Realtime Web Application with Java

Arawn & Outsider in 봄싹

2011.6.19

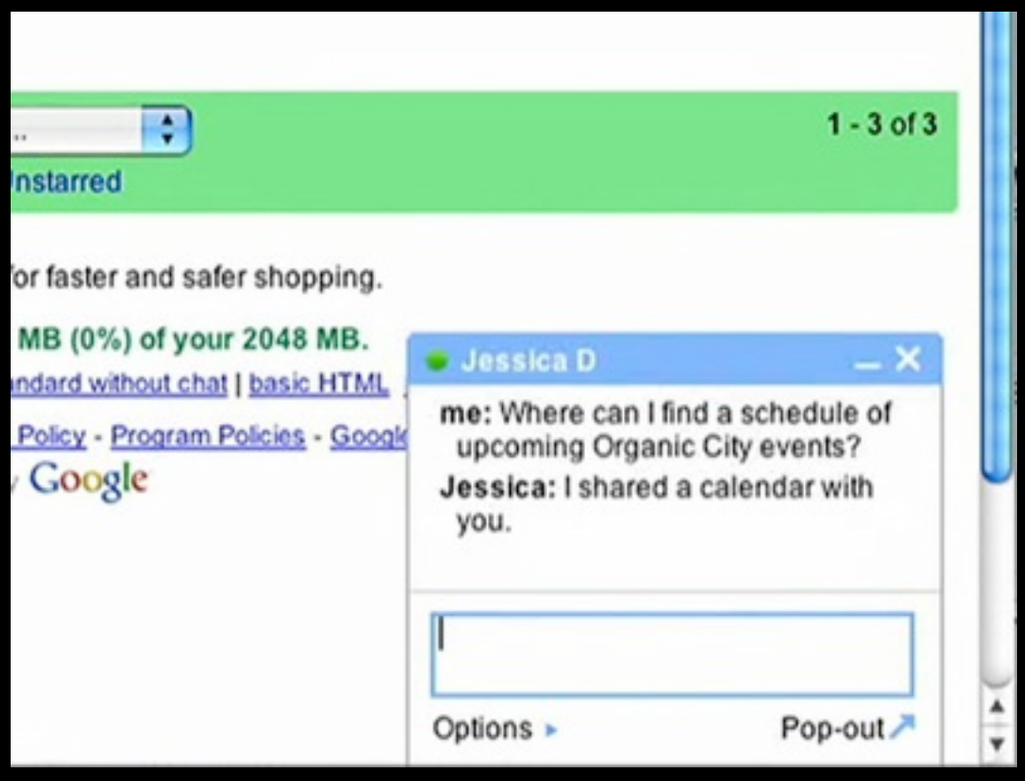
Real Time Web

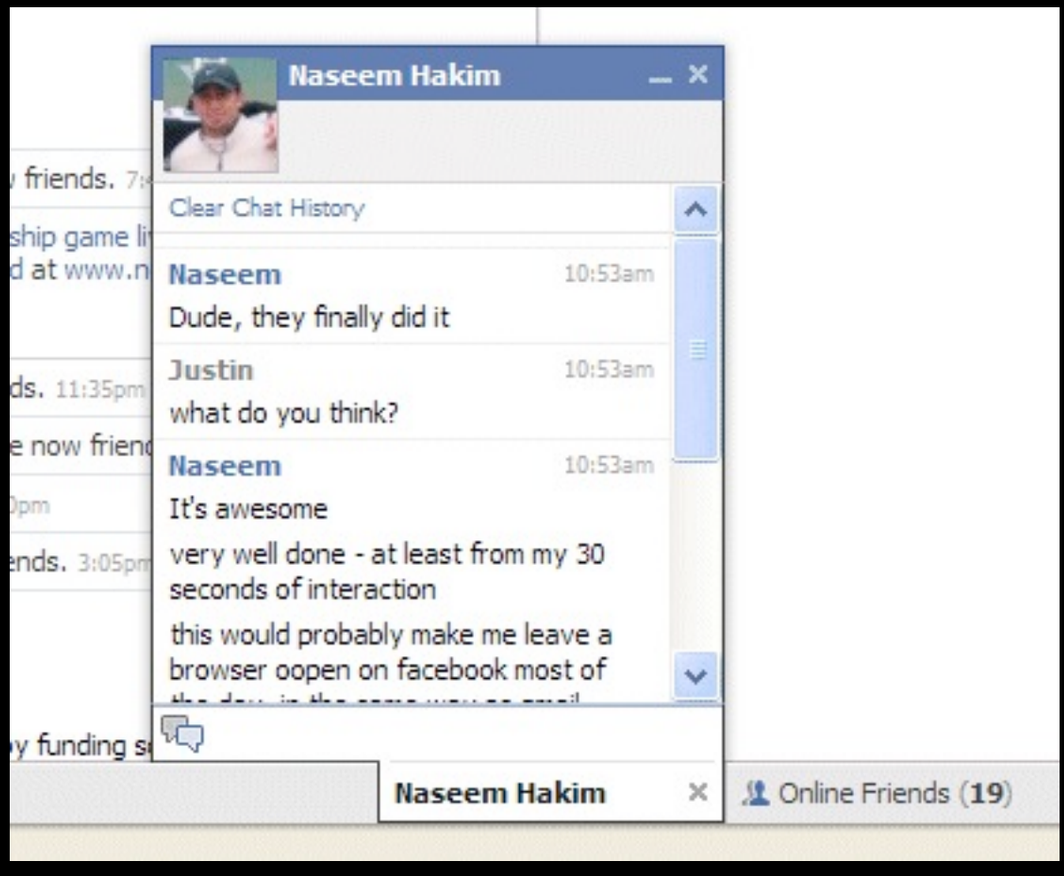
2011년 6월 21일 화요일

Server Push

Gmail
by Google
TM

meebo
testing
[20:23] testing: Hi Allison - GREAT show this week!
[20:23] nosilacat: gosh thanks! (blushes humbly)


1 - 3 of 3
nstarred
or faster and safer shopping.
MB (0%) of your 2048 MB.
ndard without chat | basic HTML
Policy - Program Policies - Google
Google
Jessica D
me: Where can I find a schedule of upcoming Organic City events?
Jessica: I shared a calendar with you.
Options
Pop-out


Naseem Hakim
Clear Chat History
Naseem 10:53am
Dude, they finally did it
Justin 10:53am
what do you think?
Naseem 10:53am
It's awesome
very well done - at least from my 30 seconds of interaction
this would probably make me leave a browser oopen on facebook most of
Naseem Hakim
Online Friends (19)

1:23

Tuesday, May 19

slide to view

리얼타임 웹에 대해서 얼마나 알고 계십니까?

http://springsprout.org:10000/

Client-side

Server-side

일단....

Client-side

현재

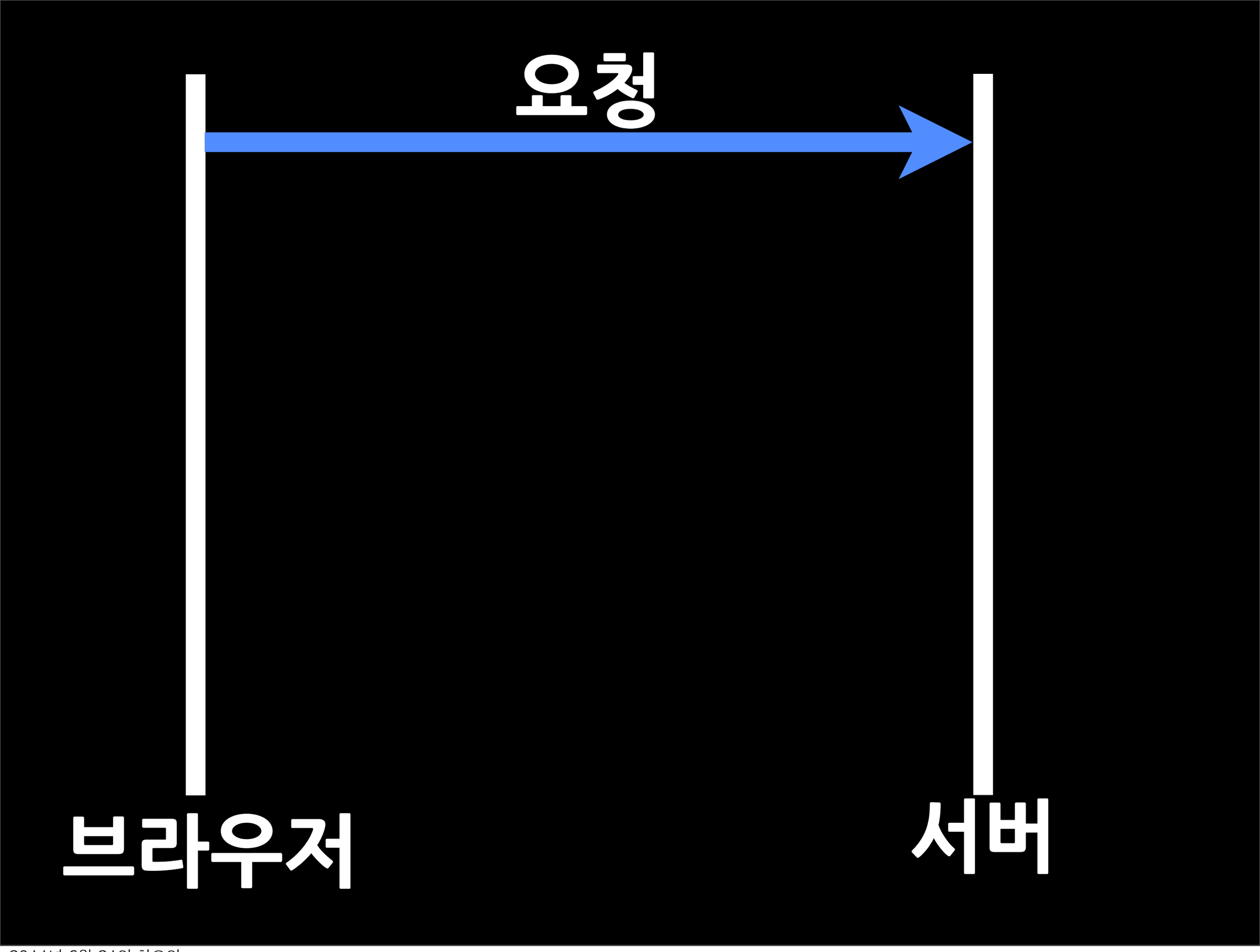
(어쩌면 약간 과거)

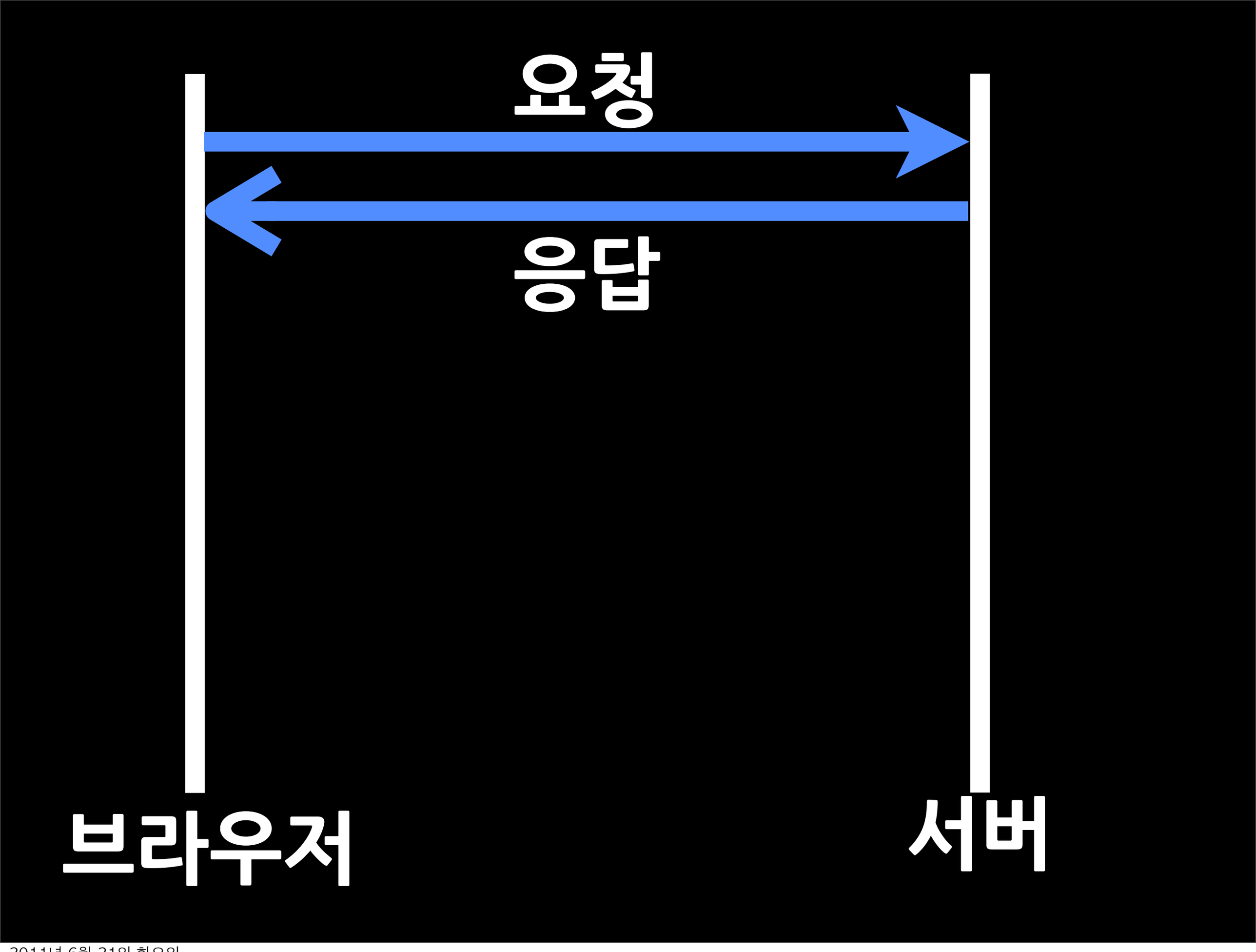
Polling

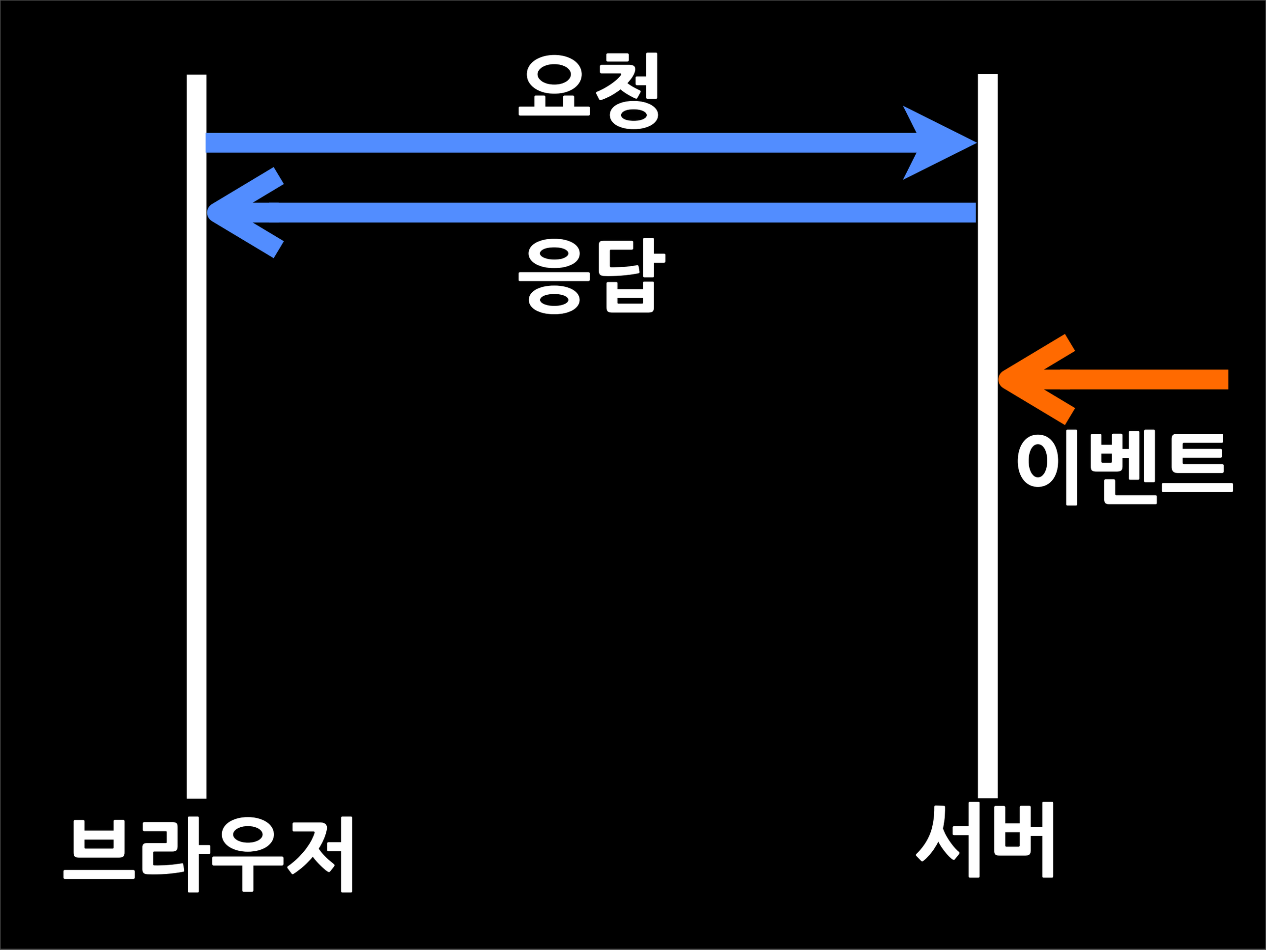
2011년 6월 21일 화요일

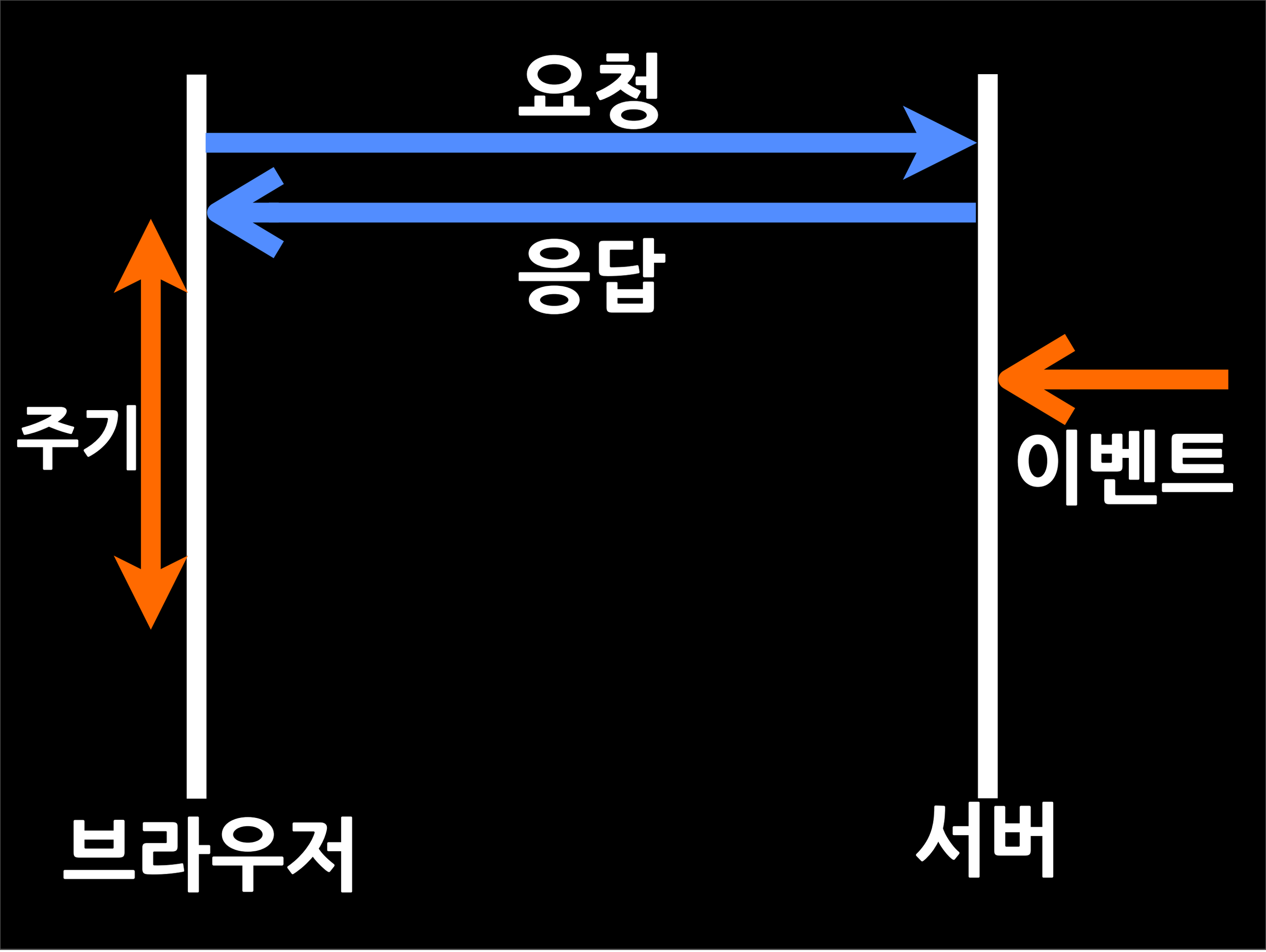
브라우저

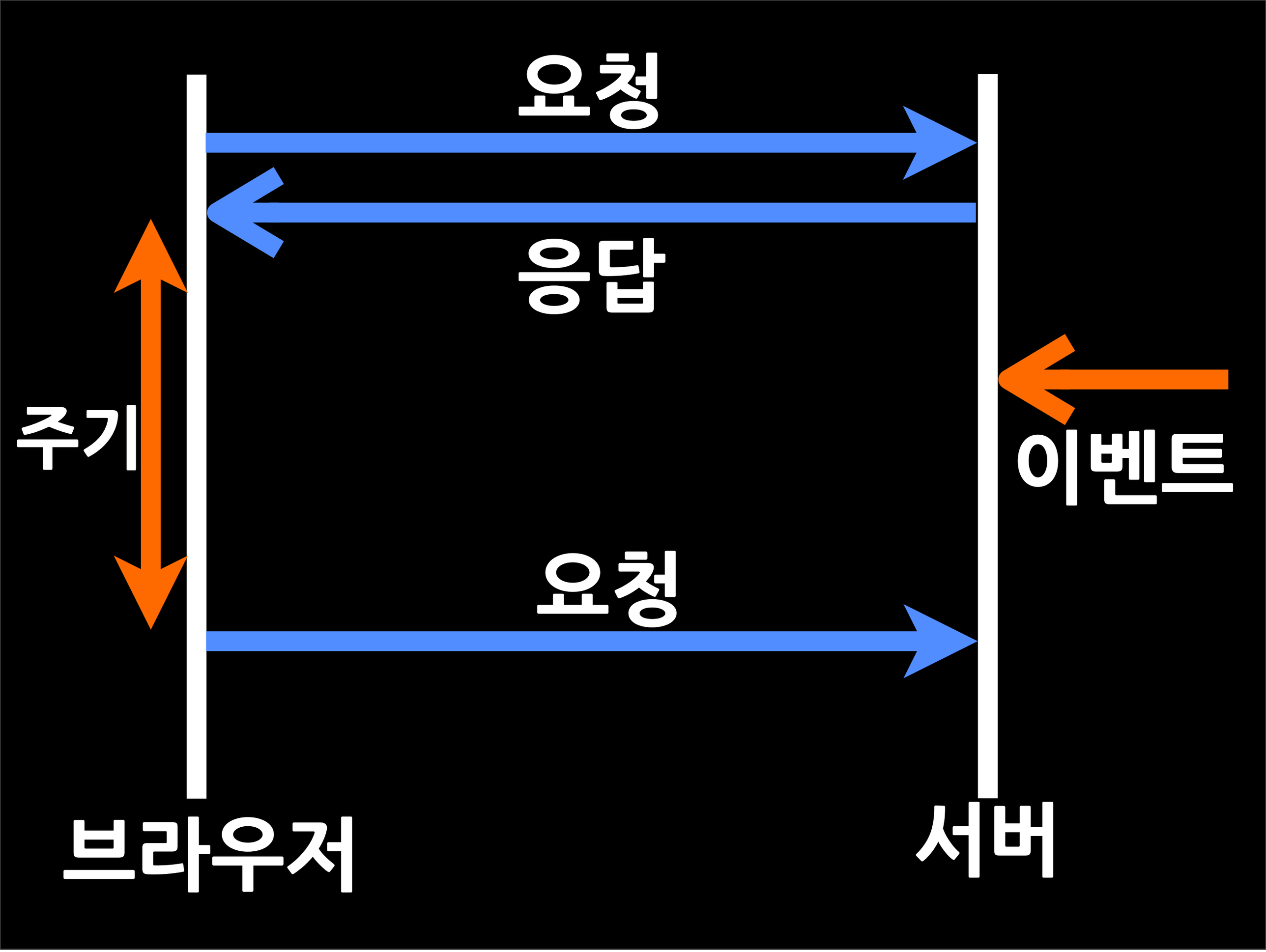
서버


요청
브라우저
서버


요청
응답
브라우저
서버


요청
응답
이벤트
브라우저
서버


요청
응답
주기
이벤트
브라우저
서버


요청
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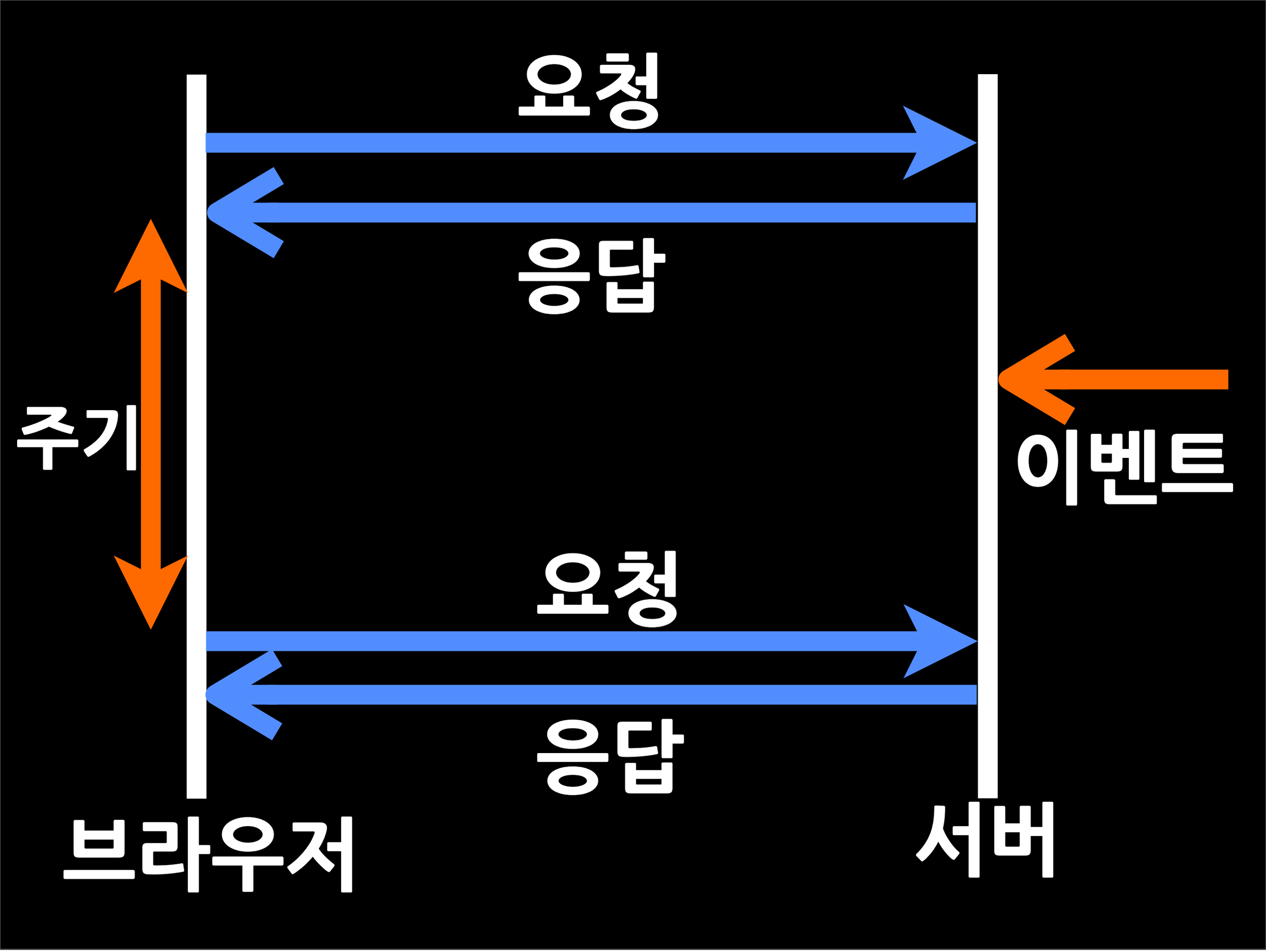


2011년 6월 21일 화요일

사실...

서버푸시라고

하기는 어렵습니다.

Comet & WebSocket

Comet

2011년 6월 21일 화요일

Ajax 처럼 특정기술이 아닌 패턴

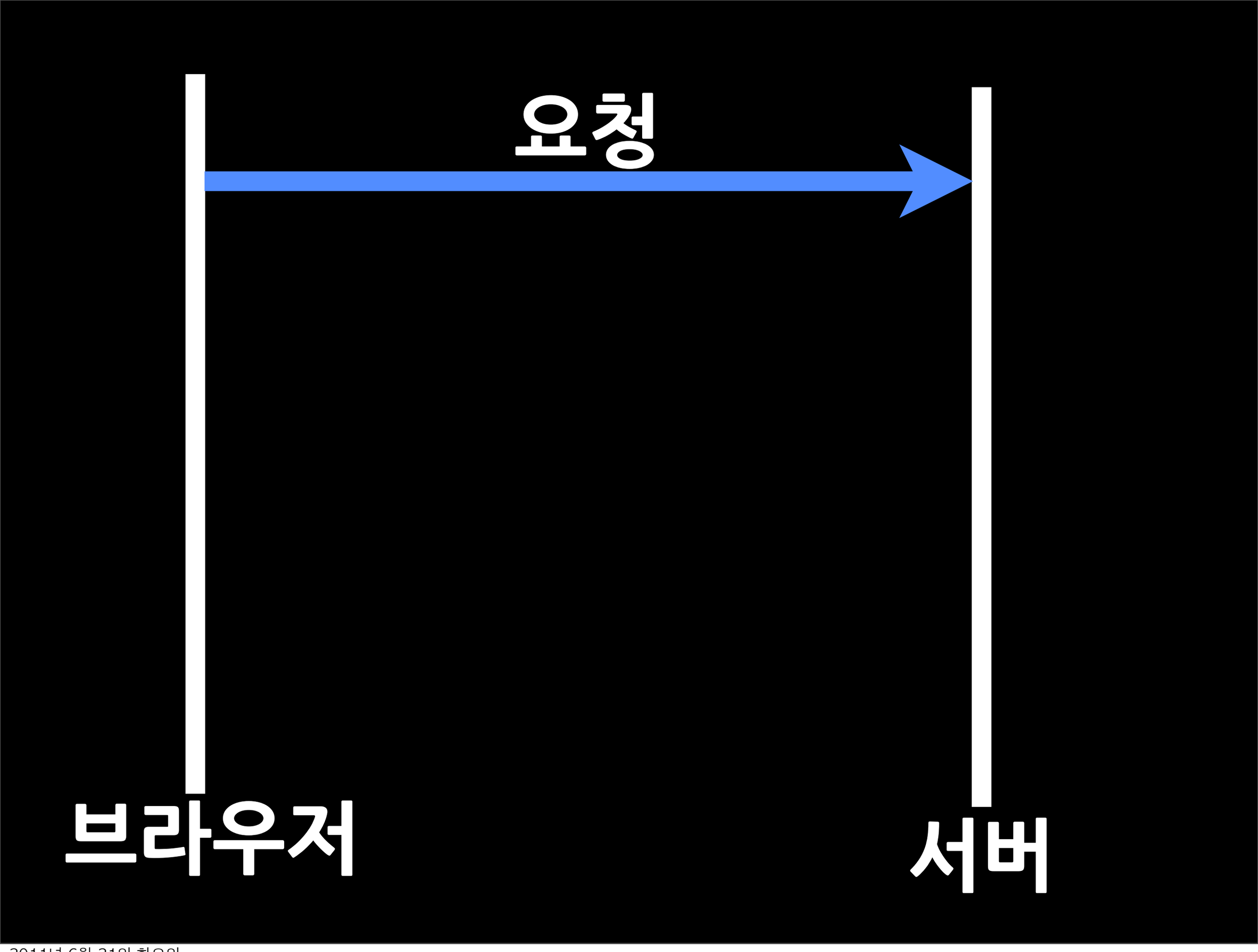
2011년 6월 21일 화요일

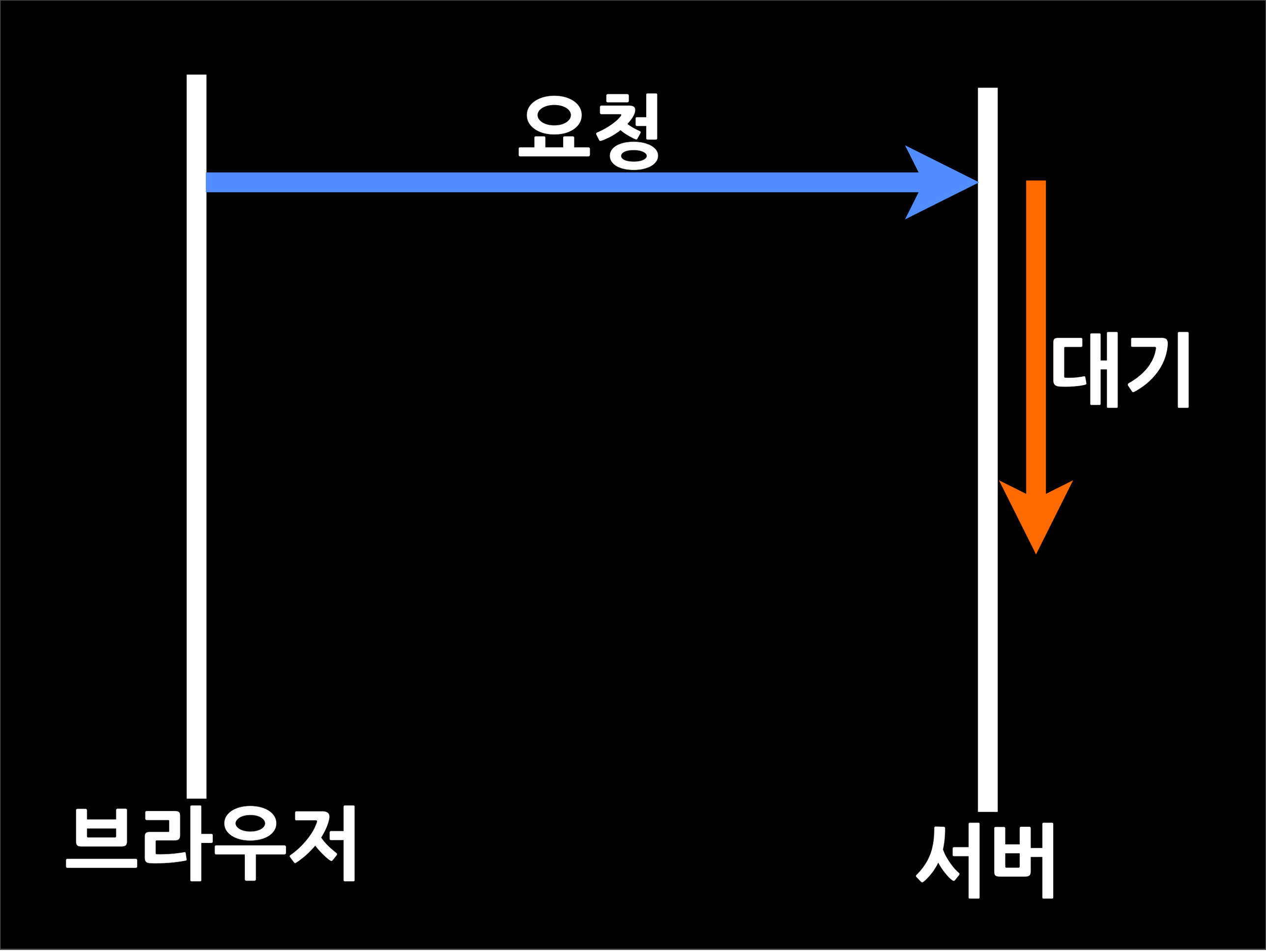
Long Lived HTTP Connection

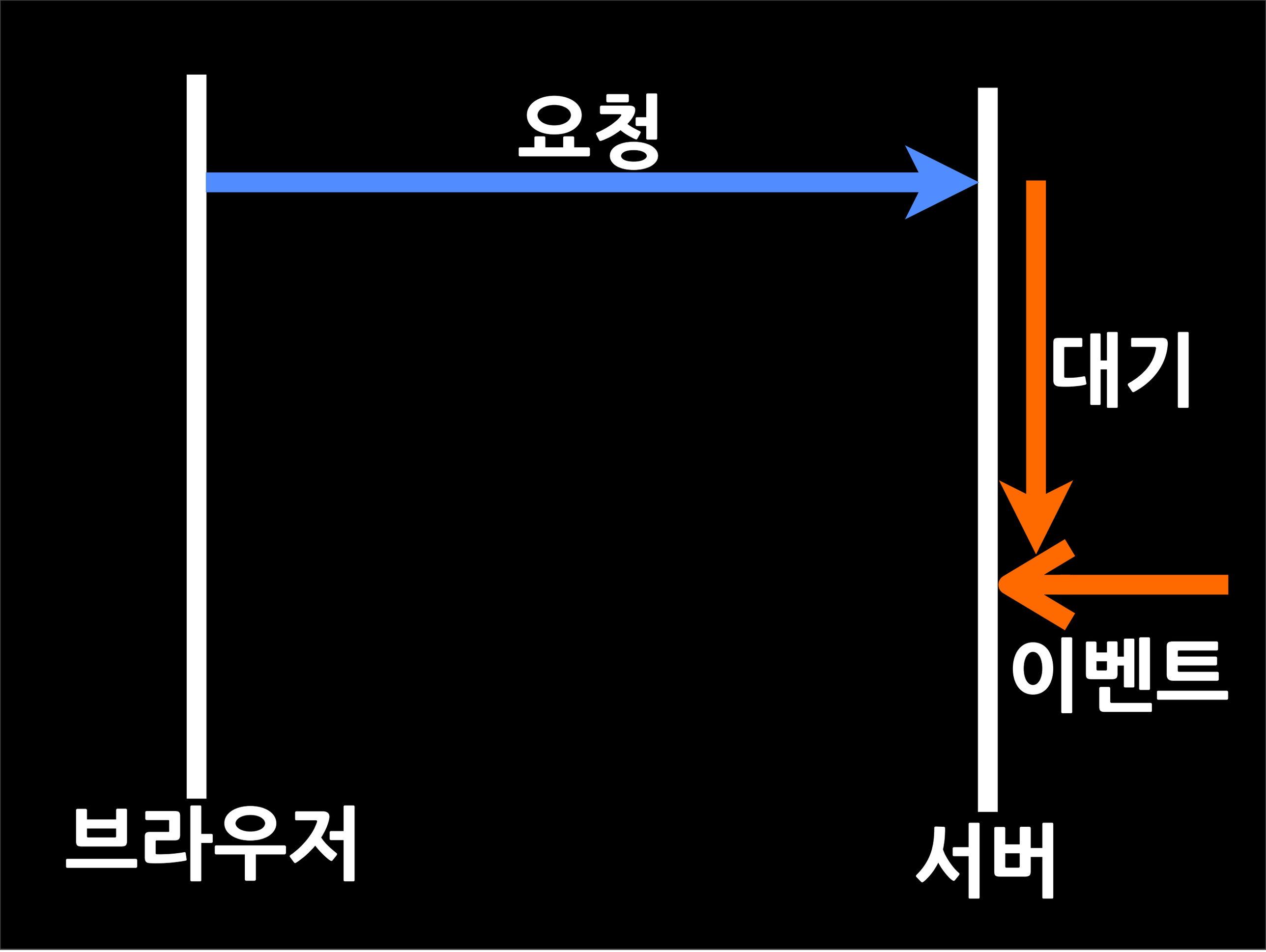
Long Polling

브라우저

서버


요청
브라우저
서버


요청
대기
브라우저
서버


요청
대기
이벤트
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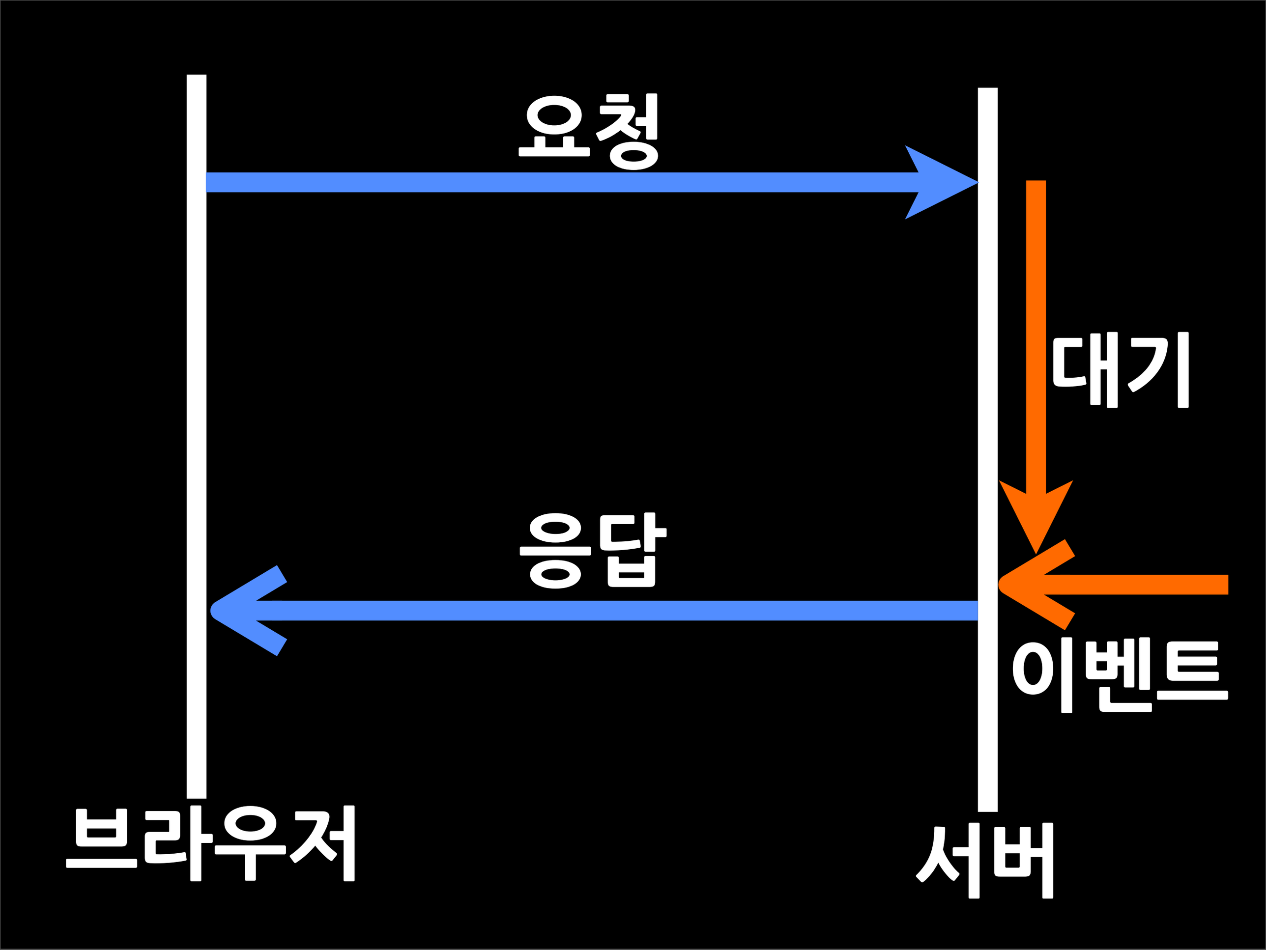
서버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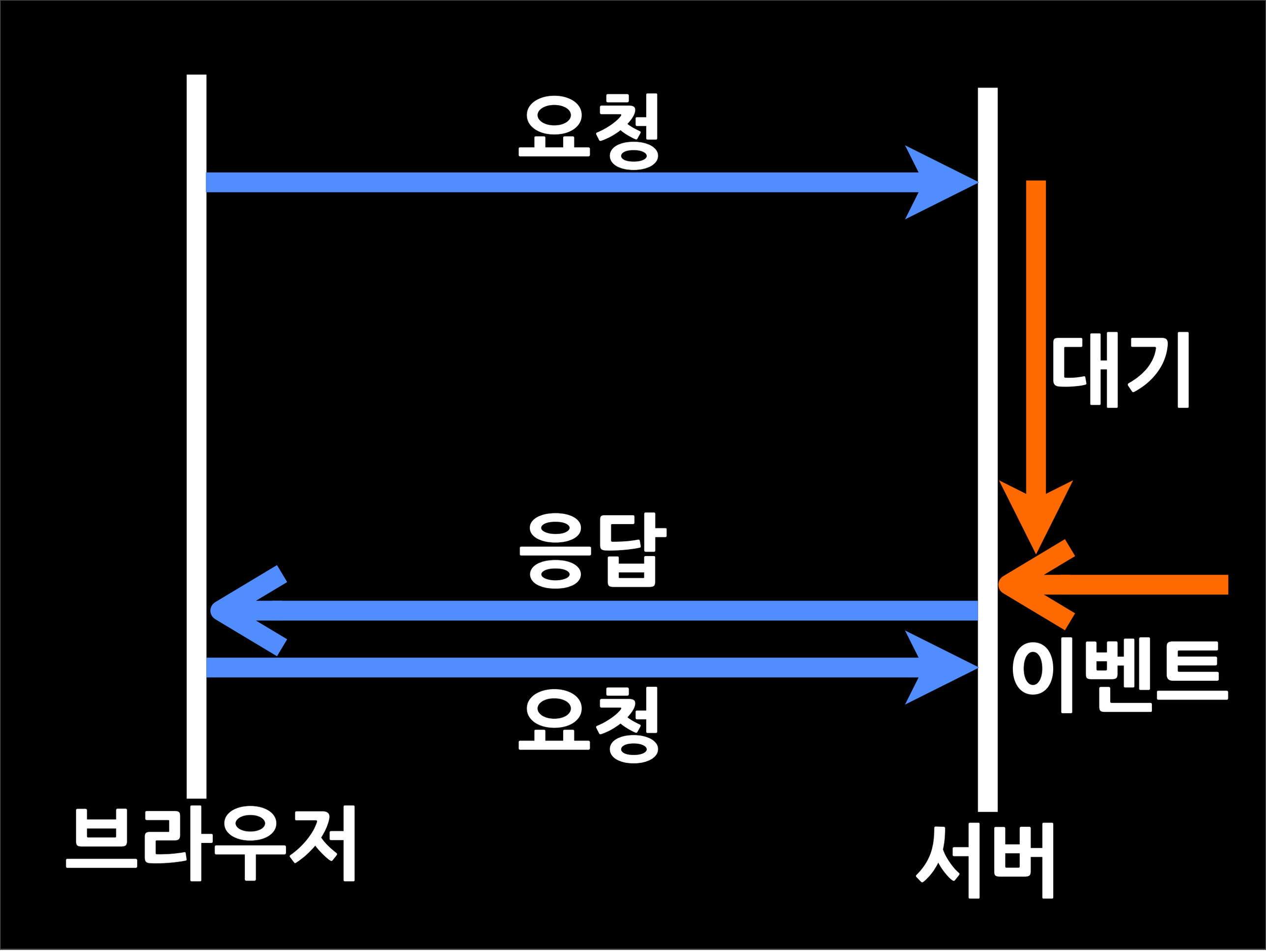

요청
대기
응답
이벤트
요청
브라우저
서버

JSONP

Polling

JSONP ==

JSON with padding

스크립트 태그로 호출

```
<script src="http://domain.com/?callback=process">
</script>
```

서버에서 콜백함수로 JSON객체 리턴

```
process({
    "key": "value",
    "key2": "value2"
});
```

동일출처정책

Same Origin Policy

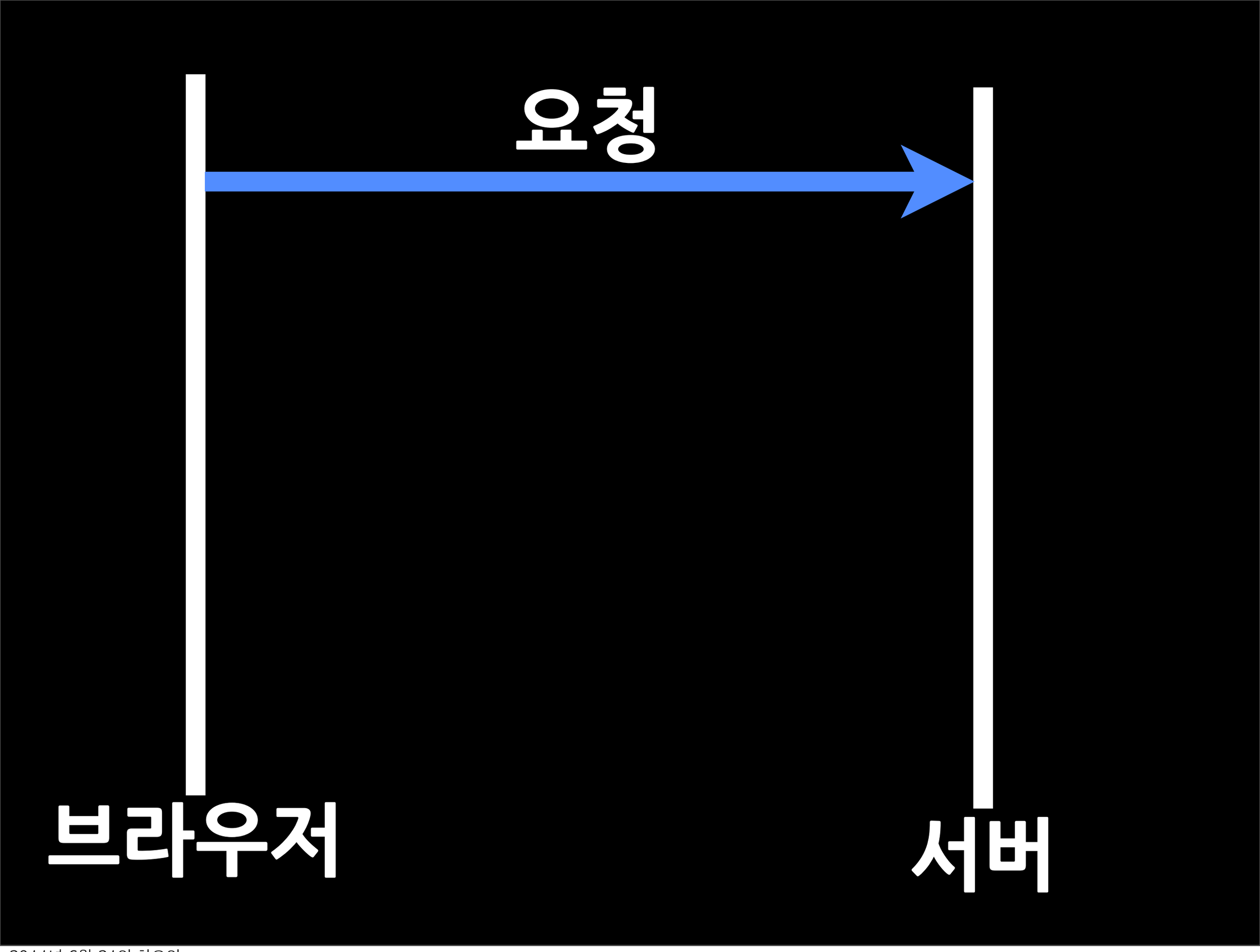
도메인당

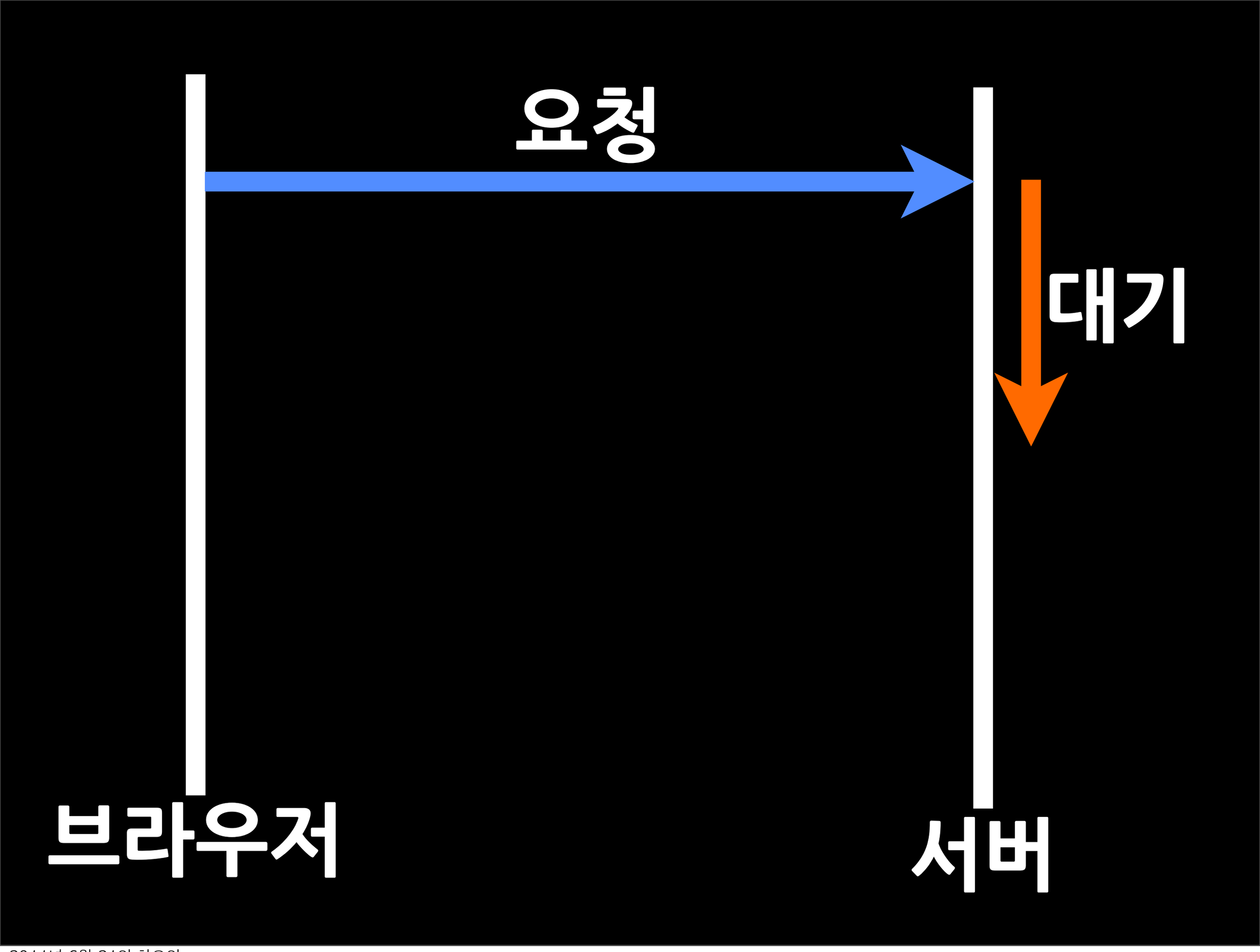
커넥션 2개 제한

Streaming

브라우저

서버


요청
브라우저
서버


요청
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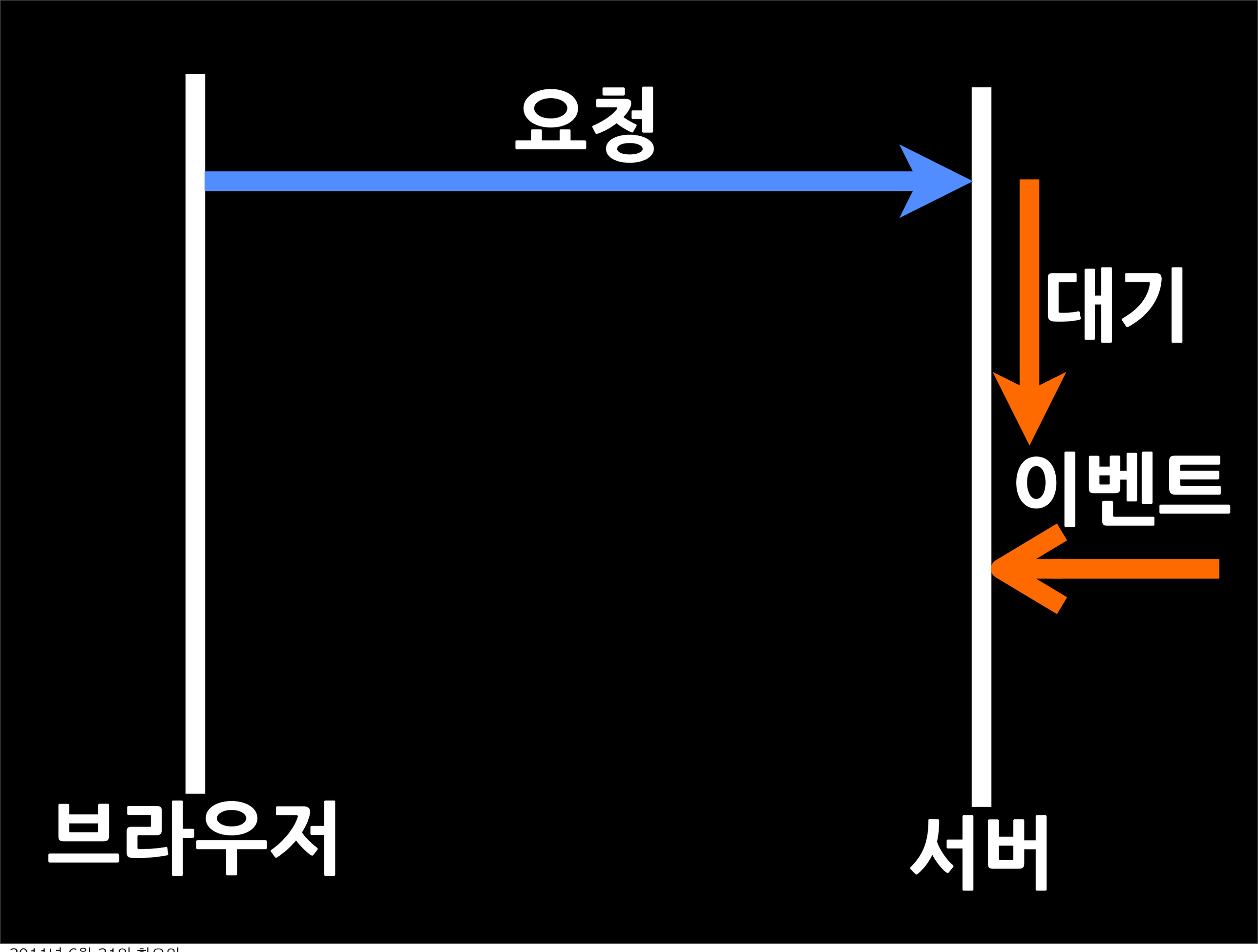

요청
대기
이벤트
브라우저
서버

요청

대기

이벤트

응답 (Chunked)

브라우저

서버

요청

대기

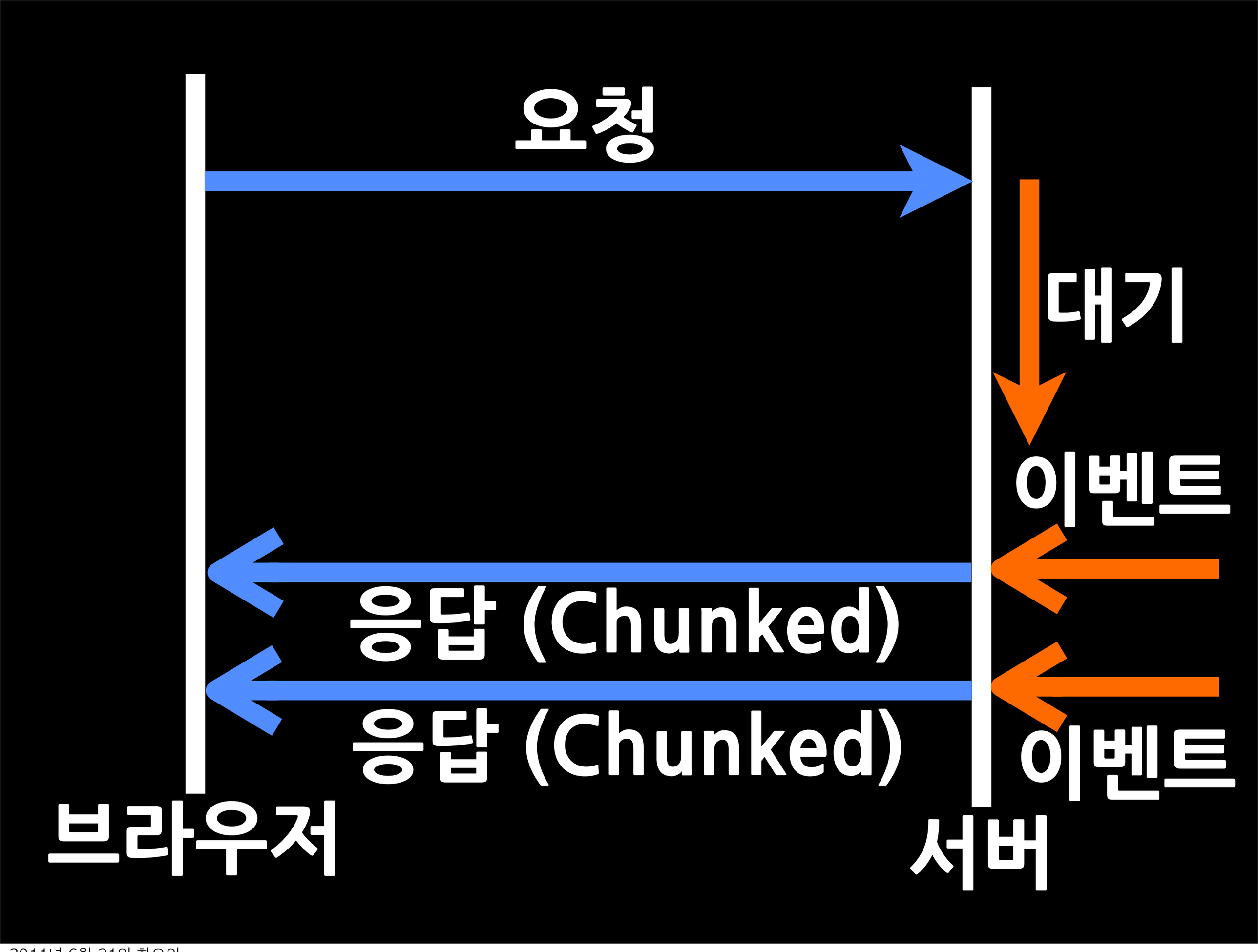
이벤트

응답 (Chunked)

이벤트

브라우저

서버


요청
대기
이벤트
응답 (Chunked)
응답 (Chunked)
이벤트
브라우저
서버

```
var xhr =  new XMLHttpRequest();
xhr.oepn('GET', '/comet', true);

xhr.onreadystatechange = function() {
   if (xhr.readyState == 3
                  && xhr.status == 200) {
      // xhr.responseText
   }
}
```

Chunked???

IE는 지원하지 않습니다

Forever iframe (Hidden iframe)

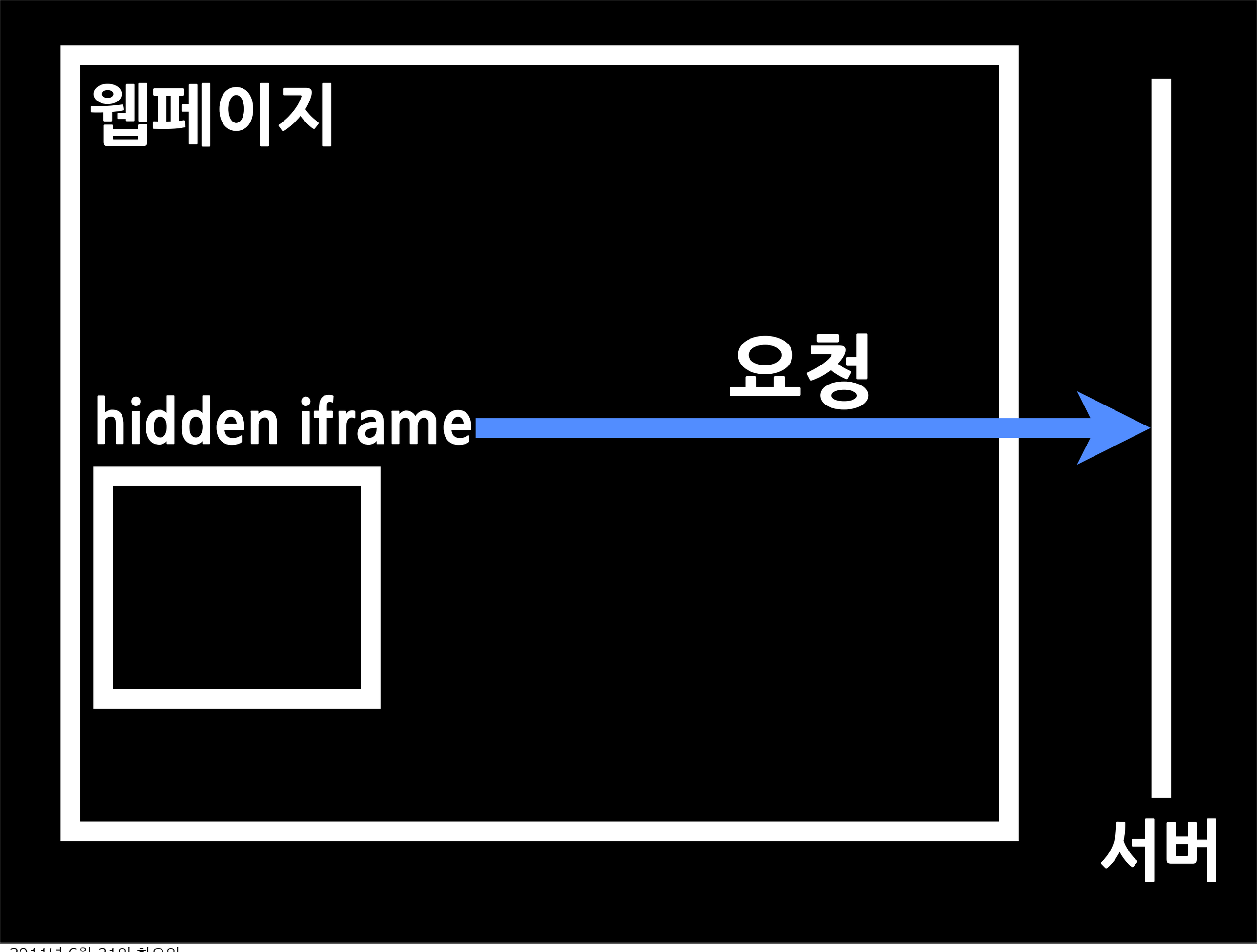
웹페이지

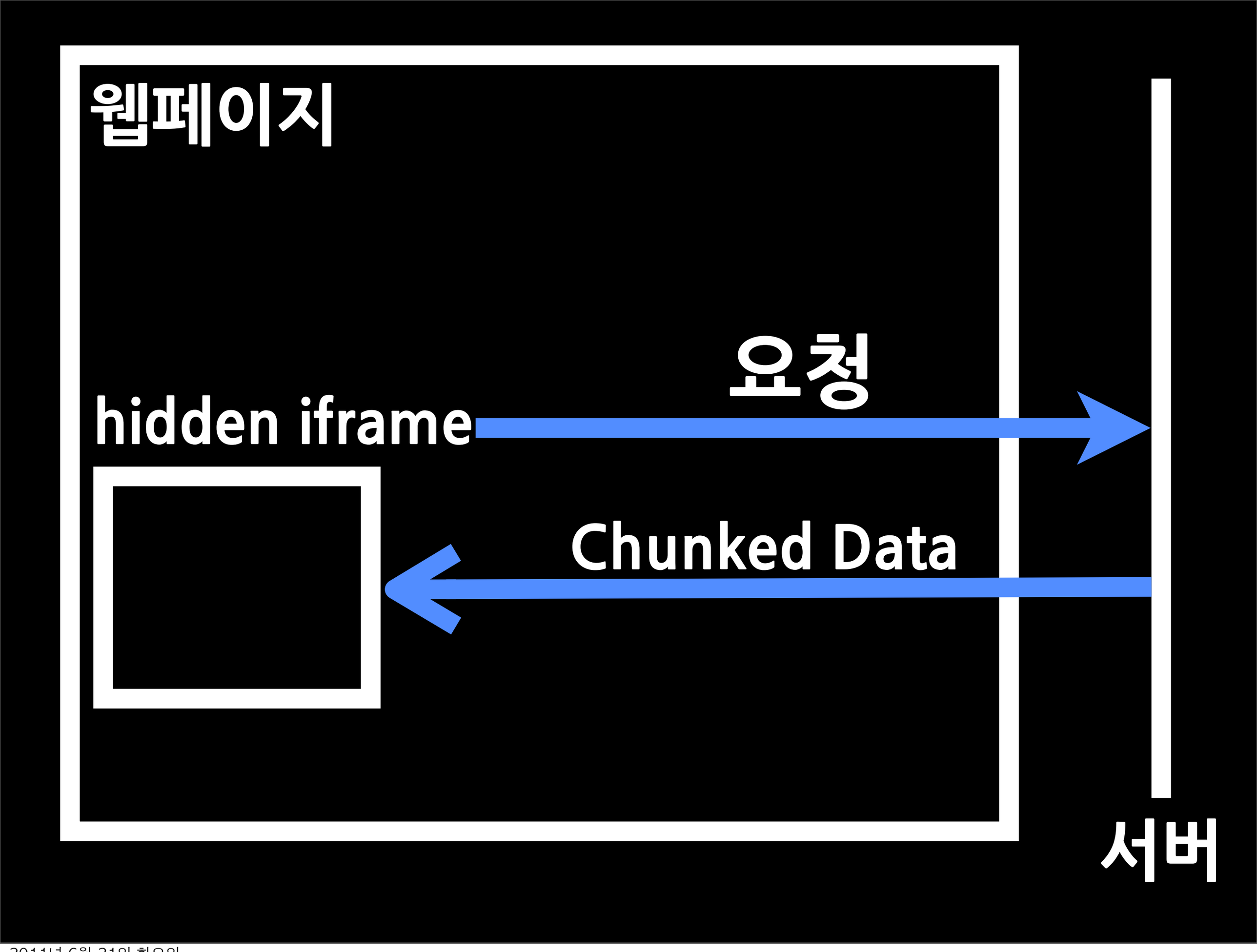
서버

웹페이지

hidden iframe

서버


웹페이지
hidden iframe
요청
서버


웹페이지
hidden iframe
요청
Chunked Data
서버

웹페이지

hidden iframe

요청

Chunked Data

<script>데이터</script>

서버

클릭 소리

로딩바 문제

ActiveXObject(“htmlfile”)

WebSocket

HTML5

W3C/IETF 표준

WebSocket 프로토콜 사용

진정한 양방향 통신

HTTP를
업그레이드해서
웹소켓프로토콜을
연결한다

HTTP 호환 handshake

80/443으로 동작

Proxy/firewall에 친화적

ws://와 wss:// 사용

// 요청
GET /demo HTTP/1.1
Upgrade: WebSocket
Connection: Upgrade
Host: example.com
Origin: http://example.com
Websocket-Protocol: sample

// 응답
HTTP/1.1 101 Web Socket Protocol Handshake
Upgrade: Websocket
Connection: Upgrade
Websocket-Origin: http://example.com
WebSocket-Location: ws://example.com/demo
WebSocket-Protocol: sample

```
var ws =
    new WebSocket("ws://domain.com");

ws.onOpen =
    function(e) { console.log("opened"); }
ws.onRead =
    function(e) { console.log(e.data); }
ws.onClose =
    function(e) { console.log("closed"); }

ws.send("Hello World");
```

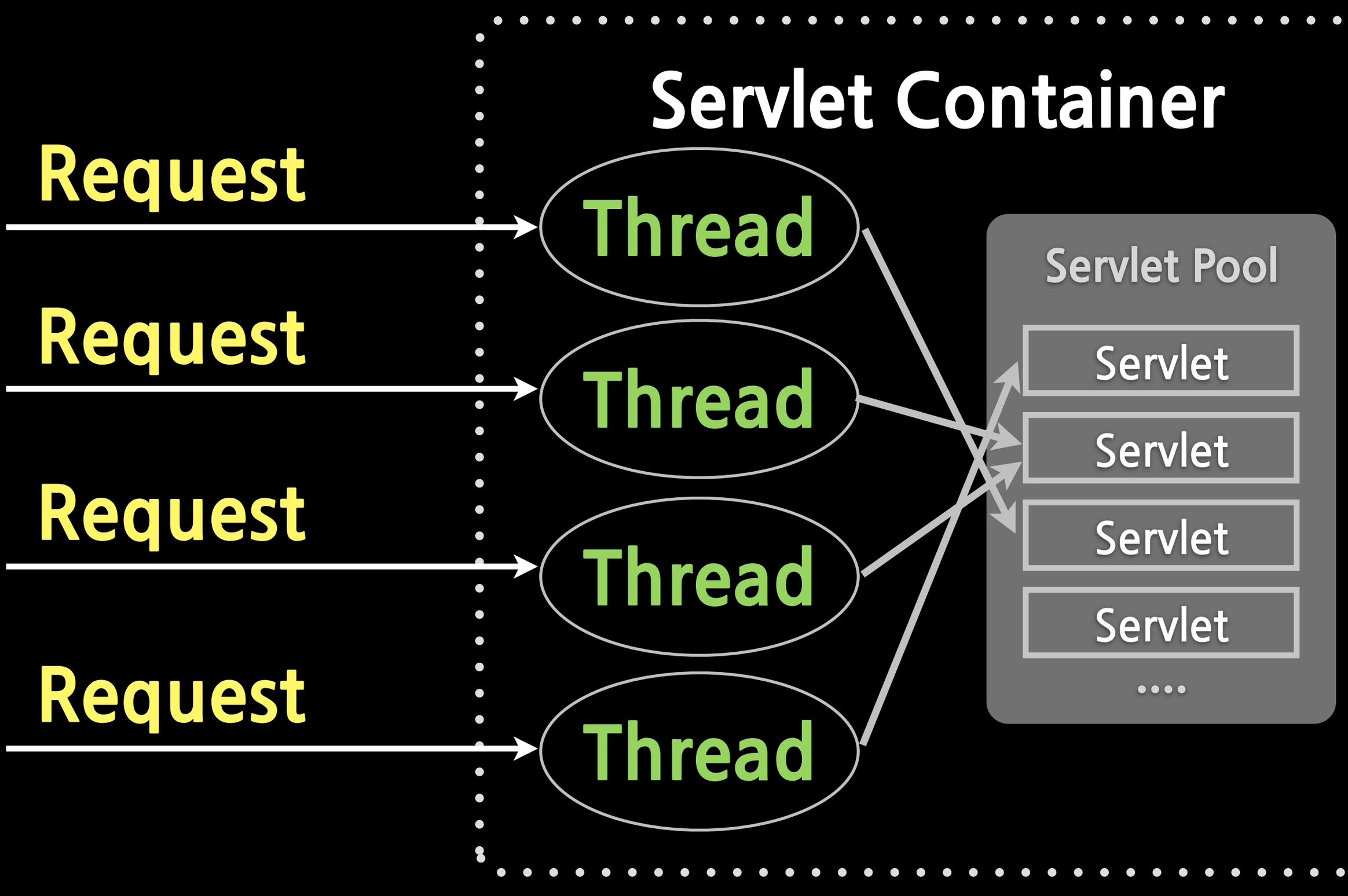
Adobe Flash Socket

Server-side

지속적인 연결!
(persistent connection)

Thread per Request

Thread per Request



Servlet Container

Comet 지원

Resin

(3.1 +)

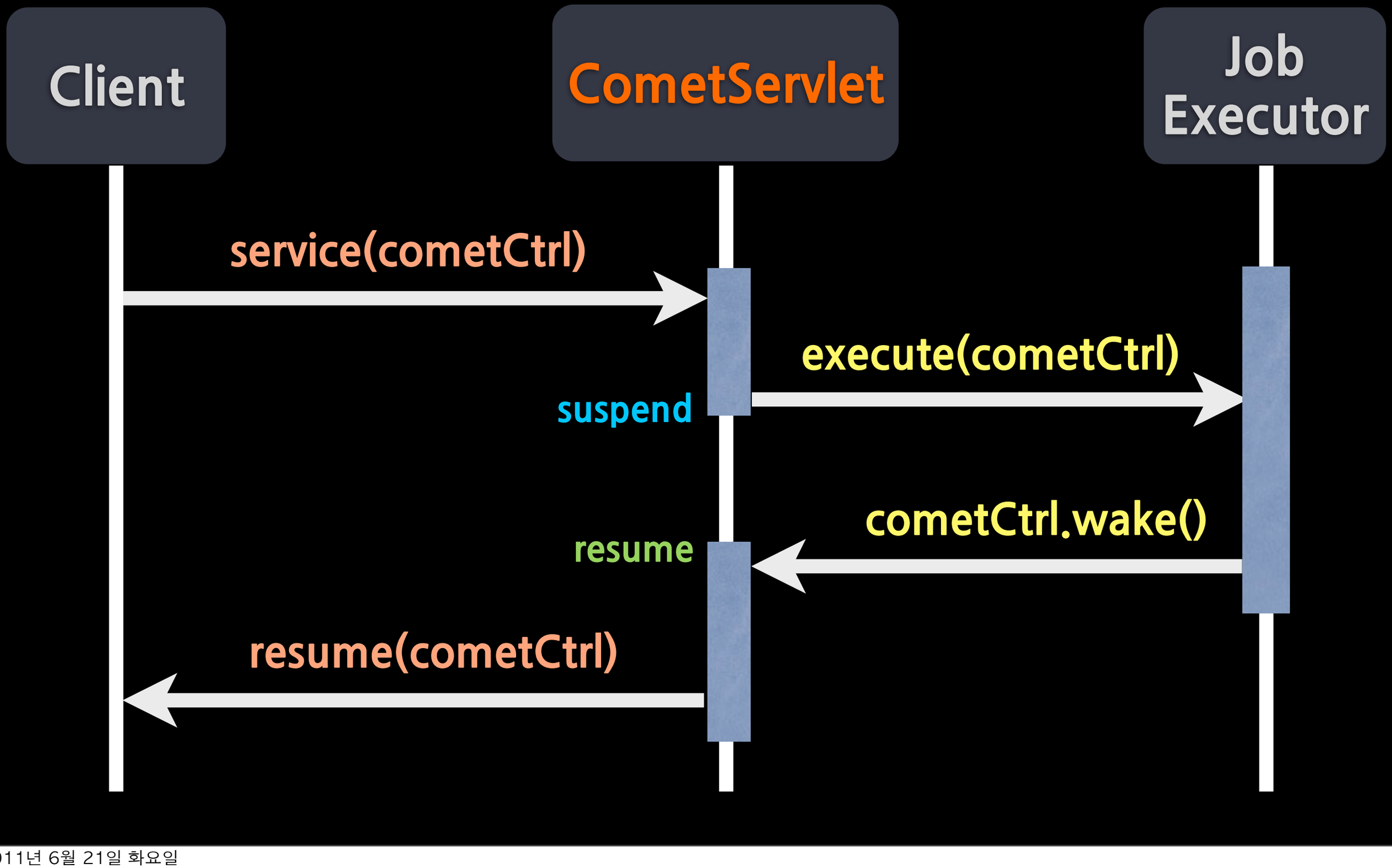
CometServlet

```
public interface CometServlet extends Servlet {

    boolean service(ServletRequest, ServletResponse,
                    CometController)
        throws ServletException, IOException;

    boolean resume(ServletRequest, ServletResponse,
                   CometController)
        throws ServletException, IOException;

}
```

Resin Comet

Sample Code

Resin CometServlet 처리 흐름



Jetty

(3.0 +)

Continuation

```
public interface Continuation {

    public boolean suspend(long timeout);

    public void resume();

    ...

}
```

Tomcat

(6.0 +)

CometProcessor

```
public interface CometProcessor
  extends Servlet {

    public void event(CometEvent)
      throws IOException,
             ServletException;

}
```

Servlet 3.0

(JSR 315)

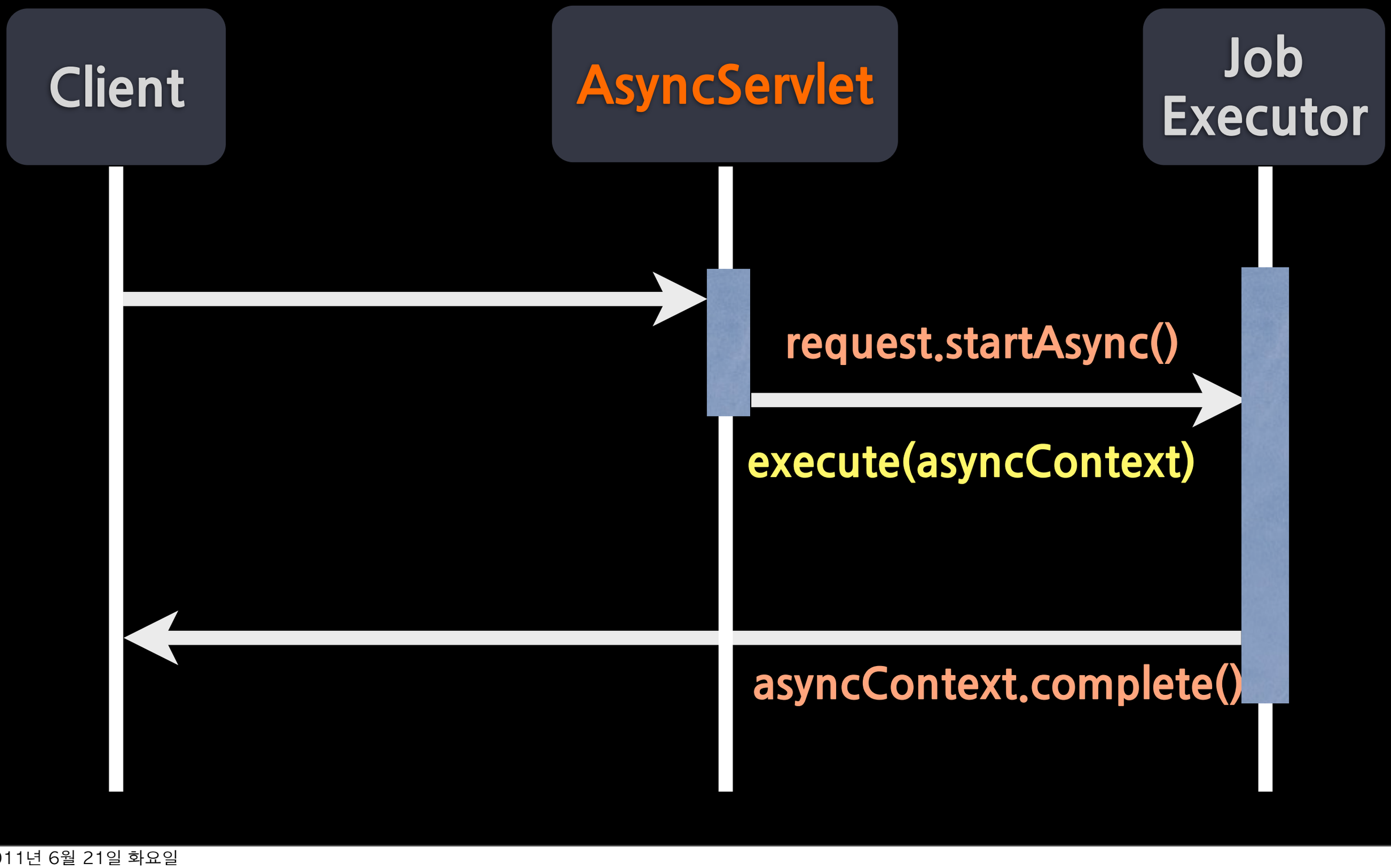
```
<servlet>
  <servlet-name>AsyncMessageListenServlet</servlet-name>
  <servlet-class>...</servlet-class>

    <async-supported>
        true
    </async-supported>

</servlet>
<servlet-mapping>
  <servlet-name>AsyncMessageListenServlet</servlet-name>
  <url-pattern>/messageListen</url-pattern>
</servlet-mapping>
```

```
interface HttpServletRequest
  extends ServletRequest {

  AsyncContext startAsync();

  AsyncContext startAsync(
    ServletRequest, ServletResponse);

}
```

```
public interface AsyncContext {

    public ServletRequest getRequest();

    public ServletResponse getResponse();

}
```

Servlet 3.0 Sample Code

Asynchronous Servlet 처리 흐름



WebSocket

Server

- jWebSocket
  (http://jwebsocket.org/)
- Netty
  (http://www.jboss.org/netty)
- Grizzly
  (http://grizzly.java.net/)

초상화

2011년 6월 21일 화요일

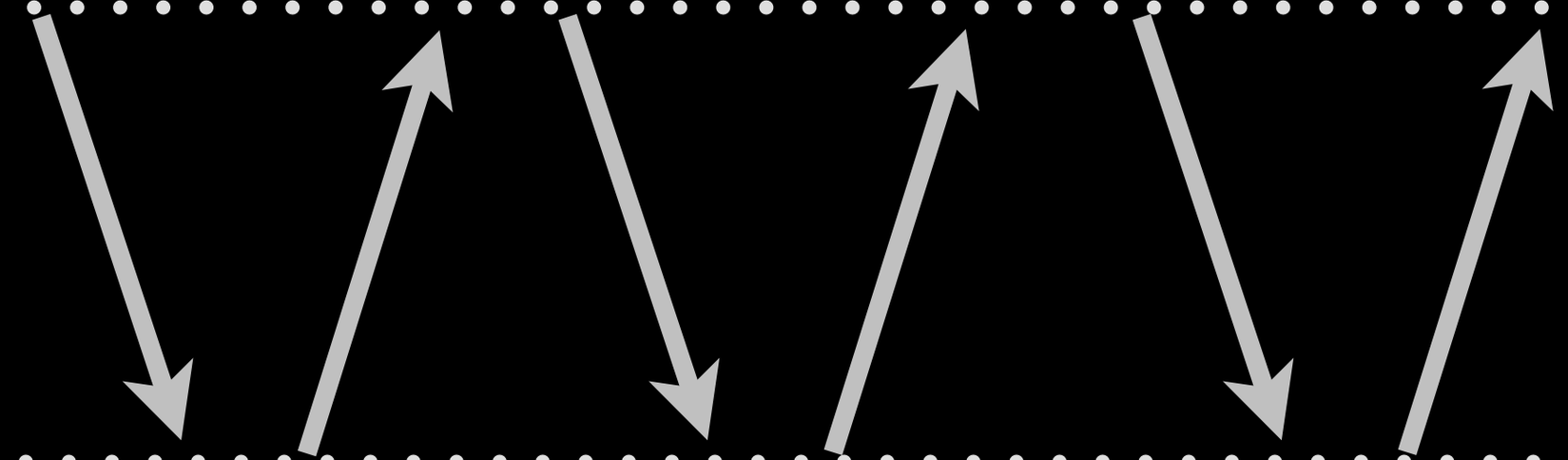
Client side

Web Browser

Internet Explorer / FireFox / Chrome / Safari ...

Comet Client

Long Polling / Streaming(XMLHttpRequest, forever iframe) / WebSocket



Server side

Comet Server

Comet

Library

Lightstreamer

scalable and reliable Server for pushing live data to Rich Internet Applications

Socket.IO

J2EE Servlet based Socket.IO server implementation.

Project Atmosphere

a portable AjaxPush/Comet and WebSocket Framework

Streamhub

HTTP Comet and Reverse Ajax server

	Server Push	Long polling	Hidden iframe	Web Socket	Flash Socket
Lightstreamer	O	O	O	O	O
Socket.IO	O	O	X	O	O
Atmosphere	O	O	O	O	X
Streamhub	O	O	O	O	O

Streamhub
-
QX Quiz
Code Review

https://github.com
/spring-sprout
/jco-2011-realtime

Thread vs Evented

Questions...?

Arawn

arawn.kr@gmail.com

http://arawn.tistory.com

Outsider

outsideris@gmail.com

http://blog.outsider.ne.kr

끝