BRAINSTORM

infinity**set**

Transform your **visions** into **engaging** content

Brainstorm's award-winning InfinitySet dramatically enhances production value to capture and retain new and larger audiences, while greatly reducing production costs and opening up new sources of revenue.

InfinitySet is the ultimate virtual set, AR, XR and real-time 3D graphics solution, not just for showcasing a number of extremely advanced technologies, but also for the flexibility it gives to operators and producers alike.

Forget all you know about virtual studios. Anything can be accomplished with InfinitySet, from simple **virtual sets** with fixed cameras to advanced and complex productions involving tracked cameras, external feeds with **embedded tracking** data and **data-driven graphics** interacting in real-time with the set and the talents. InfinitySet also features industry-first technologies such as selective defocus and bokeh, 3D Presenter, volumetric lighting and more.

InfinitySet supports most of the common 3D formats to integrate external objects into the virtual set. InfinitySet integrates

Aston graphics, including external data sources for data-driven graphics such as bars, pies, charts, statistics and many more, along with StormLogic interactions. These graphics can also be animated within InfinitySet to create **complete AR & XR productions.**

Fully compatible with **Unreal Engine**, and with advanced rendering capabilities such as real-time ray tracing, PBR, or HDR, InfinitySet's Combined

Render Engine allows Epic Games' Unreal Engine and Brainstorm's own eStudio engine to working together in a single workstation.

VIRTUAL SETS	AR / VR / XR	MOTION GRAPHICS
NEWS & SPORTS	ELECTIONS	LIVE EVENTS
PRESENTATIONS	ENTERTAINMENT	CORPORATE

InfinitySet is not just the most advanced **virtual set and augmented/mixed reality solution**, but it integrates perfectly in any broadcast **workflow**. With Suite 5, InfinitySet introduces advanced **XR workflows** using large LED videowalls, also with **mixed production** including chroma sets and live, in-context AR.

Fully compatible with **Unreal Engine**, its unique Unreal Control module can manage UE's blueprints, objects and properties directly from InfinitySet's interface. On top of that, InfinitySet opens the door to **data management**, playout workflows, virtual camera detach, multiple simultaneous renders and much more.

ADVANCED XR WORKFLOWS

As **LED-based XR** is becoming increasingly used, Brainstorm has developed new features that allow for easier, faster and more integrated creation of **immersive XR content**
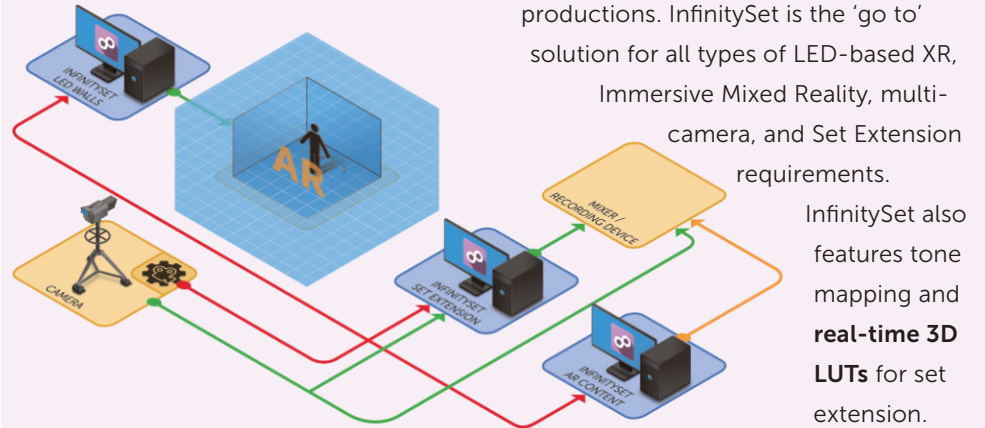
specifically designed to be displayed on large LED videowalls. These features simplify and accelerate XR content creation when creating **in-context AR** in LED walls, **XR Set extensions**, and of course backgrounds for film and drama productions. InfinitySet is the 'go to' solution for all types of LED-based XR, Immersive Mixed Reality, multi-camera, and Set Extension requirements.

InfinitySet also features tone mapping and **real-time 3D LUTs** for set extension.

BEYOND VIRTUAL PRODUCTION

Broadcast solutions need to integrate into the broadcasters' **workflows**, which include many different technologies. Infinity Set sits perfectly in any broadcast environment, acting like a **hub** for a number of technologies, from camera tracking to interaction with other devices such as controllers, mixers, chroma keyers, studio lights, NRCS workflows for journalists and many other.
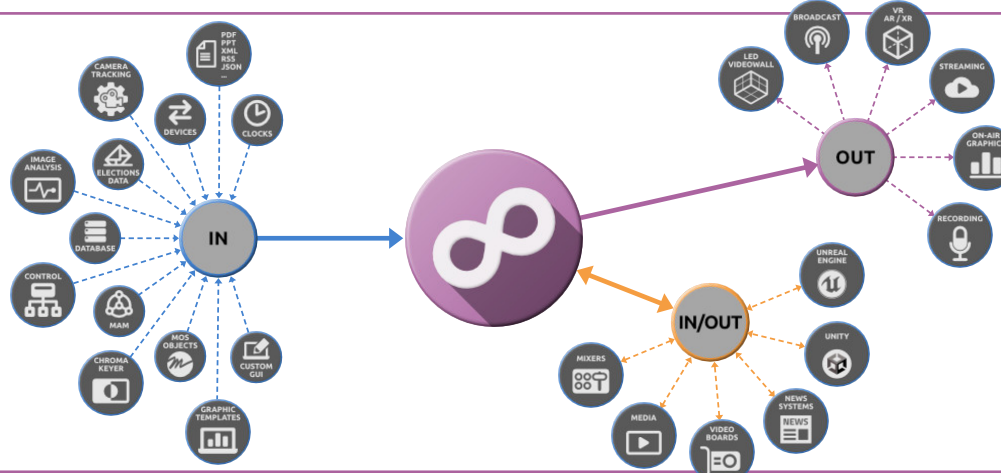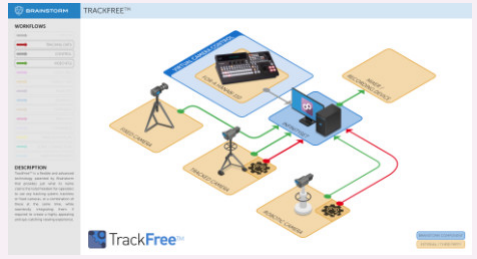

TrackFree™ is a **patented** camera-tracking independent technology that provides just what its name claims: the total **freedom** for operators to use any tracking system, trackless or fixed cameras, or a **combination** of these at the same time.

TrackFree ™ allows users to **choose the keying method** of their choice, by using InfinitySet's internal chroma keyer, an

external chroma key hardware or a combination of both, even within the same production.

ADVANCED TRACKFREE™ FEATURES

- TeleTransporter
- 3D Presenter
- Real Set Virtualization
- Virtual shadows and selective defocus
- Virtual Camera detaching
- MagicWindows
- Dynamic Light Control
- Differential Key and UE Keyer

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The integration between the real and virtual objects and environments is essential, so the next step in virtual set production and Augmented Reality applications is to **increase the realism of the content**. This involves high quality rendering and the perfect integration between the different elements of the scene to provide a sense of realism. Along with **advanced rendering** features such as real-time ray tracing, PBR or HDR, Brainstorm fully supports gaming
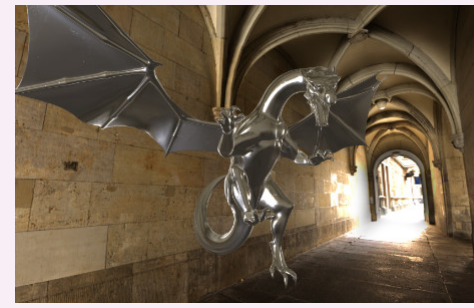
engines like **Unreal Engine**, providing photorealistic scenes in any resolution.

PBR AND HDR

InfinitySet fully supports **PBR shaders** as materials, which can also be imported from external shader editing software like Substance and other material editors.

HDR allows for rendering **wide-gamut pictures**. InfinitySet can render floating 16 bit per channel/component, supporting

for P2020 gamma correction output. This allows for post-rendering exposure control and extended-range filtering.

REAL-TIME RAY TRACING

InfinitySet takes full advantage of the latest hardware developments found in the latest NVIDIA GPU technology. With this technology InfinitySet can deliver real-time ray tracing, which provides a much more accurate rendering, especially with complex light conditions.

UNREAL ENGINE

InfinitySet features an **Unreal-native behavior**, so it can achieve anything Unreal Engine provides, plus the added value of the multitude of benefits of including more than **25 years of Brainstorm's experience** in broadcast and film graphics, virtual set and augmented reality production, including data management, playout workflows, virtual camera detach, multiple simultaneous renders and much more, all these added benefits of using the Brainstorm environment. InfinitySet can use Brainstorm's own eStudio render engine, Unreal Engine as the only renderer or even combine them with the Combined Render Engine.

UNREAL ENGINE NATIVE WORKFLOW

- UNREAL CONTROL
- TEXTURE GPU I/O
- NEW - AR OBJECTS
- MULTIPLE RENDERS

UNREAL ENGINE
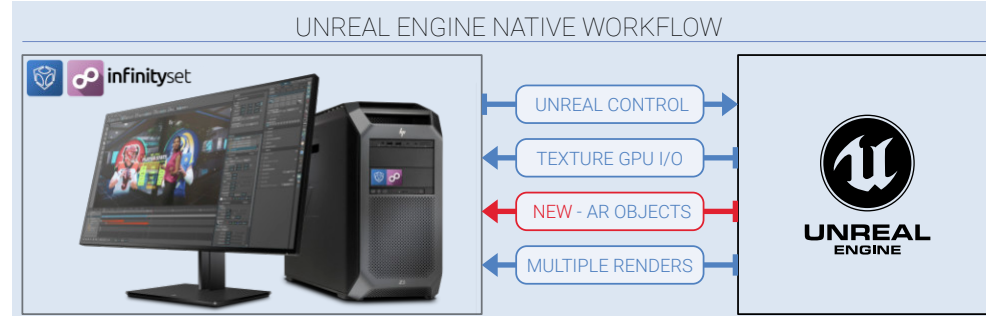
UNREAL CONTROL

InfinitySet also adds a new control layer, a dedicated, user-friendly control interface. The Unreal Control can see any **blueprints**, **objects** and **properties** in the UE project, and **control** them directly from InfinitySet, which results in a new, unique and revolutionary workflow that does not require to previously prepare blueprints for every action in UE.

Unreal Control works in both directions, so it can also transfer any input to UE to use it as a **texture within a UE object**, like live video feeds, including chroma keyed talents, movies and playlists, still images, Aston projects with StormLogic and of course regular textures.

AR OBJECTS WITH UNREAL

InfinitySet can **integrate UE objects** directly, pixel and color accurate, within the Brainstorm environment and vice-versa, so any object created in UE can be exposed like any other object, perfectly integrated. This feature also allows for the AR objects to **reflect the environment** while maintaining their properties (reflectivity, lighting, refractions...), allowing for the seamless integration of all the components of the scene. InfinitySet provides additional support for **video hardware** devices, including support and driver updates for video boards and to virtually any **tracking device**, mixers, cameras, automation, capture devices and many more.

LAYERS

InfinitySet Layers allow for creating **simultaneous multiple renders** using a single workstation. Using Layers, InfinitySet can now deliver several video outputs from a single instance or combine several crosspoints in a s**ingle video output** (Stack).
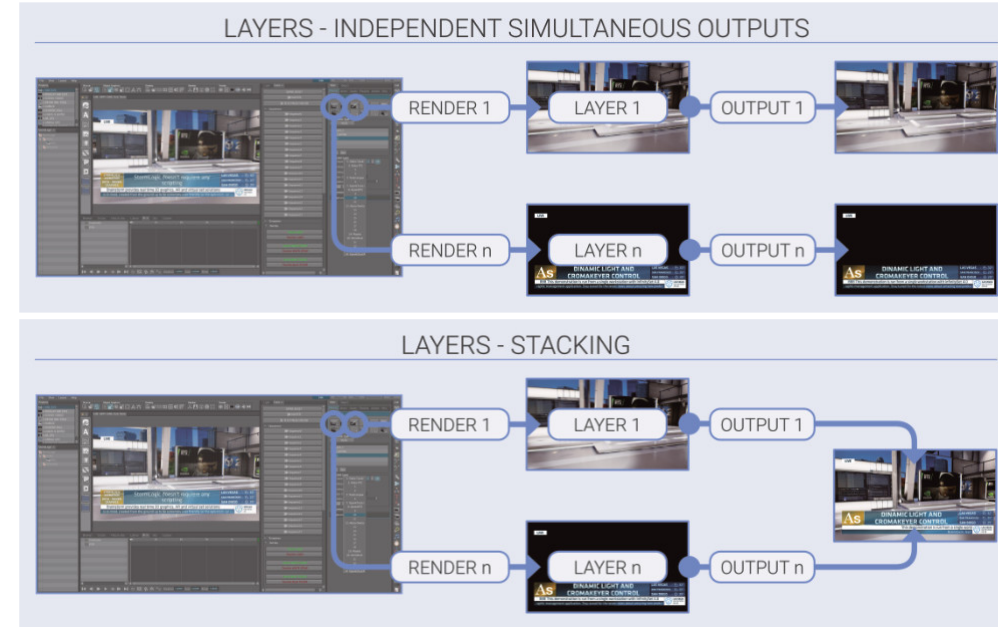
The **Stack** feature also allows the compositing of a single output by **combining different renders**. The canvas where the stack is composed can be of any size (depending on the hardware and outputs) and aspect ratio. This means that users can compose **any type of output** regardless its **aspect ratio**, allowing for

filling in large LED walls, real or virtual, with a Stacked Layer output, even with multiple independent Aston graphics.

MIXER CROSSPOINT

The new Mixer Crosspoint effectively **builds a software mixer on each crosspoint** in InfinitySet, allowing for having a preview and program mode inside each crosspoint. It allows for controlling the contents in any of the virtual displays inside the virtual set or also in any output, which means that any input can be assigned to any output and be triggered at any time, even using an intuitive drag-and-drop operation.

With this feature, any content inside the virtual set, or any output, may be displayed using its own **dedicated** mixer features, which in practical terms not only reduces the requirements for external mixers but also significantly increases the flexibility while in production.

LAYERS - INDEPENDENT SIMULTANEOUS OUTPUTS

RENDER 1 — LAYER 1 — OUTPUT 1

RENDER n — LAYER n — OUTPUT n

LAYERS - STACKING

RENDER 1 — LAYER 1 — OUTPUT 1

RENDER n — LAYER n — OUTPUT n

INFINITYSET ONDEMAND

InfinitySet OnDemand is an independent, **HTML5-based application** designed to control the playout mode of one or several InfinitySets at once.

Developed with flexibility in mind, it can sit on the InfinitySet workstation or alternatively in a remote computer,
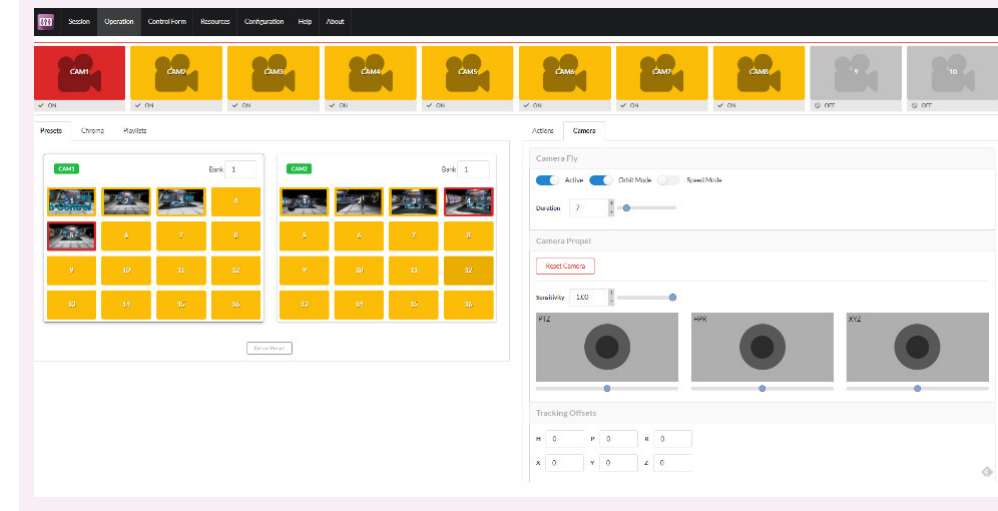
separated from the workstations, allowing for the **remote control** of virtual sets, camera presets, actions, transitions, or graphics directly from its GUI. The Web Control interface can be accessed using a standard **web browser**, and provides as such an easy-to-use interface, not only from desktop computers, but also from **tablets**.

REAL-TIME POSTPRODUCTION

Although chroma keying technology and virtual sets have been around for a long time, the latter have sometimes been criticized for the relative lack of realism compared to other non-real-time applications such as compositing and VFX. The ability of InfinitySet to work both as a preview hub and a finishing suite, allows for substantial savings in the production and post-production costs, ensuring the different shots are adjusted (chroma, camera movements, tracking, etc) prior to enter in post-production.

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