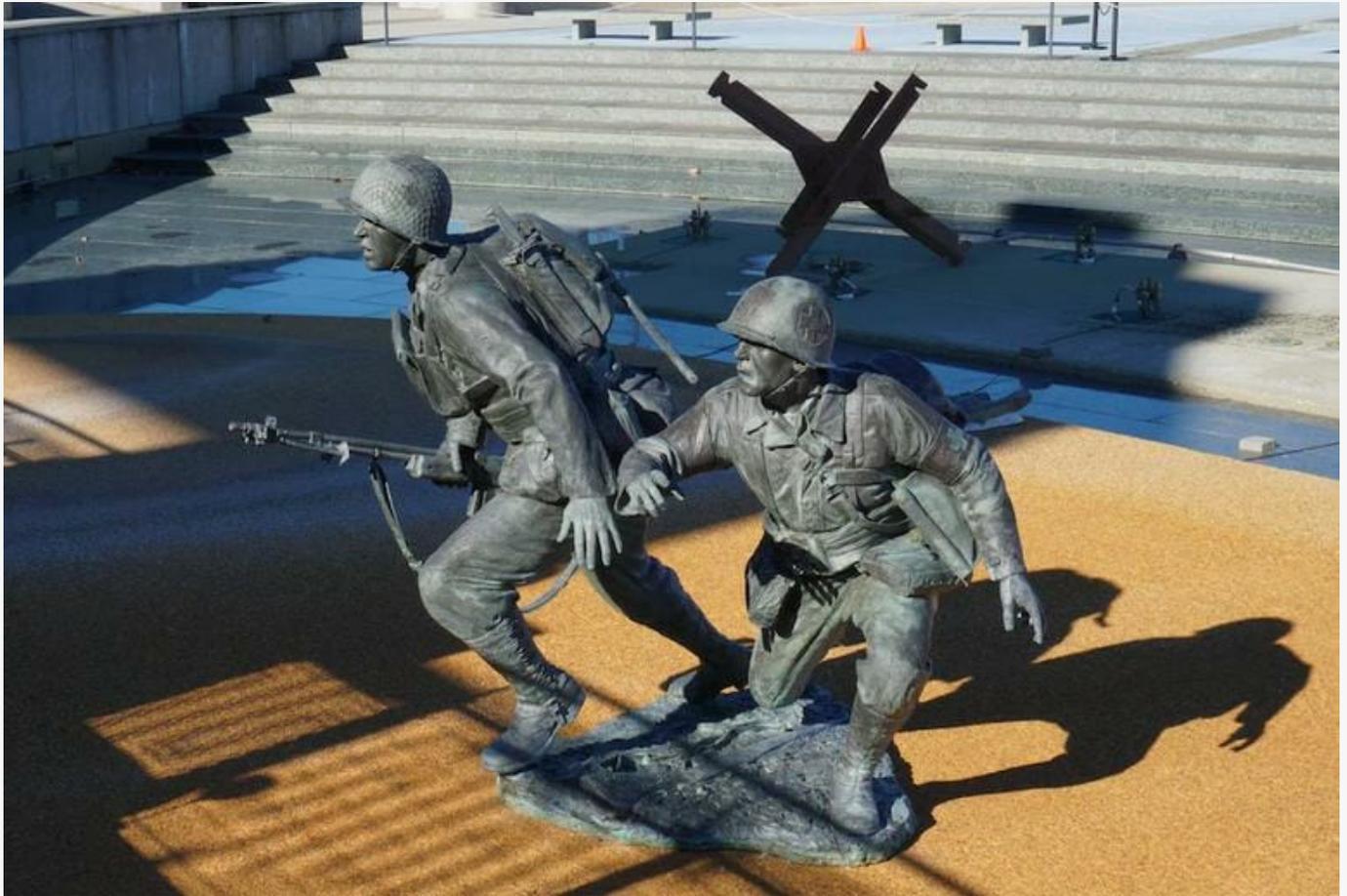# What is Military Metaverse and How is it Different from Commercial Metaverse

written by GEG | August 11, 2022

The Metaverse is a simulation and the military aims to make 3D models, simulations, people and real equipment into a high-fidelity digital twin of the real world. If the US Army Synthetic Training Environment (STE) is successful, they will be the first to clearly demonstrate that the metaverse is not purely science fiction or marketing from big tech. Hundreds of millions of dollars have been spent on building US Army STE prototypes already, and they are still several years from a production contract.

Innovations on Military Side is a Microcosm for What Could Become of the Metaverse, feels Pete Morrison, CCO at BISim

For years, different military programs have worked to combine, "models, simulations, people and real equipment into a common representation of the world." The US Army has established the STE Cross-Functional Team to develop a "common synthetic environment" for simulations and training.

Pete Morrison, CCO at BISim, believes this military innovation is a microcosm for what could become of the metaverse. "A military metaverse will focus on training, experimentation, and mission rehearsal. The fundamental difference to other commercial metaverses will be that it aims to deliver a high-fidelity digital twin of the real

world," he says.

BISim, or Bohemia Interactive Simulations, has been focused on the 'under the hood' of developing the military metaverse, helping different technologies on separate terrain data interact more seamlessly. The company is involved with both the US Army STE and UK MOD SSE, converting its military simulations to run on new scalability architectures. It also provides its flagship products, VBS4 and VBS Blue IG, for trainee interaction within the military metaverses.

Further, BISim's Mantle Enterprise Terrain Management platform allows developers to import, manage, combine, procedurally enhance and stream high fidelity, geo-specific terrain into military or enterprise metaverses. This new terrain technology is already commercially available and will address some of the roadblocks to the military metaverse by helping move procedural generation onto the cloud.

We caught up with Morrison about how traditionally the military has been using the modelling and simulations as a representation of real life, what is military metaverse and how different it is from a commercial metaverse.

Military programs have for some time now combined models, simulations, people and real equipment into a common representation of the world, for training purposes. Please tell us more about it.

The military uses many different types of simulations, covering land, sea, air and space. Flight simulators, tank simulators, forward air control simulators and many others have been built over the years to provide training in a safe and repeatable manner. It has been possible to integrate these simulators for combined arms training for decades. For example, we may connect a flight simulator with a forward air control simulator so that the ground and air operators can practice working together. While these types of integrations have become commonplace, they have major limitations. For example, it is difficult to represent a dense urban environment in a simulation. Representing more than a few thousand people and vehicle entities is expensive and time-consuming. Additionally, each simulation uses its own format for terrain data, making it challenging to build perfectly correlated terrain. While an integrated federation can certainly work, the military metaverse will deliver greater scale with greater efficiency. This is why the U.S. Army is investing so heavily in programs like STE.

Simulations in STE will run as scalable services on cloud architecture, and they will automatically use all available resources to support the simulation of millions of entities. A central terrain server will host a 1:1 digital twin of Earth, which will stream terrain data to connected simulations as needed. The user interface for building training content will be web-based and use web-native rendering engines like Cesium. STE will replace all legacy U.S. Army simulation programs, meaning that in the future, any U.S. Army simulation will be able to connect to this military metaverse for combined arms or joint training.

You say military innovation is a microcosm for what could become of the metaverse. Could you elaborate?

Ultimately, the military needs a digital twin of the Earth with real-world fidelity and real-world density. Many of the same technologies that apply to commercial metaverses apply to the military metaverse, such as cloud scalability or VR/XR/AR. Military programs like the US Army STE and UK MOD SSE are driving innovation in this area, with a well-defined goal—to better train the service personnel who are charged with protecting us. While we don't know the timeline for commercial metaverses, the US Army has a clear schedule for STE and is actively funding prototypes to achieve its vision. If the US Army STE is successful, they will be the first to clearly demonstrate that the metaverse is not purely science fiction or marketing from big tech. It will be a real, shared experience delivering tangible benefits.

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