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See our  
Vazzt VOTM Service at:  
[www.vazzt.com](http://www.vazzt.com)

*-- E-Book from KenCast, Inc. --*



# How-to build a Portable Production Studio, for Live Streaming Coverage of Events

**Become a Producer. Start you own mobile video business  
with a portable production studio for  
live streaming coverage of events.**

**KenCast's Vazzt Video-On-The-Move (VOTM) Service  
puts your studio online for you, the Producer, with:**

- **Capture from your Portable Production Studio at the event,  
wireless and/or wired, to the Vazzt Service on the Cloud**
- **Broadcast from Vazzt Service on the Cloud  
to your Viewers, even worldwide, wireless and/or wired  
(Vazzt provides you a website if you need one)**
- **Pay Per View and Pay Subscription support**

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# 1.0 How to Build a Mobile Video Business with a Portable Production Studio

**Build a Business** -- New technology for cameras, video switching, and wireless & wired delivery enable new business opportunities. Use one or more cameras to cover an event. Broadcast live from the event to a commercial hub which broadcasts to Viewers who make a request at your website, or to a website KenCast can provide you, if you do not have one. Charge your Viewers to watch – PPV & Paid Subscription.

## **OVERVIEW – Steps to Build your Studio, FOR YOUR LIVE STREAMING COVERAGE BUSINESS**

- Build you own Portable Production Studio
  - Camera(s), computer/laptop/netbook, aircards & IP Network services, video switcher, A/V converters, WiFi access points
- Get Internet Cloud Service (e.g., Vazzt VOTM Service) to reach your website and Viewers
- Open your own PayPal Account through Vazzt, if you do not already have a PayPal Account
- Announce your upcoming events on your website and the Pay Per View price and/or Subscription price
- Viewers pay into your PayPal account with credit cards
- Broadcast the event to your Viewers using Vazzt

**Commercial Service, for your Broadcasts**  
Internet Cloud Service (Software as a Service, SaaS)

There are a variety of commercial hubs that can collect your live content and put it on your website. KenCast offers a complete Commercial Hub, the **Vazzt VOTM Service**, which can broadcast your content from your event to the Vazzt Central Hub, put it on your website, or give you a website on Vazzt if you need one, enable you to offer your events via a Pay service, and deliver your streams to your viewers. Go to [vazzt.com/signup](http://vazzt.com/signup).

This document shows you how to build a range of Portable Production Studios (from simple to professional) that can work with KenCast's Vazzt VOTM Service. For information on how to setup Pay services from your Studio and broadcast to the world with Vazzt, go to [VAZZT.COM](http://VAZZT.COM) > [Learn More](#).

## 2.0 Live Streaming Coverage of Events, Single Camera, Wireless Direct to Central Hub, with 3G & 4G Networks

You can cover an event with a simple one-camera setup, wireless or wired (see Figure 1). What you need to build a Portable Production Studio:

- Camera
- Computer/Laptop/Netbook
- IP Network Services
  - Aircards
  - 3G/4G IP Network Services
- VazztCaster software with Vazzt VOTM Service -- on the Internet Cloud, a SaaS (Software as a Service)
- A Video Switcher, will be needed for Multi-camera coverage of events

# Cameras

## What kind of camera do I need?

Vazzt will work with almost any camera on the market, with analog or digital output. You can use an HD pro camera with SDI output, a prosumer camera with HDMI output, a DV camcorder, an external web cam (e.g., Logitech), or even the internal webcam in your netbook (it works fine).

The quality of the video will vary with the quality of the camera. At the upper extreme is an HD pro camera with live output to a laptop, in which case the camera setup can get very expensive, as well as more complex.

But they all work well with Vazzt VOTM Service and the VazztCaster program.



# Cameras

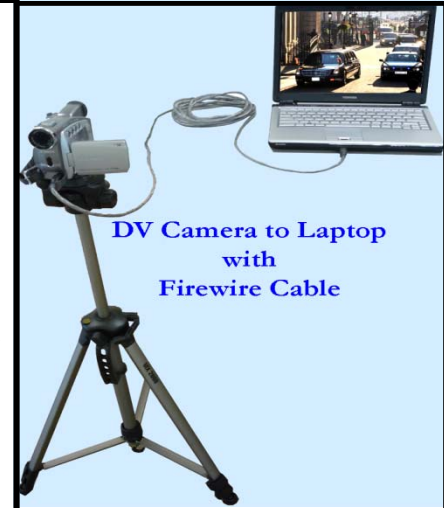
## How do I attach my camera to my laptop?

There are many ways to attach your camera to your laptop. For digital camera output, we recommend connecting the camera with a wire to the faster firewire port – but the USB port will also work. As an example, for analog camera output you can use an external capture device with a 3- or 4-port composite connector into the camera and a USB connection on the other end of the cable into the laptop. See illustrations below. There are actually many ways to interface a camera to an Internal video capture card.

## Firewire

Firewire port connectors lack a latch. These connections can disconnect from the camera and/or the laptop, which can be a problem for a Producer on the move.

The External Capture Devices typically rely on a more secure 1-plug connector to the camera, or 3/4-plug connector to the camera, and a USB connector to plug into the laptop. They are easier to work with when capturing video on the move.



## Analog to Digital with External Capture Device



Some **Composite** connection devices that will enable you to connect your camera's analog output to a digital port on your laptop are: Dazzle, EasyCap, and Roxio.



# Computers

**Computer:** The computer can be a basic laptop, even a netbook with built-in webcam will work for simple broadcasting at resolution up to 640x480, 30 fps.

KenCast's VazztCaster software can encode and broadcast at High Definition if you wish to do so. To broadcast at speeds above simple broadcasting, up to and including High-Definition, you will need a camera and a computer appropriate to your target resolution.

# Aircards

## Aircards & 3G & 4G IP Network Services

For portability, you will need wireless IP network services and associated Aircards, which are generally available as USB connector cards. You can also use WiFi, Bluetooth, and generally any IP network.

If you want to ensure adequate bandwidth for video, software with a bonding capability (like **Vazzt VOTM** on your laptop or computer) will give you the solution you need. There is no theoretical limit to the number of IP networks that **Vazzt VOTM** software can bond – but the number of USB ports and the processing power of laptops makes from 2-6 networks the practical Range.

You can get 3G/4G wireless IP network services directly from carriers (e.g., Sprint EvDO, Verizon EvDO, T-Mobile UMTS, AT&T UMTS, Clear's WiMax & LTE, Verizon's LTE, etc.) or your own private network (WiFi, Bluetooth, fiber, etc.) connected to the Internet.



# 3G/4G IP Network Services

## How can I find Carrier 3G/4G service coverage in my area in the USA?

See extensive EvDO Coverage for USA:

<http://evdomaps.com/>

For specific Carriers:

1. Sprint EvDO, Sprint Coverage Tool:

<http://coverage.sprintpcs.com/IMPACT.jsp?id16=Coverage&covType=sprint# highlight>

2. Verizon EvDO, Verizon EvDO Coverage:

<http://www.verizonwireless.com/b2c/mobilebroadband/?page=coverage>

3. AT&T UMTS, AT&T Coverage:

[http://www.wireless.att.com/coverageviewer/popUp\\_3g.jsp](http://www.wireless.att.com/coverageviewer/popUp_3g.jsp)

4. T-Mobile UMTS, T-Mobile Coverage:

<http://coverage.t-mobile.com/default.aspx?MapType=Data>

5. Clear WiMAX, Clear Coverage:

<http://www.clear.com/coverage>

6. Verizon's LTE

<https://www.verizonwireless.com/b2c/CoverageLocatorController?requesttype=NEWREQUEST&coveragetype=datacoverage4g>

Carriers are now competing vigorously. This will generate two benefits for Producers. First, the geographic coverage is expanding continually.

And second, periodically the bandwidth provided in current third generation services is stepped up to higher levels by the carriers.

In addition, carriers are preparing new, faster types of services. More than one carrier has begun to rollout out fourth generation LTE data services, and competitive WiMAX is already advancing. These 4G services will replace current 3G services with substantially higher bandwidth. Vazzt VOTM Service can immediately take advantage of more coverage, faster services, and new 4G IP network services as they arrive.

## Can I also send files, any files, using Vazzt on these IP Networks?

Yes, Vazzt will broadcast any file you wish to send to the central hub.

Vazzt typically will send files back to the central hub with acceleration that is much faster than typical FTP. This is of great value in time sensitive applications such as news gathering. The Vazzt retransmission of missed file content, even after local FEC repairs, ensures flawless delivery.

## Are there any constraints from the FCC or other USA regulatory bodies regarding bonding?

No.

## Does use of Vazzt VOTM require coordination with carriers?

No. As long as you are an authorized subscriber to one or more carrier services, Vazzt can bond them without coordination with carriers.

# Commercial Service, Vazzt VOTM Service

**KenCast's Vazzt VOTM as a Service -- Learn More at [WWW.VAZZT.COM](http://WWW.VAZZT.COM) > [LEARN MORE](#)**

KenCast offers a Service to transmit live from your event, to your website on the internet Cloud, and help you broadcast it to your viewers. KenCast maintains a Central Hub on the Cloud to which you can broadcast. We then make that available to you and your viewers anyplace on the Internet worldwide, wired or wireless.

**Register to be a Producer at [www.vazzt.com](http://www.vazzt.com).**

You can then download the VazztCast software (Live Coverage software), install it on your computer/laptop/netbook, and send your live video broadcasts from an event to the KenCast maintained Central Hub. The Vazzt Server on the Cloud can feed your streams directly to your Viewers computers, laptops, netbooks, iPhones, Droids, Blackberrys, and more. Your broadcast is viewable worldwide over the Internet by those accessing your Vazzt Producer Website provided at registration.

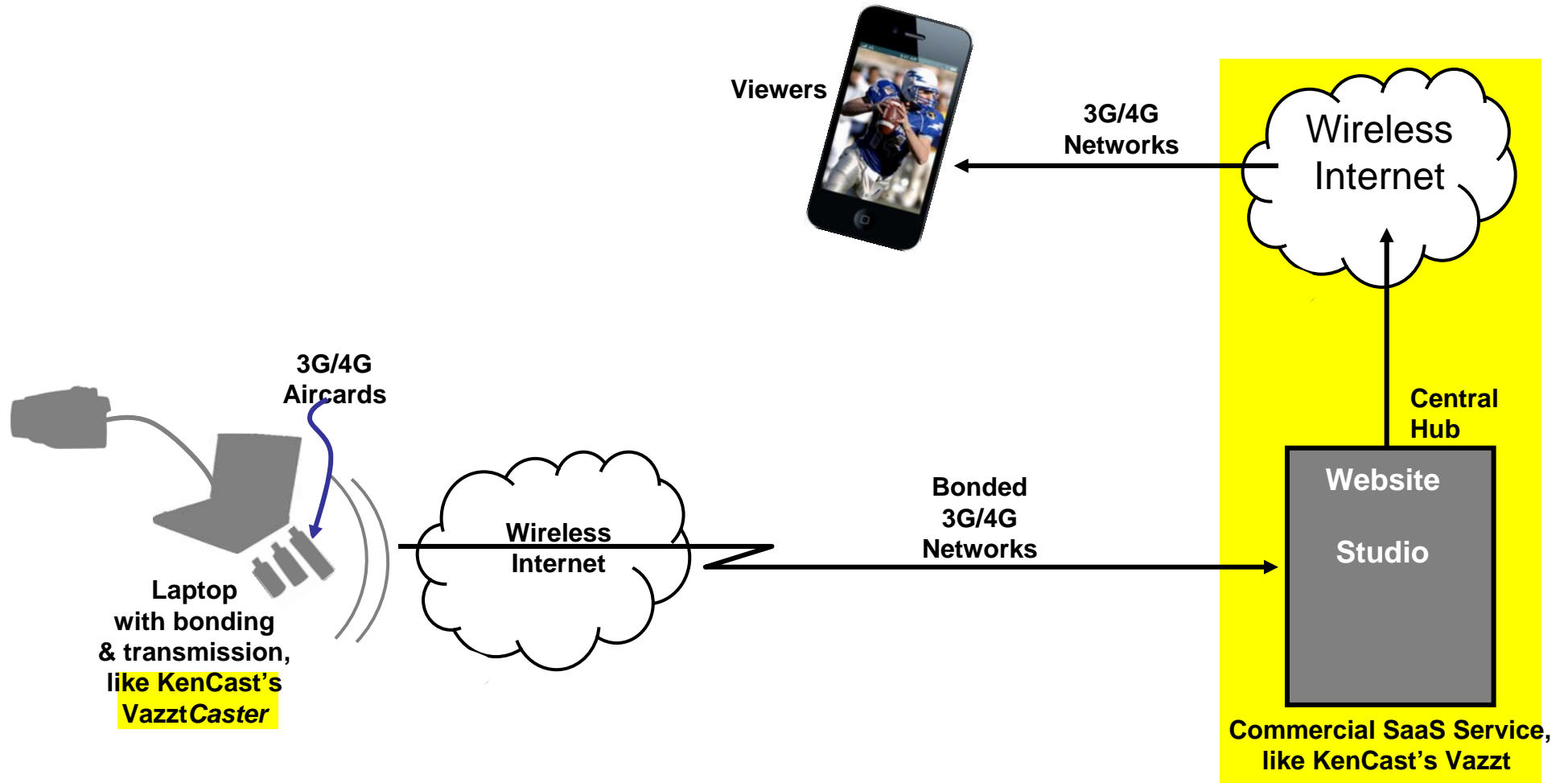
**How Much Does it Cost?**

Signup as a Producer, get a Vazzt Producer Website, get an account from PayPal, download the VazztCast software, and get your Vazzt website all for free. You transmit from your event to your Vazzt Producer Website, and from the Website to your Viewers, the cost is \$0.25 per GByte. For example, if you send a live stream from your Vazzt Producer Website to your viewer for 3-hours at 320x240, 30 fps resolution, the broadcast will require approximately 950 Mbytes (0.950 Gbytes) and you will be charged \$0.24. If the Viewer stops viewing halfway through the event, you will be charged \$0.12. THERE IS NO OTHER COSTS EXCEPT \$0.25 PER GBYTE.

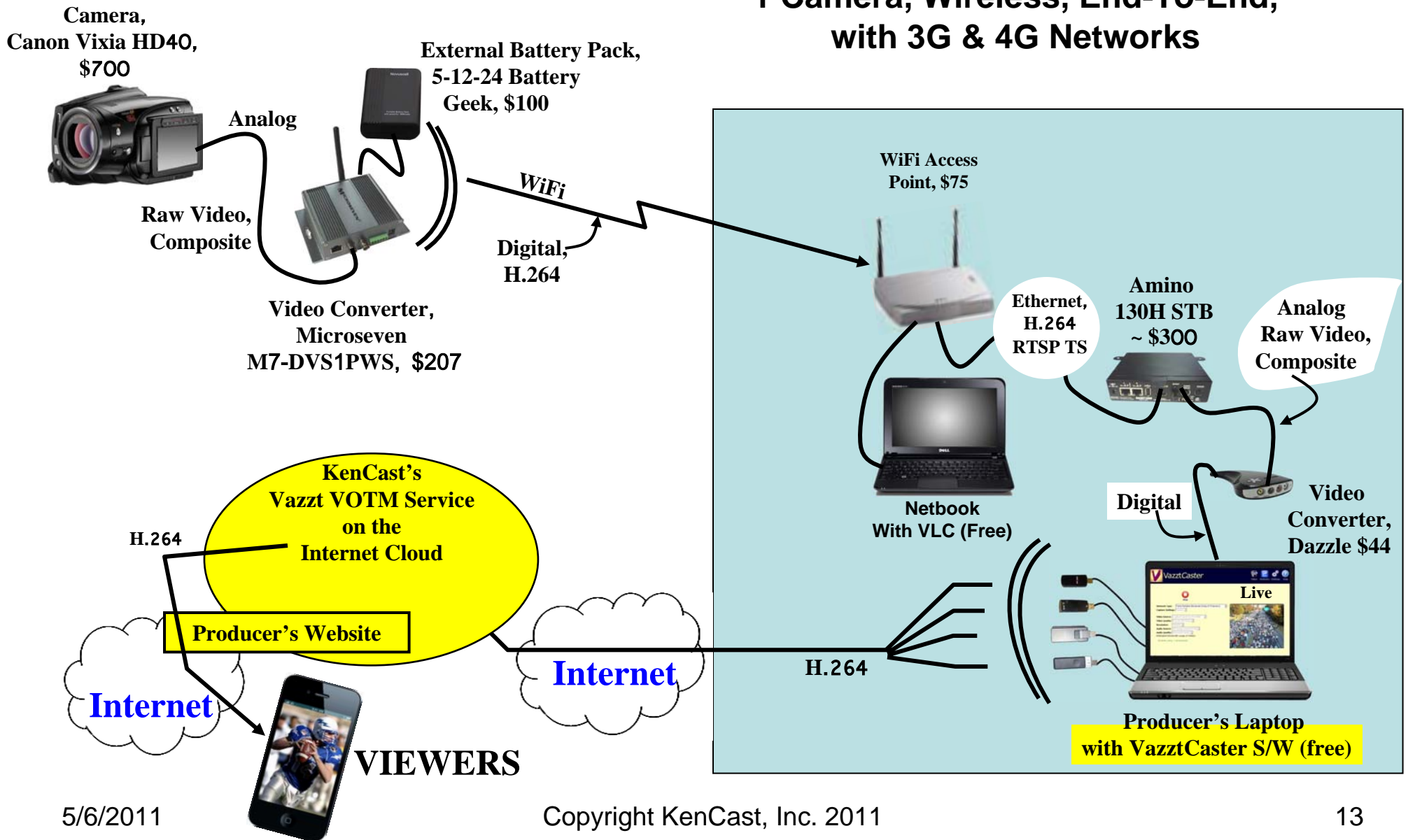
**Can I Do Pay Per View, Subscription Service, and Advertising?**

Yes. Vazzt provides you direct support for Pay Per View, and Subscription Service. You keep whatever you charge after PayPal charges you a transaction fee ; there is no payment to KenCast except the \$0.25 per GByte broadcast. If you engage in advertising, you keep any revenue; there is no payment to KenCast.

# Figure A. Live Streaming Coverage of Events, Single Camera, Wireless Direct to Central Hub, with 3G & 4G Networks



**Figure B. Live Streaming Coverage of Events,  
1 Camera, Wireless, End-To-End,  
with 3G & 4G Networks**



## **3.0 Portable Production Studio with Multiple Cameras, Inexpensive Video Switcher, Wired Capture, Wireless Delivery**

# Video Switchers

## Video Switchers

From simple inexpensive SD video switches to Pro quality video switches with fine studio features – instant replay, graphics & advertising support, game statistics, live virtual sets, HD, and much more.

With the rapid advance in this technology and a flood of competing products, it is now possible to build a feature rich multi-camera Portable Production Studio for less than \$20,000.



## Examples of Places that sell Video Switches:

### NewTek TriCasters

<http://www.newtek.com/tricaster/#>

### Sony Anycast

<http://pro.sony.com/bbsccms/assets/files/mkt/broadcast/brochures/anycastHD.pdf>

### Panasonic AV-HS400N

<http://catalog2.panasonic.com/webapp/wcs/stores/servlet/ModelDetail?displayTab=O&storeId=11201&catalogId=13051&itemId=204663&catGroupId=14632&surfModel=AV-HS400N>

### SISLink Routecase

<http://www.sislive.tv/products-routecase.php>

### B&H Photo AV Switches

<http://www.bhphotovideo.com/bnh/controller/home?O=&N=0&Q=&Ntt=video+switcher&A=endecaSearch>

B&H also sells the NewTek Tricaster, SonyAnycast, and Panasonic AV-HS400N and many more Professional Video Production Switchers from \$940 to \$11,850.

### Techorium AV Switches (Numerous lower price video switches)

[http://www.techorium.com/video-switches-hdsdsdi-switches-c-159304\\_1258.html](http://www.techorium.com/video-switches-hdsdsdi-switches-c-159304_1258.html) and <http://www.techorium.com/video-switches-c-104.html>

### Calrad AV Switches (e.g., 40-469, page 90)

<http://www.calrad.com/download/40%20Series.pdf>

Top

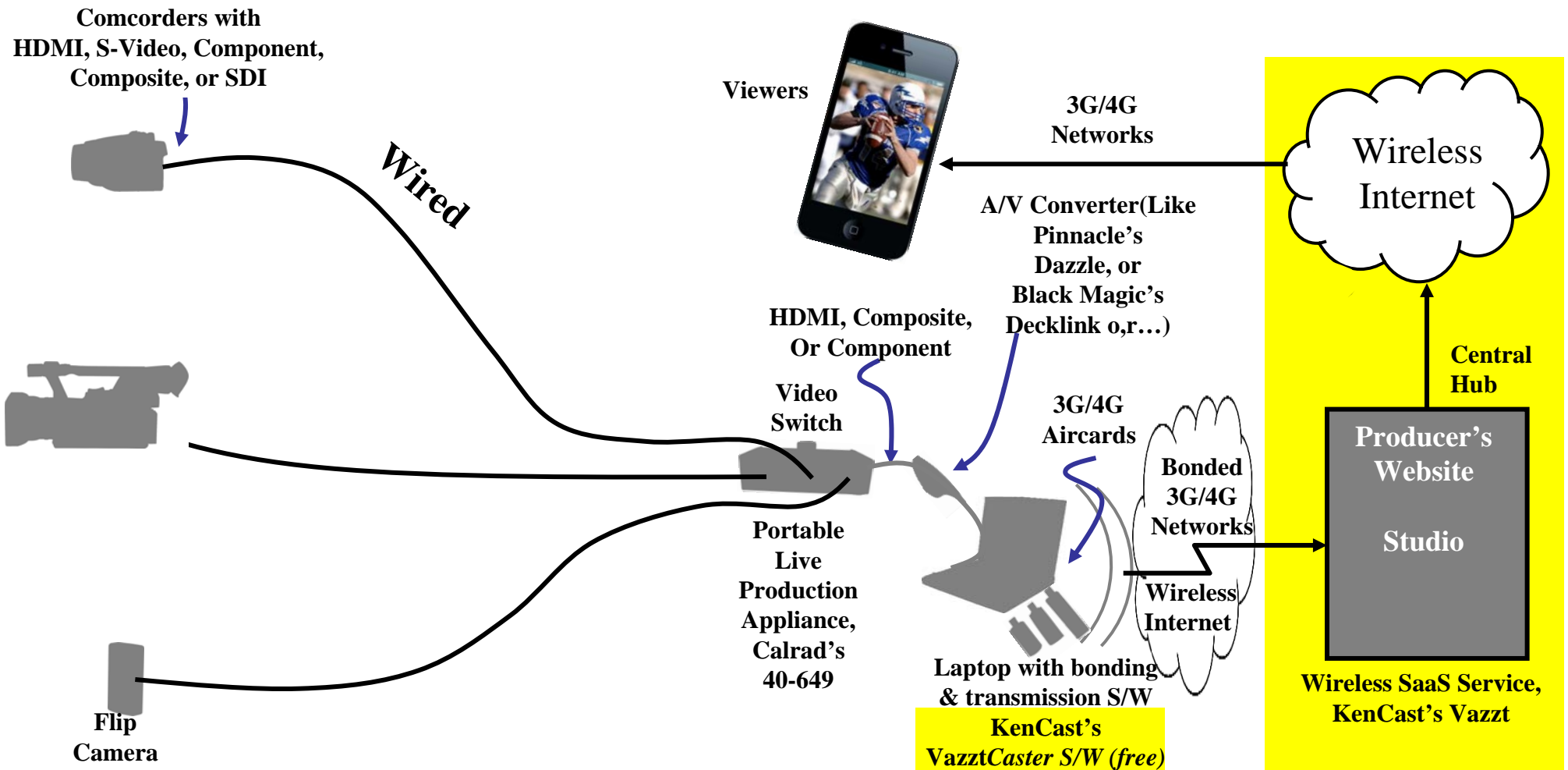


**Example of Very Inexpensive  
Video Switcher  
Calrad Electronics  
Video Switcher, Manual  
Model 40-649, \$28.00**

Front



# Figure C. Live Streaming Coverage of Events, Multi-Cameras, Wired at Event, Wireless to Central Hub, with 3G & 4G Networks



## **4.0 Portable Production Studio with Multiple Cameras to Pro-quality Video Switcher, Wired Capture, Wireless Delivery**

## Examples of Pro Quality Video Switchers



**SISLink Routecase**  
4 channel HD/SDI production unit



**Panasonic AV-HS400N**  
Compact Live Multi-Format HD/SD Switcher with MultiViewer  
U.S. List Price \$10,990.00



**NewTek Tricaster Studio**  
6 Camera Live Production Unit  
U.S. List Price \$7,494.95

# Sony AWS-G500E Anycast Station

\$11,795



**Front**



**Back**

# Sony AWS-G500E Anycast Station

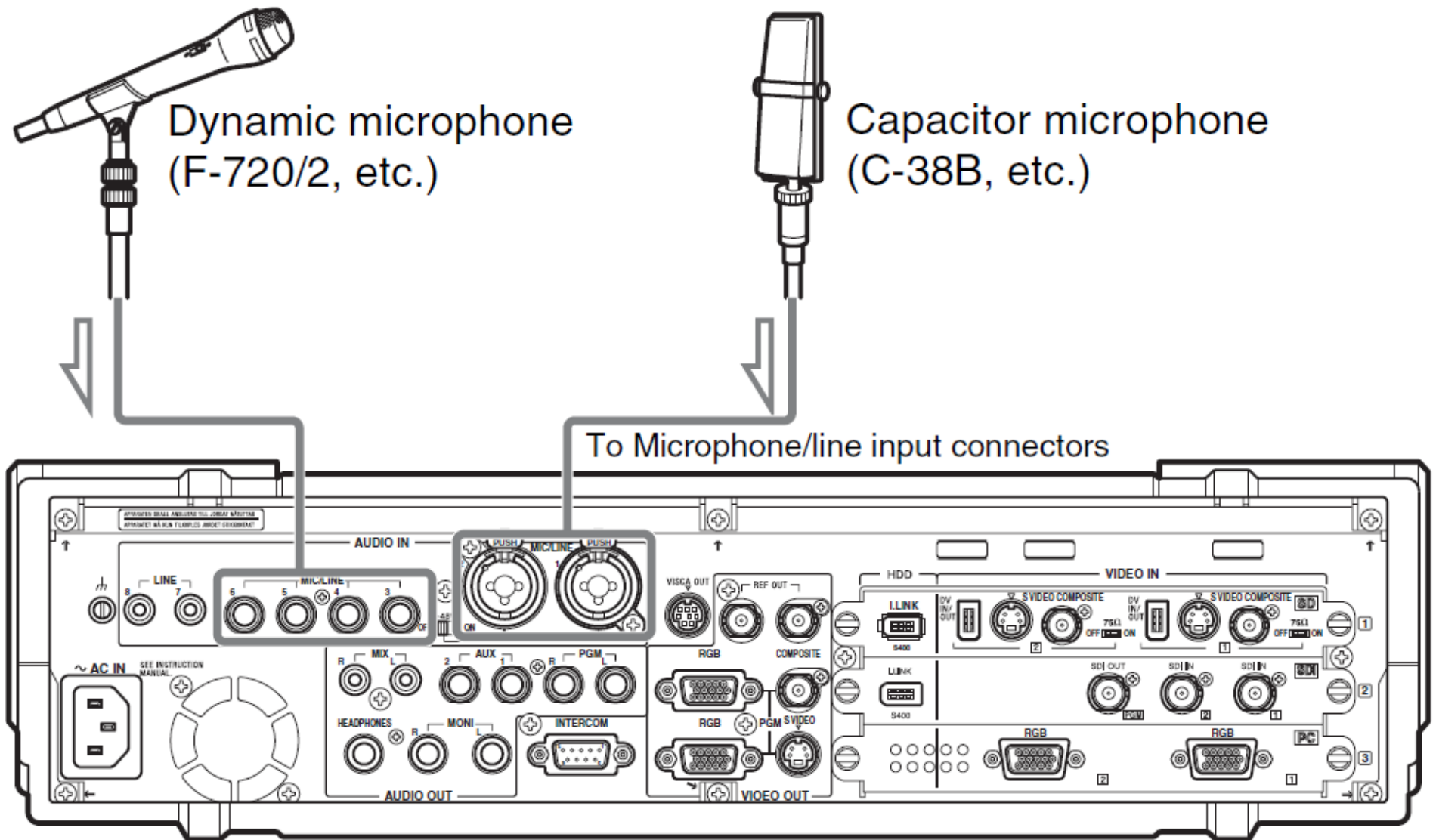
\$11,795



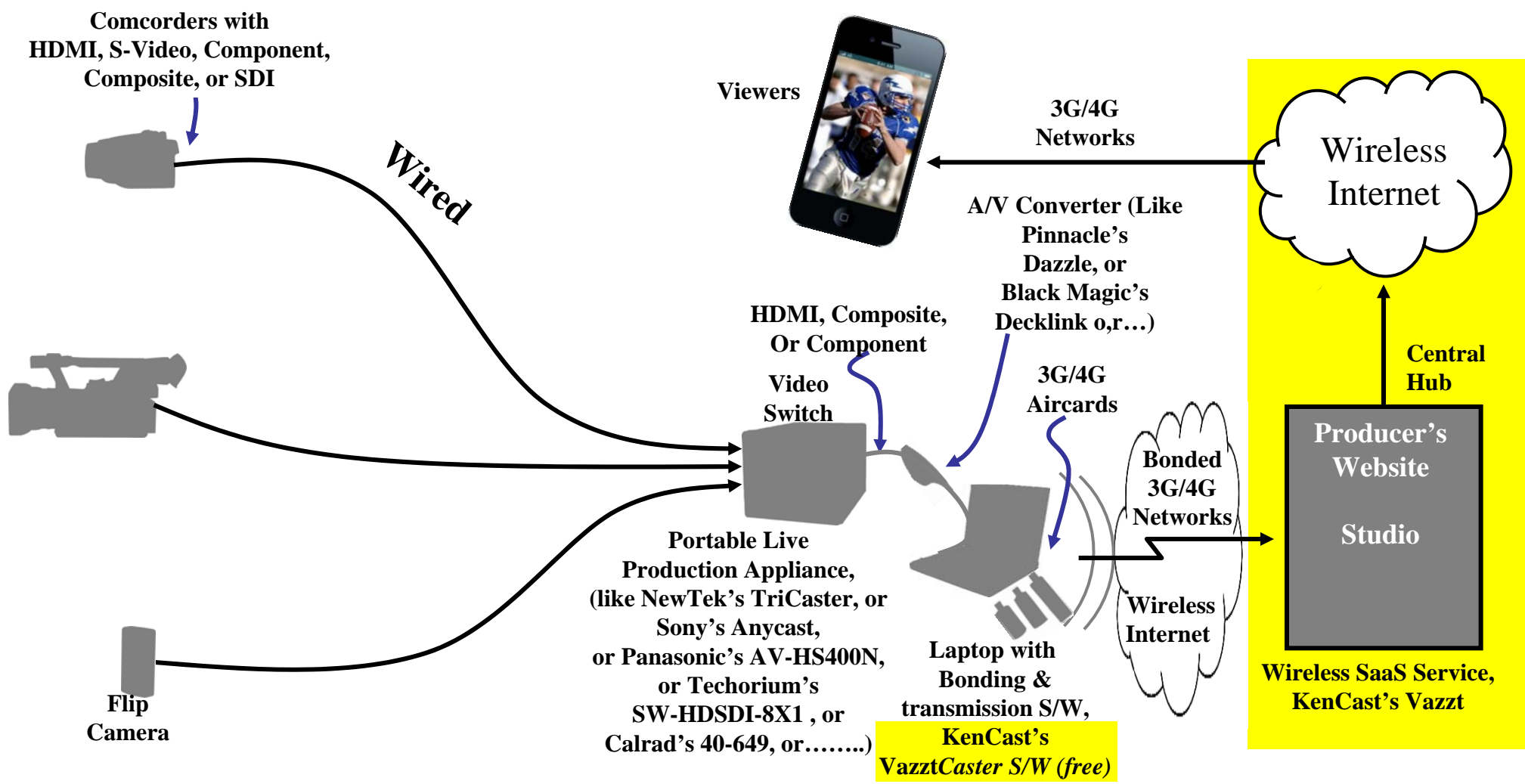
The Sony AWS-G500E Anycast Station can be configured in a variety of ways.

**Back**

# Rear Panel, Sony Anycast, Sample Configuration

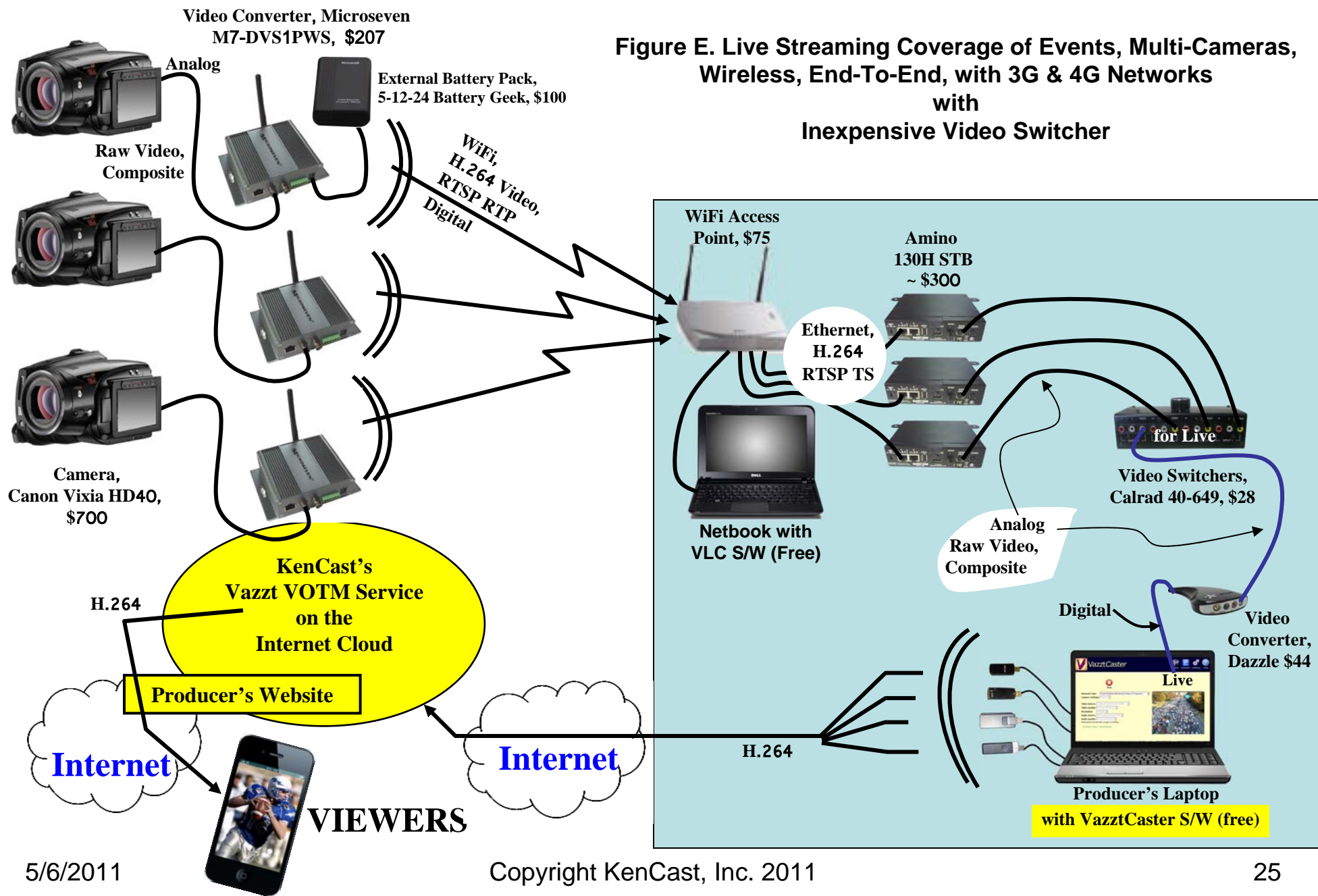


# Figure D. Live Streaming Coverage of Events, Multi-Cameras, Wired at Event, Wireless to Central Hub, with 3G & 4G Networks



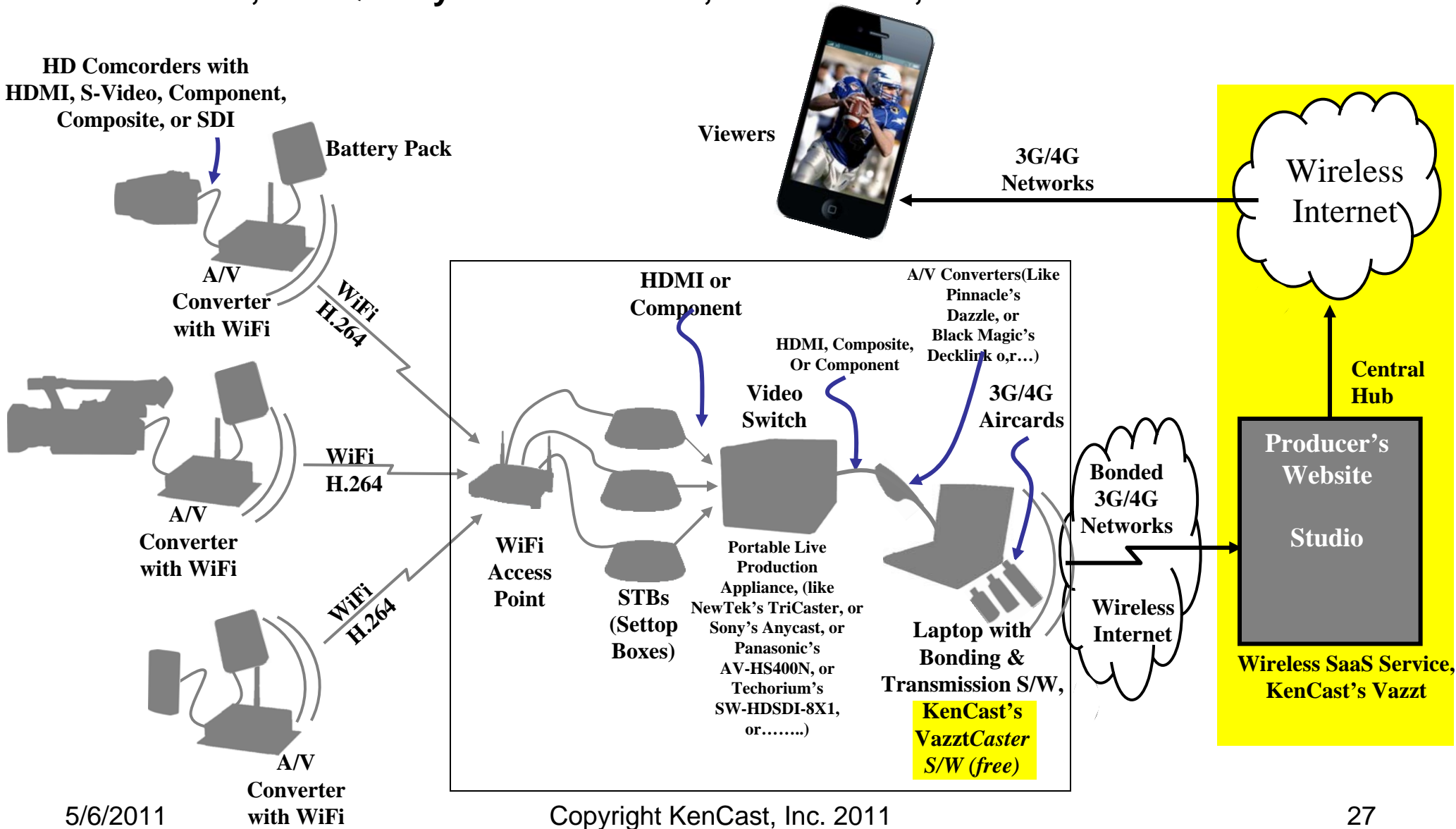
## **5.0 Portable Production Studio with Multiple Cameras & Inexpensive Video Switcher, Wireless Capture, Wireless Delivery**

**Figure E. Live Streaming Coverage of Events, Multi-Cameras, Wireless, End-To-End, with 3G & 4G Networks with Inexpensive Video Switcher**

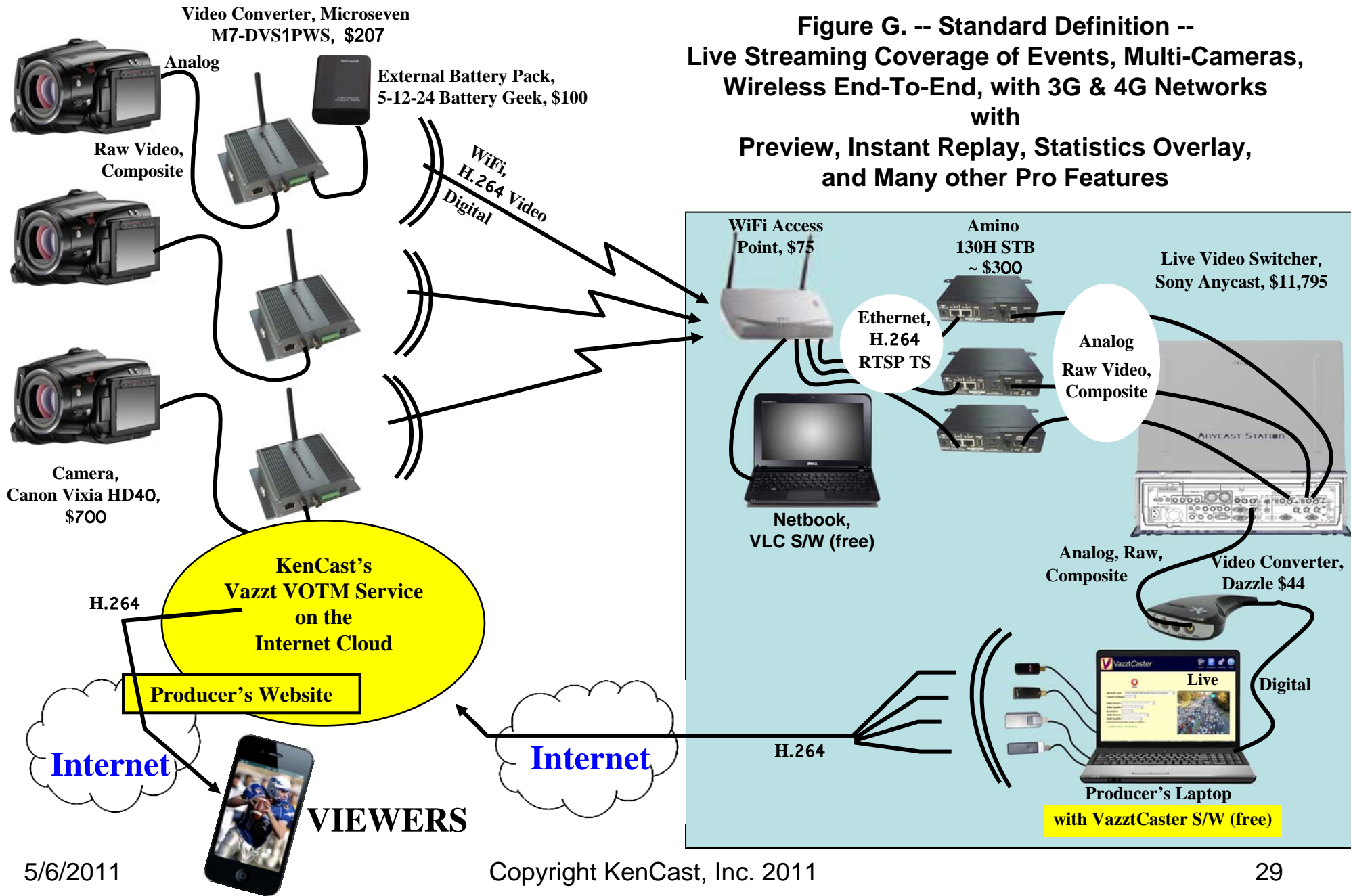


## **6.0 Portable Production Studio with Multiple Cameras & Pro-Quality Switcher, Wireless Capture, Wireless Delivery**

**Figure F. Live Streaming Coverage of Events, Multi-Cameras, Wireless, Pro-Quality Video Switcher, End-To-End, with 3G & 4G Networks**



## **7.0 Budgeting for a Studio with Multiple Cameras & Pro-Quality Video Switcher, Wireless Capture, Wireless Delivery – Standard Definition**



# Wireless Portable Production Studio from Event to Viewers, in Standard Definition, with Vazzt (Illustrated in Figure G)

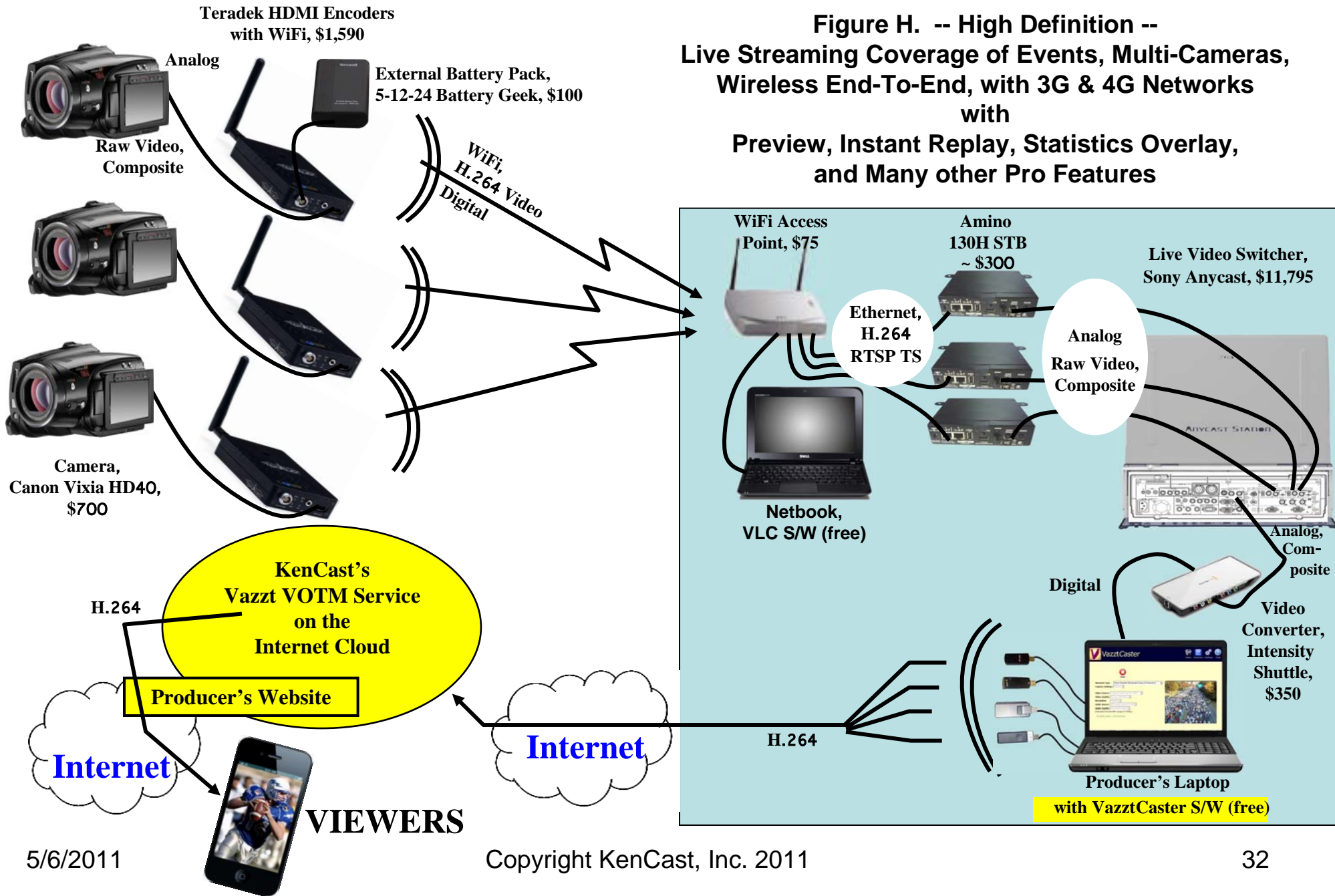
\$2,100	Cameras, Canon Vixia HD 40@\$700 each (3)
\$621	Portable Video Converters, Microseven M7-DVS1PWS, SD 720 x 576 (PAL) and 720 x 480 (NTSC)@\$207 each (3)
\$300	External Battery Pack, 5-12-24 Battery Geek, @\$100 each (3)
\$59	WiFi Access Point, Linksys WRT54G (1)
\$900	Amino 130H STBs, @\$300 each (3)
\$11,795	Live Video Switcher, Sony Anycast (1)
\$44	Video Converter, Dazzle Dazzle DVD Recorder Plus, @\$44 (1)
\$800	Laptop
\$240	Aircards, @\$60 each (4)
\$2,400	Annual Subscriptions, 4 Data Services with Aircards, @\$50 per month
\$0	VazztCaster S/W (free), (Broadcast is \$0.25 per GByte)
=====	
\$19,259	Total Setup Cost***

\*\*\* All Prices in this E-Book from Internet, February 4, 2011

**Live Streaming Coverage of Events, Multi-Camera, Pro-Quality Video  
Switcher, SD Video, Wireless End-To-End, with 3G & 4G Networks  
-- in Standard Definition --**

## **8.0 Budgeting for a Studio with Multiple Cameras & Pro-Quality Video Switcher, Wireless Capture, Wireless Delivery – High Definition**

**Figure H. -- High Definition --  
Live Streaming Coverage of Events, Multi-Cameras,  
Wireless End-To-End, with 3G & 4G Networks  
with  
Preview, Instant Replay, Statistics Overlay,  
and Many other Pro Features**



# Wireless Portable Production Studio from Event to Viewers, in High Definition, with Vazzt (Illustrated in Figure H)

\$2,100	Cameras, Canon Vixia HD 40@\$700 each (3)
\$4,770	TeraDek HDMI Encoders, High Definition, 1920x1080p @\$1,590 each (3)
\$300	External Battery Pack, 5-12-24 Battery Geek, @\$100 each (3)
\$59	WiFi Access Point, Linksys WRT54G (1)
\$900	Amino 130H STBs, @\$300 each (3)
\$11,795	Live Video Switcher, Sony Anycast (1)
\$44	Video Converter, Black Magic Intensity Shuttle, @\$350 (1)
\$1,000	Laptop
\$240	Aircards, @\$60 each (4)
\$2,400	Annual Subscriptions, 4 Data Services with Aircards, @\$50 per month
\$0	VazztCaster S/W (free), (Broadcast is \$0.25 per GByte)
=====	
\$23,714	Total Setup Cost***

\*\*\* All Prices in this E-Book from Internet, February 4, 2011

**Live Streaming Coverage of Events, Multi-Camera, Pro-Quality Video  
Switcher, Wireless End-To-End, with 3G & 4G Networks  
-- High Definition --**