

# Towards More Adaptive Voice Applications

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## ABSTRACT

With the Internet designed to provide best-effort packet transmission, applications are expected to adapt dynamically to the operating conditions observed in the network. For this purpose, congestion control mechanisms have been devised for various transport and (partly) application protocols, and application programs may present, e.g., data rate information to the user. While these mechanisms work well for elastic applications (such as file transfer), the perceived performance of real-time applications may degrade quickly if a minimum required quality of service cannot be achieved. We argue that the current interpretation of adaptation specifically of real-time applications is too narrow and present a framework for expanding the scope of end-to-end adaptation, using the case study of voice communications. Our approach is general in nature, but should especially support communication in mobile environments.

Using the example of voice communications, we extend the adaptation capability from varying packet sizes to the (reliable) transmission of talk spurts all the way to asynchronous voice messaging, all to be integrated into a single application. This allows a wider range of adaptation dynamics especially for mobile users, but presents new challenges for interaction with the user.