Other Protocols & Use-Case

- Some WebSocket Dissatisfaction
- Other Use-Cases
- Better HTTP?
- Other Protocol?
- Better WebSocket?
- Extensible WebSocket?
Some WebSocket Dissatisfaction

- See mailing list for full details:
  - Focused entirely at one world view/browser clients
  - Difficult specification document/style
  - Extensible only by application (not infrastructure)
  - Low semantic content
  - Scalability issues with connection usage.
  - Opaque to intermediaries/infrastructure
  - Repeat problems of HTTP pipelining
  - Discards decades of experience in HTTP
  - Only simple for simple things!
- http://www.ietf.org/mail-archive/web/hybi/current/msg00820.html
Example other Use-Case

• Send rich content:
  – Images etc. to/from mobiles or thick clients
  – Inverted requests – eg rHTTP

• Client State:
  – Cache pre-fill, expires override.
  – setting/changing cookies for failover/migration

• Value add intermediaries:
  – load balancing, SSL Offload, aggregation
Different Perspectives

- Client Developers, who just want access to:
  - Existing protocols:
    - IRC, XMPP, etc.
  - Want a Socket (or as close as they can get).

- Client/Middle/Server Developers, who use HTTP and rich content, but want:
  - Push rich content
  - Reverse request semantics
  - Work with Client cache/state
  - HTTP flaws fixed
  - To use existing infrastructure
a) Make a Better HTTP?

- Incrementally improve HTTP to be bidirectional
  - Starting from future work from BP document
  - Eg rHTTP, WAKA

- Difficult and delicate task!

- UNHAPPY:
  - Those who want a raw socket
  - Those who think HTTP should not be used
b) Use a Better Protocol?

- Use an alternative protocol for WebSocket API
- BEEP?
- Bidirectional Web Transport Protocol (BWTP)
  - thought experiment (partially implemented)!
    - http://www.ietf.org/id/draft-wilkins-hybi-bwtp-00.txt
  - Optional meta-data / mime content
  - Multi channel for connection sharing/aggregation
  - Intermediaries first class participants
    - Can make good policy and add value!
- "Better" depends on perspective
BWTP Example

BWH 0 38 OPEN /chat/room
Content-Type: text/json;charset=utf-8
Accept-Language: en

BWH 0 32 OPENED
Content-Origin: www.mychat.com
Content-Language: en

BWM 0 46
{user="Bill" text="Bill has joined the room!"}

BWM 0 43/43
{user="Ted" text="Hello Bill, how are you"}

BWM 0 37
{user="Bill" text="I'm fine thanks"}

BWM 0 47/47
{user="System" text="the room is closed"}

BWH 0 0 CLOSED

BWH 0 0 CLOSED
c) Make WebSocket Better

- IETF Processes applied to improve draft:
  - Security
  - Shutdown
  - I18n
  - Error handling
  - Forward compatibility

- Better Features?
  - Multiplexing?
  - Fragmentation?
  - “Better” still depends on perspective

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d) Make WebSocket Extensible

- Improve on the base protocol to allow layers to better address more issues/use-cases
- Avoids debate about what is “better”

- WebSocket needs extension points
  - Self describing content
  - Opaque to intermediaries
  - IANA allocation of frame types ?
  - SPI between Application and protocol ?
e) All of the above?

- One size may not fit all!
  - There are some easy HTTP hints

- WebSocket must be made extensible
  - IETF processes

- A better protocols & WebSocket can be achieved by Standardized layered extensions

- Hybi Working Group