RGenius Analytics

Evan Murray • Nick Duncan • Nikki Tyagi

Wei Tung Chen • Yash Rane

Why isn’t my router working?

Why is my WiFi so slow?!?

How can I get unlimited wifi?

Jk, you can't ;)

Motivation

How can we make routers better for everybody?

Demo

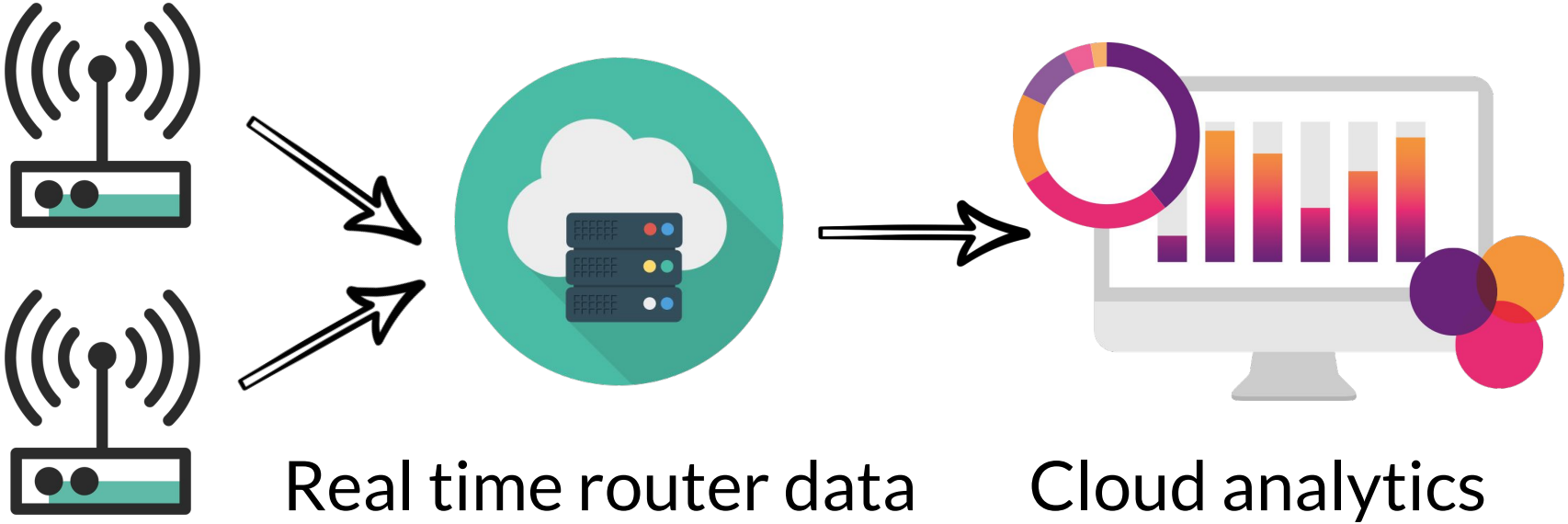
Case 1

Sprint LTE
1:10 PM
75%
Messages
Mom
Details
Hey sweetie! Our Wifi hasn't been working all day and if you're not busy, could you look into it for us please?

Case 1

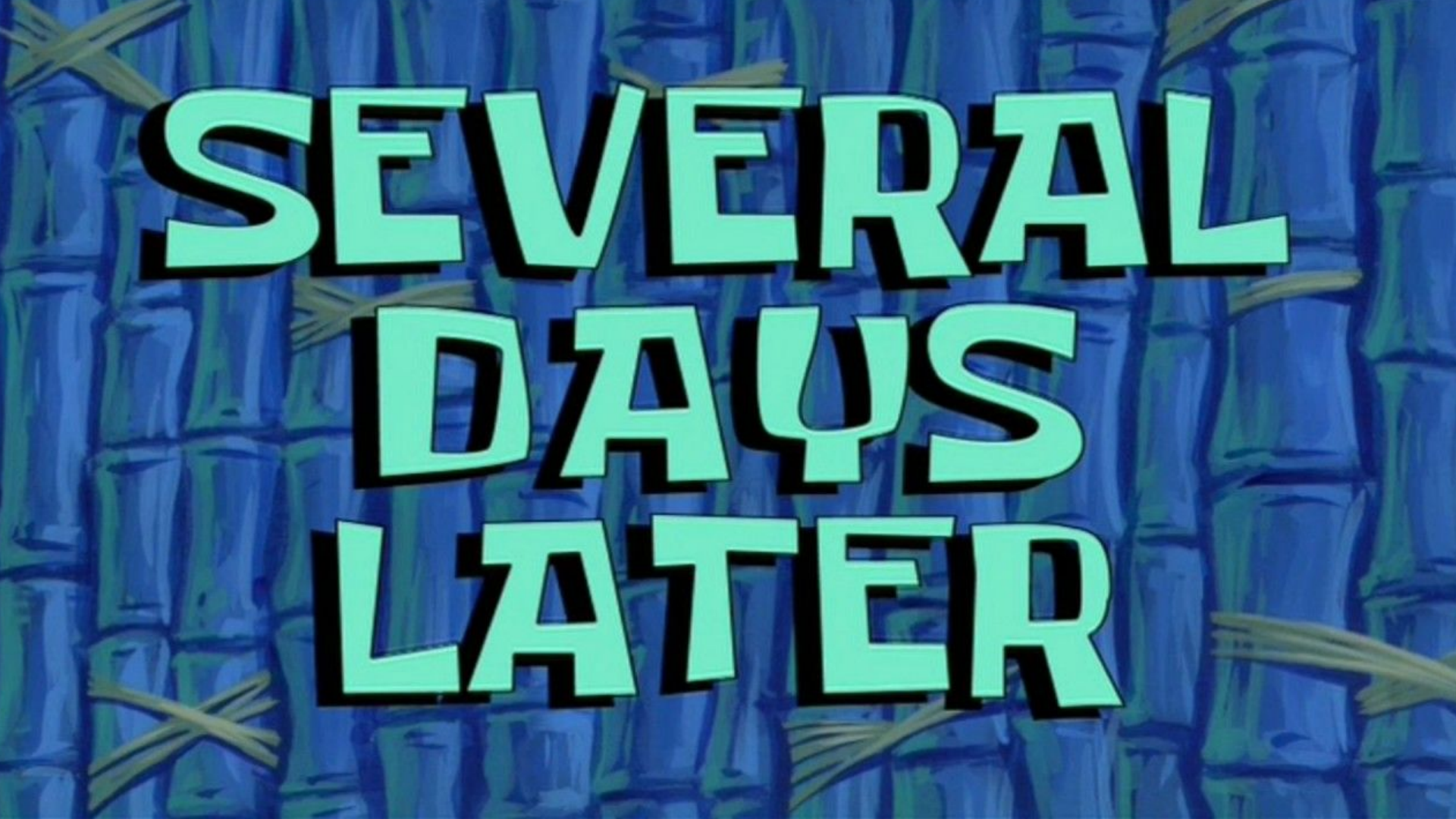
Sprint LTE
1:30 PM
71%
Messages
Mom
Details
Hey sweetie! Our Wifi hasn't been working all day and if you're not busy, could you look into it for us please?
Hey mom. I called our ISP and it looks like there's an outage in the area so just sit tight, they'll have it sorted soon. Love you!

How does it work?

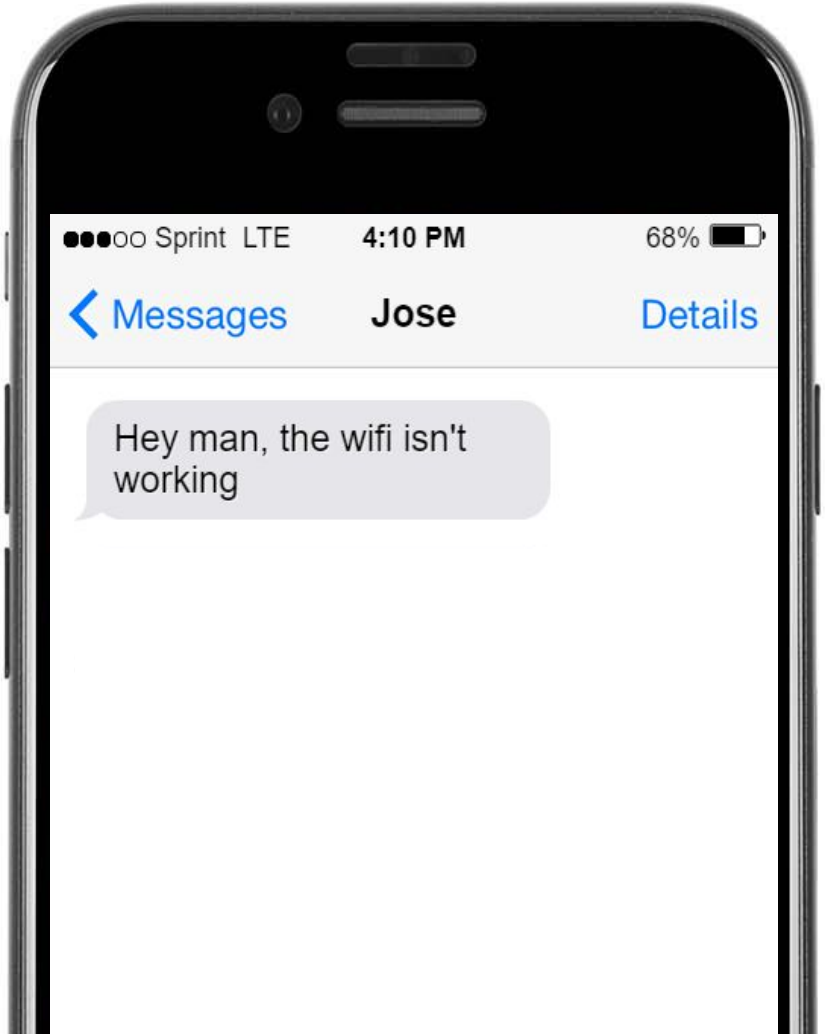


Real time router data

Cloud analytics

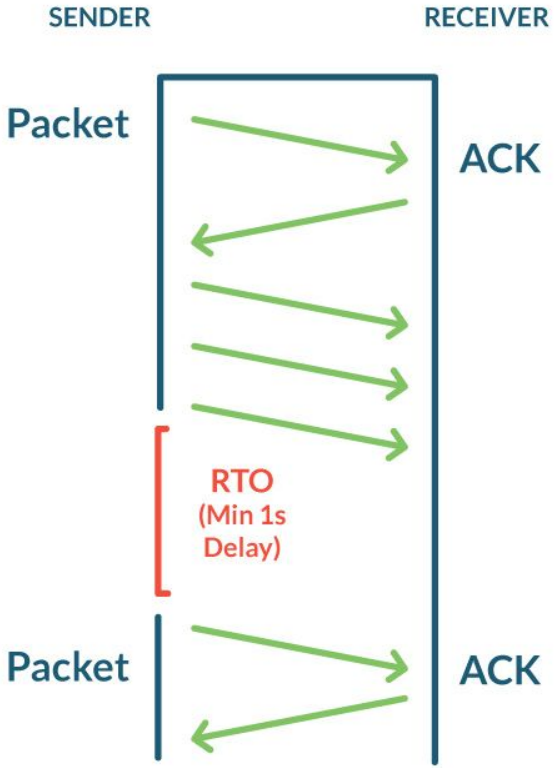

SEVERAL
DAYS
LATER

Case 2

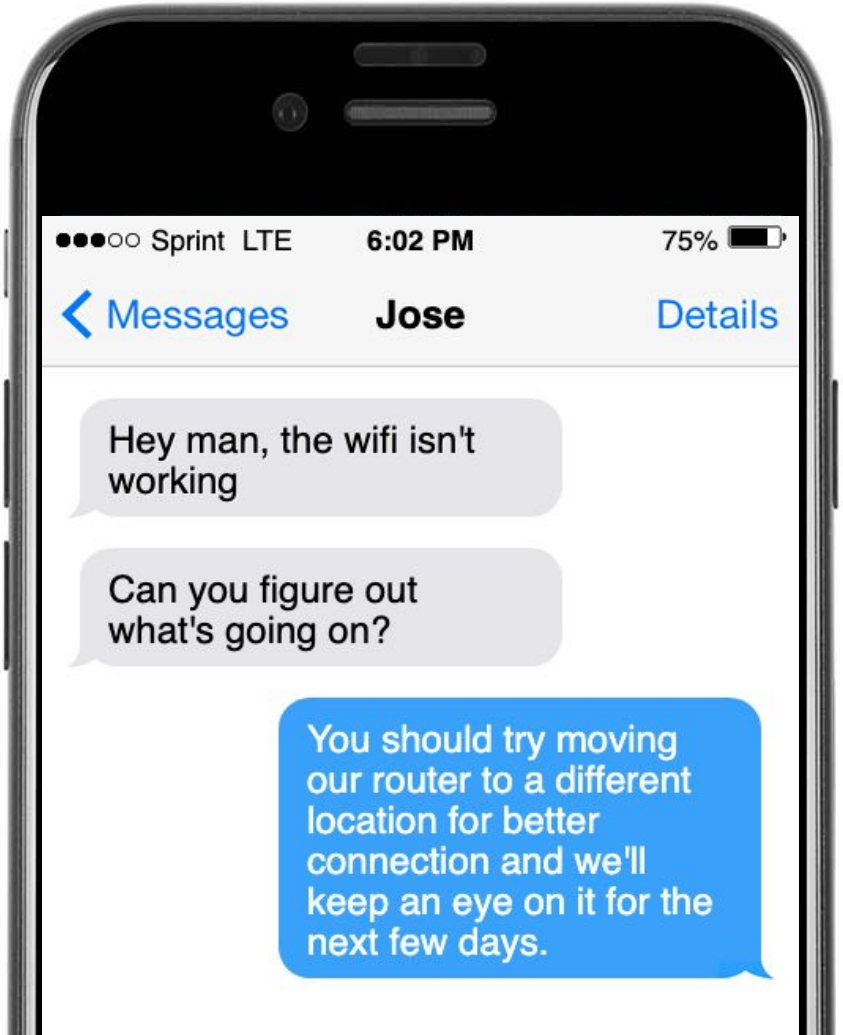

●●●○○ Sprint LTE
4:10 PM
68%
Messages
Jose
Details
Hey man, the wifi isn't working

Calculate Network Speed

- Retransmission rate is the number of retries after data fails to send

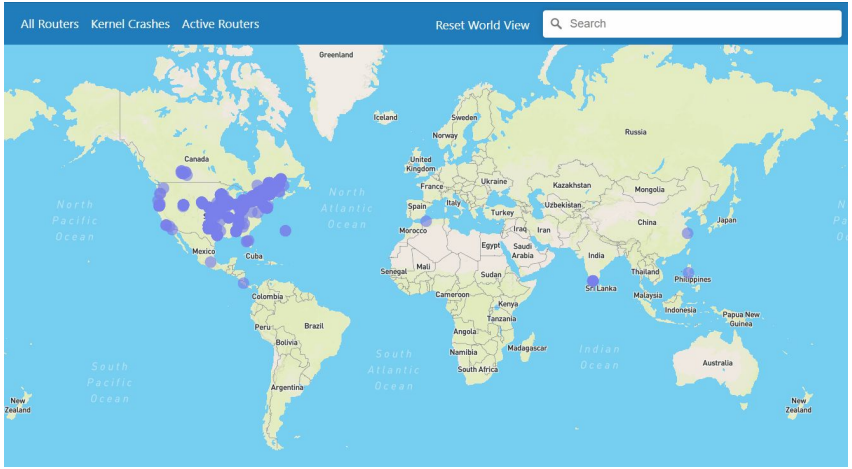


Case 2


Sprint LTE
6:02 PM
75%
Messages
Jose
Details
Hey man, the wifi isn't working
Can you figure out what's going on?
You should try moving our router to a different location for better connection and we'll keep an eye on it for the next few days.

Challenges

- Scaling with thousands of data points
- **Clustering**: smoother, 5x faster
- **Caching**: instantaneous loading



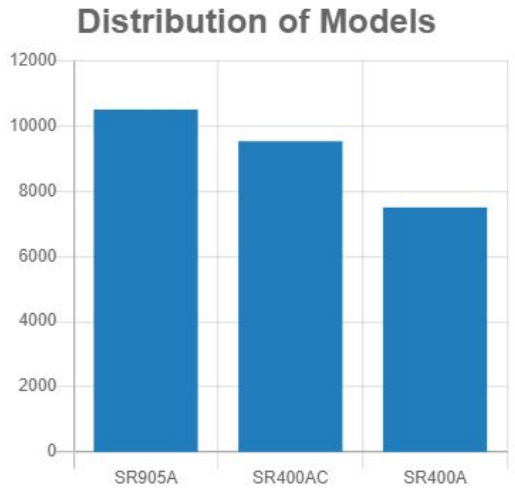
Challenges

- Dealing with MongoDB data inconsistencies

Long list of models

SR905AA019
SR400AC199
SR400AA097
SR905AB189
SR400ACA1C5
SR905AA0B8

Easy to read data charts



Future Work

- Add machine learning to predict router crashes
- Integrate with existing SmartRG services

Special Thanks

UCSB

Chandra Krintz
Steve Bako
Jake Guida

SMARTRG

Colin Whittaker
Koral Ilgun
Tim Hayes

Questions?