In this talk, we deal with the emerging research field of data stream analysis. We will frame the data stream analysis context introducing the main applicative fields, the constraints and the most recent analysis approaches then, we provide some innovative tools related to some challenging tasks. We introduce a new proposal for the dimensionality reduction of a data stream. It is a novel technique to transform, on-line, a real valued data stream into a string of symbols. Since the data representation is performed by means of a string of symbols, it allows to use data mining tools developed for discrete data. Furthermore, we present a clustering strategy for detecting, on on-line, groups of similar streams. The advised strategy is able to evaluate highly evolving data streams and to provide the clustering structure over user specified time horizons without to require the availability of the data set. Moreover, the data behavior over the time is summarized by suitable profiles. The performance and the effectiveness of the proposed procedures are shown on real data coming from several applicative fields.