Cisco StadiumVision Mobile Streamer

Cisco Introduces Cisco StadiumVision Mobile Streamer Release 1.2.

Introduction to Cisco StadiumVision Mobile

The Cisco StadiumVision Mobile solution allows sports and entertainment businesses to take the in-venue fan experience to the next level. By taking full advantage of the multicast capabilities of the Cisco® Connected Stadium Wi-Fi network, distribution of live, low-delay video can be scaled to tens of thousands of users. The power of scalable content delivery to mobile devices enables a sports and entertainment business to complement the live experience in new ways, promote merchandize and future events, and along the way, build a more intimate relationship with each guest in the venue.

Cisco StadiumVision Mobile Streamer

Cisco StadiumVision Mobile Streamer is a key part of the Cisco StadiumVision Mobile solution, and the component that allows scalable delivery of live and playback video to tens of thousands of devices in a crowded venue. At its core sits an error correction engine that allows video to be sent as multicast packets across the Wi-Fi network, yet be received and played back without artifacts or errors on the mobile device. The Streamer achieves this by sitting inline in the video and data streams, which allows it to calculate continuous redundancy data. This redundancy data is then added to the stream in the form of repair packets. Finally, the original payload and repair packets are delivered via multicast to Wi-Fi-connected mobile devices.

The reliable Streamer multicast is not limited to video. It is also an effective solution for scalable distribution of nonvideo content, such as game statistics, still graphics, text-based promotions, tickers, and more. In a crowded venue, where everyone is focused on the same live event, multicast is an efficient method for content distribution. And with wireless networks being bandwidth-constrained, multicast is often the only viable solution.

A total of four video channels and four data channels may be active at a given point in time, reflecting the typical multicast capacity of the Wi-Fi network. Many more channels may be defined, making it easy and quick to switch content by stopping one channel and starting another.

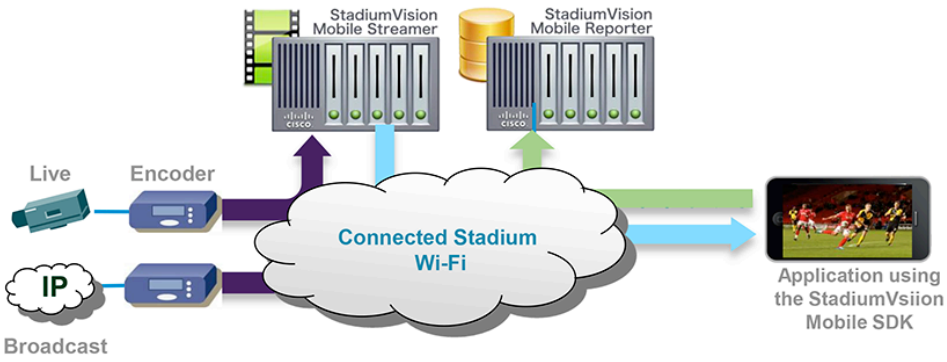
The Cisco StadiumVision Mobile Streamer software is packaged with a Cisco UCS® C220 M3 Rack Server and sold and supported as an appliance (see Figure 1). An easy to use web-based user interface allows the appliance to be administered and operated without requiring staff that are Wi-Fi, video, or UNIX trained. As new features are added to StadiumVision Mobile, the StadiumVision Mobile Streamer is easily upgradeable to take advantage of these new capabilities.

Figure 1. Cisco StadiumVision Mobile Streamer Appliance

Solution Dependencies

The Cisco StadiumVision Mobile Software Development Kit is just one component of the larger StadiumVision Mobile solution. In order to function as expected, it needs to be deployed alongside the StadiumVision Mobile Streamer, the StadiumVision Mobile Reporter, the StadiumVision Mobile Encoder, and the Connected Stadium Wi-Fi network. Figure 3 illustrates how the various StadiumVision Mobile components fit together.

Figure 2. Cisco StadiumVision Mobile Solution Components



The StadiumVision Mobile Streamer works in partnership with the StadiumVision Mobile Client Software Development Kit for Apple iOS and Android mobile devices. The libraries in the SDK perform several important functions. First, they process the incoming stream, and apply the repair packets to reconstitute any missing payload packets. Second, it decodes any payload that is MPEG video and hands it off to the third-party developed application. For more information, please refer to the StadiumVision Mobile Client Software Development Kit data sheet.

The StadiumVision Mobile Streamer uses Content Access Control to restrict content consumption to those clients that are intended recipients. This allows content owners, such as venues, teams, or artists to limit their fans' content access to their respective apps only. In order to accommodate venues that have multiple teams, each with their own brand, the Streamer allows multiple content owners to be defined. The Streamer can then quickly and easily do venue transformation by switching between the various content owners, without any additional configuration being performed.

The Cisco StadiumVision Mobile Streamer also integrates with the Cisco StadiumVision Mobile Reporter. The Reporter's primary function is to collect performance and utilization metrics from the tens of thousands of mobile devices in the venue, and distill these into easy-to-understand charts and reports. The Cisco StadiumVision Mobile Streamer also submits performance and utilization metrics to the Cisco StadiumVision Mobile Reporter on an ongoing basis, so that these can be correlated with the client metrics.

The Cisco StadiumVision Mobile Streamer performs optimally with the L152AE-C MPEG video encoder from Elemental Technologies. This encoder meets the requirements of low-latency video encoded MPEG4/H.264 and encapsulated in a transport stream container. IP feeds that are not in H.264/AAC format are transcoded by the encoder into the desired format. Furthermore, the encoder can deliver quality video at a bit rate that is compatible with the bandwidth constraints of a wireless network, as well as the relatively small screen sizes of the target mobile devices.

The Cisco StadiumVision Mobile Streamer is fully standards compliant. However, applications using the Cisco StadiumVision Mobile SDK must be serviced by a Cisco Connected Stadium Wi-Fi network. Connected Stadium Wi-Fi is designed for high-density coverage in challenging RF environments. It is also multicast-enabled and has quality of service optimized for live-streaming video. The Connected Stadium Wi-Fi solution centrally manages all aspects of wireless infrastructure, including access and security. These capabilities are all critical for a successful StadiumVision Mobile deployment. For more information about Connected Stadium Wi-Fi, please refer to the Connected Stadium Wi-Fi data sheet.

Key Features and Benefits

Cisco StadiumVision Mobile Streamer offers the following features and benefits:

- Uses multicast over Wi-Fi to scale live video to mobile devices in high-density environments.
- Multicast over Wi-Fi scalable data distribution enhances the fan experience by enabling live statistics updates, trivia contests, multiplayer games, and more.
- Through its unique transport protection, helps to ensure reliable delivery of video and data to tens of thousands of wireless devices.
- Uses dynamic service announcements to provide users with immediate access when content or channels are changed on the fly.
- Through Content Access Control, helps to ensure that it is only your application has access to your content.
- Periodically reports detailed Streamer metrics back to the StadiumVision Mobile Reporter, providing easy-to-understand analysis of how content affects client activity.

Product Specifications

Table 1 lists features and capabilities for Cisco StadiumVision Streamer.

Table 1. Cisco StadiumVision Streamer Release 1.2: Features and Capabilities

Channel Capacity	4 active video and 4 active data channels
Performance	5Mbps
Video Codecs	MPEG4/H.264
Audio Codecs	AAC
Container	Transport Stream
Administration	Web UI
Data Channel Payload	RSS, Atom, XML, and any other payload available via HTTP/HTTPS
Channel Integrity Mechanism	Forward Error Correction (FEC)
Content Access Control	Triplet key shared by Streamer and client

Table 2 lists hardware specifications and Table 3 lists regulatory standards compliance information.

Table 2. Cisco StadiumVision Streamer Release 1.2: Hardware Specifications

Processors	2 x Intel Xeon E5-2640/95W 2.50 GHz 6C/15-MB Cache/DDR3 1333 MHz
Memory	4 x 8-GB DIMMS, for a total of 32G DRAM
Hard drives	2 x 300GB SAS 10K RPM SFF HDD; hot swappable; configured in a RAID1 mirror
RAID Controller	MegaRAID 9266-8i, with battery backup
Power Supplies	2 x 650W; redundant power supply configuration
Network connections	Primary: Dual 1 Gigabit Ethernet ports Management: 1 Gigabit Ethernet port
Cisco Integrated Management Controller (CIMC)	Integrated Emulex Pilot-3 Baseboard Management Controller (BMC) IPMI 2.0 compliant for management and control One 10/100/1000 Ethernet out-of-band management interface CLI and Web GUI management tool for automated, lights-out management KVM47CFR Part 15 (CFR 47) Class A AS/NZS CISPR22 Class A
Front Panel Connector	One KVM console connector (supplies 2 USB, 1 VGA, and 1 serial connector)
Front Panel Locator LED	Indicator to help direct administrators to specific servers in large data center environments
Additional rear connectors	VGA 2 x USB 2.0 RS-232 serial port (RJ-45)
Physical dimensions (H x W x D)	1RU 1.7 x 16.9 x 28.5 in. (4.32 x 43 x 72.4 cm)
Temperature: Operating	32 to 104°F (0 to 40°C) (operating, sea level, no fan fail, no CPU throttling, turbo mode)
Temperature: Nonoperating	–40 to 158°F (–40 to 70°C)
Humidity: Operating	10 to 90% noncondensing
Humidity: Nonoperating	5 to 93% noncondensing
Altitude: Operating	0 to 10,000 ft (0 to 3000m); max ambient temperature decreases by 1°C per 300m)
Altitude: Nonoperating	0 to 40,000 ft (12,000m)

Table 3. Regulatory Standards Compliance: Safety and EMC

Safety	UL 60950-1 No. 21CFR1040 Second Edition CAN/CSA-C22.2 No. 60950-1 Second Edition IEC 60950-1 Second Edition EN 60950-1 Second Edition IEC 60950-1 Second Edition AS/NZS 60950-1 GB4943 2001
EMC: Emissions	47CFR Part 15 (CFR 47) Class A AS/NZS CISPR22 Class A CISPR2 2 Class A EN55022 Class A ICES003 Class A VCCI Class A EN61000-3-2 EN61000-3-3 KN22 Class A CNS13438 Class A
EMC: Immunity	EN55024 CISPR24 EN300386 KN24

Ordering Information

Before you place an order for StadiumVision Mobile Streamer, we recommend you use the Guided System Selling (GSS) tool at www.cisco.com to design your solution. This will help ensure an accurate bill of materials.

Table 4 lists the names and part numbers for the components in Cisco StadiumVision Mobile Streamer Release 1.2.

Table 4. Cisco StadiumVision Mobile Streamer 1.2: Component Names and IDs

Product Name	Product ID
Cisco StadiumVision Mobile Streamer License and Platform	SV-M-STREAMER-K9
Cisco StadiumVision Platform3 with No License	SV-PLATFORM3=
StadiumVision Platform3 300G Disk Spare	SV-HD-A03-D300GA2=

For More Information

For more information about Cisco StadiumVision Mobile and the enhanced fan experience it provides, please visit http://www.cisco.com/web/strategy/sports/ or contact your local account representative.

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