USING WEBSOCKETS IN REAL BOXING 2®

THINGS WE'VE LEARNED

Damian Nowakowski
Senior Engine Programmer

WHAT ARE WEBSOCKETS?

- It's a communication protocol
- It provides full-duplex communication
- It runs on a single TCP connection
- It can send text or binary
- It's standarized by the IETF

- Basically – game and server can talk to each other.

HOW TO IMPLEMENT WEBSOCKETS?

www.libwebsockets.org

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Cons:

- It's written in C
- Not so easy to configure and implement
- Different platforms still might behave differently

ALTERNATIVES?

- **Windows:** WebSocketCpp
- **Android:** Java-WebSocket by TooTallNate
- **iOS:** SocketRocket

WHAT CAN WE DO WITH WEBSOCKETS?

- Inviting friends to fight.
- Sending gifts to other players.
- Informing game about upcoming events.

- And many more!

KNOW YOUR LIMITS

- In theory – websockets can transfer 64^2 bytes of data in a single frame.
- But libraries usually pass data in buffer.
- In libwebsockets check if the packet is the last.

```
size_t lws_remaining_packet_payload(struct lws *wsi);
```

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KNOW YOUR LIMITS

- Try to fit into the size of the buffer.
- You can increase it's size if you want ;)

```
unsigned int pt_serv_buf_size;
/**< CONTEXT: 0 = default of 4096.  This buffer is used by
 * various service related features including file serving, it
 * defines the max chunk of file that can be sent at once.
 * At the risk of lws having to buffer failed large sends, it
 * can be increased to, eg, 128KiB to improve throughput. */
```

- (dividing encrypted payload into packages **might** cause problems)

- Echo test big payloads!

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KNOW THE BEHAVIOUR

- What happens when the App goes into the background?
- What happens when you turn off the Wi-Fi?
- How it behave when the connection is weak?
- Libwebsockets will not detect Internet connectivity lost on iOS!!!

CHECK INTERNET AVAILABILITY BY YOURSELF

- Android:
  IntentFilter(ConnectivityManager.CONNECTIVITY_ACTION)
- iOS:
  Reachability library

NEVER FORGET TO HEARTBEAT

- The server will know if you are still there.
- You will know if the server is ok.
- One beat per 30 sec. is enaugh to check connection.
- One missed beat is enaugh to close connection.

DISABLE EMBEDDED COMPRESSION

- Websockets are using zLib
- zLib is 25 years old, but…
- it’s still good for most cases, but…
- there are other great alghoritms out there (LZ4, BROTLI, …)
- HTML, XML, JSON – they compress very well
- Websockets can send binary data

BUILD WITH IPV6 SUPPORT

Because Apple…

QUESTIONS

E-mail: damian.nowakowski@vividgames.com

Company webpage: www.vividgames.com

Personal webpage: www.zompi.pl

VIVID GAMES - HEADQUARTERS
Gdanska 160
85674 Bydgoszcz
POLAND

VIVID GAMES - WARSAW STUDIO
Nowogrodzka 50/54 Unit 428
00695 Warsaw
POLAND