

O'REILLY®

# Velocity

China 2013

Web性能与运维大会



Beijing, China

Aug 20-21, 2013

[velocity.oreilly.com.cn](http://velocity.oreilly.com.cn)

# Simple Universal Performance Tricks

before you get to the browser

# A bit about me.

- I don't like technology much... it never works right.
  - browser on the client are broken, poor networks, buggy software, broken operating systems, on buggy firmware, on buggy hardware.  
(a big pile of !@\$%)
- I respect and value technology... when it improves people's lives.
- I like the industry... great people, interesting problems, lots of sharing.
- I like open source... participated in almost 100 projects.
- I like beards... or at least they like me.

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**Velocity is...**  
about building a faster web.

# The typical focus...

- Server-side performance:
  - quick responses, asynchronous system design
- Client-side performance:
  - short, but comprehensive client-server communication
  - efficient Javascript
  - clean HTML
  - efficient CSS
- People today and tomorrow are going to talk to you about this!

# Web performance often focuses in the browser

- But, that assumes you can get the content there...

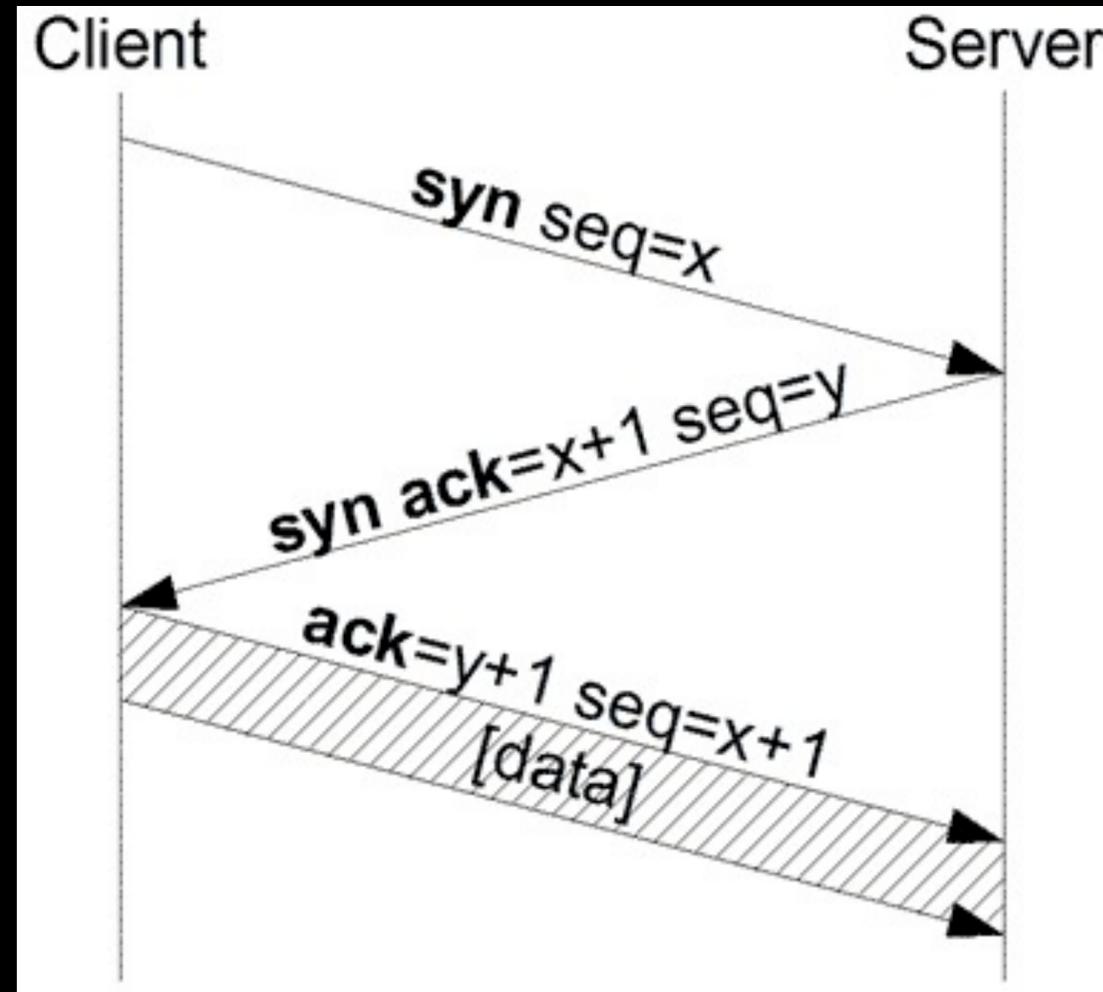
# Web performance often focuses on the browser

- the first thing that prevents us from getting content to the browser is:

# LATENCY

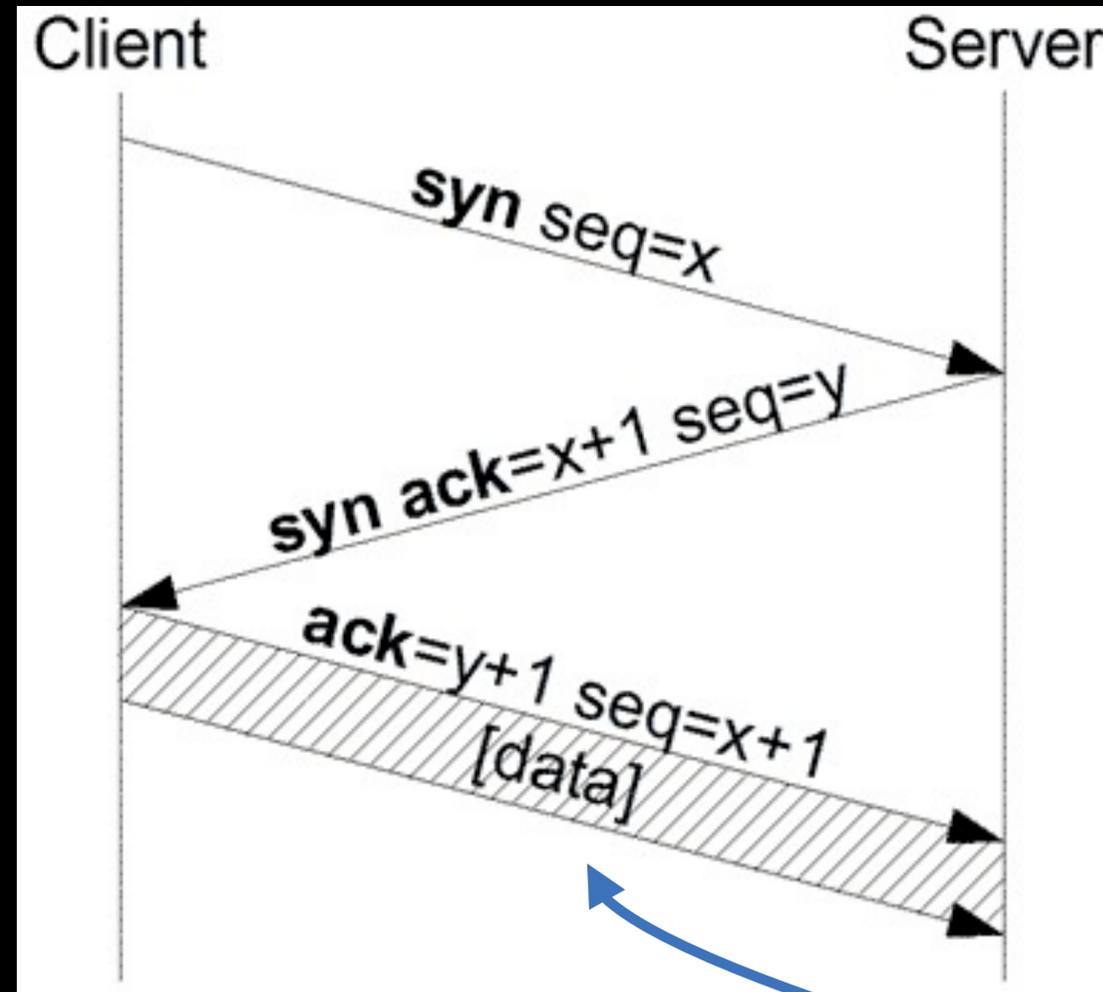
# Web performance often focuses on the browser

- TCP... how it works



# Web performance often focuses on the browser

- TCP... how it works

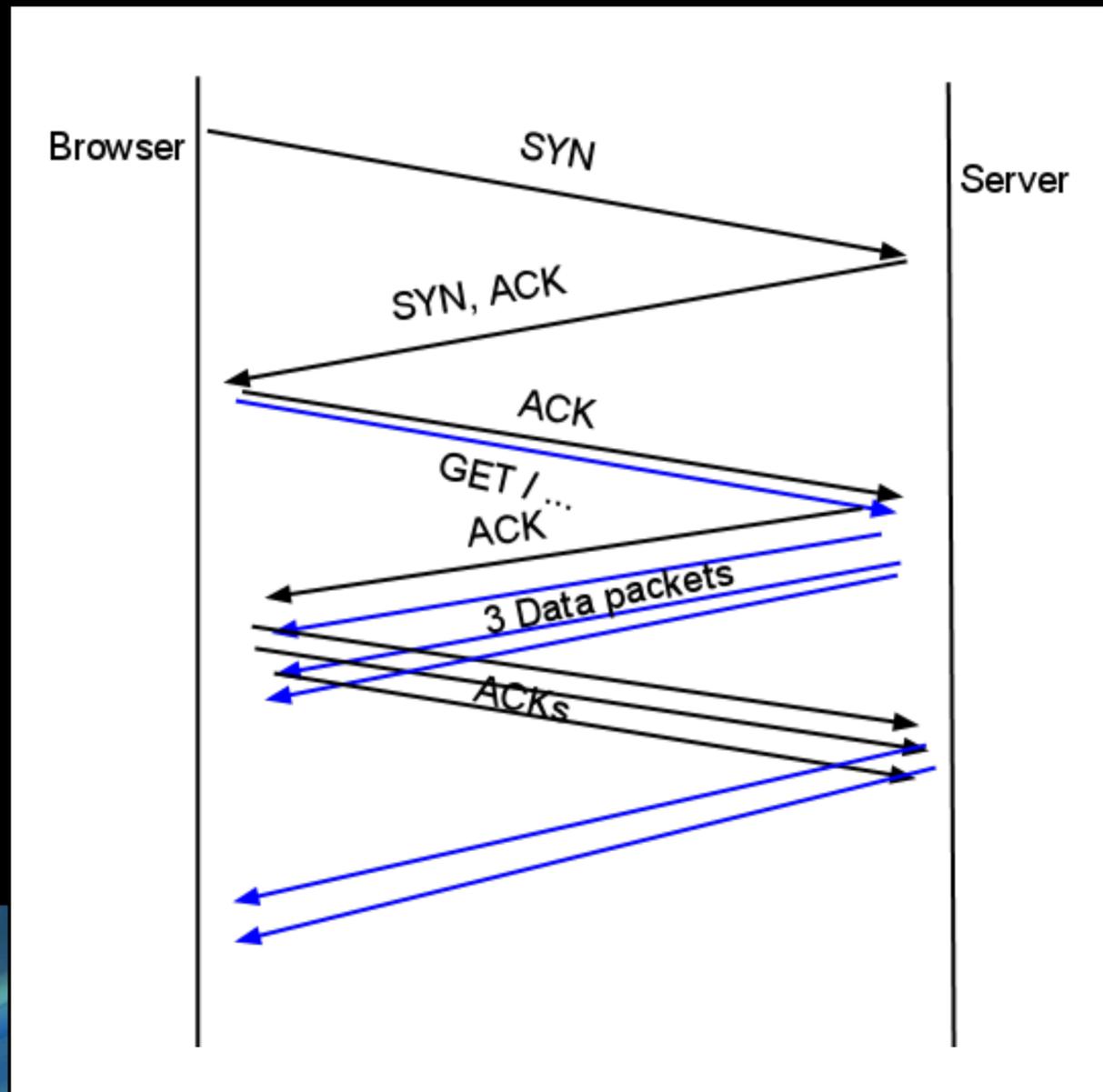


In HTTP this is:

```
GET / HTTP/1.1  
Host: ....
```

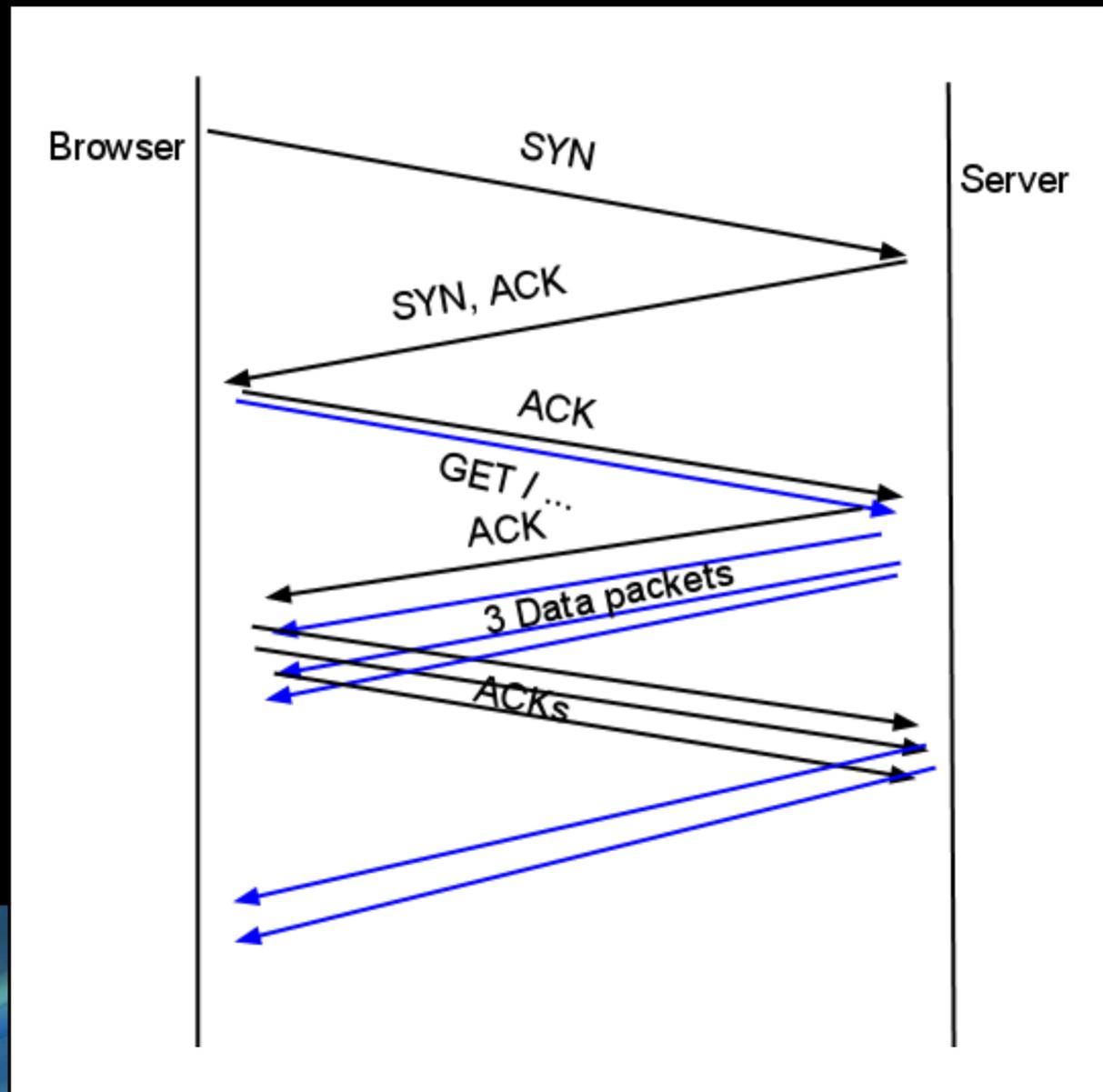
# But what happens next?

- That initial handshake isn't going to get any faster or slower.
- But what does the response look like?



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Why 3?

How big is a packet?

What does this mean?

# TCP in and outs

- Linux 2.6.39 (and Linux 3) set the initial congestion window to 10.
- I personally don't think this is smart and makes little sense in the datacenter.
- I suggest being more prudent:
  - Set it to 3 for networks you know to be low latency (your DC).
  - Set it to 10 for others.
  - Or... be smater.

# TCP via ATS on OmniOS

- In Illumos we added a setsockopt to set the initial congestion window.
- Leveraged
  - by the application
  - on demand
  - per TCP connection
- `setsockopt(fd, IPPROTO_TCP, TCP_INIT_CWND, &val, sizeof(val));`

# TCP via ATS on OmniOS

- Now we can set the initial congestion window based on:
  - remote IP (can do this on Linux via routing tables)
  - User-Agent
  - Geolocation (via lookup)
  - ASN number (via lookup)
  - the URL
  - arbitrary headers

# Pagespeed

Make the Web Faster  +1  887

Overview

PageSpeed

Public DNS

Hosted Libraries

Protocols & Standards

Best Practices

Community

## PageSpeed Tools

Analyze and optimize your website with PageSpeed tools to implement the web performance best practices.



Fast and optimized pages lead to higher visitor engagement, retention, and conversions. The PageSpeed family of tools is designed to help you optimize the performance of your website. PageSpeed Insights products will help you identify performance best practices that can be applied to your site, and PageSpeed optimization tools can help you automate the process.

### Analysis

- [Analyze your site online](#)
- [Install browser extensions \(Chrome, Firefox\)](#)
- [Use the Insights API](#)
- [Learn about Insights rules and FAQ](#)

### Optimization

- [Use PageSpeed Service <sup>Beta</sup>](#)
- [Install PageSpeed on Apache or Nginx \(Download\)](#)
- [Explore the PageSpeed SDK](#)

# Pagespeed, ATS-style

- Apply pagespeed policies on every page you deliver
  - on demand
  - in ATS
  - [https://github.com/linkedin/ats\\_pagespeed](https://github.com/linkedin/ats_pagespeed)
  - disclaimer: this is brand new and will improve

# Summary:

1. Someone needs to implement `setsockopt() TCP_INIT_CWND` controls in Linux.
2. Until then consider Illumos (OmniOS)
3. Set your initial congestion window sensibly!
4. Implement pagespeed on a reverse proxy:
  - ATS
  - Apache
  - nginx