A comparison of ROI-based procedures for progressive transmission of digital images

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1 Introduction

The use of digital images has extended to reach most of the aspects of our daily life. We take pictures with our mobile phone or digital camera, if we break the speed limit at the highway the police radar flashes and takes a digital image of our car, the film we see on the cinema, the computed tomography the doctor takes of our broken arm, or the satellite image used for predicting the weather, all them have been taken in digital format. Moreover, all them must be processed, stored, and, eventually, retrieved and displayed.

We will focus now on the aspects of the big-sized images. A good example is the medical imaging. A Computed Tomography (CT) was composed in the '70s, of a couple of images of, say 100 kilobytes, while nowadays a complete 3D ultrasound image of 500 frames of 512x512 pixels sizing more than 500 megabytes is a common practice. Intensive use of CT, magnetic resonances (MR) and ecographies produce an huge output of terabytes, information that must be processed and stored, and later retrieved and displayed when physicians make their diagnosis. Or let us think about aerial, satellite or

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