Mobile Gaming on Personal Computers with Direct Android Emulation

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Our Key Idea of DAOW
- Directly Android Emulation On Windows
- Offer foreign Android binaries direct access to the domestic PC hardware through Windows kernel interfaces
- Achieve nearly native hardware performance

Challenge 1: Different data structures and execution behaviors of binaries between ARM-based Android and x86 Windows
Challenge 2: Distinct sets of system calls (syscalls)
Challenge 3: Interaction gap between mobile and PC-based gaming

Architectural Overview of DAOW

State-of-the-Art: AOVB

- Android Apps on Android-x86
- Android-x86 OS on VirtualBox (AOVB)
- VirtualBox on x86 Windows PC

Screenshot of DAOW

Smoothness increase 21%: 0.76 → 0.92
Startup time decrease 48%: 25 → 13 sec
Memory usage decrease 22%