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Thread: [Remote Android Protocol \(RAP\): Full Android Virtualization and High-Speed Automation](#)

**SAM ALTMNA** - November 6, 2025, 8:51 am

A powerful virtualization service where physical Android phones become thin clients displaying server-hosted virtual Android devices. All apps and processing run on the server; the phone is only a display and input device with draw-over-screen overlay.

## What is RAP?

# RAP Server - Remote Android Protocol

RAP transforms your physical Android phone into a remote terminal for a virtualized Android device running on the server:

- Physical Phone: Runs ONLY a lightweight overlay APK (thin client)
- Server (Seed Server): Hosts the actual virtual Android device where ALL apps run
- Draw-Over-Screen: Phone displays the virtualized Android screen as an overlay
- Full Virtualization: 100% of Android processing happens on the server, not the phone

## Features

- Device Management: Connect and manage Android devices via ADB protocol
- Virtual Device Management: Spawn and manage Android Virtual Devices (AVD)
- Physical-to-Virtual Overlay: Connect physical phones to control virtual devices
- Reverse TCP Connections: Secure local connections via ADB reverse proxy
- Screen Mirroring: Real-time screen capture with GPU encoding
- Remote Control: Touch input injection (tap, swipe, gestures)
- Video Recording: ? NEW - Record test sessions from AVD start to completion
- Automated Testing: Built-in test sequences with optional video recording
- State Synchronization: Monitor device state (battery, orientation, screen)
- WebSocket Streaming: Real-time bidirectional communication
- RESTful API: Complete API for integration

### 2. Rapid Touch & Gesture Automation

The automation system supports high-frequency interactions:

```
```javascript
```

```
// Example: Automated rapid tapping (stress test mode)
```

- Tap sequences: Up to 10 taps/second
- Swipe gestures: 100ms duration for rapid UI navigation
- Multi-point gestures: Simultaneous touch events
- Programmatic sequences: Chain actions with precise timing

### Throughput Capabilities

- Touch Events: 10-100 events/second (configurable)
- Screenshot Capture: 10 FPS @ 720p (real-time streaming)
- Concurrent Devices: 5-10 virtual devices per server (2GB RAM each)

- File Operations: Limited by ADB bandwidth (~10-50 MB/s)
- Command Execution: Sub-100ms latency for shell commands

#### Legal and Ethical Guidelines:

? WARNING: This system should only be used for:

- Authorized Testing: With explicit permission from app/service owners
- Personal Apps: Testing your own applications
- Security Research: Legitimate vulnerability research with disclosure
- Educational Purposes: Learning about Android automation and security

? DO NOT USE FOR:

- Unauthorized access to accounts or services
- Bypassing app security or payment systems
- Automated abuse of online services
- Cryptocurrency theft or wallet exploitation
- Any activity violating terms of service or laws

#### ### Scaling Considerations

Server Requirements (per 10 virtual devices):

- CPU: 20+ cores (Intel Xeon or AMD EPYC)
- RAM: 32GB+ (2GB per AVD + 12GB overhead)
- Storage: 500GB+ SSD (50GB per AVD)
- Network: 1Gbps for remote connections