

**UiO : Department of Informatics**  
University of Oslo

# Application-centric Infrastructure

Any short subtitle

Ida Marie Frøseth  
Master's Thesis Spring 2016





# Application-centric Infrastructure

Ida Marie Frøseth

22nd January 2016



# Abstract

ThIS Is a change

The text of the abstract; typically, 2–5 sentences.

What it is all about?? Title page, abstract, ...

1. Introduction, containing: short intro into the area, what is happening  
1.1 Motivation, containing: what triggered me to write about what I'm writing about  
1.2 Methods, containing: which methods are you using, how do you apply them  
2. Scenario, optional chapter for explaining some use cases one main scenario, and applicability of others; what is the outcome of the scenario ("switching action", display information, ...) 2.1 user scenario, (bad name, needs something bedre)  
2.2 Requirements/Technological challenges, here: Semantic technologies, User Profiles/preferences, context-aware services, ... WLAN provisioning (FON.com), reasoning towards a group profile (advertisement, entertainment, information)  
3. State-of-the art/Analysis of technology, structure your content after hardware/SW (or other domains). Describe which technologies might be used to answer the challenges, and how they can answer the challenges. Here: Middleware for bindling the moduls together. Focus on engine, Web or mobile? for all subchapters: provide an overview, then evaluate ("what is important for me?"), recommendation on which solution to go for  
3.1 technology A: Semantic technologies, Protege, Ontology  
3.2 technology B: User profiles (survey: SPICE, FOAF, tourist ontology,... -> none of them fit to my needs. Extend FOAF in areas of .....)  
3.3 Context awareness: 3.4 Reasoning: overview, "why SWRL?"  
4. Implementation 4.1 Architecture, functionality 4.2  
5. Evaluation 5.1 Security (man in the middle attacks, replay attacks...) 5.2 Group Profile based service Personalization 5.3 Future work 6. Conclusions  
References

[6], [2] [10], [3], [4], [5], [9], [1], , [7], [8]



# Contents

<b>1 Preface</b>	<b>xi</b>
<b>I Introduction</b>	<b>1</b>
<b>2 Background</b>	<b>3</b>
2.1 Software defined Networks . . . . .	3
<b>II The project</b>	<b>5</b>
<b>3 Planning the project</b>	<b>7</b>
<b>III Conclusion</b>	<b>9</b>
<b>4 Results</b>	<b>11</b>



# **List of Figures**



# **List of Tables**



# Chapter 1

## Preface

When and Where This thesis was written as a part of my Master's degree in Informatics at the University of Oslo. Most of the work was done in the period from Januar 2016 to May 2017. The thesis was done in collaboration with Norwegian Defence Research Establishment, but the thesis have solely been written by the author.

- in coporation with Norwegian Defence Research Esablishment How literature have been examined and where the publications have been found The names of the supervisors - Mariann Hauge - Erlend Larsen - ? Acknowlegement - Jan Erik Voldhaug - Petter Kristiansen - Ingar Bentstuen - review: Gunstein Thomas Frøseth(?) - Lasse Sæther

The envisaged time schedule (for a long thesis/60 ECTS) is: T0 0 starting month, T0+m denotes the month where the contribution to a certain chapter shalle be finalized T0+2 months: create an initial page describing the scenario T0+3: Provide a list of technologies which you think are necessary for the thesis T0+4: Establish the table of content (TOC) of the envisaged thesis. Each section shall contain 3-10 keywords describing the content of that section T0+7: Provide a draft of section 2 (scenario) and 3 (technologies) T0+10: Establish a draft on what to implement/architecture T0+11: Set-up an implementation, testing and evaluation plan T0+15: Evaluate your solution based on a set of parameters, keep in mind there is no such thing as a free lunch T0+17: Deliver the thesis



# **Part I**

# **Introduction**



# **Chapter 2**

# **Background**

## **2.1 Software defined Networks**



## **Part II**

# **The project**



## **Chapter 3**

# **Planning the project**



## **Part III**

# **Conclusion**



## **Chapter 4**

# **Results**



# Bibliography

- [1] Paul Goransson and Chuck Black. *Software Defined Networks: A Comprehensive Approach*. 1 edition. Amsterdam ; Boston: Morgan Kaufmann, 6th June 2014. 352 pp. ISBN: 978-0-12-416675-2.
- [2] D. Kreutz et al. 'Software-Defined Networking: A Comprehensive Survey'. In: *Proceedings of the IEEE* 103.1 (Jan. 2015), pp. 14–76. ISSN: 0018-9219. DOI: 10.1109/JPROC.2014.2371999.
- [3] Pierre Lynch et al. *Demystifying NFV in Carrier Networks: A Definitive Guide to Successful Migrations*. 1 edition. CreateSpace Independent Publishing Platform, 20th June 2014. 94 pp. ISBN: 978-1-5002-6981-4.
- [4] Doug Marschke, Jeff Doyle and Pete Moyer. *Software Defined Networking: Anatomy of OpenFlow Volume I*. Lulu Publishing Services, 25th Mar. 2015. 178 pp. ISBN: 978-1-4834-2723-2.
- [5] Thomas D. Nadeau and Ken Gray. *SDN: Software Defined Networks*. 1 edition. Beijing: O'Reilly Media, 7th Sept. 2013. 384 pp. ISBN: 978-1-4493-4230-2.
- [6] Open Networking Summit. *The Future of Networking, and the Past of Protocols - Scott Shenker*. URL: <https://www.youtube.com/watch?v=YHeyuD89n1Y> (visited on 18/01/2016).
- [7] M. Siekkinen et al. 'Beyond the Future InternetâRequirements of Autonomic Networking Architectures to Address Long Term Future Networking Challenges'. In: *11th IEEE International Workshop on Future Trends of Distributed Computing Systems, 2007. FTDCS '07*. 11th IEEE International Workshop on Future Trends of Distributed Computing Systems, 2007. FTDCS '07. Mar. 2007, pp. 89–98. DOI: 10.1109/FTDCS.2007.14.
- [8] P.H. Srebrny et al. 'No More D #x00E9;j #x00E0; Vu #x2014;Eliminating Redundancy With CacheCast: Feasibility and Performance Gains'. In: *IEEE/ACM Transactions on Networking* 21.6 (Dec. 2013), pp. 1736–1749. ISSN: 1063-6692. DOI: 10.1109/TNET.2012.2236104.
- [9] William Stallings. *Foundations of Modern Networking: SDN, NFV, QoE, IoT, and Cloud*. 1 edition. Indianapolis, IN: Addison-Wesley Professional, 8th Nov. 2015. 544 pp. ISBN: 978-0-13-417539-3.

- [10] S. Zerrik et al. 'Towards a decentralized and adaptive software-defined networking architecture'. In: *Next Generation Networks and Services (NGNS), 2014 Fifth International Conference on*. May 2014, pp. 326–329. DOI: 10.1109/NGNS.2014.6990272.