

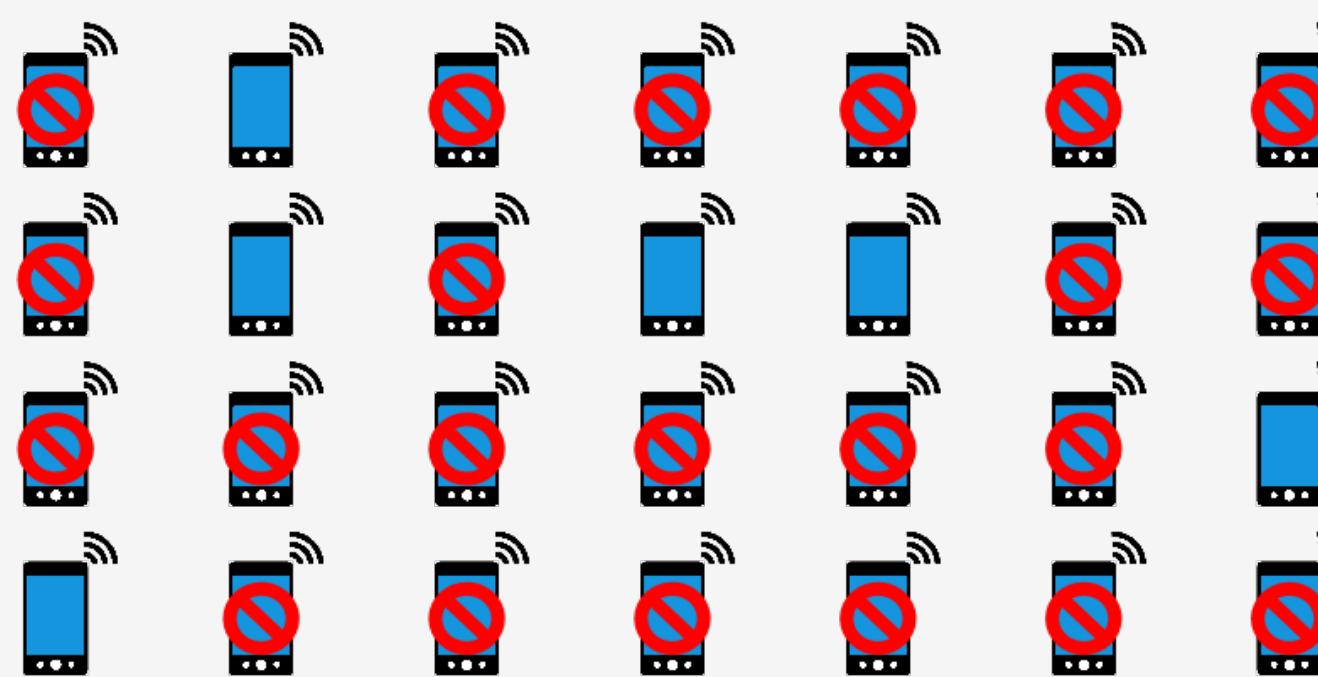


**mozilla**

**Firefox OS**

#### Introduction and Background

Firefox OS is an open source operating system for smartphones developed by Mozilla. It is a web-centric system based on a Linux kernel. Firefox OS phones have launched in 15 countries around the world, and targets markets in developing countries.



#### Problems

- Unreliable Networks
- Unreliable Electricity

#### Intensifiers

- Inefficient Data Usage
- Overpopulation
- Exponential Increase in Number of Users

#### Project Description

Developers need a way of knowing and adjusting their applications behavior depending on the condition of the network. Our solution was an API that monitors various conditional data and uses the information to determine if a network request should be attempted. This data includes battery information, network statistics, memory usage and charging status.

This API lives in the network stack (Necko) of the web runtime layer called Gecko. It is written in Javascript and is callable by Javascript running in a web context.

## NETWORK RELIABILITY API FOR FIREFOX OS

Improving efficiency through analysis of network metadata



#### Importance

This project promises to improve efficiency for millions of people around the world using Firefox OS. Additionally, the web IDL specifications we have drafted will serve as a blueprint for an open web standard, determining how to handle this problem on all devices, keeping the web open for all.

#### Conclusions

**Saying yes is always better.** Our goal is to improve the user experience. When insufficient data is available we should encourage a request to be attempted. Blocking a request based on insufficient data would degrade user experience, and the efficiency gains made possible with this API.

**Work yet to be done.** Gecko does not yet have APIs that access to all of the information which could be useful for this API. There is currently no API which fetches data regarding CPU usage nor is there one which relays how much memory the host device has available. This makes monitoring system load a challenge.

#### Steps and Challenges

##### Data Collection:

- What data is available?
- How do we obtain it?

##### Data Analysis:

- Is this data useful?
- How can we use it to determine if it is a good time to make a network request?

##### Cross-Platform:

- What data is available on this platform?
- Do we know what is and isn't available?

##### Exposing to Developers:

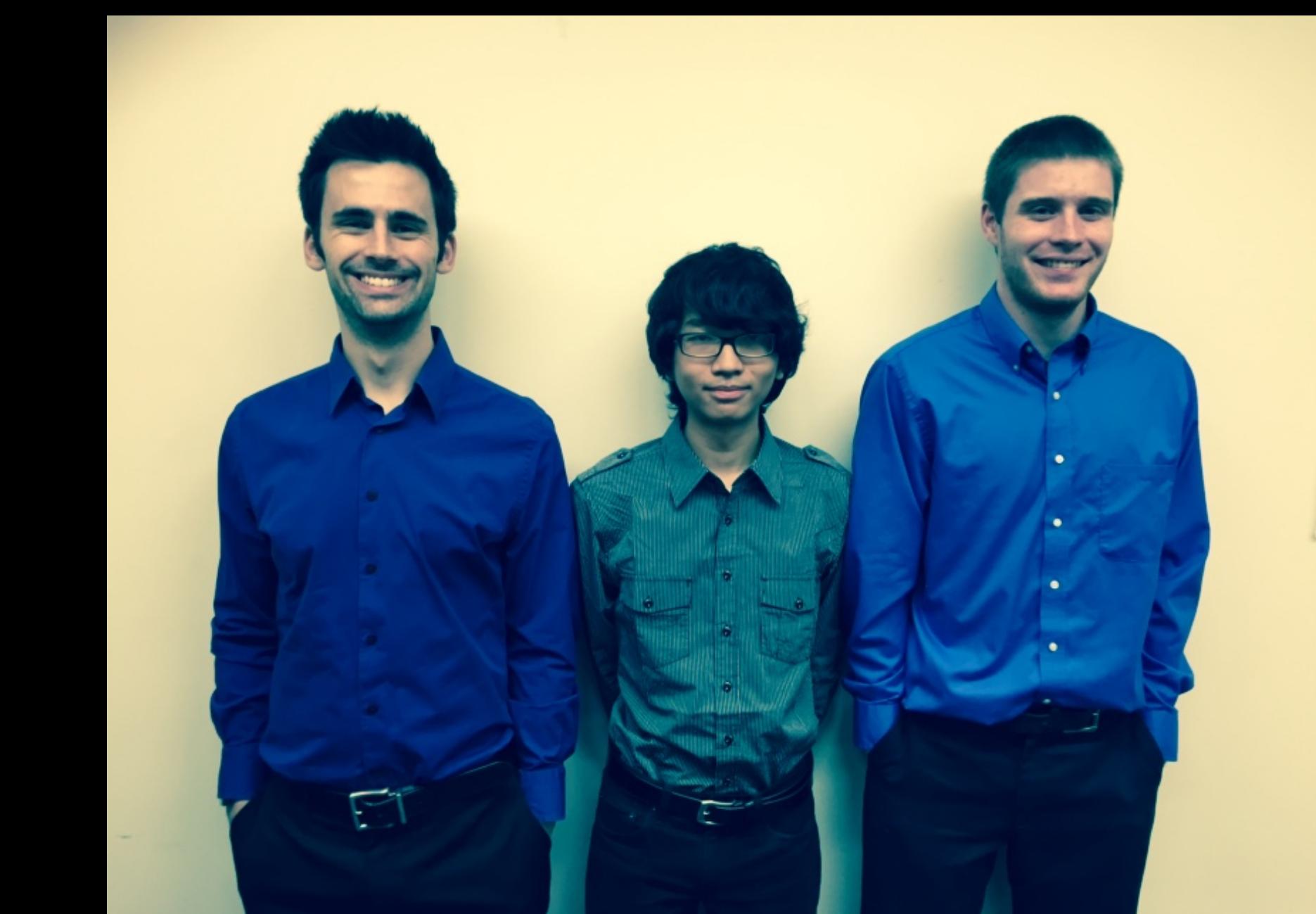
- How do we make this available to developers?
- Where in the Firefox code base should this live?

#### Results

1. Not all available data is always useful.
  - For Example, Memory Usage alone
2. Certain data is intentionally unavailable
  - Network Type (Wifi, USB, 4G, etc.)
3. Certain information is only available on certain platforms.
  - Network Statistics APIs only available on Firefox OS.



Our Team: FxOSU



#### Team Members

- John Zeller, [zellerjo@onid.oregonstate.edu](mailto:zellerjo@onid.oregonstate.edu)
- Pok Yan Tjiam, [tjiamp@onid.oregonstate.edu](mailto:tjiamp@onid.oregonstate.edu)
- Jonathan Mcneil, [mcneilj@onid.oregonstate.edu](mailto:mcneilj@onid.oregonstate.edu)

#### Client

- Dietrich Ayala, [dietrich@mozilla.com](mailto:dietrich@mozilla.com)

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