Executive Summary & Key Findings

These are exciting and challenging times. Broadcasters and other segments of the media and entertainment ecosystem are facing multiple technology transitions, each with wide-ranging implications for the overall health and competitive standing of their organizations. How will media companies navigate these impactful and simultaneous technology evolutions? How far are they in their journeys toward a more flexible, agile and higher-performing infrastructure? Are these transitions interrelated? How quickly should media companies move toward the next milestone in the evolution of their operations?

Providing answers to these critical questions is the chief objective of primary research recently conducted by Imagine Communications. The 2016 Focus Forward Technology Trends survey was created to provide media professionals with a timely and realistic assessment of the state of the media and entertainment industry technology landscape. The survey, based on the responses of more than 700 professionals from all regions and segments of the industry, delivers an up-to-date account of the status of ongoing technology transitions, as well as insight into how swiftly and in what direction broadcasters and other media companies will move to modernize their production, playout, distribution and advertising operations.

Technology transitions are hardly new to media professionals. Running parallel to the history of the broadcast industry is a contiguous series of technology advances, including the transition from black & white...
to color, analog to digital and SD to HD. But never before have all segments of the media and entertainment industry been required to deal with so many simultaneous technology changeovers, some bringing unprecedented degrees of disruption. The now-inevitable transition to IP-based facilities, for example, requires the crossing of a cultural chasm that many believe may be even wider than the technological one.

Each of these technology transitions will impact, to some degree, nearly all broadcasters and other media companies in 2016. Their successful adoption over the next several years is critical to media companies that hope to keep pace with a rapidly evolving ecosystem. Nearly every aspect of the industry is in flux: Consumers are watching more and more video programming outside of appointed time schedules and they are utilizing a growing diversity of devices and delivery channels to consume that programming. At the same time, a steadily increasing number of content owners are obliterating long-standing competitive boundaries and disrupting supply chain relationships by delivering video content directly to consumers.

The positive news is that the industry has reached a consensus on the need to inject unprecedented agility into existing video production, playout and distribution operations to meet future demands and expand monetization opportunities. NAB President and CEO Gordon Smith spoke of the urgency to shift operations to more flexible and versatile environments in a keynote speech from NAB 2015:

“In an increasingly fragmented marketplace, nextgen promises to provide flexibility, IP interoperability and new revenue streams; opportunities to innovate to better serve our communities; and the ability to compete in a mobile world.”

This survey examines four distinct but interrelated technology transitions:

- SDI to IP
- Hardware-centric to virtualized
- HD to UHD
- Linear to omniplatform ad management

This survey is designed in part as a gauge, a tool for level setting how far the media industry has progressed down this next-gen road and to assess the attitudes and ambitions of media professionals.
as they contemplate the next phase in their journeys. Even if the destination is no longer a mystery, broadcasters and other media companies must still map out a plan for modernizing their networks that is cost effective, non-disruptive and capable of keeping them comfortably ahead of the competitive curve. Knowing what your peers are planning, a major objective of this study, is critical to the construction of any strategic roadmap.

The 2016 Focus Forward Technology Trends survey builds on primary research conducted last year. That survey, and the resulting report, focused on the strategic technology objectives of media companies in 2015. The new report goes much broader and deeper. It is designed to provide a detailed examination of the technology adoption plans of media professionals, as well as firsthand insight into their perceptions of both the benefits and concerns associated with ongoing technology evolutions.

Key findings include:

- More than 40% of broadcast professionals say they have transitioned from 25-100% of their operations to IP
- The use of standards-based, non-proprietary products is viewed as the most important requirement of an SDI-to-IP hybrid environment
- The ability to introduce new sources of revenue is considered the top objective of an SDI-to-IP transition
- Nearly 90% of media companies have initiated the process of moving hardware-dependent operations into virtualized environments
- Almost 45% of media professionals say they have transitioned at least 25% of operations to virtualized environments
- Nearly 50% of survey respondents estimate it will be more than two years before market demand is strong enough to justify significant investment in UHD
- Nearly 75% of broadcast professionals say that a unified, omniplatform approach to ad management is Important or Very Important to the success of their businesses

This report is presented in four sections, each corresponding to a specific technology trend, as well as a concluding section with additional findings.
As technology transitions go, adapting traditional media operations to an IP-based infrastructure built on generic compute and networking resources is not trivial. As much as media professionals over the decades have been conditioned to adjust to a steady stream of technology changeover, the transfer of all operations to a packet-based environment is not your garden-variety transition.

The scope of this technology shift extends beyond the usual cost and operational transparency issues presented by more modest transitions.

In fact, roughly half of the media professionals surveyed indicate that cultural issues, such as acquiring new skill sets and increased integration into the organization’s IT practice, posed more of an obstacle than technology issues.

Speaking on a panel at NAB 2015, then-Disney/ABC Television Group CTO Vince Roberts suggested that an evolving workplace was a bigger obstacle to overcome than the imposition of new technology. “A lot of what we had to do was socialize why big iron was no longer necessary,” said Roberts, referring to Disney/ABC’s transition of playout and other functions to an IT-based infrastructure. “That was more of a cultural challenge than a technical one.”

Survey respondents who identified themselves as engineers have a similar view of the technology/cultural issue as the overall survey universe. By almost the same proportion, they consider non-technical aspects of the migration of operations to IP to be nearly as important as technology challenges. This suggests that broadcasters and others should take into consideration the importance of change management and other personnel issues when mapping out an SDI-to-IP transition strategy.
Transition Status

A fact that often gets overlooked in conversations concerning the IP transition is that most media companies have already moved a portion of their operations to IT-based environments. The incorporation of any file-based operation into your workflows, including asset management or editing, is technically a step down the all-IP path.

It is the propensity of media professionals to disregard file-based workflows as part of the IP transition that most likely accounts for the 22% of survey respondents who indicated that they have transitioned zero percent of their operations to IP. These survey findings enforce the fact that many broadcasters and other media companies strongly associate the move to IP with the processing, transport or playout of live/linear video and audio streams.

![Figure 3: To what degree has your organization transitioned its SDI operations to an IP environment?](chart.png)

Accordingly, the Sports & Live market segment produced the highest percentage of responses within the subset of respondents who indicated they had yet to transition any portion of their operations to IP. Nearly 50% of media professionals in that market segment say they have yet to make a move to IP. Education contained the next highest percentage (38%) of survey takers that claim to operate entirely in the SDI realm. Of the respondents who identified their job role as Engineering, 27% indicated that their companies have not started a transition to IP.

Interestingly, nearly 40% of respondents indicated that they had converted at least 25% of operations to IP. Almost 20% estimate that more than half of their operations are now executed in an IP-based realm.
Business Drivers

Increased agility, technology future-proofing, the reduction of operational expenses and leveraging the sizeable economies of scale of the IT industry are often cited as major motivations for moving operations to IP. But which business drivers matter the most? Of the media professionals who were asked to identify the three most important reasons to move operations to IP, a small majority selected Added Agility and flexibility to Introduce New Services and Sources of Revenue. This provides a strong indication that while realizing cost efficiencies and better conditioning infrastructures for future technology upgrades are important incentives for moving operations to IP, many media and entertainment companies recognize new monetization opportunities as the primary objective of moving to more agile infrastructures.

A close second was Speeds Adoption of New Technologies. Almost half (49%) of respondents appear anxious to exploit the future-proofing attributes associated with generic Commercial-Off-the-Shelf (COTS) computing and networking equipment, which significantly simplifies the process of upgrading to new codecs, standards and other technology refreshes by severing the dependency between software-based functionality and underlying hardware.

After Reduces Operational Expenses, considered a top business driver by 41% of respondents, survey takers who rated highly the importance of IT-related benefits, such as Leveraging Economies of Scale, fell into the 25% range. It is logical to attribute the falloff in enthusiasm for IT-based benefits to reservations harbored by media professionals about the suitability of IT infrastructure to handle media operations, especially when live programming is involved.
Concerns

An examination of survey results related to concerns associated with a transition to IP, however, does not indicate a large degree of anxiousness over moving operations to IT-based platforms. In fact, *IT/IP-based Environment Not Suitable for Professional Media Operations* was selected by the fewest number of respondents as one of their top three concerns associated with the transition to IP.

![Figure 5](image)

Figure 5: What are your biggest concerns about transitioning your operations to an IP-based generic computing environment?

<table>
<thead>
<tr>
<th>Concern</th>
<th>Percentage</th>
</tr>
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<tbody>
<tr>
<td>Expense of infrastructure upgrade</td>
<td>57%</td>
</tr>
<tr>
<td>Operational disruptions</td>
<td>55%</td>
</tr>
<tr>
<td>Security</td>
<td>41%</td>
</tr>
<tr>
<td>Quality degradation</td>
<td>33%</td>
</tr>
<tr>
<td>Retraining of existing workforce</td>
<td>33%</td>
</tr>
<tr>
<td>IT/IP-based environment not suitable for professional media operations</td>
<td>26%</td>
</tr>
</tbody>
</table>

A likely explanation for survey results indicating neither enthusiasm nor anxiousness over moving operations to IT environments is that media professionals are still largely unfamiliar with IT-based operations and, accordingly, do not yet see the approaching fusion of IT and media operations as delivering notable benefits or as raising significant concerns.

Not so surprisingly, topping the list of concerns are *Expense of Infrastructure Upgrade and Operational Disruptions*, considerations that are historically associated with all technology transitions. Security risks were cited by 41% of respondents as a top concern. Somewhat of a surprise, only 33% of media professionals expressed apprehensiveness about *Quality Degradation* resulting from a transfer of operations to an IP-based infrastructure. This suggests a possible decrease in concern about performance-degrading latency in live programming environments.

“...topping the list of concerns are Expense of Infrastructure Upgrade and Operational Disruptions...”
SDI-IP Hybrid

The industry has also reached a consensus on the importance of a carefully planned transition to an all-IP facility. Few, if any, media companies are in the position to swap out the remaining portions of their SDI-based plants overnight. Instead, most broadcasters and other media companies will maintain hybrid SDI-IP facilities for the foreseeable future, allowing them to avoid stranding existing investments and better manage the transition of operations.

A small majority of survey respondents indicated that adherence to industry standards was the top requirement of a hybrid SDI-IP transition strategy. The strong showing of this attribute indicates that survey takers understand the important role played by standards in facilitating a smooth transition to IP. In addition, they recognize that industry standards provide an open and interoperable alternative to proprietary approaches that hinder innovation and block media companies from exploiting the economic and performance benefits of an open and large marketplace. Standards are vital to fostering healthy competition and providing broadcasters and other media companies with technology choices. Uses Standards-based and Non-Proprietary Generic Equipment was selected most often by survey respondents asked to select three of the most important attributes of an infrastructure configured to simultaneously support SDI and IP workflows.

These findings also validate the significance of the December 2015 founding of the Alliance for IP Media Solutions (AIMS), a trade association dedicated to advancing the adoption of industry standards for the transmission of video, audio and ancillary information over an IP infrastructure, as well as products based on those standards. AIMS works with industry standards organizations, including the Video Services Forum (VSF), the Society of Motion Picture and Television Engineers (SMPTE) and the European Broadcasting Union (EBU), to facilitate the industry’s transition from SDI to IP through interoperable solutions that enable the rapid evolution to open, agile and versatile production environments.

Media professionals also expressed significant support, in descending order, for a transitional infrastructure that Preserves Existing Investment in SDI Infrastructure (45%), Does not Introduce Operational Disruptions (40%) and is Compatible with Familiar SDI Management & Monitoring Tools (33%). Surprisingly, the vast majority of survey respondents did not identify the ability to facilitate an SDI-IP transition on a self-controlled timetable as an important characteristic of a hybrid transition strategy.

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Percentage</th>
</tr>
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<tbody>
<tr>
<td>Uses standards-based and non-proprietary generic equipment</td>
<td>55%</td>
</tr>
<tr>
<td>Preserves existing investment in SDI infrastructure</td>
<td>45%</td>
</tr>
<tr>
<td>Does not introduce operational disruptions</td>
<td>40%</td>
</tr>
<tr>
<td>Compatible with familiar SDI management &amp; monitoring tools</td>
<td>33%</td>
</tr>
<tr>
<td>Enables the transition to an all-IP plant at a comfortable, user-controlled pace</td>
<td>17%</td>
</tr>
</tbody>
</table>

Figure 6:
What are the most important requirements of a hybrid SDI/IP transition environment?
Timeline

In terms of timing, survey results were fairly consistent with adoption timelines for most technology evolutions. A small (20%) percentage of respondents estimated that nearly all of their SDI-based operations would be transitioned to IP within the next two years. Twice that number (41%) estimate that their all-IP infrastructures will be completed or nearly completed in the 2-5 year timeframe, with 33% indicating that the span of the transition will stretch out 5-10 years. The fact that 94% of survey takers put a decade-long cap on the duration of the transition reflects widely held assumptions that media companies will transition, not in lockstep, but in accordance with numerous company-specific factors over a window of time consistent with most major technology evolutions and in line with traditional technology refresh cycles.

Figure 7:
How long do you estimate that it will be before nearly all of your SDI-based operations will have transitioned to IP?
Some media companies are already discovering that the transition of their operations from purpose-built hardware to software-centric, or software-only, environments is resulting in dramatic increases in flexibility and versatility. Severing dependency on specialized hardware frees up broadcasters to move operations to generic, industry-standard computing resources, a catalyst for introducing an array of cost-savings and agility improving benefits. In virtualized environments, including private and public clouds, media companies, for example, can launch new channels in a fraction of the time – and at a fraction of the cost – typical of a hardware-based environment. Execution of traditional applications, such as master control and disaster recovery to ensure business continuity, can be executed in a remote datacenter, severely reducing costs and eliminating geographical constraints.

The Focus Forward 2016 Technology Trends survey indicates that a significant percentage of respondents are well down the path of transitioning operations from dedicated hardware to generic computing resources. Nearly 30% of media professionals indicated that between 25% and 50% of operations have been transitioned to virtualized environments.

Of the 86% of respondents who have taken steps to move media operations to software-only settings, 43% estimate that they have converted less than 25% of their facilities, while 14% claim to have moved at least 50% of operations to a virtualized environment. The 14% of respondents who say they have yet to convert any operations to hardware-independent settings are distributed fairly evenly across geographical regions. Nearly 20% of respondents from Africa say they have yet to go virtual, while about 15% of survey takers in North America, South American and the Caribbean, Middle East, Europe and Asia report the same. Central America is the most aggressive adopter of virtualized operational environments, according to the survey, with 93% of survey takers indicating they have taken some steps toward software-based operations.
Concerns

Security was more of a concern for media companies moving operations to virtualized environments than to IP, despite the considerable overlap between the two technology evolutions. More than half (55%) of survey respondents, asked to identify up to three concerns, selected Security, which was the top response. The prospect of moving operations to the cloud continues to raise red flags among media professionals despite the fact that some studies suggest that storing information in large datacenters operated by large IT companies delivers better protection of data than corporate-owned and - operated facilities. Operational Disruptions and Failures are Difficult to Diagnose were next in line among top concerns, at 47% and 45%, respectively.

The need to acquire new Skill Sets and a Lack of Required Standards were at the bottom of the list of concerns associated with transitioning operations to cloud and other software-based environments.

<table>
<thead>
<tr>
<th>Concern</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Security</td>
<td>55%</td>
</tr>
<tr>
<td>Operational disruptions</td>
<td>47%</td>
</tr>
<tr>
<td>Failures are difficult to diagnosis and fix</td>
<td>45%</td>
</tr>
<tr>
<td>Reliability and lack of computational horsepower</td>
<td>38%</td>
</tr>
<tr>
<td>Skill sets</td>
<td>30%</td>
</tr>
<tr>
<td>Lack of required standards</td>
<td>27%</td>
</tr>
<tr>
<td>Other</td>
<td>7%</td>
</tr>
</tbody>
</table>
Transition Priority

Similar to the transition from SDI to IP, broadcasters and other media companies will move operations to software-only, virtualized environments in increments and as conditions, such as costs and performance requirements, dictate. It’s no surprise that media professionals are putting *Signal Routing* at the bottom of their timetable for shifting processes from specialized platforms to generic computing and networking resources. The transport and manipulation of video and audio essences are understandably considered the most susceptible to disruption if relocated to a virtualized operations environment.

That *Distribution* (Encoding/Decoding), at 52%, is at the top of the transition list is also in line with reasonable expectations. Successful commercial cloud-based encoding services, such as those offered by Microsoft Azure, have been providing media professionals with peace of mind for more than a year that they can safely outsource some of the heavy lifting of their distribution operations to virtualized environments.

Master control, which is synonymous with delivering live/linear programming, is understandably low on the list of operations to make the move to virtualized environments for the same reasons as signal routing.

### Figure 10:

**Which of the following operations are you most likely to move first to a cloud (public or private) environment?**

- Encoding & Transcording: 52%
- Advertising: 36%
- Playout: 32%
- Editing: 32%
- Production: 28%
- Master Control: 16%
- Signal Routing: 14%
- None: 7%

Timeline

Even though most media professionals recognized the importance of transitioning operations from hardware-dependent to virtualized environments, moving operations to a datacenter environment, whether private or public, is a major step for most broadcast organizations. Given the significance of the transition, survey results project a fairly aggressive timeline. Though a small plurality (38%) of respondents estimate that less than 25% of operations will be in the cloud in five years, nearly as many (32%) expected to be in the 25-50% range by 2021, with 21% anticipating that more than half of all operations will be conducted in a datacenter in five years.

### Figure 11:

**What percentage of your operations do you expect will be located in a private or public cloud in five years?**

- Less than 25%: 32%
- Between 25-50%: 38%
- More than 50%: 21%
- 100% on cloud: 4%
- Zero on cloud: 5%
A small percentage of responses fall on opposite ends of the spectrum, with 5% of respondents avoiding off-premises business models altogether and 4% claiming that operations will execute entirely in a cloud in five years. Of the 5% of respondents who do not plan to move operations to a cloud in the near term, *Failures are Difficult to Diagnose and Fix* was cited as the major concern, followed by *Security* and *Operational Disruptions*.

**Cloud Playout**

The successful relocation of integrated playout operations to the cloud was well publicized in 2015 through several high-profile public deployments. In April, Disney/ABC Television Group, one of the largest media and entertainment companies in the world, announced the relocation of its channel origination and playout operations, including master control, into a virtualized environment. Two of the most influential broadcasters in the Middle East, Al Rayyan and Alrai TV, unveiled deployments of playout in the cloud for business continuity and primary playout applications in 2015.

Not surprisingly, half of all survey respondents viewed cloud-based playout operations as being suitable for hosting both revenue-generating services (channel launches) and business continuity applications (disaster recovery).

Only 11% of respondents expressed reservations about the viability of a cloud playout environment for any operation. *Security*, at 23%, was the top concern cited by those respondents who said that neither channel launches nor business continuity applications were suitable for the cloud.
On the surface, the transition from HD to Ultra HD (UHD) seems like the most pedestrian of all the technology transitions confronting media professionals. The broadcast industry, after all, is marked by continuous advancements in resolution and picture quality, part of a never-ending quest to deliver consumers as-if-you-were-there experiences over the display devices of their choice. But when and how to move to higher resolutions and adopt advanced compression schemes may turn out to be the most difficult riddles for media companies to solve in 2016.

The major complication is that the move to UHD (and HEVC) is gated by a number of variables. For starters, there’s the penetration issue. Exactly how many consumers have the display devices, set-top boxes and bandwidth to view UHD content or decode HEVC streams?

Fitting enough puzzle pieces together to get an accurate picture of UHD’s potential may take longer than many observers believe. Nearly half of those surveyed estimate that it will be more than two years before market demand is large enough to justify significant investment in UHD-based technologies. The regions that expressed the most concern about the near-term market demand for UHD were Africa (64%) and Central America (60%). Only 39% of media professionals in South America and the Caribbean say that it will take more than two years for UHD to warrant significant investment. In terms of market segments, 55% of TV broadcasters believe sufficient UHD demand is more than two years away.

On the other side of the UHD adoption spectrum resides the 9% of respondents who believe that UHD is ready for prime time now or in the next six months. Respondents working for content distributors and post production houses, not surprisingly, most frequently indicated that demand for UHD is currently strong. While UHD is only now showing up in live broadcasts, the higher-resolution format has been used extensively in cinematic settings for more than a year.

Figure 14: When do you think there will be enough market demand to support significant investment in UHD production and playout capabilities?
Business Factors

So, which business and market issues are media professionals most concerned about? Asked to identify the factor that was most prominent in influencing their rate of UHD adoption, survey respondents selected Cost Factors Associated with Upgrading Infrastructure most frequently (36%), followed by the Penetration of UHD-capable TVs and Other Devices (29%).

The survey results indicate that despite fairly rosy estimates of 4K/UHD television sales over the next year or so, more than a quarter of media professionals harbor doubts that consumers will purchase new TVs at the fevered pace being predicted or that a tipping point-worthy number of consumer devices will be equipped with the technology required to decode compressed UHD video. The Stability of HEVC and other Relevant Codecs and Standards appears to cause only a small percentage (7%) of survey takers significant consternation.

An engineering-specific perspective of UHD adoption reveals that engineers respond to the question about factors influencing the adoption of UHD in almost the identical manner as the overall universe.
Much has been made in recent months of the catalytic impact of the upgrade to UHD on the transition of all operations to IP. Based on survey results, many media professionals are still reconciling the relationship between UHD and IP. The critical question: Should media companies synchronize their transition to UHD with a move to IP and generic computing and networking resources or is SDI still the preferred technology for UHD?

By a margin of 10 percentage points, survey respondents believe that the transitions to IP and UHD are interrelated, as opposed to completely independent technology transitions.

In a related question, survey participants were asked to reveal their adoption plans for UHD from an SDI vs IP perspective. Only 20% of respondents indicated that they expect all UHD operations to remain in the SDI domain for the foreseeable future. A slightly higher (35%) number of respondents plan to support UHD in an IP realm from day one. The largest bloc of respondents (45%) indicated they will eventually transition UHD workflows to an all-IP domain from either an SDI-only or hybrid SDI-IP infrastructure.

Filtering responses to the same question by survey takers who believe that the transitions to UHD and IP are unrelated, yielded similar results, as illustrated in Figure 19. Plans to initially support UHD in an all-IP environment dipped slightly to 30% from 35% when that filter was applied.
HEVC

The past year has been a roller coaster ride for HEVC. Any momentum the codec could muster during 2015 was eventually dampened by concerns over royalties or the emergence of potential alternatives. For good or ill, HEVC is widely linked to UHD. But HEVC on its own offers media companies immediate business-improving benefits. When applied to HD, or even SD, content, HEVC gives media companies more bang for their bandwidth buck. HEVC’s superior compression ratio allows distributors to nearly halve their storage and bandwidth requirements without sacrificing video quality or customer experience. It also enables them to upgrade customer experience by delivering content of twice the quality over the same connection.

By all indications, though, HEVC is largely still sitting on the sidelines. A significant majority (62%) of respondents, asked to select all applicable HEVC use cases, indicate they are not using HEVC in any capacity. A slightly larger universe of respondents (64%) within the TV broadcast market segment indicates that HEVC is not currently part of their operations.

Of the 38% of respondents who say that HEVC is being used in their facilities, 13% indicate it is being employed exclusively to compress UHD content. Not surprisingly, respondents at Post Production facilities made up a large percentage of those who are using HEVC only with UHD content.
The great paradox confounding the media and entertainment industry over the past few years is that while video consumption is exploding in popularity, the ability to monetize all of that content has been hampered by viewership fragmentation. The ad world, simply put, has been unable to keep up with the steady migration of eyeballs to alternative viewing platforms and nonlinear content distribution models. 2016, however, is shaping up to be the year that media companies and brands get a firm grasp on monetizing content regardless of where or when it’s viewed.

To make a mark in this omniplatform environment, though, media companies will need to settle on a strategy for migrating to integrated solutions that place and monetize ads across multiple video consumption environments. This omniplatform approach encompasses linear television, on-demand, DVR, multiscreen, radio, and digital. Nearly three quarters (70%) of the qualified audience for the ad management section of the Focus Forward 2016 survey rates an omniplatform ad management approach as being Important (33%) or Very Important (37%) to their organization’s competitive standing.

Only 6% of TV broadcasters, the largest vertical represented in the survey, responded that an omniplatform ad management approach was Not Important, while another 14% of that same segment indicated omniplatform was Somewhat Important. Both findings are slightly smaller than results for the entire survey audience.
Omniplatform Benefits

Survey respondents did not identify a clear leader among perceived benefits resulting from a fully integrated approach to ad management. Instead, survey takers appear to value the major benefits of an omniplatform environment equally. Responses were evenly distributed across the four benefits provided, with only 10 percentage points separating the top response, Simplifies Account Management (29%), from the bottom response, Provides Value to Advertisers and Agencies (19%). The other two responses, Maximizes the Value of Inventory and Maximizes Efficiency and Reduces Errors, were identified by roughly a quarter of survey takers as the most important attributes of an omniplatform approach.

The fact that media professionals expect to realize multiple improvements in efficiency and revenue generation is a strong indicator that the adoption of an all-encompassing ad management approach will be a top priority in 2016.

Programmatic

Underlying the importance of any approach to ad management is the role that programmatic technology will play in automating ad sales processes. Though a consensus definition of programmatic advertising has yet to emerge, most media professionals associate it with the automation of ad sales between the supply and demand sides of the transaction. Still in its early stages of adoption in the television realm, programmatic advertising continues to raise concerns among media companies about how a programmatic approach will fit into an existing business structure and potentially impact the value of high-end inventory.

In terms of adoption, nearly 80% of all respondents indicated that less than 25% of their linear television or radio inventory is being sold through a programmatic marketplace. The largest number of respondents (38%), say they are moving between 10 and 24% of ad inventory through programmatic channels.

Somewhat surprising is the finding that 13% of those who responded reported that 50% or more of their ads are being sold
programmatically. That small sampling of heavy programmatic users appeared to be equally distributed across geographies and market segments.

Though growing increasingly popular in the digital arena, programmatic selling of linear video ads still hovers in the single-digits in the television realm, according to a consensus of recently published reports. Media companies are largely still in an experimental stage with programmatic, restricting its application in many cases to low-value inventory. That 30% of survey respondents indicate that at least 25% of their ad inventory is impacted by programmatic technology is potentially revelatory information, which may foreshadow an acceleration in future adoption.

Programmatic Benefits

Among media professionals with plans to use programmatic technology, the number one perceived benefit is the ability to further automate what are now manual processes. Landing last on the list of potential benefits, at 15%, is the Exposure of Inventory to Real-Time Bidding (RTB).

These findings validate recent commentary from ad management experts who tout programmatic technology as primarily an agent of automation.

**Figure 24:** How does or how will your business benefit most from the use of programmatic technology?
Programmatic Concerns

Given the glacier-like pace of penetration of programmatic into linear video advertising operations, media companies obviously harbor significant reservations about deep engagement with the technology. Figure 25 provides insight on the relative ranking of four specific concerns.

According to the survey, media professionals are most concerned about *Loss of Control of the Ad Selling Process*. Anxiousness over loss of control, cited by nearly 35% of respondents, likely reflects fear that the automating aspects of programmatic can disrupt — as much as streamline — current operations if they are not implemented thoughtfully. Interestingly, the increased automation of ad selling procedures promised by programmatic advertising appears to be a source of optimism, as well as a potential concern for media professionals.

The other top concern (31%) related to programmatic is that the overall ecosystem remains plagued by workflow or automation inefficiencies. Media professionals were only mildly concerned about programmatic practices driving down the value of inventory or competing with internal sales professionals.

Figure 25: What is your biggest concern about using programmatic advertising practices?
Though the four technology transitions profiled in this report can be addressed independently, broadcasters and other media companies are likely to tackle some, or even all, of these evolutions simultaneously. As survey findings indicate, considerable overlap and interdependencies exist across these technologies. More than half of all respondents, for example, view the transition from HD to UHD as tightly tied to the adoption of IP-based infrastructure.

Significant crossover also exists between the transition from SDI to IP and the migration away from purpose-built hardware in favor of executing operations in software-based, virtualized environments. Both transitions mandate that media companies relocate operations to generic COTS computing and networking platforms. In many respects, the migration of operations from IP-based infrastructure into virtualized settings, such as the cloud, is a logical next step down a common evolutionary path.

It’s no surprise, then, that a side-by-side comparison of these two transitions indicates that media companies are moving to IP-based infrastructures at about the same pace they are moving operations from purpose-built hardware into virtualized, software-based environments.

**Figure 26:**
Comparison of where media companies are in their transition to IP, versus the progress made in the transition to virtualized environments
Regional Differences

Are there strong variations among regions regarding the speed and direction of the adoption of pending technology transitions? The Focus Forward 2016 Technology Trends survey indicates fairly consistent findings across surveyed regions. In the following few charts, which illustrate regional progress toward the adoption of IP, virtualized environments and UHD, the few statistically significant variations can most likely be attributed to the small sampling of respondents in the Central American and African regions.

Figure 27:
How long do you estimate that it will be before nearly all of your SDI-based operations will have transitioned to IP?

Figure 28:
What percentage of your operations do you expect will be located in a private or public cloud in five years?

Figure 29:
When do you think there will be enough market demand to support significant investment in UHD production and playout capabilities?