WebSocket

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History

- RFC 6455
- Standardized in 2011 by W3C
- Supported in nginx and Apache since 2013

Features

- Asynchronous
- Bidirectional (push from server at any time)
- Low overhead (think about not needed HTTP headers)
- Low latency (daemons tuned for it - TCP_NODELAY)

Why?

- Several times lighter that a HTTP request in terms of bytes transferred and parsing
- TCP Window is wide opened => fast transfer
- No need to authenticate the connection at every request
- No need to wait for TCP handshake and then TLS handshake
- Games with low latency are possible
- Update client code without refresh (push JS code)
- Update CSS without refresh

nginx configuration example

```
upstream wsdemo {
        server 127.0.0.1:9060;
}

server {
    […]
    location /ws {
        tcp_nodelay on;
        proxy_pass http://wsdemo;
        proxy_http_version 1.1;
        proxy_set_header X-Original-IP $remote_addr/$remote_port;
        proxy_set_header Upgrade $http_upgrade;
        proxy_set_header Connection "upgrade";
        proxy_read_timeout 120;
        proxy_buffering off;
    }
}
```

But... but...

One of the complains is that some resources are kept in RAM even when no messages come from the client.

This is true, but the resources used by the OS are around **4**KiB per connection. RAM is cheap.

See the 10M connections problem here (Dell R610, 12 cores, 96GiB RAM). Only 40GiB were used!

Thank you!

Questions?

Demo