

Cloud technology and the economics of video

Introduction

The application of cloud technology to video processing and delivery is already having a major impact on the economics of running video services. Shared infrastructure provides economies of scale and greater flexibility, as well as enabling smaller providers more easily to tap into the benefits of technological innovation.

At the level of consumer-facing services, cloud technology is playing a crucial role in decoupling video services from specific end-user devices and enabling a true device-agnostic experience – something that is clearly appreciated by respondents to our survey.

It is in the field of video processing, however, that the cloud is likely to have the biggest impact of all.

The benefits of scale and access to new innovation provided by the application of cloud technology will enable new and existing video service providers to launch new offerings quickly and with less risk.

It will also liberate service providers from worrying about technology, enabling them to focus on building, packaging and marketing new and exciting offerings.



AWS Elemental is an Amazon Web Services company that combines deep video expertise with the power and scale of the cloud to provide nimble, flexible software-based video processing and delivery solutions. With AWS Elemental, customers can harness the elasticity of the cloud when needed, on demand and with pay as you go services.

Solutions from AWS Elemental allow broadcast TV and multiscreen video to be customized, originated and monetized at global scale, giving customers the ability to quickly, easily and economically scale

and optimize video operations and the freedom to focus on what matters: transforming ideas into compelling content that captivates viewers.

Global media franchises, pay TV operators, content programmers, broadcasters, government agencies and enterprise customers rely on technologies from AWS Elemental to create agile, scalable and secure video workflows that bring content to life. Discover how AWS Elemental perfects the media experience at elemental.com.

Cloud technology and the economics of video

The impact of cloud technology

The adoption of cloud technology is set to have a major impact on the economics of launching and running video services. Cloud-based platforms are already being used to deliver the services of multiple video providers, and the pace of migration is accelerating.

Asked about the likely impact of cloud technology on video services, over seven in 10 of our survey respondents agree that cloud technology is having a transformative impact on all or some aspects of launching and running video services. Some 30.9% of respondents say it will have a transformative impact on all aspects of video service provision. A further 39.2% say it will have a transformative impact on some, but not all, aspects of delivering video.

Only a minority of respondents feels that cloud's impact will fall short of justifying the 'transformative' label. Some 16.9% believe that the cloud will nevertheless have a significant impact on all aspects of launching and running a video service – albeit one that falls short of deserving the 'transformative' description. A further 11.2% of respondents believe that the cloud will have a significant – but not transformative – impact on some, but not all, aspects of launching and running services.

Only a tiny minority – 1.8% – of respondents believes the cloud will have a small or negligible impact overall. (Fig. 5)

We also asked survey respondents which parts of the content creation and delivery chain, and consumer applications, would see the greatest impact or benefit from cloud technology.

The application of cloud technology to TV everywhere services will see the biggest impact, in the view of our sample. Some 55.4% of respondents believe that cloud technology will have a very big impact on TV everywhere services, with a further 32.7% believing it will have a moderately significant impact on TV everywhere.

Survey respondents give a similar score for the impact of the cloud on video-on-demand services: 54.7% believe the impact of cloud technology on the way VOD is delivered will be very significant, while 32.4% believe the impact will be moderately significant.

Also likely to see a major impact from the cloud is targeted advertising. Over a third of respondents believe the cloud will have a very significant impact here, with a further 41.4% believing it will have a moderate impact.

Applications that will see a moderate impact from the adoption of cloud technology include the consumer-facing applications of startover/pause live TV and digital video recording (DVR).

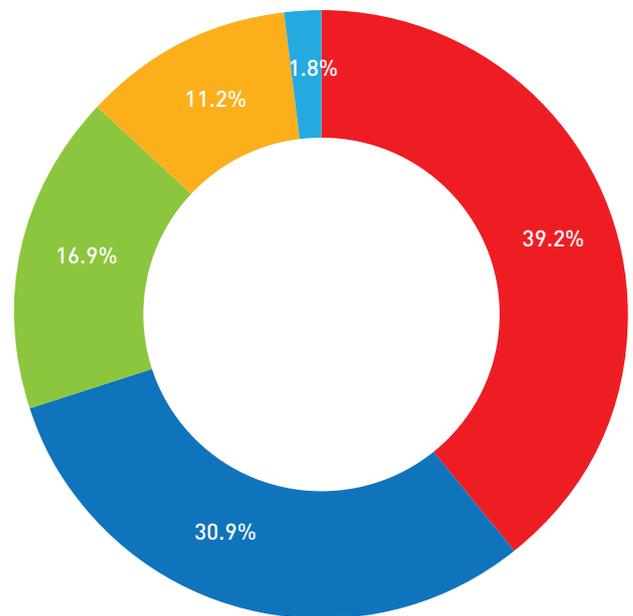
40% think cloud technology will have a transformative impact

Over seven in 10 respondents believe the cloud will have a very significant or moderately significant impact on startover/pause live TV, while 64% believe the same for DVR.

DVR is often seen as an obvious candidate for the application of cloud technology. However, some 36% of respondents believe the impact of the cloud on DVR will not be very significant or will be negligible. This may be related to residual concerns about regulatory and legal hurdles – notably the difficulty in a number of jurisdictions of implementing the shared-copy model – or to the perception that DVR itself is being superseded by VOD.

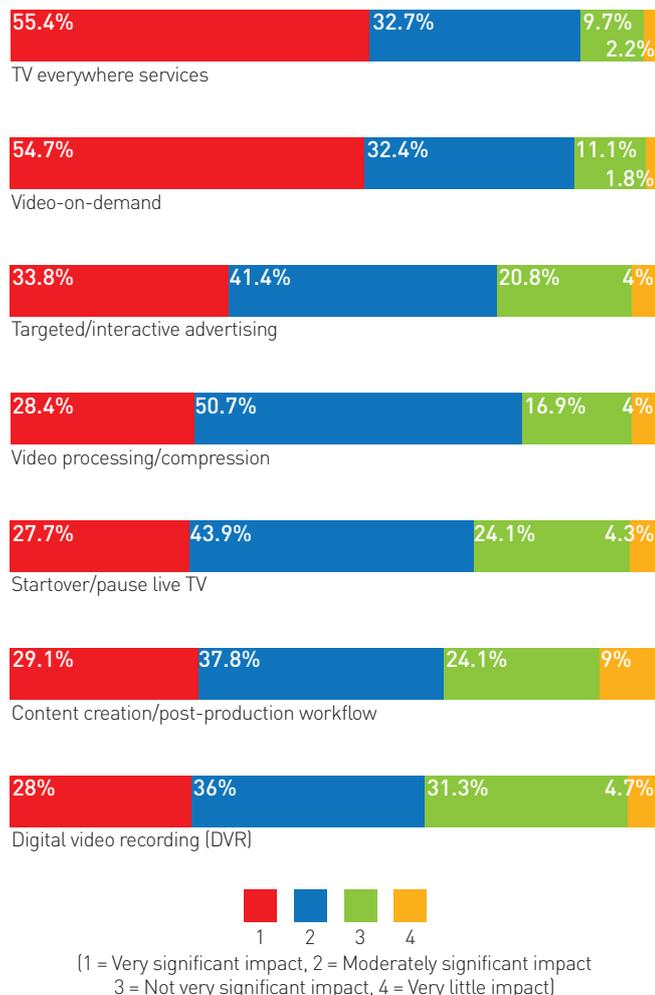
While consumer-facing cloud applications grab most of the attention, almost 80% of respondents also believe that the cloud will have either

Fig. 5 Which of the following statements best expresses your view of the impact of cloud technology on the economics of launching and running video services?



- Cloud technology will have a transformative impact on some but not all aspects of launching and running video services
- Cloud technology will have a transformative impact on all aspects of launching and running video services
- Cloud technology will have a significant but not transformative impact on all aspects of launching and running video services
- Cloud technology will have a significant impact on some but not all aspects of launching and running video services
- Cloud technology will have only a modest impact on launching and running video services

Fig. 6 Which parts of the content creation/delivery chain and consumer applications will see the greatest impact/benefit from cloud technology?



a very significant or a moderate impact on video processing/compression functions, with 28.4% believing it will have a very significant impact. (Fig.6)

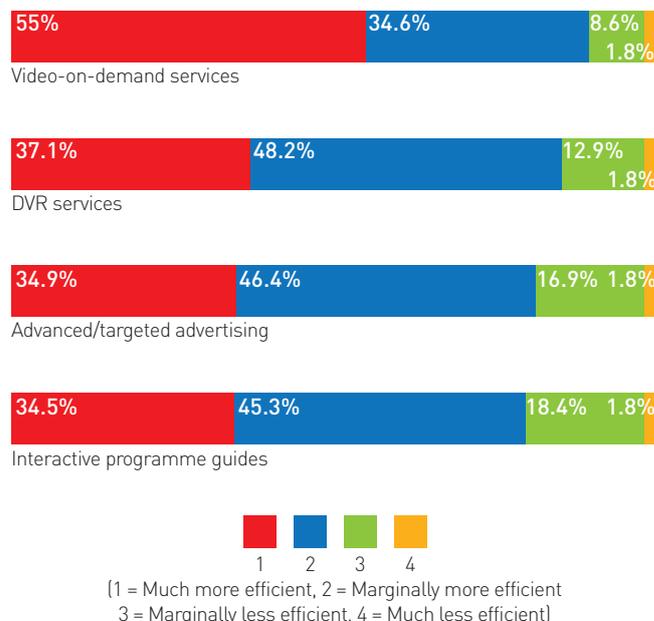
We also asked survey respondents to express a view on how efficient public cloud technology will be in delivering consumer-facing applications compared with legacy technology.

Some 55% of respondents believe that public cloud-based video-on-demand services are more efficient than legacy technology with a further 34.6% believing it to be marginally more efficient, making this the top rated application of those considered for the perceived efficiency gain of migrating to the cloud.

Some 37% of respondents think that public cloud-based digital video recording (DVR) services are much more efficient than those delivered via set-top boxes, with 48% believing cloud-based services to be marginally more efficient.

Just over a third of respondents believe that interactive programme guides and targeted advertising respectively are much

Fig. 7 How efficient do you think it would be to use cloud technology to provide the following services compared with legacy technology?



more efficiently delivered from the cloud, with a higher proportion believing them to be marginally more efficiently delivered from the cloud. (Fig.7)

All of these findings are reflected in perceptions about who stands to benefit most from the use of cloud technology.

We asked our survey sample to express an opinion about where service providers stand to benefit most from the application of the technology. Unsurprisingly the delivery of TV everywhere services stands at the top of the list of areas where service providers are likely to benefit most, with almost half of respondents believing the cloud will deliver a very significant benefit here and a further 38.9% believing it will provide a moderately significant benefit.

Video-on-demand follows hard on the heels of TV everywhere in this list, with cloud technology providing a very significant benefit to operators, in the view of 48.6% of respondents.

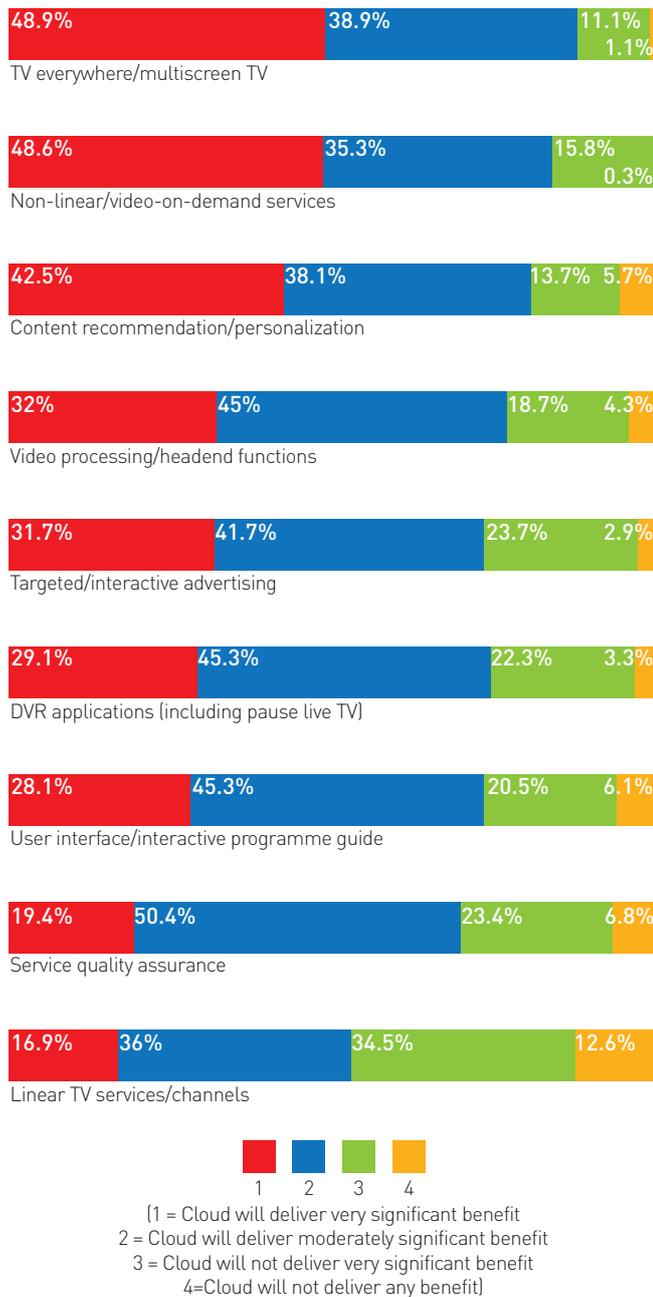
The application of cloud technology to content recommendation and personalisation also provides big benefits to service providers in the view of respondents, with 42.5% expressing the view that it provides a very significant benefit.

Recommendation and personalisation is followed by video processing/headend functions. In this area, a third of respondents believe operators will see a very significant benefit from the application of cloud technology, and 45% believe they will see a moderate benefit.

Other consumer-facing areas where operators are expected to see a significant benefit are DVR applications including pausing live TV, and the user interface/programme guide.

Areas where the benefit of cloud technology is likely only to be moderate include service quality assurance and, trailing at the rear, –the delivery of linear TV channels. (Fig.8)

Fig. 8 In which of the following areas do you think service providers stand to benefit most from the use of cloud technology?



Video processing: weighing the benefits

Our survey respondents clearly appreciate the importance of cloud technology to video processing/compression.

Drilling down into perceptions about the principal advantages of applying cloud technology to video processing, our respondents rate scale and the ability to launch services without big upfront investments most highly.

Some 52.5% of respondents say that resources being scaled infinitely according to demand for a service is a very important advantage, with a further 42.1% rating this as moderately important.

Some 54% of respondents also rate the ability of video service providers to launch services without big upfront investments as very important, with a further 35.2% rating it as moderately important.

Also rated highly is the ability of service providers to use shared resources to provide greater economies of scale, with 43.2% rating this as very important and 42.8% rating it as moderately important.

Other merits of adopting cloud processing include the fact that service providers will be able to take advantage of improvements in video processing technology much more rapidly than if they are left to invest in their own equipment.

Of somewhat less importance in relative terms – but still a significant advantage – is the idea that adopting shared cloud infrastructure will

Fig. 9 What are the principal advantages of cloud technology for processing video?

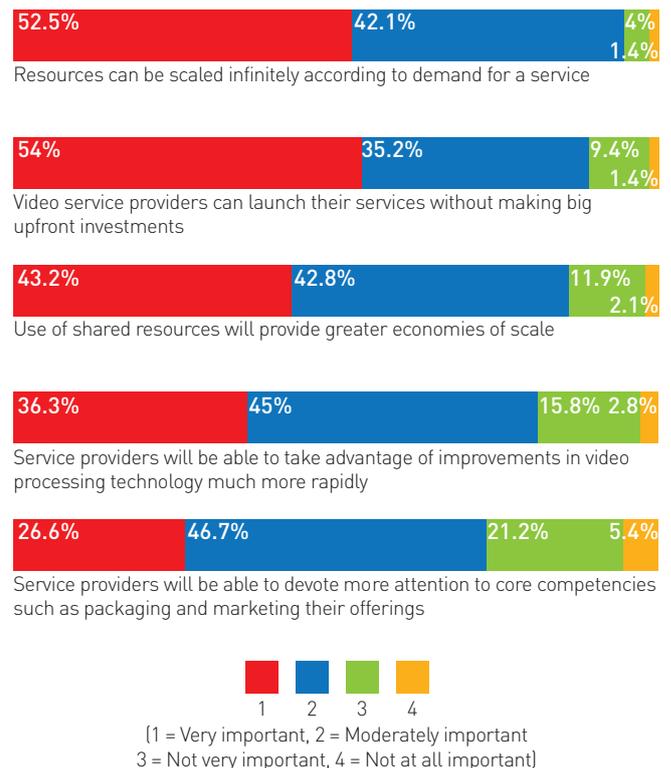
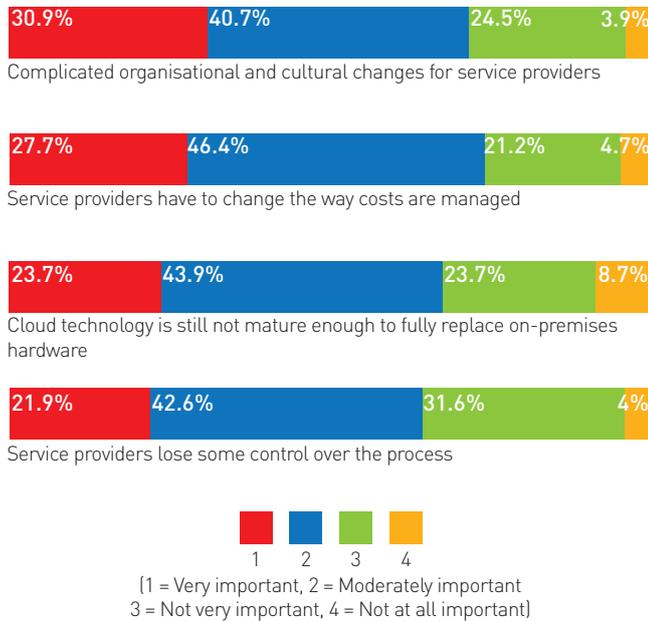


Fig. 10 What are the main challenges to the adoption of cloud technology for video processing and distribution?



enable service providers to devote more attention to core competencies such as packaging and marketing their offerings, rather than devoting a lot of attention to technology. (Fig.9)

In addition to benefits, we asked respondents to rate potential challenges to the use of cloud technology for video processing.

The first thing to note is that none of the potential pitfalls appear to be particularly insurmountable, at least in the view of our survey sample.

The most significant challenges, in the view of respondents, are organisational rather than technical.

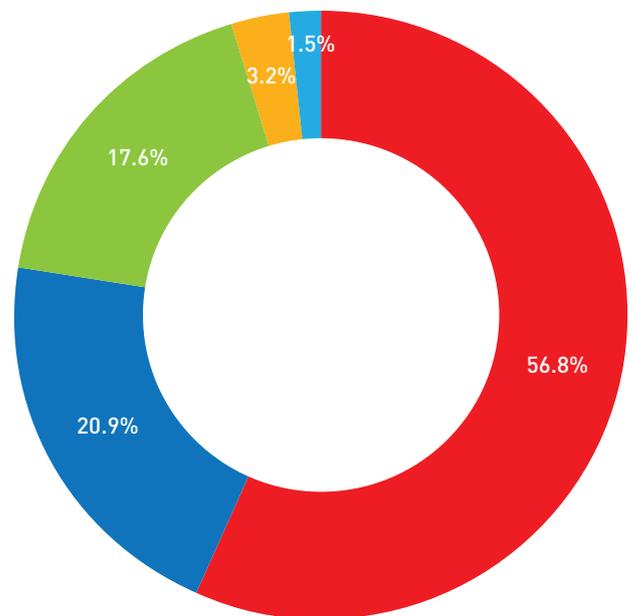
The challenge presented by the organisational and cultural changes required by migration to the cloud, and the need to change the way costs are allocated – notably from capex to opex – are seen as significant: 30.9% of respondents rated organisational and cultural changes as very important and 27.7% rated cost-accounting changes as very important.

The state of maturity of the technology and the threat of loss of control by service providers from migrating to the cloud respectively are less important. Only 23.7% of respondents think cloud technology is definitively not yet mature enough to fully replace on-premises hardware, while loss of control is seen as a very important hurdle by only 21.9%. (Fig.10)

We asked survey respondents to express a view on how efficient cloud infrastructure will be, compared with on-premises hardware, in processing video.

The vast majority of respondents believe that cloud-based processing is more efficient than on-premises broadcast technology, at least in some respects, and that it will ultimately supersede on-premises infrastructure.

Fig. 11 How efficient is cloud infrastructure for video processing compared with on-premises infrastructure?



- Cloud-based video processing is more efficient in some respects to on-premises technology and will ultimately supersede it
- Cloud-based video processing is inherently more efficient than on-premises technology and will quickly supersede it
- Cloud-based video processing is more or less equal to on-premises technology in terms of efficiency
- Cloud-based video processing currently is at a clear disadvantage to on-premises technology and is not likely to supersede it for a long time
- Cloud-based video processing is inherently inferior to on-premises technology and is never likely to supersede it

Some 20.9% agree with the view that cloud-based video processing is inherently more efficient than on-premises technology and will quickly supersede the latter, while 56.8% believe that cloud processing is more efficient in at least some respects, and will ultimately supersede hardware.

Some 17.6% believe that cloud processing is more or less equivalent to on-premises technology in terms of efficiency, but only a tiny minority believe that cloud technology is at a clear disadvantage to on-premises hardware or is inherently inferior to it. (Fig.11)

Conclusion

The adoption of cloud technology is set to have a transformative impact on the video delivery business, at least in the view of respondents to this survey.

Our respondents believe that the impact of the cloud will be felt, and is being felt, across a wide range of consumer-facing applications and back-end functions. In terms of consumer-facing applications, the biggest impact will be on TV everywhere – the delivery of video services to multiple screens. The cloud will also have a major impact on the delivery of on-demand services. A large majority of respondents also believe that the provision of on-demand services from the cloud is vastly more efficient than via legacy technology.

The biggest impact of cloud technology related to video service providers' back-end infrastructure will be on video processing/compression. Here, the key advantages are the ability of cloud infrastructure to enable operators to scale up rapidly according to demand combined with the ability to launch a service without a big upfront investment in infrastructure. Survey respondents also rate the economies of scale provided by using shared infrastructure as a significant advantage.

Respondents are confident that cloud technology is now sufficiently mature to come good on its promise. The remaining challenges in migrating to the cloud have much more to do with how companies are organised, and the changes that will be necessary in the way investment costs are accounted for.

Overall, respondents believe that the cloud is vastly more efficient for processing video than on-premises hardware, and is ultimately likely to supersede the latter. ●