

Valve's virtual reality apps with the HTC Vive headset won't make you seasick

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Valve-powered HTC Vive VR headset.

Image Credit: Dean Takahashi

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BELLEVUE, Wash. — I traveled here to get a download on the latest in virtual reality. [Valve's SteamVR](#) system is a hardware and software system for displaying virtual reality applications, where you look into stereoscopic goggles and feel like you're immersed inside a virtual world. After seeing a lot of virtual reality demos over the past couple of years, I was impressed. Valve's system, which is expected to hit the market in the fall as HTC ships its Vive headset and other hardware, didn't make me sick.

That's always a plus when you don't throw up. The imagery of the simulated world keeps up with the movements you make. The precision of the system — designed by Valve and implemented by HTC — is purposely designed to minimize motion sickness, said Jeep Barnett, a game programmer at Valve who ran my demo. And the quality looks so good in the room-scale, 360-degree view experience that it remains the technology to beat in virtual reality.

Valve remains one of the most interesting companies in the game industry, as it controls its own destiny. Founded by former Microsoft employees Gabe Newell and Mike Harrington, the company started out in 1996 as a game developer, and its first game, Half-Life, was a huge hit when it debuted in 1998. It produced hit after hit, and along the way, it created the Steam digital distribution service on the PC. Now Steam has turned Valve into a digital game distribution giant. Now it sees itself as providing some much needed openness and independence in gaming, providing technologies that many companies can use. Its rivals like Microsoft or Facebook's Oculus are more inclined to support proprietary technologies, and that's why Valve is moving forward with [open projects](#) such as SteamVR.

SteamVR is very different from the better-known Oculus VR headset. SteamVR uses timing sequences in a PC along with the laser light from spinning lasers in two separate Lighthouse base stations (or laser boxes that are plugged into outlets and are placed in two different places in a room). These lasers hit the different sensors that are embedded in the headset. Depending on the timing of when the lasers hit the sensors, the PC figures out the position and angle you are facing with the headset.

The PC then shows you the view that you should be seeing, given the position of where you are facing. The lasers are not acting like Kinect cameras in the Microsoft Xbox One and Xbox 360 game consoles. Those systems send light signals out and then capture them as they bounce off of objects

and return to the camera. That kind of system takes an extreme amount of processing power to track multiple objects. It gets exponentially harder the more objects you add.

Getting ready to wear the headset



Above: Valve programmer Jeep Barnett with the HTC Vive headset.

Image Credit: Dean Takahashi

By contrast, the Valve system doesn't measure anything bouncing back. The sensors that are struck by the laser light send signals back to the PC over a wire (which is why, for now, the headset is wired). The PC then calculates the 3D space around you.

"The way the system is designed is very performant," said Barnett, in an interview with GamesBeat. "On the same PC, you can track hundreds of objects, all very easily."

The number of objects you can track are independent. You can have four or five people wearing headsets and be in the same area with just two base stations tracking all of the headsets.

"You just want coverage of the room from every direction," Barnett said.

The headset fit right over my glasses. I pulled back on the strap, put my face into the mask, and then lowered the strap around my head. I snapped on a belt to keep the wires in the right place behind me. There were about five wires, but that will be simplified to one wire in the final version.

Then Barnett put two wired controllers in my hands. They were like vertical sticks, with trackpad buttons on top, more buttons around the grip, and a forefinger trigger in the front. I pressed the trackpad button with my thumb. I squeezed the grip with my fingers to activate the grip buttons.

“This isn’t the final design we will ship, but it’s pretty close to what we will have for the dev kits that we will ship next month,” Barnett said. “The controllers that ship will be wireless, while these ones are obviously wired. When the controllers are wireless, the belt isn’t necessary.”

The last step in preparations was to add an audio headset on my head. The final version of the goggles will have headsets built into them. The audio uses 3D positional audio, so you can tell what direction the sounds are coming from.

I stood up and was able to walk around. I looked down and saw blue lines on a grid at my feet. That was the safe area where I could walk. If I walked toward a wall, a blue grid of vertical lines appeared to warn me that I was about to hit the wall. If I walk away from the walls, they fade away. That was a built-in safety mechanism.

“You don’t have to know where the walls are in your conscious mind,” Barnett said.

You can specify what the safe area will be for any room in your home. Games created for Steam VR will recognize where the safety area is, and configure the virtual environment to match it.

Hands-on with Valve’s VR demos



Above: The Blu in VR

Image Credit: Valve

The demo started with The BluVR: Encounter, an underwater ocean simulator. I was standing on the deck of a sunken ship. The deck area matched the part of the floor where I could walk safely without running into a wall. So it was smart to map the walkable area of the simulation with the same space where I could walk safely without tripping over anything. I saw fish swimming in every direction, as well as manta rays. But the manta rays weren't animated perfectly. I saw ghosting (or double images) around the rays. Then I turned in another direction and saw a giant whale swimming next to me. It was a huge whale, and it only seemed that way because I was standing so close to it. The demo was created by [Wevr](#).



Above: Owlchemy's Job Simulator.

Image Credit: Valve

In the next demo, I saw the [Job Simulator](#), which was a cooking demo set in in a kitchen. A robot named Job Bot walked me through the prep. I had to read the recipe on the screen and then use the hand controllers to make tomato soup. I had to pick up a couple of tomatoes, put them in a pot, and then grab some mushrooms and put them into the pot as well. I had to shake some salt into the pot, and then turn it on. The demo was made by Owlchemy Labs.

Job Simulator - Sriracha Teaser by Owlchemy Labs



Then I saw a non-interactive tabletop wargaming simulation.

[Steel Wool Games](#) created a tabletop battle, dubbed Quar, where a bunch of creatures were attacking a fortress. I was planted right in the middle of the battlefield. I could watch the soldiers

attack while defenders in trenches fired back with rifles. I saw the attackers slowly get hit, one by one. The visuals were pretty cool, and the battle unfolded before me. Eventually, the attackers on foot and mounted creatures were all killed, and the demo ended.



Next, I looked at Tilt Brush, a 3D sketching and painting demo from Skillman & Hackett. I used my hand controllers to pick up paintbrushes and start coloring the 3D space with neon lights. I could rotate the images to see them from any direction and scribble away. I made a funny happy face with a bunch of different colors. It was a lot of fun, though I didn't create anything worth saving.

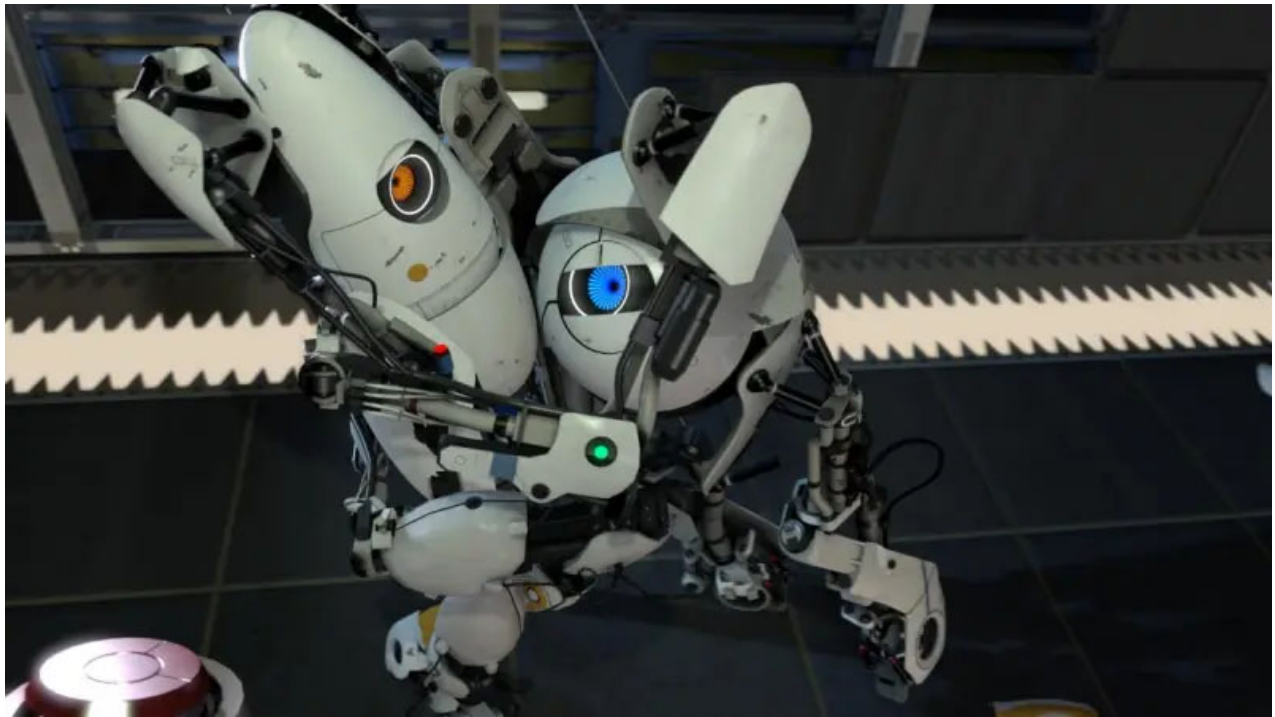


Above: Google Earth in VR.

Image Credit: Google

Google also created a 3D-animated version of Google Earth in VR. I saw the Matterhorn in all of its 3D glory, as well as downtown San Francisco, and the stony walls of Bryce Canyon. It didn't have any interactions, but it paged in live data. That included data on the mountains and how high they were. The images looked good, but I couldn't do anything with them. But there was a lot of detail. I found VentureBeat's offices in San Francisco.

"This uses the live data set," Barnett said. "If I unplug the Internet, this will disappear."



Above: Robots from Portal in VR

Image Credit: Valve

Valve also created a demo of Aperture Laboratories, the fictional research lab from the Portal series of games. In the demo, GLaDOS, the homicidal artificial intelligence system, teases the test subject (me) and instructs me on a comical way how to repair a robot. GLaDOS gave me instructions on what to do, but then started spouting the directions out far too fast for any human to follow. I reached out and pressed buttons, or spun the robots exploded view components around.

There were a few other apps for surgery simulation, fishing, and one called Sky World. They weren't updated for the latest controller, so I skipped them.

Why you don't get seasick



Above: Valve's VR Lighthouse base station

Image Credit: Dean Takahashi

The stereoscopic headset was showing me images in each eye at a rate of 90 frames per second, or 90 hertz. I felt like I was inside a 3D world, an ocean surrounded by blue water. The main challenge of making sure you don't get sick is that you need a high frame rate and accurate tracking. The system has submillimeter accuracy on location because of the data coming in from the base station and the sensors. It takes just 17 milliseconds to render a frame, far less time than is noticeable by the human eye. The gyroscopes in the headset predict your future head direction and then predicts which images you should see.

"The system allows us to get extremely accurate information that is easy to process," Barnett said. "The heavy lifting is in the rendering of pixels, which depends on how many pixels we are pushing into the display."

The number of pixels is 1,200 x 1,080 pixels per eye. That requires an Nvidia GeForce GTX 980 graphics card, which in a few months will be a mid-range machine. A phone (like Samsung's Galaxy Note 4 with the Samsung Gear VR headset) can't process this kind of data quickly enough yet. The organic light emitting diode (OLED) displays inside the goggles have to be "low persistence," meaning they show you what you need to see so that you don't get dizzy from motion blur. You don't want objects to bend or smear when you turn your head. These displays have to have high refresh rates and display the pixels all at once.

The lenses in the goggles account for the curvature of your eye. If you are fixated on a single point and you rotate your head, the world doesn't seem like you're underwater, and it looks normal.

"We found that tracking was really hard until you get a good solution," Barnett said.

Conclusion

The result of all of Valve's work and attention to detail is a remarkably accurate and seasick-free VR system. Valve has been working on the system for four years, and HTC expects to ship the first products in November 2015. Dev kits are shipping in a short time, and that will lead to more apps.

We've certainly waited for a good experience in VR for a long time, and I think that Valve has finally created it. I'm looking forward to seeing the final hardware and more cool applications.

The leap from wired to wireless will be very difficult, as wireless systems have limited bandwidth and have the challenges of operating on battery power. The battery with current technology might last just 30 minutes.

"With the pixels comes heat and battery power," Barnett said. "As soon as you put a cooling system on the headset, like a fan, it makes noise and rattles, and that causes problems."

Over time, you might be able to operate a wireless headset with a lot of battery power.

"Certainly not this year though," Barnett said.



Above: HTC Vive virtual reality headset uses SteamVR

Image Credit: Valve

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Thriving in the modern data landscape: The importance of partnership ecosystems

VB Staff

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Image Credit: Adobe Stock

Presented by BlueCloud

“To thrive in a world where data is the foundation of every product and every service, data and analytics companies have to unite,” says Bill Tennant, CRO of BlueCloud. “Data product companies need to rely on networks of partners to expand capabilities and successfully deliver on the data-driven goals and challenges of their end customer.”

It’s especially crucial in a world where the modern data stack is playing an increasingly vital role for customers seeking the competitive advantage that comes from data-driven insights. But while “data-driven” is a common term, it’s also an approach that still poses significant roadblocks for many organizations.

“Unlocking the value of data is critical, but many companies lack the skilled resources able to handle end-to-end data access, especially when it comes to the increasingly large data sets that harbor deep insights,” Tennant says. “Digging insights out of that data, when you’re talking about 40 billion rows of transactions, is the challenge most companies are looking to solve.”

With a best-of-breed vendor and service provider alliance, companies’ most urgent challenge — accessing the power of data — can be eliminated through end-to-end product delivery, support for strategic initiatives and faster project implementation. Joint insight can help companies develop use cases that directly impact the bottom line. And it’s all supported with centralized data management and automation, scalability, integration and technical skill, and the insight necessary to pull off innovative data initiatives.

Tennant points to BlueCloud's strategic partnerships with cloud data warehouse provider Snowflake and data analytics company ThoughtSpot, which let them pair their best-in-class data products with its own end-to-end delivery, expand their reach, shared innovation and more.

"Partnerships between technology companies in the world of data and business intelligence provide customers with an array of benefits that ultimately result in better solutions and outcomes for customers," Tennant says. "That includes access to a wider range of products and services, improved integration and interoperability, greater innovation, increased efficiency and cost-effectiveness and access to specialized expertise."

Here's a look at how partnerships are driving market value and revenue while helping modernize the data stack.

From customer care to product innovation

PRODUCT INNOVATION

For product companies, an implementation partner can offer invaluable insight into the modern data stack, and how customer needs are evolving — which leads to even more new products, services and competencies for those companies. Tennant points to a solution aimed at easing the staffing crisis in nursing where retention has become a primary concern for healthcare organizations.

To measure staff sentiment, organizations can use regular surveys. But today, with cooperation between product and services companies, data can also be pulled in from technologies like wearables, and pushed into a centralized database for healthcare leaders to action.

UNLOCKING VALUE FOR END CUSTOMERS

When a company demands more from its data stack, partners can work together to uncover more capabilities. For instance, in basic financial analytics, data is pulled from multiple sources to align and reconcile reports, which are delivered to the end user — and it's a fairly straightforward process. But when a company wants to start looking at what-if scenarios and predictive revenue analytics based on current market conditions, the complexity jumps by several magnitudes. In this case, BlueCloud might add the ability to create, consume and operationalize data-driven insights by bringing ThoughtSpot to the table.

"A lot of product companies can sell a vision for a customer's data, but you need best-of-breed partners to actually implement it, and do it successfully every single time," Tennant says.

“Without partners, it’s a real struggle to innovate for your customers outside a core competency.”

CUSTOMER CARE

A partner network provides quality support and guides joint end customers through any data and analytics project. To deliver on their product’s promise, product companies need highly technical, architect-level experts versed in how a product functions in a company’s tech infrastructure.

Partnering with service companies means being able to tap that expertise in a way that improves both the delivery and the end customer’s long-term success with a product. Conversely, a service company can improve implementations with in-depth vendor knowledge and experience at hand.

“Data and analytics products are change agents. They can transform a company when they’re implemented correctly,” Tennant explains. “A delivery company associated with a specific product has a partner that knows how to take advantage of a modern data stack, and in return offers the ability to drill down to the real needs of the company’s business, achieve value and find new avenues of opportunity and innovation together.”

DIRECT IMPACT ON SALES

In the SaaS space, a vendor’s sales team has a high level of technical expertise, experience and knowledge — their product is their bread and butter, and they know it inside and out. With a few core vendor partners, a service company has that in-depth knowledge at their fingertips, and can offer joint customers the technologies they know will slot most effectively into their needs. Partners can also provide prospecting, and net new customer opportunities for both companies.

“A good partner is strategically focusing on the market,” Tennant says. “The sales team sees immense value from that, because doors to multiple new areas are opening, with new accounts as well as existing accounts.”

Partnership in action

ThoughtSpot has been working with BlueCloud since its inception, says Kuntal Vahalia, SVP WW Channels & Alliances at ThoughtSpot, and the partnership forms a cornerstone of their customer success strategy.

“We work with our partner community to deliver the most value possible to our end customers,” says Vahalia. “It’s all about meeting customers where they are and delivering world-class customer care, listening to their pain points and needs, and co-innovating to rapidly decrease their time to market.”

From the beginning of the customer journey, BlueCloud helps the ThoughtSpot team solve customers' pain points and deliver impactful outcomes, Vahalia says, by navigating the account, evangelizing, providing intel to its team around challenges and sourcing new use cases and opportunities to expand its footprint. Once a new customer has signed on, BlueCloud provides a seamless transition.

"Their team is exceptional at ensuring the customer has a successful experience," he says.

"BlueCloud helps our customers drive adoption across their organization by providing mentorship that helps drive the customer's new data operating model, kicking off the transformation into data fluent cultures and organizations at high velocity."

Building channel partner alliances

In these partnerships, both companies are earning revenue and delivering faster results, Tennant says, but when entering a relationship, expectations must be clarified and the shared program must be clear. It's also critical to provide support, resources and onboarding, to position the partnership to offer value.

"If you're bringing a partner on board and that partner is only coming with their hand out asking to be given deals they can implement for you, you're missing something," Tennant explains. "It's key to define parameters out of the gate, and select the right partners to invest."

Valhalia agrees, saying, "Channel partners should be integrated into core go-to market motions across the customer lifecycle. It's important to treat channel partners as an extension of your company as opposed to a transactional partner executing resell paperwork. Fierce collaboration — and solving for outcomes — offers the best partnership annuity for the vendor, the channel partner and the end customers."

And size does matter — some companies number their partners in the thousands, but how do you strategically align to 1,000 partners? It can result in a lack of attention, a lack of opportunities, and a partnership in name only, essentially. Focus on the partners with products you believe in, that align with your own company goals.

"If you have only a few partnerships, especially if they're exclusive, there's an element of trust and relationship and give-and-take," Tennant says. "That allows you to make sure your customers are taken care of, and your team is growing."

[Learn more here](#) about strategic partnerships and how they can open up new opportunities while improving everyone's bottom line.

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