

# BatteryLab, A Distributed Power Monitoring Platform For Mobile Devices

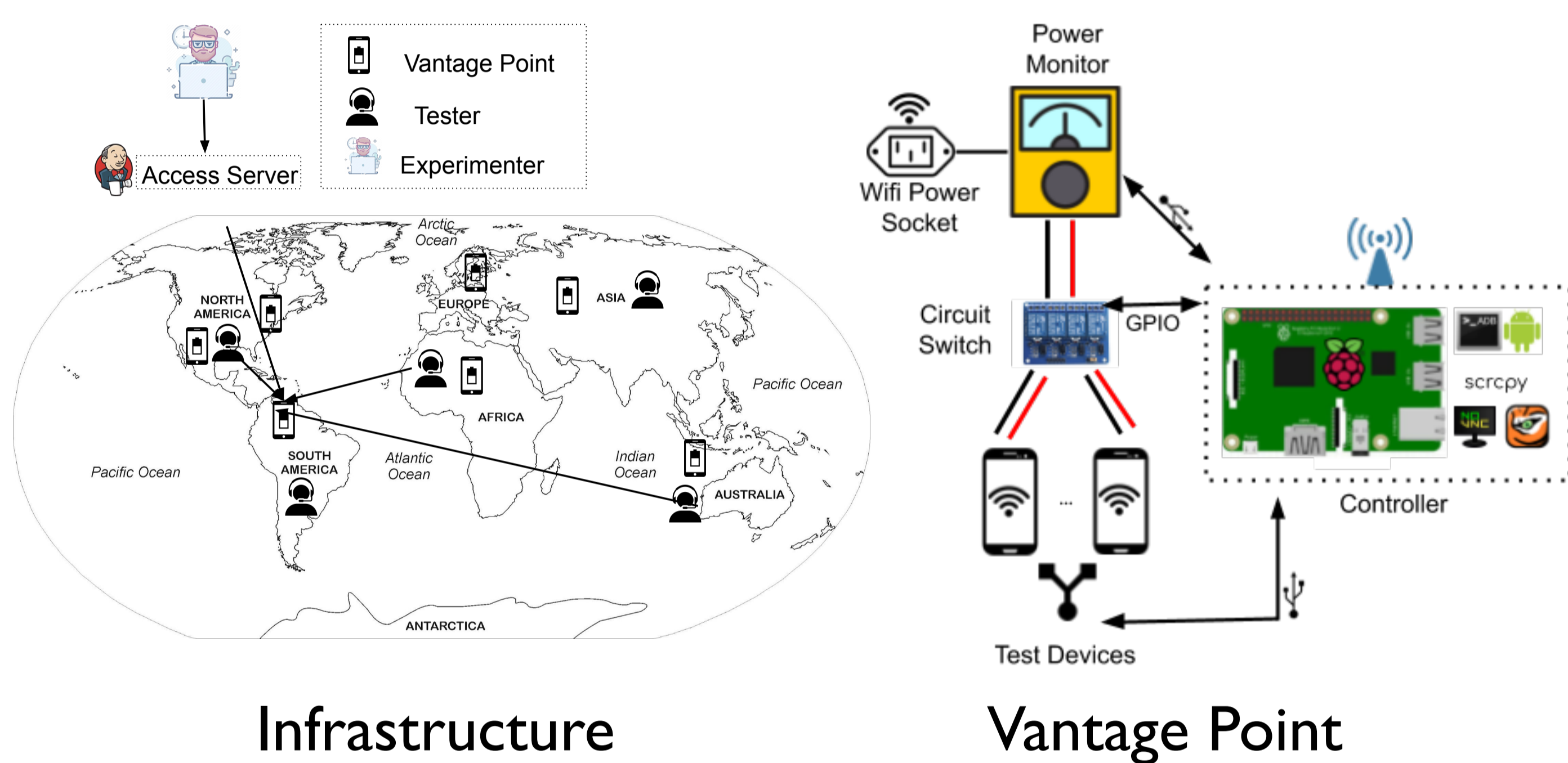
<https://batterylab.dev>

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## Introduction

We present **BatteryLab**, a distributed platform for battery measurements in **Android** and **iOS** devices. Our vision is an open source and open access platform that users can join by sharing resources.

## Infrastructure



- **Access Server:** A low-tier AWS instance that manages infrastructure and experiments scheduling.
- **Controller:** A low-cost machine (e.g. a Raspberry Pi), responsible for managing the vantage point.
- **Power Monitor:** A power metering hardware capable of measuring the current consumed by a test device in high sampling rate.
- **Test Device(s):** An Android or iOS device (phone or tablet) that can be connected to a power monitor.
- **Circuit Switch:** A relay-based circuit with multiple channels that lies between the test devices and the power monitor.

## Automation

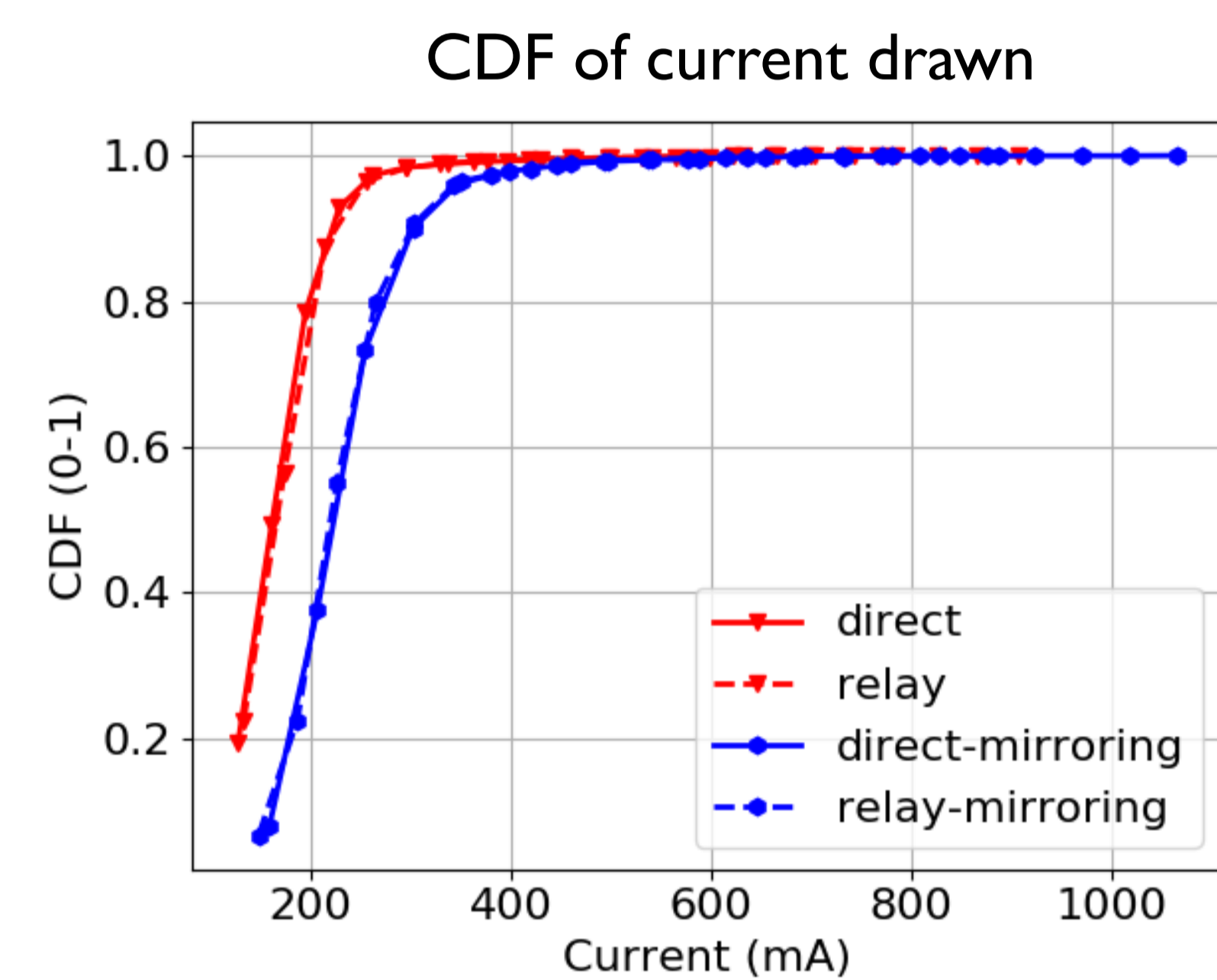
- **Android Debugging Protocol (Android)**
- **UI Testing (Android and iOS)**
- **Bluetooth keyboard (Android and iOS)**

## Usability Testing

- **Physical access** (a human interacting with the device)
- **Remote access** (via a regular web-browser)
- **Crowdsourcing**

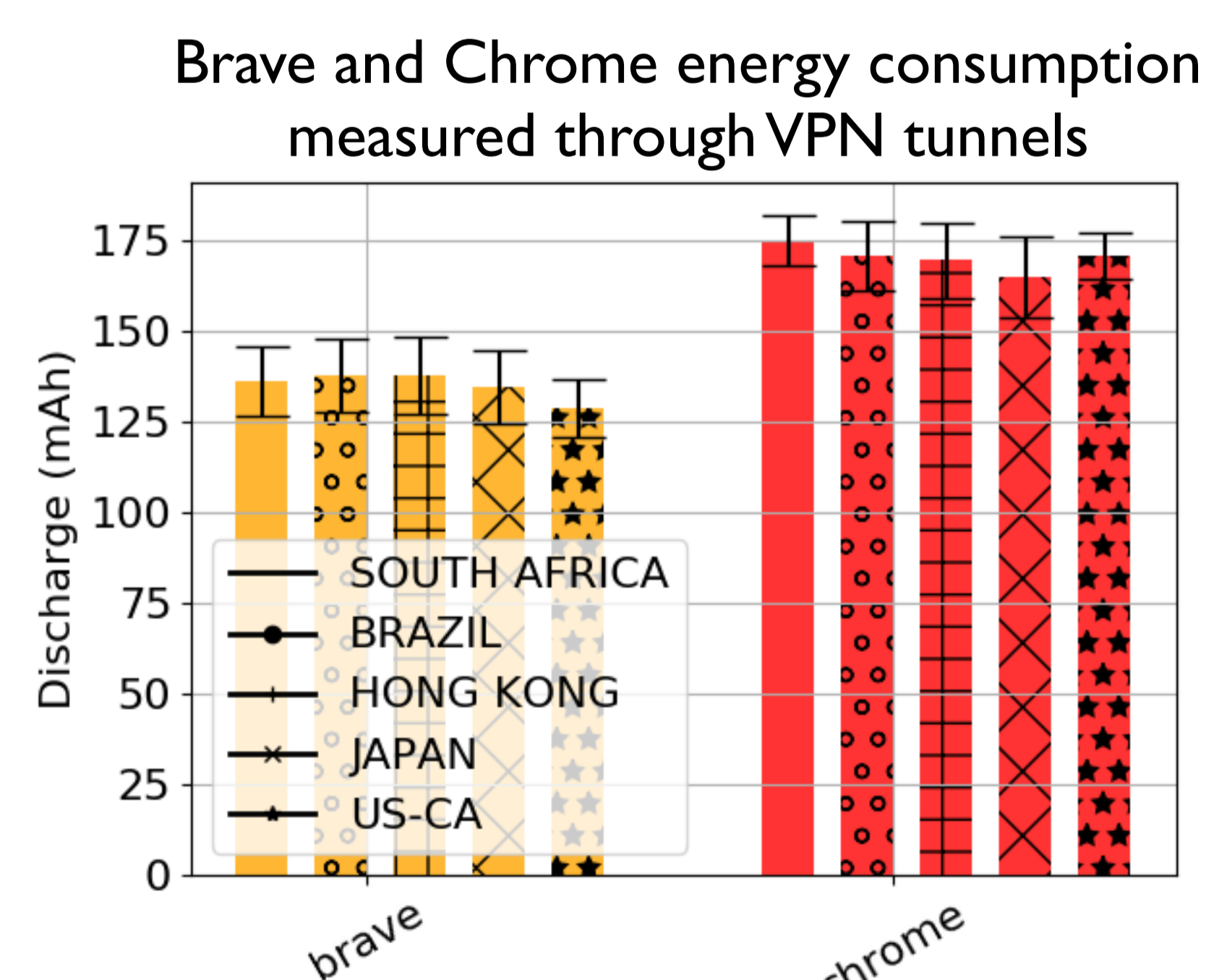
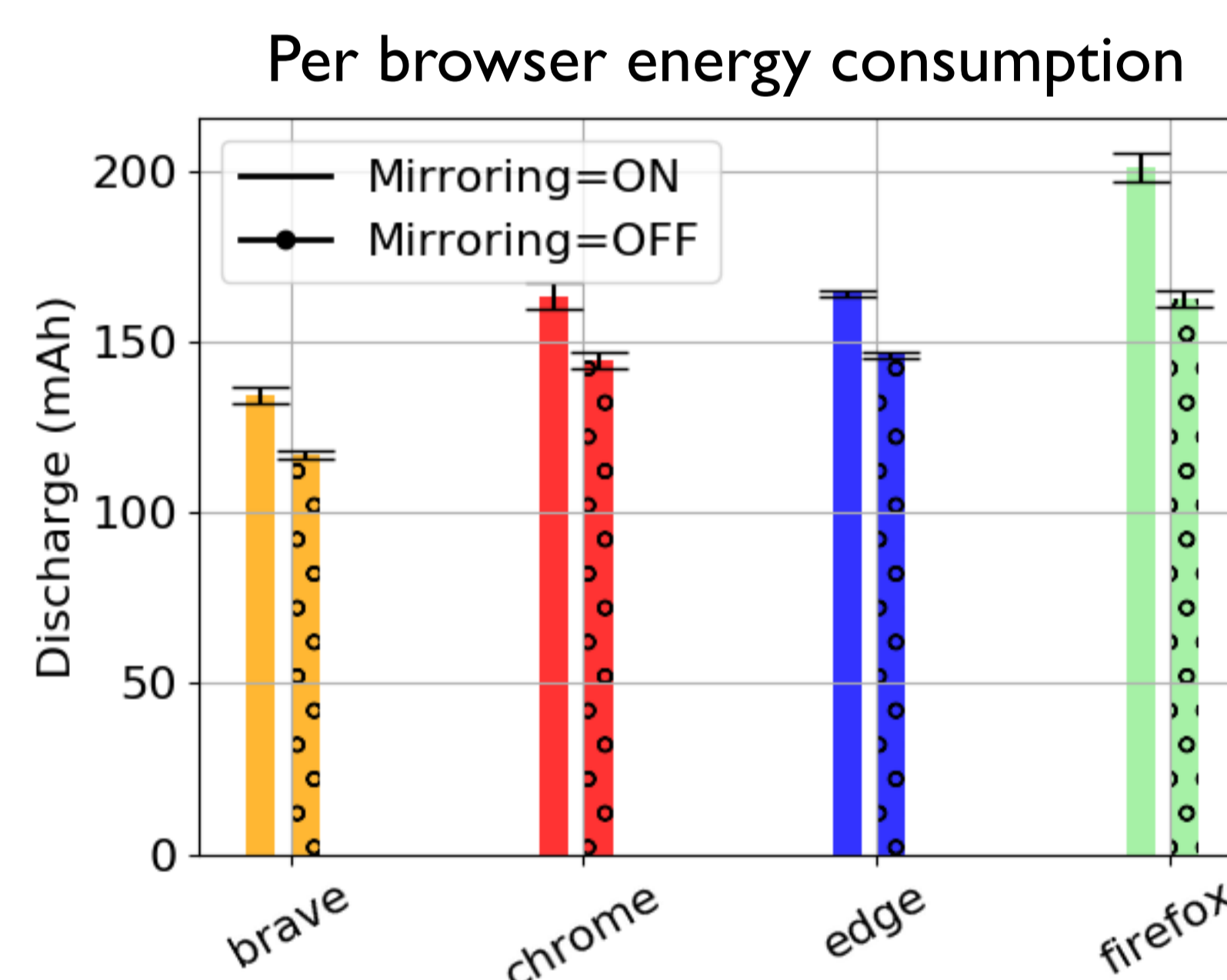
## Accuracy

What is the impact on BatteryLab's approach to the accuracy of power measurements?



## Use Case

Which of today's Android web-browsers is the most energy efficient?



## How to Join?

If you or your institution want to join BatteryLab, please visit us at <https://batterylab.dev>.

## References

Matteo Varvello, Kleomenis Katevas, Mihai Plesa, Hamed Haddadi, Benjamin Livshits. 2019. BatteryLab, A Distributed Power Monitoring Platform For Mobile Devices: <https://batterylab.dev>. In The 18th ACM Workshop on Hot Topics in Networks (HotNets '19), November 13–15, 2019, Princeton, NJ, USA. ACM, New York, NY, USA.