This paper presents a new routing strategy, that selects the best network paths in an overlay network, in order to minimize the distortion perceived by the end user. We first propose a model that reports the video distortion as a function of the encoding rate, and the loss process parameters (the packet loss ratio, and the average length of bursts of errors). We then derive a method to compute an accurate estimation of the end-to-end characteristics of a given path in the network topology, as experienced by the media stream. It allows for reducing a set of streaming paths between the server and the client, to a simple virtual link with equivalent end-to-end parameters. Finally, an algorithm is proposed, that finds the best streaming paths in the overlay network, in terms of media distortion. Our algorithm therefore takes into account not only the conventional network parameters (e.g. end-to-end available bandwidth), but also other application specific metrics (e.g. video distortion measure and loss process). Interestingly, it is shown that the best route in terms video distortion, does not necessarily uses the highest bandwidth links, but carefully trades off channel reliability and bandwidth.