Critical Rendering Path

Velocidade também é uma funcionalidade

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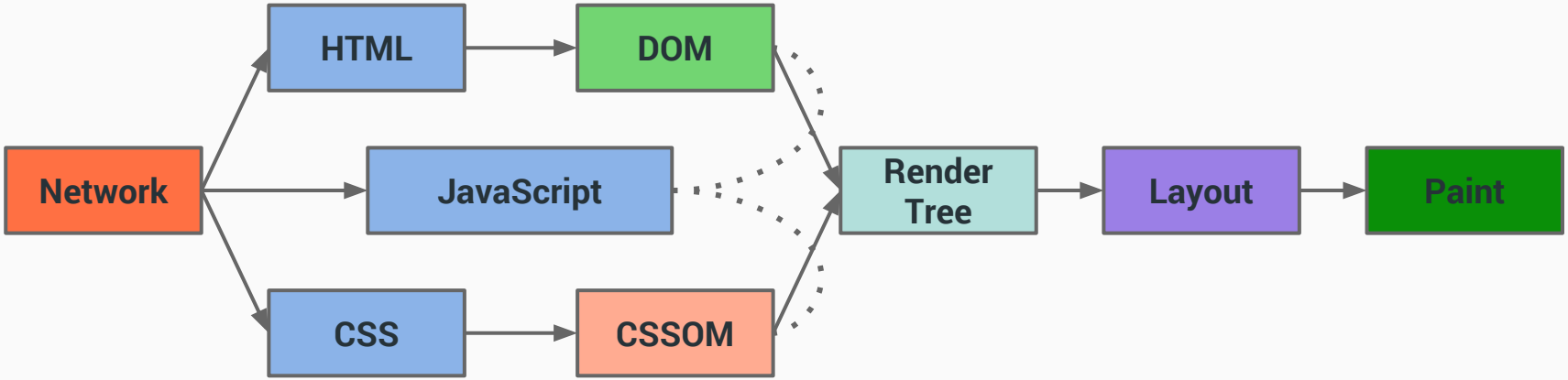
DEVDAY | 2013 Belo Horizonte

Perception of speed

http://goo.gl/JPG1WP, http://goo.gl/WYF7j

Critical Rendering Path



Constructing the DOM

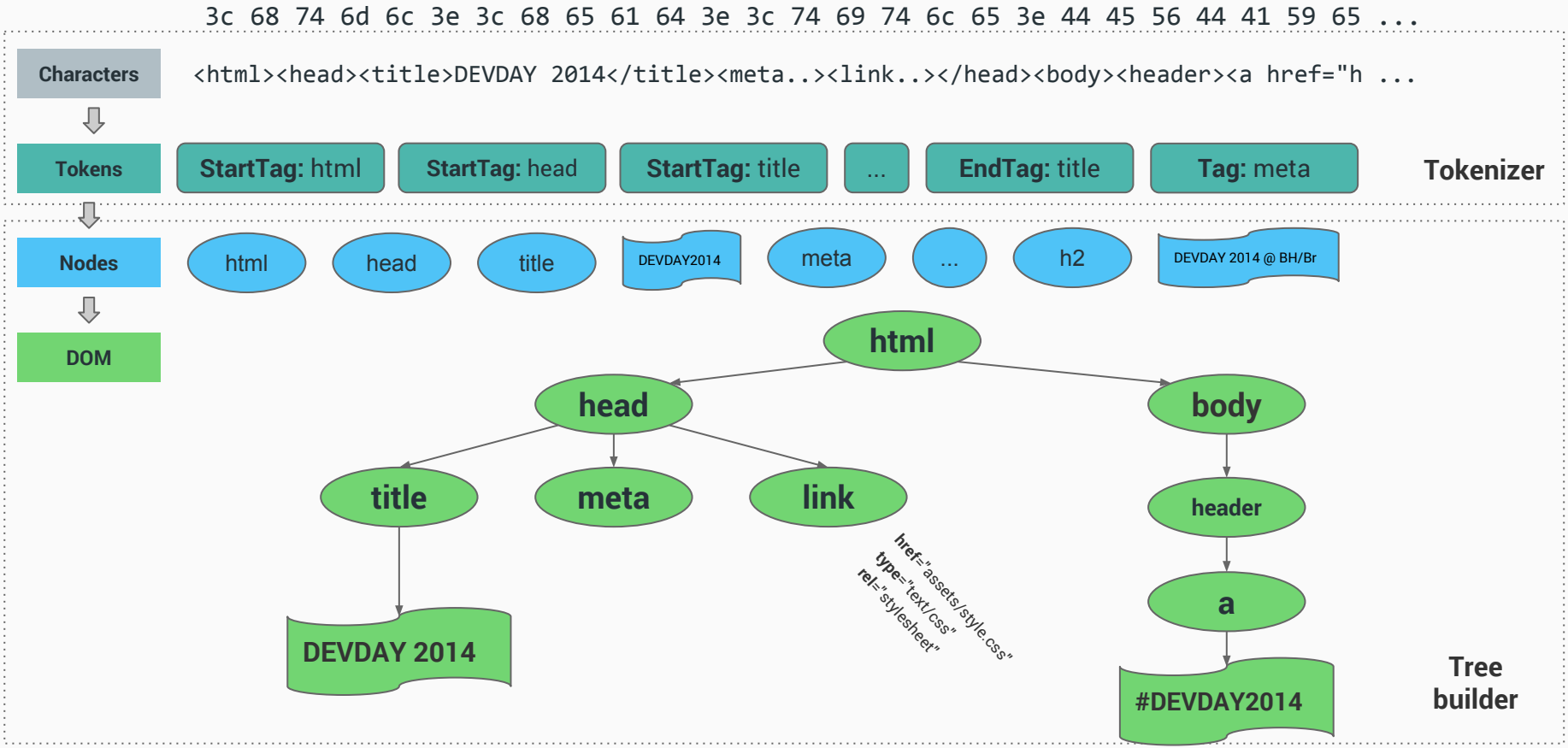
```
vagrant@precise32:~$ curl 10.0.2.2:3000
<html>
<head>
   <title>DEVDAY 2014</title>
   <meta name="viewport" content="width=device-width">
   <link rel="stylesheet" type="text/css" href="assets/style.css">
</head>
<body>
   <header>
        <a href="http://devday.devisland.com" target="_blank">#DEVDAY2014</a>
   </header>
   <section>
        <h2>DEVDAY 2014 @ BH/Br</h2>
        <img src="assets/devday2013.png">
        <h3>Critical Rendering Path</h3>
   </section>
</body>
</html>
vagrant@precise32:~$
```

```
<html>
<head>
   <title>DEVDAY 2014</title>
   <meta name="viewport" content="width=device-width">
   <link rel="stylesheet" type="text/css" href="assets/style.css">
</head>
<body>
   <header>
        <a href="http://devday.devisland.com" target="_blank">#DEVDAY2014</a>
   </header>
   <section>
        <h2>DEVDAY 2014 @ BH/Br</h2>
        <img src="assets/devday2013.png">
        <h3>Critical Rendering Path</h3>
   </section>
</body>
</html>
```

- **StartTag:** html
- **StartTag:** head
- **StartTag:** title
- DEVDAY 2014
- **EndTag:** title
- **Tag:** meta
- **Tag:** link
- **EndTag:** head
- **StartTag:** body
- **StartTag:** header
- **StartTag:** a
- #DEVDAY2014

http://goo.gl/6ptLCJ

Constructing the DOM



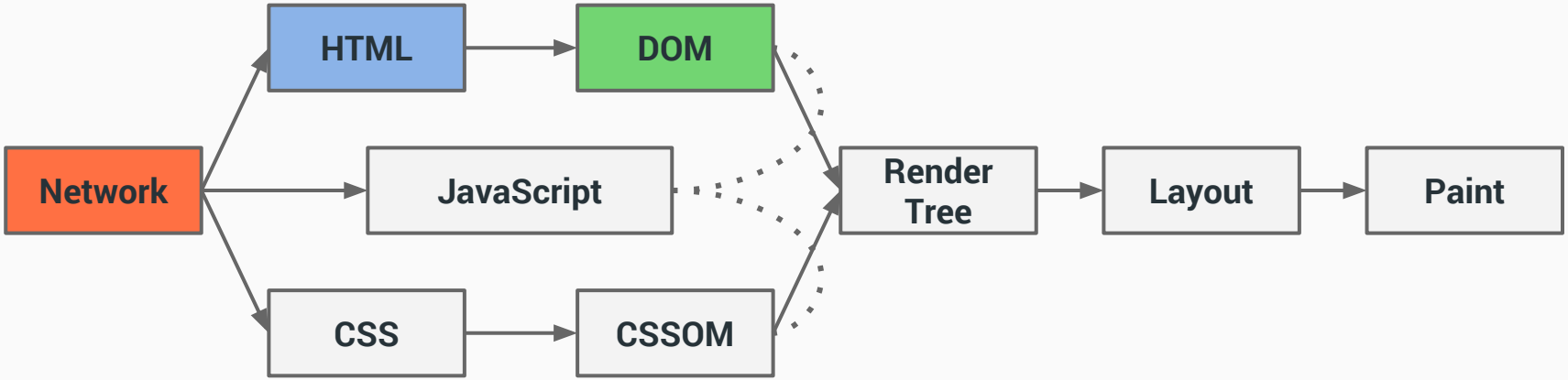
DOM - Document Object Model

parsing incremental

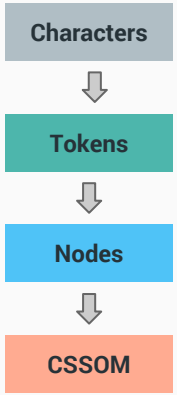
inicia-se ao receber os primeiros bytes

conteúdo, propriedades e relacionamento entre os nodes

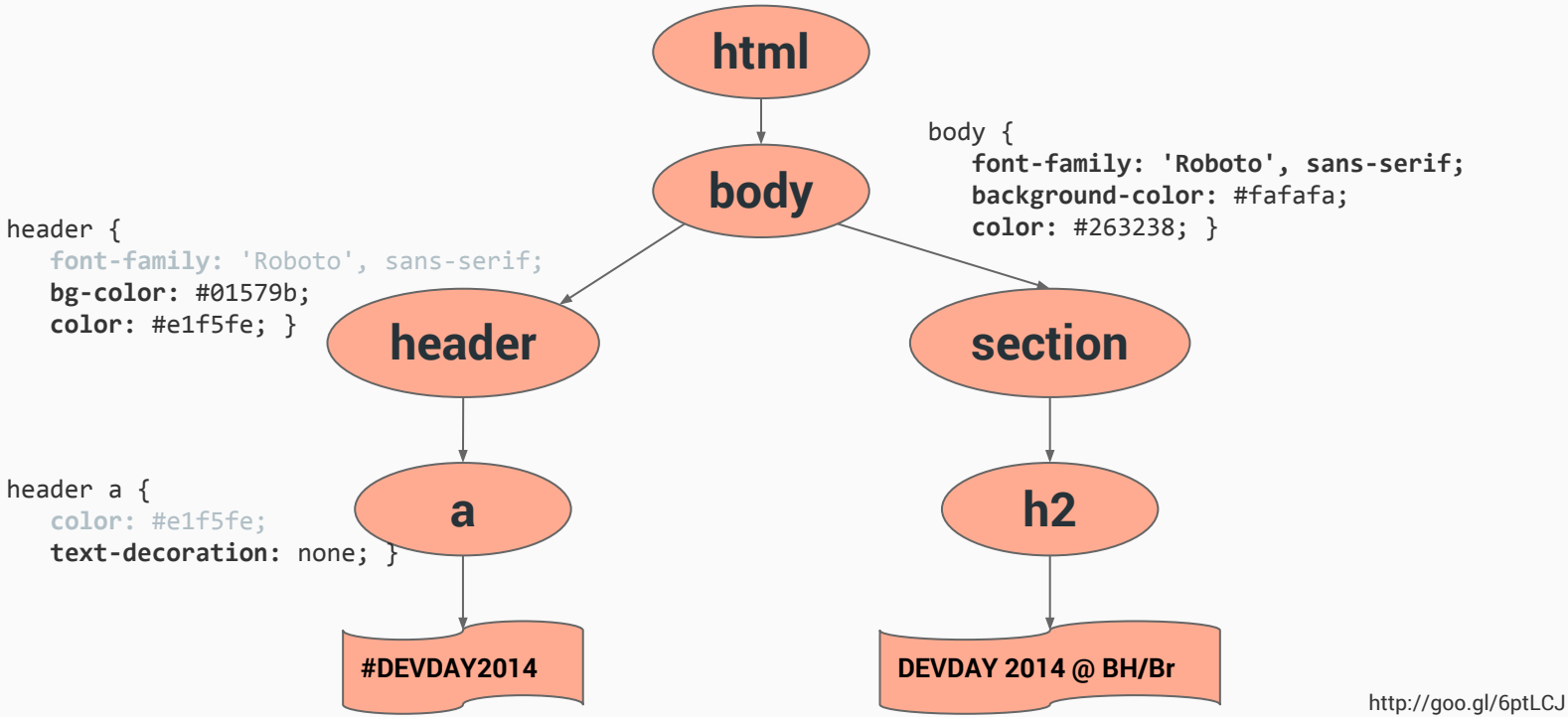
Critical Rendering Path



Construindo o CSSOM




```
20 62 6f 64 79 20 7b 20 20 20 20 20 66 6f 6e 74 2d 66 61 6d 69 6c 79 3a 20 5c 27 ...
body{font-family:Roboto,sans-serif;background-color:#fafafa;color:#263238}article, ...
```



http://goo.gl/6ptLCJ

Construindo o CSSOM

```
<link href="style.css"    rel="stylesheet">
<link href="print.css"    rel="stylesheet" media="print">
<link href="other.css"    rel="stylesheet" media="(min-width: 400px)">
<link href="portrait.css" rel="stylesheet" media="orientation:portrait">
<link href="landscape.css"rel="stylesheet" media="(orientation: landscape)">

@media (min-width: 500px) and (max-width: 600px) {
   /* styles here */
}
```

http://goo.gl/m6QlkF, http://goo.gl/FCAK6A

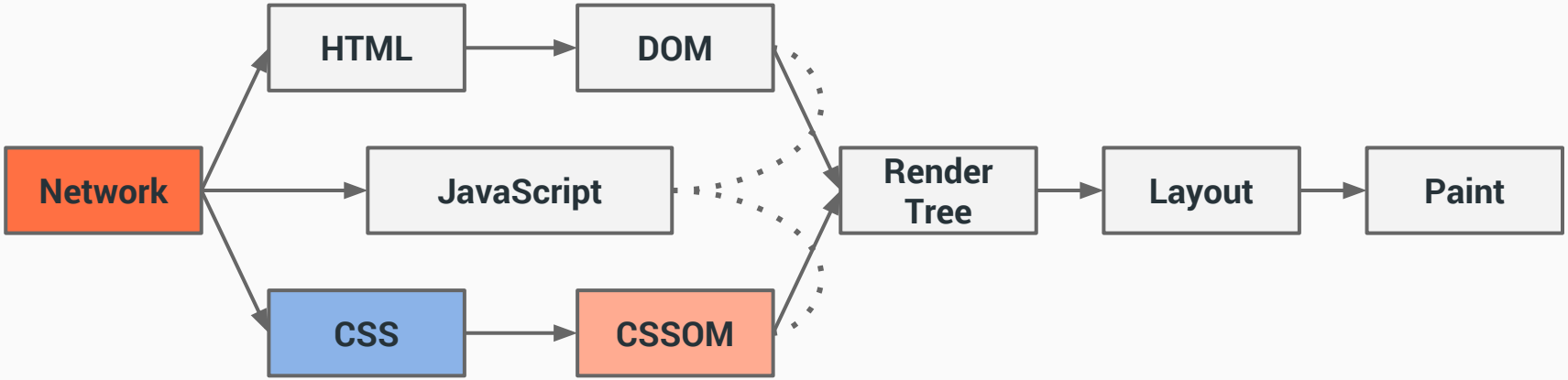
CSSOM - CSS Object Model

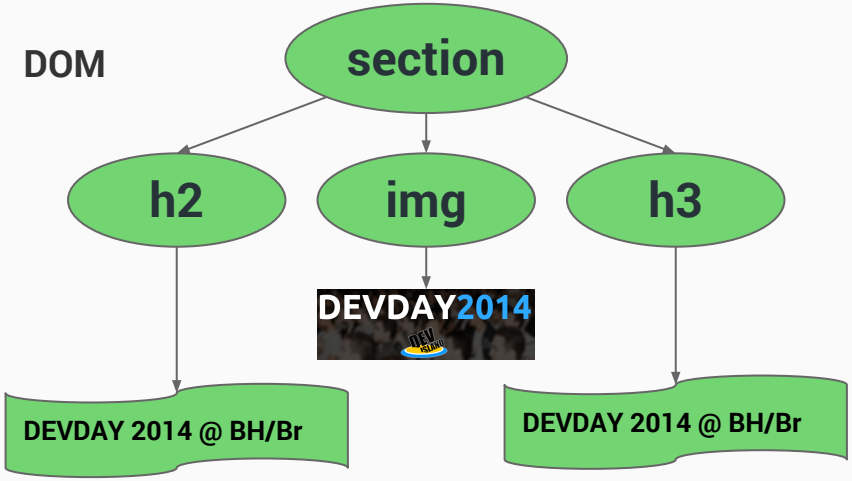
parsing não incremental

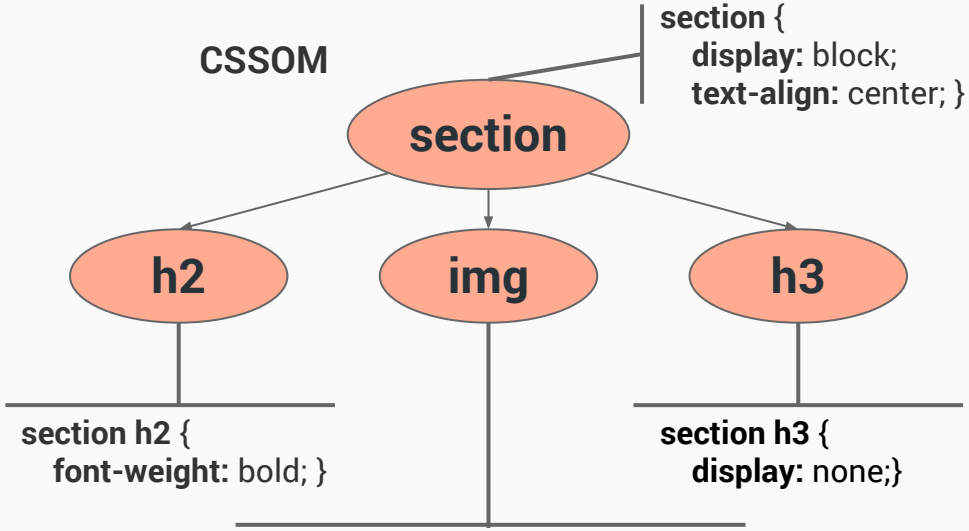
render blocking

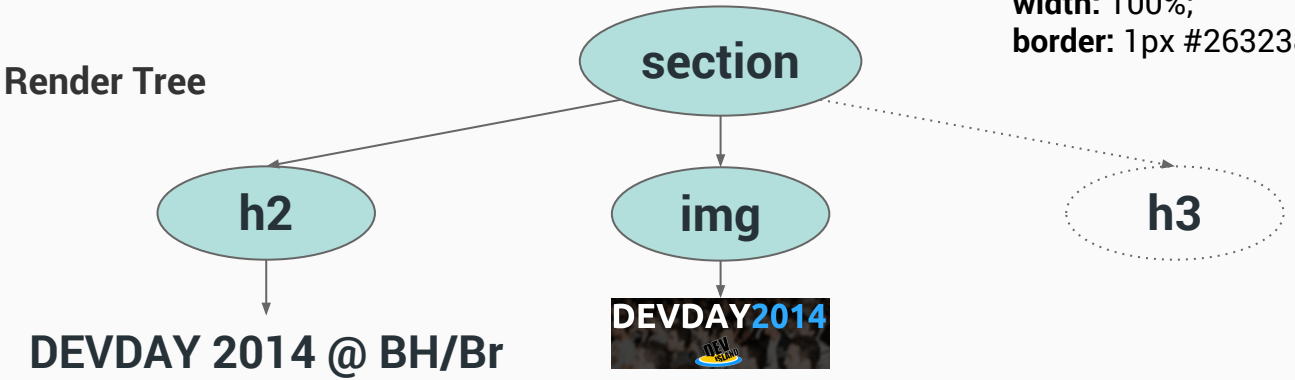
recalculate styles

Critical Rendering Path









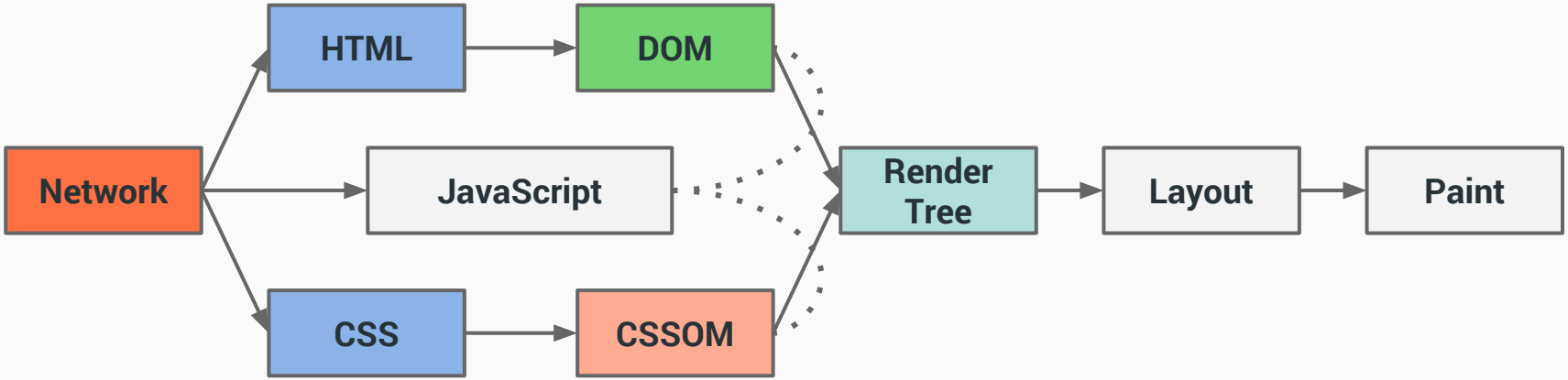
http://goo.gl/ouzsUr

Render Tree

DOM e CSSOM formam Render Tree

Somente nodes visíveis na página

Critical Rendering Path

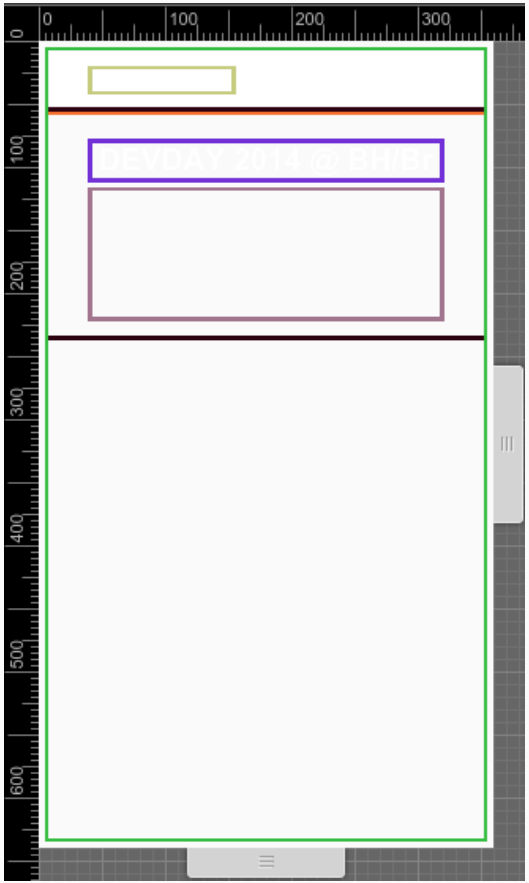


Layout

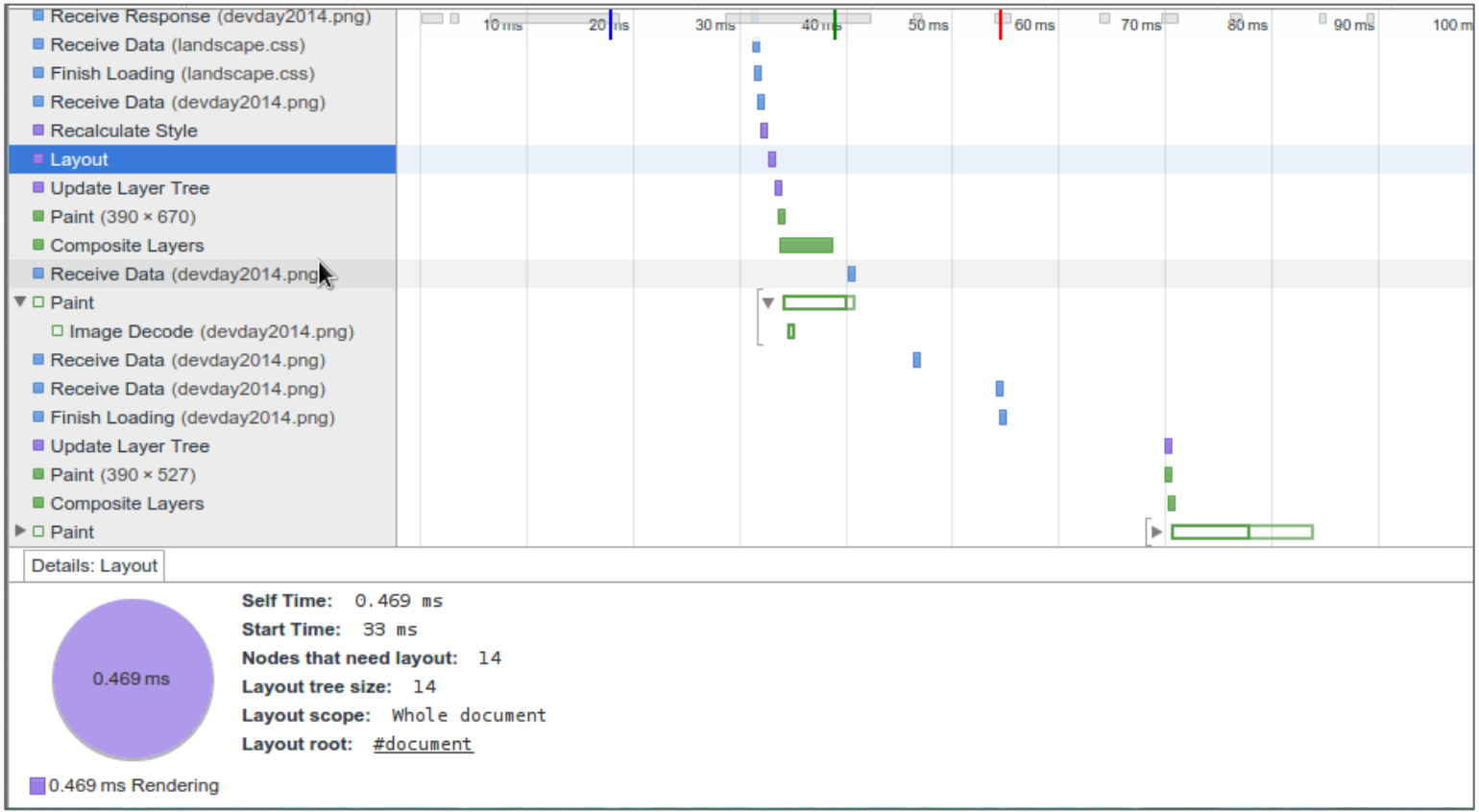
onde e **como** os elementos serão posicionados na tela

↑ tamanho ou complexidade do DOM/CSSOM

↑ tempo em Layout

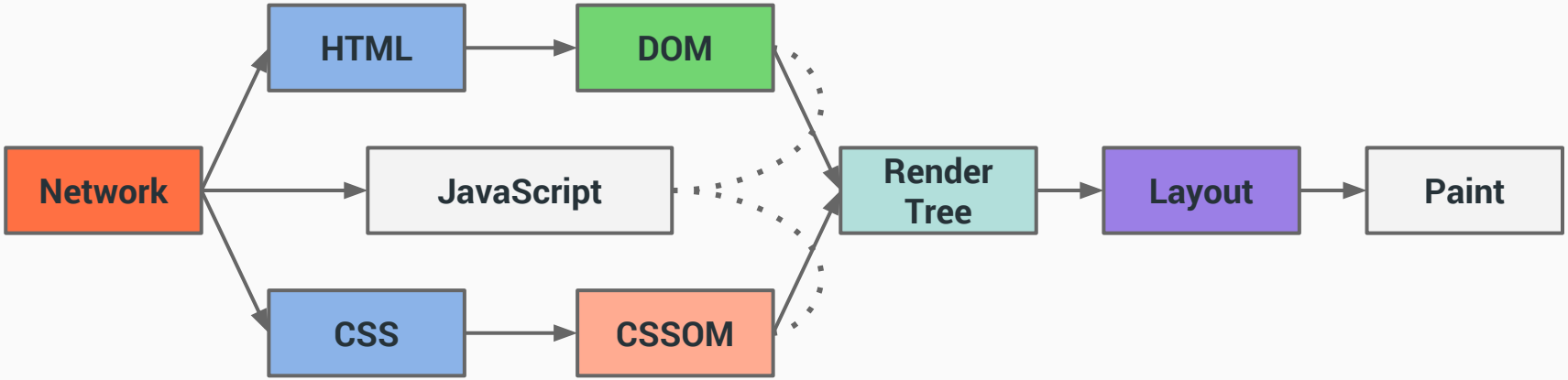


http://goo.gl/0L9usy



tree size, scope, root

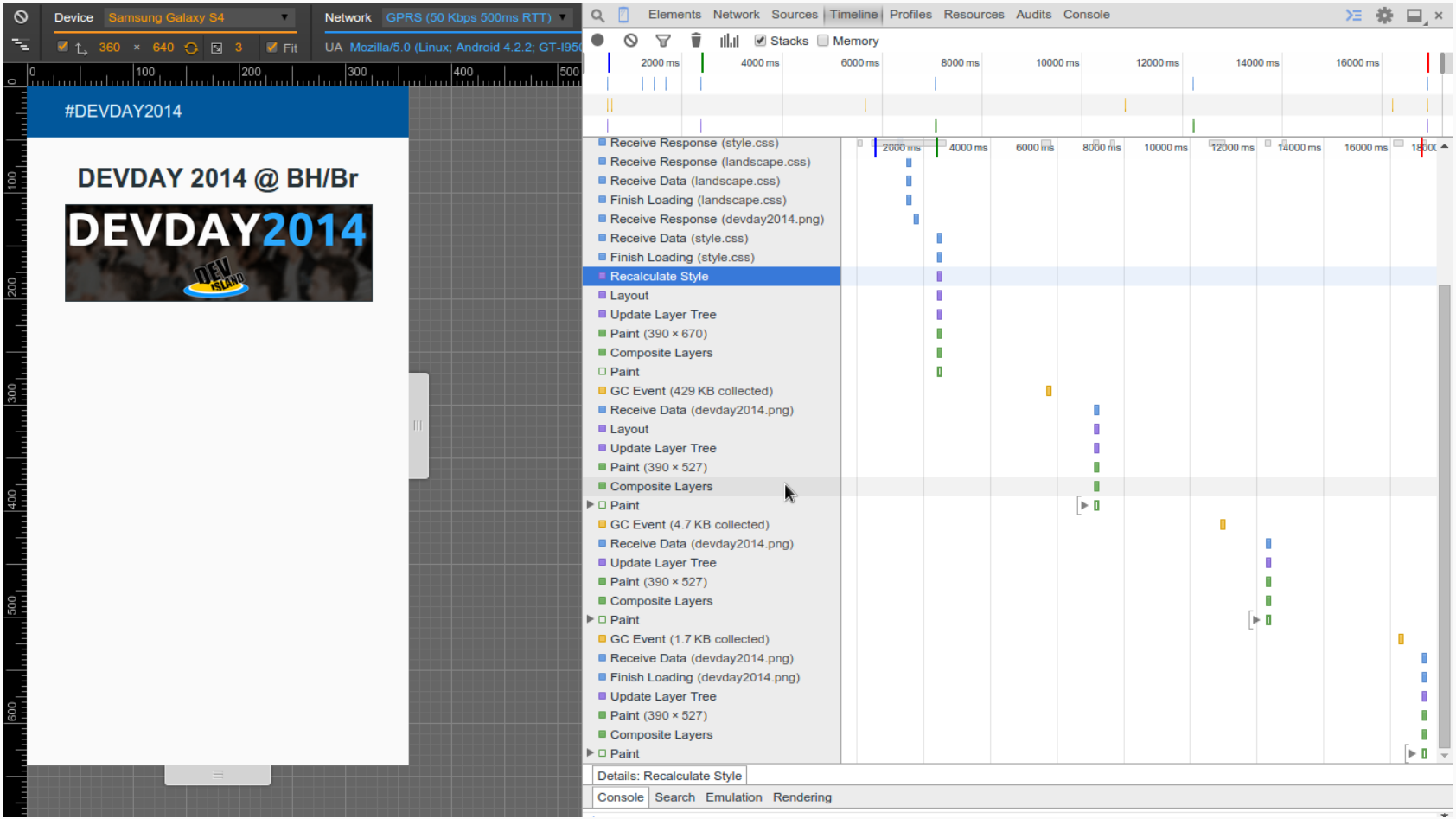
Critical Rendering Path



Painting

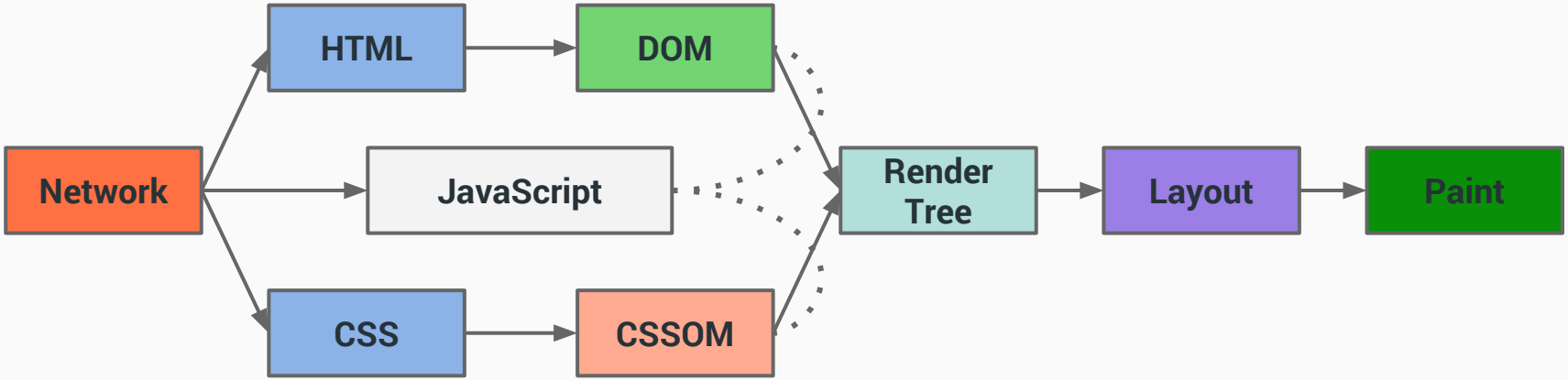
influências:

- tamanho da área
- formato (bordas)
- sombras
- transparências
- background-images



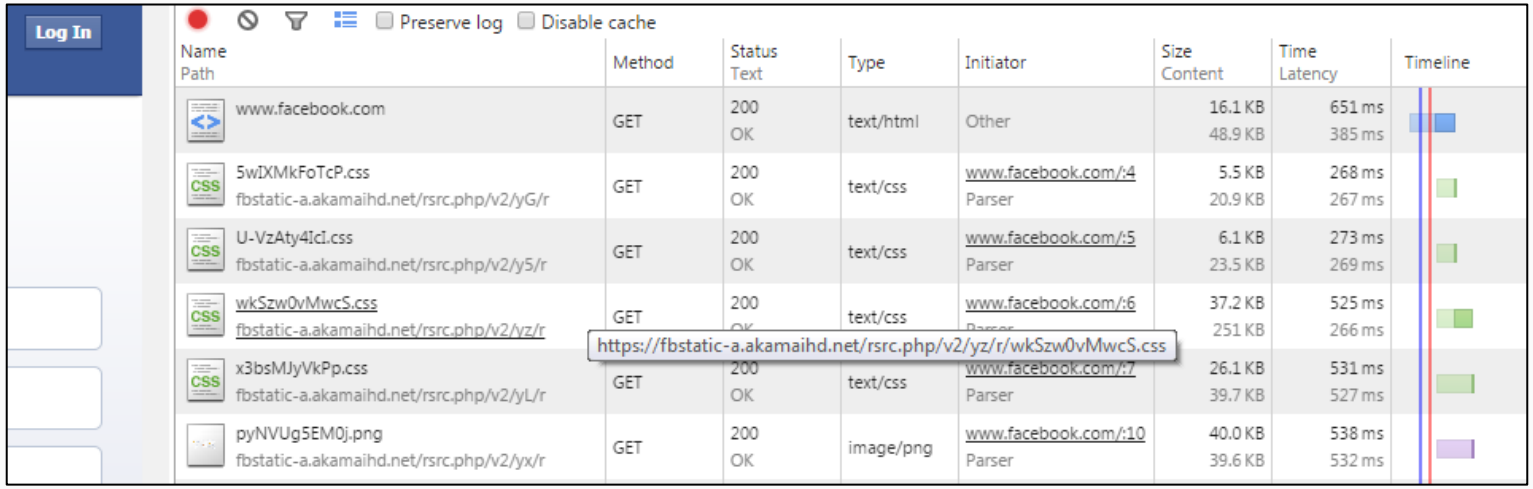
http://goo.gl/xjZAiJ

Critical Rendering Path



Otimizando o DOM

minify, compress, cache



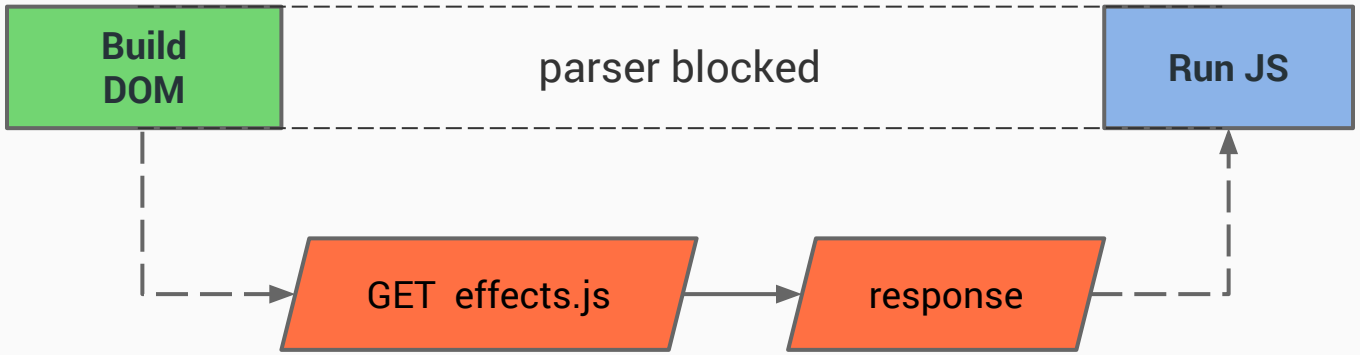
http://goo.gl/hPLUqB, http://goo.gl/CW7HJC, http://goo.gl/wxIXkU

JavaScript

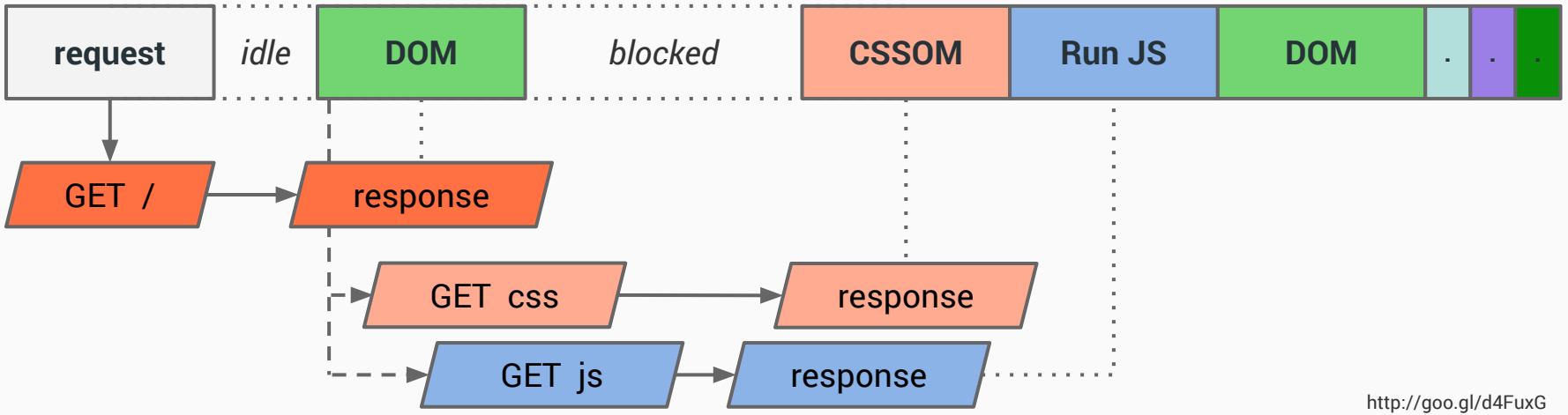
```
<section>
    <h2>DEVDAY 2014 @ BH/Br</h2>
    <img src="assets/devday2014.png">
    <h3>Critical Rendering Path</h3>
</section>
<script type="text/javascript">
    var section = document.getElementsByTagName('section')[0],
        span = document.createElement('span');

    span.innerText = "#crp #wpo #perfmatters #devday2014";
    span.style.fontWeight = "bold";
    section.appendChild( span );
</script>
```

```
        ... .. ... ..
        <h3>Critical Rendering Path</h3>
    </section>
    <script type="text/javascript" src="assets/effects.js"></script>
</body>
```



```
<head>
   <meta name="viewport" content="width=device-width, initial-scale=1">
   <link rel="stylesheet" type="text/css" href="assets/style.css">
</head>
<body>
   <header> .. </header>
   <section> ... <h2>DEVDAY 2014 @ BH/Br</h2> ... </section>
   <script type="text/javascript" src="assets/effects.js"></script>
</body>
```



http://goo.gl/d4FuxG

JavaScript

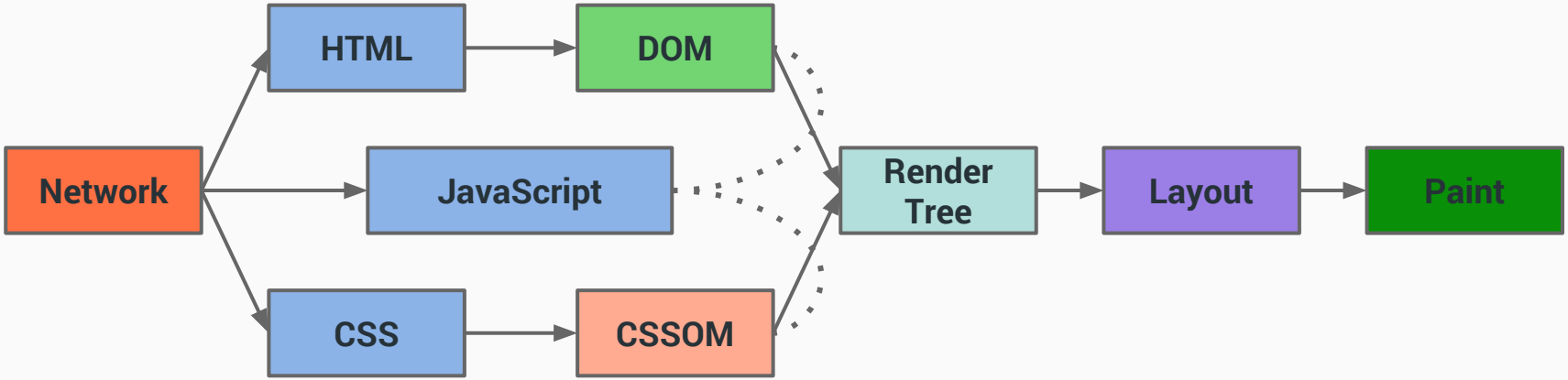
query and modify DOM/CSSOM

blocks on CSSOM

blocks DOM construction

```
<script src="assets/effects.js" async></script>
```

Critical Rendering Path



Optimizing the Critical Rendering Path

Minimize data

minify, compress and cache: HTML, JS and CSS

Reduce blocking resources

media queries for CSS, async/defer for JS

minimize CRP length

number and order of resources

http://goo.gl/BJqIvR

Critical Rendering Path

Velocidade também é uma funcionalidade

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OBRIGADO

DEVDAY | 2013 Belo Horizonte

DEV ISLAND