



INTERNET MANAGEMENT AND MEASUREMENT

265310
MSc TEL/INF/BIT/EL
5 EC

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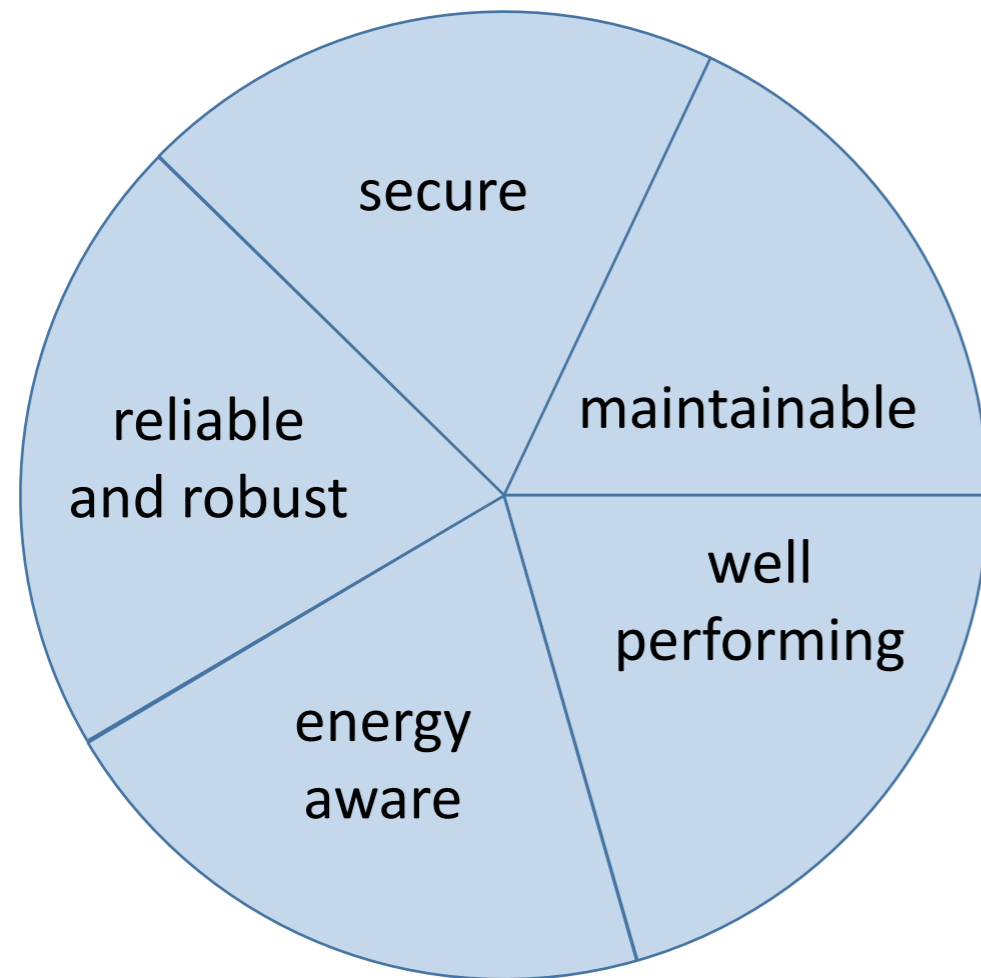
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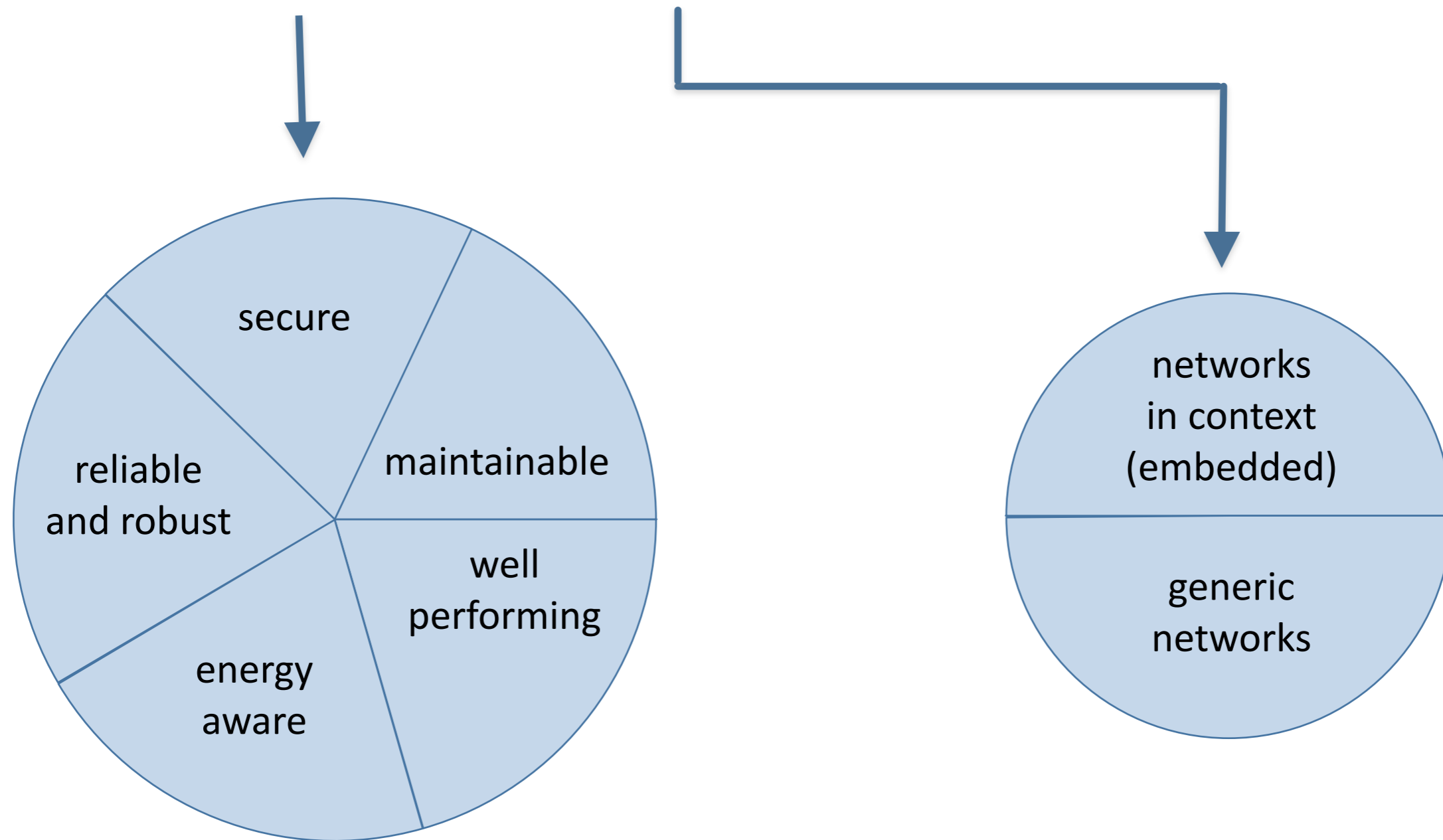
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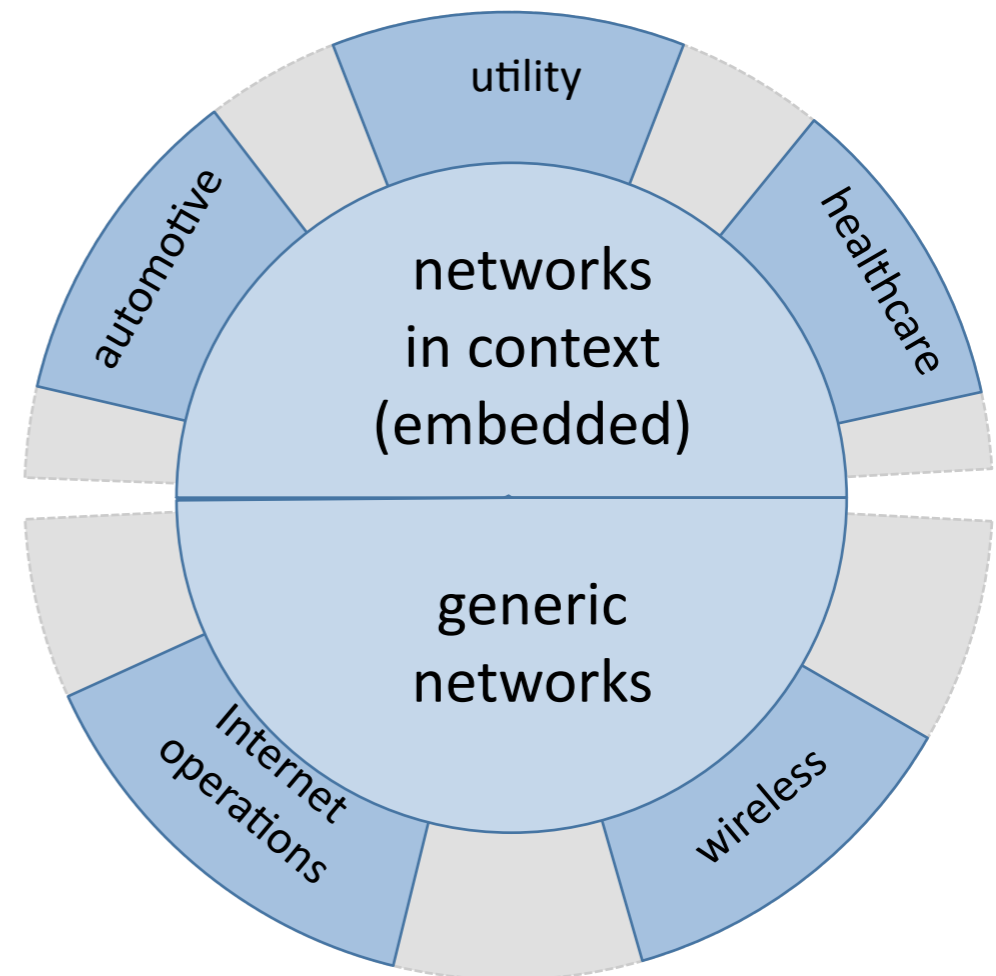
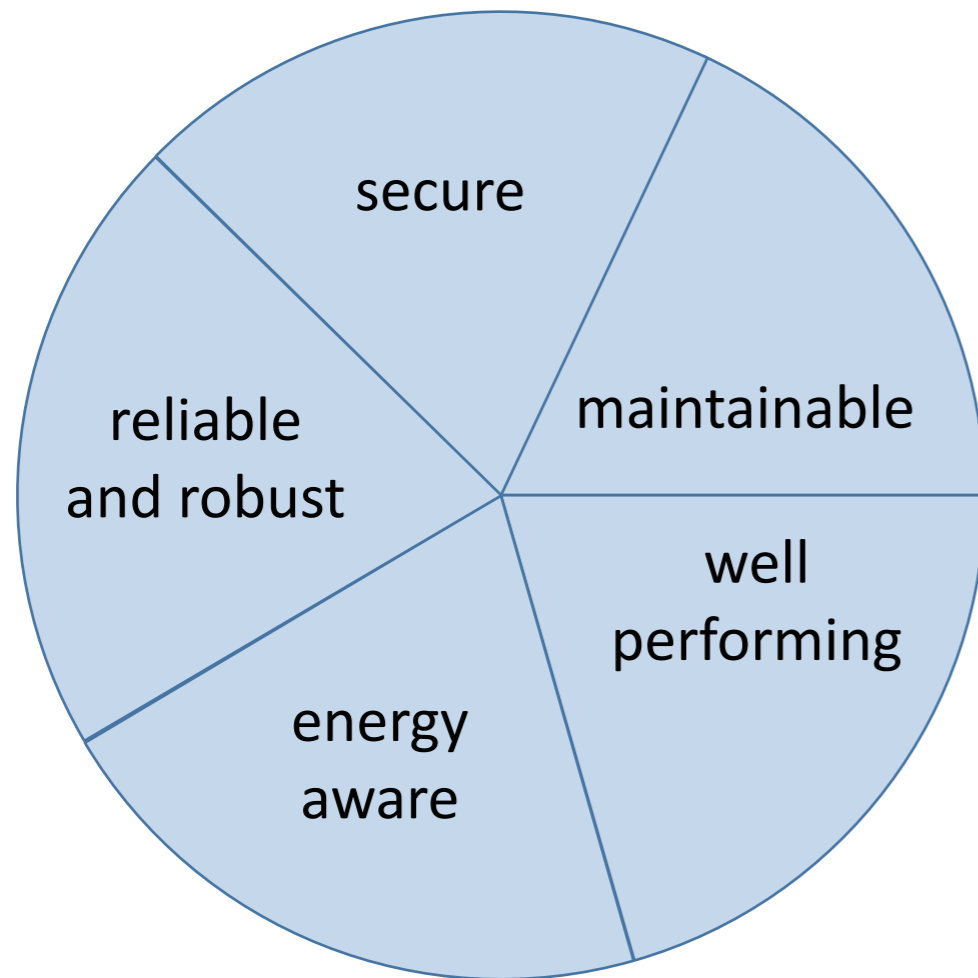
Dependable networking in a dynamic world



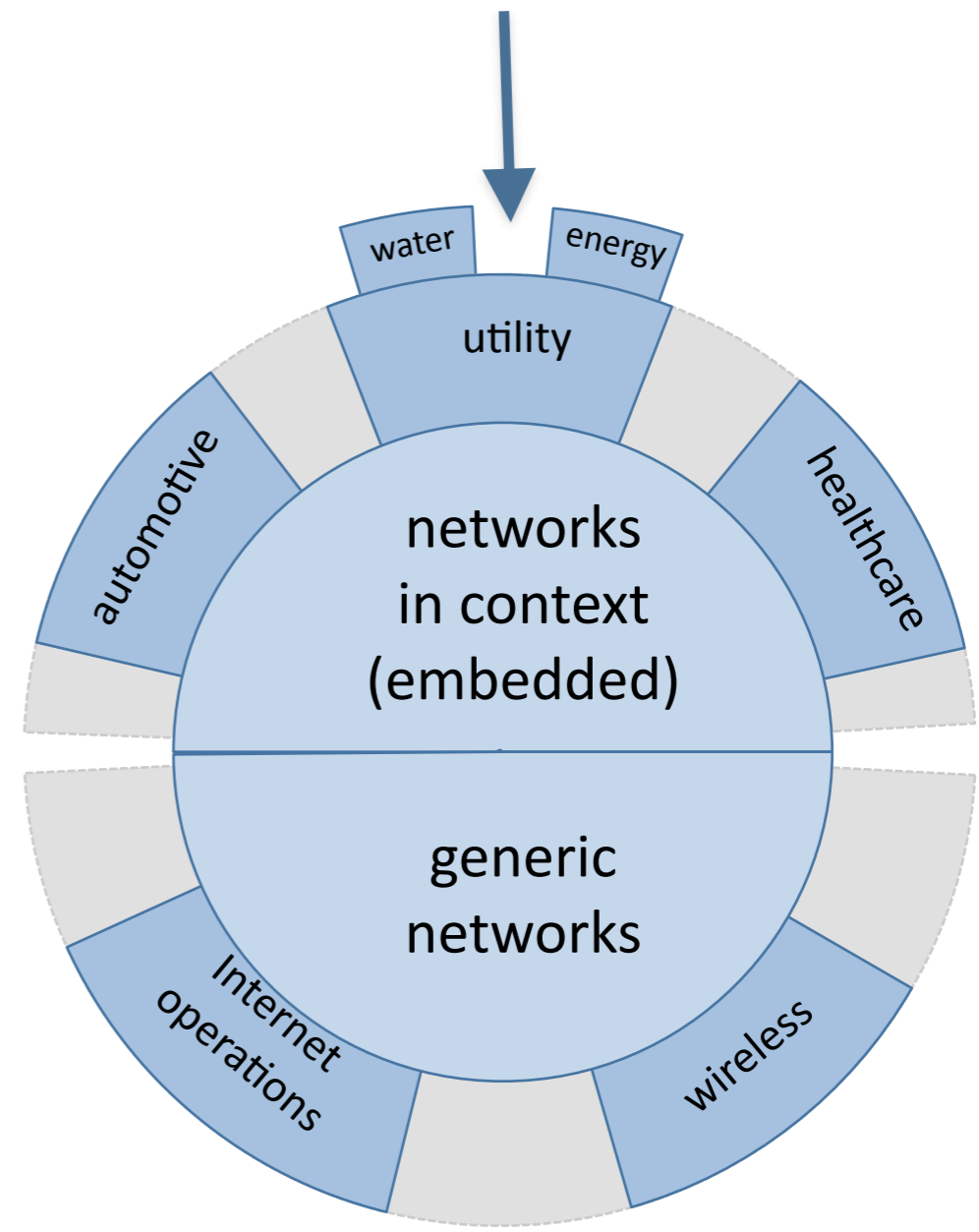
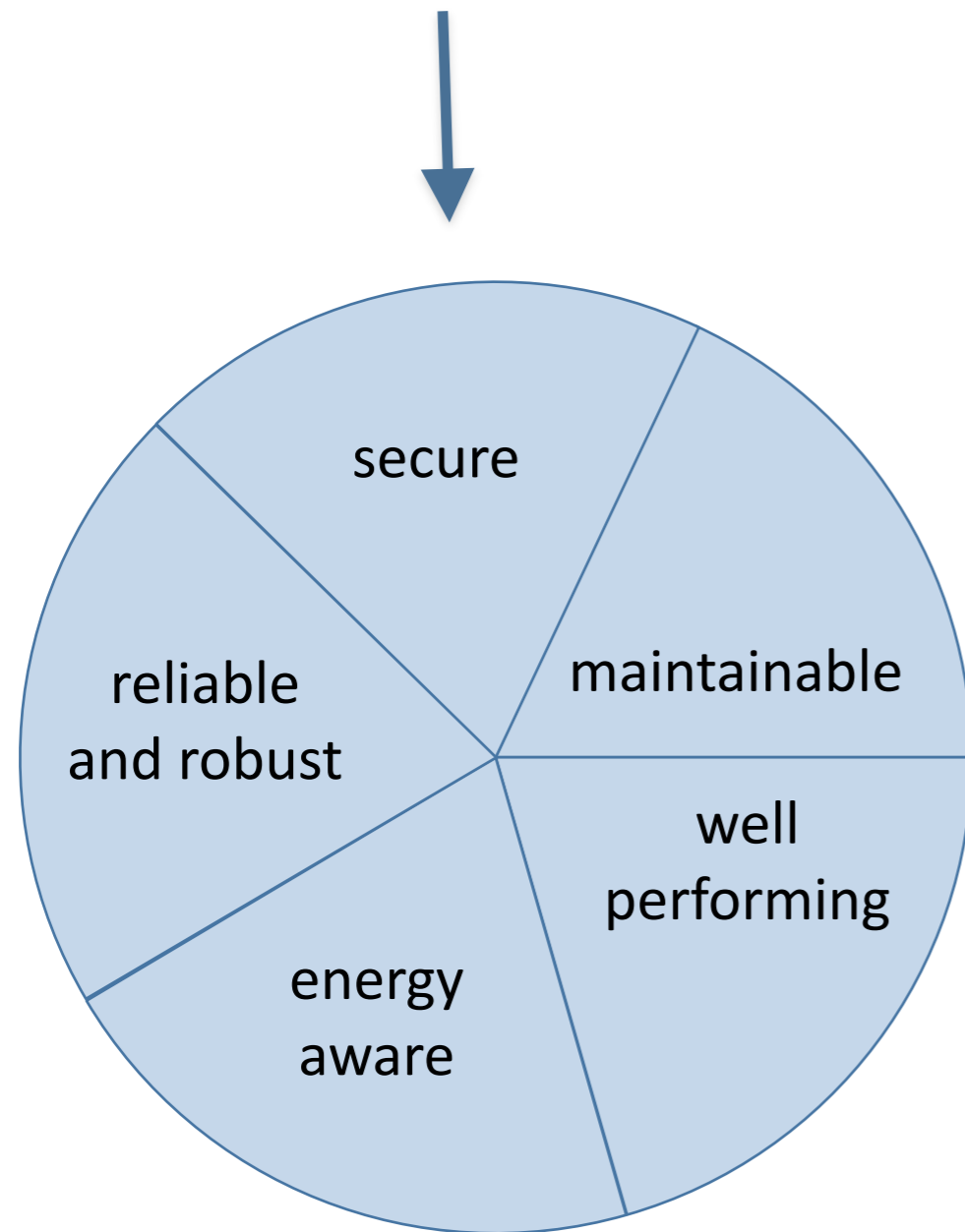
Dependable networking in a dynamic world



Dependable networking in a dynamic world



Dependable networking in a dynamic world



PURPOSE OF THIS COURSE

THE PURPOSE OF THIS COURSE
IS TO GET AN UNDERSTANDING OF:

- WHICH MANAGEMENT INFORMATION EXISTS WITHIN THE INTERNET
 - WHO DEFINES THIS INFORMATION
- THE SYNTAX IN WHICH THIS INFORMATION IS DESCRIBED
 - THE PROTOCOLS THAT ALLOW THIS INFORMATION TO BE MONITORED / MODIFIED
- HOW TO MEASURE THE FLOW OF INTERNET TRAFFIC

MATERIAL

BOOK

William Stallings: SNMP, SNMPv2, SNMPv3, RMON 1 & 2;
Addison Wesley, ISBN 0-201-48534-6

PODCAST / REAL MEDIA PRESENTATIONS

www.simpleweb.org/wiki/Video_tutorials

YOUTUBE VIDEO PRESENTATIONS

<https://www.youtube.com/user/fp7flamingo>

SLIDES

www.simpleweb.org/wiki/Internet_Management_Tutorials

EXERCISES

www.simpleweb.org/wiki/Exercises_in_Internet_Management

COURSE ORGANIZATION

COURSE CONSISTS OF THREE ELEMENTS:

- FIVE LECTURES IN CLASS ROOM
- TWO LECTURES AS SELF STUDY
 - SEVEN EXERCISES

Classroom lectures

Lecture	Date	Location	Teacher	Topic
1	22/4/2014 13:45-15:30	HB 2D	Aiko Pras	Course intro / SNMP versions 1 and 2
2	29/4/2014 13:45-15:30	HB 2D	Aiko Pras	SNMP version 3
3	13/5/2014 13:45-15:30	HB 2D	Aiko Pras	New approaches for network management
4	20/5/2014 13:45-15:30	HB 2D	Aiko Pras	Network measurements
5	27/5/2014 13:45-15:30	HB 2D	Aiko Pras	Network measurements 2

NOTE: No classroom lectures on 6 may 2014

Slides of the classroom lectures can be found at:

http://www.simpleweb.org/wiki/Internet_Management_Tutorials

Book is: William Stallings: SNMP, SNMPv2, SNMPv3, RMON 1 & 2, Addison Wesley, ISBN 0-201-48534-6

Video lectures

Lecture	Follow before	Topic
1	29/4/2014	Network Management Principles
2	29/4/2014	Management standards
3	29/4/2014	Introduction to SNMP
4	29/4/2014	Structure of Management Information (SMI)
5	13/5/2014	Introduction to Management Information Bases (MIBs)
6	13/5/2014	MIB-II

Video lectures 1, 2, 3 and 4 are needed to answer exercise 1

Video lectures 5 and 6 are needed to answer exercise 2

Video lectures can be found at:

<https://www.youtube.com/user/fp7flamingo>

http://www.simpleweb.org/wiki/Video_tutorials_on_Internet_management

Mapping book - lectures

Book Chapter	Lecture	Topic of the lecture
1	Classroom 1	Course intro
2	Classroom 1	Course intro
4	Classroom 1 Video 2	Course intro
5	Video 3	Structure of Management Information (SMI)
6	Video 4 & 5	Management Information Bases (MIBs)
7	Classroom 1	SNMP versions 1 and 2
11	Video 3	Structure of Management Information (SMI)
12	Classroom 1	SNMP versions 1 and 2
15	Classroom 2	SNMP version 3
16	Classroom 2	SNMP version 3
17	Classroom 2	SNMP version 3

Mapping slides - lectures

Slide titles	Lecture	Topic of the lecture
About this course Ad-hoc approaches to network management Network management standards Intro to SNMP SNMP version 1 SNMP version 2	Classroom 1 Video 1 Video 2 Video 3	Course intro, SNMPv1 & SNMPv2
SMIv1, SMIv2	Video 4	Structure of Management Information (SMI)
Introduction Relation between MIBs MIB-II SNMPv2 MIB Interfaces MIB IP MIB TCP MIB UDP MIB Host resources MIB	Video 5 & 6	Management Information Bases (MIBs)
SNMP version 3	Classroom 2	SNMPv3
New approaches: COPS-PR and NetConf New approaches: Web-services for management	Classroom 3	New approaches for network management
Internet measurements	Classroom 4 Classroom 5	Measurements

Exercises and deadlines

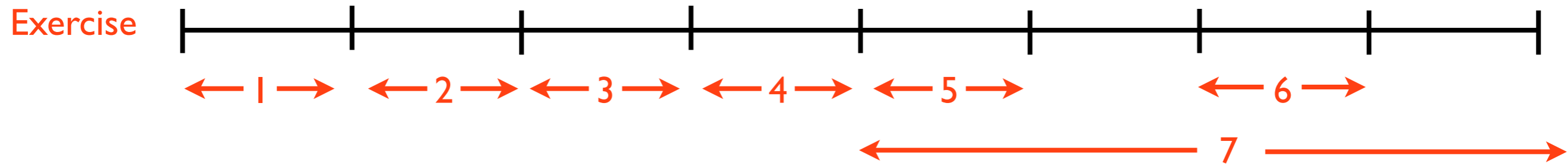
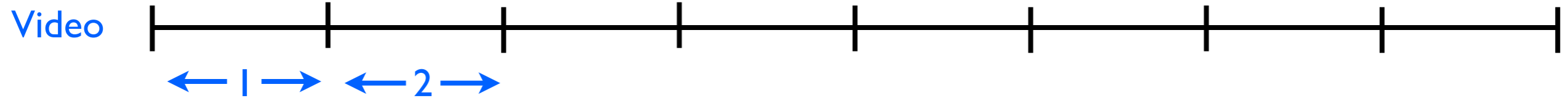
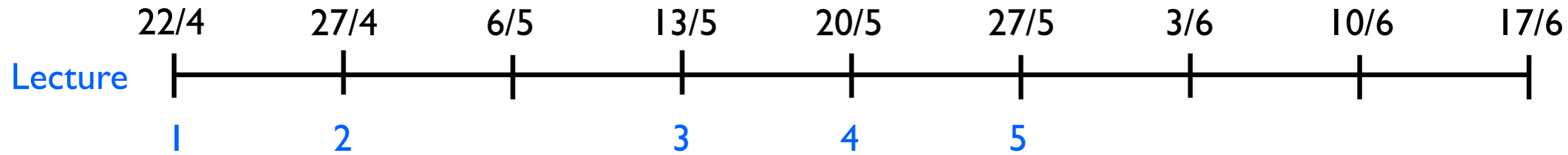
Exercise	Deadline	Topic
1	29/4/2014	Structure of Management Information (SMI)
2	6/5/2014	Management Information Bases (MIBs)
3	13/5/2014	Decode an SNMP packet
4	20/5/2014	Install and configure an SNMP agent
5	27/5/2014	SNMP: Comparison versions 1, 2 and 3
6	From: 2/6/2014 9:00 To: 6/6/2014 17:00	Run a management application
7	20/6/2014	Write an extension to a SNMP agent, plus a report

Answers to exercises must be entered in Blackboard before 01:00 on the day of the deadline

Exercises can be found at:

http://www.simpleweb.org/wiki/Exercises_in_Internet_Management

Overview



Grading of exercises

Exercise	Topic	Weight
1	Structure of Management Information (SMI)	10%
2	Management Information Bases (MIBs)	5%
3	Decode a SNMP packet	5%
4	Install and configure a SNMP agent	10%
5	SNMP: Comparison versions 1, 2 and 3	10%
6	Run a management application	20%
7	Write an extension to a SNMP agent, plus a report	40%