

Benchmark Performance of Remote Control Operations Across Varied Mobile Device in Different Environments

Quantifying Latency in Remote Android Device Management: Emulation, Measurement, and Scaling Insights.

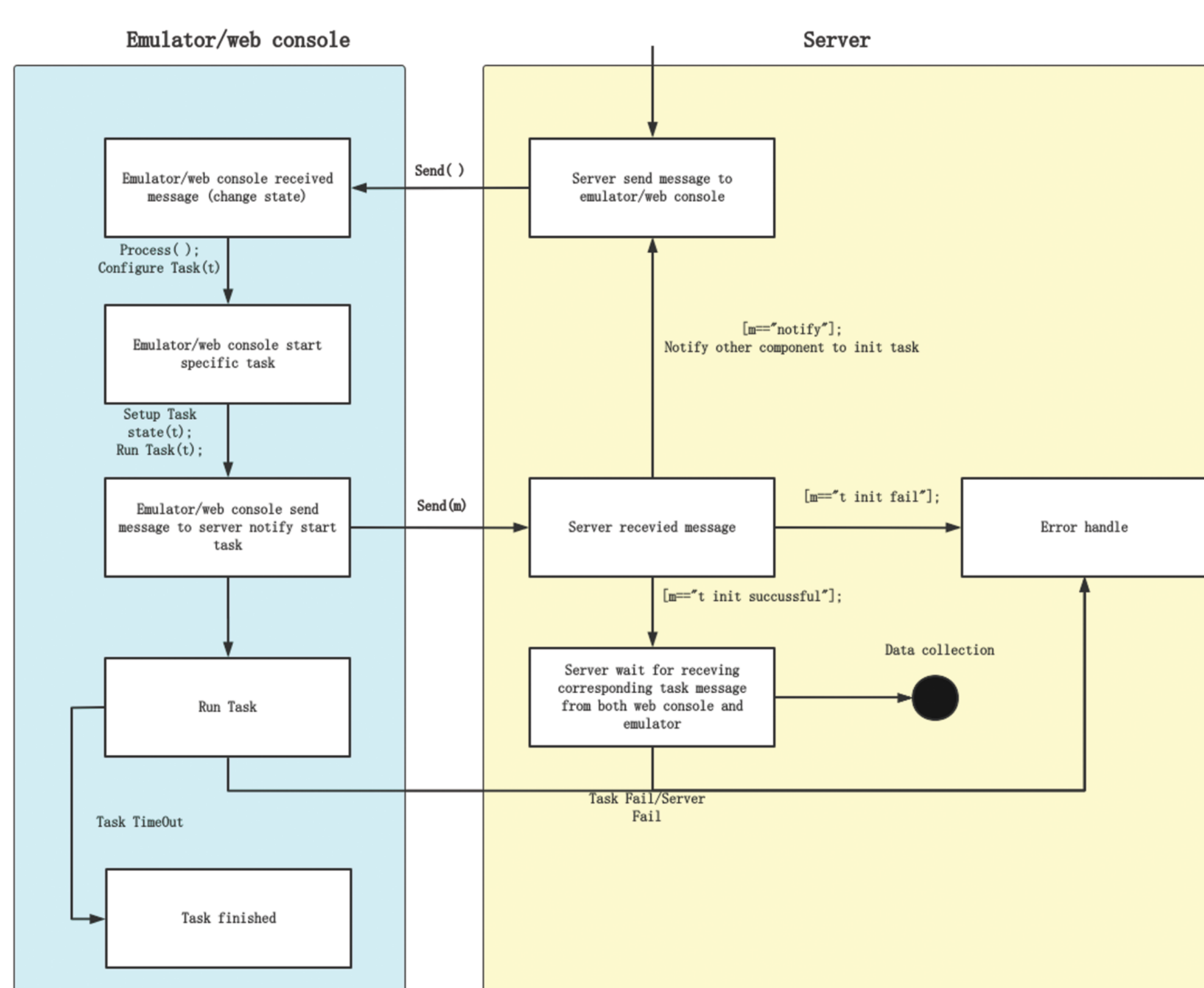
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PROJECT SUMMARY

Efficient remote management of Android devices necessitates a comprehensive understanding of multiple variables across devices in different environments. This study aims to quantify such latency and establish a standard for evaluating different types of latency encountered during remote control operations. Utilizing an emulator for simulating remote control tasks, we generate log files to assess latency, leveraging the integration of Android-Docker for device emulation and Kubernetes for scalability. Our latency measurement methodology involves real-time comparison between APP web console actions and responses on emulated Android devices. To achieve this, we developed specialized tools using adb shell scripts and Selenium, supported by a custom algorithm deployed within an Android application. Our goal is to find the relationship between latency and different environments, thereby offering an invaluable framework for future optimizations. This insight is pivotal for the development of performance benchmarks and for driving improvements in large-scale Android device management systems.

REFERENCES

- [1] M. Jiang, S. Huang, J. Duan, and Q. Zhao, "SALICON: Saliency in context," in Proc. IEEE Conf. Comput. Vis. Pattern Recognit., 2015, pp. 1072–1080.
- [2] Zhuang Liu, Jianguo Li, Zhiqiang Shen, Gao Huang, Shoumeng Yan, and Changshui Zhang. Learning efficient convolutional networks through network slimming. In Proceedings of the IEEE international conference on computer vision, pages 2736–2744, 2017.