Energy consumption of distributed systems

- Who is in the call? Do we have some software developers and what product are you working on?
Agenda

- Current requirements of the Blue Angel
- Further development of the Blue Angel
- Project goals

- Challenges & Questions
  - Mobile applications

- Open discussion
1. Resource and energy efficiency
   1. Minimum system requirements
   2. Hardware utilization
   3. Support for the energy management system

2. Potential hardware operating life
   1. Backward compatibility
   2. Platform independence and portability
   3. Hardware sufficiency

3. User autonomy
   1. Transparency of the Data formats
   2. Transparency of the software product
   3. Continuity of the software product
   4. Uninstallability
   5. Offline capability
   6. Documentation of the software product

Further development of the Blue Angel

- Expansion of the Blue Angel
  - Distributed systems
  - Client-/Server
  - Mobile applications

- Examination of the requirements and adjustments
  - Can we use the “old“ requirements?
  - Which are unnecessary?
  - Which new ones do we need?
Project goals

- Collect viable and representative current software architectures for distributed systems
- Review current measurement methods for distributed systems
- Evaluate container solutions for server software
- Check available benchmarks used/useful for servers

- Develop methods for assessing the resource efficiency of client-server software
- Select typical software and test the methods
- Evaluate the developed methods for the Blue Angel Award Criteria
Challenges & Questions

- Boundaries of distributed systems (DB, pipelines, …)
- Is there a standard software configuration?
- Reference system for distributed software?
- Can we use the current measurement methods?
  - How can we measure the server and the client?
  - What is a standard usage scenario (different user roles, multi-user scenarios, load scenarios)?
  - Which state does the system have in a base and idle scenario?
- How do software developers test their software?
Mobile applications

- What can be tested locally? + Methods
  - Network traffic
    - Focus on 3rd party
  - CPU utilization (meaningful?)
- Further influencing factors
  - Server (data center)
  - Advertisement
- Problems
  - No thresholds for evaluating CPU utilization
  - Currently no rating of servers
Thank you for your attention!
And feel free to start the discussion

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Further information on the project
https://www.umwelt-campus.de/green-software-engineering/refoplann-20