



Advanced Storage Systems

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Lecture 0

Course Introduction

- Instructor
 - Hossein Asadi
- Course Webpage
 - <http://ce.sharif.edu/courses/88-89/1/ce843-1/>
 - Handouts, assignments, announcements
 - Please check the webpage before each class session

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Course Introduction (cont.)

- Syllabus
 - Design and architecture of storage systems
 - Backend design in storage systems
 - Cache management in storage systems
 - Magnetic drives & solid-state disk drives
 - Data integrity, reliability and fault tolerance in storage systems
 - Performance, scalability, serviceability and power management of storage systems
 - Replication, consistency, and online data migration in storage systems
 - Disaster recovery solutions in enterprise storage systems
 - Architecture of NAND and NOR Flash chips
 - Storage networking and network storage protocols

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Course Introduction (cont.)

- References
 - Storage Networks Explained: Basics and Application of Fibre Channel SAN, NAS, iSCSI, InfiniBand and FCoE, U. Troppens, R. Erkens, W. Mueller-Friedt, and R. Wolafka, 2nd Edition, John Wiley & Sons Inc., 2009.
 - Highly recommended!
 - Storage Area Networks Essentials, R. Barker and P. Massiglia, John Wiley & Sons Inc., 2002.
 - Storage Technologies and Systems, IBM Journal of Research & Development, Special issue, November 2008.
 - Introduction to Storage Area Networks, J. Tate, F. Lucchese, and R. Moore, IBM Redbooks (eBook), July 2006.
 - Holy Grail of Data Storage Management, The. Jon William Toigo, Prentice-Hall, 2000.
- No textbook!
- Handouts will be submitted online!

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Course Introduction (cont.)

- Class schedule
 - Sun & Tue, 4:30pm~6pm
 - The first 10 weeks
 - Course materials presented by me
 - Aftwds., your presentations & class discussion
 - You need to choose your course project by week 6
 - » I will give you topics to choose
 - Read related papers
 - Present your topic in class for 30 minutes!
 - » We will have discussion on each topic
 - Add your ideas and submit your report as course project

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Course Introduction (cont.)

- Grading
 - Midterm: 25%
 - Final: 35%
 - Presentation: 15%
 - Project & final report: 25%
 - Outstanding projects would get extra points
 - » Up to 10%

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Class Policy

- Ask questions anytime
- Cell phones off or on silent
- Absence
 - Only three sessions allowed
- Food No, Drink Yes!
- Feel free to pass me your feedbacks anything related to the course



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Course Objectives

- Introduce students to design & architecture of enterprise storage systems
- Learn design challenges in design of high-end and mid-range storage systems
- Learn application of storage systems in enterprise IT solutions
- Introduce students with storage networking protocols



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Office Hours

- Sun. & Tue.
 - 11am~12am
- Mon.
 - 11am~12am



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- Some Parts of these Slides Extracted from:
 - COMP 7970, "Storage Systems"
 - Dr. Xiao Qin, Auburn University
 - CS 600.419, "Storage Systems"
 - Dr. R. Burns, John Hopkins University
 - Reference books
 - Storage Area Networks Essentials, R. Barker and P. Massiglia, John Wiley & Sons Inc., 2002.
 - Storage Technologies and Systems, IBM Journal of Research & Development, Special issue, Nov. 2008.
 - Introduction to Storage Area Networks, J. Tate, F. Lucchese, and R. Moore, IBM Redbooks, July 2006.
 - Holy Grail of Data Storage Management, The. Jon William Toigo, Prentice-Hall, 2000.



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Why Why Why?

- Why to
 - Attend this Course?
 - Learn Storage Systems?
 - Use Storage Systems?
- Answer:
 - Storage holds the most valuable every org.
 - Storage is the performance bottleneck
 - In almost all systems
 - Storage cause of longest lasting and most expensive failures
 - Limitations of traditional server-centric storage



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Advanced Office Systems is Houston's top resource for office storage and retrieval systems. Contact us at (713) 932-9527 or visit our website to learn more! Southwest Solutions Group brings today's workplace an advanced way of doing business by offering a complete line of storage, control, and productivity solutions. Today's high energy business environment has placed extraordinary demands on time and space in the workplace. It is a problem that has led to some highly imaginative solutions. Advanced Storage. Datto uses ZFS both on our devices and in the Datto Cloud for data integrity and efficient data compression. How does it work? Datto is a leading adopter of ZFS (the Zettabyte File System) both for backup storage in Datto appliances and in the Datto Cloud. [157 Pages Report] Advanced Energy Storage Systems Market Research Report categorizes by Application, Technology (Lithium ion Battery, PHS, Battery, CAES, Flow Battery, Supercapacitors, and Others), End User, and Geography. 7500+ companies worldwide approach us every year for their revenue growth initiatives. Global top 2000 strategists rely on us for their growth strategies.