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New compact hierarchical mass storage system at Belle realizing a peta-scale system with inexpensive ice-raid disks and an S-ait tape library

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The Belle experiment has accumulated an integrated luminosity of more than 240fb-1 so far, and a daily logged luminosity now exceeds 800pb-1. These numbers correspond to more than 1PB of raw and processed data stored on tape and an accumulation of the raw data at the rate of 1TB/day. To meet these storage demands, a new cost effective, compact hierarchical mass storage system has been constructed. The system consists of commodity RAID systems using IDE disks and Linux PC servers as the front-end and a tape library system using the new high density SONY S-AIT tape as the back-end.The SONY Peta Serv software manages migration and restoration of the files between tapes and disks. The capacity of the tape library is, at the moment, 500 TB in three 19 inch racks and the RAID system, 64 TB in two 19 inch racks. An extension of the system to 1.2 PB tape library in eight racks with 150 TB RAID in four racks is planned. In this talk, experiences with the new system will be discussed and the performance of the system when used for data processing and physics analysis of the Belle experiment will be demonstrated.

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