Sangja: PC OS Virtual Machine App for Android Devices

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Mobile devices have evolved to replace PCs when there were no PCs from PDAs up to smartphones. The examples these days include Docks and windowed multitasking function that make apps available on PC-like way. However, mobile device technology at present phase can only imitate PC-like environment and cannot completely replace the PC. This is because running PC programs on mobile devices result in performance reduction by virtualization and x86-arm binary translation result in very big performance reduction. Virtualization app in this study presents high performance enough to be used in actual operation with the latest technologies such as Kernel-based Virtual Machine(KVM) and Windows 10 ARM. The latest Windows boot time in the app has been reduced to less than 10 minutes, which is very small compared to the previous research boot time of 2 to 3 hours. This performance actually makes various programs practically usable. This is a big comparison to previous studies that even booting was difficult. Also, the app in this study can virtualize other OS (ex. Ubuntu, Fedora) with high performance and can use physical multi-thread virtualization. The app developed in this study can be used on all Android devices, and if supported by the device manufacturer, it will be available in KVM support and high performance environments.