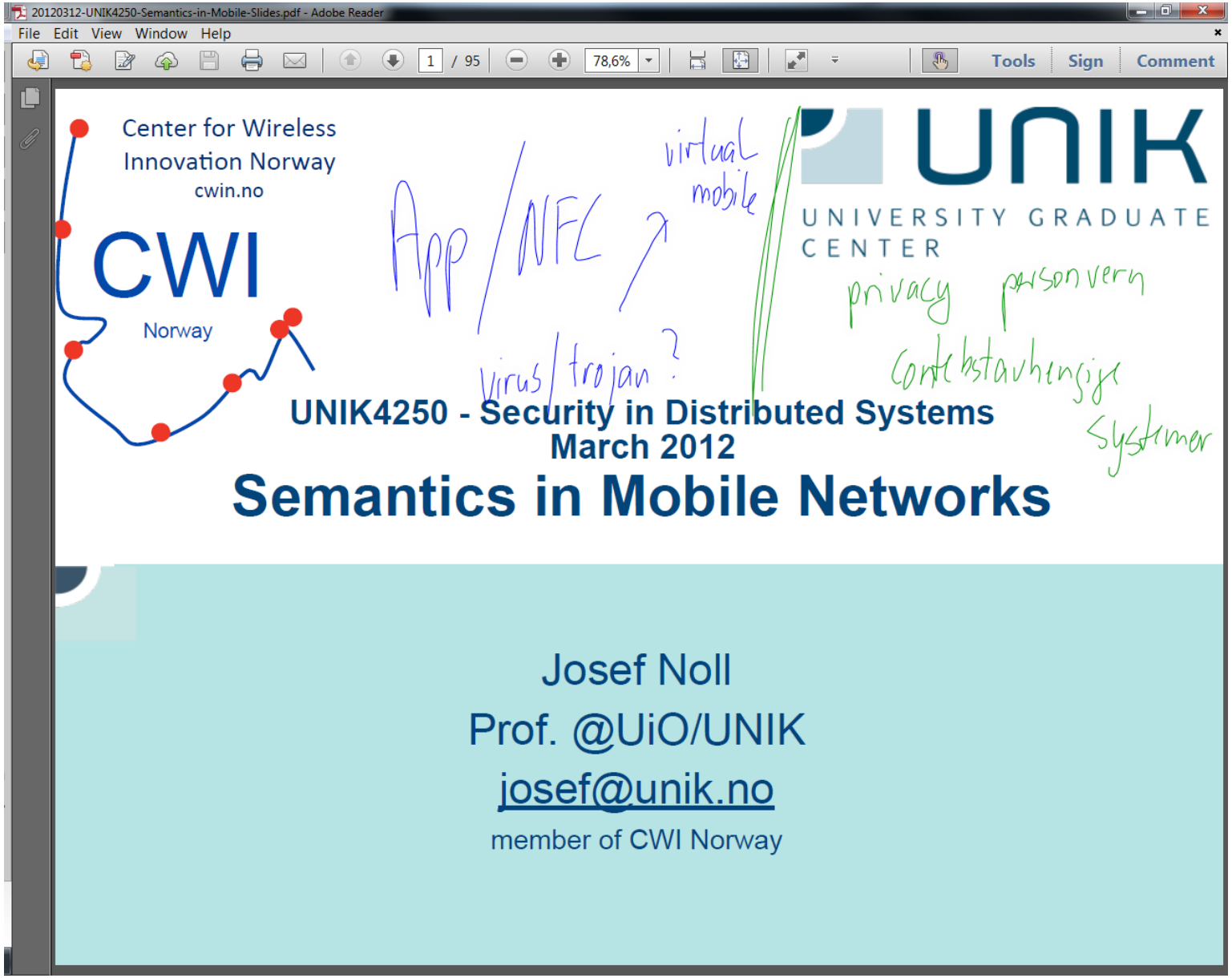
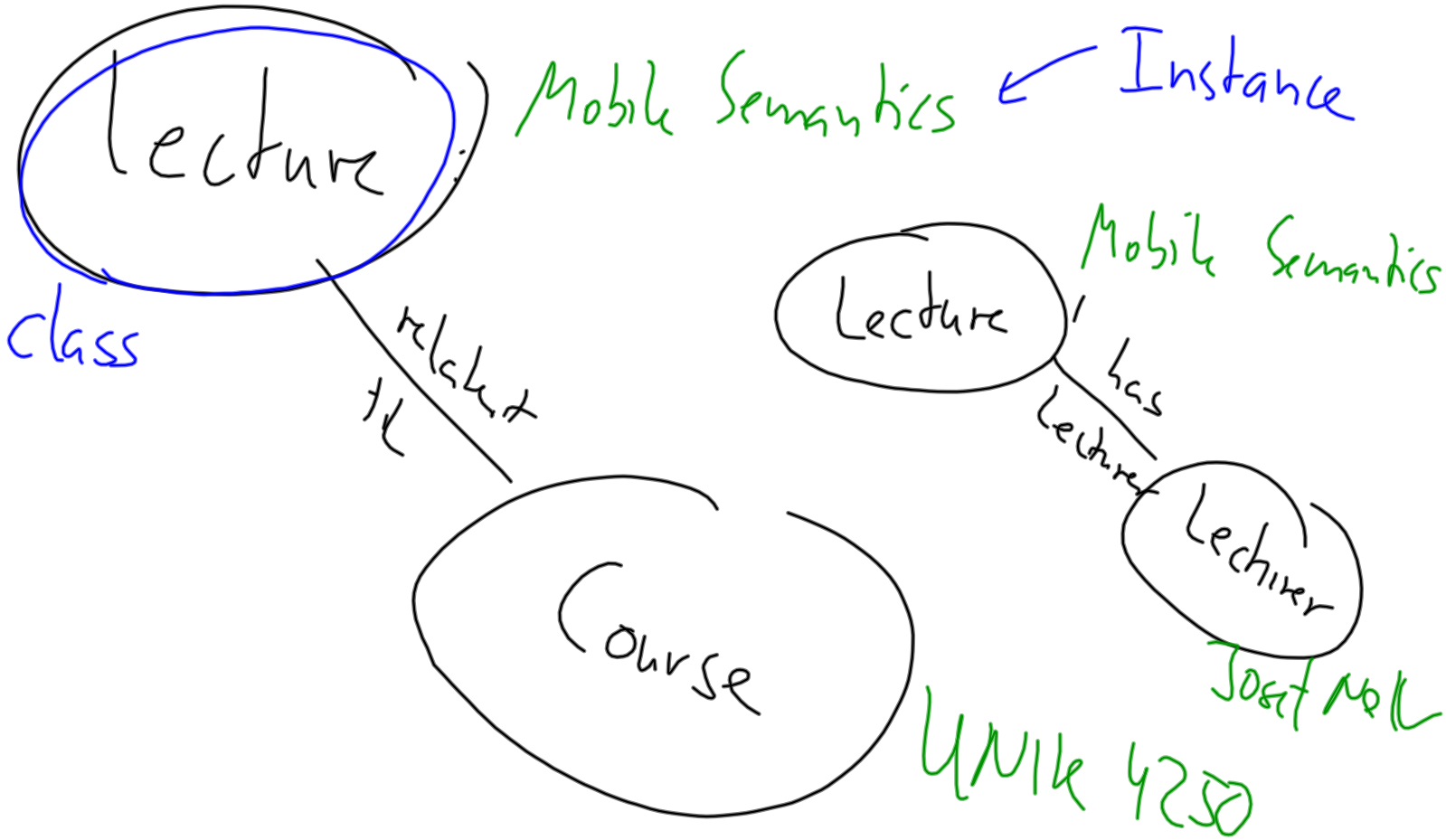
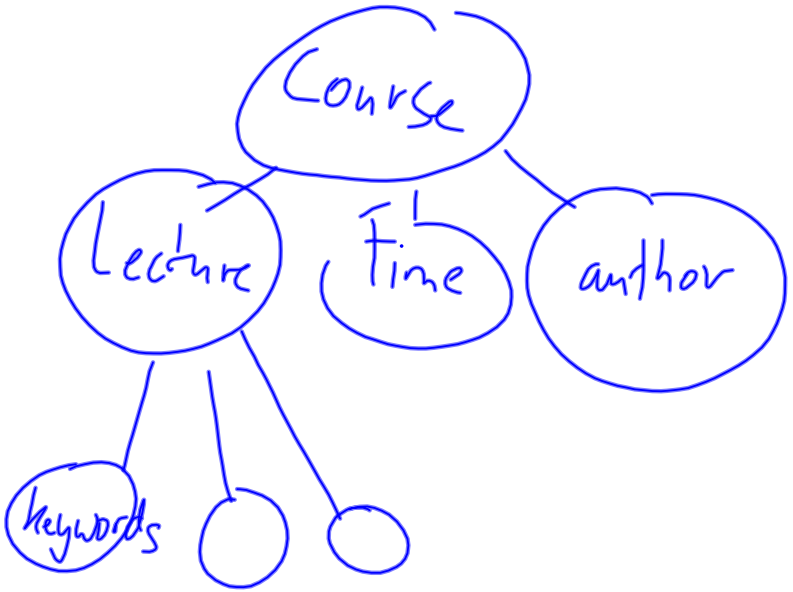
< wi.uni.no/wiki/LINK4250


20120312-UNIK4250-Semantics-in-Mobile-Slides.pdf - Adobe Reader
File Edit View Window Help
1 / 95
78,6%
Tools
Sign
Comment
Center for Wireless Innovation Norway
cwin.no
CWI
Norway
App / NFC
virtual mobile
virus / trojan ?
UNIK
UNIVERSITY GRADUATE CENTER
privacy
personvern
Kontekstavhengige Systemer
UNIK4250 - Security in Distributed Systems
March 2012
Semantics in Mobile Networks
Josef Noll
Prof. @UiO/UNIK
josef@unik.no
member of CWI Norway


Lecture
Mobile Semantics
Instance
Class
Relation
Course
Lecture
Mobile Semantics
has
Lecturer
Lecturer
Prof Mol
UNIK 4250



Ontology

↓ computer

Can reason

our knowledge

Reasoning

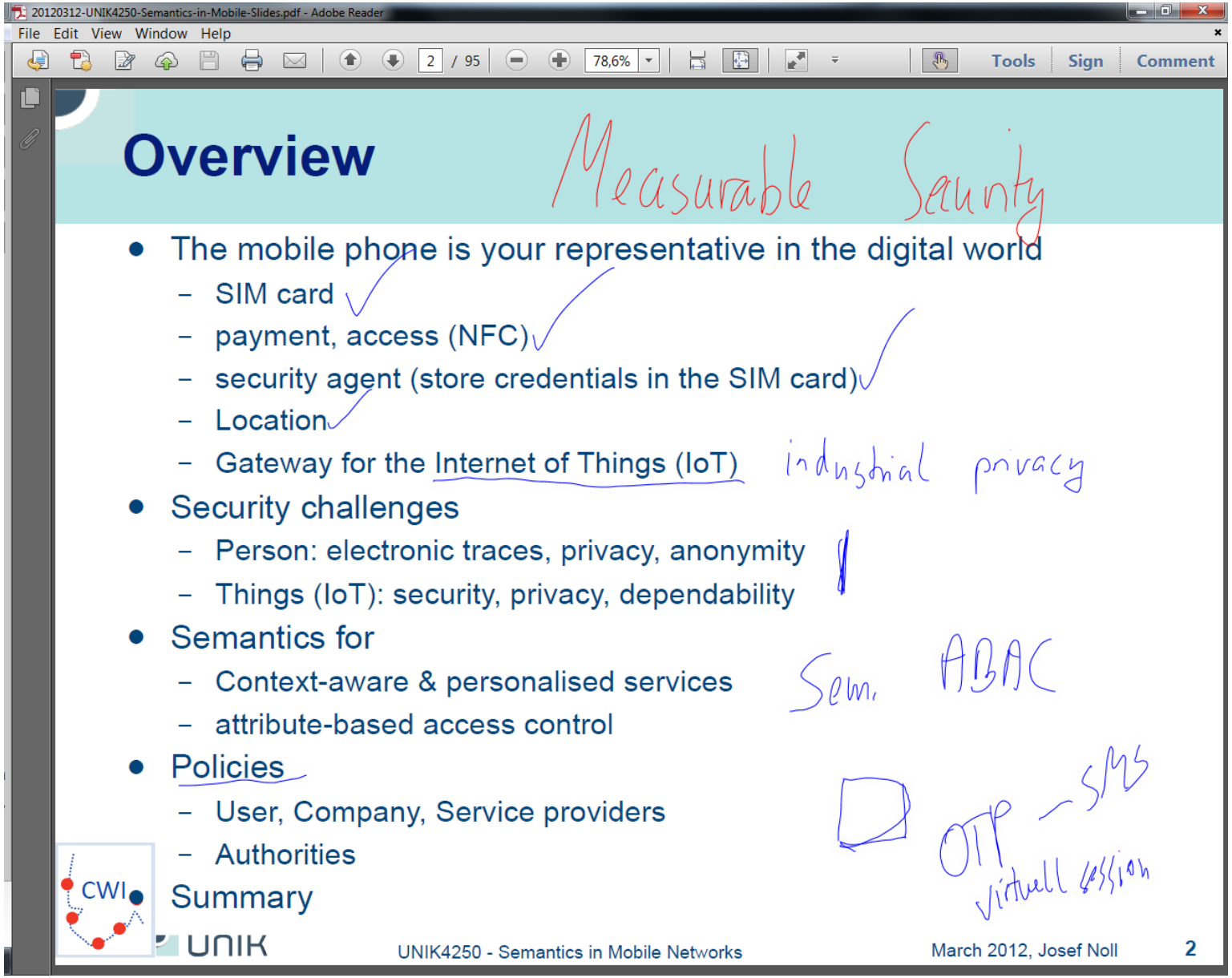
I need sec. level 0.85

0.3

0.4

0.2

computer reasoning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Tools
Sign
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Overview
Measurable Security
The mobile phone is your representative in the digital world
SIM card
payment, access (NFC)
security agent (store credentials in the SIM card)
Location
Gateway for the Internet of Things (IoT)
industrial privacy
Security challenges
Person: electronic traces, privacy, anonymity
Things (IoT): security, privacy, dependability
Semantics for
Context-aware & personalised services
attribute-based access control
Sem. ABAC
Policies
User, Company, Service providers
Authorities
OTP - SMS
virtuell session
Summary
CWI
UNIK
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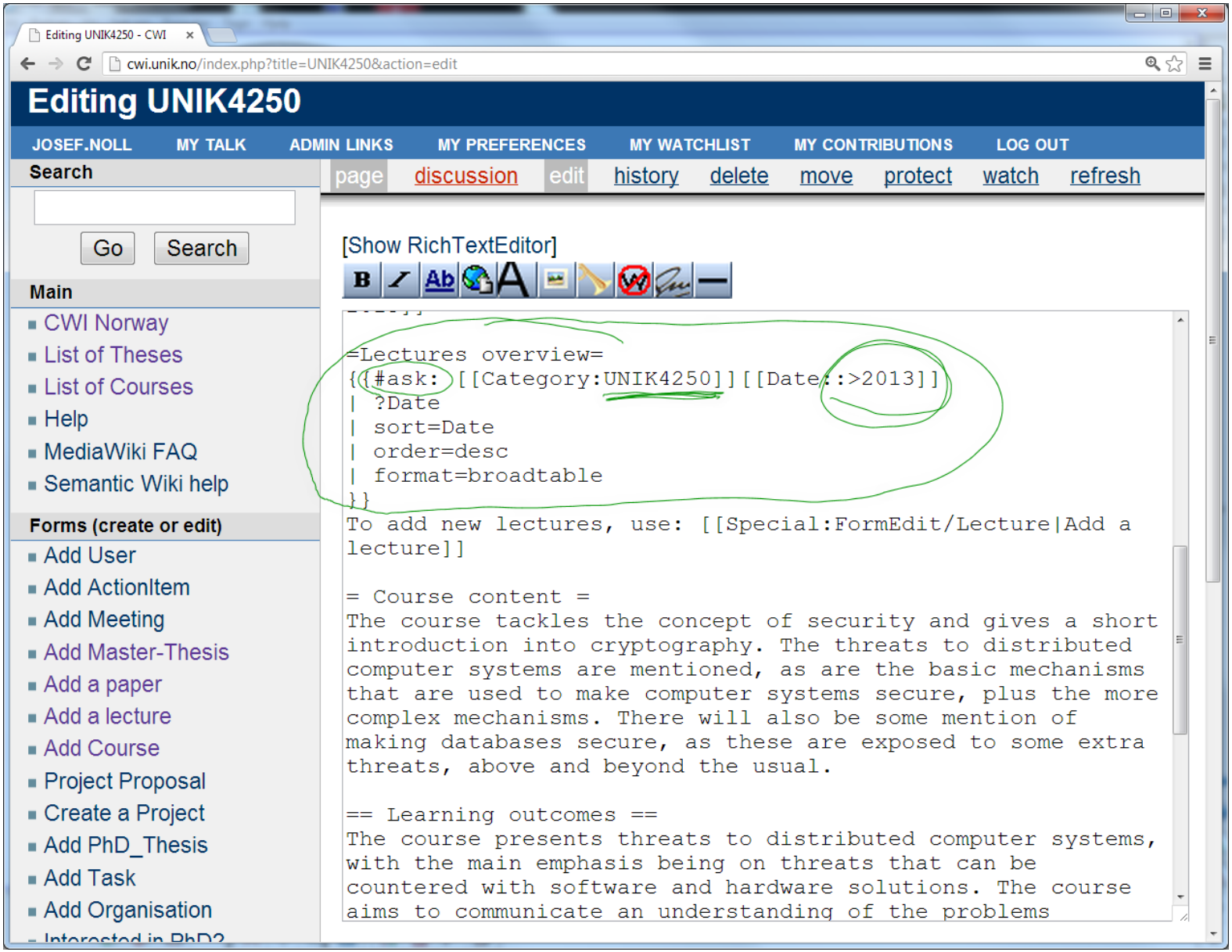
2


Editing UNIK4250 - CWI
cwi.unik.no/index.php?title=UNIK4250&action=edit
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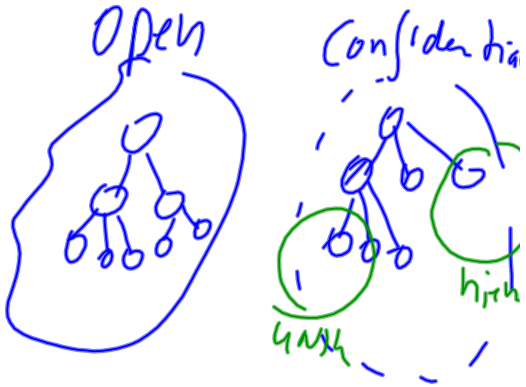
JOSEF.NOLL
MY TALK
ADMIN LINKS
MY PREFERENCES
MY WATCHLIST
MY CONTRIBUTIONS
LOG OUT
Search
Go
Search
Main
CWI Norway
List of Theses
List of Courses
Help
MediaWiki FAQ
Semantic Wiki help
Forms (create or edit)
Add User
Add ActionItem
Add Meeting
Add Master-Thesis
Add a paper
Add a lecture
Add Course
Project Proposal
Create a Project
Add PhD_Thesis
Add Task
Add Organisation
page
discussion
edit
history
delete
move
protect
watch
refresh
[Show RichTextEditor]
=Lectures overview=
{{#ask: [[Category:UNIK4250]][[Date::>2013]]
| ?Date
| sort=Date
| order=desc
| format=broadtable
}}
To add new lectures, use: [[Special:FormEdit/Lecture|Add a lecture]]
= Course content =
The course tackles the concept of security and gives a short introduction into cryptography. The threats to distributed computer systems are mentioned, as are the basic mechanisms that are used to make computer systems secure, plus the more complex mechanisms. There will also be some mention of making databases secure, as these are exposed to some extra threats, above and beyond the usual.
== Learning outcomes ==
The course presents threats to distributed computer systems, with the main emphasis being on threats that can be countered with software and hardware solutions. The course aims to communicate an understanding of the problems

Relation to security



- "easy to retrieve"
- Linked Open Data ⟷ Linked ~~Closed~~ Confidential Data
  - ↳ context-aware personalized services
- attribute-based access control
  - Who, where, when, what
  - net-ID, SIM, PKI, bypass

Goal: measurable security

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NFCIP-2 Interface and protocol (ISO/IEC 21481)

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NFC

Proximity Card Reader

Vicinity Card Reader

betaling

adgang

Interface Standards

ISO/IEC 18092 (NFCIP-1)

ISO/IEC 14443 (Contactless Proximity Cards)

ISO/IEC 15693 (Contactless Vicinity Cards)

Proximity Card

Vicinity Card

ECMA-340

ISO/IEC 14443 PCD mode *(MIFARE, FeliCa)*

ISO/IEC 15693 VCD mode *(facility access)*

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How come these guys didn't think of privacy?

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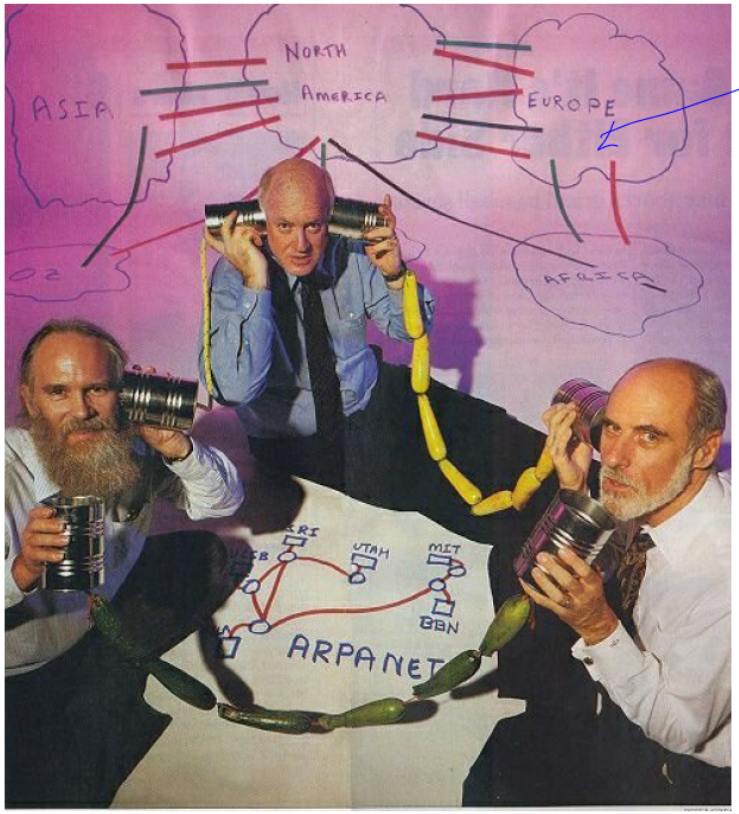

Kjeller, 1973
(London, 1973)

Vint Cerf

Source: http://www.michaelkaul.de/History/history.html

Information privacy

Information about me

- electronic information stored about me
  - religion, sexual orientation, political opinion
  - personal activities
  - family information
- Membership in social networks
- access to accounts
- Medical information
- Political privacy

Electronic traces

- Mobile phone
  - GSM,
  - Bluetooth
- sensor data
- traffic cameras
- surveillance
- payment card usage
- fingerprint check-in

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Paradigm change for The Internet of the Real World and IoT

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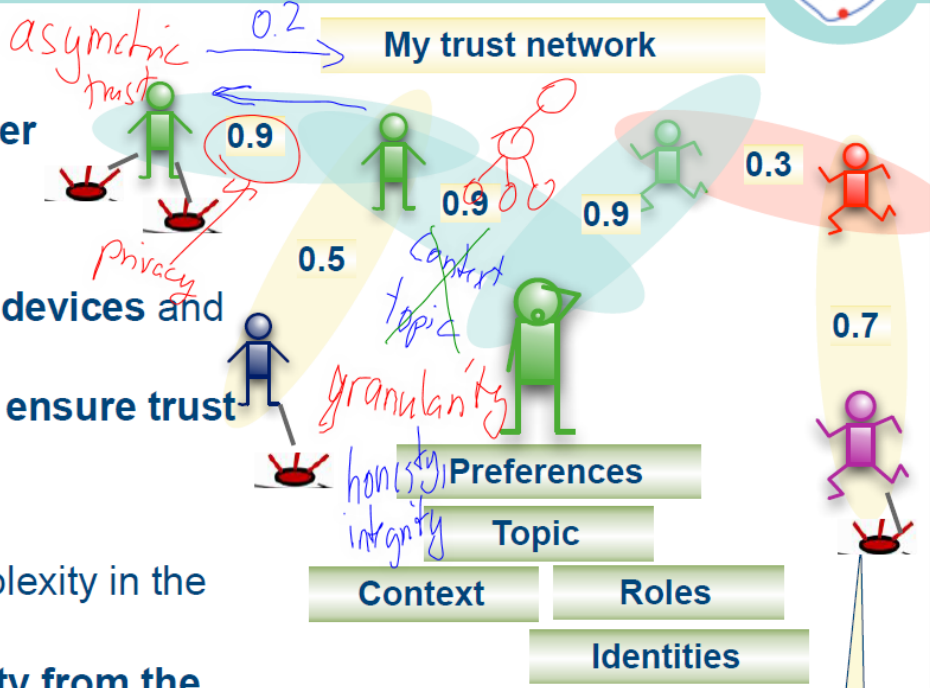
- Trust related privacy
  -> **Representing the user adequately**
- Connecting to **sensors**, **devices** and **services**
  -> **Provide privacy and ensure trust relations**
- An ever increasing complexity in the digital environment
  -> **Hiding the complexity from the use**



Thanks to Vladimir Oleshchuk for ideas and discussions

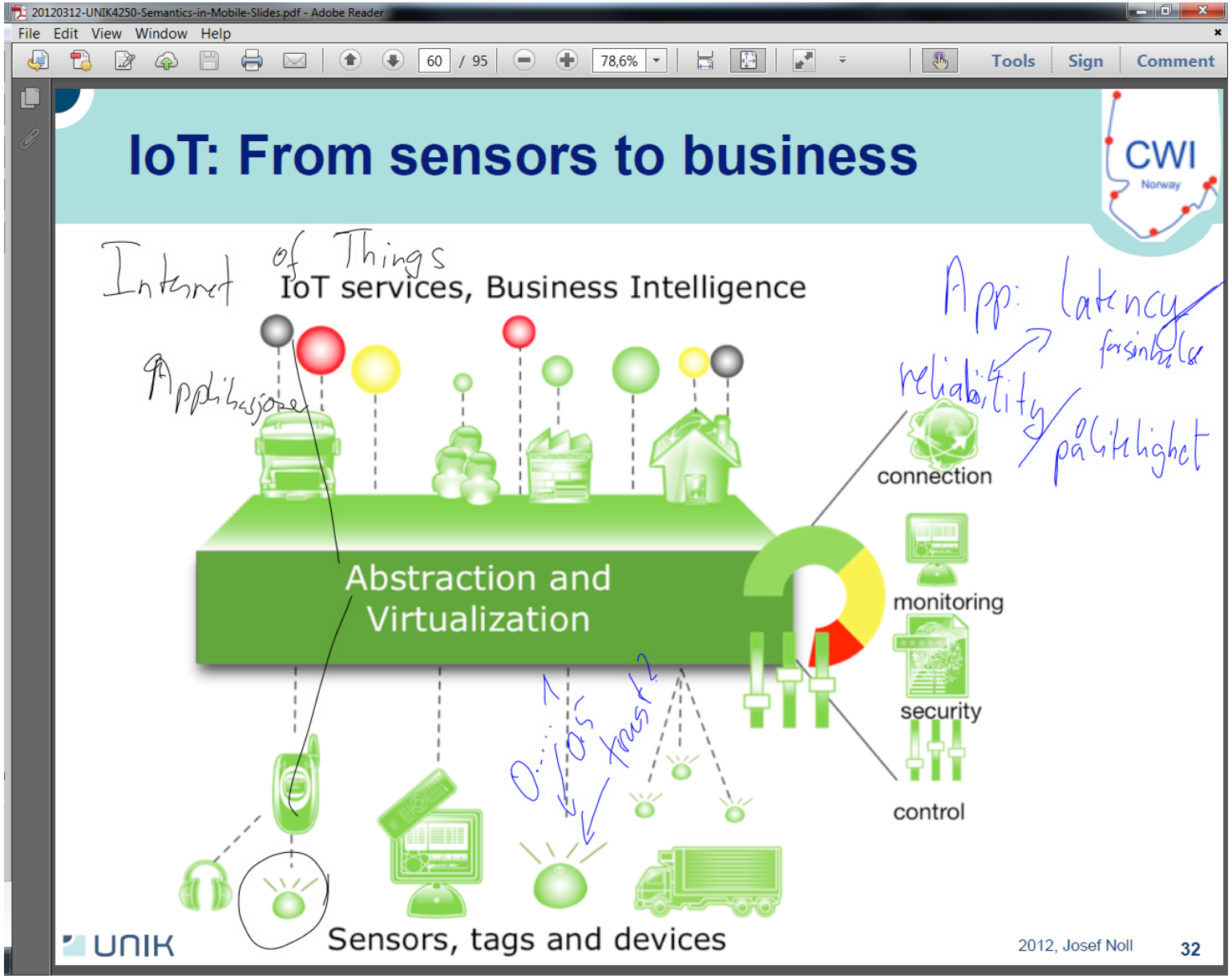
Granularity in trust metrics

- create a framework for trust

"describe the world"

identity ⟶ digital identity

- aerlighet / honesty
- integritet
- ⋮
- interest (gain)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Tools
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IoT: From sensors to business
CWI
Norway
Internet of Things
IoT services, Business Intelligence
Applikasjoner
App: latency
reliability
connection
monitoring
security
control
Abstraction and Virtualization
Sensors, tags and devices
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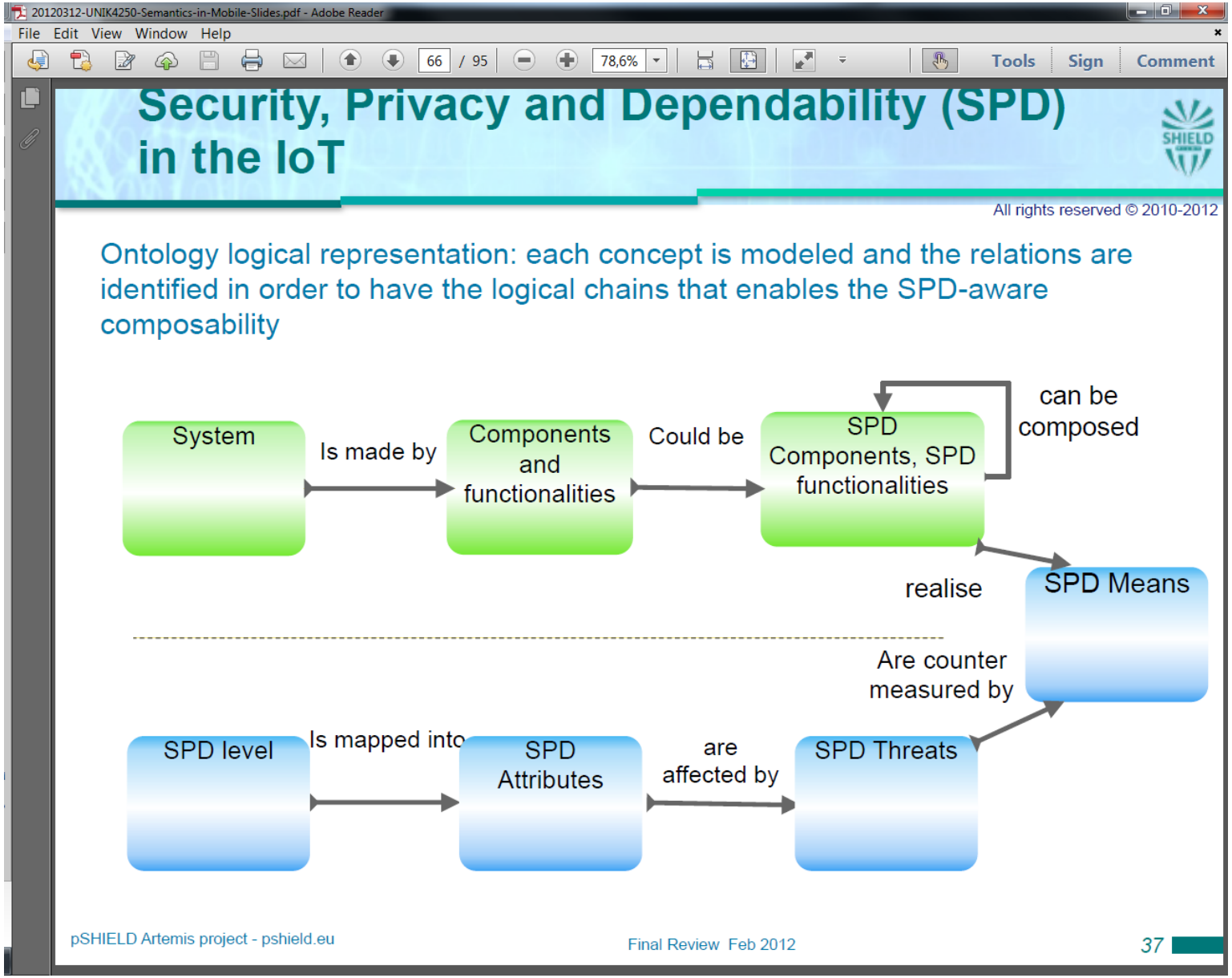
32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Tools
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Comment
Security, Privacy and Dependability (SPD) in the IoT
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Ontology logical representation: each concept is modeled and the relations are identified in order to have the logical chains that enables the SPD-aware composability
System
Is made by
Components and functionalities
Could be
SPD Components, SPD functionalities
can be composed
realise
SPD Means
Are counter measured by
SPD level
Is mapped into
SPD Attributes
are affected by
SPD Threats
pSHIELD Artemis project - pshield.eu
Final Review Feb 2012
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