Séminaire ICI : Chen-Mou Cheng

07 Mars 2014, 15:00 – 16:30

Titre du séminaire et orateur

RAIDq: A software-friendly, multiple-parity RAID.
Chen-Mou Cheng, Taiwan National University

Date et lieu

Vendredi 7 mars 2014, 15h.
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Abstract

As disk manufacturers compete to build ever larger and cheaper disks, the possibility of RAID failures becomes more significant for larger and larger disk arrays, creating opportunities for products beyond RAID 6.

In this talk, I will present the design and implementation of RAIDq, a software-friendly, multiple-parity RAID. RAIDq uses a linear code with efficient encoding and decoding algorithms and addresses a wide range of general cases of RAID that are of practical interest. However, RAIDq does have a limit on how many data disks it can support, which I will detail in this talk. A second benefit of RAIDq is that it includes existing RAID 5 and 6 as special cases and hence is 100% backward compatible. This allows RAIDq to reuse the efficient coding algorithms and implementations of RAID 5 and 6. Last but not least, RAIDq is optimized for software implementation, as its encoding only involves simple XOR and multiplication by several fixed elements in a finite field. Thanks to the popularity of RAID 6, such operations have been highly optimized on modern processors, of which RAIDq can take advantage, as corroborated by experiment results.

Speaker link: http://www.ee.ntu.edu.tw/e_bio?id=754