

# Minted Makes Beautiful Art with Cloudinary

**Automated and streamlined** generation of 60 million complex images across 4,000 Art products in Minted's crowd-sourced marketplace

Removed heavy bottlenecks and replaced insufficient home-grown 2D/3D image tools, allowing business to **reliably launch new art products in hours versus weeks**

**Minted.com** is a design marketplace that crowdsources the best content from a global community of independent artists. The company's art, stationery, and textiles products have reached over 75 million homes worldwide.

The majority of Minted's catalog are configurable and personalized products with many different options and attributes. A product at Minted can have more than 100,000 variants, and as a premium design brand, each variant must appear as pixel-perfect product images that exactly match the configuration selected by the customer. By using Cloudinary, its engineers have optimized the image generation pipeline for its important Art business with a full set of 2D/3D transforms and automation technology.



"We started using Cloudinary for our Art product category because it's one of the most complex. All together, we have just shy of 60 million images on Cloudinary for Art alone"

— **David Lien**, VP of Engineering

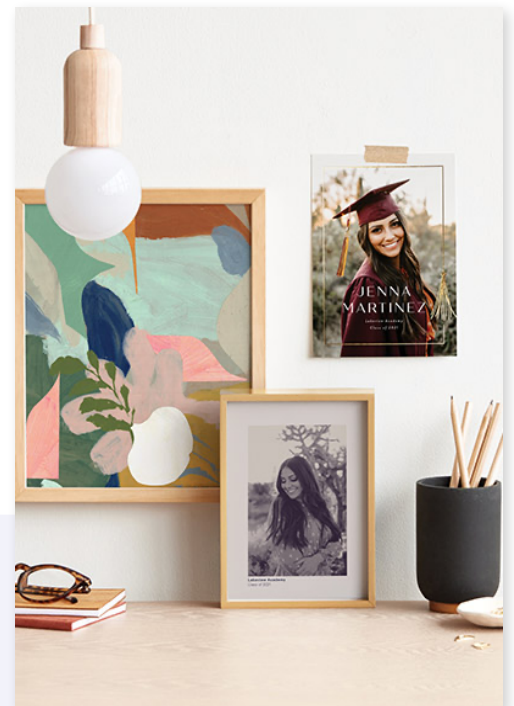
## minted.

### INDUSTRY

Home decor + stationery

### HEADQUARTERS

San Francisco, United States



## ABOUT

## Minted: a marketplace of independent artists

Minted sources creative content from a global community of independent artists, then sells the best content in the form of art, home décor, and stationery, directly to consumers. Minted uses technology to bring unique, best-selling designs to market at scale. Using its crowdsourcing technology, consumers are empowered to vote for the designs they love and want to see sold, ensuring that Minted always sells continuously fresh and trend-forward products. The winning designs are manufactured by Minted, enabling artists from around the world to share and sell their work while letting Minted do the rest. Since launching in 2007, the company has expanded to serve consumers in new categories including wall art, textiles, digital content, and home furnishings. Minted also builds traditional retail distribution for its independent artist community, partnering with major retailers and consumer products brands.

## THE CHALLENGE

## A premium design brand with epic-scale image management

Having such an image-centric business results, of course, in a lot of images to manage. As David Lien, the company's VP of Engineering, states: "We have more than 250,000 active stock keeping units (SKUs) at any given time, of which the majority are customizable and configurable, and we consistently turn over a third of all our products each year."

It also means a lot of work 'backstage' on managing images and supporting all the changes and customization Minted wants to offer customers. "Over time we've built out a lot of technology to support the unique needs of our business, and that definitely includes image generation," he notes. "We've built up both the 2D and 3D capabilities to manipulate images and transform them for product images use. We built an ImageMagickbased composition and transform tool for our 2D images, for example, and a WebGLbased 3D rendering tool for our 3D images."

Over 14 years of growth, Minted's catalog steadily grew in size and complexity. That meant Minted's design pipeline and the tools it used to manage it has had to continually adapt. The result was a complex mix of old and new tools and scripts, strung together with different streaming technologies and queuing systems, which became hard to maintain and took up significant engineering resources. Ultimately these factors persuaded Minted to seek new solutions.

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"The complexity and bottlenecks in our process meant it would sometimes take weeks to launch new Art products, which really impacted our ability to stay nimble and move fast. There were also a few stability issues that were difficult to debug. Combined with a limited visibility into the pipeline meant that we'd sometimes see broken images making their way into the production site, which is not acceptable for a premium design brand like ours"

—David Lien, VP of Engineering

## THE CLOUDINARY SOLUTION

## From scene generation to complex 3D image help

Minted chose Cloudinary to help solve these issues initially for its art segment, an area which lets users select from a huge number of configuration options. And the scale is enormous: there are currently 59.8 million images supporting 4,000 product SKUs in this part of Minted's business.

Customers can choose from many possible options for a single Minted Art print: size, color, medium, frame, matting, material, and of course the design itself. Multiplying the variant count by the number of images needed per variant means that tens of thousands of images are generated for a single art design.

“The number of active configurations available for each art print is pretty staggering,” states Lien. “And because we are a premium brand, we want every single one of our product images to match the selected configuration exactly – so if you pick an 18” by 24” art print on canvas with the sage colorway and the brushed silver frame, we will show that combination exactly on the hero image of the product details page.”

Cloudinary replaces some of the key steps in Minted's image generation pipeline. To start, Minted sets up a photo shoot in its studio for the scenes it wants to composite for the final images. Next, an internal image specialist slices the image into layers and corrects for transparency, color and position. A script then generates the coordinates needed to position these layers as named transforms into a text file (CSV), which is then uploaded to Cloudinary along with the previously created scene layers used to create the final image. Separately, a Minted proprietary pipeline ingests raw art files from artists and builds the base images for each winning design. Finally, when a customer navigates to an art category page or product details page on Minted, the page makes requests to Cloudinary for images that composite the correct combination of scenes, designs, frame and texture into the final thumbnails.

For close-up product images, Minted makes use of Cloudinary's 3D rendering capability as well as its `e_distort` API feature. A 3D model with texture UV mapping was created for the close-up image that shows off the texture and wrapping effect of a stretched canvas art print. With some careful tweaking of the 3D coordinates, the model is uploaded and Cloudinary does the rest, composing the art design as texture onto the model.



## THE RESULTS

## Visibility and an improved CX

Cloudinary now sits at the heart of a complex image manipulation process that simplifies and optimises the full range of 2D and 3D work that Minted includes in its Art portfolio. These include not just all the matting and mounting options it wants to offer users, but also what can be complex work of generating canvas close-ups with 2D and 3D mesh transforms.

Cloudinary has helped to considerably reduce both the amount of calendar time needed as well as the amount of overhead needed from merchandising, production, and engineering to launch new art products. The new pipeline is much more reliable and greatly reduced the number of broken images on the Minted website.

Minted has also made significant progress on its error monitoring and triage process. As Lien explains: “Monitoring and getting visibility into the pipeline has historically been a problem. Now we run a cron job daily to grab the error logs from the Cloudinary servers and combine that with our product data, which then goes into our BI database. From there, we generate a Looker dashboard that shows the number of broken images on our sites per day as experienced by our users.” More importantly, errors can be tracked back to individual SKU-level, allowing merchandising, operations, and engineering teams to easily prioritize and triage any issues.

Minted’s work on its Art category is only the first step in its partnership with Cloudinary. “Stationery is our biggest and most complex category; a single stationery design can have over a million images, and these images have their own unique challenges to be solved,” said Lien. These include, for example, animated gifs that capture the ‘shine’ of foil-pressed wedding invitation cards. This is currently handled by a very complicated process of scripts, manual tweaking, and spreadsheets. “We would love to solve this technical challenge with Cloudinary in the future,” he concludes.



## About Cloudinary

Cloudinary’s mission is to empower companies to deliver visual experiences that inspire and connect by unleashing the full potential of their media. With more than 50 billion assets under management and 9,000 customers worldwide, Cloudinary is the industry standard for developers, creators and marketers looking to upload, store, transform, manage, and deliver images and videos online. As a result, leading brands like Minted, Atlassian, Bleacher Report, Bombas, Grubhub, Hinge, NBC, Mediavine, Peloton and Petco are seeing significant business value in using Cloudinary, including faster time to market, higher user satisfaction and increased engagement and conversions. For more information, visit [www.cloudinary.com](https://www.cloudinary.com)