
Part IV

Multimedia Information Sharing and Retrieval

Over the past decade, a number of new technologies have contributed to the development of Web 2.0, which was formally introduced in late 2004. The advanced interaction provided by Web 2.0 allows every single user to generate and share content, representing a substantial change from the conventional Web 1.0, where users merely consume information. Nowadays, such popular Web 2.0-based social media sharing websites as YouTube, Facebook, and Twitter have drastically changed the content distribution landscape, and indeed have become an integral part in people's daily life.

Meanwhile, advances in datacenters and machine virtualization have catapulted the popularity of *cloud computing*. Attracted by the abundant resources in the cloud and the on-demand “pay-as-you-go” pricing model, an increasing number of multimedia services have been hosted on cloud computing platforms. For example, Netflix, one of the leading video streaming service providers reportedly makes use of Amazon's cloud service. As well, Sony's new Playstation game consoles are powered by cloud computing, which offloads many computation-intensive multimedia processing tasks, e.g., 3D rendering to remote servers, lifting the hardware and software constraints inherent in local consoles.

The sheer amount of user-generated content empowered by social media and cloud computing also demands automated multimedia data analysis and retrieval, so as to locate syntactically and semantically useful content. This calls for effective solutions to greatly extend traditional text-based search, and to identify redundant or even pirated contents that indeed have been critical challenges for the management of media sharing sites. This Part examines the challenges and solutions for the new generation of multimedia sharing and retrieval services in the Web 2.0 era. In [Chap. 18](#) we examine the unique characteristics of social media sharing and their impact, and in [Chap. 19](#) we go on to examine cloud-assisted multimedia computing and content sharing. [Chapter 20](#) further provides an introduction to multimedia content retrieval.