Short Term Bidirectional Goals

- HTTP for bidirectional web
- Best Practice Draft
- Future Work?
Bidirectional HTTP (aka Comet, Server Push)

- Long Polling (aka Hanging Get)
  - Delay responding to a HTTP request until there are events to deliver
  - Legal HTTP, but some overheads

- Streaming (aka forever frame)
  - A HTTP response with content that is partially flushed to deliver events.
  - Efficient, but not strictly “legal” HTTP
Bidirectional HTTP Examples

- **BOSH** – long polling transport for XMPP
- **Bayeux** – long polling messaging for Ajax libraries (Dojo, Jquery etc.)
- **Server-Sent Events** – W3C specification for a streaming content-type
- **Google (Wave & gchat)** – streaming with long polling fall back
- Non browser clients – **Second Life, Mobiles**
- Many More....
Good News

• Mostly works and very widely deployed.
• Works with existing infrastructure / intermediaries:
  • Browsers
  • Load balancing
  • Aggregation
  • SSL Offload
  • Authentication/Authorization
  • Accounting (mostly)
• Allows value-add and reasonable policy
Connection Problems

• Bidirectional breaks HTTP's Connection pooling
  • Effectively reserves a shared resource.
  • Resource starvation (2(6?) connection limit)
  • Queue or pipeline behind bidirectional request
  • Pool shared between frames/tabs/windows.
Proxy/Intermediary Problems

- Difficult to know/tell if streaming will work
  - Caching and/or buffering

- Undisclosed and non discoverable idle timeouts
  - Polling more frequent than required

- Detecting closed connections problematic
  - Liveness is important
Other Issues

- Headers are verbose and mostly redundant
- Pipelining not usable
- Resource scaling in intermediaries/servers
- Cross Domain
Best Practices

http://www.ietf.org/id/draft-loreto-http-bidirectional-01.txt

- Best practices document may:
  - capture common experience
  - provide common vocab to discuss issues
  - avoid repeating mistakes
  - focus attention on fixable problems
Short Term Future Work?

• Define “hints” for bidirectional requests
  • For connection management?
  • For abbreviated headers?
  • Discoverable timeouts
  • Streaming content types

• More ?