

Client & Server

Michael Ball, Pamela Fox

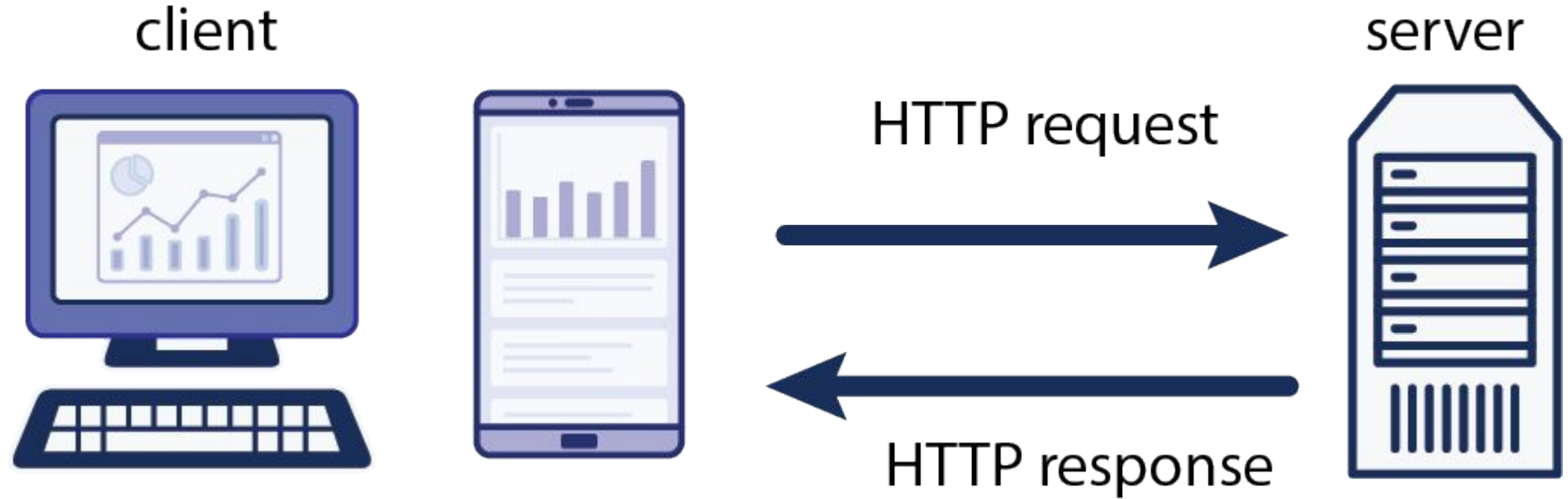
<https://cs169.org>

Today's Outline

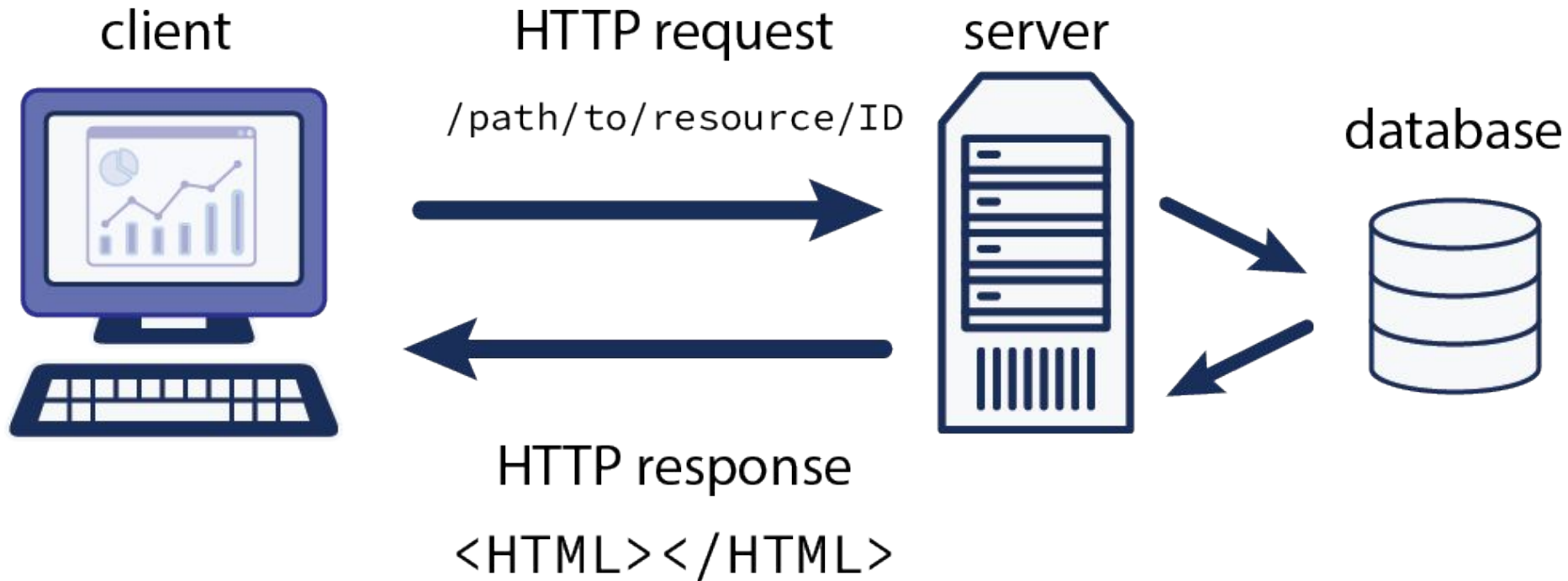
- Announcements
- Client/server architectures
- Sinatra demos
- P2P

Client/Server Architectures

Client/Server



HTML over HTTP

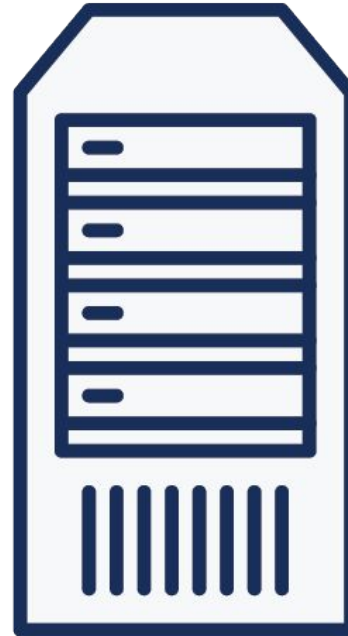


JSON over HTTP

client



server



database



/path/to/resource/ID



<HTML></HTML>

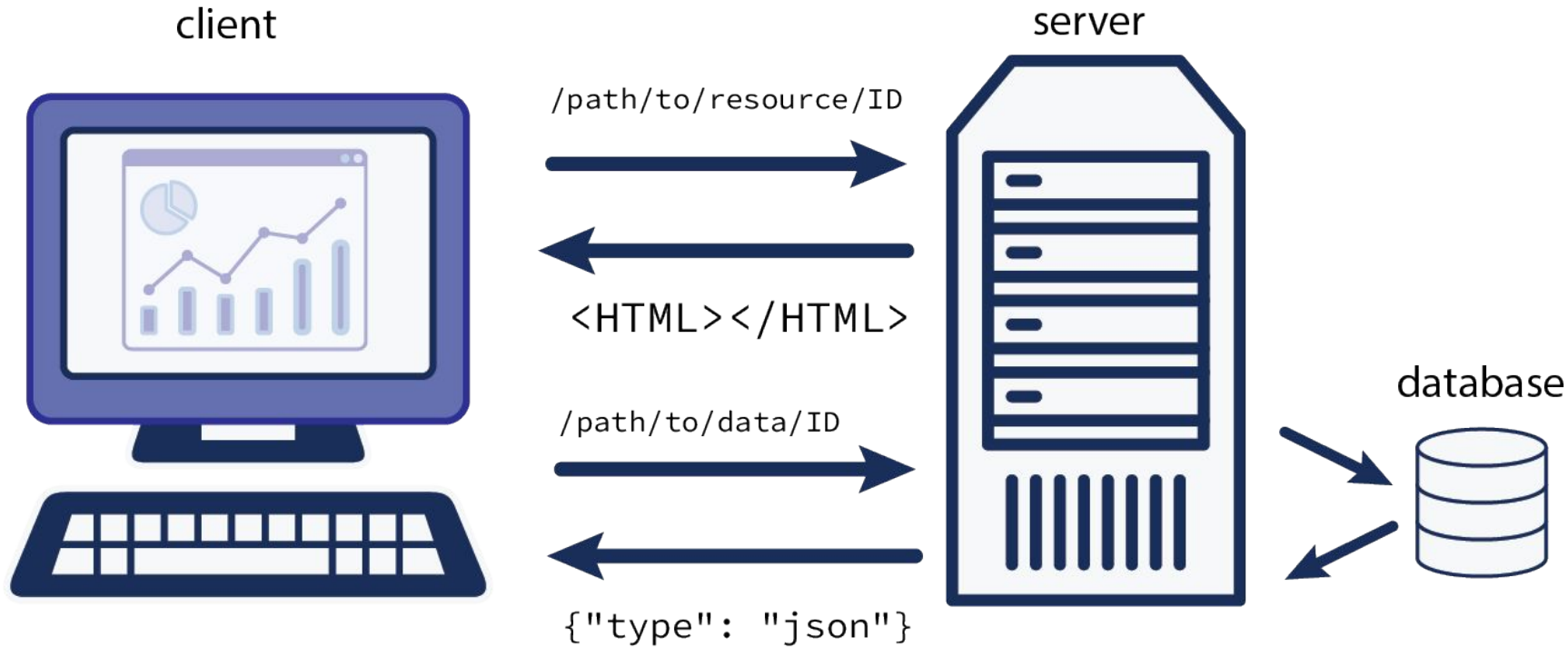
/path/to/data/ID



{"type": "json"}



HTML+JSON over HTTP



Server → CDN

client



/path/to/resource/ID



<HTML></HTML>

Content Delivery Network



/path/to/data/ID

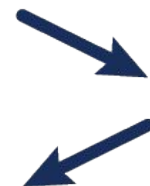


{"type": "json"}

app server(s)



database



Exploring Architectures

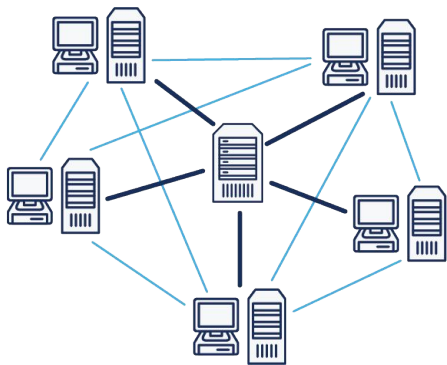
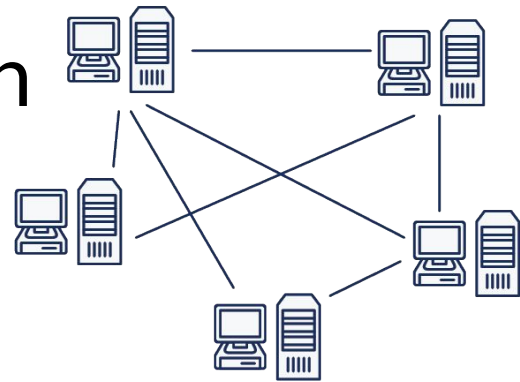
Let's investigate...

- Github
- Twitter
- ...

P2P Architecture

P2P (Peer-to-Peer)

Important feature: No distinction in roles between the client and server.



In practice, “centralized” P2P protocols exist where a server sets up the session.

Suggest Some P2P apps

- (can be an app, a protocol, service, etc.)
-

+ Examples (Apps-ish)

- git -- but *not* really GitHub.
 - In git, pushing and pulling from each remote can be any machine.
- Bitcoin, most crypto / DeFi (hence “Decentralized” Finance)
- BitTorrent
- Napster
- AirDrop
- Some video chat apps

Examples (Protocols)

- WebRTC -- audio/video streaming
- Paxos / Multi Paxos (CS186) -- multi-node commit agreement.
 - Many distributed consensus algorithms are p2p
- BGP (Border Gateway Protocol, CS168)
 - “Autonomous Systems” (semi-large networks) exchange routing information.

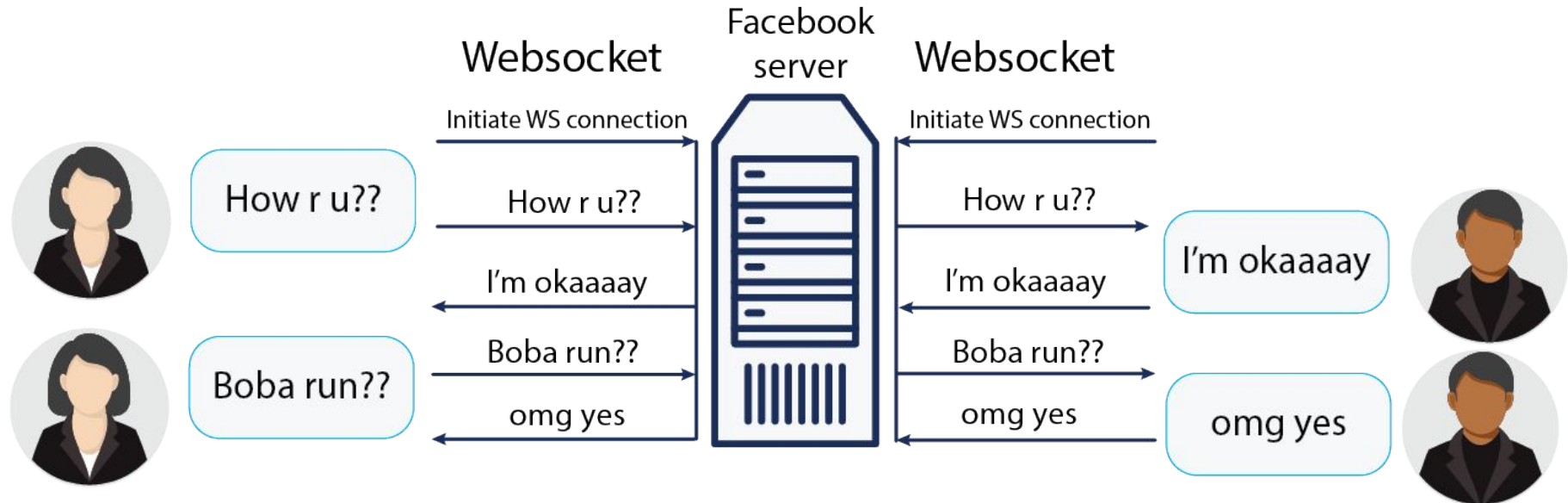
Video Chat Is Complex...

Some video apps implement both p2p and client-server architecture.

Why? When might one be more appropriate?


Chatbot Architecture

Facebook Chat Architecture




<https://en.wikipedia.org/wiki/WebSocket>


WoeBot: A Facebook Chatbot



How do you feel right now?

write it here 

I'm nervous about the talk tonight, it's been a while since I've given one. Not sure what peeps expect.



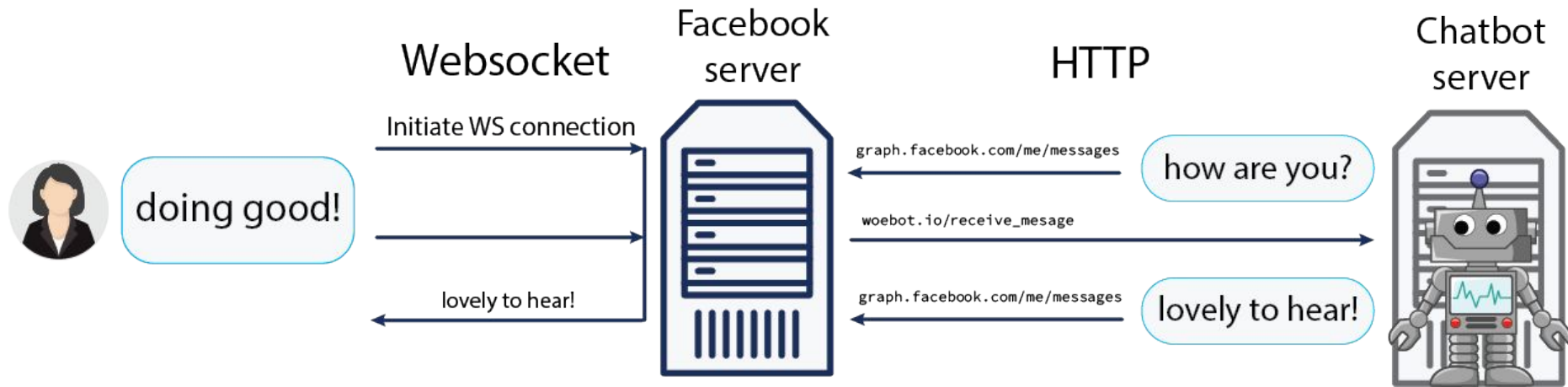
Which of these would you say you're feeling the most?

anxious

confused

other

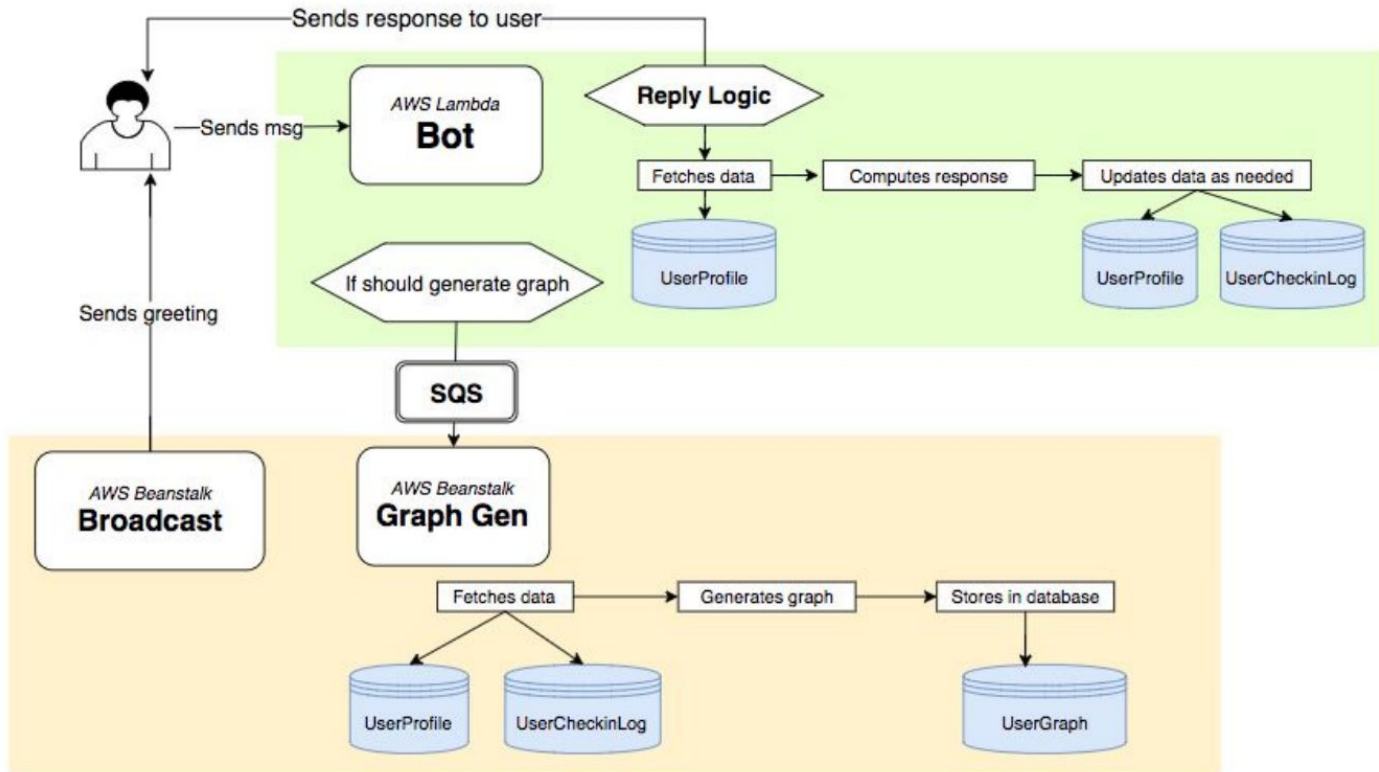
Facebook Chatbot Architecture



<https://developers.facebook.com/docs/messenger-platform/send-messages>

<https://developers.facebook.com/docs/messenger-platform/webhook>

WoeBot AWS Architecture



+ Bonus: Scalability!

