CORONA EMERGENCY LECTURE

Security of Distributed Software

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Disclaimer

- This lecture deals with security of distributed systems, with a particular focus on internet applications. In addition, potential third-party dangers will be presented.
- The discussed approaches, known programs and weaknesses, etc. covered in this lecture are intended for educational purposes only.
- Any other interpretation of the teaching material is not a part of this lecture.
- **The statutory provisions are complied with.** If you plan to protect a distributed system, inform yourself about legal aspects in advance.
- For risks and side effects, refer to your lawyer or insurance.

Motivation

- Initial situation
  - Rapid development of computer and communication networks
  - Anytime, anywhere: Ubiquitous access to systems
  - Increasing complexity of distributed systems' protection in the context of partner integration
- Examples
  - Denial of service attacks
  - Firewalls
  - Single-Sign On
  - Federations
  - Computer worms, mobile phone viruses

Security

- Focus on distributed systems
- Established and new
  - Established foundations of computer network security
  - Web-based and service-oriented aspects of distributed systems
  - Furthermore: Identity is the focus of new developments, not security
- Goals:
  - Security foundations and knowledge
  - New concepts and paradigms in context of distributed systems

Lecture

- Type of event: Lecture
- Principal Lecturer: Prof. Dr.-Ing. M. Gaedke
- Tutor: Valentin Siegert, MSc
- Place and Time:
  -
  -

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- SWS: 2 + 2

- **All Exams will be in WRITTEN FORM**
  - **Based on Faculty decision** even though your Prüfungs-/Studienordnung might still show oral exam

Introductory Remarks

- Lecture style
  - Interactive – questions are allowed and encouraged
  - "Homeworks"
- Language
  - Lecture in English
  - Slides are available in English
- Prerequisite
  - Lecture Rechnernetze, especially HTTP
- Recommended but not required
  - Lecture Entwurf Verteilter Software
  - Lecture XML

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SPECIAL ONLINE STYLE

Lecture Information

- Website of the professorship
  - http://vsr.informatik.tu-chemnitz.de/
- Website of the lecture
  - http://vsr.informatik.tu-chemnitz.de/edu/2020/svs
- Follow me on Twitter:
  - http://twitter.com/gaedke
- Like us on Facebook:
  - http://www.facebook.com/myVSR

Further Information

- **CHECK OPAL FOR FURTHER INFORMATION** – WE UPDATE ON A REGULAR BASIS!
- Literature
  - List of the according websites, books and scientific papers will be published on the lecture website
  - No script exists
- Development tools
  - Will be published on the lecture website
  - Tools are mostly available for free (Open Source or MSDN AA)
- Slides
  - Special print-version of the slides will be made available after the lecture on the website

New Guiding Element

NEW: This semester, we will start increasing the use of Standards and de-facto (industry-relevant) standards from Standards organisations, NGOs, companies, political bodies etc. as guiding elements and source for content – so you will be prepared in the future where to look for updates and how to deal with them!

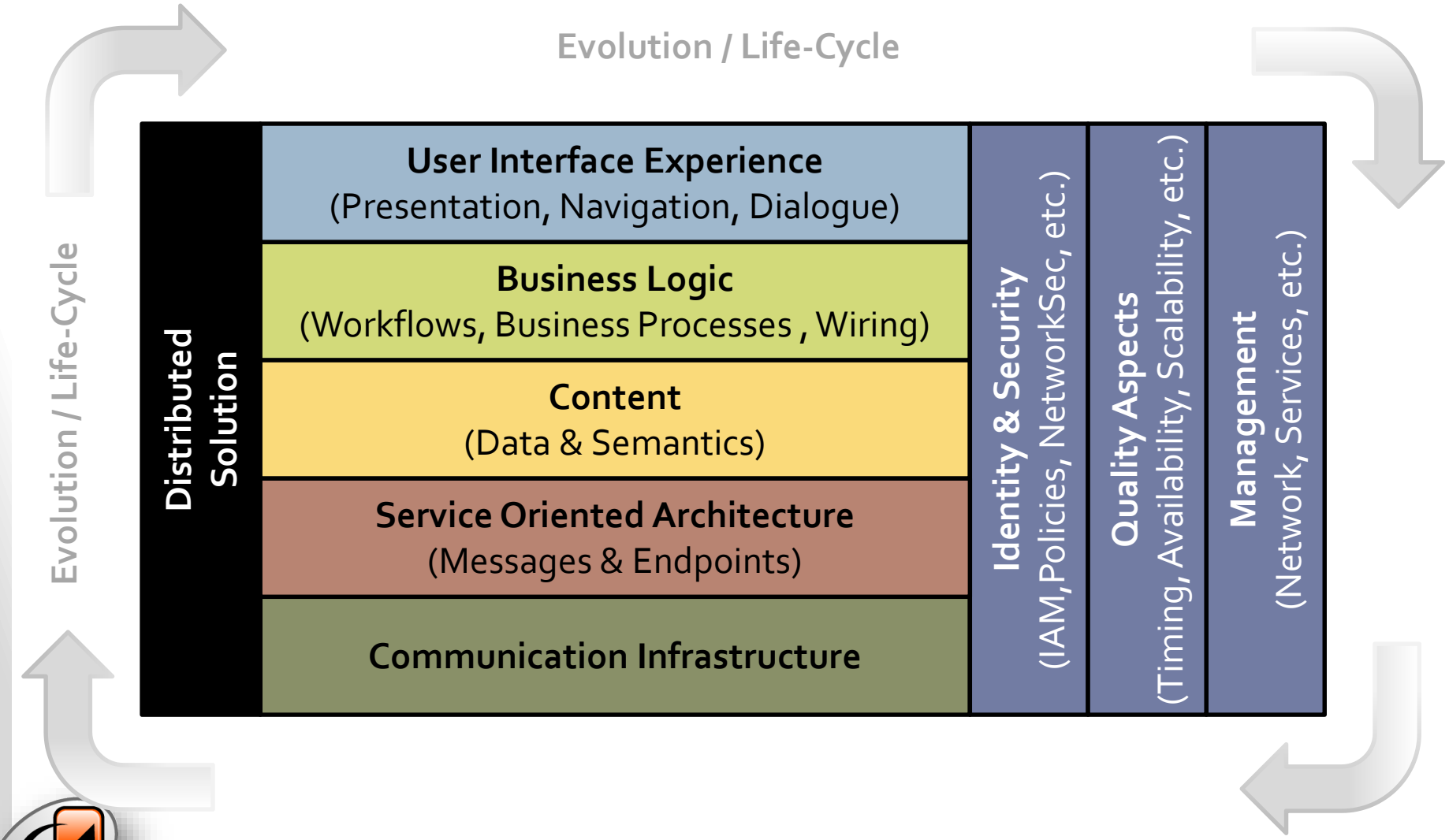
These include, but are not limited to e.g.:

- International Standardization Organization (ISO) – https://www.iso.org/
- Internet Engineering Task Force (IETF) – http://www.ietf.org
- Institute of Electrical and Electronics Engineers (IEEE) – https://www.ieee.org/
- World Wide Web Consortium (W3C) – http://www.w3.org
- The Open Web Application Security Project - https://www.owasp.org/
- European Union (EU)
  - http://www.europa.eu
  - http://www.eugdpr.org
- United Kingdom (UK) and the D5 – https://www.gov.uk/service-manual

Security of Distributed Systems

- Goals
  - Introduction to cryptographic approaches
  - Security and protection mechanisms
  - Getting to know the measures for planning, execution and monitoring of security in networks
  - Getting to know protocols and technologies enabling security in distributed systems
  - Identity and security in unison
  - Getting a deeper knowledge of identity management models and architectures
- Focus
  - Security tools
  - Protocols and procedures for distributed systems' protection
  - Security of Web Services
  - Identity management
  - Development trends with respect to Web 2.0
  - Recent developments in the W3C: e.g. WebID.

Distributed Solutions Design



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