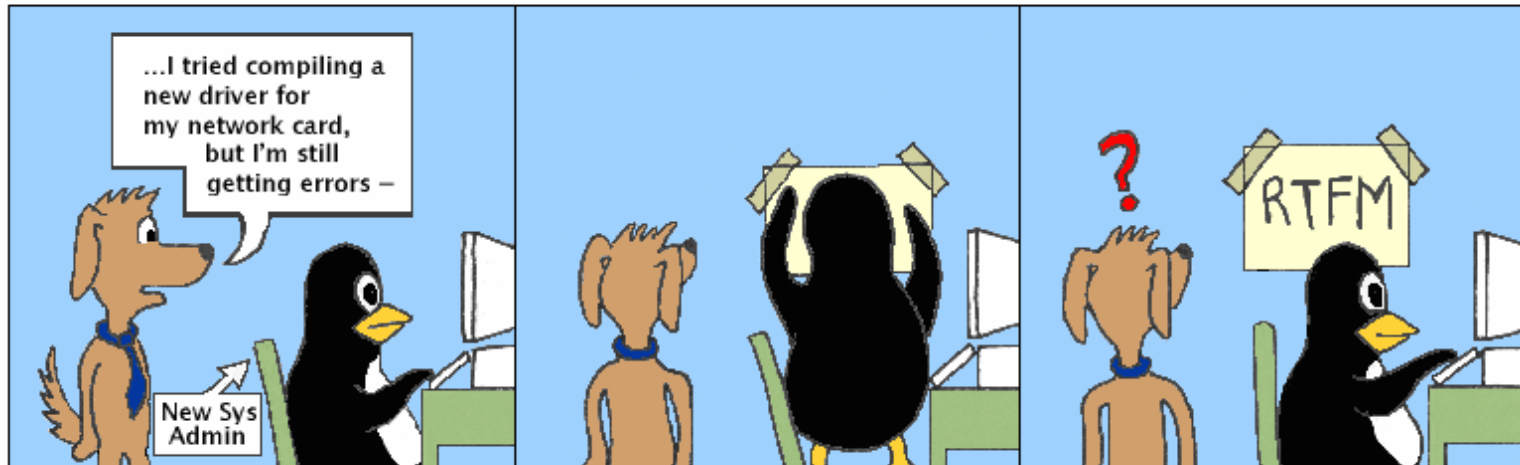
Why Bother?

Documentation:

- Can shorten downtime
- Helps you avoid repetitive research
- Enables you to go on vacation!

Why Bother?

- Saves you from having to answer repetitive questions

Why Bother?

Documentation can make your customer interactions more productive:

- Providing templates promotes standardization for policies and procedures

- Distributing forms ensures that you receive the information you need for project plans and requests

Why Bother?

Documentation can help with personnel issues:

- Makes new hire orientation and employee transitions more efficient

- Enables you to distribute information to dispersed geographic locations

Why Bother?

- The act of documenting a system or procedure can reveal missing information, procedural gaps, or inefficiencies

"We've asked everyone in the building. We've called tech support. We've contacted the manufacturer. They don't know what that key is for, either."

What You Should Document

So, what types of things should you document?

What You Should Document

This list is not exhaustive but provides an idea of the types of things documented by many system administrators.

- Project plans

- System documents

- Server logs

- Diagrams (such as system flowcharts, logical and physical network diagrams, and so on)

- Network administration information

- Printing infrastructure

- Backup and restore process

- Feature and equipment requests

- User documentation

Project Plans

Include the following information:

- What you need the server to accomplish
- Possible performance bottlenecks
- Plans to correct any issues noted

For a simple installation, a project plan can be as simple as an outline and some diagrams. For a large-scale installation, you might need to divide the project into phases.

System Documents

For each system document:

- Provide an overview
  - Hardware specs
  - OS
  - Library versions
  - Build environment
  - Partition table
  - List of the IP interfaces and domain names that the machine services

System Documents (cont'd.)

- Include an alphabetical list of each installed package and related details

  - Installed version and installation date

  - Installed by

  - Purpose (short description)

  - Package and download URLs (developer's web site)

  - Configure options (list of flags for `./configure` or `make`, if applicable)

  - Application installation path

  - Path to configuration files

  - Log location

  - Application storage location

  - Serial number and registration key

  - Prerequisites (other packages that must be installed first)

  - Patches applied

  - Notes

  - Configuration files (full contents of all of the application's config files)
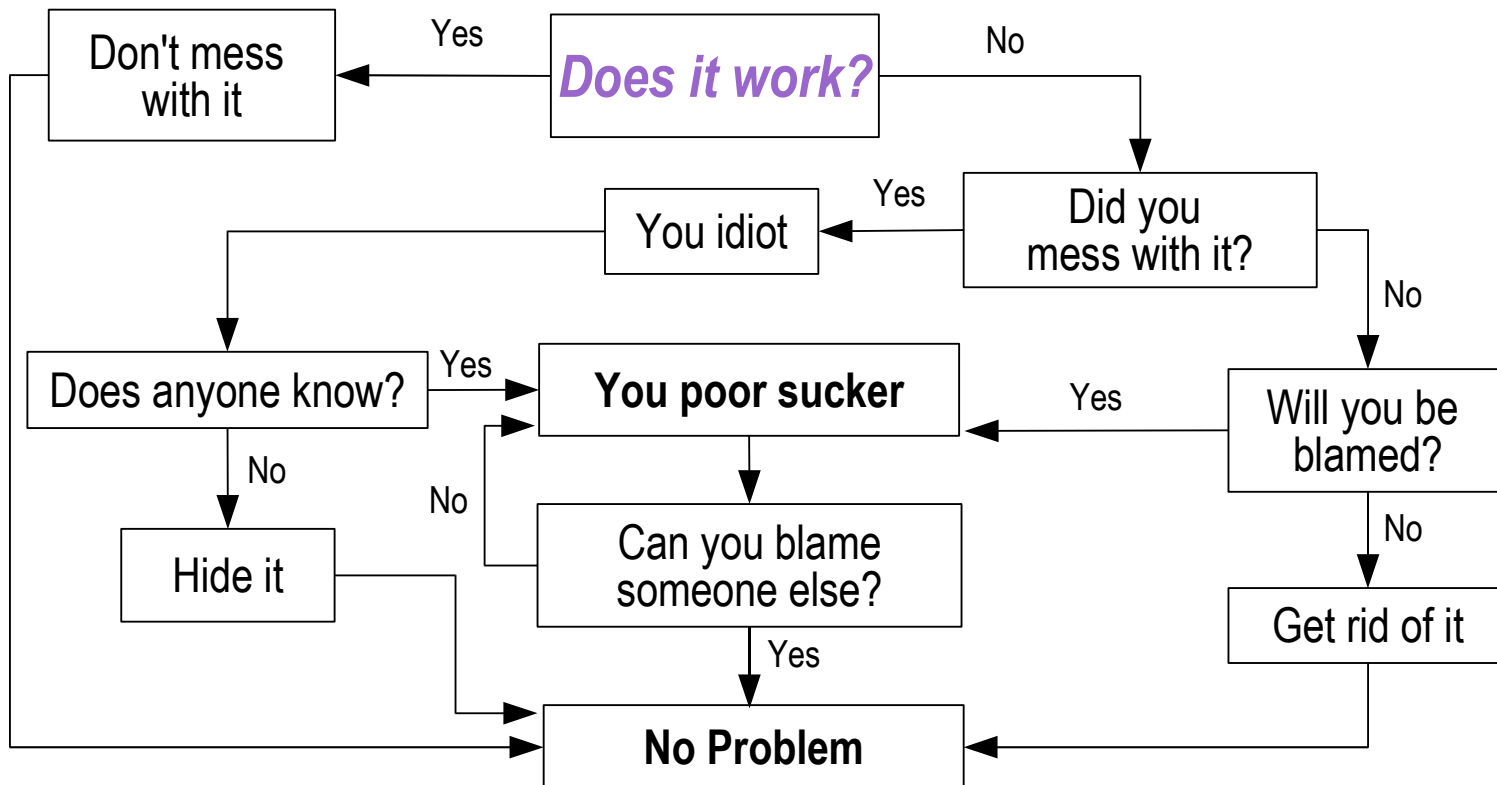
Server Logs

For each server, document <u>and keep updated</u> information such as:

- Hardware platforms
- IP addresses
- DNS names
- Dates of last update and patch installations
- Operating systems
- Running services
- Open ports
- Change log

Diagrams

- Data flow diagram
- System flowchart

Don't mess with it	←Yes	*Does it work?*	No→

	Yes	You idiot	←Yes	Did you mess with it?	No

Does anyone know? — Yes → **You poor sucker** ← Yes — Will you be blamed?

No (from Does anyone know?) → Hide it

No (from You poor sucker loop) — Can you blame someone else?

No (from Will you be blamed?) → Get rid of it

Can you blame someone else? — Yes → **No Problem**

No Problem

Diagrams (cont'd.)

- Building diagram/floor plan
- Physical network diagram
- Logical network diagram

Network Administration Information

- Call list contact information

- Vendor sheets (hardware and software)

- License information for software

- Maintenance contracts

Printing Infrastructure

- Consider including the following information:

  - Server hosting the print device

  - Printer make, model, and type

  - Amount of RAM

  - Duplex capability

  - Name, share name, and permissions used on the server for this printer

  - IP address and configuration information

  - Type of device connecting the printer to the network and its firmware version

  - Data transfer rate

  - Types of paper supported

  - Methods to remotely manage the printer (for example, telnet)

  - Local superuser who can assist in troubleshooting and contact information

Backup and Restore Process

Document procedures for the backup restoration process:

- The steps necessary to restart a service

- List of important services that might need to be restarted

- Other information to help reduce the amount of downtime

Feature and Equipment Requests

- Develop and distribute comprehensive request forms for new feature requests and new equipment orders

- Keep completed forms on file

User Documentation

- Help files
- Policies
- Manuals and web support for procedures

General Guidelines

This section provides some general guidelines about producing and maintaining your documentation

If You're Starting From Scratch

- Consider hiring or assigning a technical writer to author the initial wave of documents

- Investigate programs that can automatically extract and update hardware information

- Establish a safe and known place to store the documentation

Starting From Scratch (cont'd.)

Make a rough outline of the items you need to document. Consider these questions:

- What is every key piece of equipment and what does it do?

- Where are crucial files stored?

- What are your key processes? You might want to organize this investigation by department.

- How is each process completed? Why and when is it done?

- Who has key responsibility for internal business issues?

- Who are your key partners and contacts at other companies?

Starting From Scratch (cont'd.)

- Determine whether the documentation will be available online, in print, or both

Set Up an Overall Organization

Network DNA (`http://network-documentation.com`) suggests the following organization:

- Non-network information - Vendors, supported locations, signatory authorizations, and so on
- Global network information - DHCP settings, DNS, mail providers, backup environment, and so on
- Network infrastructure
- Network devices
- Peripherals
- Software
- Administrative
- Service level agreements (SLAs)
- Diagrams

Structure Before You Write

- Developing an outline helps ensure that your document will cover all necessary material.

- Consider creating templates and sample tables of contents for common items that your team needs to document

Keep Documentation Updated

- Set specific intervals or milestones at which the documentation will be examined and updated if necessary

"I try to write a little bit every day."

Keep Documentation Updated

- Note issues that are currently unresolved but should be documented in a future version

- If you can track document access, schedule more frequently accessed documents for more frequent reviews

- Make sure that updating the documentation is a requirement in your relevant change or release management processes

Keep Documentation Updated

- Encourage users to provide ongoing feedback

"Can you put more nudity in this?"

Content Tips

- Adjust your tone and content for your audience

- Include the reasons behind a design or decision as well as the result

- Use position titles rather than names

- Write out acronyms on first usage

- Provide a glossary for common corporate acronyms and terminology

Content Tips (cont'd.)

- Use standard references and terminology for your platforms

Content Tips (cont'd.)

- ## Avoid passive voice unless the "actor" is not important

Awkward

Some mistakes were made.

Better

The administration made some mistakes.

Awkward

The system copies the record to the database.

Better

The record is copied to the database.

Common Problem Areas

This section provides guidelines for the areas in technical documentation that are often the most difficult:

- Procedures
- Lists
- Tables
- FAQs
- Illustrations

About the Examples

Accompanying real-world examples show how to apply the guidelines. All examples are reproduced verbatim and match the original formatting as closely as possible.

The examples also contain other corrections and illustrate more precise writing and formatting, so you can also use them as a general guide.

About the Examples

The examples file is available at
`http://lisa.usenix.org/janiceg/wtfm-examples.pdf`

For best results, set the View->Page Display options to Two-up and to Show Cover Page During Two-up.

Procedures – When to Use

Procedures are probably the most difficult documentation structure to master. Use procedures when you need to document step-by-step instructions.

Procedures – Guidelines

- Do not bury steps in a paragraph

- Make each step short and equivalent to one action

- Order and number all user instructions

- Place explanatory text in a paragraph underneath the action instruction

Procedures – Guidelines (cont'd.)

- List conditions, warnings, and hazards before describing how to complete the instruction

- Phrase steps in the imperative

  Awkward

  The window displays a field for you to enter the user name.

  Better

  Type the user name in the User Name field.

- Ask a colleague in the target audience to test the procedure

Procedures – Guidelines (cont'd.)

Consider dividing a long task into related smaller procedures, and provide a numbered list to introduce the entire task

Installing the Jetson Software

Procedure	For More Information
1. Review the system requirements.	Jetson System Requirements
2. Choose an installation method.	To Choose Your Installation Method
3. Plan and allocate disk and swap space.	Determining Disk and Swap Space
4. Gather necessary system information.	Pre-Installation Checklist
5. Perform the installation.	To Install the Jetson Software

Lists – When to Use

- When you have a list of two or more items in which any item consists of two or more words

Awkward
Notify us if the system is making any of these noises: grinding, rattling, whirring, high-pitched whine, or out-of-tune whistling.

Better
Notify us if the system is making any of these noises:

- Grinding
- Rattling
- Whirring
- High-pitched whine
- Out-of-tune whistling

Lists – Guidelines

- Use bulleted lists if the order of the items is not important. Use numbered lists if the order of the items is important.

Lists – Guidelines (cont'd.)

- Put summary or keyword information that distinguishes list items from each other toward the beginning of the item

Awkward

- Software undergoes alpha testing as a first step in getting user feedback. Alpha is Latin for "doesn't work."

- Software undergoes beta testing shortly before it's released. Beta is Latin for "still doesn't work."

Better

- <u>Alpha</u> – Software undergoes alpha testing as a first step in getting user feedback. Alpha is Latin for "doesn't work."

- <u>Beta</u> – Software undergoes beta testing shortly before it's released. Beta is Latin for "still doesn't work."

Lists – Guidelines (cont'd.)

- The syntax of the items in a list should be parallel and agree with the syntax of the introduction.

Awkward
Use Mail Tool to perform the following tasks:

- Composing a new message
- Forward a message to another person

Better
Use Mail Tool to perform the following tasks:

- Composing a new message
- Forwarding a message to another person

Tables – When to Use

- For a series of elements that have multiple properties

- To organize information that is best presented in a row-and-column format

Tables – Troubleshooting

- If all of the entries in a given row or column are the same, evaluate whether the information can instead be described in surrounding text

- See whether you can logically divide long tables into separate, smaller tables

- Consider combining a series of small tables that are similarly organized

- Check whether a two-column table could be presented as a list

Table Example

The additional parts listed in the following table are necessary to continue with the installation.

Part Number	Qty	Name	Price
GM-96-3026	1	Goat, male	$1000.00
CB-13-2395	1	Candle, black	$50.00
CG-63-6376	1	Chalk dust container	$10.00
IB-89-3335	5	Incense sticks	$5.00
DE-44-8846	1	Dagger, ebon, curved	$500.00
AS-87-2319	1	Altar, silver	$10000.00

Once the additional parts arrive, you can continue the installation on the next Friday the 13th at midnight.

FAQs – When to Use

- When you see the same questions repeatedly asked by email or encountered by your help desk

- To cover questions that you have not yet had a chance to include in your formal documentation

- To gather the most common troubleshooting questions in one place

FAQs – Guidelines

- Include questions that users actually ask rather than what you want to say

- Be concise

- Link to more detailed information elsewhere but duplicate short solutions

- Organize long FAQs into categories and provide a Table of Contents

- Provide links for feedback and for further contact information

FAQ Example

Dave Barry's "Ask Mr Language Person":

Q. Please review the basic purpose of the apostrophe.
A. The apostrophe is used primarily as a punctuation mark in certain Lesley Gore songs, such as "Judy's Turn to Cry," where the apostrophe and the "s" indicate that "Judy" is possessive, which is why she tried to steal Lesley Gore's boyfriend, "Johnny," away.

Q. Please explain the expression: "This does not bode well."
A. It means that something is not boding the way it should. It could be boding better.

Q. What is the difference between "criteria" and "criterion"'?
A. These often-confused words belong to a family that grammarians call "metronomes," meaning "words that have the same beginning but lay eggs underwater."
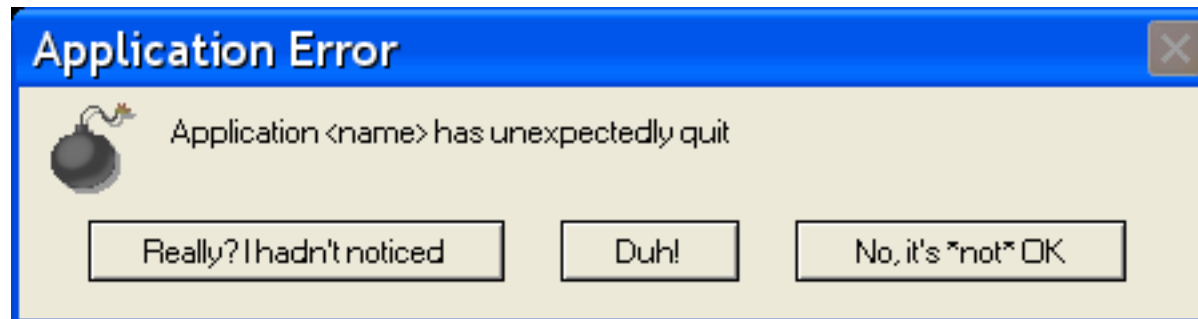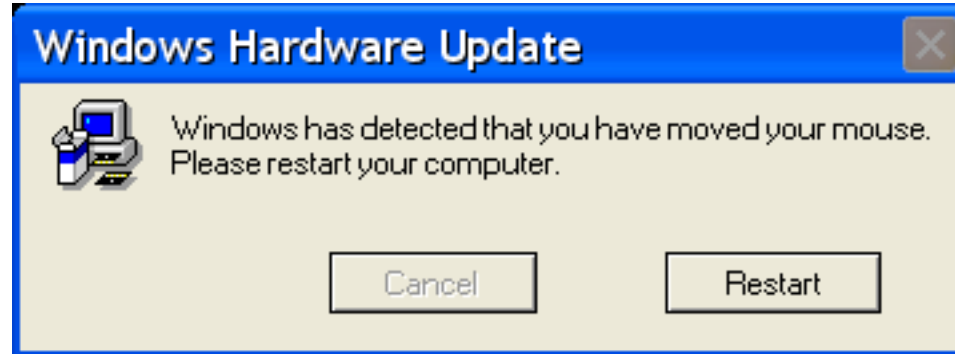
Illustrations – When to Use

- Include illustrations that will help the reader understand an instruction better than a text description

- Provide screen captures for step or task completion verification

Illustrations – When <u>Not</u> to Use

- Do not use a screen capture to substitute for tables or lists

- Avoid using screen captures in the following instances:
  - When forms and dialog boxes are designed consistently across the GUI
  - When GUI forms are self-explanatory and require no further explanation
  - When data entry fields are labeled clearly and consistently

Illustrations – Examples

Illustrations – Examples

Contrasting examples showing use of illustrations

http://lisa.usenix.org/janiceg/thunderbird-spamfilter.html
http://lisa.usenix.org/janiceg/new-thunderbird-spamfilter.html

How to Improve Documentation for the Products You Use

Instead of cursing at your external product documentation, take the steps described in this section to help improve it

Complain

- File bugs

- Use the feedback button at the online documentation site

- Mention your desire for better documentation to your SE or account representative

- Read the documentation accompanying beta software and provide feedback

Contribute

- Provide corrected versions of incorrect documentation

- Sign up to document portions of open source projects

- Write articles with tips and tricks for open source projects or product blogs

Contribute (cont'd.)

- Offer to work with the documentation team in the area where the documentation is weak

Resources and References

Some sources to help you
define, organize, and write
your documentation

Resources: Books

- *Smart Things to Know About Knowledge Management*, by Tomas M. Koulopoulos and Carl Frappaolo (Capstone, 1999)

- *The Transfer of Internal Knowledge and Best Practice* by Carla O'Dell and C. Jackson Grayson, Jr. with Nilly Essaides (The Free Press / Simon and Schuster, 1998)

- *Working Knowledge: How Organizations Manage What They Know* by Thomas H. Davenport and Laurence Prusak (Harvard Business School Press, 1998)

Resources: Online

- Downloadable Excel IT documentation workbook consisting of worksheets for an IP scheme, staff contact data, inventory, and projects
http://articles.techrepublic.com.com/5100-10878_11-5027838.html

- "Documenting Your Network" – Provides descriptions of typical network documentation and sample diagrams
http://www.more.net/technical/netserv/diagrams/documenting/

- Shareware system documentation templates
http://www.klariti.com/templates/System-Design-Document-Template.shtml

Resources: Related to Writing

- *Read Me First! A Style Guide for the Computer Industry*
  http://www.sun.com/books/catalog/sun_tech_pub.xml

- *Microsoft Manual of Style for Technical Publications*
  http://www.microsoft.com/MSPress/books/6074.aspx/

- *Sun Global Glossary*
  http://docs.sun.com/app/docs/doc/805-4368/gavwr?a=view

- Microsoft Language Portal
  http://www.microsoft.com/language/en/us/default.mspx

- Society for Technical Communication
  http://www.stc.org

- Techwr-I – Internet-based community and resource
  for technical communicators worldwide
  http://www.techwr-I.com

References

Brian Warshawsky, "The Fifth Commandment of System Administration," [http://www.linux.com/articles/44939], posted May 23, 2005

Brian Warshawsky, "The Fourth Commandment of System Administration," [http://www.linux.com/articles/44819], posted May 16, 2005

Meredith Little, "Internal Documentation: Avoiding Critical Mistakes," [http://articles.techrepublic.com.com/5100-10878_11-1029621.html?tag=rbxccnbtr1], posted August 28, 2000

Bill Heldman, "Documenting Your Network," [http://redmondmag.com/columns/article.asp?EditorialsID-428], posted June 2002

Questions?

Thanks for your attention

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