

The widespread use of smart mobile devices brings a lot of benefits to people's lives and increases the popularity of Bring Your Own Device (BYOD). Along with BYOD, there are also several challenge issues (e.g., limited hardware capacity, frequent upgrades of applications and security and privacy concerns). In this paper, we propose Virtual Mobile Infrastructure (VMI), a general framework that provides more reliable and secure solution for BYOD. VMI is specifically designed for mobile users. The idea of VMI is to host a mobile Operating System (OS) on a remote server in a cloud data center, and run mobile applications on it. It enables mobile users to access the virtual mobile desktops via mobile optimized display protocols through the network. Particularly, we focus on the design and implementation of vMobiDesk, a prototype system for VMI. It provides an implementation of VMI desktop virtualization on Android OS which is one of the most popular mobile operating systems. vMobiDesk focuses on virtualizing the display of Android desktops, redirecting users' input events, providing audio support and remote camera. The experimental results show that vMobiDesk has a low virtualization overhead, and meanwhile enables mobile users to obtain good user experience on remotely accessing Android virtual desktops.