

EINLADUNG

- Zeit:** Freitag, 25. Juni 2010, 14.00 Uhr
- Ort:** Raum 5052, Ahornstr. 55
- Referent:** M.Sc. Thitinan Tantidham
- Thema:** Energy-Efficient Design for Portable Storage on Battery-Powered Computers

Over the last few years, portable storage devices have become the local backup medium of choice mobile users. They are particularly important if no file servers are accessible. Especially in such cases, energy efficiency is an essential factor during battery-powered operation.

This talk introduces a framework for power-aware data allocation and backup management, aiming to improve energy efficiency through user-specified policies. The framework will allow for a diversity of storage characteristics and a variety of user files and applications. It comprises three elements. First, a new runtime battery lifetime estimation scheme will be presented. This scheme creates battery discharge rate models through regression method analysis and takes into account CMOS power consumption and the degree of system utilization. By using time-series models, and information about the actual discharge rate, the estimation of the battery lifetime can be made more accurate. Second, methodologies for measurement and energy-efficiency evaluation of storage subsystems at file system level will be discussed. They can be used to characterize different flash and disk storages, independent of actual hardware characteristics. Using portable storage media as examples, I/O workloads are classified into two categories: data access operations and file transfer. Finally, the user-specified policies are devised: one for hoarding file allocation and one for data backup between local and portable storage devices. Since the access patterns depend on user access behavior and application I/O requests, graphs with a combination of different access patterns are used for file-allocation decision-making schemes. Data backup policies aim to find a backup schedule from the laptop to a portable storage device, according to the specified failure rate, remaining battery lifetime, file size, and the portable storage characteristics.

Es laden ein: Die Dozenten der Informatik