Attacks on Near Field Communications on Mobile Phones

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1 Introduction

The Near Field Communication (NFC) technology is being deployed in mobile phones all over the world. The technology's applications is wide [1]. Several companies focus on one of it's most promising applications: payment solutions using NFC [2]. An analysis by Berg Insight claim that one in three mobile phones will come with NFC by 2017 [3], making the technology a huge future marked. The need of security and robustness is very important, as an insecure and attackable device would give criminals new ways to steal funds, or simply take control over the device. Different attacks have been proven successful and malicious, and the threat should be taken seriously by both individuals and corporations. Simple RFID-stickers and vulnerabilities in software is all an attacker need to do harm. This essay will present and discuss some of the successful attacks previously demonstrated by experts in the field of NFC and security.

2 Problem Discussion

2.1 Requirements of Form

We set the following requirements with respect to format:

1. This LaTeX template must be used.
2. The whole document must be limited to 3 A4 pages (references not included). A technical essay different from three -3- pages will be returned to the author to be cut or enhanced to three pages.
3. One or more illustrations in the form of figures, tables or diagrams must be included (see Figure 1).
4. The entries in your reference should be structured like follows: Author/Origin. *Title*. Where, and when, published.
5. The submitted file format must be pdf.

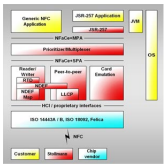

Figure 1: NFC stack

Structure If you want further substructure than sections and subsections, then you can use a paragraph title like here. This will look much better than introducing another numbered level of subsubsection.

2.2 Requirements of Content

The text should be intelligible, logical, interesting and easy to read. Write for your fellow engineering students, and assume that the reader has the same general theoretical background as yourself. Use definitions, facts and logical argumentation.

Interpret and refine the title, discuss the problem and intended scope in the introduction. In the text, do not introduce facts that are not analysed later and that are not relevant to your problem. Bring your *own analysis and thinking* into the essay. If you can, bring in new ideas. When you include tables or figures (see Figure 2), they should be referred to and explained in the text.

While it is allowed to cite Wikipedia or another web page, it is not recommended. It is much better if you can refer to a technical article or paper.

3 Conclusion

The submitted technical essays will be graded and contribute 20% to the final grade of the course. The two best essays will be honoured with publication at It's learning, edited if necessary and become part of this year's syllabus.

(a) Scale=0.20

(b) Scale=0.15

(c) Scale=0.10

Figure 2: The Linksys WRT54G line of routers include both 802.3 Ethernet and 802.11b/g wireless LAN.

References

[1] Diogo Remedios, Luís Sousa, Manuel Barata, and Luís Osório. Nfc technologies in mobile phones and emerging applications. In *Information Technology For Balanced Manufacturing Systems*, pages 425–434. Springer, 2006. Available online at: http://link.springer.com/chapter/10.1007/978-0-387-36594-7$_4$5.

[2] Garry Wei-Han Tan, Keng-Boon Ooi, Siong-Choy Chong, and Teck-Soon Hew. {NFC} mobile credit card: The next frontier of mobile payment? *Telematics and Informatics*, 2013.

[3] Sarah Clark. One in three mobile phones to come with nfc by 2017. `http://www.nfcworld.com/2013/06/05/324448/one-in-three-mobile-phones-to-come-with-nfc-by-2017/`. [Online; accessed 5-November-2013].