



Welcome to

5. Hybrid Policies

KEA Kompetence Computer Systems Security 2019

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Slides are available as PDF, kramse@Github
5-hybrid-policies.tex in the repo security-courses

Plan for today



Subjects

- Chinese Wall model - Confidentiality and Integrity
- Medical records security policy
- Role-based Access Control (RBAC)
- Side Channels and Deducibility
- Memory errors and Row hammer

Exercises

- Find example medical security policies



Reading Summary



Bishop chapter 8: Hybrid Policies

Bishop chapter 9: Noninterference and Policy Composition

Browse: Using Memory Errors to Attack a Virtual Machine paper

An Experimental Study of DRAM Disturbance Errors

Exploiting the DRAM rowhammer bug to gain kernel privileges

https://en.wikipedia.org/wiki/Row_hammer

Chinese Wall model - Confidentiality and Integrity



Medical records security policy



Role-based Access Control (RBAC)



Side Channels and Deducibility



Memory errors and Row hammer



Flipping Bits in Memory Without Accessing Them: An Experimental Study of DRAM Disturbance Errors Yoongu Kim, Ross Daly, Jeremie Kim, Chris Fallin, Ji Hye Lee, Donghyuk Lee, Chris Wilkerson, Konrad Lai, Onur Mutlu
<http://users.ece.cmu.edu/~yoonguk/papers/kim-isca14.pdf>

Exploiting the DRAM rowhammer bug to gain kernel privileges Project Zero blog, Posted by Mark Seaborn, sandbox builder and breaker, with contributions by Thomas Dullien, reverse engineer <https://googleprojectzero.blogspot.com/2015/03/exploiting-dram-rowhammer-bug-to-gain.html>

https://en.wikipedia.org/wiki/Row_hammer

Exercise

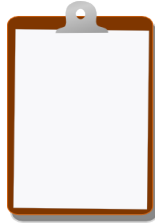


Now lets do the exercise

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which is number ?? in the exercise PDF.

For Next Time



Think about the subjects from this time, write down questions

Check the plan for chapters to read in the books

Most days have less than 100 pages, but some days may have more!

Visit web sites and download papers if needed

Retry the exercises to get more confident using the tools