UNISPHERE
R E S E A R C H

LARGE-SCALE WEBCASTING SERVICES

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INTRODUCTION

Streaming Media magazine and Unisphere Research, along with Onstream Media Corp., and Transitions, Inc., set out to gauge trends in Large-Scale Webcasting (Large-Scale Webcast).

Transitions and Unisphere crafted a set of questions which asked survey respondents to provide details on their viewing habits as well as their assessment of Large-Scale Webcasting, both in terms of features and average monthly streams served.

Our survey pool contains industry experts, engineers, and executive management, so we asked questions that provided insight into both the actual and intended uses of Large-Scale Webcasting.

RESEARCH SUMMARY

There were several primary takeaways. First, on a personal consumption level, respondents tend to use desktops and laptops for live webcasts much more than they use smartphones and tablets. This differs from the overall on-demand media consumption market, which trends toward much more extensive use of smartphones and tablets for media consumption.

Second, respondents who work for companies that produce Large-Scale Webcasts are aware of the need to support smartphones and tablets. However, many note that live webcasts are often viewed on a bigger screen—including external monitors connected to a laptop, or even a television with an Internet streaming dongle or set-top box—perhaps due to the value placed on live webcast content.

In discussions about the commercial and technical challenges to choosing an external Large-Scale Webcasting service provider, respondents were united in their desires on two points.

From a technical standpoint, they understand the benefit of using an external provider when it comes to addressing bandwidth limitations. But they also want the service provider to offer a high quality of service and a consistent quality experience for their viewers. In addition, they are interested in broad device support.

As far as commercial challenges in adopting a Large-Scale Webcasting service provider, pricing is the key barrier to entry. Many respondents, though, would choose a flat-rate event price, or even a flat per-month webcasting pricing model, if one were offered—a welcome change for anyone tasked with budgeting around the variable costs for a large webcast.

Finally, respondents said that a seamless authentication experience is very important to their workflow, so it behooves Large-Scale Webcast service providers to develop and roll out authentication for both the traditional consumption device (desktop/laptop) as well as emerging consumption devices (smartphones, tablets, smart TVs).

Sample Size and Respondent Particulars

There were approximately 700 respondents who completed this 34-question survey, plus nearly 70 additional respondents who completed a substantial part of the survey, for a total of 774 survey responses used for our analysis.

This number of completed responses provides an adequate sample size from which to base our findings, with approximately 84% of respondents from North America, 9% from Europe, and the remainder spread across the rest of the world.

When appropriate, the analysis in this report will note where large groups of partial survey respondents stopped answering. In most cases, this directly corresponds to a set of free-form questions around monetization of content on various non-PC devices.

Over half (56%) of survey respondents identified themselves as working for a company that produces live webcasts.

When it comes to respondents' industry segments, content providers (32%) topped the list, followed by technology partner/vendor companies (21%). Agent/consultant companies and resellers/system integrators were both tied at (6%), followed by content aggregators (4%). Analysts, market researchers, and Pay TV operators all came in at the tail end of respondents' company types (2% each). The remaining 26% of respondents used the "other" category, which covered non-profit, education, government, healthcare, religious institutions, and broadcasters (including educational and radio/FM broadcasters).

Almost one-third of respondents identified themselves as executive management (31%) while the second-largest group works in product management or engineering (24%). Marketing and sales accounted for a third segment (11%), with those working in business development or partnership roles rounding out the job roles (7%). Almost 27% of respondents used an "other" category to self-identify their positions as digital media or webcast coordinators, consultant, content producer, faculty, or technical operations roles.

Beyond survey respondents from North America (84%) or Europe (9%), respondents from the Asia-Pacific region represented the next largest group, followed by respondents from South America.

PERSONAL VIEWING HABITS

We had 774 responses to this section of the survey, which offers broad insight into webcasting viewing habits. Survey takers were asked to think of these as "Responder as Viewer" questions. Percentages on all charts do not equal 100% due to rounding.

Personal Consumption Feedback

The first set of questions in our Large-Scale Webcasting survey asked respondents to identify their personal consumption devices for webcast consumption, including operating systems and other features.

The first question asked respondents to identify from a list the type of device they consider their primary personal device when viewing content.

### Chart 1: Primary Personal Webcast Viewing Device
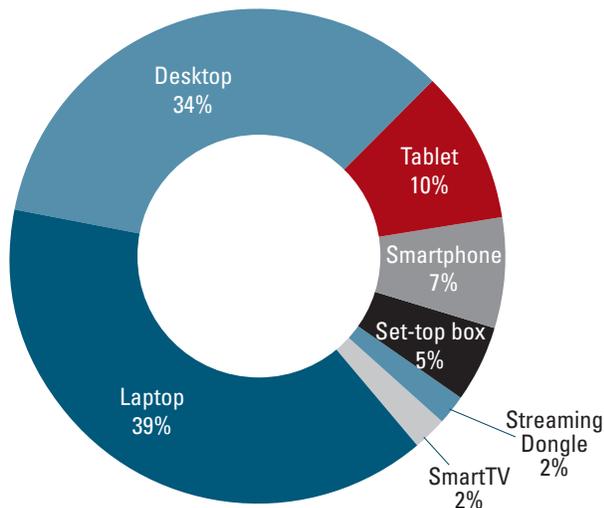
The pie chart above shows that laptops are by far the most dominant form-factor for primary webcast consumption. The combination of desktops and laptops make up almost three-fourths of webcasting consumption (73%), followed by tablets (10%).

Smartphones came in at a respectable level (7%) and the television took up the last three spots: TV with set-top box (e.g., Apple TV, Roku) devices came in at 5% of total webcasting consumption, followed by a tie between streaming dongles (e.g., Chromecast, FireTV Stick) and Smart Televisions.

While overall online media consumption has shifted more towards mobile—with desktops and laptops only accounting for 55% in another recent Unisphere survey—the webcasting world seems to be a year or two behind in the mobile trend.

The second question asked respondents to report which operating system they primarily used to primarily consume content on the screen they identified in question one.

### Chart 2: Operating System for Primary Personal Viewing Device
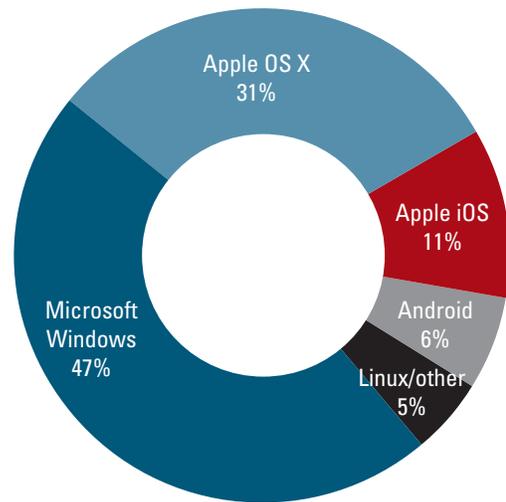
Microsoft Windows, not surprisingly, took the top slot (47%) for operating systems, but Apple's Mac OS X (31%) took a surprising second place, perhaps due to the fact that three-fourths of all webcasting consumption is still done on desktop and laptop devices. On the mobile front, Apple's mobile-centric iOS operating system came out on top (31%) followed by Android at a distant second (6%). Combined, Apple's two operating systems, iOS and OS X, account for almost half (42%) of webcasting consumption, so it's clear that Apple and Microsoft dominate webcasting delivery for the respondent group.

Linux (1%) was the least popular choice, and almost 2% of "additional comments" responses cited Roku as their platform of choice.

We then asked respondents about the type of webcasting content they consumed on their primary media device. The following chart provides details around their responses.

Chart 3: Personal Consumption By Webcast Type
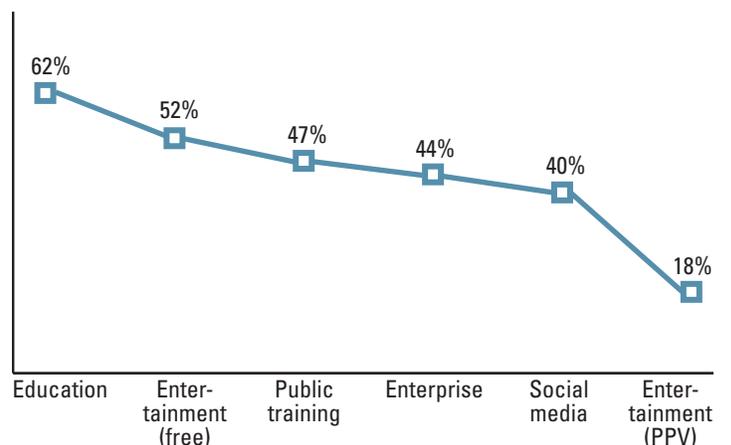
Education content (e.g., live lectures, distance learning) was the dominant type of webcasting content consumed over the last year, with 62% of respondents saying they'd consumed this content type.

Entertainment free webcasts (e.g., concerts, sports events) were next highest (52%), followed by public training content (e.g., live training webcasts), and enterprise content (e.g., internal training, corporate webcasts) at 47% and 44%, respectively.

What about social media and pay-per-view content? These were the lowest on the list of our respondents' choices. Social media content (e.g., live user-generated content) came in next (40%) while entertainment pay-per-view webcasts (e.g., concerts, sports event) was the lowest (18%).

An "other" category is also worth noting, as it was primarily dominated by religious (e.g., church services) and personal skills training (e.g., Lynda.com).

We then asked about consumption of online content to gauge whether survey respondents consume webcasts for personal or business reasons.

## Chart 4: Webcast Consumption for Business
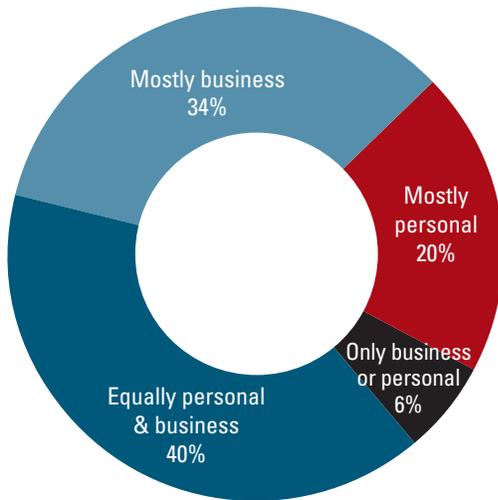
As the chart shows, very few respondents view webcasts for only personal (2%) or business (4%) content. The overall response was an equal mix of personal and business content (40%), with those who consume webcasts mostly for business (35%) at almost twice that of respondents who view mostly personal content (20%).

This set of responses reinforces what the previous question showed: Webcasts are still fairly dominant in business environments, with live personal webcast consumption lagging the general trend of online media consumption by several years.

This is further reinforced by the next question in which survey respondents were asked how much live versus time-shifted content they consume.

Chart 5: Personal Media Consumption Mode: Live or Time-Shifted?
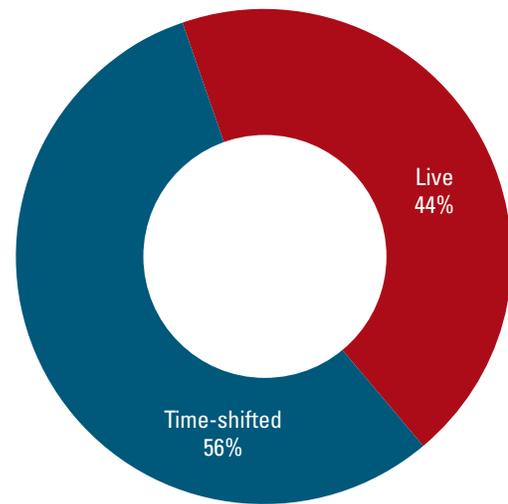

Almost two-thirds of respondents (64%) indicated they view both live and time-shifted online media content, but only 12% view live content online as their primary consumption choice. A propensity toward only consuming time-shifted content accounts for the remaining 25% of survey respondents who chose to answer the question.

To further delve into this line of thought, we asked respondents to tell us whether they typically consume live media content on the biggest available screen. More than half of respondents answered "yes" (55%) but that is about 15% lower than the overall online media consumption trend (71% of respondents in previous non-webcasting surveys say they use the biggest available screen).

A much larger percentage of webcast survey respondents use laptops and desktops, which would—at least in our survey logic, if not reality—be the larger screen choice. The disparity may lie in the fact that so few webcast survey respondents use a set-top box or streaming dongle attached to the television (what many may consider the "biggest available screen" at their disposal) versus the overall online media consumption trend of using Apple TV, Roku, Chromecast, and other TV-augmenting devices to stream on-demand content.
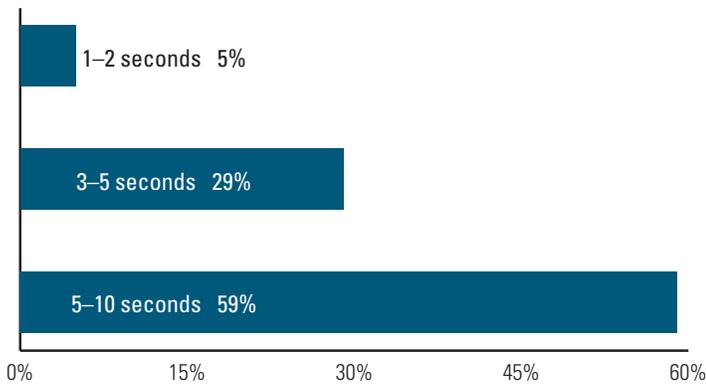
That premise plays out in our next question, in which we asked respondents to tell us the biggest screen they typically had at their disposal.

Almost two-thirds (61%) said that their largest screen was a television, with 32% saying their biggest screen was a desktop or laptop. That left smartphones and tablets, combined, to make up the remaining 2% of responses, although an additional 5% of respondents told us they used projectors or large external monitors attached to a laptop.

Chart 6: Largest Available Screen

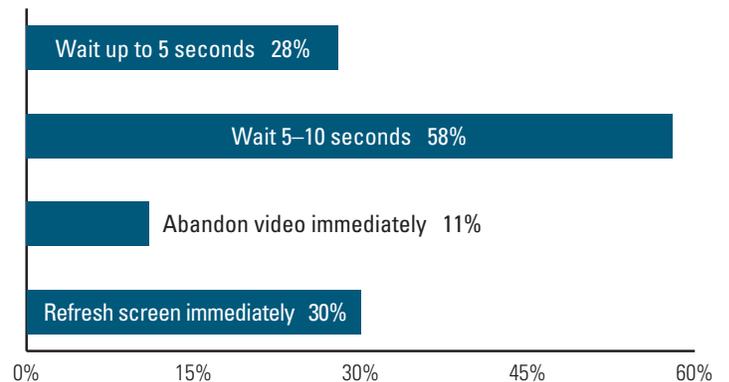## Chart 8: Slow-Loading Webcast, Typical Response
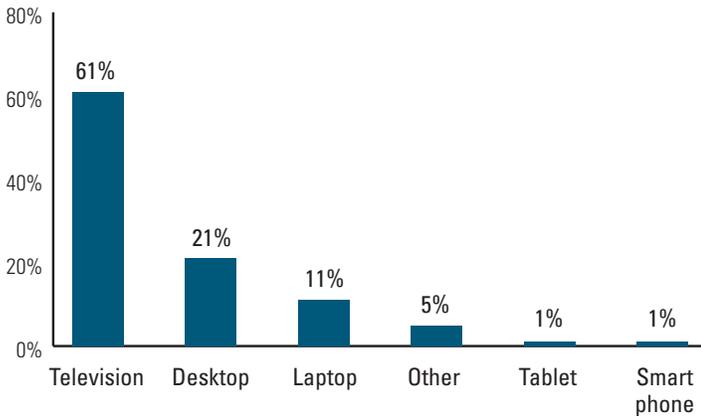
The next two questions in our survey, questions 8 and 9, dealt with personal response to slow-loading content.

The first question asked about the length of time a respondent would wait until attempting to refresh a live webcast. Specifically, we asked: "If a player is slow to load a live webcast, how long do you tend to wait before you attempt to refresh viewing?"

Chart 7: Slow-Loading Webcast Wait Time, Prior to Refreshing

Almost 60% said they would wait 5–10 seconds before attempting a refresh, which is right in line with overall on-demand media consumption. Another approximately 30% said they would wait 3–5 seconds before attempting a refresh, and only 5% said they would attempt a refresh in the first 1–2 seconds. An additional group of respondents told us they would wait 30 seconds, and some said they would wait a minute or more, if they felt their connection was slow.

The next question asked for the same information in a slightly different way: "If a player's content is slow to load, what will you typically do?" In this case, the question is designed to see whether content is immediately abandoned if the potential viewer perceives they will have to wait

A higher percentage (11%) than previous surveys said they would abandon the video immediately, with almost one-third of respondents saying they would refresh the screen immediately. A majority said they would wait 5 seconds or more. The remaining group (7%) repeated that they would wait more than 10 seconds for live content to begin playing, or would switch browsers, internet connections, or even seek out an alternative stream.

WEBCASTING COMPANIES

In our second section, we wanted to gauge which respondents worked for companies that delivered webcasts online. Once we knew that answer, we filtered some questions to understand their real-world assessment of Large-Scale Webcast functionality and benefits.
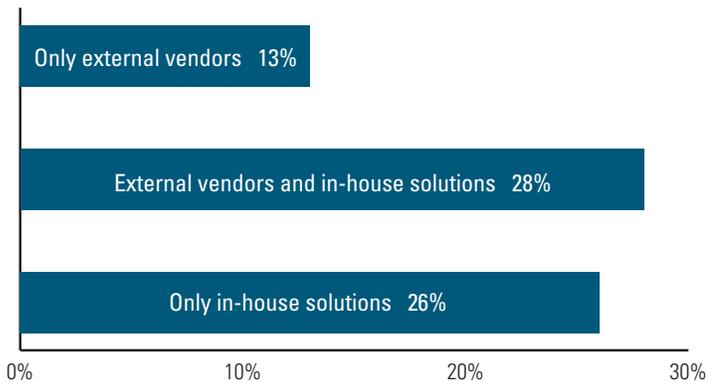
As stated in the introductory section, 56% of all respondents said they worked for a company that produces live webcasts. Digging further, we then asked respondents to tell us whether their company uses an external live webcasting service.

Chart 9: Use External Large-Scale Webcasting Service
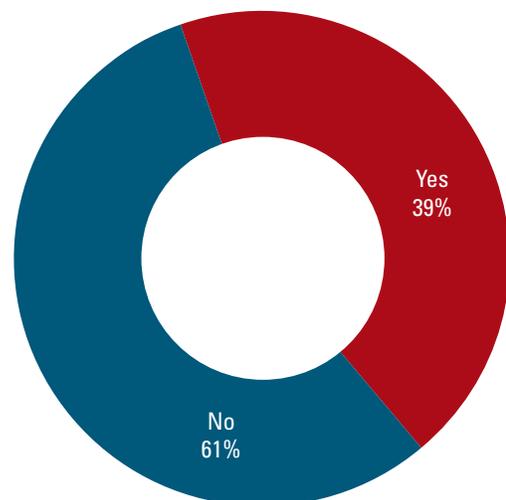
Among the overall respondent pool, almost two-thirds (61%) indicated that they did not use an external live webcasting service. Yet, if we filtered responses to only include those respondents who work for companies that produce live webcasts, we find that the responses reverse themselves, with a majority (57%) using an external live webcasting service.

If we explore further into that filtered response, we find that the next question, in which we look at internal (employee-only) webcasts, uncovers a trend that seems consistent throughout the remainder of the survey.

Chart 10: Internal (Employee-Only) Webcast Services

Only external vendors 13%

External vendors and in-house solutions 28%

Only in-house solutions 26%

0%   10%   20%   30%

The chart above has a very specific question attached to it: "For internal (employee-only) webcasts, do you primarily use internal resources or external vendors?"

Whether we filter to those that produce live webcasts, or for the general respondent, the trend is that external vendors are the least used for internal, employee-only webcasts.

Just 13% of respondents only use external vendors, with 28% saying they use a mix of internal resources and external vendors. The remaining responses indicate either exclusive use of internal resources or a lack of internal webcasts being produced for a respondent's company.

Responses filtered for those individuals whose companies produce live webcasts showed a similar pattern, with "only external vendors" coming out exactly the same (13%), and internal-only resources being slightly higher (32%).

The next question was similar, but focused on external-facing webcasts rather than internal, employee-only webcasts. Specifically, the question asked: "For external (public-facing) webcasts, do you primarily use internal resources or external vendors?"

Unfiltered responses showed that 28% of respondents use only external vendors, almost double the usage for internal (employee-only) webcasts.

Filtered for those respondents whose companies produce live webcasts, the percentage was a bit lower (23%) perhaps due to the fact that a higher percentage of filtered responses stated that they

Chart 11: External (Public-Facing) Webcast Services

Only external vendors 23%

External vendors and in-house solutions 30%

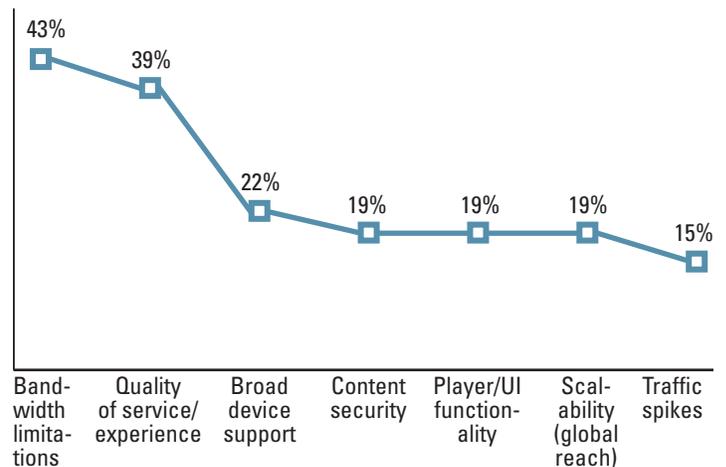Only in-house solutions 18%

0%   10%   20%   30%
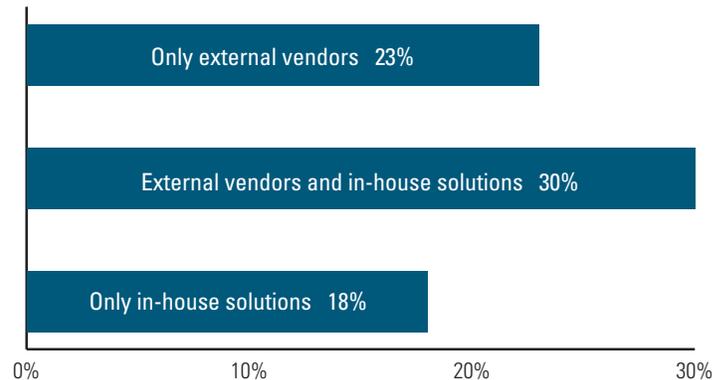
don't do external (public-facing) webcasts (26%) versus overall respondents (6%).

Regardless of whether a respondent's company produces live webcasts or not, the percentage of responses for external webcasts that utilize only internal resources to produce the webcast was about the same (18%–23% range).

TECHNICAL CHALLENGES

The top technical challenges for live webcasts are clear: Bandwidth limitations and quality of service/quality of experience represented the two biggest hurdles.

Chart 12: Webcasting Technical Challenges

43%   39%   22%   19%   19%   19%   15%

| Bandwidth limitations | Quality of service/ experience | Broad device support | Content security | Player/UI functionality | Scalability (global reach) | Traffic spikes |

Bandwidth limitations (43%) represented the most significant challenge, followed by quality of experience (39%) as the second-most-selected technical challenge. Broad device support (22%) was followed by a statistical tie at 19% for three areas: content security, player/user interface functionality, and scalability (global reach).

Traffic spikes, search/discovery functionality, and network DVR or catch-up services rounded out the list of technical challenges.

An additional question asked respondents about devices that are supported for Large-Scale Webcasts. Not surprisingly, desktops and laptops dominated the list.

Chart 13: Webcasting Devices Supported
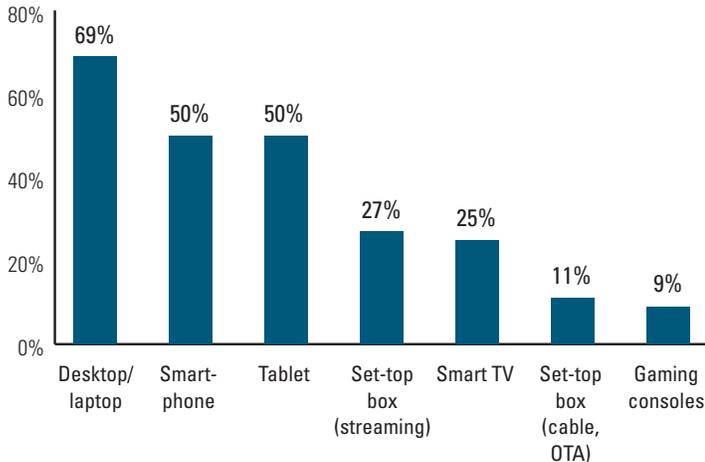
Almost 70% of respondents said they support desktops and laptops, followed by 50% each for smartphones and tablets. Internet/streaming set-top boxes (e.g., Apple TV, Roku) are supported by 27% of respondents, and an almost equal amount (25%) saying they support Smart TVs.

Interestingly, even though game consoles and traditional (cable/satellite/terrestrial) set-top boxes garnered no votes for personal consumption of webcasts earlier in our survey, approximately 10% of respondents said they have current support for these devices.

On the question of supported mobile operating systems, Apple's iOS is supported by 57% of respondents. That's not surprising, given how dominant iOS was in our earlier question about personal consumption.

Yet Android is supported by 53% of respondents, despite accounting for only 6% of personal consumption of live webcasts. Even more interesting is the Windows Phone support: Windows Phone wasn't even mentioned in the comments section of the question on personal consumption of live webcasts, but 23% of respondents say they provide technical support for Windows Phone devices.

On the protocols front, we asked respondents to tell us which delivery protocols they support.

Apple's HTTP Live Streaming (HLS) was the clear winner (37%) with RTMP coming in at a distant second (26%), and HTTP Dynamic Streaming (HDS) from Adobe in third place (23%).

Additional protocols included Smooth Streaming (17% support), RTSP (15%), and MPEG-DASH (13%). Many respondents (24%) were uncertain about which protocols were supported by their company, educational institution, or house of worship.

Chart 14: Protocols Supported
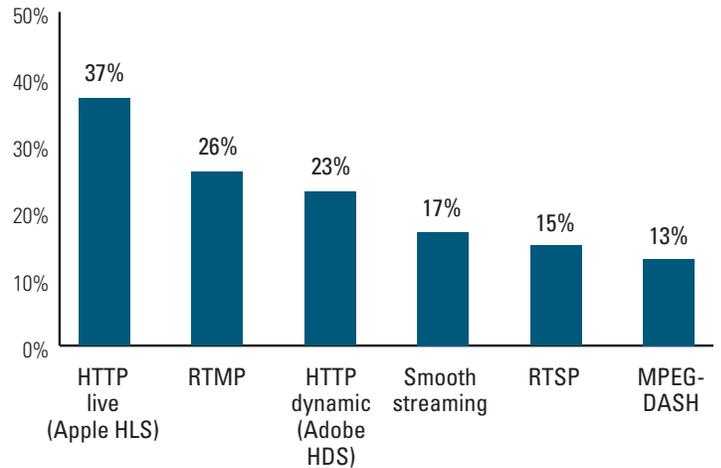
We also asked an open-ended question about "additional mobile operating systems and delivery protocols you expect to support in the near term" to see if any additional protocols or OS options came to the forefront.

Only one-third of respondents answered this question, but the responses were consistent:

"Adoption as the industry adopts"

"MPEG-DASH" (high number of responses)

"We are currently installing SIP-based devices"

"Our surveys indicate that 98% of our users are either iOS or Android. Until another platform hits at least 10%, we will continue to support iOS and Android only."
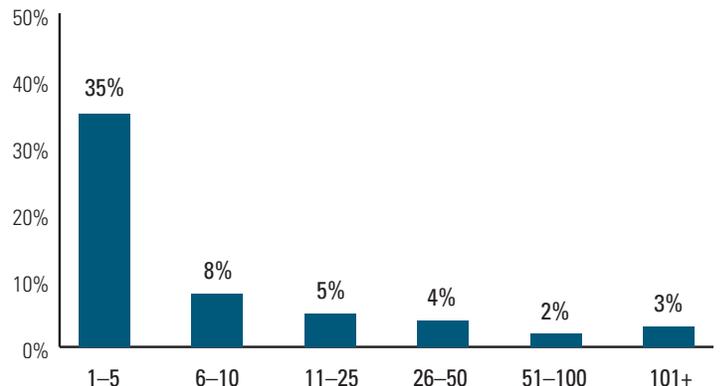
"Android & Apple"

AVERAGE NUMBER OF WEBCASTS

The survey shifted to the number of webcasts and the average number of participants.

The first question centered on the average number of internal (employee-only) webcasts served in a given month.

### Chart 15: Critical Hosted Services for Webcasting

The largest selection, by almost a 4:1 margin, was an average of 1-5 internal (employee-only) webcasts per month (35%). The remaining choices followed a downward trend, with one exception. The next largest group was 6–10 webcasts per month (8%), then 11–25 webcasts (5%), then 26–50 webcasts per month (4%), followed by less than 2% of respondents who said their company does 51–100 webcasts per month.

The trend was broken, though, by an uptick (3%) in those respondents whose companies delivered 101 or more internal webcasts per month.

On the external (public-facing) webcasts front, the trend was the same, but with overall higher percentages.

Chart 16: Average External Webcasts Per Month
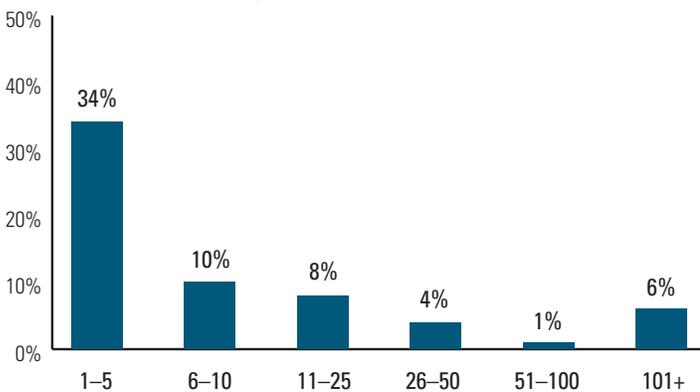
For the 1–5 webcasts per month average, 35% of respondents chose this option.

The next largest group was 6-10 webcasts per month (10%), then 11–25 webcasts (8%), then 26-50 webcasts per month (4%), followed by less than 2% of respondents whose companies did 51–100 webcasts per month.

But the "101 or more" category for external (public-facing) webcasts was much higher, with 6% of respondents choosing this option. This is aligned with the trend, noted earlier in our survey analysis, for more respondents to work for companies that tend to offer more external webcasts than internal ones.

By the Numbers

The survey's questioning then shifted toward scale and scope of webcasts, with our first question covering the number of average participants in a typical webcast.

In terms of the number of participants, we found an interesting trend.

While 19% of respondents said the average audience size was 1–25 participants, the next largest grouping was 101–500 participants (13%), followed very closely by three other group sizes: 26–50 participants (11%), 51–100 participants (10%), and 1,000 or more participants (also at 10%).

**Chart 17: Average Webcasting Audience Size**
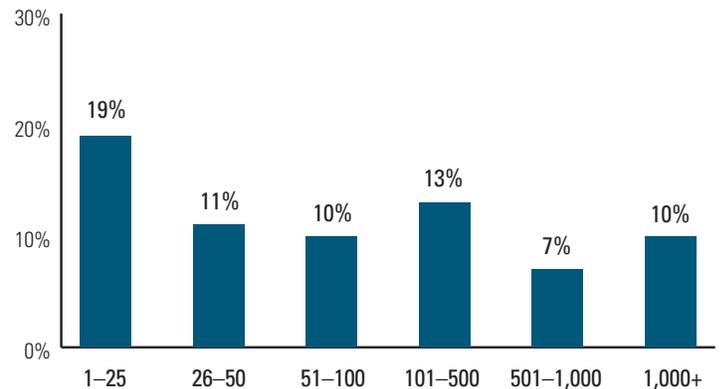
This uptick in very large web audiences—almost twice the percentage of the middle group (501–1000 participants)—reveals the challenge for companies that have both small, day-to-day webcasts and larger all-hands or executive webcasts.

We also asked respondents to tell us the percentage of their employees that have access to view business-related online content during the work day. Almost 60% of respondents said that 81%–100% of employees have access throughout the workday, with 18% telling us that up to 20% of their workforce can access online content at work. The remaining groupings—21%–40%, 41%–60%, and 61%–80%—were all clustered in the 7%–9% range overall.

Around 68% of respondents told us that 61%–100% of their employees have online content access during the workday, a percentage that may shift as more companies issue smartphones and cellular-equipped tablets for use in the field.

Finally, we asked about the interest participants had in certain hosted services, those services made available by a service provider skilled in Large-Scale Webcast delivery.

Chart 18: Critical Hosted Services for Webcasting
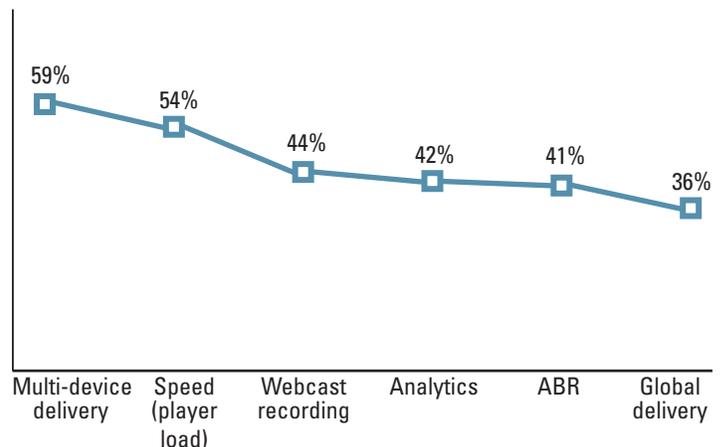
The top three choices on our list of eight, from which respondents could choose multiple service offerings, were in line with previous surveys. Respondents said they would need multi-device delivery (59%), followed by the need for speedy player load times (54%), and webcast recording functionality (44%).

Two additional services—analytics and adaptive bitrate delivery, or ABR—were neck and neck, with both attracting 41% of respondents. The list was counted out by global delivery needs (35%), cloud-based encoding (24%), and advertising insertion (14%).

Respondents also gave us several additional comments, mostly centered on the need for blanket music copyright services and closed captioning functionality.

COMMERCIAL CHALLENGES

We then explored "significant commercial challenges" for those respondents assessing the use of a Large-Scale Webcasting service.

**Chart 19: Commercial Challenges in Choosing Webcasting Service**
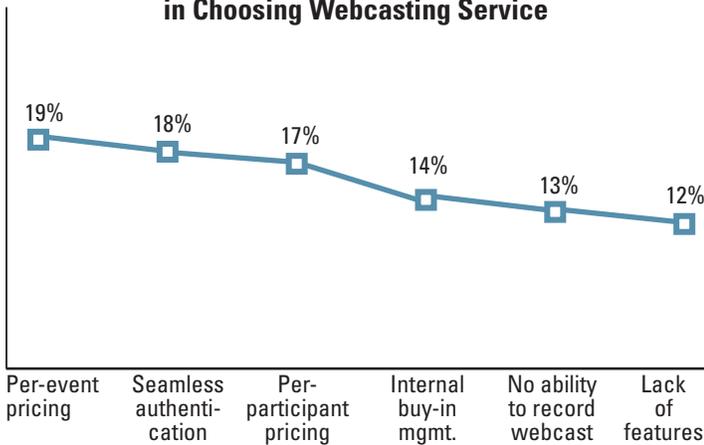
For this question, per-event pricing (19%) or pricing that stays constant regardless of the number of participants (within reason) was quite popular, followed by the need for Large-Scale Webcasters to offer a seamless authentication experience (18%). This was closely followed by a desire for per-participant pricing (17%), internal buy-in from management, and a desire for options to record webcasts for later use (13%).

Respondents also cited three internal challenges, from a commercial standpoint: the need for internal management buy-in (14%), a lack of features offered by external webcasting services (13%), and a lack of single-vendor solutions to meet webcasting needs (11%).

To further explore the concept around per-event or flat-rate pricing, we asked respondents to choose between three pricing

models—per-participant, per-event, and per-month—and indicate which pricing model is most likely to influence their decision to use a Large-Scale Webcasting service. [**Chart 20, Q24**]

Chart 20: Service Pricing Models By Attractiveness
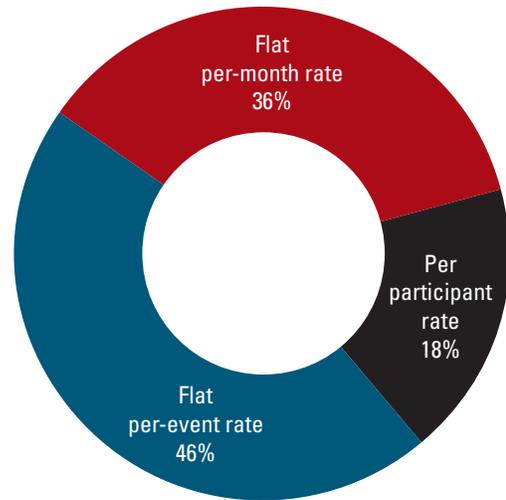
Flat per-event pricing is the clear winner (46%) with per-participant pricing—the standard industry practice, to date—lagging well behind (18%). To put it in perspective, per-participant pricing was so unpopular that it was chosen at a rate of half of the second-most influential pricing model, a flat per-month pricing (36%).

We also asked the question in a slightly different way: "What are the limiting factors when your company considers a Large-Scale Webcasting provider strategy?"

Chart 21: Limiting Factors in Choosing Webcasting Service
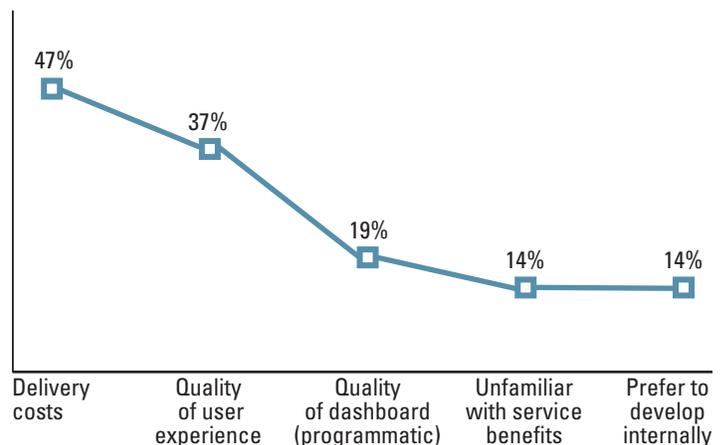
Far and away, the biggest limiting factor is pricing and delivery cost (47%), followed by quality of user experience (37%). The quality of the dashboard or programmatic experience was third

(19%), followed at 14% each by our last two options: prefer to develop internally and an unfamiliarity with Large-Scale Webcasting platform benefits.

As several respondents noted in the "Other" comments section: "cost, cost, cost" was the limiting factor. Additional respondents commented that security and privacy concerns also were limiting factors.

When we filter for those respondents working for companies that already produce live webcasts, the respondents cited the limiting factors in the same order. However, delivery cost is even more pronounced as a limitation, with 56% of respondents noting it as the key deal-breaker in using an external Large-Scale Webcasting service provider.

Finally, maintaining the same filter—respondents working for companies that already produce live webcasts—we asked about the use of multiple external Large-Scale Webcasting providers. Only 30% of respondents indicated their company does utilize multiple providers, with the remaining 70% using either one or no external webcasting service.

BRANCHING OUT TO MOBILE DEVICES

We asked participants to tell us how much their company has maximized delivery of webcast events to smartphones and tablets.

Chart 22: Maximized Mobile for Webcasting Delivery
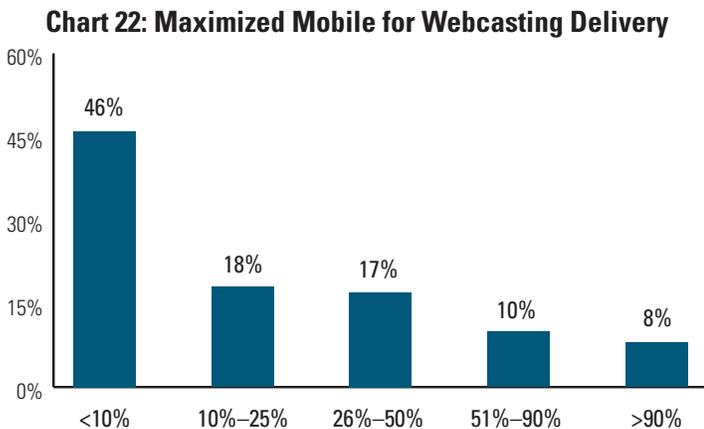
Almost half of respondents said they've maximized mobile delivery by less than 10% of its total potential. This group of 46% of respondents is slightly ahead of the industry average for on-demand content, as several of our previous surveys have found a less-than-10% maximized rate of almost 80% in many cases.

Only 18% of participants said they had between 10-50% mobile maximization, and only 18% said they had maximized above 50% in current Large-Scale Webcasting delivery.

This finding is consistent with one of the survey's initial questions, in which we asked about personal media consumption devices for live webcasts, and participants said they primarily use laptop and desktop devices to view live webcasts.

We also asked participants to tell us whether new device categories (e.g., tablets, watches) impact their company's Large-Scale Webcasting delivery. This was an open-ended question, and 411 of our 774 participants responded:

"The increasing fragmentation adds complexity to internally built/supported/maintained solutions and opens the doors to looking at external vendors."

"Increases need to do constant compatibility testing"

"We need to support new devices, if they reach a certain market share."

"Android and iOS are 98% of our users. They both run on phones and tablets. Apple Watch does not work without an iPhone, so we're right back to Android and iOS."

"Today, we expect most of our customers to participate in webcasts via a desktop computer. We expect new devices to significantly impact our webcast approach in the coming 2–3 years."

CONCLUSION

To summarize the key takeaways from this survey, on a personal consumption level, respondents tend to use desktops and laptops for live webcasts significantly more than they use smartphones and tablet, representing a departure from the overall on-demand media consumption market trends toward much more extensive use of smartphones and tablets for media consumption.

From a technical standpoint, respondents understand the benefit of using an external provider to address bandwidth limitations, but they also want the service provider to offer a high quality of service and a consistent quality experience, and they are also interested in broad device support.

As far as commercial challenges in adopting a Large-Scale Webcasting service provider, pricing is the key barrier to entry. However, many respondents would choose a flat-rate event price, or even a flat per-month webcasting pricing model, if one were offered.

And finally, respondents said that a seamless authentication experience is critical to their workflow, suggesting that Large-Scale Webcast service providers should place a priority on developing and rolling out authentication for both the traditional consumption device (desktop/laptop) and emerging consumption devices (smartphones, tablets, smart TVs).

ABOUT ONSTREAM MEDIA

Onstream Media Corporation is a leading online service provider of corporate audio and web communications, including webcasting, webinar, conferencing and virtual event technology. Onstream Media's innovative webcasting platform has recently been ranked #1 by TopTenREVIEWS. The company's video streaming, hosting and publishing platform—Streaming Publisher—provides customers with cost effective tools for encoding, managing, indexing, and publishing content to the Internet or virtually any mobile device.

To date, almost half of the Fortune 1000 companies and 78% of the Fortune 100 CEOs and CFOs have used Onstream Media's services. Select Onstream Media customers include American Honda, Dell, GE Capital, Georgetown University, IRS, HBO Latin America, HubSpot, PR Newswire, Stanford University, Twitter and the U.S. Department of Agriculture. Onstream Media's strategic relationships include Akamai, BT Conferencing and Trade Show News Network.

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