



Incredibuild for Cloud

2024 UE5 Acceleration Benchmark Report

Rethinking game development costs

Cloud computing has become a necessity for game development – but it can come with a significant cost.

Teams don't always require a massive amount of compute power for every task or project, but they'll often keep instances and VMs open even when they're lying around unused. This is because crunch times or peak usage times require a significant scale-up in resources, and there are not always effective ways to manage this allocation and deallocation effectively.

Incredibuild can help solve these issues utilizing cloud and accelerate everything from testing, compilation, and Unreal Engine-related tasks. The platform's smart auto-scaling solution can seamlessly spin up or down the right amount of cloud resources and ensure that dev teams always have the power they need without limiting their capacity or overextending their budget.

Our Virtualized Distributed Processing and Build Cache technology give you cost optimization on the cloud and faster Unreal Engine builds that let you iterate faster and create amazing games on time.

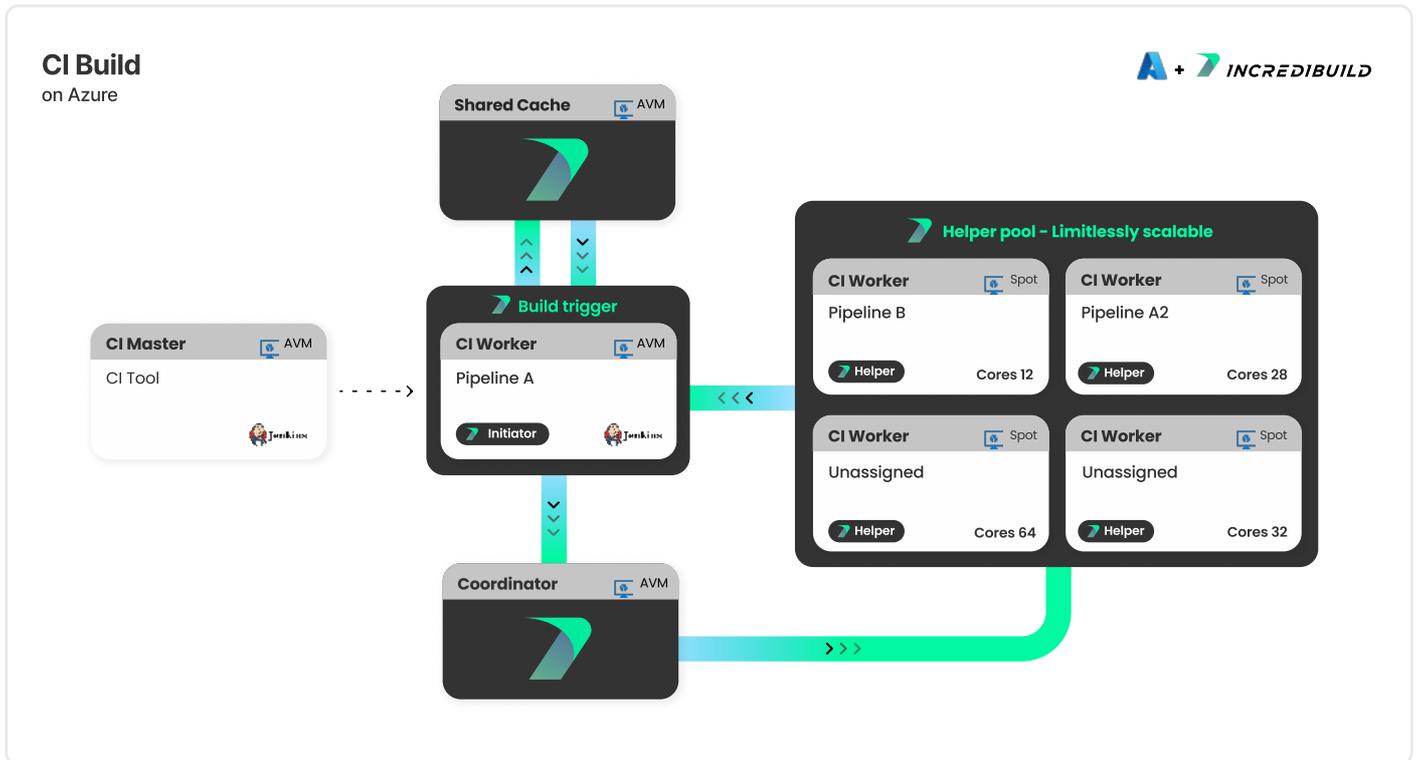
Diving under the hood – How does Incredibuild for Cloud work?

When activating Incredibuild for Cloud, the platform creates a set of cloud-based VMs per a user-defined configuration. These VMs are placed in the Incredibuild pool on your cloud and made available for use.

When a task begins, the VMs in the available pool are activated based on the number of requested cores. If more cores are needed than what's existing in the pool, Incredibuild for Cloud will spin up additional VMs and apply them to the task. Once the tasks have been completed, Incredibuild for Cloud will automatically terminate the VMs that are no longer needed and deallocate the remaining VMs in the pool.

Even if you're working in a hybrid model, during peak usage times Incredibuild will dynamically leverage thousands of automatically provisioned cloud compute instances and de-provision them once the

workload is completed, reverting to your local infrastructure. This way, you can work either fully on cloud or simply burst to the cloud when you need extra compute resources.



Leveraging spot instances

Incredibuild manages both AWS and Azure spot instances. These instances are more affordable than on-demand or reserved instances, but they can be reallocated by providers without prior notice. Normally, this could be seriously problematic if you're mid-build.

Incredibuild can compensate for the sudden loss in capacity on the fly, letting you benefit from the cost savings of spot instances without impacting your dev processes or build times.

Benchmarking Unreal Engine 5

To measure Incredibuild's impact on Unreal Engine 5 builds, we used a sample project – Lyra. The benchmark simulates a full game build from zero running on Azure Cloud.

For this experiment, we used Unreal Engine 5.1, with 16 cores running without Incredibuild and up to 132 at peak usage with Incredibuild. You can see the benchmark data in the table below:

Lyra Starter game with Unreal Engine 5.1

Build Time Without Incredibuild for Cloud

Total time	1:36:33
Total Core Usage	16
Acceleration (%)	-
Time saved	-

Build Time with Incredibuild for Cloud

Total time	0:18:53
Total Core Usage	120 (132 at peak usage)
Acceleration (%)	80.44%
Time saved	1:17:40

Benchmark Topology

The environment for this benchmark was set up on Azure cloud, including both the initiator and helper machines.

The builds were triggered through a Visual Studio 2019 agent installed on the machine. You can see the specifications used for the benchmark below:

Without Incredibuild:

Instance type: Standard d16 Sv4 (16 core, 64gb RAM)
OS: Windows 10
Code base: Unreal Engine 5.1
IDE: Visual Studio 2019

With Incredibuild:

Initiator :

Instance type: Standard D8 Sv4 (8 core, 32gb RAM)
OS: Windows 10
Code base: Unreal Engine 5.1
IDE: Visual Studio 2019

Helpers:

Instance Types: Standard D8 Sv4 (8 core, 32gb RAM)
OS: Windows 10

Conclusion

The numbers are straightforward. When running Unreal Engine 5 builds on the cloud, the time differential with Incredibuild is hard to ignore. Over 80% time saved in a single build is significant in a variety of ways. For one, it allows teams to build more frequently – whether as a result of testing, new features, or simply experimentation – and results in a better product.

Also, it helps teams keep costs down by reducing the need for significant investment in cloud assets and resources.

Incredibuild for Cloud also prioritizes the use of spot instances, along with smart scaling. This means resources are used truly on an as-needed basis, without the common downsides of spot instances, such as the unexpected loss in capacity or the delays brought about by these losses.

Why you should use Incredibuild for Cloud with Unreal Engine 5

Incredibuild for Cloud accelerates your Unreal Engine 5 builds and helps you deliver amazing games on time, every time. With Incredibuild you get:

Optimized pipelines – let your teams build faster and focus on the important parts of developing games.

Cost efficient build acceleration – Incredibuild gives you optimal performance on the cloud, maximizing the resources you have and dynamically managing your compute infrastructure to avoid higher costs.

Unreal Engine expertise – Our team works directly with Unreal Engine engineers to scope, test, and support UE5 development as well as the broader game developer community.

Cloud usage, your way – no matter if you're fully on the cloud, working hybrid, or simply bursting to the cloud at peak usage times, Incredibuild helps you make the most out of your resources.

Keep your existing tools, code, and processes – No need to change anything, Incredibuild lets you run your development pipelines the same way you always have.