STRIVR

Strivr system overview

Version History

Version	Date	Author	Rationale
2.1	06/23/2021	Chris Vickery	• Establishing version control • Moved version off cover, into this table
2.2	02/15/2022	Chris Vickery Siddhant Sahu	• Updated VR headset section for 6DoF offerings • Added capability matrix in Mobile Device Management section
2.3	12/02/2022	Chris Vickery, Siddhant Sahu	• Added extended detail on Strivr platform offering • Added information on Strivr native device management
2.4	05/31/2023	Chris Vickery, Siddhant Sahu, Adam Rukin	• Modified Customer-Managed MDM table

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Strivr software platform

Strivr aims to elevate performance through immersive experiences. Strivr's end-to-end Immersive Learning solution uses commercially available virtual reality (VR) technology to scale and integrate this new training medium into existing learning ecosystems.

Strivr's software platform is based on a scalable, secure, and compliant infrastructure. It powers the creation, management, and experience of Immersive Learning with a unique level of data-driven insights and analytics. Strivr software comprises five major components, some of which are currently not exposed to the customer: Device management, Content management, In-headset experience, Analytics and reporting, as well as authoring tools including a software development kit and low-code/no-code software.

Strivr In-Headset Applications

Strivr's in-headset experience provides intuitive, immersive experiences for self-guided or facilitator-led sessions, including lessons, activities, and assessments designed according to Immersive Learning best practices to yield optimal analytics. Strivr currently offers the following in-headset applications as a part of the standard platform offering:

Strivr Player

Strivr Player is the runtime client for in-headset experiences on virtual reality headsets. Strivr Player software can be installed on HMD models as stipulated in the Hardware Support section.

Strivr Player is composed of the following functionalities:

User Acclimation

Strivr Player provides a seamless login experience for the learner by walking them through a set of introductory screens that help a user get accustomed to the virtual reality environment. The user is presented with a 3D lobby wherein several placards walk a user through a welcome screen, sceneview re-centering, headset fitting, controller handedness, self-identification, and health & safety warnings (if applicable).

Kiosk Mode

Strivr Player runs in kiosk mode which prohibits a user from exiting Strivr Player into the main headset user interface. Kiosk mode enables the customer to lock down the user experience of the learner to a single application, thus creating a layer of security and ease of use.

Immersive Learning Menu

Upon successful login to the Strivr Player application, the learner is presented with a menu of available content available on that specific headset. Strivr uses a standard methodology to structure the content using the following hierarchy:

1. **Courses**: Courses group one or more modules; a way to organize different pieces of content that represent a common theme or set of learning objectives.
2. **Modules**: Modules group one or more experiences that may represent a common theme or set of learning objectives.

3. **Experiences**: Experiences represent individual pieces of content that may focus on a specific learning objective.

Content Support

Strivr Player supports both 3DoF & 6DoF (degrees of freedom) content. Furthermore, Strivr supports 360-degree video and CGI (computer-generated) content. These concepts can be explained as follows:

Degrees of Freedom

Degrees of freedom (DoF) refers to the number of basic ways a rigid object can move through 3D space. There are six total degrees of freedom. Three correspond to *rotational* movement around the x, y, and z axes, commonly termed pitch, yaw, and roll. The other three correspond to *translational* movement along those axes, which can be thought of as moving forward or backward, moving left or right, and moving up or down.

3DoF means we can track rotational motion but not translational motion. For the headset, that means we can track whether the learner has turned their head left or right, tilted it up or down, or pivoted left and right. It is the simplest form of motion tracking in VR, relying on built-in sensors (accelerometers, gyroscopes, and magnetometers) that are used to measure movement.

6DoF means we can also track translational motion. That means we can track whether the user has moved forward, backward, laterally, or vertically. Leveraging translational motion capabilities gives the user much more freedom to explore locations, inspect details, and perform real life tasks in VR.

360 Content

360-degree videos, also known as surround videos, immersive videos, or spherical videos, are recordings where an omnidirectional camera or a collection of cameras record video in every direction simultaneously. During playback on a normal flat display the viewer has control of the viewing direction like a panorama. 360-degree video is typically recorded using either a special rig of multiple cameras, or using a dedicated camera that contains multiple camera lenses embedded into the device, and recording overlapping angles simultaneously.

Strivr Player supports 360 content created natively by Strivr's content solutions team or by third-party content partners. 360 content is limited to 3 degrees of freedom.

Computer Generated Content

Computer Generated Imagery (CGI) is most commonly used to refer to the 3D computer graphics used for creating characters, scenes / animations, and environments and other special effects in immersive experiences.

Strivr supports both 3DoF & 6DoF experiences for CG content types and has deployed content natively produced by Strivr content solutions teams as well as third-party developers.

For more information on integrating third-party content with the Strivr platform, please refer to developer.strivr.com.

For more information on Strivr's content support, please reach out to your Strivr account team.

Content Types

First-Party Content

First-party content consists of content that's created using native Strivr authoring tools Strivr Creator for 360 Video and Strivr Creator for Dialogue and is exported in the form of a "content asset bundle" which is a bundle of various audio, video, and corresponding configuration files that is natively supported by Strivr Player.

Third-Party Content

Third-party content consists of content that is published and created by third-party content creators. These can be specific content partners with whom customers work. Third-party content can be integrated to the Strivr platform using the Strivr SDK.

Development Engine

Strivr currently supports content that is developed / compiled using Unity's game development engine. The minimum supported version is 2019.1.x

First-Party Content Features

Strivr provides the following content features that can be embedded in a 360 or CG content training:

1. **Overlays:** Overlays are the basic building block of the immersive content created by Strivr. As a learner is going through an immersive experience, information overlays surface information relevant to a specific scene or the experience as a whole. A learner clicks through these information overlays to progress through the experience.
2. **Scene Explorations**: Scene explorations acquaint a learner with the 360 / CG environment. The learner can select points of interest, activating informational placards.
3. **Multiple Choice Questions**: Multiple choice questions test a learner's knowledge during a training experience by presenting multiple potential answers for a specific question, surfaced on a placard within the environment. The learner selects the answer they think is accurate based on their understanding of the experience. The training may or may not reveal whether the question was answered correctly. In some cases, the training experience may also branch into different portions of the 360 video based on the learner response.
4. **Timed Scene Hunts**: Timed scene hunts prompt the learner (via placard and/or voice-based direction) to select relevant objects within the environment within a time limit. After all objects or areas of interest are selected or time is up, the learner may be provided feedback on their level of success and information about the selections.
5. **Voice Recording & Playback:** Voice recordings allow a learner to participate in a virtual dialogue flow they can record and play back, then assess the efficacy of their response. This is specifically used in various types of soft skills training.

Content Downloads

Strivr Player enables over-the-air content downloads to the VR device from Strivr Cloud. Strivr Player provides the capability to download this content over several network types (WPA 2 / PSK, Cert Based WiFI) and can be configured to function in tandem with a firewall. This happens provided that:

- The Strivr Player installation on the device is provisioned against a specific Strivr Cloud tenant.
- The headsets are connected to a WiFi network that allows access to Strivr Cloud URLs. Refer to Network / WiFi Setup for more information.

Telemetry Uploads

As a learner goes through an immersive experience within Strivr Player, the application collects telemetry metrics including performance, usage, and behavioral data. Strivr Player encrypts and securely stores the telemetry files on the local headset storage and uploads them to the Strivr Portal on a periodic basis. This telemetry is then stored on the Strivr Cloud and is surfaced within the Analytics section of the Strivr Portal.

Strivr Platform Manager:

Strivr Platform Manager / HMD manager is an application that is installed on the headset alongside the Strivr Player application and functions in the foreground to report key device metrics including:

- Battery Level
- Storage Information
- OS Version
- Other device information such as firmware version

Strivr Cloud

Strivr Cloud is a public cloud-based SaaS offering provided to create a connected experience for enterprise customers, their respective learners and deployed virtual reality devices. Strivr Cloud collects all the learner, content, device, and corresponding business information and provides the following functionalities:

Strivr Portal

Strivr's Portal is a user-authenticated & self-service web application that allows customers to

- Check device connectivity and metadata as well as trends over time
- Upload, deploy, remove, and track content
- View analytics dashboards for performance, usage, and sentiment data.

Each of these functionalities works in tandem with native Strivr cloud services which are explained below.

Device Health & Tracking

Strivr provides the capability of searching and tracking the device connectivity and health of virtual reality headsets provisioned against a customer tenant. Key components of the device management service are as follows:

1. **Device Asset Tag**: Unique identifier used to search for a device within the Strivr portal.
2. **Device Connectivity**: Tracks whether or not devices are online/connected to the Strivr portal, and involves tracking key operational components of the fleet such as last telemetry upload timestamps.
3. **Storage & Content**: Device data including the total storage on the device as well as the content courses that are either deployed on the device or scheduled for deployment.
4. **Technical Details**: Includes key infrastructure / device components such as connectivity, battery levels, and installed Strivr in-headset software versions.
5. **Device Trends**: Provides insights into device connectivity status over a time span and generates corresponding exportable reports.

Location Management

Strivr provides the capability to group pools of headsets by location. Devices can be assigned to and removed from locations. Locations are used to select groups of headsets to receive a content deployment and to differentiate analytics data.

Content Management

Strivr's content management service enables remote management and deployment of immersive learning courses to virtual reality headsets. This includes the following:

1. **Content Uploads**: All types of supported content (including content in testing / development and in production) can be uploaded to the content management service and surfaced to the Strivr portal. This can be accomplished by uploading content via Strivr Creator. Content deployment can be targeted by locations defined within the Strivr portal.
2. **Content Deployment:** Users can deploy content to devices in specific locations within the customer's environment.
3. **Content Removal:** Users can remove content from specific locations which then removes it from the device's local storage.
4. **Content Deployment Tracking:** Users can track all content deployments (including removals) across the fleet.

Strivr Creator

Strivr Creator is a proprietary immersive content creation tool based on behavioral science and L&D best practices, which allows Instructional Designers and customers to create educational modules on top of 360-degree videos or CG-generated assets with rich data-collection capabilities. Strivr currently has the following offerings for the Strivr Creator application:

1. **Strivr Creator for 360 Video** is a desktop client used by instructional designers to author 360 content, leveraging the content features listed above. Content can be authored via a event-based timeline view, packaged into experiences, programs and modules and distributed to the content management section of the Strivr portal.

2. **Strivr Creator for Dialogue** is a web-based application used by instructional designers to author CG based dialogue content, especially for soft skills training. Strivr Creator for Dialogue comes preloaded with an asset library that includes various environments, characters, and animations and provides a user the capability to put together a storyline for a dialogue experience using an event-based builder.

Strivr SDK (Software Development Kit)

Strivr provides an SDK for third-party developers to produce training experiences that send learner results to the Strivr Portal for customer review. To obtain the SDK and relevant documentation, contact your account manager.

Mobile Device Management

Strivr Native Mobile Device Management

Strivr provides a native device management option alongside its platform offering that supports remote and automated provisioning and subsequent management of deployed virtual reality headsets. Strivr leverages VMWare WorkspaceONE's Unified Endpoint Management to provide this extended device management solution for its customers. For more information about the underlying platform, please refer to WSO UEM documentation. This functionality is leveraged on a case by case basis, especially for pilot implementations and instances where customer-owned MDM infrastructure is not compatible with virtual reality headsets. Please contact your Strivr account team to evaluate whether this functionality may be applicable to your environment / implementation.

Customer Managed MDM

The Strivr platform is designed to work with customer MDM (Mobile Device Management) systems. Once enrolled in an MDM, customer administrator users can monitor and track device content and usage, block unapproved applications, enforce IT policies across devices, control network access, and control content flow to the device. Customers without an MDM can still use the Strivr platform without this level of control.

Capability	Strivr Native MDM	Customer Managed MDM
Installing Applications, Firmware & OS		
Download, install, manage Strivr apps	✔	✔
Download, install, manage third-party applications	✔	✔
Update device firmware/OS	✔	✔
Automated device provisioning	✔	✔
Network Connectivity, Monitoring, Integrations & Support		
Enterprise network config (connect to corporate Wi-Fi)	✔	✔
Integrate with network monitoring tools	✔	✔
IT integrations (e.g. ServiceNow)	✔	✔
Customer Tier 1 Support Team	✗	✔
Policy Enforcement		
Device groups and group policy (ADB, Kiosk Mode etc.)	✔	✔
Securing device with PIN locks	✔	✔
Other Settings		
Timezone configuration	✔	✔
Remote wipe & other remote security features	✔	✔
Privately managed infrastructure (private cloud, on-prem)	✗	✔
Content		
Deploy Strivr native content	✔	✔
Deploy third-party content & subsequent updates	✔	✔

Infrastructure & Security

Strivr Cloud services are hosted on or use Google Cloud Platform (GCP), where the services and data are stored on secured, encrypted servers.

Multi-Tenancy

Strivr operates in a multi-tenant model wherein each of these tenants are logically isolated but physically integrated. For more information on multi-tenancy and detailed architecture, please contact your Strivr account team.

Software system security

As a SOC 2 Type 2 certified company partnering with Fortune 500 companies, Strivr is committed to security, privacy, and compliance. Not only does Strivr perform a yearly audit of internal processes, Strivr also expects all of its vendors and sub-service providers to conform to the same level of compliance.

All training content and data is hosted and stored on GCP, segregated by customer, ensuring that each customer's data is not visible to unauthorized stakeholders.

Hardware Support

Current Support

Strivr provides training modules on 3DoF (3 Degrees of Freedom) and 6DoF (6 Degrees of Freedom) VR equipment. As 6DoF headsets become the standard for VR, Strivr will focus future development on 6DoF experiences while still supporting 3DoF experiences and headsets. The table below shows specifications for headsets currently supported by Strivr.

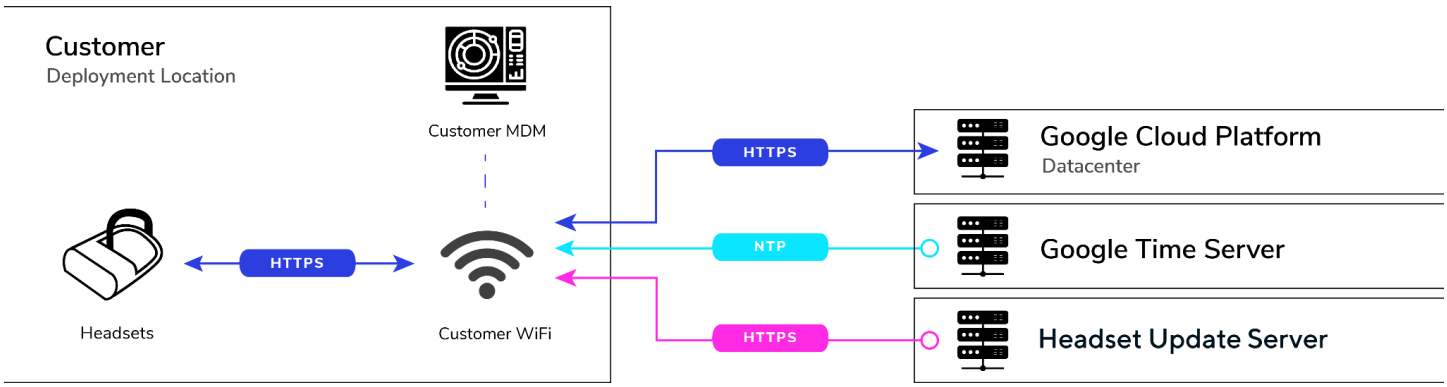
	Pico Neo 3	Pico G2 4KS
CPU	Qualcomm XR2	Qualcomm Snapdragon 835
Memory	256 GB (ROM) / 8 GB (RAM)	64 GB (ROM) / 4 GB (RAM)
Refresh Rate	72 - 90 Hz	74 Hz
Lens and Fleld of View	Fresnel - 98°	Fresnel - 101°

Display Resolution	1832x1920 / eye	1920 x 2160 / eye
Video Resolution Support	Up to 8K	Up to 6K
Weight	620g, 395 grams w/o band	470g, 278 grams w/o band
Tracking	6 DoF	3 DoF
Battery Life	3 Hours	3 Hours
Operating System	Android 10 (AOSP)	Android 8.1 (AOSP)
Supported WiFi	WiFi 6 (802.11ax - 2.4 Ghz/5 GHz)	WiFi 6 (802.11ax - 2.4 Ghz/5 GHz)
Controllers	Two	One
External Camera	4 mono fisheye cameras	N/A

Connectivity

Hardware component connectivity

Connectivity from the headset to the MDM and to the Strivr cloud is provided through the headset's internal WiFi, which automatically connects to on-site WiFi when the headset is connected to power. The connection is used to transmit the status of the headsets and to receive application and firmware updates. This connection is also used to transmit training results and receive training content to and from the Strivr cloud. Content pushes occur infrequently (once per module version.) Content is stored on and served from the VR headset and is not streamed to the headset for each training session.



Connectivity between the headset and the Strivr cloud uses secure protocols during the transmission of device and

content management process data. The headset receives initial application installation and occasional updates from Strivr. Strivr recommends a stable and robust customer network with the following speeds:

	Minimum	Ideal	Excellent	Network Type
Download Speeds	7.5Mbps	20Mbps	30+Mbps	5G / 2.4 G
Upload Speeds	2.5Mbps	10Mbps	15+Mbps	5G / 2.4 G

HTTPS

All data connections between the headset and the cloud are over a secure HTTPS channel. These connections encapsulate content files that are downloaded to the headsets and telemetry files—with a learner's session information—that are uploaded to the cloud.

NTP

The headset needs to sync periodically with a time server, using the NTP protocol, in order to ensure that timestamps of sessions are accurate and do not drift over time.