

PREFACE

Welcome to *HP-UX CSE: Official Study Guide and Desk Reference*. To me the title of the book ideally reflects the dual purpose of this book; it is both a study guide for those whose primary aim is to successfully achieve the CSE certification as well as a day-to-day job aid for those who need real-life examples of how to *get-the-job-done* in the myriad of tasks that befall an advanced HP-UX administrator. Those were the two primary goals of the book and with some considerable help from others; I think I have achieved those goals. As well as these two main goals I was frequently asked; “*who is the book intended for*”? This was a difficult question but can now be answered by saying the book has three main audiences;

1. HP-UX administrators relatively new to these advanced concepts/tasks. These administrators require a *handbook* that covers the tasks required of a CSE but also supports recently acquired knowledge from attending training classrooms/workshops.
2. HP-UX administrators who have been involved in some advanced configuration tasks, have been attending training classrooms/workshops and need a *handbook* to fill the gaps in the knowledge on some key tasks as well as *cement* their current knowledge and ideas of advanced configuration/management topics.
3. HP-UX administrators who have been managing large, complex configurations for some considerable time and have gained their knowledge over the years through *blood, sweat and tears*. These administrators need a *handbook* that will fortify their current knowledge as well as highlight what HP regards as the key tasks of a CSE. These administrators may have direct knowledge of HP-UX or may have cross-trained from another operating system.

For each audience they all need an idea of what will be asked of them should they decide to take and hopefully pass the HP-UX Certified Systems Engineer exam. This may also prompt them to realize that some of their knowledge is somewhat lacking and need further training in order to be able to pass the appropriate exam. Just to reiterate they requirements of the exam, if you didn't already know.

To become a fully qualified HP-UX Certified Systems Engineer you need to:

- Pass the exam HP-UX Certified Systems Administrator.
- Pass the exam HP-UX CSE: Advanced Administration.
- Either:
 - Pass the exam HP-UX CSE: High Availability using HP-UX Serviceguard.
 - OR
 - Pass the exam HP-UX CSE: Networking and Security.



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To further assist in your study for the CSE exam, should you need it, I thought I might point you in the right direction as to which parts/chapters to study for the appropriate exams. Initially I was going to title each part of the book accordingly but it quickly became evident that each exam doesn't fit nicely into a single *pigeonhole*. In fact, take an example of managing a High Availability Cluster. You not only need to understand the Serviceguard software but *ALL* aspects of a high availability configuration. This includes disks and volumes, performance management, inter-networking, user-level access to multiple systems as well as security threats to individual machines and to your entire network. A common theme throughout the entire book is the need these days for HP-UX installations to achieve two primary technical goals; High Availability and High Performance. It is not uncommon for a HP-UX CSE to be involved in every aspect of the job all of the time! This may also become true of the CSE exams should the format, content and requirements of the exams change. To help you to focus your efforts, here is an idea of how the exams currently stand in relation to this book:

HP-UX CSE: ADVANCED ADMINISTRATION

- Part 1: Managing HP-UX servers.
- Part 2: Install, Update and Recovery.
- Chapter 15: Basic IP Configuration.
- Chapter 29: Dealing with immediate security threats.

HP-UX CSE: HIGH AVAILABILITY WITH HP-UX SERVICEGUARD

- Part 1: Managing HP-UX servers (Chapter 2 and Chapter 3 are optional but recommended).
- Part 2: Install, Update and Recovery (Chapter 13 is optional).
- Chapter 15: Basic IP Configuration.
- Chapter 16: Dynamic Routing.
- Chapter 17: Domain Name System (optional).
- Chapter 18: Network Time Protocol (optional)
- Chapter 23: Other network technologies (optional)
- Part 4: High Availability.
- Chapter 29: Dealing with immediate security threats.

HP-UX CSE: NETWORKING AND SECURITY

- Chapter 4: Advanced Peripherals Configuration (optional).
- Chapter 10: Monitoring System Resources (optional)
- Chapter 11: Processes, threads and bottlenecks (optional)
- Chapter 13: Installing software with Software Distributor and Ignite-UX (optional)
- Part 4: Networking.
- Part 5: HP-UX Security.

Another reason I have mentioned these requirements is not only to remind of the exam requirements but also to emphasis what this book is NOT designed for.

This book is *NOT* designed to replace any formal training; this book assumes you have at least some experience of the topics covered. Whether this knowledge was gained last week on a training class or has been gained through years of on-the-job experience if of no consequence. This book does not have the time to go into every facet of detail or every configuration possibility that you may be able to see demonstrated on a training course/workshop.

This book is *NOT* designed to cover every possible scenario a HP-UX CSE could find themselves in. I have worked with HP-UX for over 14 years in many environments from off-shore oil drilling platforms to anesthesia equipment in an operating theatre. What I have tried to do is provide some scenarios that explain, demonstrate and prove the conceptual details of some technical issue. Being a CSE you are *supposed* to be the *crème-de-la-crème* of HP-UX administrators. As such you can take this information and adapt it to the situations you find your self in.

This book is *NOT* intended to be a technical reference manual in every possible task of a CSE; I do not cover every option of commands or discuss in detail every aspect of every topic covered. There are other books if you need that level of detail (which I have referenced at the appropriate time) as well as your training materials from your training class/workshops that cover that level of detail. There is always the HP-UX manuals and online documentation if you need further reading!

What I *DO* cover is a number of examples undertaken on real-life systems using real-life configurations covering real-life topics. In a number of instances subject matter will require knowledge gained from other parts of the book. Remember the role of a CSE is not easily *pigeonholed!* Most tasks require an almost *holistic* knowledge of the entire CSE role. A number of the examples build on previous work in the book, showing you the impact of applying one configuration on top of another; commonly this can introduce technical challenges all of their own. Challenges you will find in your own workplace. Hopefully the book will explain any outstanding questions you have as well as give you the confidence to implement some of the ideas for yourself.

In the appendices are a number of topics that I feel were important to cover but did not want to weigh down the actual content of the book. The appendices should be seen as additional and important information and where I couldn't find a single textbook that covered that topic to a level of detail I found appropriate. Appendix B lists the source code for a number of my own programs that I use for demonstration purposes throughout the book. You are free to use them as you wish but neither I nor HP can take any responsibility for any consequences should you use them inappropriately.

At the end of each chapter I have included a number of questions and answers; some are multiple-choice, others involve a more in-depth answer. While these questions *may* be typical of the type of questions you *might* see in a particular exam, do not regard them as an exact match to what you will see in an exam, especially where a particular exam requires you to perform hands-on exercises.



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Acknowledgments

I hope you enjoy the book as much as I have enjoyed writing it. This book would not have been possible without the help of a number of people who I would like to thank here and now.

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To the inspirational Barry "mind my legs" and the loving Rita "not lasagna again" Ellis who should be so proud of their two glorious daughters: Amanda, who along with Neil will grace us with a new baby in the near future and Caroline my wife.

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As HP-UX was my first love I will thank everyone who allowed me to use and access a myriad of equipment in order to perform the necessary tasks and demonstrations throughout the book, especially Tony Gard and his team in the HP UK Education Services Organization for the loan of a vast array of kit. Thanks to Melvyn Burnard and Steve Robinson of the HP UK Response Centre for allowing me to destroy and (hopefully) rebuild their kit over the course of many months. To the many others who allowed me to either use their resources or allowed me to pick their brains along the way, thanks is never enough.

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To you the reader I thank you for having the courage to part with your hard earned cash to, delve into my world; swim around for a while, take in the scenery, but most of all enjoy yourself!