

NIELS LEENHEER

**TURTLES
ALL THE WAY
DOWN**



Fronteers 2018

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11TH FRONTEERS CONFERENCE AMSTERDAM 4-5 OCTOBER 2018

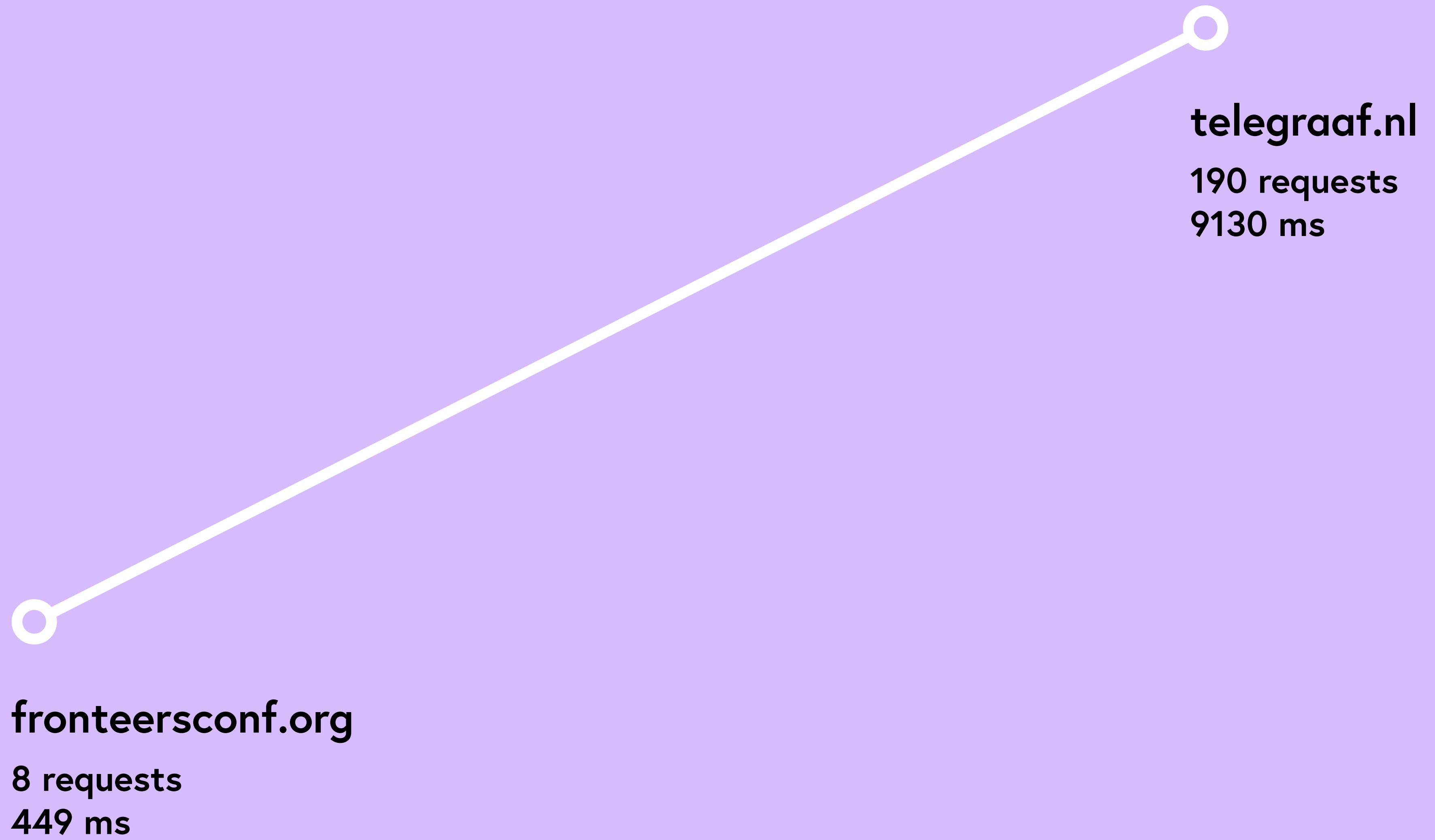
Fronteers Conference 2018: Amsterdam, 4-5
October

Fronteers Conference is one of Europe's premiere conferences on front-end web development, organised in Amsterdam yearly since 2008.

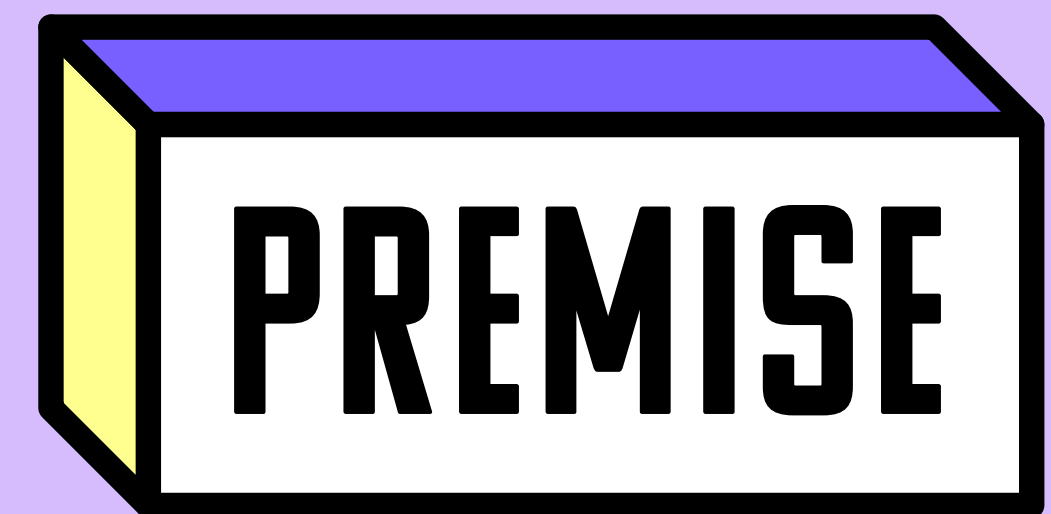




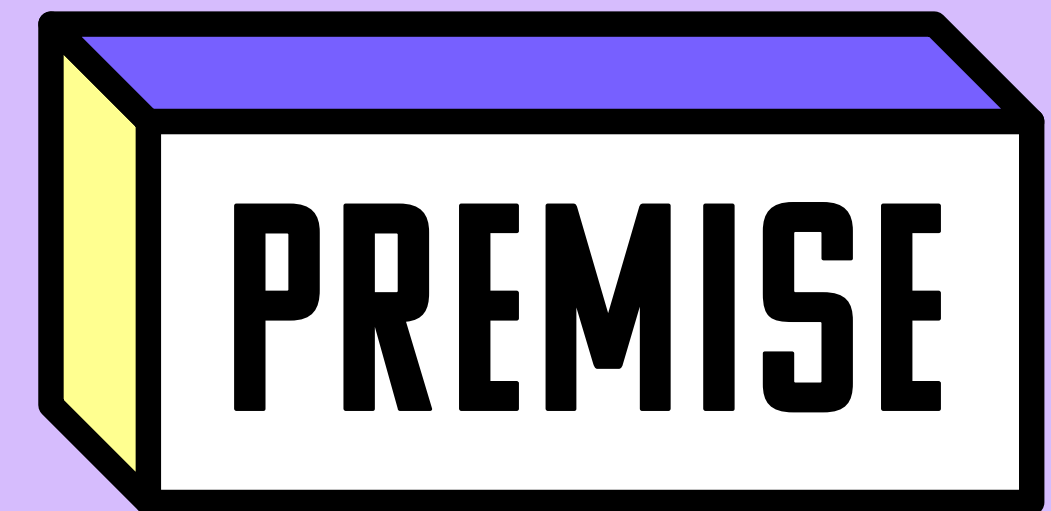
**HOW TO DETERMINE
WHAT TO OPTIMIZE?**



**websites that make more
requests are slower**



external images require requests



**we can make a website
faster by inlining images**



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October

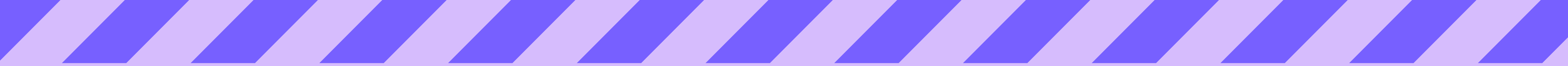
Fronteers Conference is one of Europe's premiere conferences on front-end web development, organised in Amsterdam yearly since 2008.



255 pixels

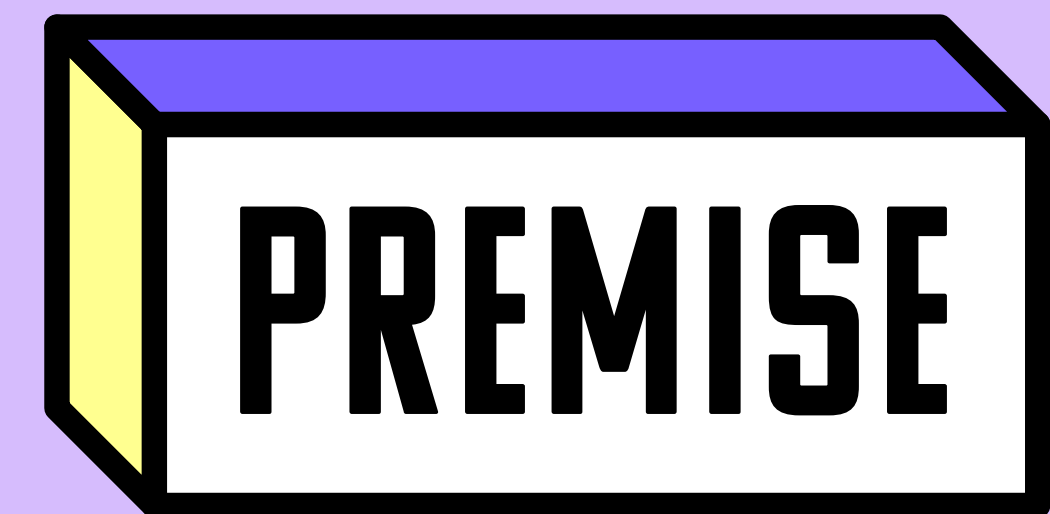


666 pixels

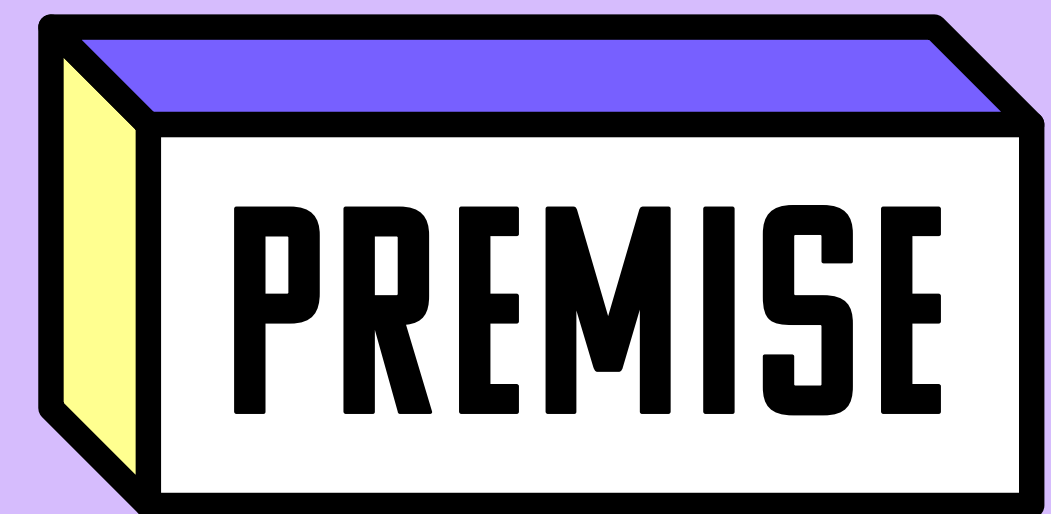


HOW TO INLINE IMAGES

an image is just a grid
of coloured pixels

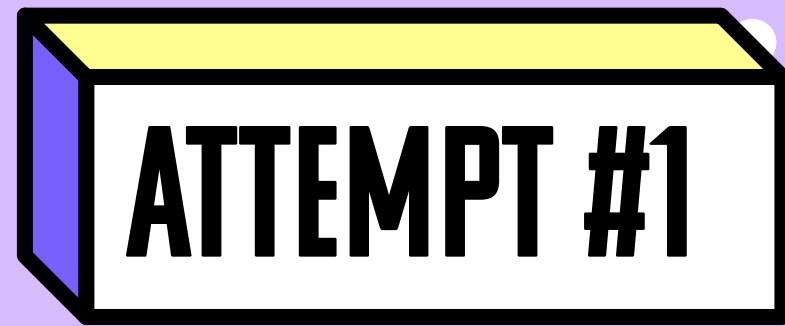


tables are grids



we can inline
images using tables





ATTEMPT #1

table with images

```
<table>
  <tr>
    <td>...</td>           × 169.830
  </tr>
</table>
```

ATTEMPT #1

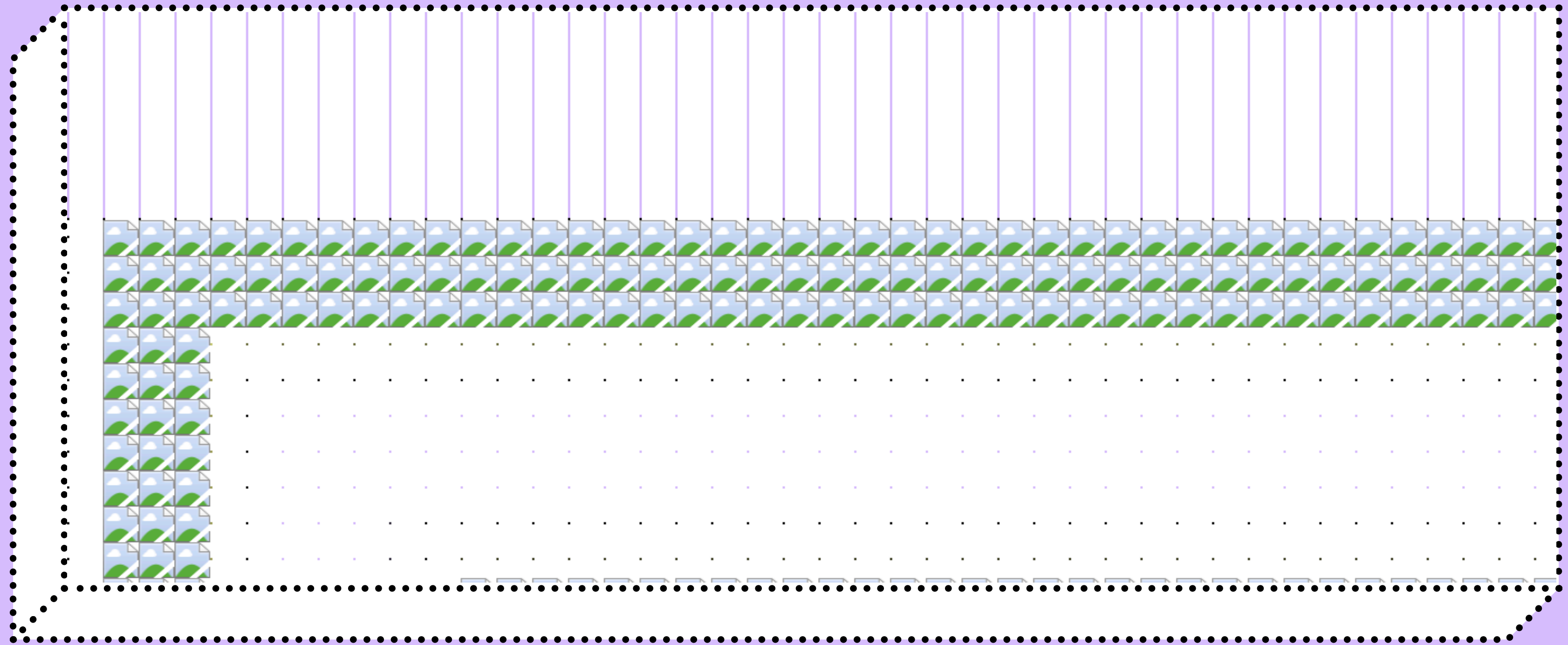
table with images

```
<table>
  <tr>
    <td></td> × 169.830
  </tr>
</table>
```

ATTEMPT #1

table with images

size
5.5 MB
requests
454
loaded
66 sec



ATTEMPT #2

table with spacer image

```
<table>
  <tr>
    <td style="background-color:#7469FB"> × 169.830
      
    </td>
  </tr>
</table>
```

ATTEMPT #2

table with spacer image

size
7.9 MB
requests
1
loaded
60 sec



ATTEMPT #3

table with data urls

```
<table>
  <tr>
    <td style="background-color:#7469FB">
      
  </tr>
</table>
```

ATTEMPT #3

table with data urls

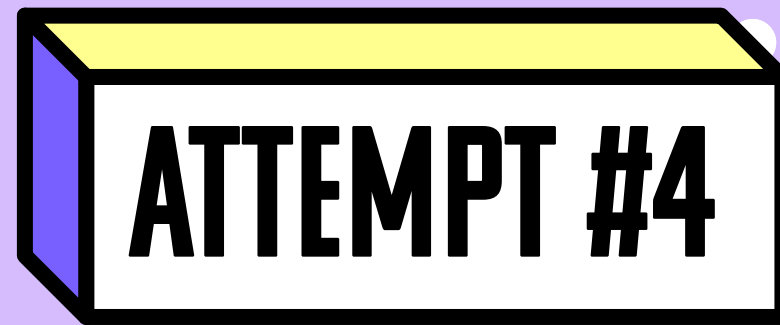
size
20 MB

requests
0

loaded
228 sec

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ATTEMPT #4

table with width and height

```
<table>
  <tr>
    <td height=1 width=1 bgcolor=#7469FB></td>    × 169.830
  </tr>
</table>
```

ATTEMPT #4

table with width and height

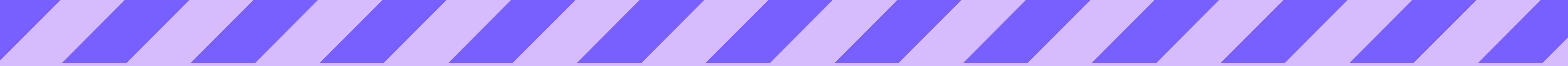
size
7.1 MB

requests
0

loaded
20 sec

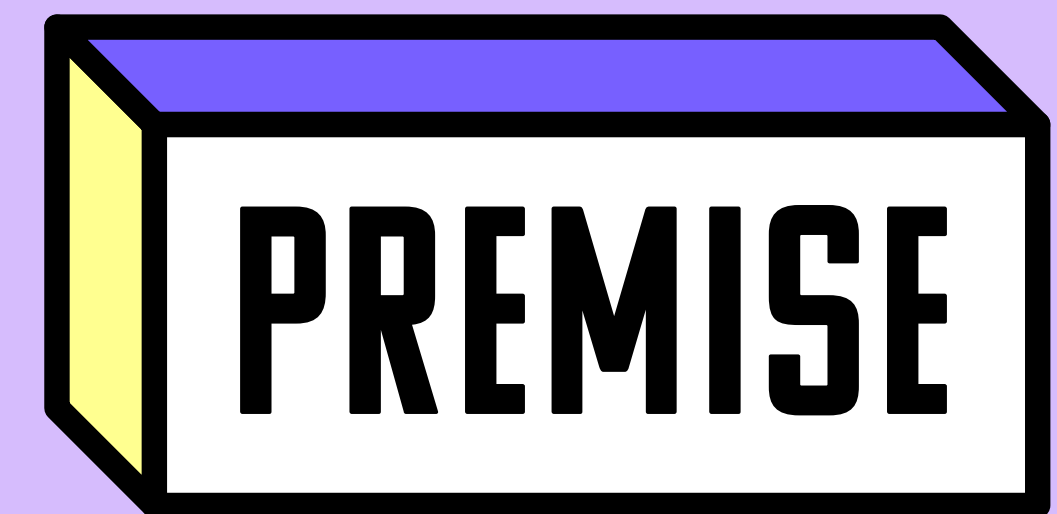
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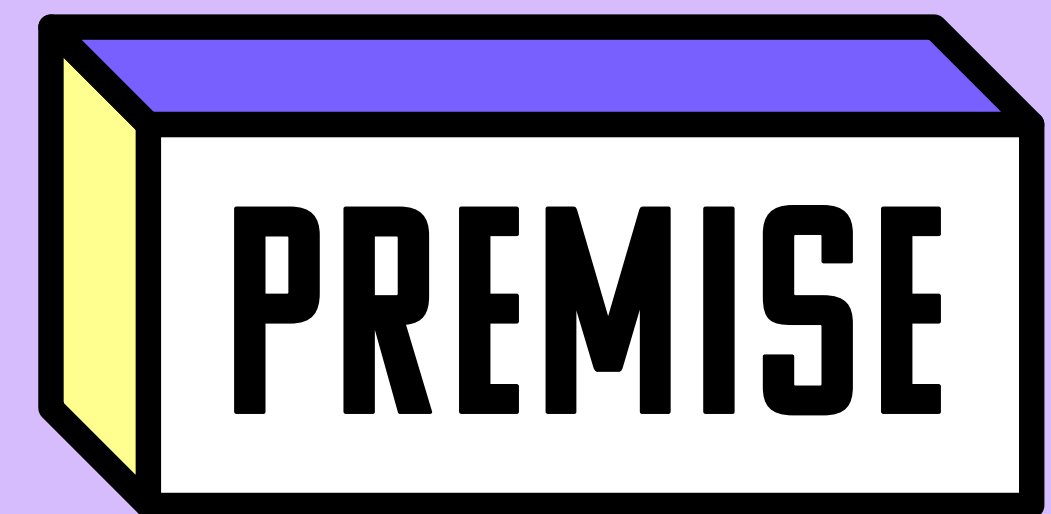


HOW TO OPTIMISE RENDERING

**parallelisation
improves performance**



**frames render independently
from each other**



we can inline
images using frames



we can inline
images using frames





ATTEMPT #5

frames

```
<iframe src="...">
```

```
<frameset rows="...">
```

```
  <frameset cols="...">
```

```
    <frame src="7469FB.html"> × 169.830
```

```
  </frameset>
```

```
</frameset>
```

ATTEMPT #6

frames with data urls

```
<iframe src="...">
```

```
<frameset rows="...">
```

```
  <frameset cols="...">
```

```
    <frame src="data:text/html;base64,R0lGODlhAQABAIA"> × 169.8
```

```
  </frameset>
```

```
</frameset>
```

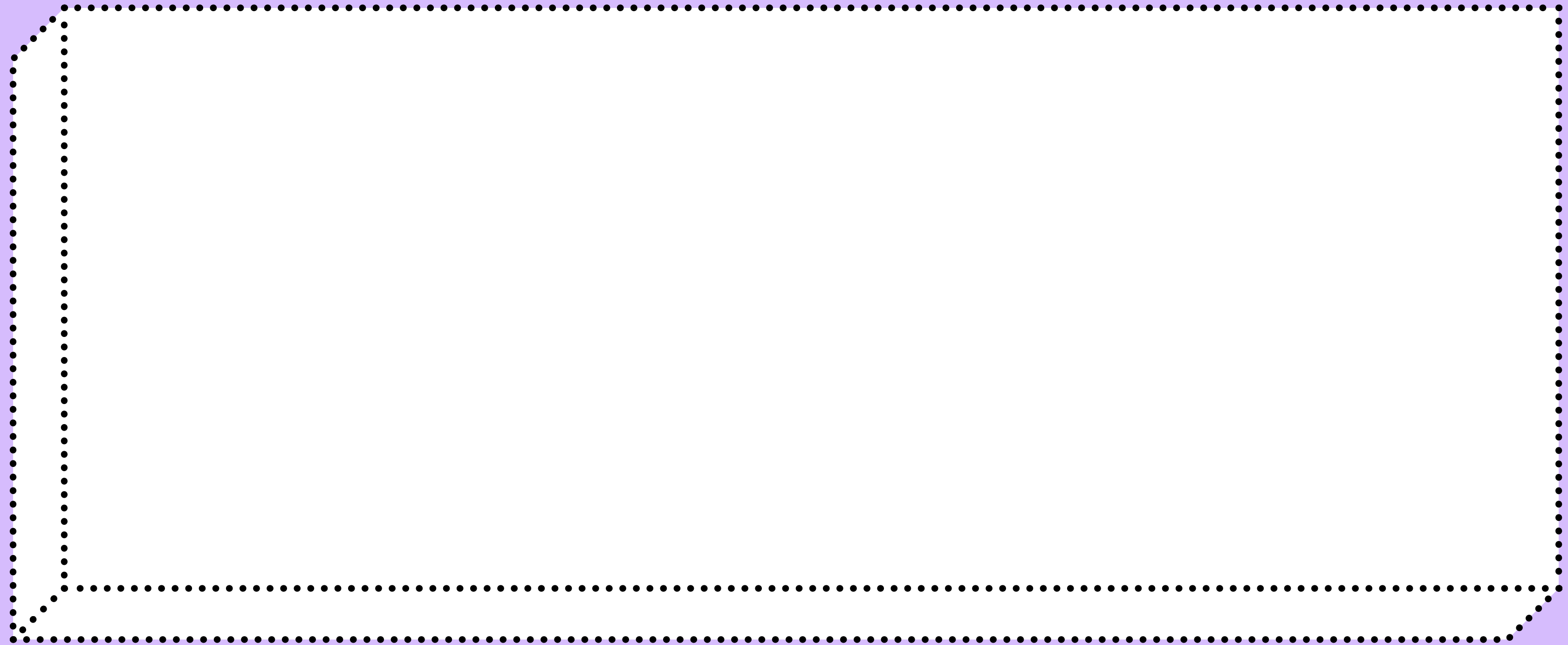
ATTEMPT #6

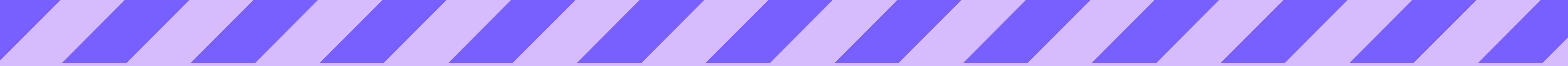
frames with data urls

size
17 MB

requests
0

loaded
24 sec





MODERN CSS APPROACH

ATTEMPT #7

absolute positioning

```
<div>  
  <div id=x32y49></div> × 169.830  
</div>
```

```
#x32y49 {  
  position: absolute; top: 49px; left: 32px;  
  background-color: #7469FB;  
}
```


ATTEMPT #7

absolute positioning

size
15 MB
requests
0
loaded
5 sec



ATTEMPT #8

grid and nth-child pseudo selector

```
<div>  
  <div></div> × 169.830  
</div>
```

```
div > div:nth-child(1650) {  
  grid-area: 50 / 33 / 51 / 34;  
  background-color: #7469FB;  
}
```

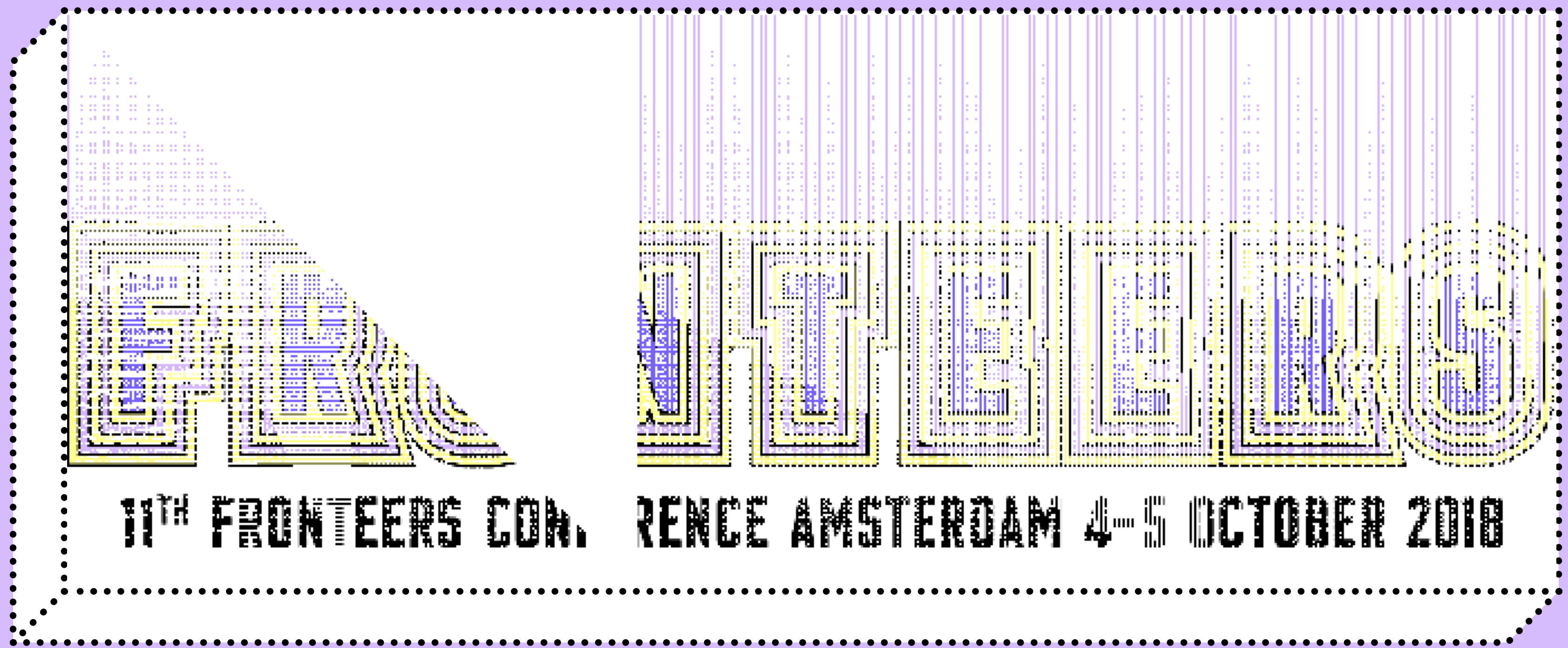
ATTEMPT #8

grid and nth-child pseudo selector

size
16 MB

requests
0

loaded
2520 sec



ATTEMPT #9

pseudo-elements

```
#image::after {  
  position: absolute; top: 49px; left: 32px;  
  background-color: #7469FB;  
}
```

```
#image::after::after { ... }
```

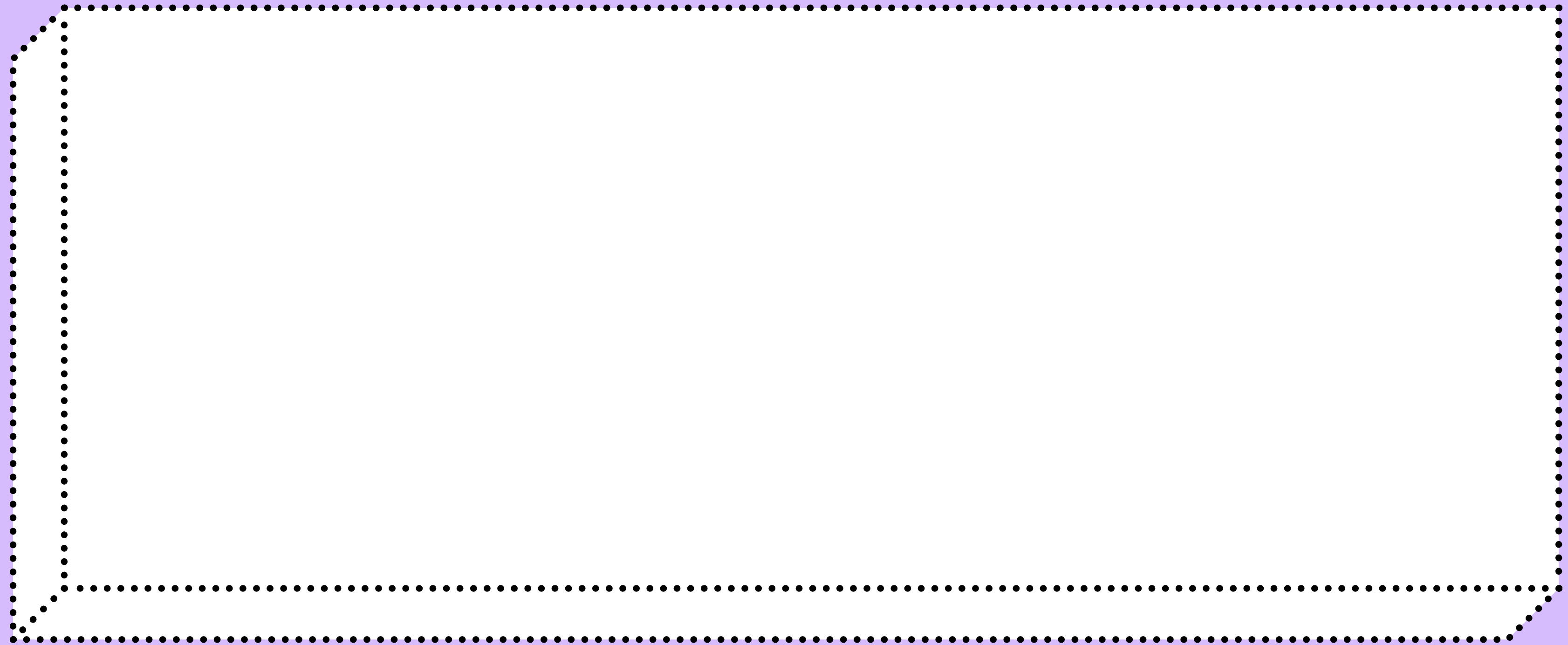
```
#image::after::after::after { ... }
```

```
#image::after::after::after::after { ... }
```

ATTEMPT #9

pseudo-elements

size
47 GB
requests
0
loaded
∞ sec



ATTEMPT #10

run length encoding

```
<div>  
  <div id=c0></div> × only 6.670  
</div>
```

```
#c0 {  
  top: 0px; left: 0px; width: 666px; height: 91px;  
  background: #d8baff;  
}
```

ATTEMPT #10

run length encoding

size
418 KB

requests
0

loaded
0.1 sec

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ATTEMPT #3

size
20 MB

loaded
228 sec

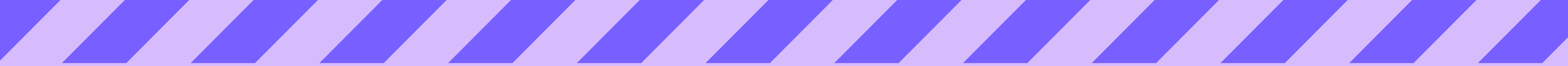


ATTEMPT #10

size
418 KB

loaded
0.1 sec





KEY TAKEAWAYS

5 KEY TAKEAWAYS

html4 is better than html5

5 KEY TAKEAWAYS

use `<div>`'s with id's for everything

5 KEY TAKEAWAYS

**the maximum length of a string is
9.007.199.254.740.991 characters**

5 KEY TAKEAWAYS

w3schools is way better and
has more info than mdn

5 KEY TAKEAWAYS

don't use 169.830 `<frame>`'s
in one `<frameset>`

THANK YOU!