In history, technical developments in light microscopy had always been reflected in teaching methods of histology and pathology. During the last five years, several universities introduced a new method of virtual microscopy in teaching, research and diagnostic activities at morphology departments. In order to scan classical glass histology slides into a digital format of virtual slides, several commercial optical scanning system have been developed up to date. In order to use virtual histology slides successfully in practical sessions a special database system has to be developed, that enables students to orientate themselves in the learning contents of the practical quickly, and also that allows to open attached supplementary text- or picture-based documents easily. This database system should have a student-friendly graphical user interface, as well as it should allow teachers a simple access to the database for adding, organizing and editing of teaching documents. At our Department of Histology in Olomouc, we have developed our own system of application of virtual slides in e-learning format of practical sessions. In this communication, we refer about various nationally and internationally used systems of application of virtual slides in histology practical teaching; we also compare them and discuss their pros and cons features.