

# Powering industry-leading generative AI innovations with on-demand NVIDIA GPUs

Meshy-4 

Meshy-4

Meshy-3 Turbo

Meshy-3



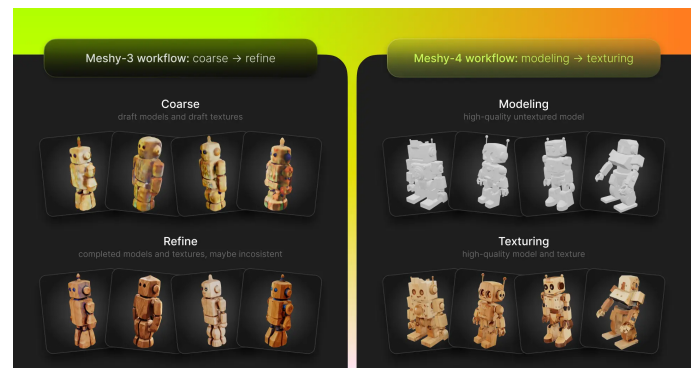
## Artistic innovations with generative AI

For 3D artists, generative AI is closing the gap between creatively conceptualizing new ideas and executing immersive 3D content frame-by-frame. Creatives can now use generative AI to take an idea from a text or image input to a 3D model in minutes, allowing them to create at the same pace that they envision new ideas. Since its introduction, the pace of generative AI innovation has been staggering, and there are countless more transformative uses waiting for startups with the ideas and resources necessary to bring them to market. In competitive generative AI spaces like 3D model generation, leading players stay ahead by continuously driving innovation week after week. To remain at the forefront, constant improvement is not just an advantage—it's a necessity.

Meshy AI is leading the way in generative AI for 3D model generation, taking on large generative AI companies with their August 2024 launch of Meshy-4. Their 3D-focused approach has fueled their growth and allowed them to become the #1 3D AI tool based on traffic according to publicly available data. Users can experiment with and compare free models, so companies that want to convert users into customers need exceptional speed, model quality, and control. To secure and maintain their

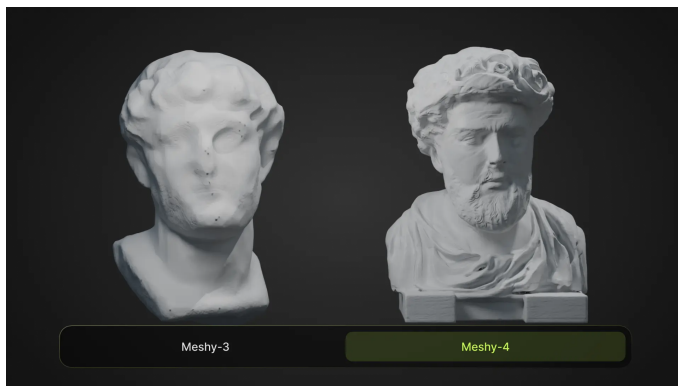
leadership position, Meshy is continually experimenting and refining their product.

"It's a highly competitive space," Dr. Ethan (Yuanming) Hu, Meshy CEO and MIT Ph.D. in Computer Science said. "I think world-wide there are maybe 20 or 30 companies doing generative AI for 3D. Meshy has the largest amount of traffic and we believe we are delivering the highest quality when it comes to our models and textures, but there's still much unknown in 3D GenAI, and we're not yet fully meeting the needs of professional users. This is why we need significant computational resources to innovate and quickly iterate, leading the way as pioneers in this space."



## Fueling growth with computational power

For Meshy, finding a cloud provider with enough GPUs to support their research and development was challenging. On top of that, finding one that understood the pace of the generative AI industry and could give them the flexibility



they needed to remain a leader was a never-ending battle. As they were conceptualizing Meshy-4, Hu and his team considered renting reserved GPUs, but ultimately found that their experimentation turn-around time would be longer than they would like—potentially taking months. With a reserved cluster model, his team would have a set number of GPU hours per day, limiting the number of experiments they could run and potentially preventing them from chasing down new ideas. During slower periods, the reserve model forced them to pay for idle GPUs.

Instead, they wanted an on-demand option that could instantly scale up as they ran experiments. That way, they could follow new ideas and respond to changes in the industry, ultimately allowing them to bring updates to market more quickly.

## CASE STUDY | Meshy

"Finding that many GPUs is not easy, especially if you want on-demand access on a week-to-week basis," Hu said. "We also find that it is easier to find a single node of the NVIDIA H100 Tensor Core GPU, but finding interconnected clusters is really hard."

As Meshy was beginning work on Meshy-4 in late July, they learned that Lambda had NVIDIA H100 GPU clusters interconnected via NVIDIA Quantum-2 400 Gb/s InfiniBand available NVIDIA through Lambda 1-Click



Cluster (1CC), a self-service, on demand-cloud that they could start using almost immediately. 1CC allows Meshy to spin up experiments in minutes, instantly accessing the H100 GPUs they need without paying for idle time by allowing them to book week-to-week. 1CC sped Meshy's R&D turnaround time by 2x, cutting their months long experimentation time in half.

With 1CC, Meshy were able to take Meshy-4 from experimentation to training to release in a matter of weeks, allowing them to leapfrog their competitors and take a market leadership position. Meshy continues to use Lambda to improve Meshy-4 and they have even begun training Meshy-5.

"I would say in some ways our biggest competitor is ourselves, because nobody has explored things beyond Meshy-4. We are the best product on the market, that's why we have the most traffic. For the next generation, we are focused on continuing to improve textures and improving control. For artwork, there are endless places for improvement," Hu said.

### Responsive support to keep Meshy on track

A cluster crashing during a crucial experiment can cause a delay that has rippling effects for Meshy. On previous versions of Meshy, they worked with providers that took too long to respond and resolve their support requests. "In the past, our vendor's response time was like 12 hours. That's super long and slowed down our R&D process," Hu said.

When they switched to Lambda, Hu noticed their response

time shrank from half a day to an average of about 20 minutes. He also liked that Lambda offered support through the messaging platform they already used—meeting them where they are. "I really like the fact that [Lambda] has a slack channel, because we use slack. It integrates very well. Basically, I consider the Lambda team as part of our own team," Hu said.

### Flexibility & performance for the AI age

By using 1CC, Meshy got both the flexibility and computational performance that they needed to continue to innovate and keep their leadership position in the market. Meshy is growing rapidly and expanding their team (learn more about open positions [here](#)).

"Basically, the more compute and the more data, the better the model is trained, more people are going to take it seriously, and that means higher value to our customers. It's a pretty reasonable chain of thoughts," Hu said.

## Challenge

Meshy faced several key challenges while developing their model, including:

- Pressure to constantly innovate to maintain industry leadership position
- Accessing in-demand interconnected GPU clusters immediately
- Avoiding long-term cloud contracts with rigid terms that restricted experimentation
- Managing inconsistent GPU demand during experimentation phases and avoiding paying for idled GPUs during slower periods

## Solution

With Lambda's 1-Click Cluster (1CC), Meshy could quickly test and iterate with on-demand access to NVIDIA H100 Tensor Core GPUs interconnected with NVIDIA Quantum-2 InfiniBand, allowing them to speed their R&D turnaround time by 2x and become leaders in the 3D model generation space. Meshy uses 1CC to continue improving Meshy-4 and to build Meshy-5, building on their success and pushing the generative AI 3D model industry forward.

## Result

Lambda's 1CC enabled Meshy to release Meshy-4 updates in half the time of previous models and create value for their customers by:

- Enabling simultaneous experiments for faster research and development
- Ensuring operational uptime with 20-minute average support response times
- Continuously improve Meshy-4 with flexible computational resources

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