



# BOB COONEY

THE FREE-ROAM ISSUE

40+

PRODUCTS REVIEWED

**VR ARCADE 2.0:  
THE EXPERIENCE  
STORE**

**THE CABLE  
NIGHTMARE ENDS:**  
2-Year Cables and Wi-Fi 6E

**FOOD, BOOZE,  
AND VR:**  
The Recipe for Success

**DAVID LUGO**  
THE VR GUY  
WITH THE FRO

INTERVIEW WITH AN  
ESPORTS PIONEER

ANALYSIS: WHY THE VOID FAILED

VR ESCAPE ROOMS

IAAPA FOLLOW UP

AND WAY MORE...

HTC XR Elite:  
Hands-on  
Review

# VR ARCADE GAME BUYER'S GUIDE

SPRING 2023 EDITION



THE VR CABLE NIGHTMARE IS OVER



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# From the Virtual Desk of Bob Cooney



I started in the location-based entertainment industry in 1984 when Apple Computer Corporation unveiled the Macintosh during Super Bowl XVIII. The Los Angeles Raiders blew out the Washington Redskins by a score of 38–9 that year. We hosted the Super Bowl at the Big Sombrero, as ESPN's Chris Berman was fond of calling Tampa Stadium. Marcus Allen rushed for 191 yards on 20 carries, setting the Super Bowl record and winning the MVP. That was a long time ago.

At the time, location-based entertainment wasn't even a glimmer in the eye of whoever coined that horrible term. It was called the amusement industry. I was a young entrepreneur recruited from the Domino's Pizza management training program to join a new delivery startup called Pizza Pronto. Their strategy was to go head-to-head with the highest-volume Domino's stores, offering a 30-minute or free delivery guarantee. The company quickly grew to 22 stores in the southeast US (if I remember correctly).

As Tampa was our home market, we opened several stores there. We acquired the Putt-Putt Golf and Games at 2400 East Busch Boulevard in Tampa, near Busch Gardens, and converted it to a Pizza Pronto. We added a beer and wine license, and voila, I was in the LBE business. At the time, the mini-golf was a distraction from our core business.

I still carry the scar from that store on my right index finger. We held a grand opening party for our staff with helium balloons floating against the dropped ceiling tiles. In a moment of inebriated carelessness, I jumped up to swat a balloon. My fingertip was neatly sliced off by the grid holding the fluorescent light in place. While one of my employees rushed me to the hospital, another one searched for and found the tip. He put it in a Coca-Cola cup full of crushed ice and ran it to the hospital.



By the time they arrived, they had cauterized the wound, and I later received a skin graft to repair the fingertip. Next time you see me, hold up an index finger as a secret salute, and I will know you read this.

Pizza Pronto's 30-minute or free delivery guarantee was so successful that Domino's copied it, and the rest is history. In 1985, the company underwent a name change for reasons I didn't quite understand. They rebranded as Perky's Pizza (after co-founder Marsha Perkin's nickname) and eventually pivoted to building and installing pizza concessions in gas stations and later family entertainment centers. Today Perky's Pizza is a fixture of the annual IAAPA show in Orlando.



What does this story have to do with virtual reality? Virtual, augmented, and mixed reality (for the rest of this guide, I will use XR (eXtended Reality) as a catchall phrase to describe the comprehensive technology of wearable immersive displays), and now Artificial Intelligence represent disruptive technologies that will usher in new business models. Like the 30-minute or free delivery guarantee that changed the pizza industry, digital downloads that changed the jukebox industry, and smartphones that gutted the bar-top touchscreen gaming market, XR and AI will change the location-based entertainment industry. I've been involved in all these disruptions, sometimes as the beneficiary, other times not so much.

My goal is to help as many people as possible reap the benefits of XR technology. Thanks for investing the time to read this guide. Please share it with anyone you think will be interested.

*Bob*



# What is “Location-based Entertainment”?

by ChatGPT

The first reference to the term “location-based entertainment” (LBE) is challenging to pinpoint precisely, as it likely emerged gradually over time as a way to describe a growing trend in entertainment experiences that took place outside the home. However, some of the earliest documented uses of the term date back to the late 1990s and early 2000s, when various companies started to develop and market location-based entertainment concepts.

For example, a 1999 article in the Los Angeles Times used the term “location-based entertainment” to describe a new attraction called “Virtual World”, which combined physical sets with virtual reality technology to create an immersive experience for visitors. Another early use of the term can be found in a 2001 report by PricewaterhouseCoopers, which discussed the emerging market for “location-based entertainment and gaming” and predicted that it would become a significant segment of the overall entertainment industry.

Since then, “location-based entertainment” has become increasingly common to describe a wide range of experiences in physical locations, such as theme parks, arcades, and immersive theater productions, incorporating technology and interactive elements to engage visitors.

**“Location-based entertainment” has become increasingly common to describe a wide range of experiences in physical locations.**



VIVE Original Series

# Practicality of VR

Episode 1: Location-Based Entertainment

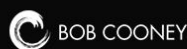


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LUCKY STRIKE





# VR Arcade Buyer's Guide: Second Edition

To paraphrase Herman's Hermits, second verse, not quite the same as the first. Edition One of the Buyer's Guide was designed to help operators navigate the VR landscape at IAAPA Orlando. With more than 60 VR products on display, I wanted to highlight the best to ensure they were discovered. I also wanted to help give some context to VR, assisting buyers in making better decisions with their scarce capital. Based on the feedback I received, I was successful.

As soon as I finished the first one, I knew I would do it again. The industry is evolving so rapidly, and I have so much I want to say. Plus, so many products were not on display at IAAPA but are worthy of consideration.

This edition dives deeper into free-roam VR. It's the area I expect to see the most significant growth and competition in the next couple of years. The technology has evolved to enable affordable, reliable, and easy-to-operate free-roam experiences. And the developers in the space are doing fantastic work. From warehouse-scale zombie shooters and esports facilities to VR escape rooms to compact multiplayer multi-game systems, all powered by the VIVE Focus 3 headset, this is the year to let your customers loose.

2022 EDITION





# Let's Geek Out

Here are the tech trends  
shaping the VR industry



## HTC VIVE XR Elite: Hands-on Review

In February of this year, I was invited to speak about why the metaverse is inevitable at the launch of the VIVE XR Elite headset in Australia by HTC. During the event, I used their new state-of-the-art mixed reality headset in a series of experiences testing out the pass-through video, mixed reality capabilities, and customization features.

The XR Elite is the new flagship of the VIVE lineup. It's squarely aimed at the prosumer market. It seems like HTC took the customization of their VIVE Cosmos, added the portability and comfort of the VIVE Flow, and then built in the advanced VR features of the VIVE Focus 3.



Bob sporting the XR Elite

The XR Elite is tiny compared to almost any other VR headset. It weighs only 625 grams (22 ounces) with the battery. The size and weight reduction come partly from the new pancake lens setup, ditching the Fresnel lenses of the Focus 3. It's the first headset I can imagine wearing for hours without noticing.

The display is 1920 x 1920 per eye with a 110° field of view, giving it a pixel density of 17.5, which is about the same as the Quest 2, but below that of the Focus 3 and VIVE Pro 2, which both offer a density of 20.4 (for an explanation of pixel density and why it matters, refer to page 13 of Edition 1 of the VR Arcade Buyer's Guide).

Helping offset the drop in resolution, the XR Elite has fully adjustable diopter settings. You can dial each eye between 0 and -6, which covers 90% of the people who wear glasses. This makes the picture crystal clear for the 75% of adults who wear glasses.

HTC moved the speakers closer to the ears on the XR Elite, helping overcome one of the biggest complaints of the Focus 3. Bass doesn't travel well, so having the speakers close increases the audio quality dramatically.

The placement of the tracking cameras has evolved as well. The XR Elite has a wider tracking field of view, so your hands stay in view even with more extreme movements. It also includes a 3D depth sensor, which allows for the accurate placement of virtual objects in the room while using mixed reality.

The depth sensor works in conjunction with the single video pass-through camera to create the illusion of depth. The depth sensor firmware wasn't working in my prototype, so the pass-through video was warped. My hand looked enormous in front of my face, something that the depth sensor would somehow magically adjust.

One of the strengths of the Focus 3 is the swappable battery pack behind a magnetic head cushion. The XR Elite adds hot-swapping to the mix, but the entire back of the headset needs to be replaced. No word yet on charging peripherals or how much an extra battery/head strap costs. The face gasket on the XR Elite is cloth, unlike the polyurethane one on the Focus 3.

The XR Elite can plug into a computer and run off USB 3 or wireless via Wi-Fi 6E streaming.

By removing the battery pack and running the headset off a laptop, you can wear the HMD like a pair of glasses, reducing the weight to 240 grams (just 8.5 ounces). This does change the balance of the headset. I found it comfier, with the battery providing a counterweight on the back of the headset.

So, is the VIVE XR Elite a competitor to the Focus 3 for LBE? Not as it currently ships.

The Focus 3 has a magnesium alloy chassis, making it the most durable headset we have seen. The easily swappable and hygienic face gasket, the removable batteries with charging docks, and the fantastic 5K 120° field of view optics make it the standout choice for now.

But if you're considering a VR headset for home or office use, I wouldn't hesitate to recommend the XR Elite. I will be trading up from my Meta Quest Pro any day now.



No more shoebox on your face

## Now the services you take for granted are all run in the cloud.

### The Future is Cloudy, and That's Good for VR

Remember when "The Cloud" was the biggest buzzword in tech? It started in 2006. Amazon was hyping its web-based storage solutions. Amazon launched its Simple Storage Service or S3, and soon every website seemed to be hosted by Amazon. A few years later, they launched Elastic Cloud Compute, or EC2,

offering scalable computing power. Companies no longer needed racks of servers. They could spin up virtual servers on Amazon as they needed them.

Now the services you take for granted are all run in the cloud.

Netflix, Zoom, Salesforce, and probably every other app you use runs on cloud computing from either Amazon, Google, or Microsoft (Azure).

Cloud gaming services are now widespread. Microsoft offers Xbox cloud gaming to its Game Pass Ultimate Subscribers. NVIDIA offers GeForce NOW, and Sony has PlayStation Now. Gamers no longer even need to own a console to play games in the highest resolutions. They can play hundreds of high-end console titles on a browser on a PC or mobile device.

Cloud gaming uses a technology called pixel streaming. The video that used to be rendered on the console or PC is rendered on a cloud server. Controllers' input is sent to the cloud, and the resulting images are streamed to the browser. This enables lightweight, inexpensive, low-power devices to become high-end gaming consoles.

The only downside to pixel streaming is latency. Millisecond latency is required in competitive multiplayer games like Call of Duty. Depending on the internet connection, cloud gaming can have latency measured in the tens or hundreds of milliseconds. But that's set to change.

Millimeter wave 5G technology promises sub-10 millisecond latency. The 5G most of us have on our phones isn't 5G. It's another marketing gimmick from the telcos to get us to upgrade. Millimeter wave 5G is the real deal: gigabit speeds and almost no latency.



Millimeter wave requires a line of site, however. It uses high frequencies, which don't travel as far as current low-frequency 4G or LTE. So it's primarily used where many people are in concentrated spaces, like sports stadiums.

Forecasts from the recent Mobile World Congress in Barcelona suggest investment in new mmWave 5G cells is ramping up, as is the use of active repeaters, which amplify the signals. The consumer driver for this investment is the connected home. We need more bandwidth as all our in-home tech requires internet connections.

The other application of 5G we are seeing is private 5G networks. Businesses can install their own 5G core, which is like an entire telco in a box. Soon, an FEC could install a device like the Reign Core S2, from HTC subsidiary G Reigns. It creates a private 5G network that covers 100K square feet, using whatever existing internet connection there is for backhaul. The Reign Core S2 can automatically detect thousands of XR endpoints, like VR headsets. Imagine one local 5G network at an FEC connecting automatically to hundreds of headsets and arcade games—no more cabling, Wi-Fi hotspots, or IT nightmares. A 5G private network, hooked up to a cloud gaming infrastructure, would enable hundreds (or more) of lightweight, inexpensive, and long-lasting headsets to offer customers pixel-streamed, amazing-quality immersive experiences.

It took 15 years for "The Cloud" to go from launch to ubiquity. Keep that in mind when thinking about VR, and the metaverse timelines as the pace of evolution continues to increase.

This technology is all available today. It just requires solution providers to get creative and operators to be brave. As William Gibson said in his book *Neuromancer*, "The future is already here; it's just not evenly distributed".

## VR Needs a Boost: Could Apple Provide It?

The big news for virtual reality in 2022 was that headset sales were generally flat. According to NPD Group, sales of VR headsets in the US declined 2% from 2021 to \$1.1 billion. But the good news is that they predict shipments to grow 31% in 2023.

Meta just reported they'd sold 20 million total headsets. That's more than Xbox Series X and S and more than Nintendo GameCube sold in its lifespan. They also noted that the newer users are not as "into it", using the headsets less than the early adopters.



Image credit: SadlyItsBradley/Marcus Kane/Twitter

The Quest Pro, released at US\$1500 in October, has already slashed its price to \$999. And Meta has already talked up their forthcoming Quest 3. It promises to be smaller and lighter, employing the same pancake lenses as the Quest Pro and color pass-through for mixed reality experiences. There's been no word on a release date yet.

While the PlayStation 5 is a blockbuster, having sold 30 million units already and gaining momentum, the momentum for their new VR headset isn't great. Sony just released the PSVR 2, a significant upgrade to their freshman offering. It's technologically superior with eye tracking, foveated rendering (see my Glossary of VR Terms in Edition 1), haptic feedback in the headset, 4K OLED displays for crisp, vibrant visuals, and inside-out tracking. It still requires a cable connection, however. And at a US\$550 price tag on top of the \$500 PS5, it's a pricey game peripheral. Bloomberg reported that Sony slashed their initial year sales forecast in half to one million units.

HTC is pushing back into the consumer market with the VIVE XR Elite headset. See the full hands-on review on page 9.



Image credit: Pranav—stock.adobe.com

There continue to be new headsets announced by bit players. Lenovo unveiled the ThinkReality VRX enterprise headset at CES. Pimax keeps cranking out new headsets, with the Portal



and Crystal promised this year. The Lynx R1 mixed reality headset is finally shipping in 2023. And Somnium Space announced their VR1, which sports some of the best specs promised yet. No date was announced.

But if you ask anyone in the VR business what they're waiting for, they will tell you the forthcoming Apple headset. It's no longer just rumored; so many data points signal a release that most people expect it this year. Apple is known for waiting until the tech is perfect and a market size of hundreds of billions of dollars is available.

It's suggested that it will cost close to \$3000 and come with an external tethered battery pack. It will feature mixed reality, a custom system on a chip based on their M-class processors, and, if history is any indicator, a breakthrough in user experience.



Image credit: AntonioDeRosa Design

If anything, Apple will teach the rest of the industry how people should interact with spatial computing environments and build demand for 3D computing globally. Others will indeed copy them, which will benefit the market.

Samsung, who notoriously copied the iPhone (and was forced to pay Apple \$539 million), recently announced they're re-entering the VR market with a forthcoming headset in a partnership with Qualcomm. No specifics were provided on the Samsung device, probably because they're waiting to see what Apple does so they can copy them again (sorry, but I could not resist). Apple will be the only headset manufacturer not using Qualcomm's XR system on a chip, which powers Meta's Quest, and almost every other XR device on the market.

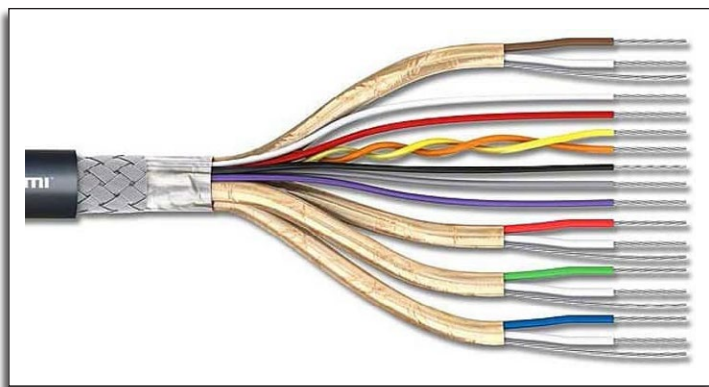
2023 is shaping up to be a big year for VR headsets. They're getting better all the time. Will fans spend \$3000 on an Apple headset? And if they do, how will a \$400 Quest 3 compare? Most importantly, will the content be compelling enough to make consumers care? Stay tuned.

“...if you ask anyone in the VR business what they're waiting for...the forthcoming Apple headset.”

# The Cable Nightmare is Over

It's been the industry's bane since this VR wave showed up in 2016. It's extremely rare for operators to agree on anything. But if I ask 100 VR operators for their number one problem, invariably their answer will be "headset cables".

Cables have been a problem for our industry since Duck Hunt in 1984. We've tried hardening, thickening, and even coating them in steel. My first production Laser Storm laser tag system, opened in 1992 at Don and Susan Perkins' Roll-On America in Massachusetts. Within a week, all the cables failed.



Hair thin wires of the HDMI cable

VR cables are the worst of the bunch. VR headsets use HDMI cables containing 21 hair thin wires to deliver audio and video. They're designed to be in the walls behind your television,

connecting it to the set-top box. They were not intended to be pulled, twisted, and swung on by unruly children. Yet that's what the VR industry gave us.

Manufacturers have tried to increase the life of VR cables through clever workarounds. From simple heat shrink wraps to strain reliefs to complex motorized pulley systems, the truth is that something needs to be fixed.

VRsenal took the most hardcore approach to cable reliability. Their first system used a motorized retraction system with a clutch to protect the headset from being pulled on or used as a swing. It helped, but it introduced lots of complex moving parts, which themselves had reliability issues. On their popular Beat Saber game, they tried using wireless data transmission. They replaced the HDMI cable with a simple power cable. While the cable lasted, the wireless system generated too much heat and weight.

Over the last year, VRsenal worked with HTC VIVE on a new solution. Using the Focus 3 headset, VRsenal designed a new power and data distribution system. They created custom circuit boards inside the PC and more inside the armor that ruggedizes the headset.

This system lets them deliver power and data all over a 4-wire cable. It's the same cable they used on their Beat Saber controllers, which over millions of plays, lasted, on average, two years.





The new armored Focus 3 from VRsenal

Beat Saber puts so much strain on the controllers that when the game became popular, engineers at Valve had to change the Lighthouse tracking system to keep up with the speed people swung the controllers. No headset will ever see as much stress. On the release notes for the software fix, engineers wrote that they had to “Increase limits of what we thought was humanly possible for controller motion”.

VRsenal has dubbed their new solution “Monolith”. It comes standard on their latest products; their new dance rhythm game Synth Riders and their hit shooter, Zombieland Arcade. They’ve converted their Beat Saber and Star Wars: Lightsaber Dojo games at over 200 Dave and Buster’s and Main Event locations.

They offer conversion kit upgrades for LAI’s popular Virtual Rabbids: The Big Ride and King Kong of Skull Island from Raw Thrills.

The company is working on conversion kits for systems like Hologate, Unis Moto VR, and Triotech’s Storm.

Beyond the increased reliability, the Focus 3 is the most comfortable, lightest weight, and highest resolution headset on the market. It’s easy to adjust to fit almost any player. And VRsenal’s software solution eliminates the lighthouse interference that plagues many arcade games. Operators will be free to put their VR arcade games where they want without worrying about them interfering with each other.

Game techs, location owners, and players around the world can rejoice. For more information, go to [www.twoyearcable.com](http://www.twoyearcable.com). But don’t wait. If this solution is as popular as I expect, supply constraints will cause backlogs.

**Operators will be free to put their VR arcade games where they want without worrying about them interfering with each other.**

# Who is the VR Guy with the Fro?

Meet David Lugo Jr. The newest addition to the Bob Cooney team.



David Lugo Jr. before the fro at LegoLand

The neighborhood video arcade was a seminal part of my youth. In the '70s, my friends and I would ride our bikes to the candy store with two pinball machines. We played Gottlieb's Jungle for hours at a time during summer.

In my high-school years, I spent a lot of time and quarters playing Joust, Pac-Man, Galaga, Space Invaders, Lunar Lander, and more. The arcade was a haven from a dysfunctional home.

It was a community center for the kids in the neighborhood, and the owner was a mentor to us, someone we could bring our problems to.

Unsurprisingly, when the demise of the video arcade was on the horizon in the '90s, I sought an industry solution. I lobbied

for the industry to embrace AAA consumer games, license them from big publishers like EA and Activision, and bring them back to the arcades. This required revenue sharing, which was taboo at the time.

I was an up-and-coming voice railing against the ways things were. The old guard dismissed my message; I was even labeled a heretic in a Vending Times review of a keynote I delivered at the annual AMOA show. Eventually, the industry moved on from video, embracing redemption games.

When VR emerged in 2015 as the next gaming platform, I saw a chance to make video games relevant again for our industry. So began my mission to help manufacturers, developers, distributors, associations, and operators navigate the complex virtual reality market. Working with all those constituents can be time-consuming.

Last year I decided to expand my team to increase focus on operators' needs. After an exhaustive search, I hired David Lugo Jr. to serve in an emerging role focused on the support and success of operators who deploy virtual reality solutions in the location-based entertainment industry. I recently sat down with David and reflected on his first year working in the location-based VR market. The interview is edited for clarity.

**Bob Cooney:** It's been a year since you joined the team. When you heard about the job, what appealed to you?

**David Lugo:** I'd been working in Ocala, Florida, with a lot of small businesses, networking, and building relationships, and there were a lot of unforgettable moments where I was able to connect people, and magic happened. Those two people would have never met otherwise, which changed their business. I enjoyed having that sort of effect on people's lives.

When I sat down with you to learn about the job, I could still do that, not in a small horse town but across the United States and the world.



**BC:** What's the first year been like for you?

**DL:** It's been fantastic, man. I had no idea that this industry was as robust as it is. I had worked with Merlin Entertainment, Disney World, and Universal Studios, but it was on the operation side, so I never realized how huge the market is. Over the last year, I've learned so much about arcades and family entertainment centers and how important it is for them to build customer relationships.



I worked at Universal Studios and went through all of these mini-transactions. And you don't ever get to see that person again because they're a tourist, they're here for one time, and they're visiting your attraction during

this slotted shift you have. But with a family entertainment center, you're not getting tourists; you're getting repeat customers. You're getting a family with four, five, or six birthdays with you while they live in that community. What an impact you're able to have on a family.

That bonding time I have when I go to an arcade with my kids is unlike any other. We can laugh and play sports if there's a batting cage, or ride go-carts and have them do their first 30-mile-an-hour car ride where they're driving themselves.

Over the year, I've learned that the people involved in this industry are conscious of their impact. Although this is a fun environment and line of business, the groundwork laid for one of these things to be successful is more than I can imagine for any other business type. And they take that very seriously, which I love. I adore that.

**BC:** How has your experience in amusement operations impacted this role?

**DL:** I was 15 years old back when Universal Studios would hire 15-year-olds. And I worked in the food and beverage industry. At Universal, when you walk in, there's a food cart in the front that sells sugary almonds. I worked at that booth for about a year and a half. I learned so much about engaging people and playing with the people who are there to play.

I used to do this thing where if you were wearing a Disney shirt, your price was \$15 higher than what came out on the register. I'd always get a shocked look; then I'd say, "I'm just kidding; that's the fine for wearing the wrong brand inside our park". Then they'd crack a smile, and we had a good laugh together.

I love being able to play with people there to play. And then I moved from food to roller coasters. I worked at Dueling Dragons, and that was a completely different job. The difference between food and attractions was massive.

**BC:** What was the big difference?

**DL:** There wasn't an enormous sense of urgency in the food industry. I wasn't out hawking people to come over and buy almonds at my booth. I would take business as it came in, and we'd have our little interactions, and then they'd go on with their day. In attractions, I felt like I was part of the narrative; I was part of the story for whatever the ride was.

On Dueling Dragons, we were getting people ready to ride a dragon, and the dragons would fight each other. Being part of that narrative made the job utterly different in my mind. And then you have the added safety requirements of ensuring that the belts fit correctly and that you're working rapidly. The game was up several notches, going from food and beverage into attractions.

**BC:** You also worked at the Orlando Eye with Merlin; what was that?

**DL:** I was working for Mystery Dinner Theater next door to the Orlando Eye. I got to see the big wheel getting built, and as it was closer to completion, my curiosity got the better of me, so I went over to the property and started investigating. And I saw a hiring sign and decided to apply. It would be an incredible opportunity to open something.

Universal and Disney had been around for decades before I could even work. Having a chance to open up a new staple in the Orlando area would be cool. I ended up interviewing for admissions sales, but they offered me to join the VIP champagne crew. I would go around the Eye with them, pointing out sections of Orlando, where the start and end of Disney's property are, which is enormous when you look at it from the Eye.



And I'd pour champagne, Piper-Heidsieck. It's the same that Marilyn Monroe liked back in the day. It's like her brand.

And from there, I got promoted to work as the commercial manager at Legoland Discovery Center in Atlanta. I oversaw all retail and additional spending. If it was making money in the attraction, I was in charge of it.



**BC:** An operations background gives you common ground with the people you are trying to help. We've been there through the problems that they're struggling with. I remember the early days of Laser Storm. All the cable failures we endured. I am still triggered when I see a VR headset with a broken cable! What is it about VR that attracted you to working with me?

**DL:** I love watching people have their first VR experience. There's nothing like it. I loved the smiles people had getting off the roller coaster at Universal. That a VR headset can give people these unique experiences blows my mind.

I recently worked a whole day at a VR arcade in Nashville, running their Hero Zone system to understand better what it's like running a free-roam center. And people were just so happy. People who came in not knowing each other would spend an hour playing together and become friends.

VR is the future of our industry. And I am excited to help operators find the best products for their business. I'm looking forward to meeting more operators and checking out more arcades around the country this year. Keep an eye out for the fro!





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## COVER STORY

# Blast from the Past: Merging Laser Tag and Virtual Reality in the Quest for Immersive Entertainment

I was a penny-stock broker in the Wolf of Wall Street days in the mid-1980s. Many of my clients were invested in a company called Worlds of Wonder. They had back-to-back Christmas toy hits in Teddy Ruxpin, the first robotic teddy bear, and Laser Tag, the first consumer laser tag game. On April 7, 1987, a sheriff's deputy in Rancho Cucamonga, California, shot and killed a 19-year-old playing Laser Tag with his friends in a schoolyard, mistaking them for real guns. My clients lost much money that day.

I played my first game of laser tag that same year. A client in Texas had invested in a blind pool (the '80s version of a SPAC). Instead of merging with a private company as was their mandate, management wanted to invest the money into building a laser tag system. It was an unusual use of proceeds, and he asked me to check it out since I was in Colorado.

The founder of the shell company invited me to a strip mall in downtown Boulder. He told me to wear jeans and a black shirt. I pulled into the parking lot, and nested between a gay club, and a sushi bar was Lazer Zone.

We strapped on a battery belt, put a headband containing solar cells glued onto the inner workings of a hardhat, and grabbed what looked like an automotive timing light. We entered the blacklight and fog-shrouded arena, all dark except for fluorescent tape edging large cardboard barriers to hide behind. The game's object was to tag the other player with your light beam, which would trigger the solar cells to shut down the other player's "laser" gun.

Half an hour later, I was sweating, my jeans were torn at both knees, and I wore a smile a mile wide. I was all in.



Image credit: Laser Tag Museum



I agreed to write their business plan and spent the next six months at the Denver Public Library combing through magazine articles, research reports, and science fiction books. They built a prototype and opened their first location, LaserQuest, on Colorado Boulevard in Denver. (ED: there was no relationship to the Laser Quest that began in the same year in Manchester, England, and expanded to the US in 1993.)

The company's board abandoned the project in 1989, shutting down the retail location. My partner then, Ed Bonis, and I raised the capital to buy the prototype system and set out to find a new location.



Bankshot Basketball

There was a large indoor entertainment mall in Littleton, Colorado, called FunPlex. Founded by long-time skating rink operator Bob Chado, FunPlex was 144,000 square feet of indoor play space for kids of all ages. It was the prototype for the modern

FEC. It featured 40 AMF bowling lanes, a vast skating rink with a massive sound and lighting system, 36 holes of indoor miniature golf, more than 200 arcade games, three restaurants, and Bankshot Basketball.

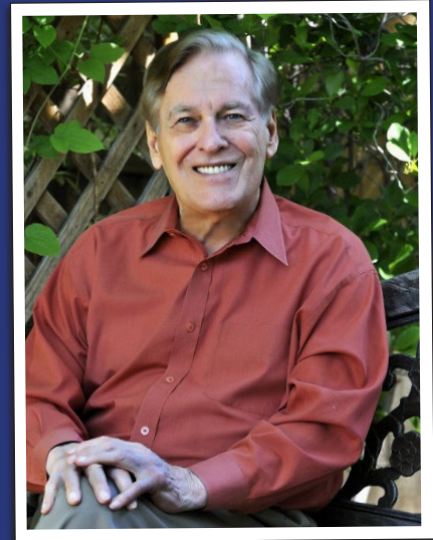
Bankshot was located on a mezzanine level overlooking the arcade. It was like mini-golf with basketball. It featured about a dozen basketball hoops, each with an angled backboard. The object was to bank the basketball off the multiple backboard surfaces. Whoever completed the course with the fewest shots was the winner. Chado was underwhelmed with the performance of the attraction and offered to let us install our laser tag system there as a concession.

FunPlex did the marketing, including birthday party bookings, and we paid a percentage of our revenue. We gladly took him up on it. On our first weekend, we had 20 birthday parties. It was a disaster. The lead acid batteries couldn't keep up with the demand. We couldn't recharge them fast enough, and the parties started backing up. This was when I learned a hard truth: hell hath no fury like a party mom scorned. I've never felt so abused and stressed out in my life.

Despite the customer service fiasco, Chado saw the potential of laser tag. He was generous enough to loan us \$900 to buy more batteries. We held that system together with duct tape, crazy glue, and bad soldering for over a year.

While Ed was handling the store one slow weeknight, a well-dressed businessman came in to play. He handed Ed his business card. It said:

Andrew E. Newman  
*Chairman of the Board*  
Edison Brothers Stores



### In Memoriam: Bob Chado

While writing this guide, I learned that Bob Chado passed away in Denver at the ripe old age of 95.

Bob was a skating rink proprietor who envisioned a mall filled with entertainment. FunPlex was born from his imagination. It was the prototype of the modern family entertainment center. He had a wonderful smile and a sense of humor to go with it. Bob played a significant role in my life and career. He was a mentor before I knew what that meant. He took me under his wing and helped Laser Storm get off the ground. I'm unsure we would have made it without his support, generosity, and guidance.

I will always remember him with gratitude and fondness.



Image credit: Laser Tag Museum

He proudly showed off his Photon membership card. Photon was the original laser tag game from the mid-1980s. It was played in giant spaces that are more like the laser tag arenas of today but with equipment too heavy for kids to use. It failed under the weight of its equipment and business model.

Andy loved laser tag and wanted to buy our system to install in a new entertainment mall concept they were working on.

Malls were dying in the '90s (sound familiar?), and they wanted "anchor entertainment centers" to attract a younger, hipper audience. Edison Brothers were the largest mall retailer in the US. They'd been in business since 1922 and were a New York Stock Exchange-listed company. They saw an opportunity to leverage their retail expertise and real estate relationships to add entertainment to their portfolio of brands.

Edison Brothers became our first customer. They agreed to buy equipment for 10 locations, which we branded Laser Storm. It gave us sufficient capital to eventually design something that was manufacturable, serviceable and would make birthday moms happy.

In 1991 we prepared to unveil Laser Storm to the amusement trade at the annual IAAPA show in Orlando. Andy called me up and asked for a favor. They had acquired the exclusive rights to a new amusement product that would change the world. "All the trade show space is sold out. Could we stage our product in a

small portion of your booth?" Color me intrigued. How could I say anything but "Of course!" they WERE our only customer then. And they promised a barrage of press.

That product was Virtuality from W Industries in the UK. Virtuality was the first virtual reality entertainment system. It blew people away. Press from over 100 outlets and 20 countries lined up for demonstrations.

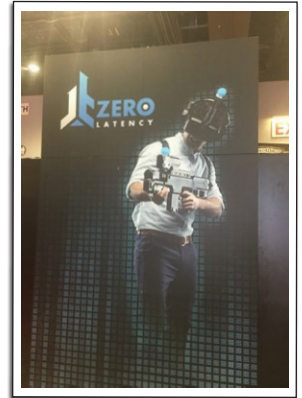


Virtuality from W Industries

Over the next few years, Edison Brothers installed Laser Storm and Virtuality VR systems in malls across America. At the first location's grand opening at Navy Pier in Chicago, I pondered when we might see VR and laser tag combine. Wouldn't that be something?

Fast forward to IAAPA 2015. The hype around virtual reality had come and gone and was coming again. I attended the show to research an article warning operators not to believe the hype. VR was and always will be a fad.

Then I heard some buzz about a startup out of Australia called Zero Latency. I decided to check it out. They were fully booked, but I begged them for a demo slot for me and my friend Brent Bushnell, co-founder of Two Bit Circus and son of industry icon Nolan Bushnell, with whom I was planning to walk the show floor on Thursday. I managed to convince them they should let us try it.



On that fateful day, we entered their enclosed booth, strapped on an Oculus DK1, a backpack computer, and were handed a large plastic rifle. Next thing I know, bee-like alien things are attacking me from everywhere. I was roaming around the play space and experiencing an unknown world as if I had traveled through space. I approached a narrow path of rocks and peered over the ledge, viewing a lava lake below me. I froze in my tracks.



Brent Bushnell trying Zero Latency at IAAPA in 2015

I told myself I was at a trade show on a concrete floor, and this was just an illusion. But I could barely get my legs to follow my commands. It was one of the most incredible gaming experiences I'd ever had. And it took me back to my first time playing laser tag. But without the ripped jeans.

I removed the gear, stepped outside, and asked for the owner. Tim Ruse walked up to me and gently held out his hand. I put my arms around him, gave him a giant bear hug, and exclaimed, "Dude! You've



Bob's first trip to Zero Latency in Melbourne, 2016

done it!" It had been over 20 years since I mused about merging laser tag and virtual reality. Zero Latency gave me my first taste of that possibility.

Tim told me they were running this system in a 4000 square foot warehouse in Melbourne, Australia. They were fully booked, selling a 43-minute game for AU\$88 per person. I told him I needed to see it and would fly down immediately. He asked me to wait until April as they were evolving their tech and would have their product system installed by then.

True to their word, I showed up in April 2016, and they'd installed a new, proprietary tracking system using machine vision cameras that let them track many players in a massive space with high accuracy. I strapped on the equipment, and over the next 43 minutes, I battled zombies from the streets through to the roof office building, where I walked between two skyscrapers on a rickety plank with wind buffeting me, and I eventually escaped on military transport.

I "roamed" nearly a half mile during that adventure. The further I walked, the deeper the immersion became. Eventually, I was enveloped in the zombie apocalypse. In the end, I was exhausted, both physically and mentally. And I was energized.

I convinced Tim and his team that I had made most of the mistakes they would make over the next couple of years as they launched their fledgling business. They let me guide them from go-to-market strategy to their official launch at IAAPA the following year and help them gain traction in North America and Europe.



Bob checking out The VOID at Downtown Disney, Anaheim

While Zero Latency was building its warehouse-scale VR system in Australia, another startup in Utah took an entirely different approach. Where Zero Latency was tracking huge wide-open spaces, The VOID was building smaller "stages" with props, walls, and doors that players could interact with. In a licensing deal with Sony Pictures, they developed Ghostbusters: Dimension and opened at Madame Tussaud's in Times Square.

Zero Latency was an epic 43-minute deep dive into a zombie apocalypse. Ghostbusters: Dimension was a story-driven experience where players navigated small, intimate spaces chasing ghosts and ultimately battling the Stay-Puft Marshmallow Man. The VOID employed haptic vests that vibrated when a spirit slimed you, moving floors, and even the scent of roasted marshmallows if you succeeded in your mission. When a door appeared, you could reach out and grab the doorknob (the tracking wasn't perfect, but after some fumbling, you'd find it), and there was a chair you could sit on.

The VOID's approach was technically more challenging, driving their capital expenditures and operating costs beyond profitability. They also deployed a location strategy of seeking out high-traffic real estate. For example, at their Westfield London location, 70% of their customers had never visited the mall before. So they were paying for traffic they weren't converting.

The VOID closed under cover of the pandemic, but its business model was flawed from day one. Zero Latency continues to expand today, with more than 60 sites opened worldwide. What's the difference?

Zero Latency has committed to increasingly simplifying its business. As technology has enabled them, they've moved away from complex camera-based tracking systems with backpack computers and customer headsets. Today they use the HTC VIVE Focus 3 with Wi-Fi 6E streaming. Where many companies seem to hold onto their old tech beyond its expiration date, they're on their third-generation platform in only six years.

This is important for operators looking into the more expensive free-roam VR solutions. It's important to buy on the upswing of a new technology cycle. You don't want to over-invest in something that will be obsolete in a year. And with VR technology innovation expanding rapidly, it's easy to do. If the vendor you're considering is selling tech that is more than a year old, it's critical to learn about their product roadmap and negotiate an upgrade program that keeps you up to date.

**Less Room to Roam**

The two pioneers of free-roam VR took different paths to create deep immersion. The VOID coined the term "Hyper Reality" to describe their version where physical elements in the space are mapped to the virtual environment. When you see a door, you can reach for the doorknob and open it; if you see a chair, you can sit on it.



Team Infinite plays Hero Zone at IAAPA 2022

Zero Latency used warehouse-scale to describe the vast spaces their system occupies. Their thesis is that the greater distance you travel physically, the more the fantasy/reality lines blur and the deeper the immersion goes.

Others have copied both these types of experiences. Zero Latency is still the gold standard warehouse-scale platform, but companies like Anvio, TrueVR, and EVA offer large-scale free-roam solutions. And while The VOID is gone (for now – there are rumors they're coming back), companies like VEX, Hologate, and others have implemented vibrating floors, wind, heat, and smell into their experiences.



In the last year, a third market segment has emerged. These compact free-room systems are optimized for smaller spaces, from 600 to 1000 square feet. They are optimized for four, six or eight players. They're inexpensive to install, simple to operate, and have lower ticket prices for customers.

The leader in this space is Hero Zone VR, with over 180 locations (see the story [Can VR Be Social](#) on page 46 for more). Phenomena VR Esports Arena is the number two company with about 60 sites. There are lots of smaller players in this market too.



Hero Zone appeals to kids of all ages

Both Hero Zone and Phenomena run "native" VR experiences. The entire game lives on the headset, using the onboard Qualcomm VR2 chipset to render the graphics. Native systems are much simpler for the operator but don't offer the high visual resolution and graphic fidelity that games running on a PC do.

Vertigo Games' HAZE system offers compact free-room games like Arizona Sunshine and the new After the Fall, streamed over Wi-Fi 6E to the VIVE Focus 3. (Springboard is sunsetting the HAZE name and integrating their free-room titles into their Springboard VR game launcher.)

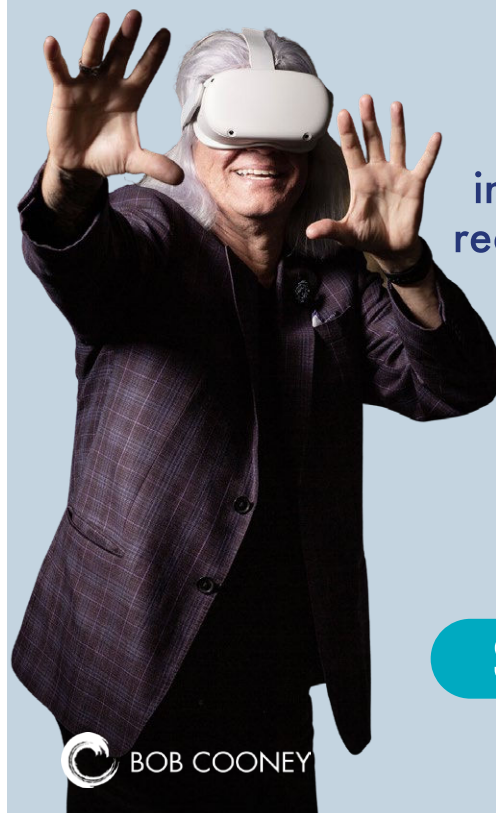
Compact free-room offers a reasonable compromise for companies that don't want to invest six figures into a VR attraction.

Smaller space, easier to operate, and significantly less investment in return for lower graphic fidelity and less immersion. John Lilly, who owns six Zero Latency locations under the MeetspaceVR brand in the UK, also runs Hero Zone in all of them. It increases his operation's game variety and capacity with only a small incremental investment and space.

Free-room is the future of VR for location-based entertainment. Room-scale games are too easy to replicate at home, and fewer developers are building single-player games for arcades as the home market becomes more lucrative. Free-room games from indie developers are proliferating, and platforms like Hero Zone and Springboard make them easy to operate.

If you're in the VR arcade industry, it's time to roam free or die.


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WIRELESS WI-FI 6E  
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FLEXIBLE LICENSING  
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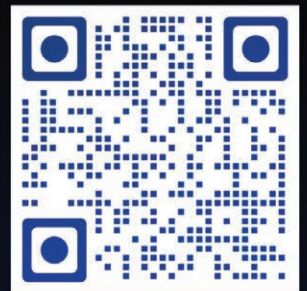
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"Partnering with Zero LatencyVR has been so beneficial because we can offer something that other companies can't. We run one of the world's most successful virtual reality venues."

Tamara Bullock, Director,  
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# The VOID Unraveled: 7 Factors Behind the Downfall of a VR Revolution

I get asked all the time what happened to The VOID. The narrative created by their management team was that the combination of the pandemic and the hefty license fees associated with their Disney-owned content crushed them. I've spoken to many people who worked at The VOID, from store management to some of their founders, trying to get to the truth.

What The VOID created was genuinely revolutionary. The experience of walking in a virtual world where the physical objects were mapped into the virtual space took people's breath away. But just because you create a fantastic experience doesn't mean you have a viable business. Ultimately The VOID's company suffered from complexity. As best as I can find, there were at least seven components of their failure.

## 1. REAL ESTATE MODEL

At the VRLA 2018 conference, VOID CEO Cliff Plumer stood on stage and bragged that at their Westfield London location, 70% of their customers had never been to the mall before. The VOID was going into high-profile, high-traffic areas paying premium rents, like Downtown Disney and the Oculus at the World Trade Center in Manhattan. Some of this was likely driven by strategic investments by Westfield Properties Group and Disney, who had conflicting strategic motives. But as a low-volume attraction, they weren't drawing in sufficient numbers of customers to justify anchor tenant rental rates. Paying kiosk rent as a destination tenant is a recipe for failure in retail.

## 2. IP LICENSING COSTS

Most of The VOID's content was based on blockbuster movies. Ghostbusters, Star Wars, Jumanji, and The Avengers came with high upfront guarantees and significant royalties. The Disney-licensed content was developed at Industrial Light and Magic, a division of Lucas Film, renowned as one of the most expensive development studios. The combination of high development costs amortized over a few locations, plus high royalties left them with a small contribution margin. Running a business on thin margins requires high operational excellence, labor cost efficiencies, and lower rent (see number 1) and leaves little room for error.

## 3. LABOR

Every time I went to one of their locations, the number of staff was astounding. Some of this was due to the complexity of the equipment, which often failed, leading to backlogs of frustrated customers. But interviews with employees later revealed a lack of bottom-line focus and a bloated management structure, contributing to operational costs that were too high.





Image 1: The VOID

Image 2: Bob and friends at The VOID in Anaheim

#### 4. TECHNOLOGY

The tech at The VOID was what made it stand out. What James Jensen, their CEO, and Curtis Hickman, their Chief Creative Officer, built seemed like magic to anyone who tried it. But they were so committed to this illusion that they bloated their tech stack to make everything seem more remarkable than it was. Custom helmets that housed components from off-the-shelf headsets, custom backpacks with haptics, expensive pulley systems to help get customers in and out of their gear (but which still required a large labor force), and an optical tracking system designed for movie production that cost millions and required senior technical staff to keep running.

#### 5. SHORT DURATION

One of the core problems with the business model was the length of experience. The first Ghostbusters experience clocked in at about 12 minutes. Each game got progressively longer, with The Avengers' runtime reaching 25 minutes. Even at almost half an hour, their experiences were short diversions, not dedicated occasions.

#### 6. MARKETING

Since The VOID's real estate strategy wasn't aligned with its target audience, customer acquisition became challenging. The VOID was attractive to a demographic that wasn't frequenting the locations where they operated, so they needed to market like a destination attraction. At an average of 15 minutes per session, the game length wasn't long enough to consistently drive sufficient dedicated traffic. They never seemed to identify this problem, thinking the answer was opening more locations to build visibility. But growing a retail business without solid single-store economics is a recipe for failure.

#### 7. COMPETING STRATEGIES

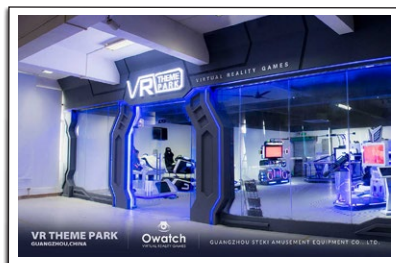
The VOID raised a ton of money from different companies. The VOID graduated from the Disney Accelerator Program in 2017 and took investments from Westfield Development, Cinemark, Genting Malaysia, Meraas, and other real estate and entertainment firms. These were strategic investments for these companies; each had its expectations of what its investment in The VOID would yield. Being the veteran of several venture-backed startups with dysfunctional boards, I can only imagine how management was being led to make decisions that might have been good for the investor but not necessarily for The VOID.

In the movie *City Slickers*, Jack Palance's character Curly uses colorful language to explain to Mitch and his friends that the secret to life is "one thing". While that might be true, it's rarely one thing that leads to a business failure of this magnitude. The VOID was a complex business. When I first observed their business in 2017, I commented that they were trying to build colonies on Mars when we had not even set foot on the moon as an industry. While they shut down under cover of the pandemic, these are some real reasons they were doomed to failure from the beginning.

# From Boom to Bust to Revival: The Transformation of VR Arcades

The first VR arcades started popping up in China in 2015. Internet cafés had been all the rage for the last decade, and local entrepreneurs figured virtual reality was the next tech trend. Enter the virtual reality experience store.

In 2017 estimates suggested that 35,000 VR experience stores opened in one year. The explosion of new stores led to price wars, eroding the perceived value of the experience and leading to widespread closures. Operators complained that players would only come if the prices were below the point at which the business was viable. The tight margins led to rampant piracy to maintain costs. These pirated copies of games contained many flaws, eroding the customer experience.



The new wave of VR parks in China

owners using the VIVE headset. Franchises emerged like VR Junkies and Control V. Other companies, like Private Label VR, Springboard, and Synthesis, developed software platforms to help entrepreneurs manage their VR arcades. Even big names got in on the act. Startups claimed to be “the IMAX of VR”, so IMAX said, “why not us?”.

It's hard to get statistics on how many VR stores remain in China. But as the boom and bust cycle was playing out there, the US market was beginning.

HTC VIVE announced VIVEPORT Arcade, which licensed games for arcade



IMAX VR's flagship in Los Angeles, circa 2016

The problem with VR arcades is that they look easy and fun. But the business models that emerged were inherently flawed. Arcades offered an all-you-can-play model where a customer took over a 10x10 booth and paid for 30 minutes to an hour of play. Successful arcades of the past sold gameplay by the experience. A quarter got you three balls on your favorite pinball or five lives in Defender. Your skill determined how long you played. The more you play, the more value you derive from your purchase. Which drove repeat play.

VR arcades, on the other hand, turned into fancy computer rental businesses. Operators charged fifty cents per minute of playtime, or \$30 an hour. On the surface, this looks appealing. A PC-based VR gaming rig might cost about \$5000. At that rate, it only takes 166 hours to pay for itself. If a business owner could rent each one for just 20 hours a week, they'd get their money back in eight weeks. Eureka!

But factor in licensing, labor, rent, and customer acquisition costs, and the margins evaporate. Most VR arcade owners bought themselves a sub-minimum wage job if they were lucky. If anyone had taken a trip to China, they would have figured that out and saved themselves the misery.

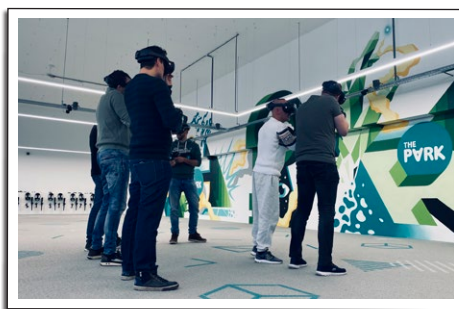
But there's a light at the end of the tunnel.

## Arcade 2.0

In the early days, there were free-room arcades like Zero Latency and The VOID, and room-scale arcades, like Control V and IMAX VR. The business models for all of them were dubious. Nobody had cracked the code to create a predictably repeatable, profitable business. In the last couple of years, there's been a movement to combine free-room and room-scale into a more diverse product offering.

One of the challenges of free-room arcades is their limited capacity. Zero Latency, for example, can only handle 16 customers per hour. This requires a price per player of around \$40-50. With an experience lasting about 25 minutes, it's not enough to become a destination occasion on its own.

The Park Playground in Belgium was among the first to integrate room-scale single-player experiences with free-room multiplayer, offering an hour-long plus experience.



The Park Playground in the Netherlands

Players book their arrival time in advance and start with a beverage at The Park's simple café. Their host then guides them to their first experience, where they select from a limited library of single-player room-

scale games. After about 15 minutes, the group gathers around a station dedicated to Richie's Plank, where they laugh and cajole each other as they attempt to overcome their fear of heights. Then the host takes them for their free-room adventure, where the group picks from one of their half-hour exclusive multiplayer games. When they're done, players return to the café for another drink, reflecting on their shared experience.

The Park curates a 60-90 minute experience that, despite the isolating nature of VR, is inherently social. It's long enough to make it a destination occasion. The typical Park Playground has two free-room areas of about 1000 square feet, each capable of handling six players. They also have between 8-12 single-player stations, and Richie's Plank can hold six players taking turns. With the café capacity, The Park's occupancy is easily 40 people at a time, charging 35 euros per person. And they manage to cram that into 4000 square feet.

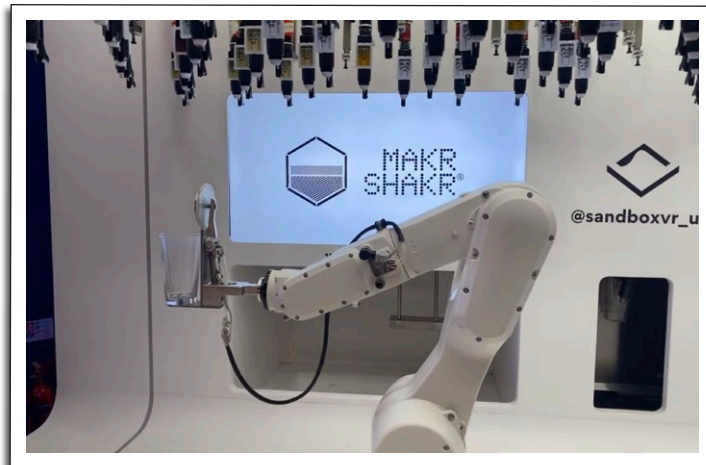
The Park is a franchise spun out of Telenet – the giant media conglomerate in Belgium. With about a dozen locations in western Europe, they've developed one of the most promising business models I've seen in the VR arcade industry.

Sandbox VR is another franchise company to watch in this space. They've been snowballing post-pandemic with 30 locations in North America and sites in China and the UK. I spent a half day with the London franchisee shortly after they opened to learn more about their business model.

The London site is a global flagship. Located near Soho, it occupies the old post office building. With six VR "stages", a robot bartender, and lots of lounge seating, it feels more like a nightclub lounge than a VR arcade. There's a second-floor loft with another bar and a meeting room. It's designed for small groups and corporate events. Their target is for food and beverage sales to make up 70% of their revenue.



Sandbox VR London is part nightclub, part VR arcade



The robot bartender at Sandbox VR in London

EVA, short for Esports Virtual Arenas, recently opened its first US location after expanding to nearly 20 sites in their home territory of France. EVA features a massive free-room footprint with two 5000 square foot arenas in each facility. Two teams of up to five players battle it out in a realistic VR version of Call of Duty. While their esports business model is worth further exploration (on page 34), the scratch kitchen and full bar serving up gourmet steaks and craft cocktails might point to a growing trend in location-based entertainment. Food and beverage have become the number one anchor attraction.

There was once a narrative that alcohol and VR didn't mix, but like many things that held VR back in its early days, that was a myth. Redline VR in Chicago is another example of a full bar combined with a virtual reality arcade. Founder Aaron Sawyer offers players a complete craft beer, wine, and specialty cocktails menu.

While Sandbox VR and EVA can cost over \$1 million per location, and The Park will set you back a cool \$350K with just a light café model, nothing stops entrepreneurs from creating their versions of VR Arcade 2.0.

With the industry standardizing on the HTC VIVE Focus 3 headset, more and more developers are creating free-room games, licensing them directly to operators or through arcade distribution networks like Springboard VR and Synthesis.





Nick Wallace of Free Space VR in Brisbane

Nick Wallace owns Free Space VR in Brisbane, Australia. He recently converted his entire arcade to Focus 3, using Wi-Fi 6E streaming to replace all the cables. Free Space VR features 12 single-player stations and two compact free-room arenas. The first features the Phenomena VR Esports Arena, and the second is running Vertigo Games free-room games like Arizona Sunshine and the new After the Fall game. Each arena is about 1000 square feet and fits up to four players.

The space efficiency of the room-scale games is critical to the capacity of the business. Free-room games average one player for 250 square feet, where room-scale gets them into 100 square feet or less. A well-optimized arcade will balance room-scale and free-room, and price them accordingly.

Some VR arcade operators are considering adding unattended games to the mix. Where a PCVR game with a Focus 3 and Wi-Fi 6E streaming might cost \$5000 per station, the least expensive VR arcade cabinets from a major US manufacturer cost about 3 times that. But when you factor in the higher price per minute and the labor and space savings, it can make good business sense.

I recently visited a Zero Latency location on the Gold Coast in Australia. They offer two single-player multi-game stations in their lobby and four driving simulators. While they're not fully unattended, they don't require dedicated staff. I wouldn't be surprised if the best VR shooters like Zombieland Arcade Fever and VAR BOX start finding their way into the free-room locations to generate additional per-capital spending and to increase the variety and length of experiences for customers.

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# Escaping Reality: Next Gen Puzzle Adventures

VR escape rooms have been around since the early days of VR arcades.

They typically allow up to 4-6 players, and the games are designed to be completed in less than an hour. There's a tremendous business advantage for VR versus physical escape rooms. VR rooms offer unlimited flexibility of experience. You can offer 10 different games in the same physical space. Compared to physical rooms, the cost of a few headsets has flipped the economics of escape rooms on its head.

There are two types of games: room-scale and free-room. Room-scale games restrict players to an isolated physical space, showing up in the virtual space together using teleportation for locomotion. Free-room games put players in a shared physical room together and let them walk around.

The advantage of room-scale escape room games is, with teleportation, the virtual play spaces can be expansive. Room-scale games keep players close to each other, much akin to physical escape rooms.

Some physical escape game fans complain that VR rooms don't contain the high-level puzzles they crave. Many VR rooms are more like adventure games, with some light puzzle solving.

Some even include shooting elements. Many operators refer to their VR rooms as Adventure Rooms or Escape Adventures to not disappoint hardcore escape room players, who might give them low reviews on social sites.

Zero Latency Gold Coast offers two VR escape rooms in addition to its arcade games and simulators. Each room is about 6 x 6 meters (around 360 square feet) and features four Quest headsets with BOBOVR M2 headset straps. They offer six different compact free-room games from VR Cave, a provider out of Canada that claims more than 150 locations.



In-game image from VR Cave

I spoke to the owners, and they said the additional attractions were critical to their ability to attract larger groups, which can be the difference between a profitable location and one that struggles. They also said people come for the escape room and are curious about Zero Latency and vice versa.

I recently tried an escape room experience in Melbourne, Australia. The game lasted about 45 minutes, during which we had to search for clues scattered around the landscape and inside a building. Finding them felt random, and there was little in the way of puzzle solving. It was more like picking up every random object to see if you could find a code.

Virtual Room out of France offers some of the best VR escape games. But their library hasn't grown much in the last several years. They've been stuck with four games, with a fifth only recently announced.

Video game giant Ubisoft entered the VR escape room market in 2018 with Escape the Lost Pyramid. They quickly followed up with the Assassin's Creed-themed Beyond Medusa's Gate.





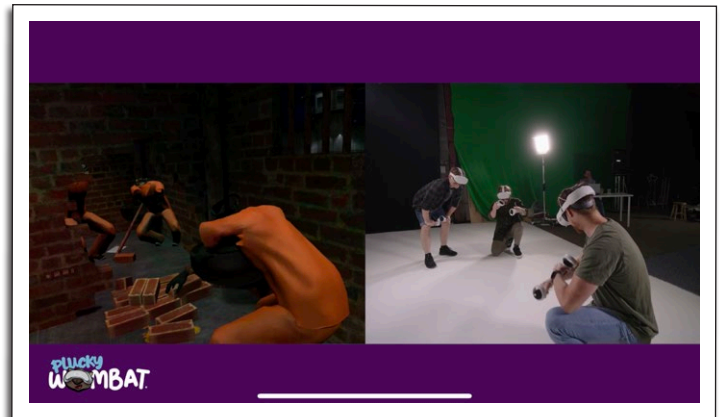
Ubisoft Price of Persia Escape Game

They now offer five games, including Huxley, a story-driven puzzler developed by Berlin’s EXIT VR. It contains challenging puzzles and striking visuals.

Vertigo Games has two adventure/escape games in their free-roam library on Springboard VR. Corsair’s Curse and Eclipse both support 4D effects like vibrating floors and wind, which can deepen immersion and allow for higher consumer prices.

A newcomer to LBE escape games is Lightning Rock out of Canberra, Australia. Their initial game, Chronosphere, is generating some buzz online. They have two other games in development scheduled for release later this year (an aggressive release schedule to say the least). One of their features is that they support both room-scale and free-roam in the same system, with multiple room sizes for flexibility.

Another newcomer from Australia, and candidate for the most memorably named studio, is Plucky Wombat. They offer a prison escape game, The B-Block Breakout, and have another game coming in 2023.



The B-block Breakout from Plucky Wombat

Escape Games offer the benefit of more extended gameplay in relatively compact spaces and support high prices per player. Licensing fees vary widely, and some games have minimums per month. Check out the Buyer’s Guide section for details.



A new game coming from Lightning Rock

# Reviving the Game: How VR and Mixed Reality Are Transforming Laser Tag

Laser tag has endured in the FEC industry for one reason. Throughput. It's one of the most space-efficient anchor attractions you can have. A 3000 square foot laser tag arena can handle as many as 100 people per hour. A laser tag arena is a workhorse on a busy Saturday filled with birthday parties.

But damn, if it hasn't aged well. Laser tag arenas have not advanced in 30 years. I go into a "modern" laser tag and feel like I'm having a flashback to 1995—blacklight, fog, tacky-themed fluorescent props, or alien spaceships. If anything, it's gone backward. And while the equipment has new features, it seems all people want to play are the old standards: Free for All and Capture the Flag.

In 1996, Laser Storm won Best New Product at IAAPA Orlando for Stargate Laser Tag. Players entered through a fog and strobe-lit special effects portal into an arena filled with movie props from the hit motion picture. The following year we launched Marvel's X-Men Danger Room, complete with Cerebro, a computer system that quizzed players for extra points. With all the big IPs out there, I can't believe we are still living in a world of generic laser tag.

Well, that's about to change. Virtual and mixed reality is set to take over the laser tag market. Laser tag arena specialist Creative Works dropped the first bomb at IAAPA in November. Limitless VR puts 12 or 18 players into an 1800 – 2400 square foot arena

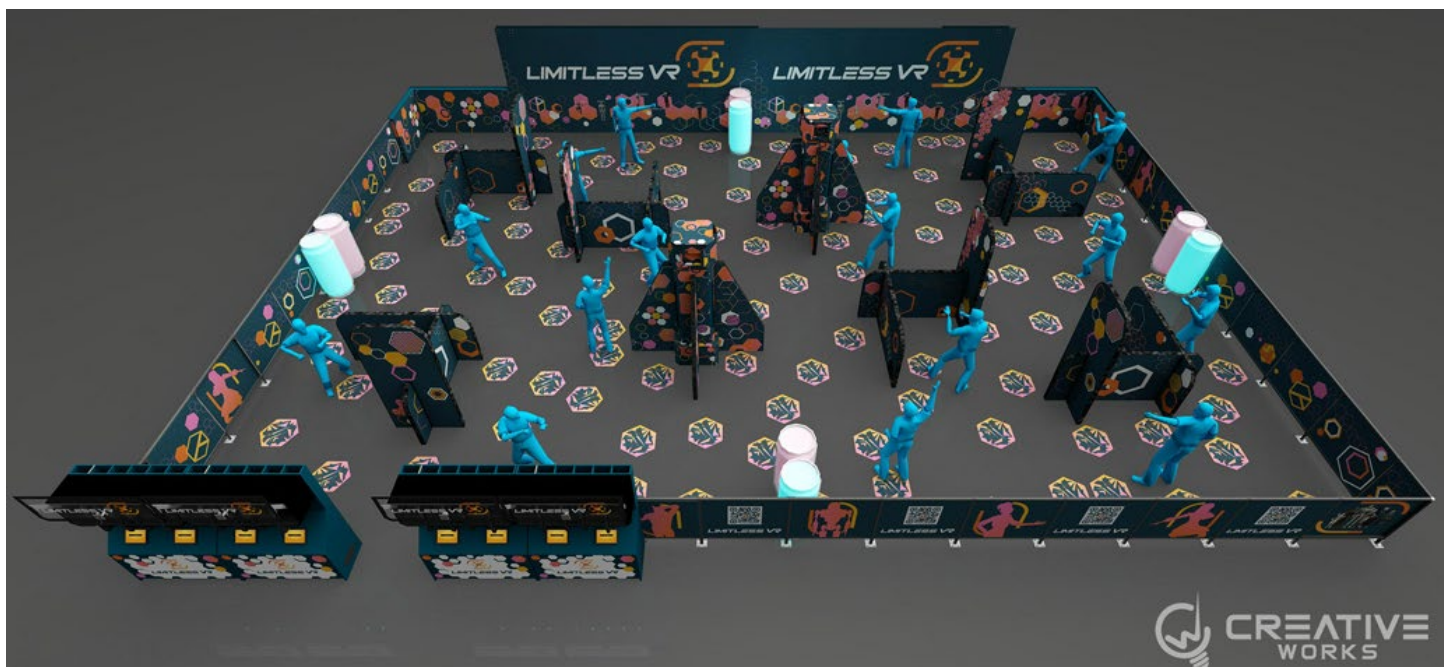
with physical barriers mapped to the virtual space. Players don a VIVE Focus 3, grab a replica gun with an integrated VR controller and enter the arena. After a short mixed reality briefing where players see each other via pass-through video, the virtual curtain drops, and they're fully immersed in a virtual arena.

With virtual reality, the amount of creativity game designers can employ is...limitless. Players can choose their avatars, customize their weapon load-outs, deploy shields, and more. Arenas can have targets, drones that shoot back at you, and special effects that make Mark Hamill's lightsaber glow green with envy. Theming is entirely digital. Want to play underwater? In a jungle? On a barren moonscape? Just push a button. The possibilities are endless.



Laser Storm's X-Men Danger Room at IAAPA 1997





Limitless VR from Creative Works

Creative Works tried to install Limitless into existing laser tag arenas, which required mapping every arena to a different virtual map. It's a slow and expensive process combining photogrammetry and software development. It proved cost prohibitive. So, for now, Limitless has some limitations; it's designed for new installations. If you're opening a new FEC and considering laser tag, I would hit the brakes and consider Limitless.

What about the more than 5000 laser tag arenas operating today? Are they stuck in the '90s forever? Thankfully not. The advances in mixed-reality headsets will soon enable companies to design solutions to turn any laser tag arena into a mixed-reality battlefield. And it's going to be awesome.

The first mixed-reality headsets hit the market in the last six months. The Meta Quest Pro, Pico 4, and VIVE XR Elite offer limited color pass-through. The Quest Pro has the lowest resolution but uses two cameras for stereoscopy, so depth perception is good. The Pico 4 and the XR Elite have higher-resolution pass-through video but employ only one camera. The Pico 4 lacks good depth perception to run around a space with barriers and other people safely. The XR Elite uses a depth sensor to create the illusion of depth. I've yet to try it in a setting that would test out the feature.

By next year I'm sure there will be enhancements to current headsets, or entirely new ones, that offer full color, high-resolution, stereo pass-through. Then things will get interesting. For an example of what's possible, check out Resolution Games' Spatial Ops.

Resolution Games is the studio behind smash VR hits Demeo, Blaston, and Acron: Attack of the Squirrels. Spatial Ops is the world's first competitive multiplayer shooter in mixed reality. Players can turn any real-world space into an urban battlefield and compete with (or against) their friends in FPS action.



Spatial Ops from Resolution Games – mixed reality laser tag

Adding a high-quality mixed reality game to a laser tag arena promises to take a tired, old activity and make it relevant again. It promises variety in gameplay and environment. And accuracy. Laser tag never became a legitimate competitive activity because it's too easy to cheat, and the equipment isn't accurate or reliable. Moving to a software-based solution guarantees accuracy and enables rules enforcement. So leagues, tournaments, and even esports will become possible in laser tag arenas.

It might take until 2025 for the technology to converge. But when it does, laser tag will again become the hottest FEC activity on the planet.

INTERVIEW

# Redefining Esports: Inside Jean Marriotte's VR Game Plan



EVA offers the largest free-room arenas on the planet – 5000 square feet each

For the last few years, I've been interested in the intersection of virtual reality, esports, and location-based entertainment. There's been much hype around esports and LBE. Hundreds of millions of dollars have been invested into esports arenas. Several chains have emerged, and some disappeared, trying to make esports the central focus of their business.

GameWorks tried and failed (though the pandemic had a hand in their demise). Belong Gaming Arenas is trying a hyper-local approach to become the little league field of esports in each town.

But the problem with esports as a location-based entertainment play is that it's a computer rental business at its core. Players can play the same games at home for free, chatting with friends and even live streaming. There's a hard cap on what you can charge for an hour on a gaming computer. And the per-capita spending on food and beverage is proving limited. As far as I can tell, it seems impossible to make it a profitable business. And so far, nobody has even tried to prove me wrong.

Case in point, Ignite Gaming Lounge in Skokie, IL. I met its co-founder, Sam Oanta last year. He had just relocated his esports lounge from downtown Chicago to a larger suburban building. It covered 14,000 square feet, half as an esports center with more than 100 gaming PCs, a couple of Rock Band rooms, and some virtual reality games. The other half was an event center for large groups. In between were a full kitchen and two well-stocked bars.

The pandemic made it impossible to utilize the event center. And Sam had given up trying to make the esports business work independently. He admitted that the business would never make money without the food and beverage component. So now he's in the process of turning his event center into a full-blown arcade.

This is a recurring theme in the location-based entertainment business. Quality food and alcohol are anchor attractions like laser tag was 20 years ago. Gone are the days when a snack bar with hot dogs, nachos, and lousy pizza sufficed.

Time will tell if Ignite's combination of esports and arcade games will pan out. Esports is about community-building, and arcades are about casual, impulsive entertainment. It will be interesting to see if those two concepts support each other or potentially clash.

Virtual reality is the key to building a location-based esports business for several reasons. Unlike PC games, most people don't have VR at home, so we can still charge a premium price. And even when VR becomes more ubiquitous at home, arcade-based VR esports can feature a physical component, which is hard to do in most people's limited space at home.



One of the best examples of this is EVA from France. Esports Virtual Arena was founded by Jean Marriotte. I've followed EVA since I interviewed Jean on a panel at VR Days in Amsterdam in 2018. At the time, they had several multiplayer free-roam VR games and had just started experimenting with esports. After the opening, I caught up with Jean to check in and see how their attempt to build a location-based esports was going. The following interview is edited for clarity.

**Bob Cooney:** Jean, thanks for taking the time to chat. Congratulations on your growth and the opening in Texas. It's quite a facility.

**Jean Mariotte:** Thanks, Bob.

**BC:** At VR Days, we talked about how you can't just stick your toe in the water and be successful with esports. You must go all in. You seem to have fully committed. How many locations do you have now?

**JM:** We currently have 20 locations in France. Most sites have two arenas of 500 square meters each (5000 square feet). And we've just opened our first US franchise location in Dallas.

**BC:** OK, you know I'm all about business models. How are the locations doing?

**JM:** We must run about 30% capacity utilization in France to break even. The average location is about 58%. It costs around \$600K to build out a facility in France. That includes everything, fees, renovations, salaries for training and startup, marketing budget, etc. But in the US, it's about double that.

**BC:** Really? Why do you think the investment in the US is double?

**JM:** Everything costs double, so you charge double, and the US employees' salaries are also double. It's pretty simple.

**BC:** And you feel the revenue will be double also? Are you confident about that?

**JM:** It is based on what we've seen so far.

**BC:** How long does it take to go from opening to a 58% run rate in France?

**JM:** It depends on the city and the population. The utilization grows in small increments. Getting to 60% takes about six months, more or less.

**BC:** Once you get to that point, the seasonality of the business comes into play.

**JM:** Yes, it depends on when you open. Opening during the slow time is essential.

**BC:** Same with a restaurant.

**JM:** Yes, you need to ease into it. If you open in the middle of vacation and it's a rush, you won't be happy because you must get used to running everything.

**BC:** You've got a restaurant in each location. The food quality in Dallas looks impressive. What percentage of revenue is food and beverage versus VR typically?

**JM:** In France, it is 30%, but it will be more in the US because we have an authentic restaurant there. People come to the restaurant and then try to play VR.



EVA is a restaurant disguised as a VR esports center

**BC:** If you got to 60% capacity and invested \$600K to \$1.2 million for the location, how long does it take to get that investment back in months or years?

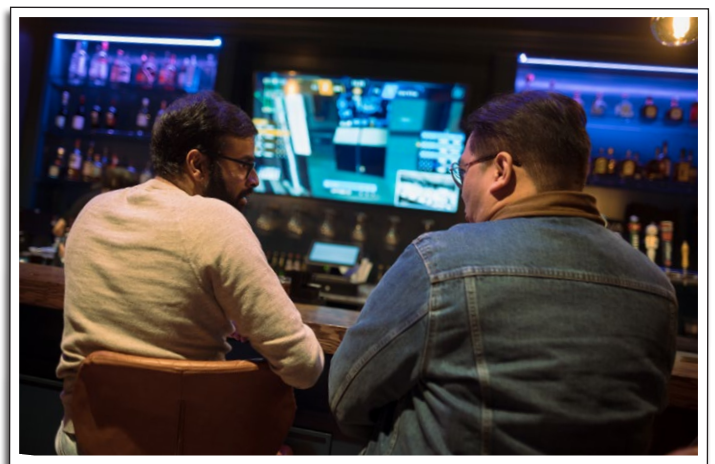
**JM:** It's between two and three years, but the metrics could change next year. There's a human element, a location selection element, and a market competition element.

**BC:** In the early days with Zero Latency, there was no way to get your money back fast enough because you had to keep upgrading the tech every few years. How much of the \$1.2 million is pure technology that might have to be replaced in three years?

**JM:** I'm unsure, but it's a small investment component now.

**BC:** I see you're running a membership model.

**JM:** Yes, we just launched it in France. We've reworked our Battle Pass and launched the same model in the US one week ago.



People come for the food and drinks, and stay for the VR esports

**BC:** Can you tell me more about it?

**JM:** You can check it out on our website. We have three essential plus packages that allow players to commit to playing more, with 50% discounts compared to classical pricing. Additionally, we offer exclusive skins and a 10% discount at the bar.

**BC:** What's the price during peak and off-peak hours?

**JM:** Off-peak hours are priced at \$10-29, and peak hours are at \$39.

**BC:** Once a player subscribes, does it automatically renew every 30 days until they terminate it?

**JM:** Yes, that's correct.

**BC:** What percentage of revenue is returned?

**JM:** We're still testing this since we just made changes before it was unlimited. We had to change the model to keep the franchisees and players happy. We're moving towards esports hours in this new Battle Pass.

**BC:** What are esports hours?

**JM:** It's a period where players can play unlimited games. It's a great way to unite the community and encourage synchronous contact and socialization. When we changed our model, we had a tough time with our community in France.

We held workshops and did a live Twitch to understand their frustrations and needs. Ultimately, we found a model that works, and dedicated esports hours are a part of it.

**BC:** Will you make players earn their way into the esports hours, or do they have to buy their way in?

**JM:** No, you must earn it if you want to play unlimited on the esports hours.

**BC:** Do you have the rules for how players can earn their way into the esports hours?

**JM:** It's a work in progress. We want to revisit it before the end of April.

**BC:** That's fascinating, Jean. It's an ingenious system. What do you have in terms of statistics on retention rates and the percentage of players at different levels? Was the old plan unlimited?

**JM:** The old system was 90 euros a month for unlimited play, but you could only book two sessions at a time on the website. Then you had to play and book again.

To play during the esports hours, you need to bring your team. It means you can't play alone with no training.

**BC:** So, no casual play?

**JM:** It could be casual, but at least you need to be organized, not just to play for free like this. So you need to participate in competitive tournaments and subscribe to this to have these benefits.

**BC:** What percentage of your business was subscription revenue and play?

**JM:** 15% of the revenue came from memberships before this model.

**BC:** But probably 30% of the sessions or something like that, right?

**JM:** Yes, and the exciting thing is that these guys are ambassadors. They buy a lot of drinks and food and bring in friends. One Battle Pass brings more or less four or five people into the location. These guys are such fans of the concept and the game. Some of them play every day.

**BC:** The challenge I've seen with this model is that people must play frequently, be passionate about it, and increase their skill levels. At \$50 a game, it's just not going to happen. The price has to come down.

**JM:** Exactly. If you try to copy the esports model precisely, people need to play 10 hours daily to be competitive. But if you

take some classical sports like Formula 1, these guys only drive a little. They use training and simulators. So we will release games on Steam for free and help the competitive teams find sponsors. We have a good ecosystem and now have the E League, the French Cup, and sponsorships. We will be on broadcast TV in France this year, not just on Twitch.

**BC:** I've always believed this was possible, but the business model has been elusive. You're close to figuring it out.

**JM:** We still have work to do, but we opened the first location in June 2019, and we've been working on it since then.

**BC:** It's well-documented how to build a game, but the business model is the hardest part. Not to diminish the importance of the game. Without a great game, you can't have an esports, but without a great business model, you can't make it viable. You've done a great job with all the esports requirements: leaderboards, skins, lots of weapons customizations, and fit-outs. There's a real strategy required to play and win. That's critical to a game where there's progression.

**It's a period where players can play unlimited games. It's a great way to unite the community and encourage synchronous contact and socialization.**





David Lugo Jr. and Jean Mariotte after an intense round of VR esports

My protégé David Lugo, the VR Guy with the Fro, came for your grand opening. He’s an ex-Army infantryman and an expert marksman with qualifications in various weapons.

**JM:** It was so interesting because he played at the opening casually and liked it. But we had a meeting the day after to talk about everything. We played for an hour with the staff in a competitive way. And he loved it.

**BC:** He was taking charge and speaking like military infantry on the frontline in combat.

**JM:** It was crazy good. When he removed the headset, he told me he understood the game’s potential when you play competitively.

**BC:** It’s interesting to see how a competitive experience can bring out the potential in a game. It’s a real challenge to bring new players to that level of engagement.

**JM:** That is a real challenge. They play for the first time. How can we bring them to the second step, which is your best experience?

*EVA – Esports Virtual Arena* operates in Flower Mound, outside Dallas, Texas. They’re actively seeking franchisees for US expansion.

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# The VR Time Crunch: Crafting an Experiential Occasion

There's a reason that movies are 90 minutes or longer, escape rooms run for an hour, a line of bowling takes 45 minutes to an hour, and the average restaurant visit is one hour and 45 minutes. Those are entertainment events or "occasions". Or, as I like to call them in the post-pandemic era, a reason to put on pants.



When I first experienced Zero Latency VR in 2016, it was an epic 43-minute adventure where I walked almost half a mile exploring a massive post-zombie-apocalyptic landscape. Tickets cost AU\$88 per person and were sold out weeks in advance. But they were met with skepticism when they explained this to amusement operators at the IAAPA show in Orlando. "We can't have a 45-minute game! It has to be 10 minutes."

I warned the team at Zero Latency not to listen to the conventional "wisdom". This was, after all, an industry that spent decades making money 25 cents at a time selling three-minute arcade games.

Zero Latency's next game, *Outbreak*, clocked in at 12 minutes. And while it was intense and fun, it lacked the epic scale of the original. Operators soon realized that such a short game presented all kinds of challenges. Increased capacity strained employees and equipment. They also needed to sell two to three times more tickets, even though at a lower price, to generate the same revenue. Ultimately operators bundled two plays of *Outbreak* together into a half-hour experience and raised the price. Since then, almost all Zero Latency games have been around 25 minutes.

Even that length is a compromise. A 45-minute or longer game is feasible and desirable in some instances. Now that the backpacks are gone, and the equipment is lighter and more comfortable, players can easily spend 45 minutes inside a VR

experience (see the feature on *Escape Rooms*.) Zero Latency operators are adding other VR attractions like arcade games, simulators, and escape rooms to create more capacity, extend the length of stay, and increase per-cap spending.

I refer to these short, 25-minute VR experiences as Drive Through VR. Unlike a sit-down restaurant where you look forward to spending time with friends and a meal, the drive-through is when you're between occasions and want to get some food quickly. From a consumer experience standpoint, these short experiences create challenges.

The average transaction for free-roam VR is a group of four tickets. This means four people must coordinate meeting at the same place and time. This creates friction, as evidenced by the high levels of cart abandonment several free-roam companies have told me about. Their research suggests that customers struggle to coordinate dates and times amongst their friends.

On the big day, they show up and play. And after half an hour, they have to figure out the next thing to do. "Should we eat? Go to a bar? Something else?" A half-hour can be wasted just trying to figure out their next move.

Successful operations like *The Park Playground* in Europe have integrated a café and single-player VR games into their package. Everyone purchases a minimum 60-minute experience, including a free-roam game, single-player games, and a social VR experience.



The Cafe at Park Playground — The Haag, Netherlands



Bob gets instructions on a parasailing sim at Zero Latency Gold Coast, Australia

Lighting VR in the Netherlands also offers both room-scale and free-room experiences. Customers can purchase either a 50-minute or 1-hour 40-minute package. Both come bundled with a game of RevolVR 3, a popular multiplayer VR arcade game. The dual session includes time to play arcade games and enjoy a beverage.

For a standalone VR arcade, you must program at least 60 minutes of entertainment, whether a combination of experiences,

arcade games, simulators, developing a quality food and beverage program, or all the above. If you want to be a destination, the total occasion must last at least 60–90 minutes.

And if you think being in an entertainment district with many other things to do contradicts this, read my story about Why The VOID failed on page 24.

<b>Difficulty</b> NORMAL	<b>Playtime VR</b> 28 MINS.	<b>Playtime VR</b> SURVIVAL SHOOTER	<b>Age</b> 10+					
<b>Experience</b> 50 MINUTES: 1 GAME								
	Entrance (7min)	Info (7min)	RevolVR 3 (8 min)	Info (10 min)	Main game 1 (20 min)			
1 HOUR AND 40 MINUTES: 2 MAIN GAMES								
	Entrance (7min)	Info (7min)	RevolVR 3 (8 min)	Info (10 min)	Main game 1 (20 min)	Arcade games & drinks (20 min)	Info (10 min)	Main game 2 (20 min)



# Unleashing VR's Potential: The Integrated VR Arcade

One of the biggest challenges facing VR in family entertainment centers is that operators treat these products like arcade games. They're pricing them like arcade games, placing them on the floor like arcade games, and marketing them like arcade games.

The problem is that VR games are way more expensive than arcade games. And they provide a way better experience than arcade games. But I routinely see VR games scattered around the game floor, buried amongst games 10 or more years old. What kind of message does this send to customers?

There are two primary reasons this happened. In 2017, when VR became popular, operators saw it as a checkbox on their equipment shopping list. I can't count the number of times I heard operators ask me, "I need a VR. What should I buy?" They started with one game, added another the following year, and suddenly had four, five or six games scattered on their floor.

The other reason is technical. Many early VR games used HTC VIVE headsets with Lighthouse tracking. These units often interfered with each other, so they needed to be spaced apart. With most new games leveraging headsets like the VIVE Focus 3 with inside-out tracking, this is no longer a problem.

Grouping all your VR games into one area will create a "VR arcade" inside your arcade. That opens all kinds of possibilities. You can market your VR arcade as an attraction, like bowling, laser tag, or miniature golf. VR fans will see all the VR, tell their friends, potentially increasing business. You can even theme the area to create cohesiveness. You can train dedicated VR staff

to increase customer engagement and satisfaction. And most importantly, you can develop different pricing strategies for your VR games to increase pricing.

Most operators put their VR games on the arcade game play card. Some have priced their games at a premium, which runs the risk of early card value depletion and a pissed-off parent. Others are starting to reduce the price of the games to protect the overall value to customers, which stretches out the perceived ROI.

Virtual reality creates a premium experience and should demand a premium price. Bundling your VR games and attractions as an entitlement changes the financial game and opens up sell opportunities within your arcade, increasing per-cap spending. But we must talk about the elephant in the room—perceived return on investment (PROI).

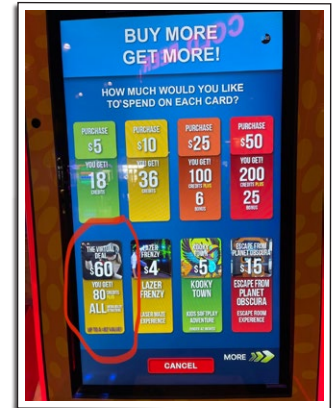
I continuously see operators claim, and manufacturers and distributors supporting, the illusion that they get their money back on a game in XX weeks. They divide the purchase price of the game by the weekly cash box. If a game costs \$10K and earns \$1K weekly, they claim a 10-week ROI. But is perception reality?

Attributing ROI to a single game added to an arcade with 50, 100, or more games is nearly impossible. No way can you tell how much revenue is cannibalized from existing games. Multiple variable factors impact arcade revenue week to week. But if you bundle your VR games and create a different currency or entitlement, you can measure exactly how it affects overall spending.

The downside is that there might be less money in the cashbox for any VR game each week. But you'll know that the money there is real, not virtual. This brings me to the next point about ROI.



Just because it looks like a video arcade game, doesn't mean you should treat it as one



FEG offers VR as a bonus bundle at Kalahari Resorts

Nobody expects laser tag to pay for itself in three months—or bowling lanes. But because VR is a video game, operators expect them to have the same ROI as other arcade games. To further cloud things, some VR games even look like arcade cabinets.

Maximizing your return on investment in VR requires treating these games as the high-tech and high-impact attractions they are. Start experimenting with grouping your VR and working on pricing bundles. Your collection sheet will change, but your bottom line will likely improve.

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# Lights, Camera, VR: Hollywood Streams into Virtual Reality Arcades

The relationship between Hollywood and video games is a long and complicated one. Fans want more ways to interact with their favorite characters and storylines. Studios want to create more revenue from their investment in intellectual property. And game developers see IP licensing as a means to cut through the noise in a competitive market.

Everybody wants to be a ghostbuster; there's hardly a Halloween when I don't see someone dressed as Egon, Peter, or Ray. Sony Pictures licensed Ghostbusters to The VOID in 2017, leading to an entire floor of Madame Tussauds in Times Square becoming a homage to the 1984 classic. Players donned a backpack computer that became a Proton Pack in the game.

VR at this level is about fantasy fulfillment. Unlike traditional video games, where players control a character on the screen, you ARE the character in VR. You embody them, and your movements and actions become theirs. It's why we will continue to see cross-licensed content hitting the VR arcade game market.

Just this last year, we've seen Harry Potter from Dreamscape, Squid Game announced by Sandbox VR, Warhammer is coming this year from Zero Latency, Ghostbuster's VR Academy just released to Hologate, and Zombieland Arcade from VRsenal is shipping worldwide.



Ghostbusters exhibit at Madame Tussauds Times Square

The nice thing about well-known Hollywood IP is that it immediately sets the adventure's context. When you get behind the wheel of the prototype Ecto-1 in Ghostbuster's VR Academy, you know exactly who you are and why you're there. You don't need a long pre-show video to explain everything.

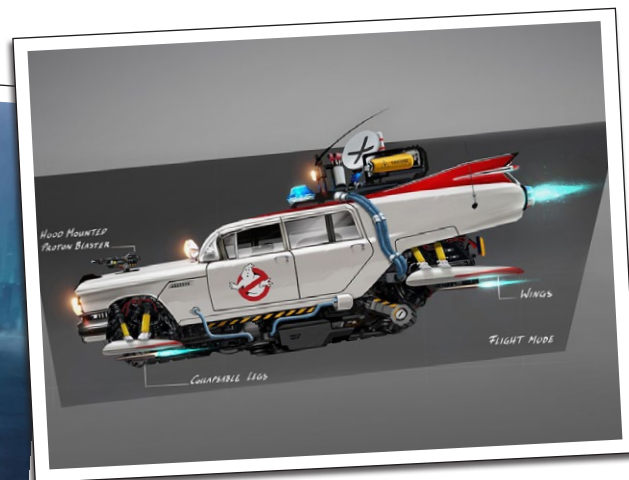
For operators, there's also massive marketing leverage. Here's how Sony Pictures' marketing promoted the most recent Ghostbusters: Afterlife film.

The movie was initially scheduled to release in the summer of 2020, but Sony decided to hold the release until theaters started recovering from the pandemic. The first trailer dropped in December 2019 and scored more than 20 million views on YouTube. Actors began appearing on the talk show circuit, and by April, another teaser trailer was released, showing the Stay-Puft character garnering another two million YouTube views.





Ghostbuster's VR Academy



The flying Ecto-1 prototype — only available on the Hologate Blitz platform

Then on June 8, Ghostbusters Day (the anniversary of the original movie release), Sony arranged for a host of events.

- The cast and crew of the movie took fan questions via Twitter
- New consumer products and merchandise promotions were launched
- Ivan Reitman and Bill Murray took to YouTube to discuss whether or not Ghostbusters Day is an official holiday

By October, promotions were in full swing, with an appearance on the Halloween edition of the Kelly Clarkson show, theater chains releasing the movie posters on social media, and another trailer hitting YouTube gathering three million additional views. Star Paul Rudd made the talk show rounds. As the premiere approached, Randy's Donuts in LA saw lines around the block to pick up Ghostbuster-themed donuts from the Ecto-1.

The cast and crew finally walked the Red Carpet for the premiere in New York City before Bill Murray, Ernie Hudson, and Dan Ackroyd appeared on the Tonight Show to talk about reuniting after all these years.

These are just the online social marketing campaigns that Sony produced. It doesn't include traditional media like TV, outdoor, or the millions of movie trailer views on-screen and online. I don't know how many media impressions Sony marshaled with this multi-channel marketing blitz. Studios will spend up to 100% of the cost of making the movie to market it.

Ghostbusters is one of the crown jewels of Sony Pictures' IP catalog. There's talk of an animated streaming series on Netflix, and nDreams, one of the best VR developers in the business, is working on a AAA home VR title. With all the chatter about too many zombie games, Ghostbusters offers a family-friendly horror-lite experience that works in any location.

With the sequel to Ghostbusters: Afterlife scheduled for release on December 20, expect the marketing blitz to begin this summer. Hologate is releasing the Ghostbusters VR Academy to their network of more than 400 sites on March 27, with plenty of time for operators to leverage Sony's marketing machine.

Who you gonna call?



Bob joins the Ghostbusters VR Academy at IAAPA London

# Esports Igniters: Empowering Employees to Boost Customer Engagement

The VAR BOX was unveiled at the Amusement Expo International last year, and operators immediately saw its potential, awarding it the AMOA Innovator Award.

But it wasn't just the game that caught the industry's attention. The innovative esports features within the VAR BOX mobile app promise a transformational business model that could impact everything from FECs to bowling centers and even bars and taverns.



The VAR BOX

Supply chain disruptions hit the company hard. It took almost nine months for the first container of product to hit distribution warehouses in America. By the time the product arrived, significant engineering upgrades had been developed. Creative Works, the most experienced company in the States regarding virtual reality products, signed on to help with distribution in the US. Acting as the depot and master distributor in North America, they implemented the engineering changes and began shipping the product to operators in December.

With a solid installed base of VAR BOX units in FECs across the US, VAR BOX is kicking off its Esports program.

The first phase of the program, called the League of Colleagues (LoC), kicks off in April. The LoC is a global esports leaderboard tournament exclusively for employees of arcades featuring the VAR BOX.

The strategy behind the League of Colleagues is that employee engagement drives awareness and gameplay. If arcade employees are excited about a game, they will tell customers about it. VAR BOX isn't just an arcade game but an entire esports platform. And the heart of the Esports program is the mobile app.



VAR BOX League of Colleagues Leaderboard

The LoC gets employees to register on the app, play the games, and compete for prizes. And research suggests that a more engaged employee base will help drive customer engagement, app downloads, and tournament play.

Every time an employee plays Overkill on the VAR BOX, as long as they log in with the mobile app, they're registered in the tournament. Each month prizes will be awarded to the top players globally, in the US, and at each location. Global and national prizes are provided by VAR BOX, while each site provides local rewards. There's a dedicated website for the League of Colleagues where players can get registration instructions and check their standings.

Phase 2 of the VAR BOX tournament program will kick off once the League of Colleagues runs for a few months. Locations will be invited to join the global VAR BOX Overkill tournament, where the top scores worldwide win cash and prizes each month.

The top players from the League of Colleagues and the player tournament will be invited into the VAR BOX community management training program. This free program mentors the most passionate gamers to become community managers, organizing teams and building the VAR BOX community.

Once the local communities are forming, it's time for locations to go pro with Phase 3 of the VAR BOX Esports program. The community managers organize local tournaments for players to come together and play live against each other. These site-level tournaments are where the community cements itself into the fabric of the location. Over the following months, the best teams in each area will be invited to regional tournaments, working their way up to an invitation to the Global Championship in Taiwan.

Every operator with a VAR BOX can join this program. For more information about the League of Colleagues or the VAR BOX Esports program, email [info@varbox.us](mailto:info@varbox.us).





# Bringing People Together: The Power of Shared VR Experiences

Competitive socialization is the new hot buzz in the location-based entertainment industry. New concepts are popping up everywhere. People love to socialize, and lighthearted, fun competition creates an experiential framework for people to spend a few hours together without the pressure of making conversation the focal point.

Lucky Strike Entertainment started the competitive socialization trend when the former Jillian's Entertainment Executives acquired the remnants of the Hollywood Star Lanes, made famous by *The Big Lebowski*, and created a hybrid bowling center and nightclub. Up until then, bowling had been primarily leagues and competitions.

Now concepts like Top Golf, Holey Moley, and Puttshack have applied the concept to golf. Flight Club is expanding its upscale dart bars globally. And even axe throwing is getting into the mix.

What do these concepts have in common? They all have food and alcohol as a big part of the concept. They're all turn-based, where each player is only out of the conversation for a minute. Nobody ever misses out on the exchange. Also, anyone can play. There's not a high level of skill needed to have fun.

What makes these experiences social is that the conversation is the heart and soul of the experience. The activity is secondary.

Social experiences differ from shared experiences like movie theaters. In a shared experience, the activity IS the experience. The key to making a shared experience social is reflection.

We've all had conversations about *Avatar: The Way of Water*. Or maybe the new HBO show *The Last of Us*, which has captivated the zeitgeist and is creating water cooler conversation.

Most VR games are shared experiences. Players show up, receive a briefing, and they play.

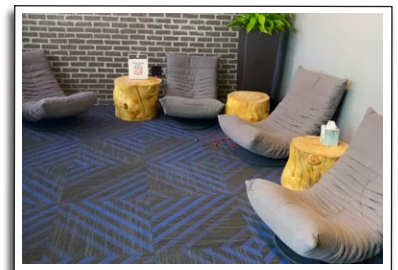
In the end, they move on to the next thing. With a framework for reflection, we can take advantage of the opportunity to make these social.

Jump from Limitless Flight has built a reflection room into their experience. At the end of your wingsuit flight, you get to watch your flight on a massive video wall in a room filled with bean bags. There are light refreshments, and people hang out and compare their experiences. With an intense experience, often, the emotion hits us afterward. And the feeling is what anchors the experience in memory. Jump creates the opportunity to feel those emotions and share them with friends.

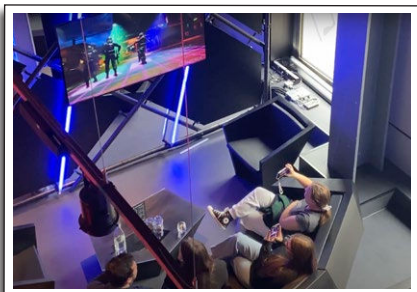
Sandbox VR is another excellent company curating a shared reflection after each game. They have a series of couches and big-screen TVs in the lobby. Players are escorted to their lounge to watch a replay of their experience edited by AI into what looks like a movie trailer. Sandbox VR also prompts players to make funny poses and dance moves at the end of the game. This elicits inevitable laughs, cementing those memories.



The Park Playground offers a lounge for socializing



The reflection room at Jump in Utah



Players watch their performance at Sandbox VR London

These are excellent examples of how you might turn a shared VR experience into a more social one. But is there a way for the core VR experience itself to be more social? A company out of Belgium might have just created the first truly social VR experience for FECs and arcades. Hero Zone is a compact, free-roam system for up to six players in less than 1000 square feet. They use Focus 3 to deliver a seamless VR experience across a growing library of seven games. They might be the biggest free-roam VR platform in the world, already in more than 180 locations.

But a feature they quietly unveiled at IAAPA last year was one of the show's highlights. When players enter the Hero Zone arena, they gather in a shared space that looks like a cool home rec room in a basement. You can play a basketball toss game and a plush claw machine. You can pick up, eat and drink pizza and beer. You can throw the food at each other to have a food fight. Players have a blast hanging out and talking with their friends in VR.

When they're ready to play, a voting menu shows up with all the available games. And players vote on which game to play. This always leads to discussion, and sometimes people change their votes. It's social, and players love it.

This system also has operational benefits. An attendant hits the start button, and the players can move from the basement to their chosen game and back to the basement to choose another game, all without any assistance from staff. So players can spend an

hour in that space with no labor cost. It's as close to unattended free-roam VR as I can imagine.

Hero Zone has just launched a birthday party room with balloons, party blowers, and a cake with candles. I expect more interactive, immersive spaces to roll out this year.

Whether you add a reflection stage to your VR experiences or consider something like Hero Zone that's built a social interaction into virtual reality, it's worth investing in making your VR more social. As VR expands into more homes, these experiences will continue to give people a reason to put on pants, leave their homes, and cross the threshold into your business to have fun with their friends.



Hero Zone Hangout



# VR Product Reviews and Directory

From franchises to free-roam, simulators to shooters, and everything in between.



# BOBOVR M2 for the Quest 2



The BOBOVR M2 Comfort Strap is one of the best VR peripherals I have come across. It's a headset strap with a hot-swappable battery for the Quest 2.

It's become the standard for VR arcades using Quest. It doubles the battery life to 4-6 hours, and you can run all day without interruption with two batteries. The BOBOVR M2 also increases comfort dramatically by balancing out the weight between the front and back of the headset. Many locations use Quest 2 for VR escape rooms like VR Cave: wearing it for an hour can be painful, but the BOBOVR M2 Comfort Strap makes it bearable. At only \$49 on Amazon, it's a must-have for any arcade using Quest.

A note on using the Quest, or any Meta headset, in LBE. I've warned developers and operators about using the Quest in arcades for years. But it's hard to pass up a product that only costs \$400 when other headsets run over \$1000. The problem with the Quest is that Meta does not recognize the LBE market. It explicitly excludes arcades from its license agreements. And that means that they don't care about you.

Sometimes, when they update firmware, which you have zero control over, your headsets might stop working. That happened this past February, and arcades worldwide were struggling to keep the guardian working, which might only be the end of the world once that birthday party shows up. Or the corporate event. Or when you wind up so far backed up on a Saturday, your reservations must wait over an hour for their turn. Oh, those social media reviews can be brutal, can't they?

The Quest 3 is going to release later this year. And it's likely to be a fantastic piece of hardware for its price. Like all gaming console companies, Meta subsidizes their hardware based on game store revenue sharing and advertising dollars. Just keep in mind that sometimes when something looks too good to be true, it is.



# VR Arcade Franchises

There are a few legitimate VR franchises out there. What do I mean by “legitimate”? It means they have gone through the process of registering their business as a franchise with the proper federal and state jurisdictions.

For example, in the USA, a franchise must register a Franchise Disclosure Document with the Federal Trade Commission (FTC) and 13 different states (known as the franchise states, including California, Maryland, Michigan, New York, Illinois, Indiana, Washington, and a few others).

There are a lot of entrepreneurial VR arcades out there with a “franchise” tab on their website. Most of them have one location. There are also many VR attraction and software vendors who use the word “franchise” in their marketing to mean “a turnkey business”.

The FTC has three basic qualifications for a business to be considered a franchise. They’re called Duck Rules. “If it looks like a duck, walks like a duck, and quacks like a duck, it’s a duck.” If the seller is behaving like a franchisor, they’re selling a franchise. All kinds of businesses can be considered franchises.

- **Trademark License.** The business involves the distribution of goods or services associated with the licensor’s trademark or trade name;
- **Payment of a Fee.** The licensor requires payment by the licensee for the right to operate the licensee’s business; and
- **Control or Assistance.** The licensor exercises significant control over, or provides significant assistance in, the licensee’s method of operation.

If the company you’re considering working with calls their business a franchise, and it’s not, run away. It shows a lack of business sophistication and risk tolerance that will likely lead to their demise.

With that disclaimer, here are the major VR arcade franchises you might want to consider.



## Ctrl V

They began in 2016 and are based in Canada. I believe they had close to 20 locations pre-pandemic. Now it looks like they're down to about six. Their operating model is based on 16 room-scale booths. They offer custom operating software they call the CTRL Suite to make the business labor efficient. It costs around \$300K to open a Ctrl V franchise, plus leasehold improvements. There's a \$45K franchise fee, a 7% ongoing royalty, and a 1.5% marketing contribution.

**Bob's Take:** *I have zero confidence in a business model limited to 16 room-scale VR stations. There's not enough capacity. The fact that they only have six locations after seven years of franchising suggests the model is flawed. There are non-franchise platforms like Springboard VR that give you many of the features of CTRL Suite for \$35 a month. Another red flag for me is that they claim that free-rom is for a different market demographic, which shows a lack of understanding of the market for a company this mature.*



## The Park Playground

Of all the franchises on this list, I've spent by far the most time evaluating The Park. I've been to almost all their locations in Belgium and the Netherlands and spent days at their corporate HQ interviewing their management team. The Park was incubated by Telenet, the largest media company in Belgium. They have more than a dozen locations now and are growing rapidly.

The Park's operating model is a combination of single-player room-scale, and multiplayer free-rom. They sell a one-hour experience for about \$35. There's a simple café with limited beer, wine, and coffee drinks to extend the visit. They can handle 40 customers at a time in a 4000 square foot space.

The Park recently ported their content from backpacks to native all-in-one headsets using the VIVE Focus 3. They have the most diverse library of exclusive content of any franchise I've seen, and they understand exactly which customer personas each game appeals to. This speaks to their marketing sophistication.

The hallmark of a valuable franchise is its operations system.

The Park's gig-economy employment model is one of the biggest innovations I've seen in the LBE market. Their staffing model is like Uber (which makes sense since their first CEO ran Uber Eats in Belgium). Casual workers are notified of bookings, and they can pick their shifts. The hiring and training program is gamified, with staff leveling up based on the net promoter scores of their customers.

Opening a Park Playground costs around \$300K turnkey. The company is currently focusing on the Middle East and Europe. It has a new CEO in the last year, so their program might have evolved since I did my research. With any franchise, always refer to the most recent FDD.

**Bob's Take:** *I like these guys. I considered working to bring this concept to the US, but there had not been enough time for the existing stores to fully recover from the pandemic for me to build 100% confidence in the model. But they're damn close, and of all the operating models, this is by far my favorite.*



## Sandbox VR

Sandbox VR might be the fastest-growing VR franchise right now. They list 41 locations on their website as of this writing, with seven of those labeled "coming soon". Each location has multiple "stages": compact free-rom spaces for up to six players. The Oakland site I visited had four stages, and the huge London venue has at least six.

They have a wide variety of games. I found their original games boring and competitive (but that didn't stop 5-star reviews on Google). Their latest, Deadwood Valley, was fantastic. It has a branched story, great level variation, and multiple endings. We failed the primary mission, and I was left with a desire to play again.

The best thing about Sandbox VR is their post-game experience. Players are led to a couch where they watch a video showing their experience back, including goofy poses and dancing. It's a blast, and customers love it. They also give post-game videos for social sharing.

A Sandbox VR franchise costs around a million dollars. The newest locations I visited were still using backpack PCs, which are totally obsolete. They also use optical cameras with hand and foot trackers. The trackers are used for unique features. When a player dies, another player must touch them on the shoulder to revive them. And at the end, players are encouraged to dance for the post-game video. The inverse kinematics with hand and foot tracking is the best in the industry.

**Bob's Take:** *It's a lot of money. I've asked repeatedly for financials showing site-level profitability but have been refused.*



*There are rules restricting franchisors from sharing P&Ls, as it could be seen as a prediction of future performance. I've spoken at length with the London franchise owner, and without liquor sales and corporate events, I don't think the model works. I've also heard other locations are "doing well", but I also know that when someone spends a million bucks, they're unlikely to admit they're struggling. Sandbox VR is selling a lot of franchises, so it's likely I don't see the entire picture. Do your homework.*

# EVA

ESPORTS VIRTUAL ARENAS

## EVA - Esports Virtual Arenas

For a deeper dive, see the interview with Jean Marriotte on page 34.

EVA has the most unique model of all the VR franchises I have seen. Twin 5000 square foot arenas, with 10 players in each, squaring off in teams for epic warehouse-scale esports battles. They have co-op games for casual players, but esports is where they shine. With a significant food and beverage component, it's a more challenging business operation. You're running a

VR arcade, a restaurant, and a bar. It's not for the faint-hearted. You'll need to bring or hire deep F&B experience, as I don't think EVA has perfected that part of their business yet.

I'm a big believer in the possibility of location-based esports. And I'm deeply skeptical of most of the business models I have seen to date. The combination of their membership model creating recurring revenue, esports that create community, and quality F&B suggests they have found a unique model that could work.

**Bob's Take:** *I'm bullish on EVA. With 20 locations in France, it seems to be working. But with the first US location only a couple of months old, I need a little time to see how it plays out.*

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# Free-roam Systems

Free-roam is the future of VR in location-based entertainment. As more homes get VR headsets, large playing spaces where people can move around and explore fantastic virtual environments will be a key differentiator. The technology is finally affordable, high-quality, and durable. Environmental effects further amp up the experience beyond what anyone will experience in their home. If you've been waiting to make the move into free-roam VR, 2023 is your year.

I've categorized the following products into warehouse-scale, compact free-roam, and hyper reality. The warehouse-scale systems are over 2000 square feet. Compact free-roam ranges between 400 and 1000 square feet. Hyper reality is systems with environmental effects and haptics like wind, scent, heat, vibrating floors, etc.

As with any categorization, there are blurred lines. Some Zero Latency arenas have added manual wind effects with fans and a button for the operator. After the Fall from Springboard VR supports heat, wind, and vibrating floors, but they don't offer a turnkey system. I've categorized them where I think they best fit, and listed the ones that support effects and haptics.

It's interesting to note that few options exist in the 1000 – 2000 square foot range. Solution developers are either going big or staying compact. The compact free-roam segment is exploding. There's little barrier to entry for developers now with affordable headsets and inside-out tracking. Making great games, however, is still a challenge.

There's much hype in the compact segment around competitive PvP (player vs. player) games comparing



them to laser tag. But I've never seen a laser tag arena less than 1000 square feet. Most of these games don't leverage virtual reality arena design to create spaces that feel bigger than they are. Look for features like teleportation, elevators, and other environmental tricks that let the space play bigger than it is.

For operators, the selection process for free-roam is to pick a launcher. It operates the arena, handles game selection, and provides operator controls. Most launchers also limit the games available through licensing arrangements. You may find a launcher you love, but it might have different games than you want. Hopefully, a leader will emerge in the free-roam launcher space, and they can consolidate content by offering large, diverse libraries of free-roam games.

Springboard VR and Synthesis did this with room-scale games. Synthesis has a head start on free-roam, offering 20 games. Springboard has six games, but two are blockbuster exclusives: Arizona Sunshine, the most popular VR arcade game of all time, and the brand-new After the Fall. Both are limited to PCVR games, which require Wi-Fi 6E streaming, a more complicated system to set up and maintain than native systems.

## LEGEND

**FOOTPRINT:** The largest play area supported by the system, in square feet. (You can convert to square meters by dividing by ten roughly.) I use the largest configuration because, generally, with free-roam, bigger is better.

**PLAYERS:** The maximum number of players the system supports in the biggest footprint configuration.

### TRACKING:

- IO is inside out. All the tracking cameras are in the headset. Play spaces require a decent amount of light or IR emitters blanketing the room. They also must have non-repetitive markings on the floor and walls.
- Optical. These systems use expensive and complex external tracking cameras and markers on the players. They are required for foot tracking and accurate hand tracking extending behind the player.
- Lighthouse. The original room-scale tracking built into VIVE. It's been extended to free-roam systems up to 1000 square feet.

**HEADSET:** I've highlighted the systems that feature the Focus 3, as it's currently my favorite headset. It's available both as PCVR and Native.

- PCVR means you need a high-end VR-capable gaming PC for each player. Backpack computers are out of production, so the industry has evolved to streaming to the headsets via Wi-Fi 6E.
- Native means the software runs on the headset without requiring external computing power. Quest 2, Focus 3, and Pico 4 all run on the same system on a chip (SOC), the Qualcomm XR2(+). These systems require a computer and Wi-Fi network to handle system management, observation mode, and other light computing tasks.

**WEARABLES:** Backpack PCs (are obsolete — stay away), haptic vests, wrist or foot trackers, or anything else beyond the headset that players must put on. Wearables increase complexity and slow operations. Make sure there's value to all those extra bits.

**GAMES:** The number of games offered on the launcher. These numbers change regularly, so I used the best information I could gather at the time of writing. Some companies inflate their game library by counting different game modes. I've tried to count all the modes as one game to level the playing field.

**LOCATIONS:** Number of active sites at the time of publication. This is based on the companies' websites, public statements, or other information that has not been validated. Have your saltshaker handy.

**SPECIAL SAUCE:** Something unique and subjective about the system that helps it stand out.

# Hyper Reality

Hyper Reality is a term coined by The VOID to describe immersive VR, where the physical environment becomes part of the experience. It could be through environmental effects like wind, heat, vibration, scents, or even touch, where physical objects are mapped into the virtual environment.

## Jump by Limitless Flight



Bob flying down Notch Peak at Jump in Salt Lake City

The ultimate hyper reality experience so far. Jump is from The VOID technical co-founder James Jensen. It's a wingsuit flying simulator where players must "make the jump". Players put on a real wingsuit and a fully enclosed VR flight helmet and are hooked onto a sophisticated hydraulic suspension system that catches them, simulating flight. Huge fans fill the wingsuit, enforcing the illusion of flight.

Jensen's team has captured an entire mountain with sophisticated photogrammetry cameras, rendering the environments in Unreal Engine 5 for photorealism. The pine scent as you're skimming the trees adds to the realism.

Players have a persistent profile and earn suit upgrades and new abilities as they progress. The entire experience was developed with Marshall Miller, one of the world's top wingsuit pilots. He and others have used Jump as a training vehicle to try out new lines before flying them in real life. The power of VR is to let people do things they can never do in real life. Wingsuit flying is one of the riskiest sports, costing over \$15,000 to become certified. Jump offers a pretty damn good experience, with no risk of death, for under \$100.

Jump operates one location at its HQ in Utah and is scheduled to open a second at the American Dream Mall in New Jersey.

## Tyffonium



Tyffonium store front in Tokyo

A graduate of the Disney/Techstars incubator, Tyffonium is a Japanese company building themed, story-driven hyper reality attractions. They have one location in Odaiba, Tokyo, with six VR attractions. The store is themed to the level that only Dreamscape VR has done.

The attractions range from 40 square feet for two players up to 450 square feet and four players. One of their attractions is a walkthrough horror experience based on Stephen King's IT Chapter II, where it looks like they recreate the funhouse from the movie.

## VEX Adventure



The VEX Adventure — a compact hyper reality attraction

VEX's second product in this guide is the Adventure. It's a compact, turnkey hyper reality attraction for FECs. Imagine if Hologate and The VOID had a baby. That's the VEX Adventure.

It combines wind, heat, scent, and a vibrating floor with haptic vests for total immersion. Six players share a 400 square foot space. They offer three different games with a total of nine variations.

# Warehouse-scale Free-room VR

## Zero Latency

<b>FOOTPRINT</b>	2000	<b>PLAYERS</b>	8
<b>TRACKING</b>	IO	<b>HEADSET</b>	PCVR Focus 3
<b>WEARABLES</b>	N/A	<b>GAMES</b>	7 + 2 in Development
<b>LOCATIONS</b>	71	<b>SPECIAL SAUCE</b>	Big Name IP

Zero Latency VR invented the warehouse-scale free-room VR category and is still the leader. They have the best games, the biggest IP, and the latest technology. They're up to 71 sites and growing, which gives them the scale to go after ever-bigger content brands.



Their most recent announcement of Warhammer was a bit of a surprise. The tabletop game brand recently signed a deal with Amazon and Henry Cavill (who most recently played Superman in the DC Universe for Warner Bros) to create a Warhammer series on Prime. But it's still years away. The good news is that Zero Latency is taking the development in-house and using Unreal 5, which should lead to the best graphics we've seen yet.

Zero Latency's game library stands above its competition by a mile. I was not a huge fan of Far Cry. I thought the cut scenes were awesome, but I found the gameplay repetitive. Undead Arena is one of my favorite zombie shooters. It offers tight co-op and competitive gameplay with a hilarious narrative. The arenas feel expansive, more like playing in 5000 than 2000 square feet. And their classic title, Singularity, is still one of my all-time favorites. I also expect Zero Latency to announce another major IP very soon. Stay tuned.

The knock on Zero Latency is that their royalties are very high. While the upfront cost has come down as they've moved to VIVE Focus 3 and Wi-Fi 6E, they still charge a premium for their software, both upfront and as an ongoing royalty. I'm also disappointed they have not found a way to fit more players in the 2000 square foot play space. With tracking tech improving, it's possible to have more player density, increasing throughput and top-line revenue for operators.

## Lightning VR

<b>FOOTPRINT</b>	2000	<b>PLAYERS</b>	6
<b>TRACKING</b>	IO	<b>HEADSET</b>	PCVR Focus 3
<b>WEARABLES</b>	Haptic Vest	<b>GAMES</b>	4
<b>LOCATIONS</b>	5	<b>SPECIAL SAUCE</b>	Stryker Gun

Based in the Netherlands, the team behind Lightning VR has been running VR arcades since 2017. They use Focus 3 headsets streaming PCVR visuals via Wi-Fi



6E. Their games support arena sizes of 1000 and 2000 square feet. Their support of the Stryker means players get a serious haptic experience in shooting games. They currently offer two zombie shooters, a kids cartoon shooter, and an alien defense game. They have plans to also offer third party content on their platform.

## trueVRsystems

<b>FOOTPRINT</b>	2000	<b>PLAYERS</b>	6
<b>TRACKING</b>	Optical	<b>HEADSET</b>	PCVR Focus 3
<b>WEARABLES</b>	Backpack PC	<b>GAMES</b>	6
<b>LOCATIONS</b>	18	<b>SPECIAL SAUCE</b>	Hand and Foot Tracking

trueVRsystems is a Swiss company that's been building free-room VR systems since at least 2017. They have 15 locations in Europe, and four in the Americas. Their flagship in the US is at Area 15 Immersive Mall in Las Vegas.

trueVRsystems offers two arena sizes, 1000 or 2000 square feet. They use hand and foot tracking, requiring optical camera systems, which drives the price of a small arena to \$150,000 and a larger one double that. They currently offer five games, with a sixth coming.



## Mission X

<b>FOOTPRINT</b>	3000	<b>PLAYERS</b>	10 (Max)
<b>TRACKING</b>	IO	<b>HEADSET</b>	Native
<b>WEARABLES</b>	bHaptics Vest	<b>GAMES</b>	5
<b>LOCATIONS</b>	Unknown	<b>SPECIAL SAUCE</b>	Esports Enabled

Mission X is a team-based PvP free-room game. It has five different maps and themes, like a space station, a pirate ship, and an old western town. The system can scale from 400 to 3000 square feet, accommodating four to 10 players. It's one of the largest free-room competitive systems on the market. They also offer a tournament system.



The lack of co-op games means this is really for the VR laser tag crowd. This is a do-it-yourself system with a flexible licensing system. You can choose pay-per-play, or license per headset, either monthly or annually.

## Limitless VR from Creative Works

<b>FOOTPRINT</b>	2400	<b>PLAYERS</b>	18 (Max)
<b>TRACKING</b>	IO	<b>HEADSET</b>	Native Focus 3
<b>WEARABLES</b>	bHaptics Vest	<b>GAMES</b>	12
<b>LOCATIONS</b>	A few	<b>SPECIAL SAUCE</b>	Real VR Laser Tag w/Walls

Limitless VR is the closest thing to VR laser tag that exists on the market today. It combines physical barriers with virtual reality immersion. Creative Works has decades of experience designing and building laser tag arenas, so nobody understands the game dynamics better.



A Limitless VR arena has physical barriers mapped into the virtual space. When you see a wall, you can touch it, crawl around it, and hide behind it. Limitless VR is available in 1800 and 2400 square foot configurations supporting 12 to 18 players. It offers the highest player count and concentration of any free-room VR attraction on the market.

Limitless might not be a death knell for laser tag, but it should provide a kick in the ass for manufacturers to up their innovation game. If you're opening a new FEC and considering laser tag, I would talk to Creative Works about Limitless VR before deciding.

# Compact Free-room

## Springboard VR/Haze

<b>FOOTPRINT</b>	1000	<b>PLAYERS</b>	4
<b>TRACKING</b>	IO	<b>HEADSET</b>	PCVR Focus 3
<b>WEARABLES</b>	bHaptics Vest	<b>GAMES</b>	6
<b>LOCATIONS</b>	Unknown	<b>SPECIAL SAUCE</b>	After the Fall and Arizona Sunshine

Springboard VR is the 800-pound gorilla in the VR arcade market.

They were acquired by **VERTIGO GAMES** in February 2021, which is owned by Embracer Group, a multi-billion-dollar parent of entrepreneurial game companies. Vertigo is consolidating its Haze free-room launcher into the Springboard VR platform. Springboard has carefully curated its free-room library, limiting variety but guaranteeing quality.



Vertigo Games has kept their AAA titles Arizona Sunshine and new After the Fall exclusive to the Springboard launcher.

After the Fall is a AAA squad-based zombie shooter that's a worthy successor to Arizona Sunshine, the most popular VR arcade game of all time. After the Fall trades in the barren desert wasteland of Arizona for the snowy, urban wasteland of Los Angeles. Players must survive a harrowing ride on the metro, traverse small planks at dizzying heights, to clear the city of some horrible creatures.

The weapon selection is fantastic, and the different levels keep the game interesting for the half-hour playtime. The graphics are among the best I've seen on a free-room game. After the Fall runs on PCVR and requires Wi-Fi 6E streaming, ideally to the Focus 3 headset. It's available exclusively via Springboard VR and requires a 33' x 33' one thousand square foot playing area. It supports vibrating floor and wind effects, which increases the immersion. This is a premium experience and should command a premium price.

If Springboard can leverage their developer relations and brand to build their free-room library, they could become the one launcher to rule them all. But for now, the rigid arena size of 1000 square feet and limit of four players per game keep them from dominating the free-room market.

## Hero Zone

<b>FOOTPRINT</b>	400	<b>PLAYERS</b>	6
<b>TRACKING</b>	IO	<b>HEADSET</b>	Native Focus 3
<b>WEARABLES</b>	None	<b>GAMES</b>	7
<b>LOCATIONS</b>	180	<b>SPECIAL SAUCE</b>	The Hangout



**HERO ZONE VR** is the largest free-room platform in the world, with more than 180 locations running their system. It's easy to set up and operate and offers a wide variety of first and third-party games to meet the needs of all locations. Operators love their flexible licensing model. You can pay by the game, monthly, or annually, and you can switch between plans at your convenience. Hero Zone is available as a software download if you want to buy your own hardware or in a turn-key arena for FECs.

Hero Zone's greatest innovation is its virtual basement waiting area, called The Hangout. When players don their headsets, they gather in what looks like the ultimate man cave, with playable arcade games, pizza, and beer. It's a virtual sandbox where players get used to VR. It's a refreshingly different experience, and players love it.

Operators can set up the Hangout so players can vote on which game they want. After each play, they're back in the Hangout voting again. Many locations use this feature to sell half-hour or even hour-long sessions, where a host gets them in the game, and it's unattended for the next hour. Future scenes include a birthday party room with cake, balloons, and party blowers. Hero Zone created the first social gathering space for VR arcades.

*Disclosure: I worked with Pixnami, the developer of Hero Zone, in the early stages of this product's development in 2018. I started working with them again in 2023.*

## Spree Arena from **SPREE INTERACTIVE**

<b>FOOTPRINT</b>	1000	<b>PLAYERS</b>	10
<b>TRACKING</b>	IO	<b>HEADSET</b>	PCVR Focus 3
<b>WEARABLES</b>	None	<b>GAMES</b>	10
<b>LOCATIONS</b>	80	<b>SPECIAL SAUCE</b>	Family Friendly Mini Games



The Spree Arena is the only free-room system explicitly designed for kids under 10. Spree's special sauce is their family-friendly mini games. Most last only 2–3 minutes and require no instructions. With no controllers, kids strap on the headset and play. The games are simple, but they're fun for everyone. Even I love them.

With 10 players in 1000 square feet playing mini games, a Spree Arena can handle over 100 people per hour. This is why chains like Urban Air are rolling it out as a feature in their new urban adventure parks. They offer an extensive library of games like Anteater, where players must swing their giant proboscis noses to catch bugs, to Jump A Cheese, where moon-based mice jump to squish worms and bugs. Their latest game is Splish Splash, a PvP game with sea creatures, played above and underwater.

*Disclosure: I was on the board of directors of Spree from 2019 through 2022. I have financial incentives tied to the sales of Spree products in specific markets. I also helped partner Spree with Urban Air in 2020.*

## Anvio VR

<b>FOOTPRINT</b>	1000	<b>PLAYERS</b>	6
<b>TRACKING</b>	IO	<b>HEADSET</b>	Native Focus 3
<b>WEARABLES</b>	N/A	<b>GAMES</b>	6
<b>LOCATIONS</b>	24	<b>SPECIAL SAUCE</b>	

Anvio started in Russia in 2016 (though their website now says they started in Budapest, likely to avoid political fallout). They opened their flagship US location in Hollywood next to the TCL Chinese Theater. They had four locations in the US at the end of 2022 and a few more scattered around the globe.

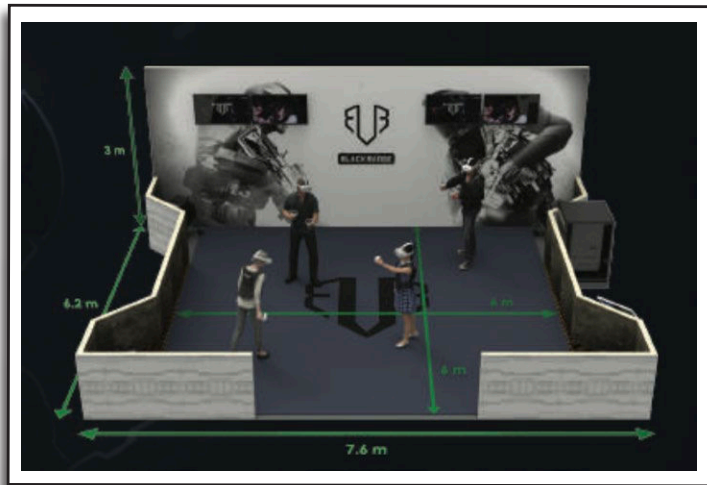


Anvio has a flexible licensing model. You can license their platform and games and purchase your own hardware. They have a VR Park model, which is a complete business package, or you can just license their Game Zone as an attraction.

When I last experienced their content in Russia back in 2019, I thought their City Z zombie game was fun and creative. But their library is small, and the games only support four players. While no upfront cost is associated with their software, they charge a 15% royalty.

### Black Badge VR

<b>FOOTPRINT</b>	400	<b>PLAYERS</b>	6
<b>TRACKING</b>	IO	<b>HEADSET</b>	XR2
<b>WEARABLES</b>	Haptic Vest	<b>GAMES</b>	4
<b>LOCATIONS</b>	Unknown	<b>SPECIAL SAUCE</b>	



I first saw Black Badge VR from the Korean company VRMotion at the VRLA conference in 2017. They exhibited a compact, 3-player zombie shooter in a small enclosure. People were screaming like crazy, and it attracted a crowd. The product never got traction in the west, more due to a lack of market knowledge and distribution than suitability or quality.

They've recently released a new system dubbed MVR, for motion VR. It's a complete platform including an optional directional haptic vest, gun peripheral, and environmental effects controller for wind, heat, and vibration.

### VEX Arena

<b>FOOTPRINT</b>	1000	<b>PLAYERS</b>	10
<b>TRACKING</b>	IO	<b>HEADSET</b>	Native Focus 3
<b>WEARABLES</b>	Haptic Vest	<b>GAMES</b>	3
<b>LOCATIONS</b>	Unknown	<b>SPECIAL SAUCE</b>	

VEX has both hyper reality and compact free-roam systems. Their VEX Arena free-roam system has flexible configurations from 200 to 1000 square feet. VEX offers three different games, each with multiple modes of play. They have a co-op zombie shooter series, a cooking game series, and a multiplayer PvP series.



One of the things I like about VEX games is their use of space. Even playing in their smallest arena configurations, players feel a sense of scale in the virtual spaces. They use teleportation portals effectively to move players around, so they don't feel like they're fighting each other in a closet, which is the biggest problem with many of the other compact free-roam shooters.

### Octopod

<b>FOOTPRINT</b>	800	<b>PLAYERS</b>	8
<b>TRACKING</b>	IO	<b>HEADSET</b>	PCVR Focus 3
<b>WEARABLES</b>	None	<b>GAMES</b>	20
<b>LOCATIONS</b>	80	<b>SPECIAL SAUCE</b>	Modular Play Space

Octopod is a project from the interactive agency Wanadev Digital in France. It's a free-roam system with a robust feature set. Octopod's modularity is unique: using software, it enables the play space to be reconfigured into five different sizes.



Go from an 800 square foot arena to eight room-scale games at the push of a button. Or run two groups of four players each in half the space. They have a large library of first and third party PCVR content, delivered via Wi-Fi 6E streaming to Focus 3 headsets.

### Spawnpoint

<b>FOOTPRINT</b>	500	<b>PLAYERS</b>	6
<b>TRACKING</b>	IO	<b>HEADSET</b>	Native Focus 3
<b>WEARABLES</b>	None	<b>GAMES</b>	2
<b>LOCATIONS</b>	Unknown	<b>SPECIAL SAUCE</b>	



Spawnpoint is a relative newcomer to the launcher scene from UK developer Fennec Labs. It launched in unison with the game Recoil, a PvP shooter. They currently offer one other game, Cops and Robbers, another PvP shooter found on many other platforms.



**VR Esports Arena**

<b>FOOTPRINT</b>	800	<b>PLAYERS</b>	8
<b>TRACKING</b>	IO	<b>HEADSET</b>	Native Focus 3
<b>WEARABLES</b>	None	<b>GAMES</b>	3
<b>LOCATIONS</b>	60	<b>SPECIAL SAUCE</b>	Tournaments

Canadian developer Phenomena is going all-in on esports. They currently only offer first party games on their launcher. Their first game, Versus, is a PvP game where players have a gun and shield and chase each other around a compact map.

Space Dance Harmony is a competitive dance game in the spirit of the hit Xbox Just Dance series. Enter the Duat is a co-op wave shooter where players armed with bows shoot arrows at ghostlike swarms of mummies.

The system is available in sizes ranging from 400 to 800 square feet, in both a software download and turnkey arenas. Their operating system features player profiles, and leaderboards, and they promise character customization later this year.

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# VR Games and Attractions

**LEGEND**

				
UNATTENDED	ATTENDED	VIVE FOCUS 3 HEADSET	ATTRACTION	VR BOBBLE AWARD



# VIRTUAL COASTERS

## Virtual Rabbids: The Big Ride Ultra HD from LAI Games

Virtual Rabbids: The Big Ride created the category of VR arcade motion rides. Rabbids has about 1500 units installed, making it the best-selling VR arcade game based on locations and the number of headsets (or player positions). LAI has shown continued commitment to the platform, having released The Big Expansion Pack in 2019, which increased their library to six experiences, including Space Skirmish, their version of interactive gameplay using head tracking.



Their latest iteration, dubbed Virtual Rabbids: Ultra HD, improves upon the original HTC VIVE system, taking graphics from 2K to a stunning 5K, almost eliminating any screen door effect. It also increases the field of view and frame rate, which should help reduce cases of motion sickness. This is all accomplished with the new VIVE Pro 2 headset and more powerful computers and graphics cards. Unfortunately, LAI hasn't yet offered the Ultra HD as an upgrade.

<b>FOOTPRINT</b> 50 sq ft	<b>PLAYERS</b> 2
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## King Kong of Skull Island from Raw Thrills

Raw Thrills' King Kong of Skull Island has integrated hand tracking as a gaming element into a VR motion ride. Players swat at prehistoric bugs, people-eating plants, and even dinosaurs (watch your fingers) while a jeep careens through a prehistoric forest. With Raw Thrills' expertise in gameplay, the Kong VR ride might be the most interactive of the products in this category.



Raw Thrills is playing from strength to strength, building on their blockbuster Jurassic Park arcade game. Ultimately, Kong appears, but this game is chock full of dinosaurs. And people love dinosaurs.

Kong is a price leader in this segment but suffers from Raw Thrills' use of the HP Reverb headset. The headset straps and cables are frequent failure points.

<b>FOOTPRINT</b> 40 sq ft	<b>PLAYERS</b> 2
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## Storm from Triotech

Storm is a VR motion simulator. It sits firmly behind VR Rabbids: The Big Ride and King Kong of Skull Island in the VR ride market share race. Storm took the original Rabbids concept and added hand tracking to gamify the experience (a feature that the other two quickly copied). For purists, though, it isn't a "video game" but more like grabbing the brass ring on the carousel. It added a level of spectacle for people watching, however, which according to operators, increased revenue. Triotech offers four games for the Storm. The most recent, Sugary Slope, launched at IAAPA 2022.



<b>FOOTPRINT</b> 50 sq ft	<b>PLAYERS</b> 2
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## SpongeBob VR Bubble Coaster from Rilix Coasters

Rilix is a company making a name for itself with an inexpensive VR simulator ride. Rilix has a library of dozens of fantasy coasters, but their collaboration with Andamiro on the SpongeBob Bubble Coaster is their highlight product. Think Typhoon meets VR.



Rilix is priced well below the other products in this category. The cost savings come because there's no motion base. They use butt-kickers in the seat to create vibration, and wind makes a sense of speed. I'm less prone to motion sickness on the Rilix simulator than on the actual motion rides.

Rilix operates hundreds of units unattended in malls across the US and Brazil, so the product has proven reliable. If you're looking for a low-cost, reliable VR coaster, Rilix Coaster is worth checking out.

<b>FOOTPRINT</b> 24 sq ft	<b>PLAYERS</b> 2
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# INTERACTIVE SIMULATORS

## Hologate Blitz: Ghostbusters VR Academy

The Blitz is a 6 DOF interactive driving simulator from **HOLOGATE**. It launched in 2019 with the futuristic hovercraft racing game Hyper GP. It's a racing game that might feel generic on any other platform, but in a smooth 6 DOF motion sim, it is thrilling. But the new Ghostbusters VR Academy was the game that excited me about the Blitz.



In the Ghostbusters VR Academy Blitz game, players take the wheel of a prototype, jet-powered flying Ecto-1 vehicle. When I tried it at IAAPA, the sense of presence was tangible. I just wanted to sit there and push all the buttons. But there wasn't time for that, as I had to navigate the city, flying on the edge of control while trying to capture ghosts and beat my Academy mates in a race to become a real Ghostbuster.

This ride defines wish fulfillment and is one of the best examples of why VR is amazing. Who doesn't want to pilot a flying Ecto-1? Lucky customers of FECs willing to invest will finally get that chance. The Blitz can be configured in two, four, and eight-unit setups.

**FOOTPRINT** 70 sq ft

**PLAYERS** 1



## ParadropVR Pod from **FRONTGRID**

The ParadropVR Pod is an unattended parasailing simulator. It offers solo or multiplayer experiences, so up to four players can fly with friends. Developer Frontgrid added competitive elements with player profiles to track performance in a global online league.



ParadropVR is a spectacle to watch and is another example of VR enabling things people cannot do in real life. For locations looking for something dramatic or adventure parks that want to use VR to create exciting experiences in a compact space, it's worth checking out.

**FOOTPRINT** 56 – 224 sq ft

**PLAYERS** 1 – 4



## Sailor's Quest from Unis

Sailor's Quest VR was one of the IAAPA show's biggest surprises for me. It's an inexpensive (around \$35K) 2-player motion-based VR shooter. The graphics were great, the action was epic, and the motion was smooth. Wind effects even kicked in during certain game moments to heighten the immersion. My only reservation is that they used the HP Reverb headset, which Raw Thrills chose for King Kong of Skull Island. The headset suffers from a high failure rate, with lots of Velcro and elastic on the headbands, which are not designed for high-volume commercial use. If I were buying this, I would invest in four spare headsets so you can keep the game running, as I expect it would generate lots of play.



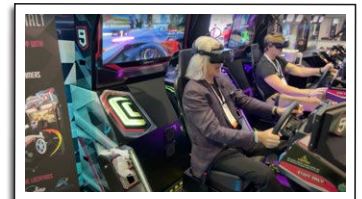
**FOOTPRINT** 48 sq ft

**PLAYERS** 2



## Asphalt 9 Legends VR

The long-awaited VR edition of the popular Asphalt Legends 9 driver from Gameloft, Wahlap, and LAI Games made its preview at IAAPA. Asphalt is one of the most exciting arcade driving titles. It's based on a popular multi-platform consumer game that's become an esports. The game combines realistic car models with arcade driving mechanics into a great arcade driver. The series is in its 15th iteration and has over one billion mobile downloads, so it has a massive fan base worldwide.



I found the motion to be buttery smooth and loved the driving action. The wind added to the immersion and sense of speed. It's the first VR driver that didn't make me sick.

This is another arcade game with the HP Reverb headset. However, it was a pre-production unit, and LAI opted for HTC VIVE Pro for Rabbids, so I hope to see a better headset solution when it ships.

<b>FOOTPRINT</b> 30 sq ft	<b>PLAYERS</b> 1
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### Moto GP VR from Raw Thrills

It was good to see Raw Thrills returning for another VR take after their successful King Kong of Skull Island simulator. Moto GP VR at IAAPA was an early prototype but performed well. Motorcycle racing is the perfect vehicle for VR. The feeling of speed and immersion is impressive when you're speeding around a corner and looking over your shoulder as you pass another rider. It's one of those experiences that VR makes 10 times better than a video monitor.



Once again, the prototype featured the HP Reverb, the same headset Raw Thrills uses on Kong.

<b>FOOTPRINT</b> 28 sq ft	<b>PLAYERS</b> 1-8
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### SpongeBob SquarePants VR: Dynamic Duo

Hold on to your crabby patties! SpongeBob VR is a full-motion, interactive VR simulator from MajorMega, which created Hyperdeck. It's a 2-player co-op experience. The driver plays Patrick, and the other is SpongeBob, who shoots crabby patties. It's a big piece for a 2-player game, but the motion and curb appeal are dramatic. It's a fun, whimsical adventure for kids of all ages.



<b>FOOTPRINT</b> 56 sq ft	<b>PLAYERS</b> 2
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### Hyperdeck

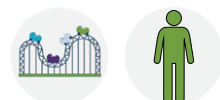
Hyperdeck is a high-end 4-player hyper reality attraction from MajorMega, distributed exclusively in partnership with Creative Works. It offers buttery smooth motion, wind and heat effects, and a unique haptic controller. It recently added the



capability for people in the queue to interact with the players to increase excitement and reduce perceived wait times.

MajorMega games stand out for their quality gameplay and sense of humor. They offer three games, each one is intelligent, with compelling game mechanics. Combined with the extreme immersion of the Hyperdeck, this is an irresistible high-end attraction.

<b>FOOTPRINT</b> 360 sq ft	<b>PLAYERS</b> 4
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### Birdly from Somnics

Birdly is a product that amazed people when it first appeared in 2017. It's done well at VR-centric locations like Two Bit Circus in Los Angeles. In the early days of VR, it sustained a high-ticket price point, but the experience hasn't evolved much. It's a single-player system that requires an attendant, so the economics have always been sketchy.

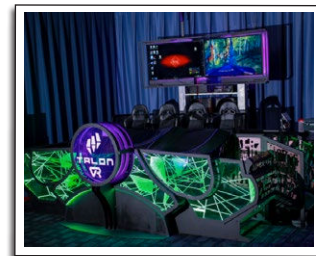


<b>FOOTPRINT</b> 81 sq ft	<b>PLAYERS</b> 1
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### Talon Simulations

Talon is a talented company that specializes in motion simulation. Their claim to fame was their involvement in Dave and Buster's simulator project. They launched a driving and flight simulator in 2019 called the Vortex, installed at some FECs and VR arcades. It comes bundled with 30 experiences, including the Asseto Corsa driving simulator and the NoLimits 2 roller coaster sim.



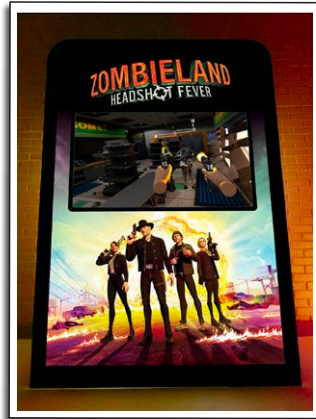
<b>FOOTPRINT</b> 28 sq ft	<b>PLAYERS</b> 1
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# VR ARCADE CABINETS

## Zombieland VR: Headshot Fever from VRsenal

From award-winning VR studio XR Games, Zombieland VR combines the best of light gun games of the '90s with today's racing games. It features the movie characters Tallahassee, Wichita, Columbus, and Little Rock from the blockbuster Sony movies. In the game, they're teaming up in Silicon Valley to run the Zombieland Invitational, the fastest, most dangerous zombie-killing racecourse ever devised. It's reminiscent of the great arcade games of the past, like Time Crisis and House of the Dead. It features cartoon violence, is layered with humor, and is faithful to the source material. The original game was nominated for VR Game of the Year at the 2021 VR Awards. The only negative thing I could read in reviews was that it was too much like an arcade game, which might make it perfect for our industry.



It's the most compact and affordable unattended VR game taking up only 7.5 square feet and weighing under 300 pounds. VRsenal's 2-player version features an integrated gun and headset for easy entry and quick turnaround. Players are into the action within seconds of swiping their cards. VRsenal uses their armored version of the VIVE Focus 3 with a 2-year headset cable guarantee.

## Synth Riders from VRsenal

VRsenal partnered with Kluge Interactive to bring the highest-rated VR music rhythm game to their new Monolith platform. Synth Riders was the #1 rated game on Metacritic released on PS4 in 2021 — not just VR, but of ANY game. It nails the feeling of riding on the waves of music.

The product launched with 20 songs across multiple genres, with five different skill levels for plenty of replay opportunities. Synth Riders features the new armored Focus 3 headset and a 2-year cable guarantee.



<b>FOOTPRINT</b> 7.5 sq ft	<b>PLAYERS</b> 1 or 2
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*Disclosure: I have worked with VRsenal since 2019 on product strategy, marketing, sales, and content licensing. I was involved in licensing Zombieland VR: Headshot Fever and have an ongoing financial incentive from the sales of VRsenal's products.*

## Arkadia Unattended from INOWIZE

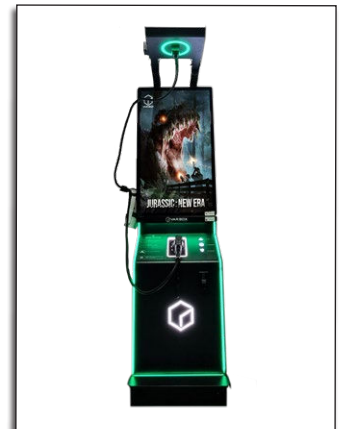
New 2-player unattended multiplayer arcade platform launching at Amusement Expo.



<b>FOOTPRINT</b> TBD	<b>PLAYERS</b> 2
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## VAR BOX from VAR LIVE

VAR BOX is a virtual reality esports platform masquerading as a VR arcade game. The company operates in 10 countries and has over 100K registered players vying for around \$100K in annual prizes. VAR BOX won the AMOA Innovator Award at Amusement Expo and was a finalist for the Brass Ring Awards at IAAPA in 2022.



VAR BOX is a compact VR arcade cabinet with four games.

Two are casual play: Blockade is a zombie hoard game, and Jurassic: New Era is an adventure-based dinosaur shooter. The other two are competitive esports games. Double Tap is a speed and accuracy challenge where players go head-to-head for speed and accuracy. Overkill, a 4-on-4 esports arena shooter, is one of my all-time favorite VR games. Most people I've seen play it say the same thing.

Creative Works and Shaffer Distributing in the US distribute VAR BOX.

<b>FOOTPRINT</b> 10 sq ft	<b>PLAYERS</b> 1-8
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*Disclosure: VAR LIVE, the developer of VAR BOX, approached me in the summer of 2021 and asked for my help bringing the product to the US market. I continue to advise VAR LIVE on distribution and marketing strategy. I am working with TrainerTainment on an education program teaching operators how to implement esports programs with VAR BOX. I have a financial incentive tied to product performance.*

### VR Agent from Sega

VR Agent is a rail shooter brought to VR in the spirit of Time Crisis. VR Agent was the first game to integrate a gun into the headset, which could become the standard shooter peripheral for VR. It makes it easy and comfortable for anyone to walk up and play.



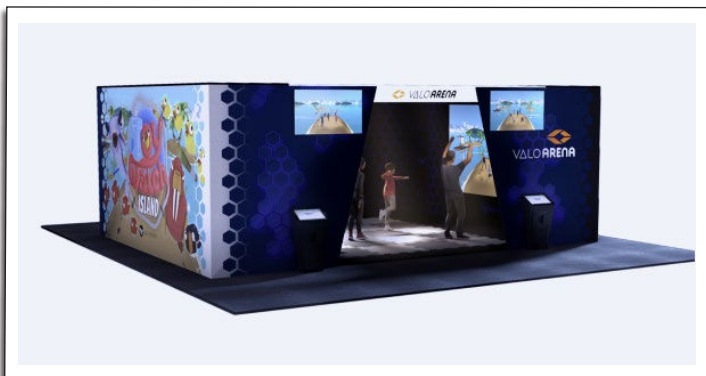
The game features shooting realistic human characters, but there's a family-friendly setting that replaces the human targets with androids. Regardless, it's not as intense or violent as most of the zombie shooters out there.

<b>FOOTPRINT</b> 91.5 sq ft	<b>PLAYERS</b> 2
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## MIXED REALITY ARENAS

### ValoArena from VALO MOTION



The ValoArena is a 6-player, unattended, mixed-reality arena. Players enter a space with hi-resolution projections on opposite walls. Players are tracked in the space, and their video images are projected onto the wall into a virtual scene. The player's full-

body movement is reflected in their real-life image's position, so their body is a full-motion controller.

This is the first 6-player system I've experienced that is unattended. Valo Motion nailed the customer experience. The system has entry and exit kiosks supporting multiple payment and pricing forms. Operators can charge per play, for time, or even give out codes that can be input for birthday parties. The system supports debit card systems too. The exit kiosk offers players a downloadable video that can be shared on social networks to capture email addresses.

The ValoArena comes with three games. Everyone's favorite is the floor-is-lava game called Groundfall. Players must survive 10 rounds of tiles falling away, so they don't drop into the lava. It's sure to spark joy with families playing together.

<b>FOOTPRINT</b> 530 sq ft	<b>PLAYERS</b> 6
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*Disclosure: I worked with Valo Motion in the early stages of this product's development and leading to the launch. I have no ongoing financial relationship with the company or incentive to promote this product.*

### QBIX from INOWIZE

QBIX was one of the systems I was most interested in trying. Every time I went by their booth, they were swamped with customers, so I never got a chance. I did talk to several people who did, and the report was that the games weren't entirely done. Everyone loved the concept, but the jury is out on the gameplay, which will determine whether this is a hit. The game will be at Amusement Expo in its final form with three games, so I expect to have a full review after the show.



<b>FOOTPRINT</b> 530 sq ft	<b>PLAYERS</b> 6
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# MULTIPLAYER ARCADE ATTRACTIONS

## Ghostbusters VR Academy from **HOLOGATE**

Hologate launched the VR arcade game market in 2017. They're in over 400 locations globally. Their 20 titles make up the industry's most extensive game library. The newest game is Ghostbusters VR Academy, where recruits train to become Ghostbusters, traveling through beautifully rendered haunted environments. I love how Hologate employed their bHaptics vest to simulate when the free-floating apparition passes through you. Players use their Proton Packs to trap ghosts and (spoiler alert) ultimately battle the Stay-Puft Marshmallow Man. Do NOT cross the streams.



<b>FOOTPRINT</b>	136, 289 sq ft	<b>PLAYERS</b>	2,4
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*Disclosure: I helped Hologate with its distribution strategy and its initial launch at IAAPA in 2017. I have no financial relationship with the company or incentive to promote this product.*

## Tower Tag Battle Arena from **HOLOGATE**

Tower Tag has been around since 2017. When I first played it, I was blown away. As an OG laser tag player, it reminded me of everything I loved about Laser Storm. It was tactical and competitive. It was primarily played in VR arcades. It's a shame it took six years for it to land on a turnkey platform so FEC operators could use it.



Hologate Battle Arena is the perfect implementation of Tower Tag for FECs. It uses the VIVE Focus 3 and Wi-Fi 6E streaming for high-end graphics. It can handle up to eight players in 400 square feet, one of the most compact systems you will find. Tower Tag Battle Arena isn't entirely free-roam, as players are limited to their individual platforms.

But the unique teleportation system makes the players feel like they're moving across the expansive virtual arena.

<b>FOOTPRINT</b>	200 – 800 sq ft	<b>PLAYERS</b>	2 – 8
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## Arkadia from **INOWIZE**

Arkadia from Inowize is the closest competitor to Hologate in the market's tethered, multiplayer VR arena segment. Arkadia has two unique benefits you want to consider.

First, it can handle six players at a time, which increases the capacity by 50% over other products in this category, letting you run larger groups of friends and families.



They also let two games run simultaneously. So, if you have a group of two players, the attendant can start that game and run another group of up to four immediately without waiting for the first group to play. This amps up the throughput. In a time with labor constraints, these two factors set Arkadia apart.

Inowize has quietly built its library up to seven games, with an eighth coming at IAAPA. Most of their games are player-vs-player which appeals to customers looking to compete.

<b>FOOTPRINT</b>	225 – 285 sq ft	<b>PLAYERS</b>	4 – 6
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## Omni Arena from **Virtuix**

The Omni Arena was the first VR attraction to embrace esports. Virtuix bundled four Omni "treadmills", which mainly appealed to hobbyists and indie arcade owners, wrapped a well-designed customer and operator experience around it, and created a true VR esports attraction. The Omni requires a player to walk and "run" to move around the environment. The competitive, active nature of the attraction makes it unlike anything else in the market. It's a very physical manifestation of an immersive VR experience.



# OTHER VR SYSTEMS

## DIVR from Ballast VR



Ballast VR offers virtual reality for waterparks and resorts. They created a waterproof VR headset that enables locations to turn waterslides and pools into next-gen attractions. DIVR turns an ordinary swimming pool into a VR snorkeling attraction. You can snorkel through the lost city of Atlantis or float in space above the International Space Station. The experience of floating in space was transcendent for me.

Ballast also offers a version called DIVR+ with a sensory device that looks and feels like an underwater sea scooter. It mounts to the side of a shallow pool, cavitates, and emits bubbles, creating a natural sensation of movement through the water. It's one of the most realistic virtual experiences I've done.

Ballast VR is a unique product for a specific market. It's been installed at Kalahari Resorts, Welk Resorts, and even Space Camp in Alabama. Locations report ROI in under six months with DIVR.

<b>FOOTPRINT</b>	N/A	<b>PLAYERS</b>	Unlimited
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Virtuix runs weekly and monthly leaderboard tournaments with a \$100K annual prize pool. Each week the top three players split \$700, and 10 monthly winners vie for \$4700. You can check out the leaderboards at <https://arena.virtuix.com/leaderboards>

Omni Arena offers eight games, with four being team-based esports titles. These encourage groups to practice together, driving repeat visitation. Virtuix rotates the competition to different games weekly and monthly to keep things interesting for players.

Omni offers players their gameplay video after they're done, which drives email registrations for 70% of players. This is a marketing goldmine for operators. I know a few operators are charging as much as \$18 per play, and locations that have embraced all the capabilities of the Omni Arena have seen payback in a year.

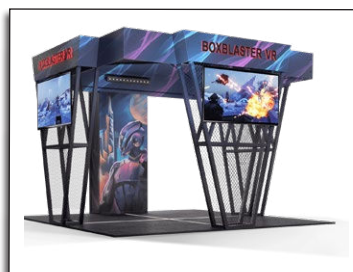
<b>FOOTPRINT</b>	375 sq ft	<b>PLAYERS</b>	4
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*Disclosure: I worked with Virtuix, the developer of Omni Arena, leading up to and through its initial launch at IAAPA in 2018. I have no financial relationship with the company or incentive to promote this product.*

## Boxblaster

Boxblaster is exhibiting its compact, 4-player VR arena. They'll be showcasing two new games added to their library in 2022. A family-friendly game called Hamster Invasion and a competitive sci-fi shooter, Sling Battle. One of the unique features of Boxblaster is its ability to customize the colors of the attraction to meet the brand requirements of any location.



*Disclosure: I worked with Boxblaster on their product strategy during 2019. I have no ongoing financial relationship with the company or incentive to promote this product.*

<b>FOOTPRINT</b>	225 sq ft	<b>PLAYERS</b>	4
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# MEET THE MONOLITH

## Featuring Zombieland: Headshot Fever

THE WORLD'S MOST PROFITABLE VR GAME PLATFORM

### The Monolith Features:

- No moving parts
- High throughput - 40 plays per hour
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- Proudly manufactured in the USA



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Lock 'n' Load!



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DOUBLE TAP ZOMBIES IN THE HEAD TO SLOW DOWN TIME

## Experience Multiplayer Zombie Mayhem in the Perfect Arcade Package

- + High-throughput - 40 plays per hour
- + Players blast their way through hordes of rampaging undead
- + Characters from the hit movie franchise offer encouragement (and sarcastic criticism) along the way
- + 10 levels of zombie-slaying mayhem
- + Backlit graphics make this a standout piece on any game floor, drawing players to check it out
- + Customized guns with mounted headsets, making for the fastest ingress and egress possible to earn you the most revenue

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