

Everyone
~~Performance~~ Wins

When You Optimize Media

@colbyfayock

Colby Fayock

Director DevX Engineering



@colbyfayock





Get organized with home office essentials



Lots to love for Everyone



Gifts she'll love



Jewelry & watches



Lingerie & more

The going-out edit




Dresses




Accessories





ACCESSORIES

Shop Now



STAR CADET

Shop Now



FINAL SPACE

Shop Now



TENNESSEE WONDER CHILD DIGITAL ALBUM

Shop Now

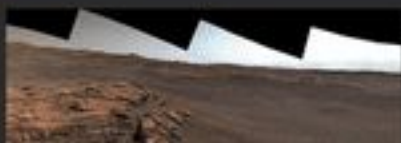
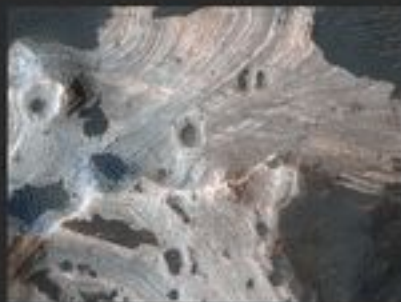
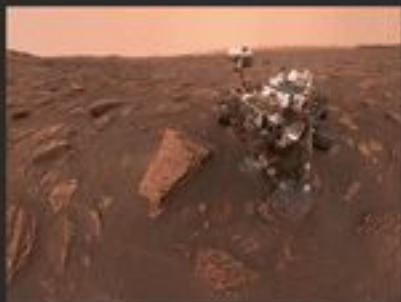
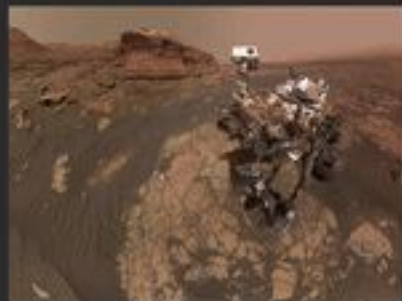
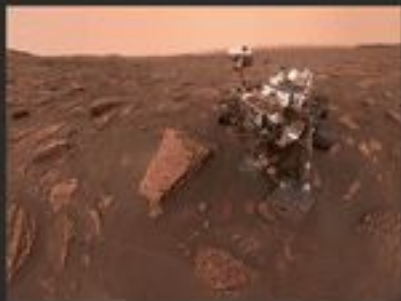


MYSTERY BOX

Shop Now

[Topics](#)[Missions](#)[Galleries](#)[NASA TV](#)[Follow NASA](#)[Downloads](#)[About](#)[NASA Audiences](#)[Mars Curiosity](#)[Overview](#)[Images](#)[Videos](#)[Media Resources](#)

Mars Curiosity Image Gallery



the office



the office

4,908 GIFs

#michael scott

#theoffice

#office tv

#the office

GIPHY Clips



GIFs

Stickers

Sort: Relevant Newest



Privacy

Terms

Media

Media

Images & Videos

& Audio too!

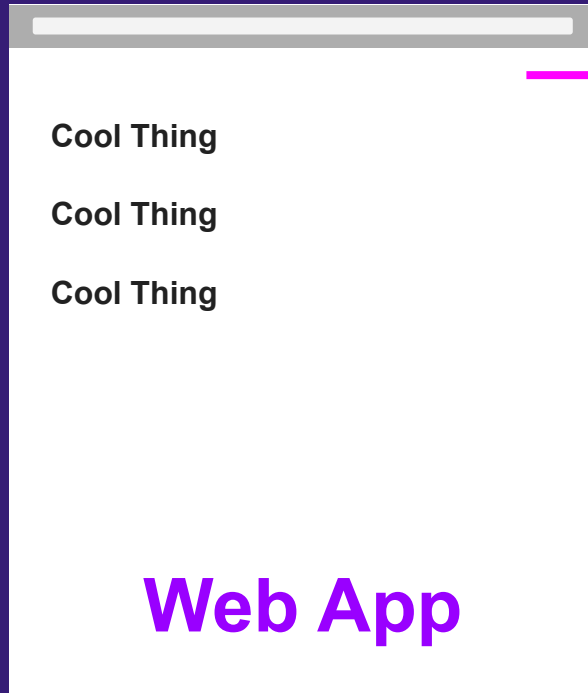
Where does media fit in?

Where does media fit in?
EVERYWHERE

The Web



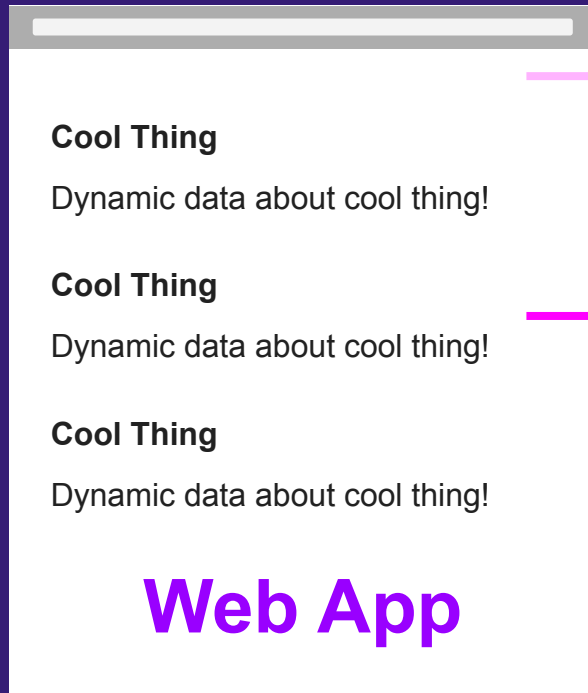
The Web



Page

HTML maybe built with a JavaScript framework

The Web



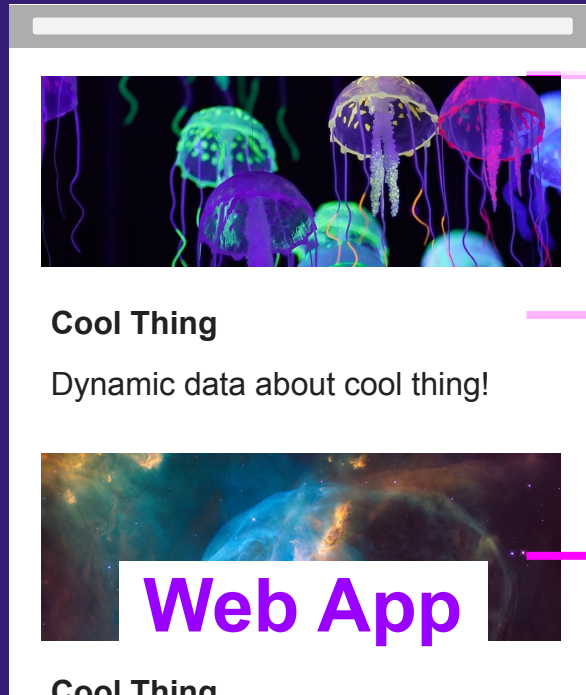
Page

HTML maybe built with a JavaScript framework

API

Fetches dynamic data usually with JavaScript

The Web



Page

HTML maybe built with a JavaScript framework

API

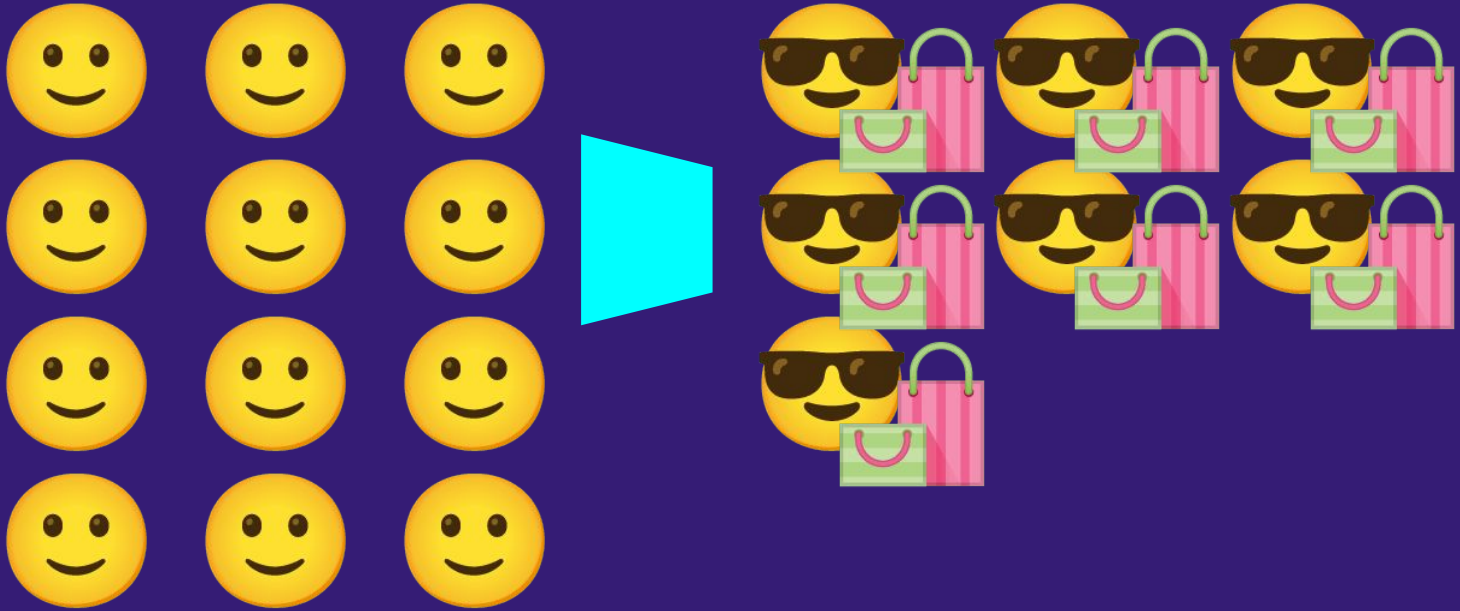
Fetches dynamic data usually with JavaScript

Media

Images and videos for visual context and creativity

**That's cool...
but why is it important?**

Conversion Rate



7/12 or 58.3%

Shopping for speed on eBay.com

Optimizing the performance of eBay's sites and apps for a faster user experience.



Speed was a [company-wide initiative](#) for eBay in 2019, with many teams determined to make the site and apps as fast as possible for users. In fact, **for every 100 milliseconds improvement in search page loading time, eBay saw a 0.5% increase in "Add to Cart" count.**

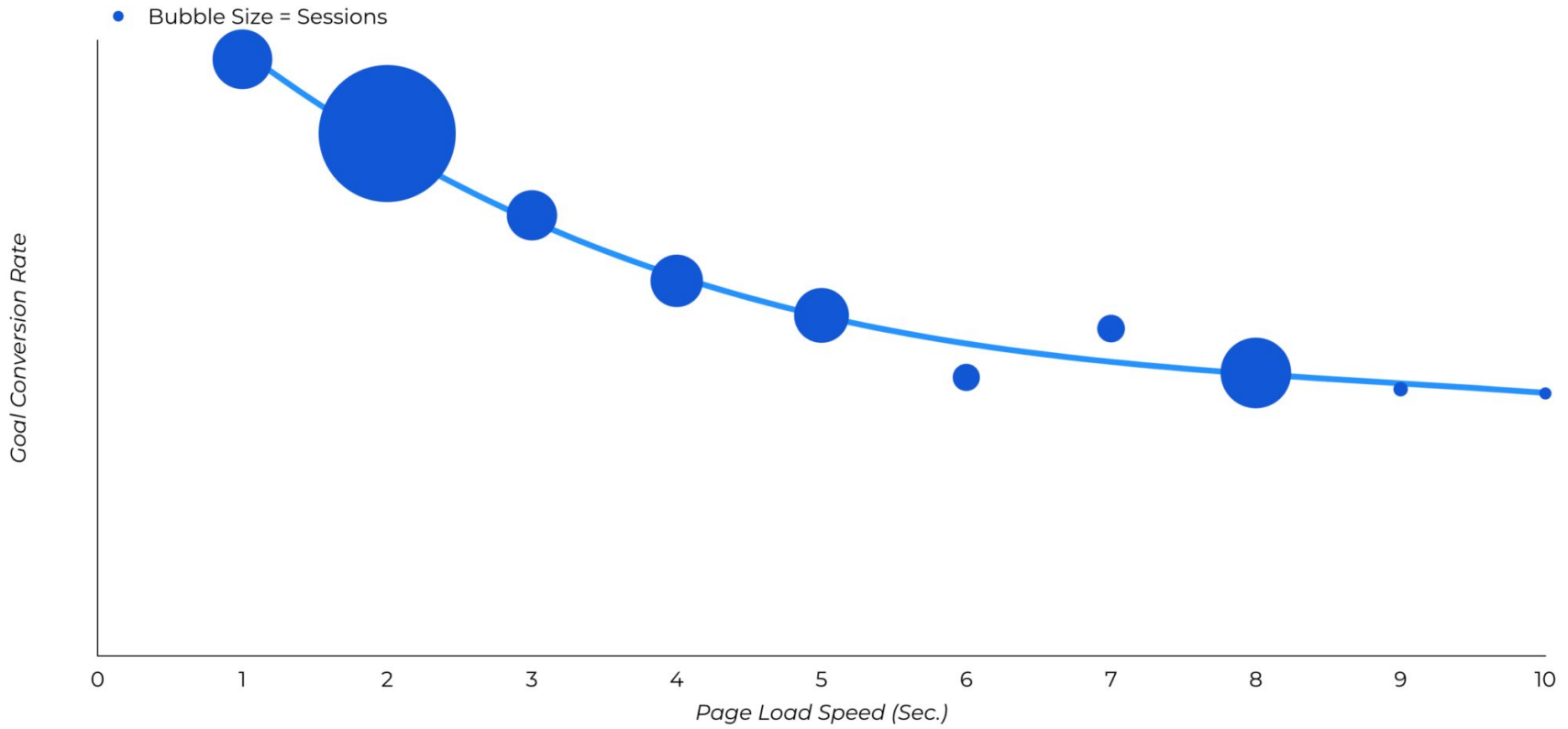
100ms

Improvement in load time

0.5%

Increase in "Add to Cart" count

Through the adoption of [Performance Budgets](#) (derived after doing a competitive study with the [Chrome User Experience Report](#)) and a focus on key [user-centric performance metrics](#), eBay was able to make significant improvements to site speed.



Conversion Rate

The image shows a screenshot of the Star Cadet website and its browser developer tools. The website features a dark green hoodie with 'Star Cadet STAR CADET' printed on it and a 'Shop Now' button. Below it is a pink banner for 'FINAL SPACE' with a 'Shop Now' button. The browser developer tools network tab is open, showing a list of requests. A pink box highlights the summary at the bottom of the network tab: 97 / 146 requests, 232 MB / 232 MB transferred, 231 MB / 234 MB resources, and Finish: 12.2.

Name	Status	Type	Initiatio	Size	Time	Waterfall
FIRST_TIME_EVE...	200	gif	lazys...	16.5 MB	702 ms	
FIRST_TIME_EVE...	200	gif	lazys...	16.5 MB	621 ms	
FIRST_TIME_EVE...	200	gif	lazys...	16.5 MB	1.17 s	
FIRST_TIME_EVE...	200	gif	Other	16.5 MB	424 ms	
NeverStopLookin...	200	gif	lazys...	8.2 MB	421 ms	
NeverStopLookin...	200	gif	lazys...	8.2 MB	234 ms	

97 / 146 requests | 232 MB / 232 MB transferred | 231 MB / 234 MB resources | Finish: 12.2

7/12 or 58.3%

Modern Formats



JPG (Original)

652 kb

Name	Status	Type	Initiato	Size
mountain_wawwjz	200	jpeg	mou...	652 kB



WEBP

487 kb

Name	Status	Type	Initiato	Size
mountain_wawwjz	200	webp	mou...	487 kB



AVIF

303 kb

Name	Status	Type	Initiato	Size
mountain_wawwjz	200	avif	mou...	303 kB

With only format changes via Cloudinary, no other optimizations

Reduced Quality

Original 1.0 mb



High Quality @ 85

854 kb

Name	Sta...	Domain	Type	Size
 jellyfish_qjeelr.jpg	200	res.cloudin...	docu...	854 kB



Low Quality @ 30

125 kb

Name	Sta...	Domain	Type	Size
 jellyfish_qjeelr.jpg	200	res.cloudin...	docu...	125 kB



Auto

559 kb

Name	Sta...	Domain	Type	Size
 jellyfish_qjeelr.jpg	200	res.cloudin...	docu...	559 kB

With only quality changes via Cloudinary, no other optimizations

Responsible Sizes



5475×3849 (Original)

1.3 mb

Name	Sta...	Domain	Type	Size
 flower_lkd6s0.jpg	200	res.cloudin...	docu...	1.3 MB



200x141

9.2 kb

Name	Sta...	Domain	Type	Size
 flower_lkd6s0.jpg	200	res.cloudin...	docu...	9.2 kB



1200x844

87.9 kb

Name	Sta...	Domain	Type	Size
 flower_lkd6s0.jpg	200	res.cloudin...	docu...	87.9 kB

With only size changes via Cloudinary, no other optimizations

All Together



JPG / 95 / 4928x3280 (Orig.)

4.3 mb

Name	Sta...	Domain	Type	Size
 satellite_n18tjw.jpg	200	res.cloudin...	docu...	4.3 MB



AVIF / Auto / 1200x801

51.2 kb

Name	Sta...	Domain	Type	Size
 satellite_n18tjw.jpg	200	res.cloudin...	docu...	51.2 kB

With format, quality, and size changes via Cloudinary.

Building Performant

Web Apps

Embedding Images

Basic image tag

Width & height

Image location

Alternate Text

```

```

Embedding Videos

Basic video tag

Width & height

Video location

```
<video  
  · width="800"  
  · height="600"  
  · src="/space-jellyfish.mp4"  
/>
```

Sourcing Images & Videos

External data source

CMS, Database, DAM, etc

```
{
  "image": {
    "alt": "Jellyfish floating in space",
    "height": 600,
    "src": "https://res.cloudinary.com/.../space-jellyfish.jpg",
    "width": 800
  },
  "title": "Space Jellyfish",
  "video": {
    "height": 600,
    "src": "https://res.cloudinary.com/.../space-jellyfish.mp4",
    "width": 800
  }
}
```

Dynamically Sourced Media

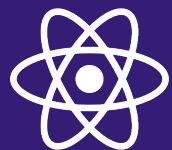
Basic video tag

Width & height

Video location

```
const MyComponent = ({ image, video }) => {  
  return (  
    <div className="card">  
      <img  
        width={image.width}  
        height={image.height}  
        src={image.src}  
        alt={image.alt}  
      />  
      <video  
        width={video.width}  
        height={video.height}  
        src={video.src}  
      />  
    </div>  
  )  
}
```

Dynamically Sourced Media



React

NEXT.js



Gatsby



astro

11ty



qwik



SVELTE



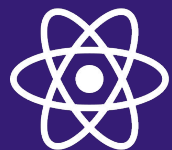
Vue.js



SOLIDJS

and really any other modern libraries...

Dynamically Sourced Media



React

NEXT.js



Gatsby



astro

11ty



qwik



SVELTE



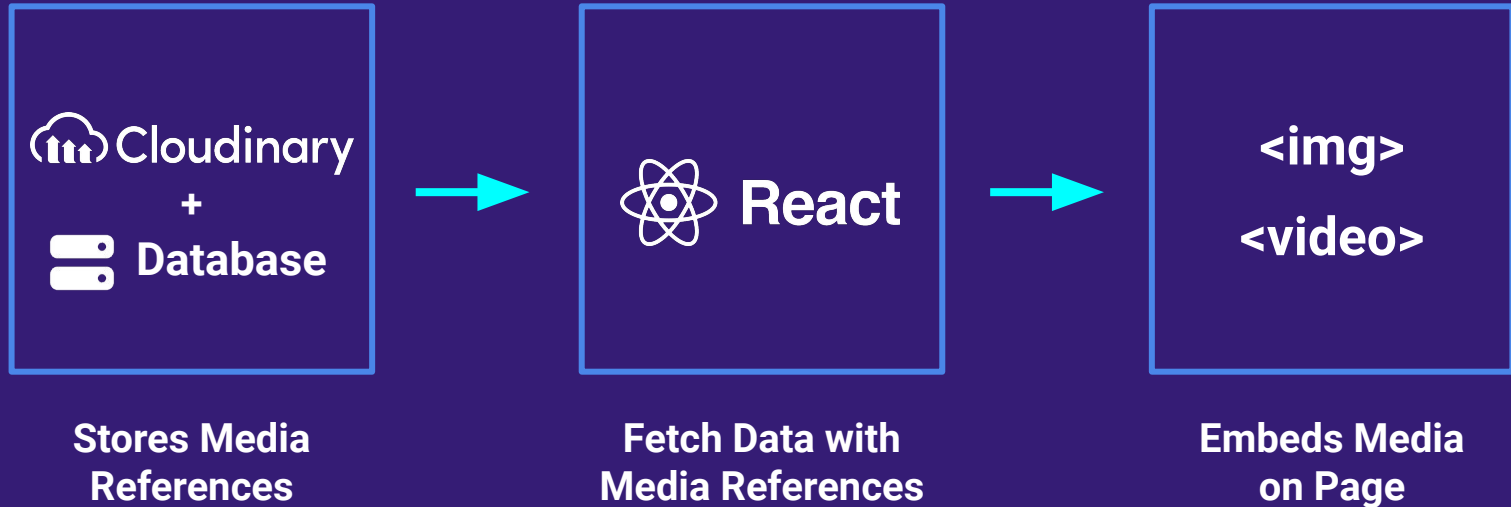
Vue.js



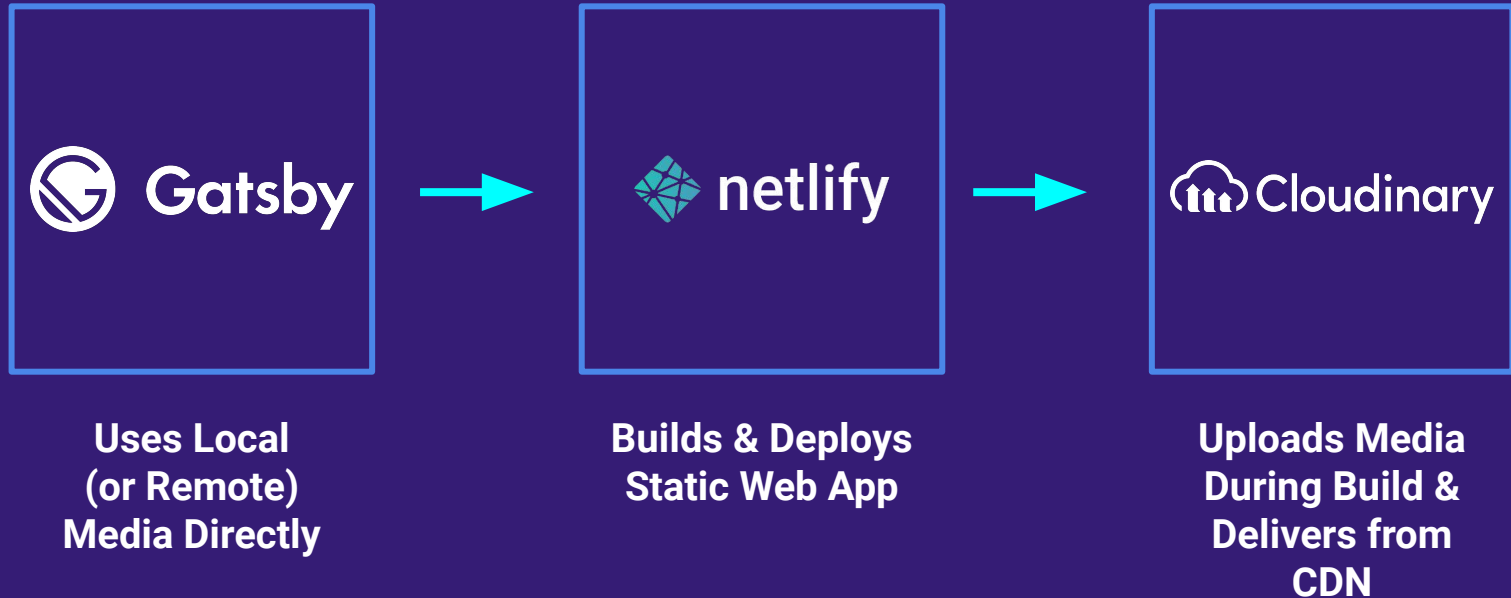
SOLIDJS

and really any other modern libraries...

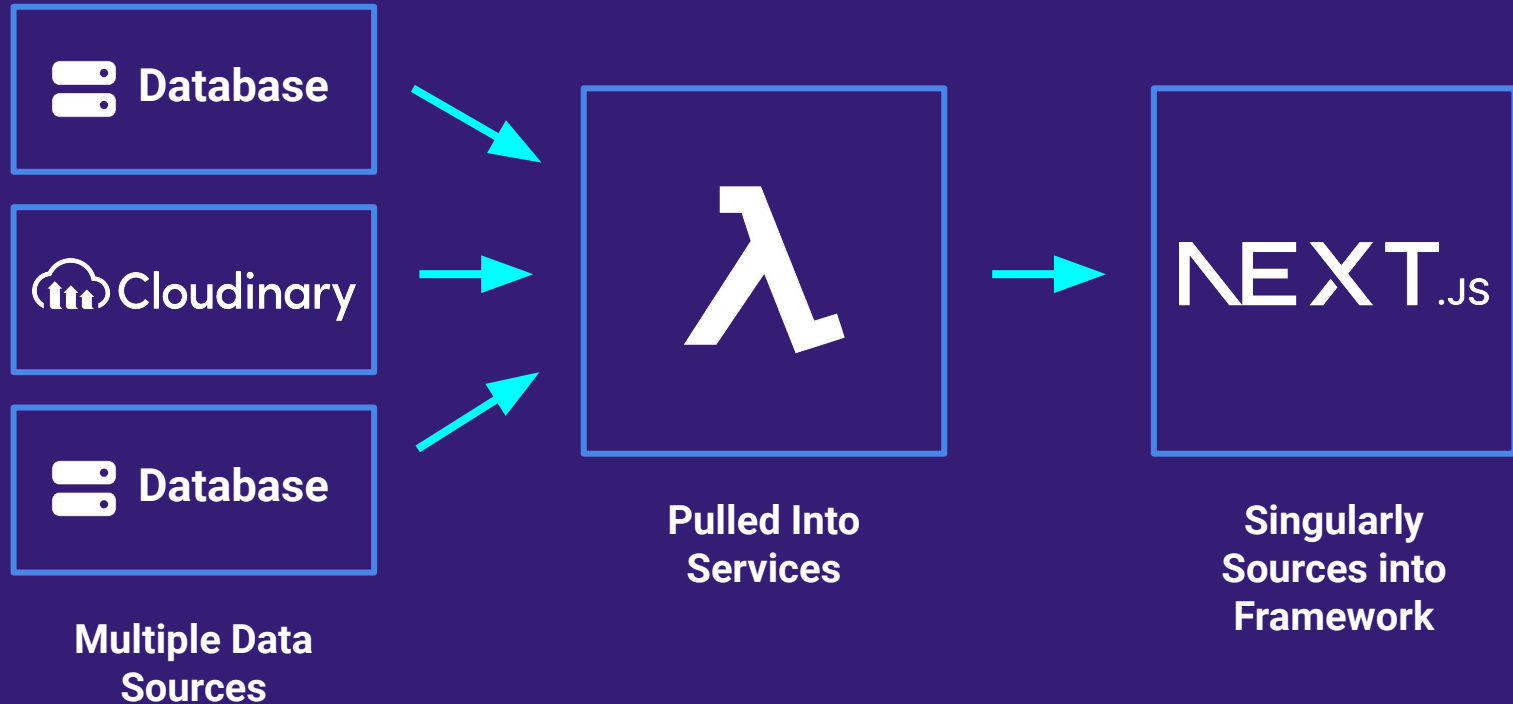
Dynamically Sourced Media



Dynamically Sourced Media



Dynamically Sourced Media





Optimizing for Performance

Manual

Manual



Drop OR Paste

Manual

Manual



Doesn't Scale

Drop OR Paste

Manual



Manual



Automated Scripts

Manual

Automated Scripts



ImageMagick

ImageMagick® is a free and [open-source](#) software suite for displaying, converting, and editing raster image and vector image files. It can read and write over 200 image file [formats](#), and can support a wide range of image manipulation operations, such as resizing, cropping, and color correction.

ImageMagick is written in C and is available for a wide range of operating systems, including Linux, macOS, and Windows. It can be used as a standalone application, or as a library that can be integrated into other software programs.

The main website for ImageMagick can be found at <https://imagemagick.org>. The most recent version available is ImageMagick [7.1.0-57](#). The source code for this software can be accessed through the repository located at <https://github.com/ImageMagick/ImageMagick>. In addition, a legacy version of ImageMagick, version 6, is also still maintained and can be found at <https://legacy.imagemagick.org>.

Automated Scripts

Manual

Automated Scripts

images/

Image1.jpg

Image2.jpg

Image3.jpg

Image4.jpg

Image5.jpg

Image6.jpg

Image7.jpg

Image8.jpg

Image9.jpg

Image10.jpg

Image11.jpg

image12.jpg

optimized/

Image1.jpg

Image2.jpg

Image3.jpg

Image4.jpg

Image5.jpg

Image6.jpg

Image7.jpg

Image8.jpg

Image9.jpg

Image10.jpg

Image11.jpg

image12.jpg

Automated Scripts

Manual

Automated Scripts

images/

Image1.jpg
Image2.jpg
Image3.jpg
Image4.jpg
Image5.jpg
Image6.jpg
Image7.jpg
Image8.jpg
Image9.jpg
Image10.jpg
Image11.jpg
image12.jpg

optimized/

Image1.jpg
Image2.jpg
Image3.jpg
Image4.jpg
Image5.jpg
Image6.jpg
Image7.jpg
Image8.jpg
Image9.jpg
Image10.jpg
Image11.jpg
image12.jpg

sizes/

Image1-orig.jpg
Image1-thumb.jpg
Image2-orig.jpg
Image2-thumb.jpg
Image3-orig.jpg
Image3-thumb.jpg
Image4-orig.jpg
Image4-thumb.jpg
Image5-orig.jpg
Image5-thumb.jpg
Image6-orig.jpg
Image6-thumb.jpg
Image7-orig.jpg
Image7-thumb.jpg
Image8-orig

Automated Scripts

Manual

Automated Scripts

images/

Image1.jpg

Image2.jpg

Image3.jpg

Image4.jpg

Image5.jpg

Image6.jpg

Image7.jpg

Image8.jpg

Image9.jpg

Image10.jpg

Image11.jpg

image12.jpg

optimized/

Image1.jpg

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Image7.jpg

Image8.jpg

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Image1-orig.jpg

Image1-thumb.jpg

Image2-orig.jpg

Image2-thumb.jpg

Image3-orig.jpg

Image3-thumb.jpg

Image4-orig.jpg

Image4-thumb.jpg

Image5-orig.jpg

Image5-thumb.jpg

Image6-orig.jpg

Image6-thumb.jpg

Image7-orig.jpg

Image7-thumb.jpg

Image8-orig

Doesn't Scale

Automated Scripts

Manual

Automated Scripts

images/

Image1.jpg
Image2.jpg
Image3.jpg
Image4.jpg
Image5.jpg
Image6.jpg
Image7.jpg
Image8.jpg
Image9.jpg
Image10.jpg
Image11.jpg
image12.jpg

optimized/

Image1.jpg
Image2.jpg
Image2.jpg
Image3.jpg
Image4.jpg
Image5.jpg
Image9.jpg
Image10.jpg
Image11.jpg
image12.jpg



sizes/

Image1-orig.jpg
Image1-thumb.jpg
Image2-orig.jpg
Image2-thumb.jpg
Image3-orig.jpg
Image3-thumb.jpg
Image4-orig.jpg
Image4-thumb.jpg
Image5-orig.jpg
Image5-thumb.jpg
Image6-orig.jpg
Image6-thumb.jpg
Image7-orig.jpg
Image7-thumb.jpg
Image8-orig

We can do better!

On-the-Fly

Manual

Automated Scripts

On-the-Fly

images/

Image1.jpg

Image2.jpg

Image3.jpg

Image4.jpg

Image5.jpg

Image6.jpg

Image7.jpg

Image8.jpg

Image9.jpg

Image10.jpg

Image11.jpg

image12.jpg

On-the-Fly

Manual

Automated Scripts

On-the-Fly

images/

Image1.jpg

Image2.jpg

Image3.jpg

Image4.jpg

Image5.jpg

Image6.jpg

Image7.jpg

Image8.jpg

Image9.jpg

Image10.jpg

Image11.jpg

image12.jpg

optimized/

Image1.jpg

Image2.jpg

Image3.jpg

Image4.jpg

Image5.jpg

Image6.jpg

Image7.jpg

Image8.jpg

Image9.jpg

Image10.jpg

Image11.jpg

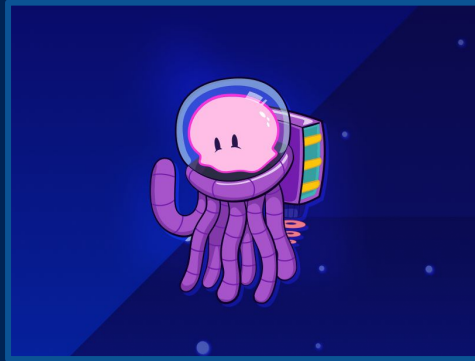
image12.jpg

On-the-Fly

Manual

Automated Scripts

On-the-Fly



✓ q_auto

```

```

On-the-Fly

Manual

Automated Scripts

On-the-Fly

images/

Image1.jpg
Image2.jpg
Image3.jpg
Image4.jpg
Image5.jpg
Image6.jpg
Image7.jpg
Image8.jpg
Image9.jpg
Image10.jpg
Image11.jpg
image12.jpg

sizes/

Image1-orig.jpg
Image1-thumb.jpg
Image2-orig.jpg
Image2-thumb.jpg
Image3-orig.jpg
Image3-thumb.jpg
Image4-orig.jpg
Image4-thumb.jpg
Image5-orig.jpg
Image5-thumb.jpg
Image6-orig.jpg
Image6-thumb.jpg
Image7-orig.jpg
Image7-thumb.jpg
Image8-orig.jpg

On-the-Fly

Manual

Automated Scripts

On-the-Fly



w_800,h_600

```

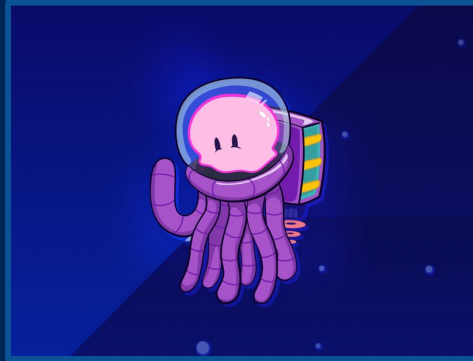
```

On-the-Fly

Manual

Automated Scripts

On-the-Fly

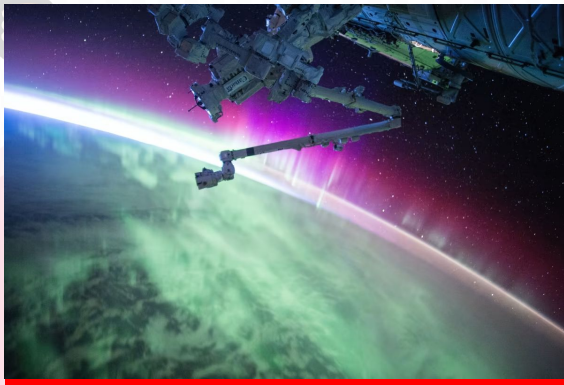


✓ w_800

```

```

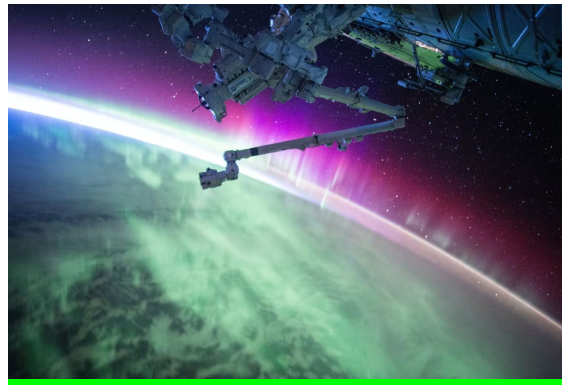
Manual



JPG / 95 / 4928x3280 (Orig.)

4.3 mb

Name	Sta...	Domain	Type	Size
 satellite_n18tjw.jpg	200	res.cloudin...	docu...	4.3 MB



AVIF / Auto / 1200x801

51.2 kb

Name	Sta...	Domain	Type	Size
 satellite_n18tjw.jpg	200	res.cloudin...	docu...	51.2 kB

...ce software suite for displaying, and vector image files. It can read and can support a wide range of image ing, cropping, and color correction. ...le for a wide range of operating systems, can be used as a standalone application, or her software programs.

... for ImageMagick can be found at <https://imagemagick.org>. The most recent version available is ImageMagick 7.1.0-57. The source code for this software can be accessed through the repository located at <https://github.com/ImageMagick/ImageMagick>. In addition, a legacy version of ImageMagick, version 6, is also still maintained and can be found at

With format, quality, and size changes via Cloudinary.

On-the-Fly

Manual

Automated Scripts

On-the-Fly



```

```

On-the-Fly

Manual

Automated Scripts

On-the-Fly



✓ **f_auto**

```

```

On-the-Fly

Manual

Automated Scripts

On-the-Fly



- ✓ f_auto
- ✓ q_auto
- ✓ w_800

```

```

On-the-Fly

Manual

Automated Scripts

On-the-Fly



```

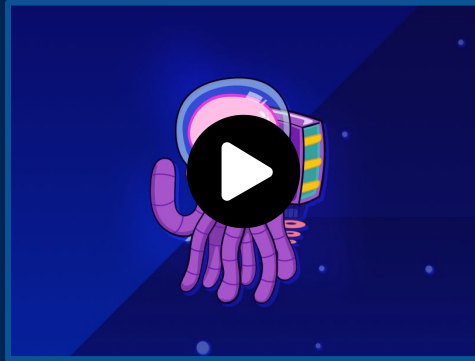
```

On-the-Fly

Manual

Automated Scripts

On-the-Fly



```
<video  
  width="800"  
  height="600"  
  src=".../f_auto/q_auto/w_800/space-jellyfish.mp4"  
>
```

How it Works

How it Works

```

```

How it Works

```

```

How it Works

```

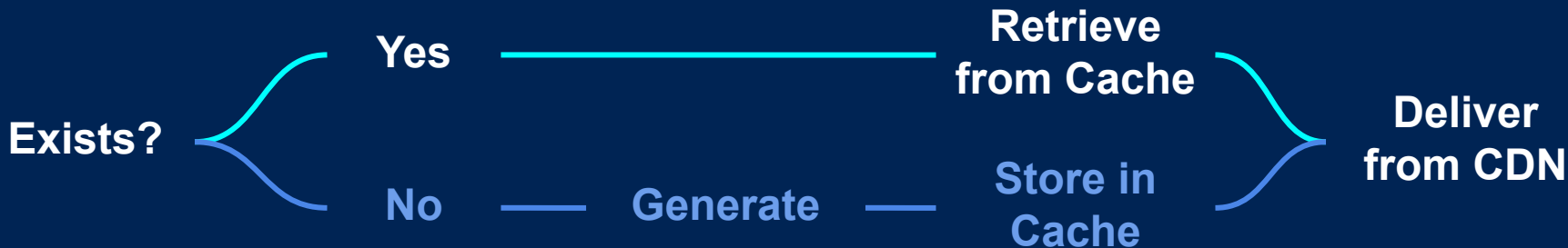
```



How it Works

```

```



How it Works

```

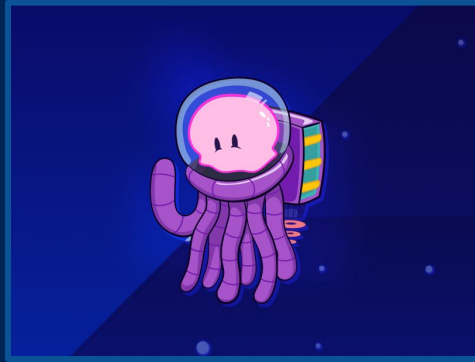
```



Next Cloudinary

Next Cloudinary

Image Delivery



```

```

Next Cloudinary

Image Delivery



```
<CldImage  
  · width="800"  
  · height="600"  
  · src="space-jellyfish"  
  · alt="Jellyfish floating in space"  
>
```

Next Cloudinary

Image Delivery



```
<CldImage  
  · width="800"  
  · height="600"  
  · src="space-jellyfish"  
  · alt="Jellyfish floating in space"  
>
```

https://res.cloudinary.com/thejamdev/image/upload/c_limit,w_800/f_auto/q_auto/v1/space-jellyfish

Next Cloudinary

Image Delivery

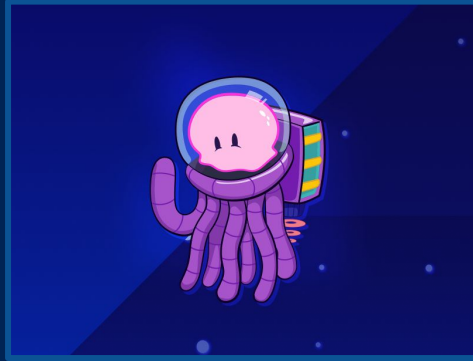


```
<CldImage  
  · width="800"  
  · height="600"  
  · src="space-jellyfish"  
  · alt="Jellyfish floating in space"  
/>
```

https://res.cloudinary.com/thejamdev/image/upload/c_limit,w_800/f_auto/q_auto/v1/space-jellyfish

Next Cloudinary

Image Delivery



```
<CldImage  
  · width="800"  
  · height="600"  
  · src="space-jellyfish"  
  · alt="Jellyfish floating in space"  
>
```

https://res.cloudinary.com/thejamdev/image/upload/c_limit,w_800/f_auto/q_auto/v1/space-jellyfish

Next Cloudinary

Image Delivery



```
<CldImage  
  · width="800"  
  · height="600"  
  · src="space-jellyfish"  
  · alt="Jellyfish floating in space"  
>
```

https://res.cloudinary.com/thejamdev/image/upload/c_limit,w_800/f_auto/q_auto/v1/space-jellyfish

Next Cloudinary

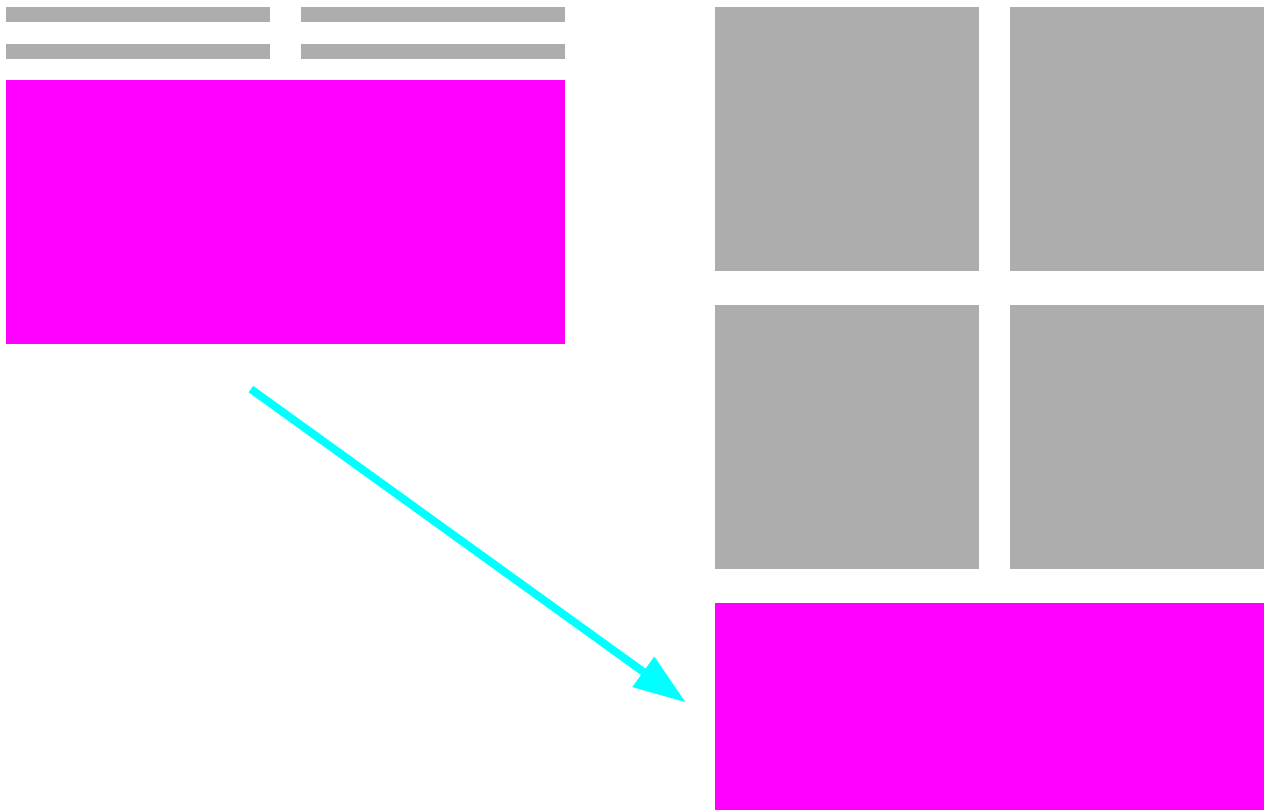
Image Delivery



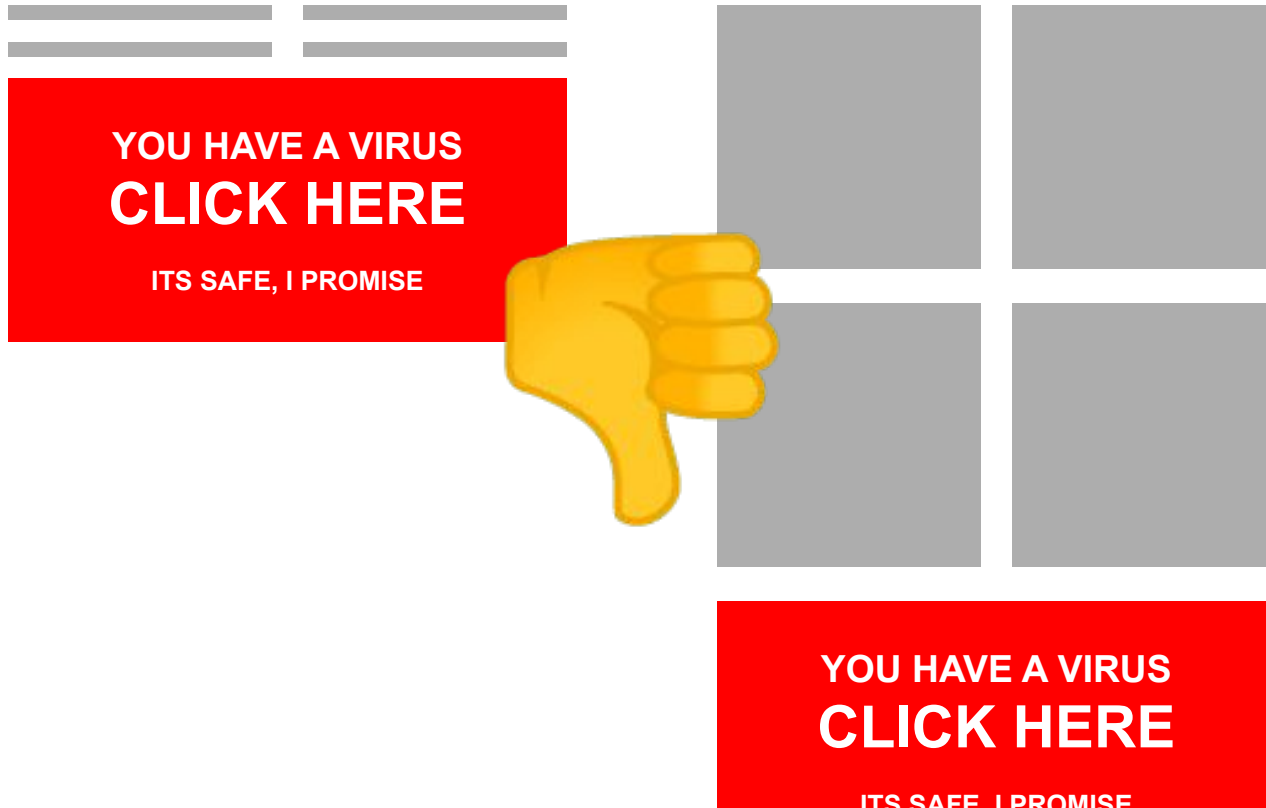
```
<CldImage  
  · width="800"  
  · height="600"  
  · src="space-jellyfish"  
  · alt="Jellyfish floating in space"  
/>
```

https://res.cloudinary.com/thejamdev/image/upload/c_limit,w_800/f_auto/q_auto/v1/space-jellyfish

Layout Shift



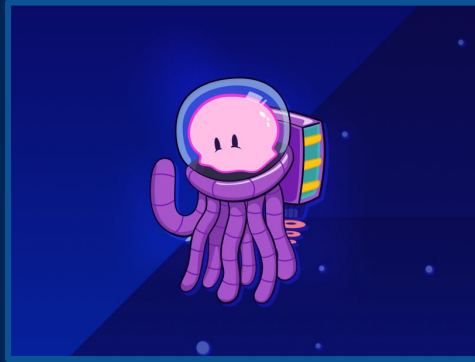
Layout Shift



Next Cloudinary

Image Delivery

Cropping & Resizing



```
<CldImage  
  · width="800"  
  · height="600"  
  · src="space-jellyfish"  
  · alt="Jellyfish floating in space"  
>
```

Next Cloudinary

Image Delivery

Cropping & Resizing



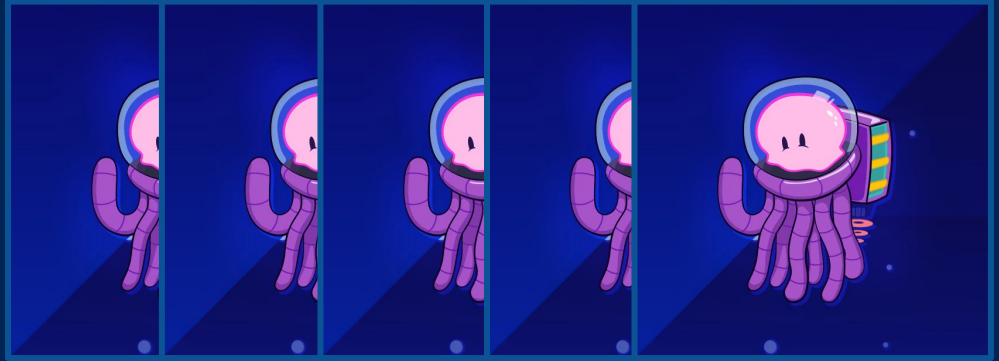
```
<CldImage  
  · width="600"  
  · height="600"  
  · crop="fill"  
  · gravity="center"  
  · src="space-jellyfish"  
  · alt="Jellyfish floating in space"
```

```
../thejamdev/image/upload/c_fill,w_600,h_600,g_center/f_auto/q_auto/space-jellyfish
```

Next Cloudinary

Image Delivery

Cropping & Resizing



```
<ClImage  
  · width="600"  
  · height="600"  
  · crop="fill"  
  · gravity="center"  
  · src="space-jellyfish"  
  · alt="Jellyfish floating in space"  
>
```

Next Cloudinary

Image Delivery

Cropping & Resizing



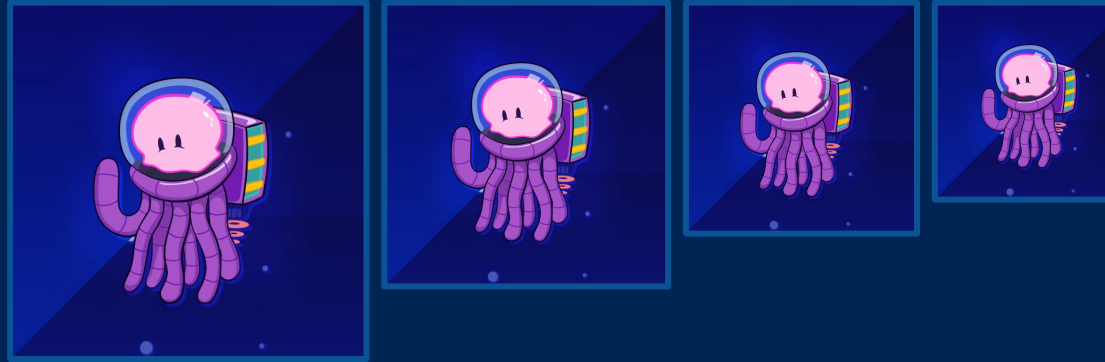
```
<ClImage  
  · width="600"  
  · height="600"  
  · crop="fill"  
  · gravity="center"  
  · src="space-jellyfish"  
  · alt="Jellyfish floating in space"
```

```
.../thejamdev/image/upload/c_fill,w_150,h_150,g_center/f_auto/q_auto/space-jellyfish
```

Next Cloudinary

Image Delivery

Cropping & Resizing



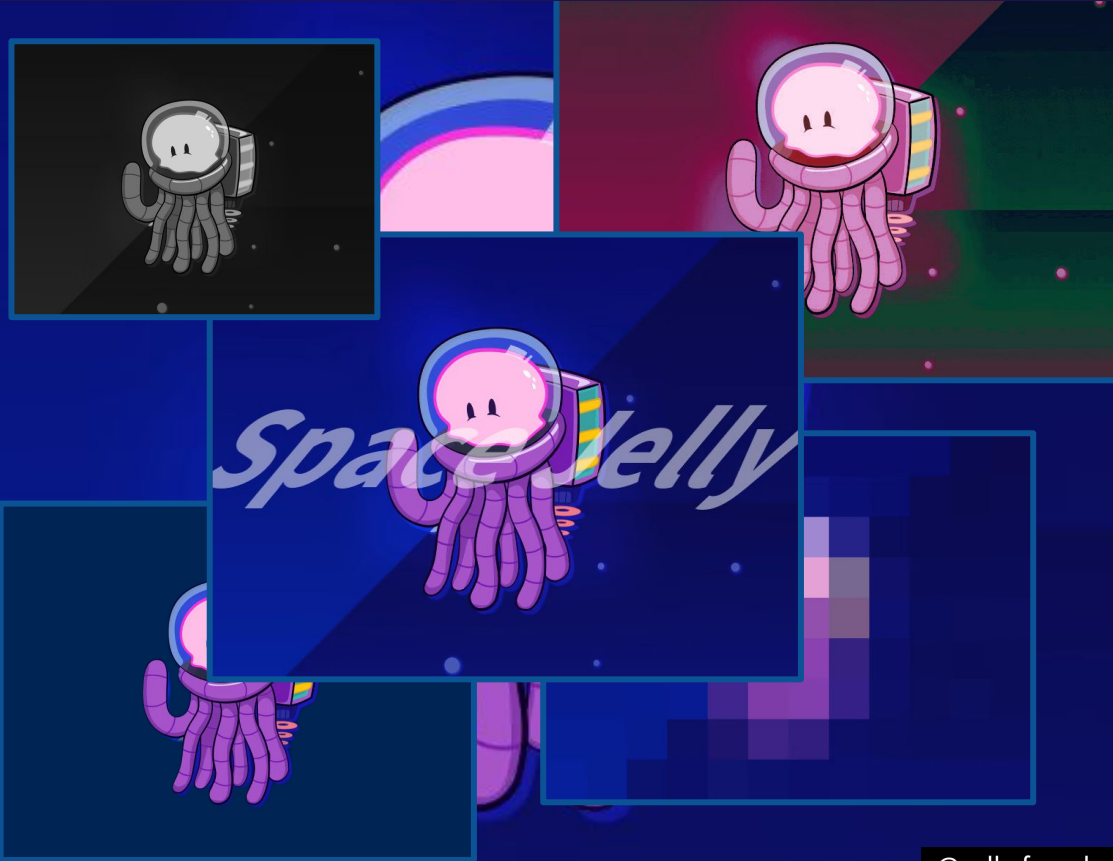
```
<ClImage  
  · width="600"  
  · height="600"  
  · crop="fill"  
  · gravity="center"  
  · src="space-jellyfish"  
  · alt="Jellyfish floating in space"  
  · sizes="100w"  
>/>
```

Next Cloudinary

Image Delivery

Cropping & Resizing

& so much more...



Demo



Demo





Demo Recap



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Getting Started

Installation

Components



CldImage



Basic Usage

Configuration

Examples

CldOgImage



Basic Usage

Configuration

Examples

CldUploadButton



Basic Usage

Configuration

Examples

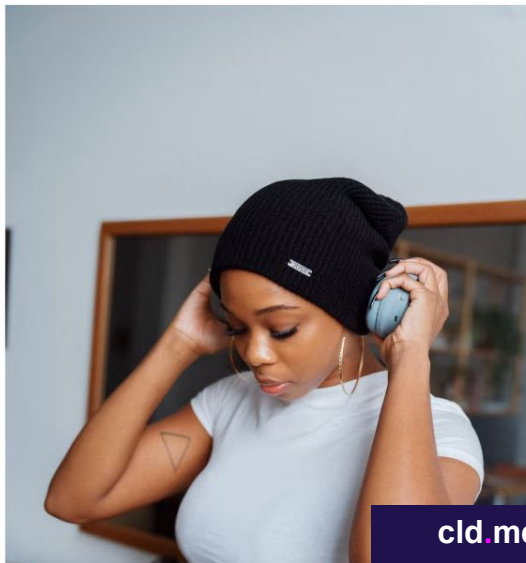
Getting Started

Next Cloudinary

High-performance image delivery and uploading at scale in Next.js powered by Cloudinary.

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cld.media/nextjs

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How to Programmatically Upload Images to Cloudinary in React & Next.js

How to Use Cloudflare Pages to Host & Deploy a Next.js App

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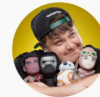
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Resources

Cloudinary Examples

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Examples

Netlify

- [Netlify Function - Cloudinary Custom Remote Function](#)
- [Netlify Function - Cloudinary Webhook Endpoint](#)
- [Netlify Graph Authentication - Cloudinary Auth in Netlify Function](#)

Next.js

- [CldImage Component - Next Cloudinary](#)
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- [CldUploadWidget Component - Next Cloudinary](#)

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@colbyfayock

Colby Fayock

Sr Dev Experience Engineer

 Cloudfare

@colbyfayock



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