



Orbited: Scalable Comet

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slides and diagrams by Jacob Rus*



16 June 2008
Presentation to MySpace

What is Comet?

Gmail Chat

The screenshot shows the Gmail interface with the 'Chats' section selected. A conversation with Aaron Swartz is displayed, showing a message from him about adding a post. The interface includes standard Gmail navigation elements like 'Compose Mail', 'Inbox (8)', and 'Starred'.

Chat with Aaron Swartz

Aaron: I guess I should add my post about how dangerous that kind of thinking is back into the pipe
I took it out because I thought it was obvious; plainly not

10:32 AM Aaron: Aaron is not available to chat

meebo

The meebo interface shows a chat window with Jacob Rus and a buddy list window showing availability levels 02 through 06.

Renkoo

The Renkoo interface shows an event invitation for "John invites you to 'some stuff' this week - Do it again?". It includes sections for "Me", "Events", "Places", and "Fun". A "Buddy List" window is overlaid, showing a list of users available for chat.

Michael

Other: Michael invites you to "Kumbaya" at El Cholo in Los Angeles, date TBD

Chat Guest List

Invited: 2 Yes: 1 Maybe: 1 No: 0

Renkoo Bee: Renkoo 06:51pm (07/26) welcomes you. Choose your response and press Send to begin the chat.

John: woohoo! 09:06am (08/08)

John: okay, let's see this chat 09:50am (08/08)

John: okay, I'm chatting away 09:50am (08/08)

Your Response

I'm there!
 Sorry, can't make it this time.
 Maybe, depends on...

type a message

Customize your response

Send

Meebo

Transports

IFrame

html page

invisible
IFrame

script tag

etc....

web server

IFrame
Streaming

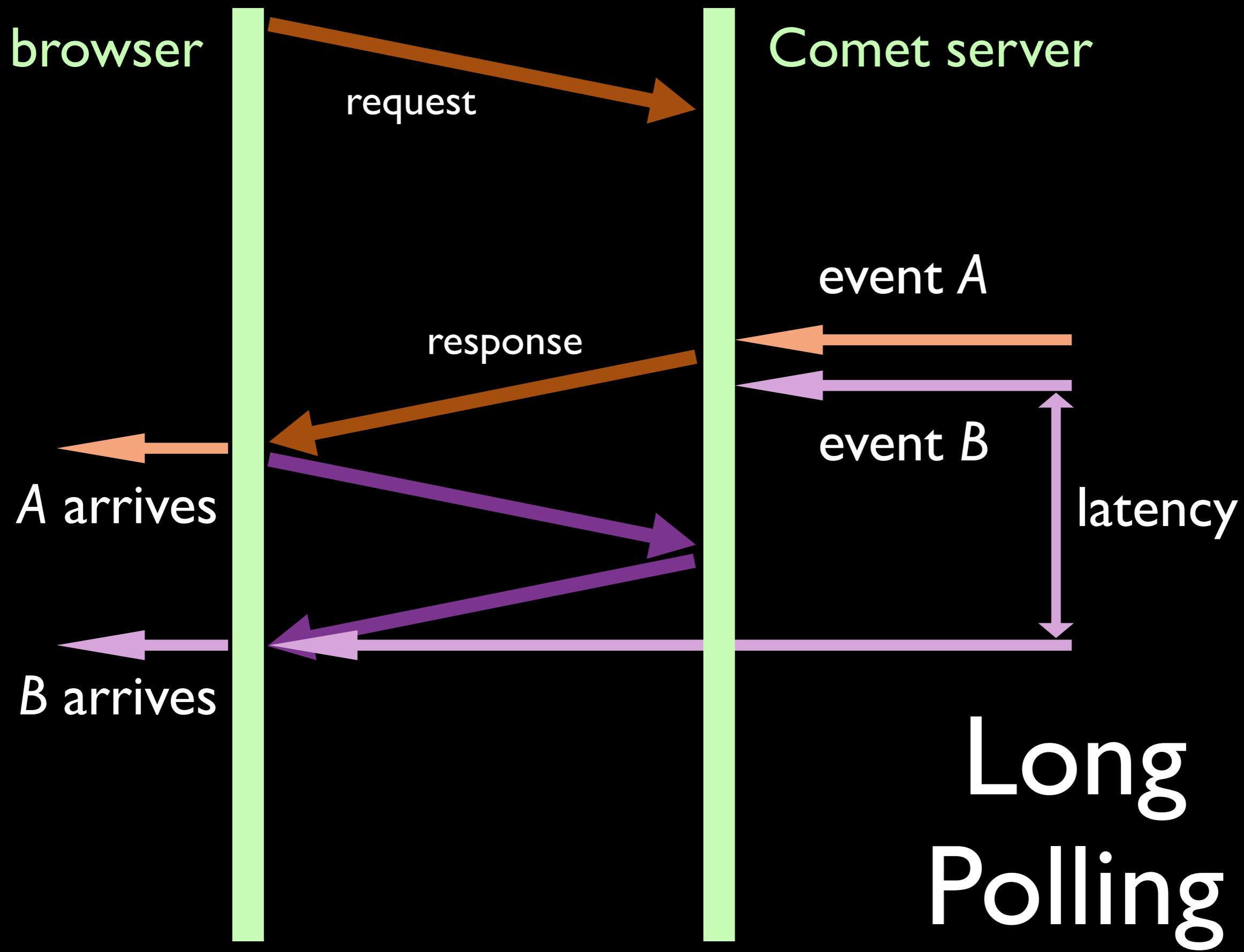
```
-----  
| function iframe_streaming(url, event_callback) {  
|   var ifr = document.createElement('iframe');  
|   ifr.setAttribute('src', url);  
|   document.body.appendChild(ifr);  
|   ifr.e = event_callback;  
| }  
-----
```



photo by John-Morgan

unacceptable:
usability

XHR Long-Polling



```
-->----->
| function long_polling(url, event_callback) {
|   xhr = createXMLHttpRequest();
|   xhr.onreadystatechange = function() {
|     try {
|       if (xhr.status == 200) {
|         if (xhr.readyState == 4) {
|           data = eval(xhr.responseText);
|           if (data != undefined)
|             event_callback(data);
|             long_polling(event_callback);
|           }
|         }
|       }
|       catch(e) {}
|     }
|     xhr.open("GET", url);
|     xhr.send(null);
|   }
|-----<
```



photo by bingbing



photo by Bob Jagendorf



photo by Jsome1

$20 \times$ bandwidth

unacceptable:
latency
bandwidth



photo by Michael (mx5tx)

HTMLFile Object

ActiveX!



photo by Mykl Roventine

works great.
no side-effects

Explorer only

XHR Streaming

ready state 3

manually parse
own format

Server-Sent Events

**standard:
HTML5**

deprecated version
implemented by Opera

streaming,
not a hack

Opera 8+ only

Transport Conclusions

it's hacks
all the way down



aim
carefully

bullseye?



photo by Diane Allison-Stroud

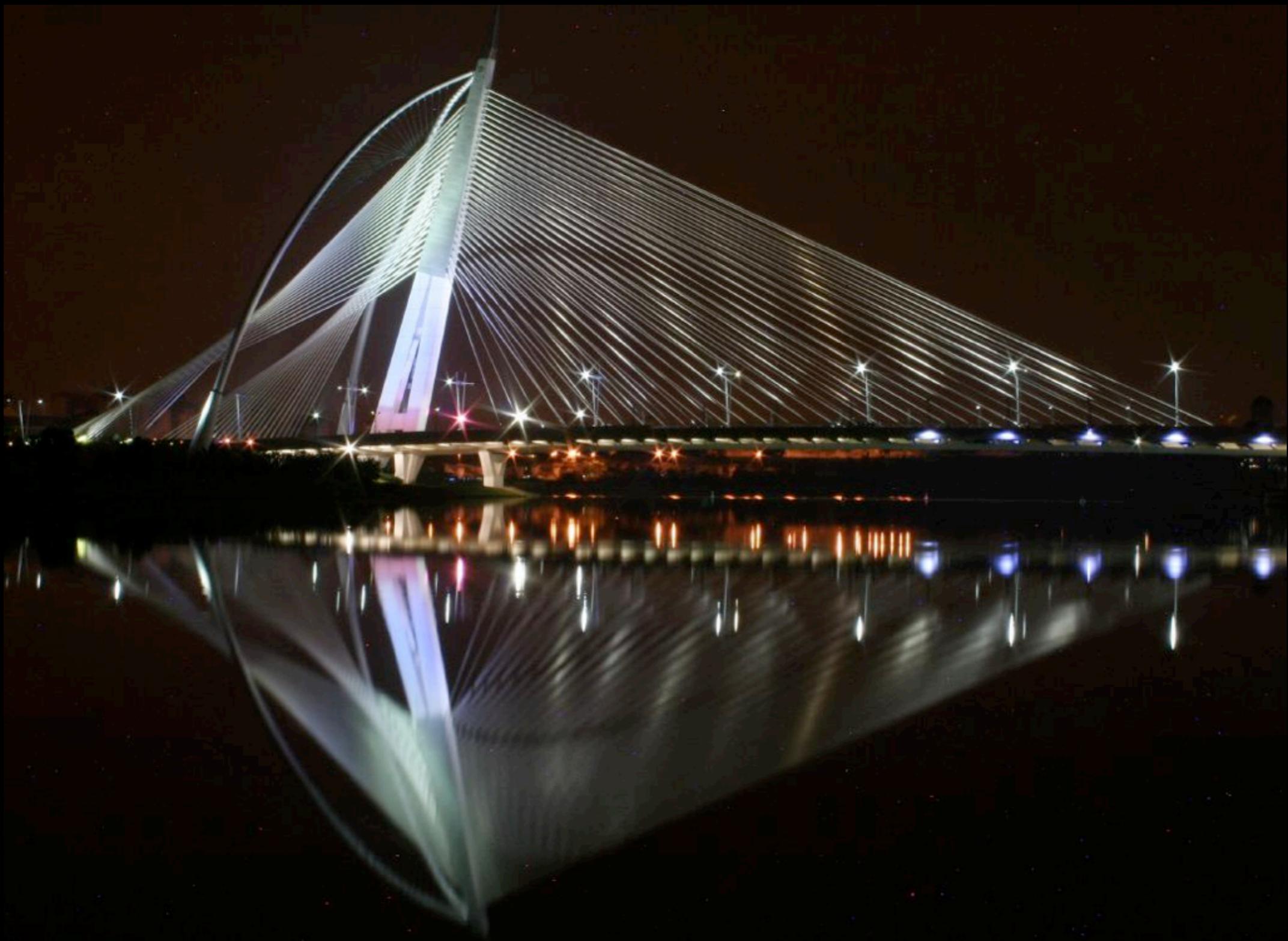


photo by Jiaren Lau

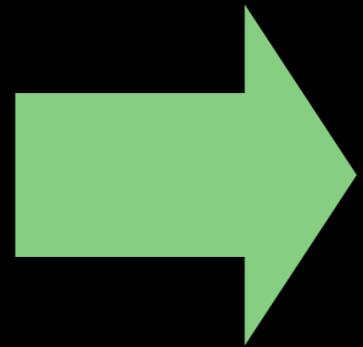
Scalability

Vertical Scaling



photo by Michael (mx5tx)

Comet + threads
≠ scalable



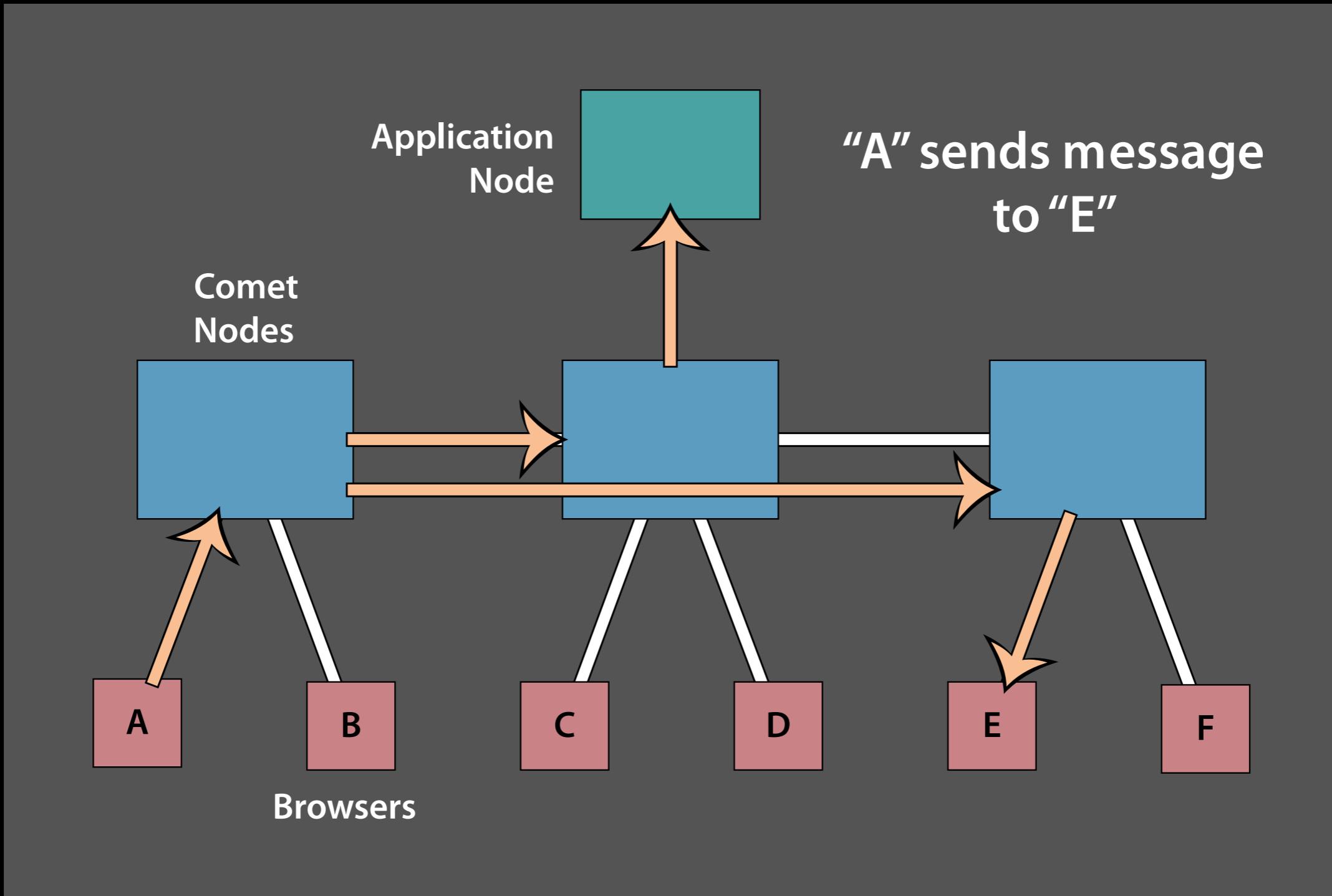
photos by babasteve & jurvetson

zzzz.

Horizontal Scaling



photo by ulybug



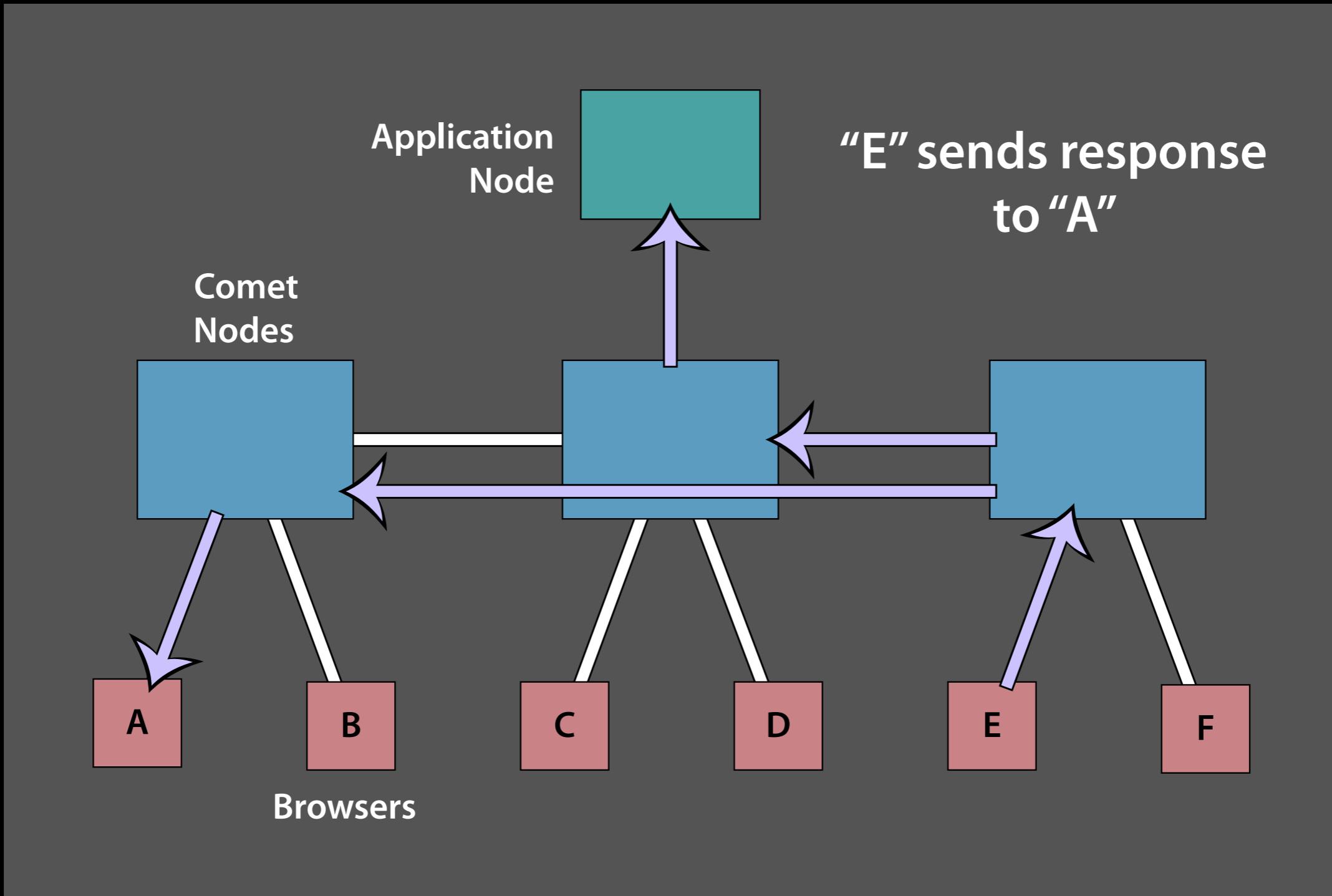


diagram:
offboard comet w/
jabber

ihasa...



diagram:
offboard comet w/
jabber



TCPConnection



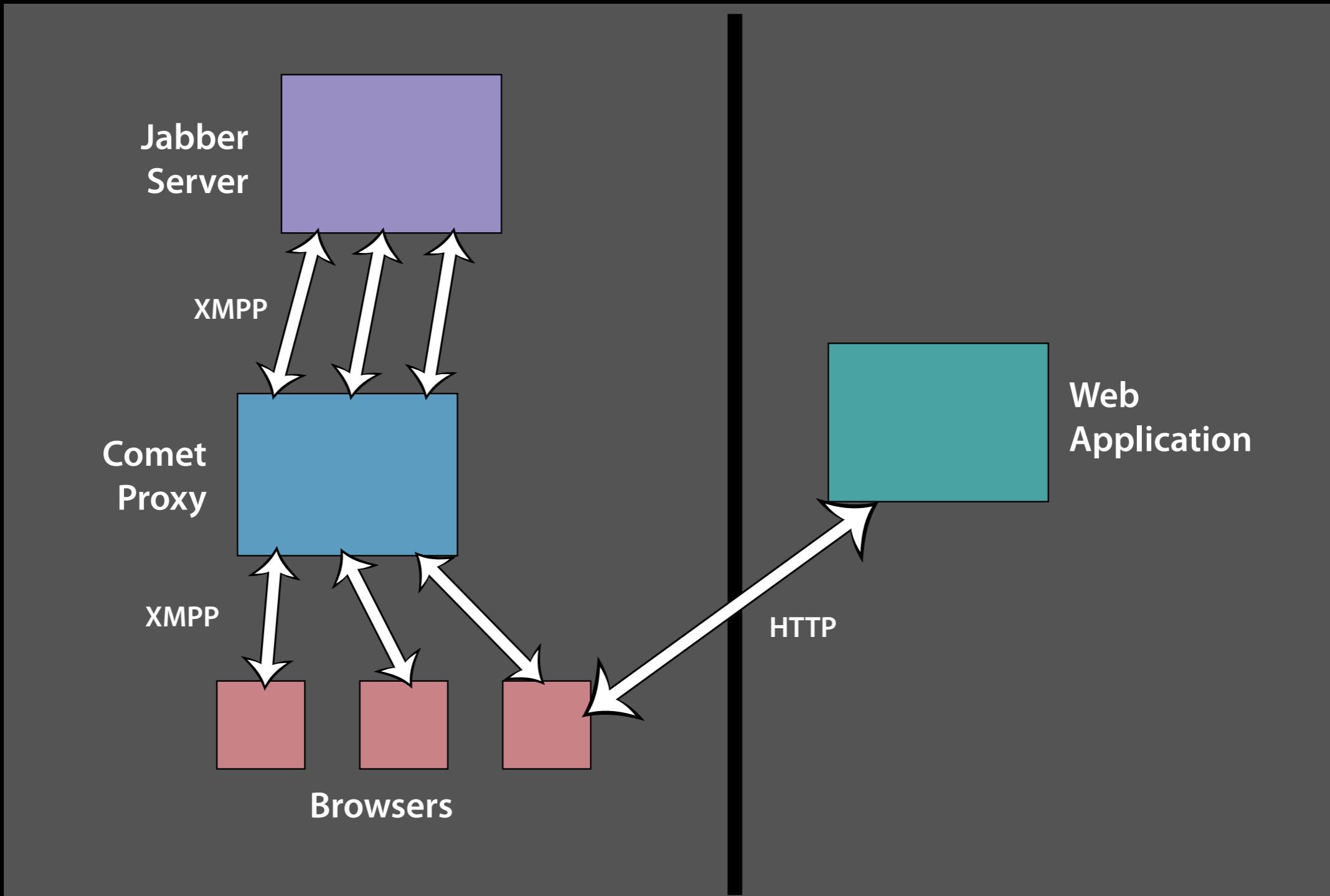
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Browser –
(Comet Proxy + Jabber)
diagram

Phew!

diagram: Jabber server
cloud with half Comet
proxies, half normal



photo by juan23for

diagram: Jabber server
with comet proxy on
left, web app on the
right, sql server behind
both

ORBITED



photo by Diane Allison-Stroud



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