



HTTP2 Server Push

with ASP.NET Core



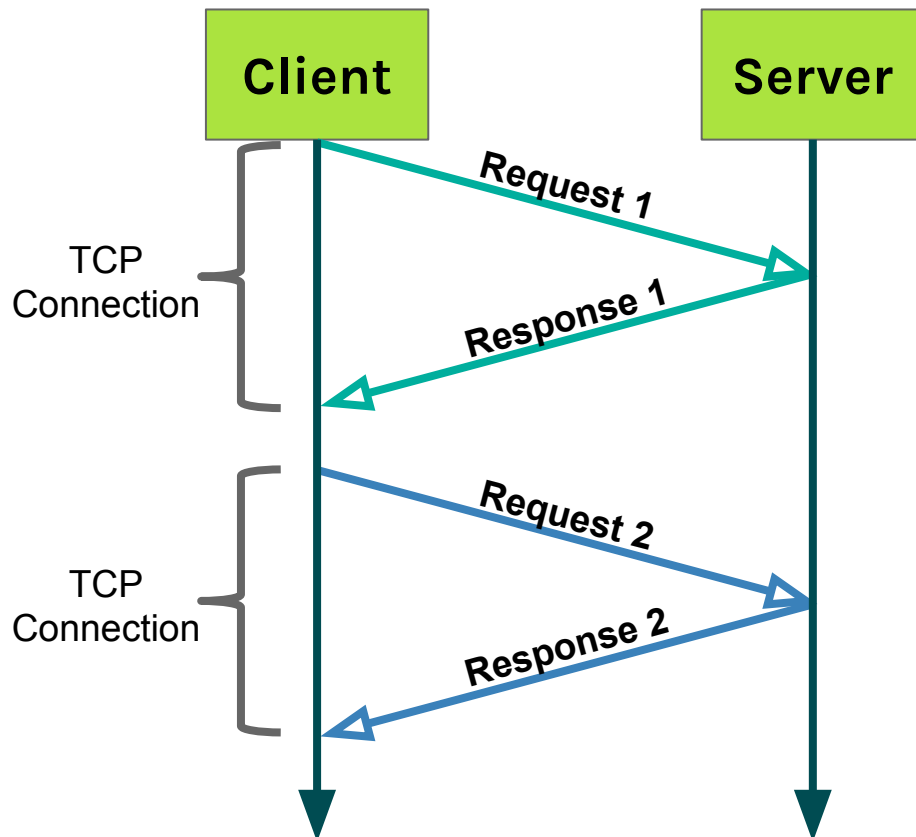
Welcome to the Bangkok .NET User Group!

My name's Will

I work here at Jetabroad

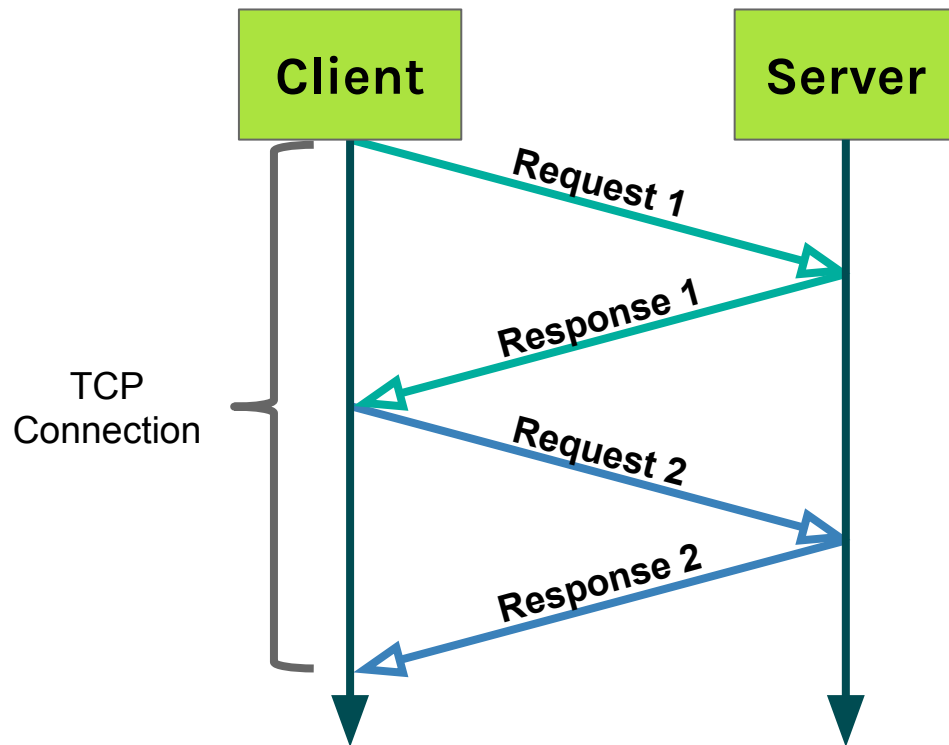
We'll push the slides and source code to
github.com/Jetabroad/DotNetUserGroup

HTTP 1.0 (1996)



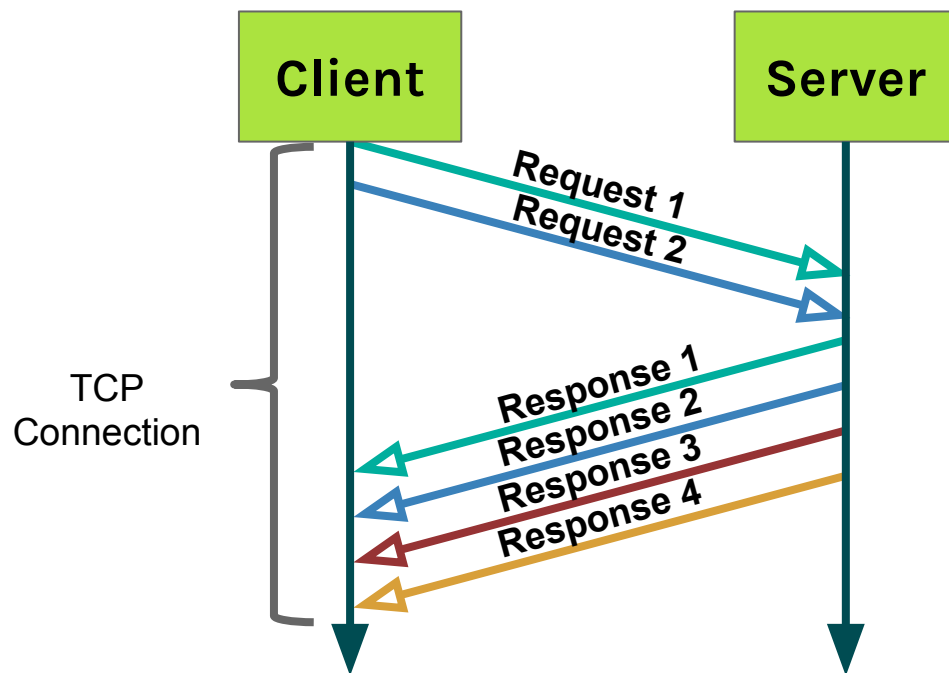
- Browsers issue HTTP 1.0 requests serially
- One request per TCP connection
- TCP connections are expensive

HTTP 1.1 (1999)



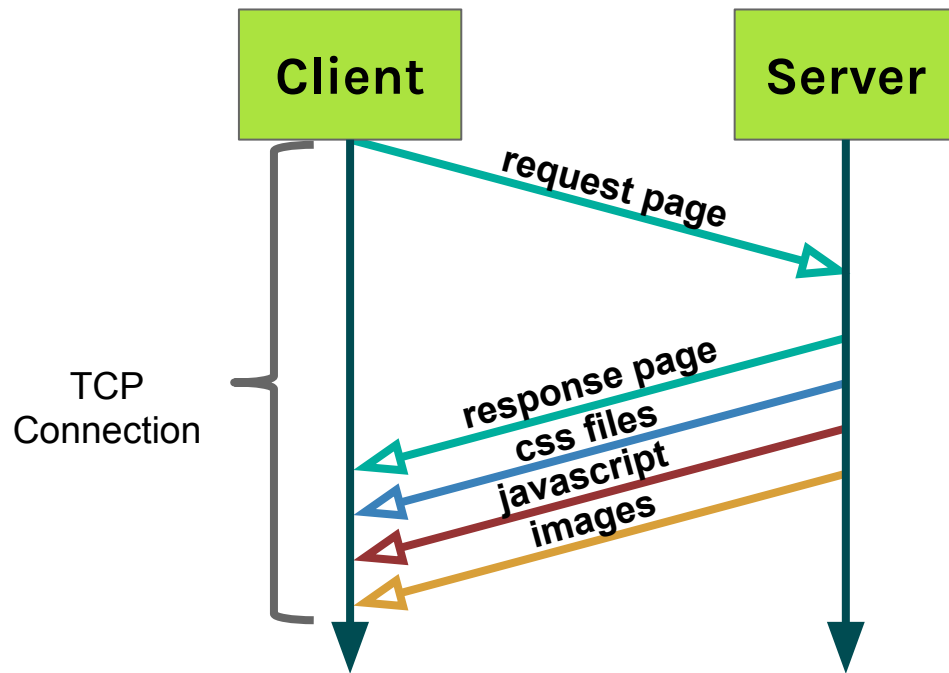
- Browsers issue HTTP 1.1 requests serially
- Reuse the TCP connection (keep-alive)
- Some parallelism via multiple TCP connections
- TCP connections are expensive!

HTTP 2



- Browsers issue HTTP2.0 requests in **parallel** (multiplexing)
- Binary protocol
- Server can “push” resources

HTTP 2.0 Server Push



- Client requests a page
- Server returns the page
- Server pushes page dependencies

Support for using HTTP2

Client

- Supported by 80% of browsers¹
- Unsupported browsers fall back to HTTP1.1
- HTTPS-only (browser restriction)

Server

- Apache and nginx
- IIS (Windows Server 2016)
- Roughly 12% of the web is on HTTP2²

¹ caniuse.com

² w3techs.com

The background features a series of overlapping geometric shapes, primarily triangles and polygons, in various shades of green and teal. The colors range from a bright lime green to a dark, almost blackish-green. The shapes are layered to create a sense of depth and movement, with some shapes appearing to recede into the background while others come forward.

**So how we can use this in
ASP.NET ?**

ASP.NET (not Core)

Easy!

- If you're using .NET 4.6, just call:
[HttpContext.Response.PushPromise\(string path\)](#)
- We won't talk too much about this. See Tomasz Pęczek's blog post here:
<http://tpeczek.blogspot.com/2016/12/one-of-new-features-in-http2-is-server.html>

ASP.NET Core

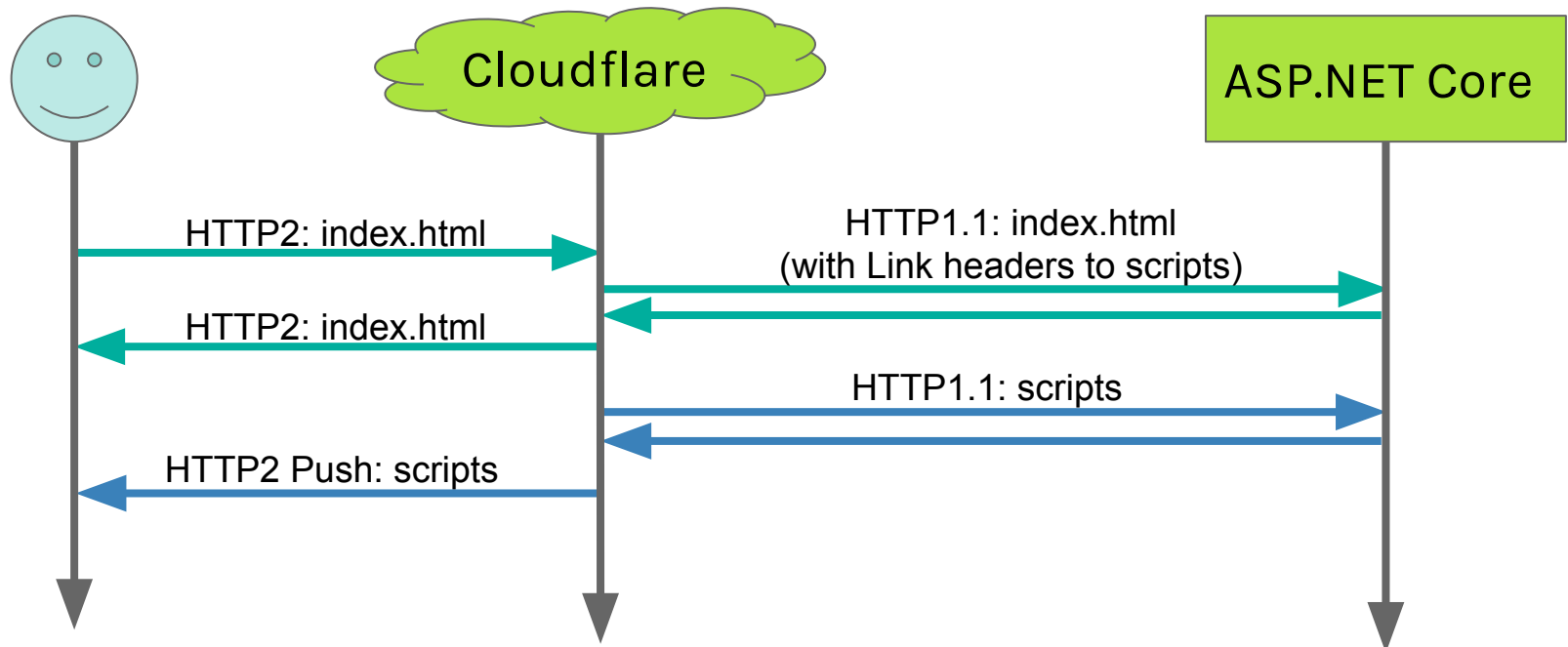
Not so easy!

- No support in ASP.NET Core (yet). See [GitHub Issue #73](#) open for a few years.
- We can use “Link Header HTTP2 Push”
 - Supported by Apache, nginx, and CloudFlare



If you can add a “Link”
HTTP header to a response,
you can HTTP2 push!

ASP.NET Core with Link Headers





demo time!

<https://aspnetcorepush.me>



New feature in ASP.NET MVC Core: Tag Helpers

```
<form asp-controller="Account" asp-action="Register" method="post" class="form-hori
  <h4>Create a new account.</h4>
  <hr />
  <div asp-validation-summary="ValidationSummary.All" class="text-danger"></div>
  <div class="form-group">
    <label asp-for="Email" class="col-md-2 control-label"></label>
    <div class="col-md-10">
      <input asp-for="Email" class="form-control" />
      <span asp-validation-for="Email" class="text-danger"></span>
    </div>
  </div>
  <div class="form-group">
    <label asp-for="Password" class="col-md-2 control-label"></label>
    <div class="col-md-10">
      <input asp-for="Password" class="form-control" />
      <span asp-validation-for="Password" class="text-danger"></span>
    </div>
  </div>
  <div class="form-group">
    <label asp-for="ConfirmPassword" class="col-md-2 control-label"></label>
    <div class="col-md-10">
      <input asp-for="ConfirmPassword" class="form-control" />
      <span asp-validation-for="ConfirmPassword" class="text-danger"></span>
    </div>
  </div>
  <div class="form-group">
    <div class="col-md-offset-2 col-md-10">
      <button type="submit" class="btn btn-default">Register</button>
    </div>
  </div>
</form>
```

Tag Helper for HTTP2 Push

```
<script http-push src="/lib/jquery/dist/jquery.min.js"></script>  
<script http-push src="/lib/jquery-validation/dist/jquery.validate.min.js"></script>
```


Thanks!

any questions?

