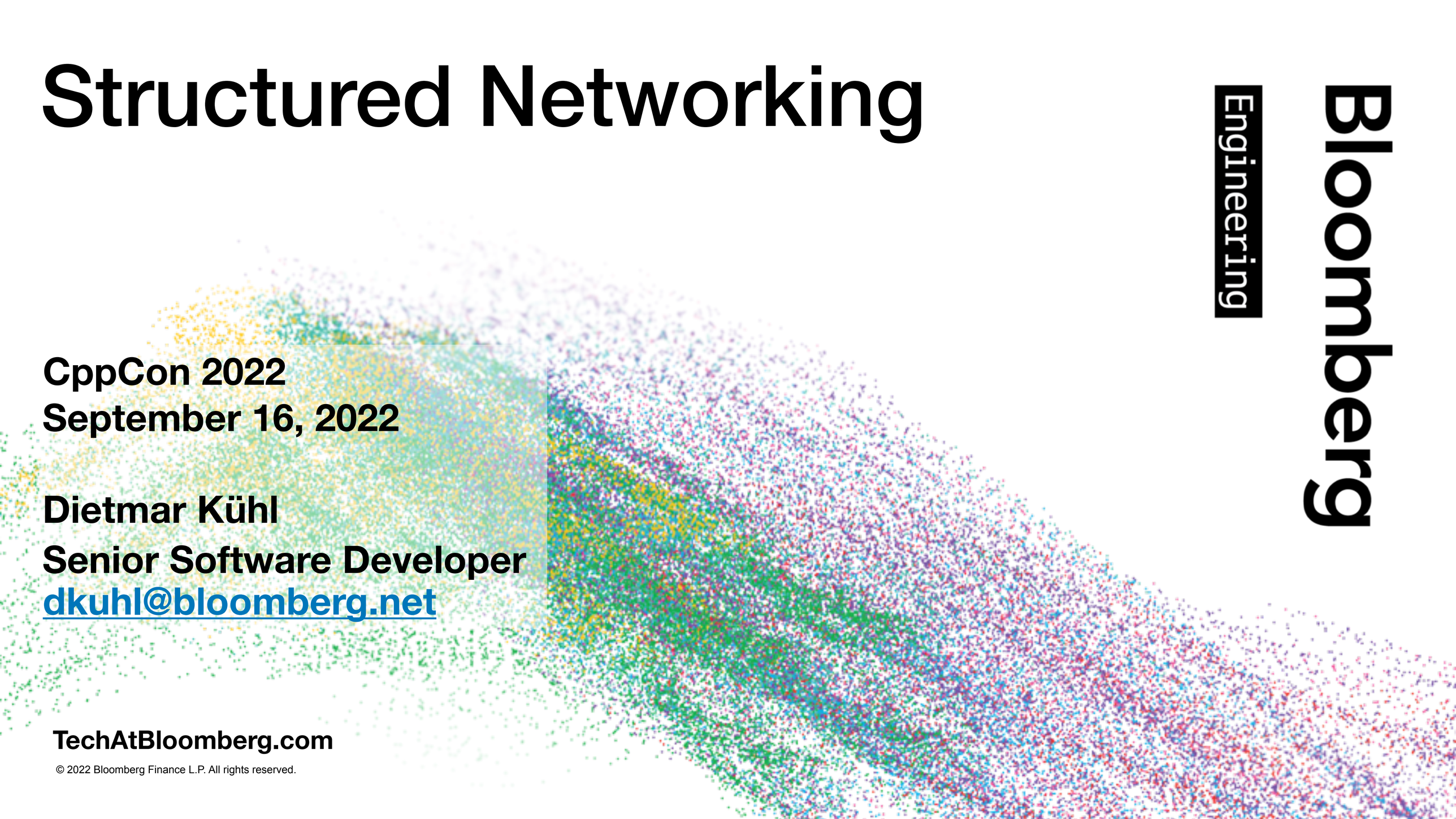
Structured Networking

Bloomberg

Engineering

CppCon 2022
September 16, 2022

Dietmar Kühl
Senior Software Developer
dkuhl@bloomberg.net



TechAtBloomberg.com

Objective

Provide a basis for networking:

Portable classes and functions for networking

Integrate networking with the concurrency approach

Note: the approach described is so far experimental!

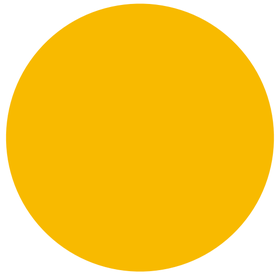
Structured Concurrency

1. decompose work into senders each representing work
2. combine the work representation with a receiver
3. start the resulting entity

Bloomberg

Engineering

Receiver: Destination for Results



get_env(receiver) -> env

get_stop_token(env)

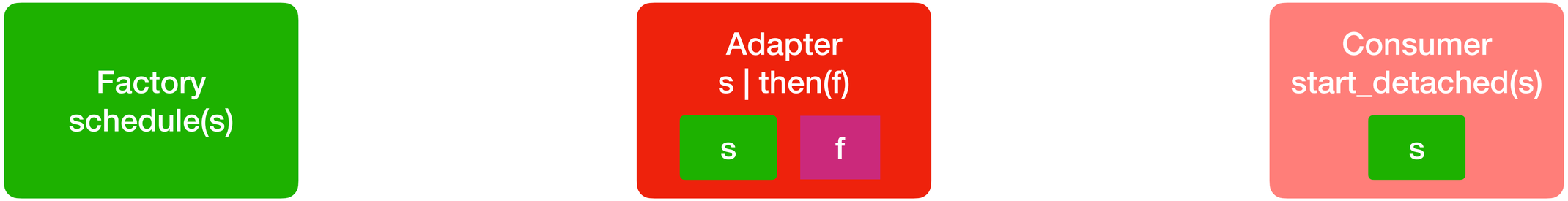
get_allocator(env)

set_value(receiver, results…)

set_error(receiver, error)

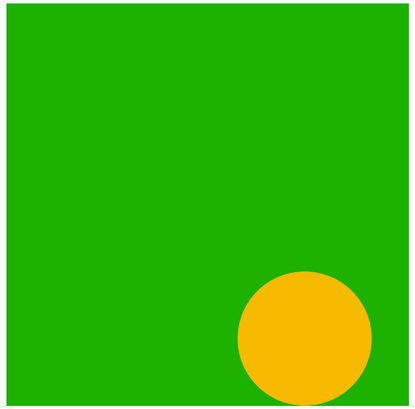
set_stopped(receiver)

Sender: Description of Work



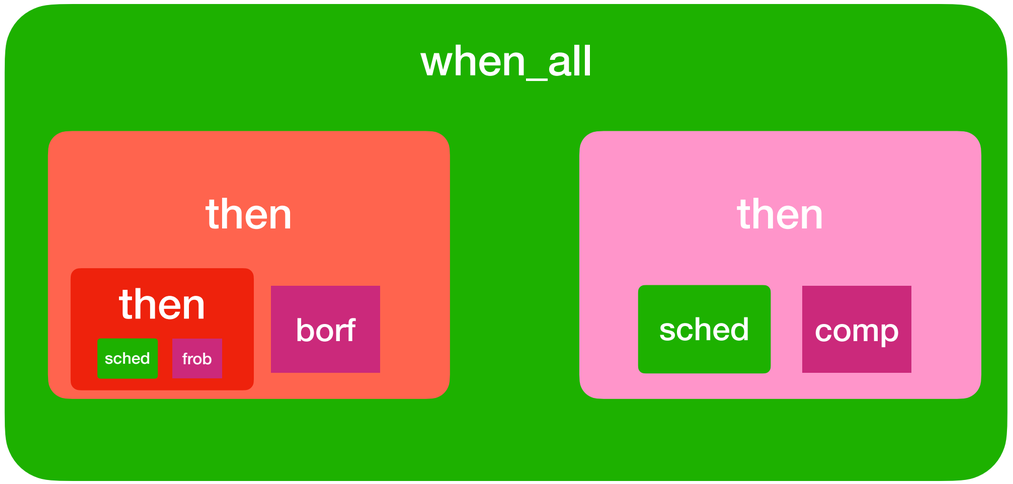
connect(sender, receiver) -> operation_state

Operation State: Ready to Execute Task

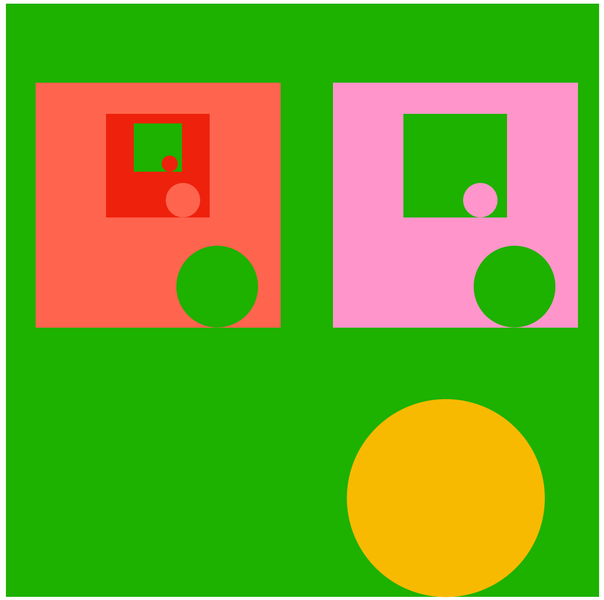
connect( , ) ⇒ 

start(operation_state) ⇒ call one of the completions

connect(sender, receiver)



⇒



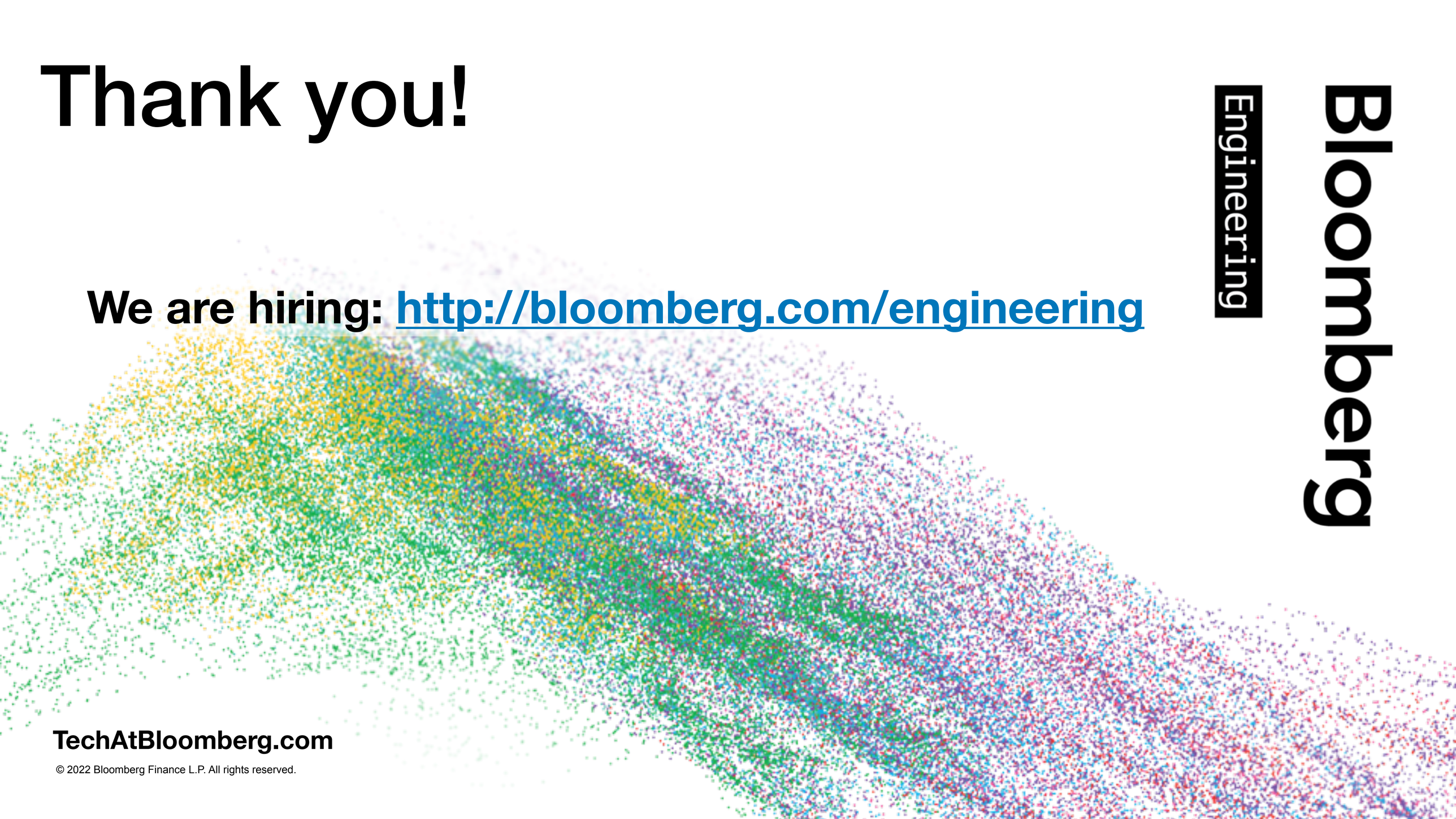
Coding Time!

Thank you!

Bloomberg

Engineering

We are hiring: http://bloomberg.com/engineering



TechAtBloomberg.com

Resources

- http://wg21.link/p2300: sender/receiver propsal
- http://wg21.link/n4734: Networking TS
- https://vorpus.org/blog/notes-on-structured-concurrency-or-go-statement-considered-harmful/: Structured Concurreny
- https://github.com/dietmarkuehl/kuhllib: sender/receiver + networking implementation (CppCon 2022 code in src/toy)