Mittuniversitetet
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Försättsblad Prov Original

Kurskod	Provkod	Tentamensdatum
DT149G	T101	2019-01-09

Kursnamn	Datateknik GR (B), Administration av UNIX-lika system
Provnamn	Tentamen
Ort	Sundsvall
Termin	
Ämne	

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Final Exam

DT149G Administration of UNIX-like systems

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Instructions

Carefully read the questions before you start answering them. Note the time limit of the exam and plan your answers accordingly. Only answer the question. The questions are *not* sorted by difficulty. Clearly show which answer you are giving your solution to. *Always motivate your answers and show your calculations.*

Time 5 hours.

Exam Aids Dictionary, Course Litterature [2] or latest edition.

Maximum points 30

Questions 10

Preliminary grades

The following grading criteria applies: E $\geq$ 30%, D $\geq$ 45%, C $\geq$ 60%, B $\geq$ 75%, A $\geq$ 90%. Scoring will be based on level of depth shown in your answer. To pass this exam you must have shown proficient knowledge in all the intended learning outcomes (ILO) covered in this exam. Each questions ILO affiliation is shown as (ILO: #). The grade limit given is preliminary per ILO. Final grade is set based on your performance on each individual ILO.

Covered ILO

This exam covers the following Intended Learning Outcomes (ILO)

- ILO: 1 – Administer and modify a UNIX-like system and its services
- ILO: 2 – Identify, implement and motivate choice of services
- ILO: 3 – Describe how the upstart process works in a UNIX-like system

Questions

The questions below are not given in any particular order.

(3p) 1. *(ILO: 1)* Describe what the kernel does. Give an example of what can be found in the kernel space.

(3p) 2. *(ILO: 1)* You need to check what modification-, change-, and access time a file have, how can you check this? Discuss the difference between them, and what they actually mean. What other meta-information can be found about a file?

(3p) 3. *(ILO: 1)* How do the files passwd, shadow, and groups relate to each other and what information can be found in them?

(3p) 4. *(ILO: 2)* Compare ftp and NFS access in regards to permissions and user authentication and identification, in scenarios when not using a separate logon server.

(3p) 5. *(ILO: 2)* Reason about syslog. How does it work, what are some good qualities with this style of log managing, and what problems can it lead to?

(3p) 6. *(ILO: 2)* Explain how SPF and DKIM works, and what their purpose are. If we didn't use this, what could an alternative be to achieve similar functions?

(3p) 7. *(ILO: 2)* What is the purpose of having a stateful inspection enabled in the firewall? What are some downsides to it?

(3p) 8. *(ILO: 3)* How would you go about to identify a process that is taking up too much resources, and instead of killing it, suspend it. If you later would like to start it up again, how will you achieve this?

(3p) 9. *(ILO: 3)* Explain the process of booting a Linux system, from POST to Shell access. Use examples when possible.

(3p) 10. *(ILO: 3)* What's is the purpose of using a swap? How do you control the use of swapping, such as size and when it is used? Can you give examples of how to manage swap size and usage?

References

[1] *DT149G - Administration of UNIX-like systems.* Course version 1.0. 2015.

[2] Evi Nemeth et al. *UNIX and Linux system administration handbook.* 4th ed. Upper Saddle River, NJ: Prentice Hall, 2011. ISBN: 978-0-13-148005-6 (pbk. : alk. paper).

[3] Evi Nemeth et al. *Unix and Linux system administration handbook.* Fifth edition. Boston: Addison-Wesley/Pearson, 2017. ISBN: 9780134277554.