

Cometd & Bayeux Introduction



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What is the Bayeux protocol

- **Bayeux is**
 - **publish/subscribe messaging protocol**
 - **over HTTP**
 - or similar request/response substrate
 - Emphasis on using current legal HTTP
 - **negotiated multi-transport**
 - **JSON-based**
 - Or at least specified

The logo for webtide, featuring the word "webtide" in a bold, red, italicized sans-serif font. The text is positioned above a stylized blue and white swoosh that curves from the bottom left towards the right, ending under the "e".

webtide

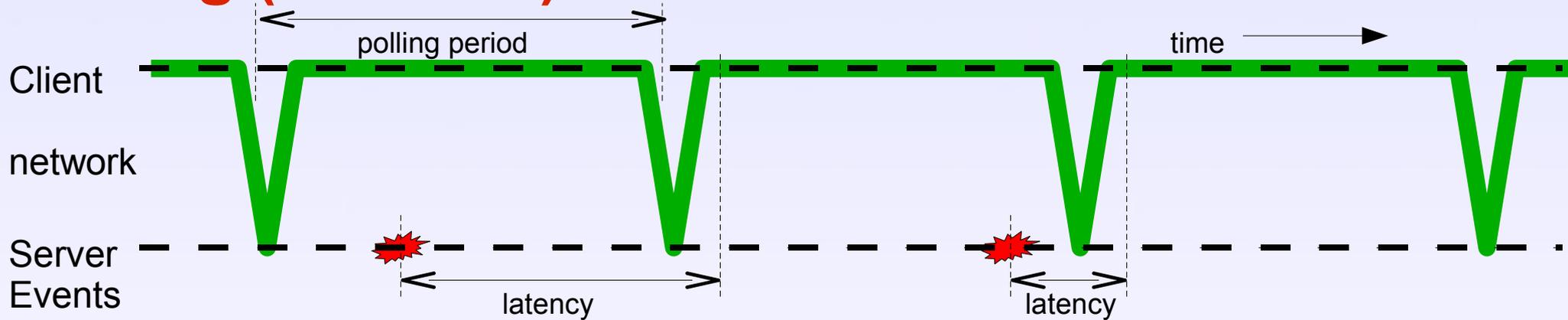
What is Cometd

- **Cometd is an implementation of Bayeux**
 - **cometd.org**
 - **Open source @ Dojo Foundation**
 - **multiple languages/clients**
 - javascript, java, python, perl, c++,
 - **Multiple frameworks**
 - Dojo, jquery, jetty, twisted, Flex,
- **Other Implementations by:**
 - BEA
 - IBM
 - Apache tomcat

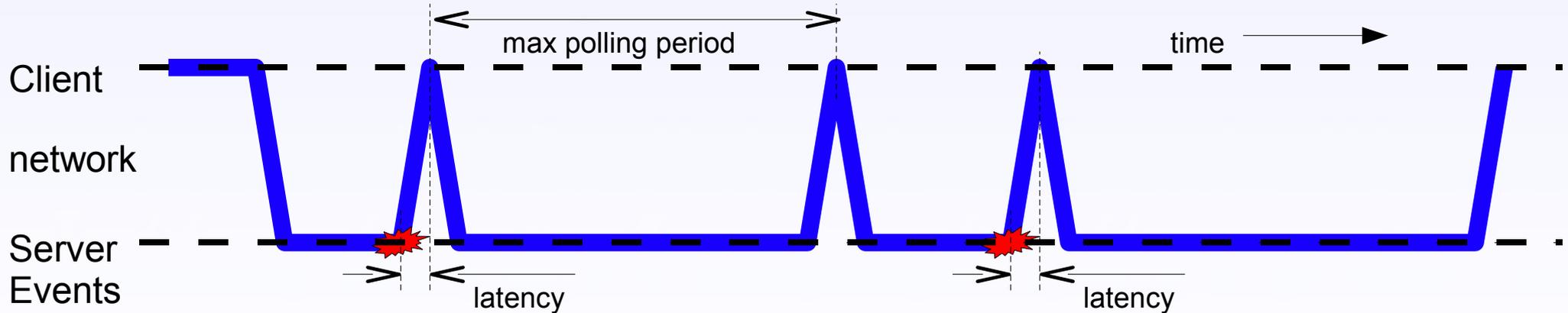
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Cometd Transports

• Polling (Fallback)



• Long Polling (Preferred)



• Streaming (No longer used – not legal HTTP)

Publish/Subscribe (mostly)

- **Java script API**

```
dojox.init("/cometd/cometd");
dojox.cometd.subscribe("/chat/demo", room, "_chat");
dojox.cometd.publish("/chat/demo", {
    user: room._username,
    chat : room._username+" has joined"
});
```

JSON over HTTP

POST /cometd/cometd HTTP/1.1

```
[{"channel":"/meta/handshake",  
  "supportedConnectionTypes":["long-polling","callback-polling"]}]
```

HTTP/1.1 200 OK

```
[{"channel":"/meta/handshake",  
  "supportedConnectionTypes":["long-polling","callback-polling"],  
  "successful":true,  
  "clientId":"11yxv9mz4tlnr4ogw3"}]
```

POST /cometd/cometd HTTP/1.1

```
[{"channel":"/meta/subscribe","subscription":"/chat/demo","clientId":"11yxv9mz4tlnr4ogw3"},  
 {"channel":"/chat/demo","data":{"user":"Elvis","chat":"Elvis has joined"},  
  "clientId":"11yxv9mz4tlnr4ogw3"}]
```

HTTP/1.1 200 OK

```
[{"channel":"/meta/subscribe","subscription":"/chat/demo","successful":true},  
 {"channel":"/chat/demo","successful":true},  
 {"channel":"/chat/demo","data":["Elvis"]},  
 {"channel":"/chat/demo",  
  "data":{"chat":"Elvis has joined","user":"Elvis"}  
  }  
  ]
```

POST /cometd/cometd HTTP/1.1

```
[{"channel":"/meta/connect","connectionType":"long-polling","clientId":"11yxv9mz4tlnr4ogw3"}]
```

...

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The Present

- **Many browser issues:**
 - **Happy with 2 connection limit**
 - Don't want more connections per client on server
 - **Want Inter frame communication**
 - To share available connections
 - **Want pipeline control**
 - Avoid GET pipelined behind long-poll
- **Happy with Long Polling**
 - **Legal HTTP.**
 - **Little significant overheads**

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The Future

- **Interested in BOSH as transport**
 - **Issues with semantic ties to socket/port**
- **Interested in WebSocket as transport**
 - **Good semantics**
 - Not too keen on framing
- **Would like 1xx response transport**
 - **Standard HTTP framing**
 - **Headers with content**

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Q & A

- **irc.perl.org #cometd**
- **irc.codehaus.org #jetty**
- **irc.freenode.net #dojo**

- **gregw@webtide.com**

