

# Dizi: Workload Tracing, Sharing, and Reproducing for XR Devices and Metaverse Systems

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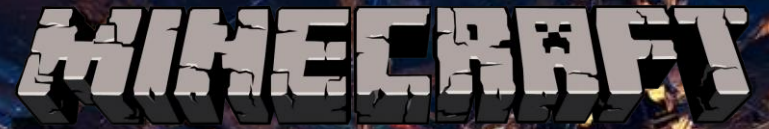


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# PHENOMENON: PERFORMANCE DROPS IN VIRTUAL WORLDS



Source: <http://bit.ly/EveOnline21Crash>

NEWS

## Players in Eve Online broke a world record — and then the game itself

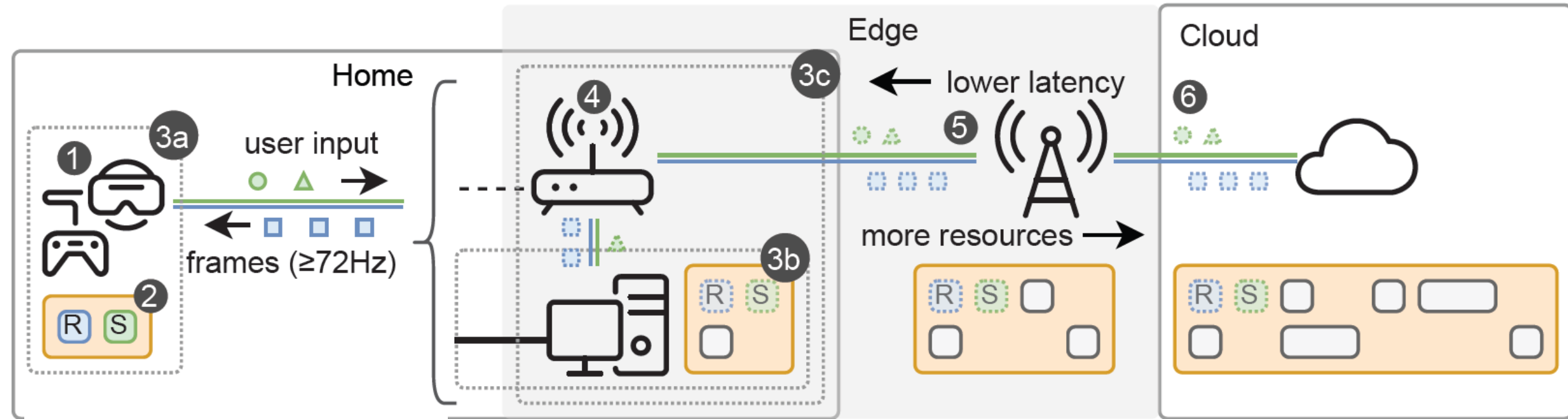
*Developers said they're not 'able to predict the server performance in these kinds of situations'*

By [Charlie Hall](#) | [@Charlie\\_L\\_Hall](#) | Jan 5, 2021, 2:54pm EST



Source: Razorien/CCP Games

# How to Deploy and Orchestrate Metaverse Infrastructure?



**R** Rendering component

**S** Simulator

**□** Other application

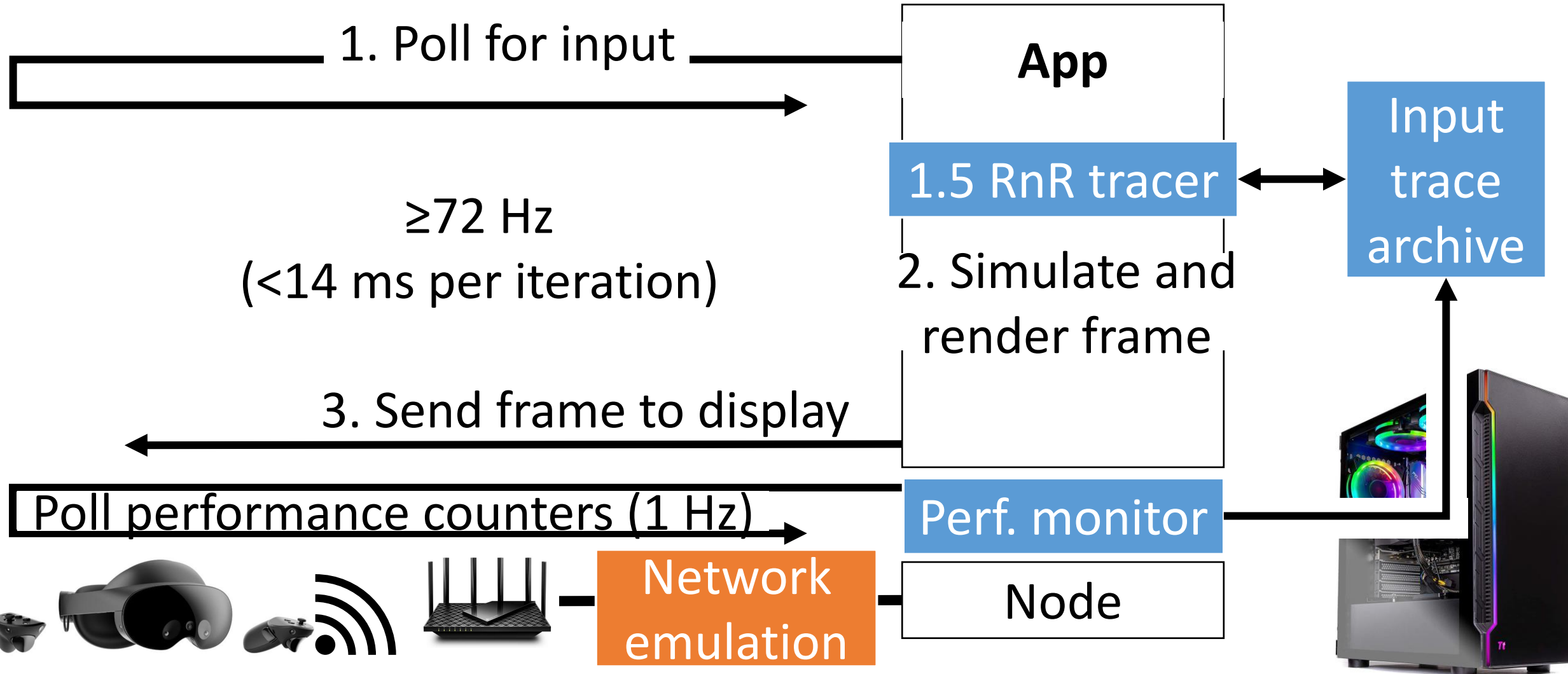
**—** Frame/user-input stream

**- -** Wireless connection

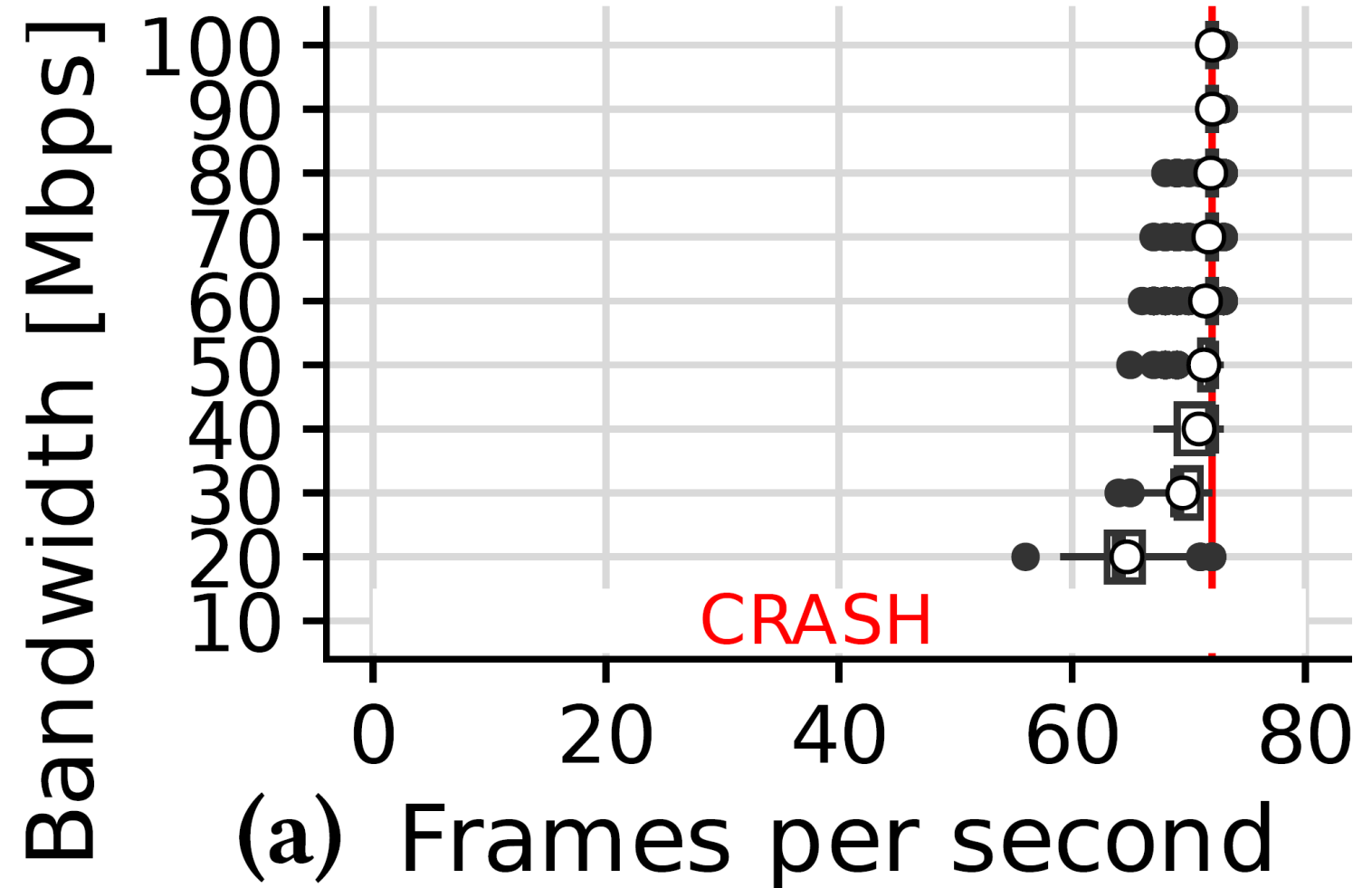
**—** Wired connection

**Our approach: integrate novel application-level architectures, service placement and offloading approaches, and microservice orchestration**

# Experiment Setup



# VR streaming playable with (relatively) low bandwidth



# Further Reading

[\*Can My WiFi Handle the Metaverse? A Performance Evaluation Of Meta's Flagship Virtual Reality Hardware\*](#), Jesse Donkervliet, Matthijs Jansen, Animesh Trivedi, Alexandru Iosup, ICPE HotCloudPerf 2023

[\*Meterstick: Benchmarking Performance Variability in Cloud and Self-hosted Minecraft-like Games\*](#), Jerrit Eickhoff, Jesse Donkervliet, Alexandru Iosup, ICPE 2023

[\*Servo: Increasing the Scalability of Modifiable Virtual Environments Using Serverless Computing\*](#), Jesse Donkervliet, Javier Ron, Junyan Li, Tiberiu Iancu, Cristina L. Abad, Alexandru Iosup, ICDCS 2023

[\*Dyconits: Scaling Minecraft-like Services through Dynamically Managed Inconsistency\*](#), Jesse Donkervliet, Jim Cuijpers, Alexandru Iosup, ICDCS 2021

[\*Towards Supporting Millions of Users in Modifiable Virtual Environments by Redesigning Minecraft-Like Games as Serverless Systems\*](#), Jesse Donkervliet, Animesh Trivedi, Alexandru Iosup, HotCloud 2020