H.264/AVC and its Extensions: How Close is this Family?

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Abstract : H.264/AVC is a state-of-the-art video coding standard that has ushered in a new benchmark for video coding efficiency. The design offers a powerful set of coding tools and provisions for network-friendly representation of the video. Building on the success of the base specification, a number of extensions have been recently developed to meet the demands of various application needs. For instance, profession applications require coding of higher bit depths and color sampling formats. A scalable video representation is useful to serve a diverse set of display and networking environments or to satisfy dynamic delivery constraints imposed during transmission. Then there is multiview video coding, which aims to enable 3D video and free-view video applications. In this talk, I will provide a brief overview of the new coding tools that have been introduced in the various extensions and summarize their performance. To understand the intimate associations among this family of tools, I will then analyze the conceptual, architectural and performance relationships among them. I will also speculate on the potential business impact of these extensions and highlight the market relationships that exist. We will find that although the application space is quite broad, the current family of coding tools is rather tight-nit. I will close this talk by identifying emerging opportunities and some possibilities for new extensions, some of which might bring this family even closer and others that appear to be more divergent.