

# Cloud Financial Models

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How does the financial model for cloud-based media production compare with traditional methods?

## Introduction

At some point — usually early — in any conversation about adopting new technology, the question arises: “How is this going to impact the bottom line?” Adopting cloud-based media production models is no exception. In many instances, technology has outpaced the development of commercial models, so it’s an important topic. Let’s take a look at how the return on investment can change when content is created using a SaaS workflow in the cloud.

ROI is used to measure the value of an investment over a period of time.

There are just three basic ways to improve it:

- **Decrease costs** — the cash sacrificed for goods and services that provide benefits to an organization.
- **Decrease assets** — the economic resources that are owned or controlled by an organization.
- **Increase revenue** — the income generated by the sale of goods or services related to the organization's primary operations.

Cloud computing can help you achieve any of these improvements. Note that it is the relationship between the factors that is important in your business strategy, rather than the absolute values. Changes in each of these factors can improve or worsen ROI depending on how it affects your revenue and speed of return on your assets. It is the wider impact of these technology decisions that determine their value to the business.

## Reducing Costs

Accounting tracks two different types of costs: fixed costs remain constant regardless of the quantity of goods or services produced and variable costs change with the level of output. Transitioning to cloud production affects both types of costs.

## Fixed Costs

Let’s consider the fixed costs associated with creating a single piece of content, for example a highlight reel from an event that is just finishing. What would be a part of maintaining the production environment even if our highlight reel wasn’t made?

A frequent error when comparing traditional with cloud production models is to overlook all of the fixed costs associated with traditional production. For example, the amortization of assets, in this case the cameras, replay station, servers, editing bay are all typically accounted as a fixed cost (more on assets in the next section). To keep them functional requires electrical power, cooling, cleaning, physical maintenance and software management. Someone is required on staff to oversee all this and keep it running. A fully costed view of a traditional environment even includes the building required to house that production environment.

When accounting for cloud costs, you don’t have to add the entire infrastructure environment. All of the redundancy, maintenance and management costs are included in the contracted rates.

A well-designed SaaS system based on DevOps principles provides frequent, ongoing updates and additions. Rather than providing an annual software update, the system evolves continually using safe, modular services that can be turned on as desired in a stable operating environment. Adding another instance or a new feature doesn’t require a separate requisition, purchase, delivery, install and configuration.

Maintenance and management are also more efficient because a large cloud provider — or private cloud division within a corporation — can be much better at providing IT services than a small IT department. And it can amortize the cost of problem solving over a larger user base: the problems experienced by one user can, once they have been solved, be proactively fixed for all the other users of the cloud service.

For a step by step guide to comparing datacenter costs see  
[Greg Deckler's \*Cloud vs. On-Premises — Hard Dollar Costs\*](#)

## Variable Costs

In a cloud environment, all of these fixed costs we've been discussing become variable costs, which are only charged when the cloud application is in use. Note that each cloud solution vendor has their own way of calculating usage, so it is important to understand how this variable cost will be calculated.

For example, Grass Valley's AMPP solutions employ a subscription-based, pay-as-you-go (PAYG) financial model that's calculated on workload — or metered hourly usage — rather than users. No fixed seat licenses means you can use a certain amount of "compute resource" whenever you need it. The workload can be shared among as many people as needed to accomplish the task. This PAYG model potentially lowers the total annual cost if the system is in episodic rather than continual use and has the added benefit of being allocable directly to a piece of content such as our highlight reel.

As there are typically no other "materials" that are directly required to produce our highlight reel, the remaining variable cost is direct labor. These are the creative individuals who produce the content. While in some environments these may be individuals on an annual salary and are therefore a fixed cost, in many instances these are freelance operators contracted for a project or event and are therefore a variable cost.

By allocating the cost of the editors, camera and replay operators to the content along with the workload allocation we now can determine exactly how much it cost us to make the highlight reel. Analyzing those costs against the revenue the reel generated provides previously unavailable insight into our content development strategy.

## Improving Asset Efficiency

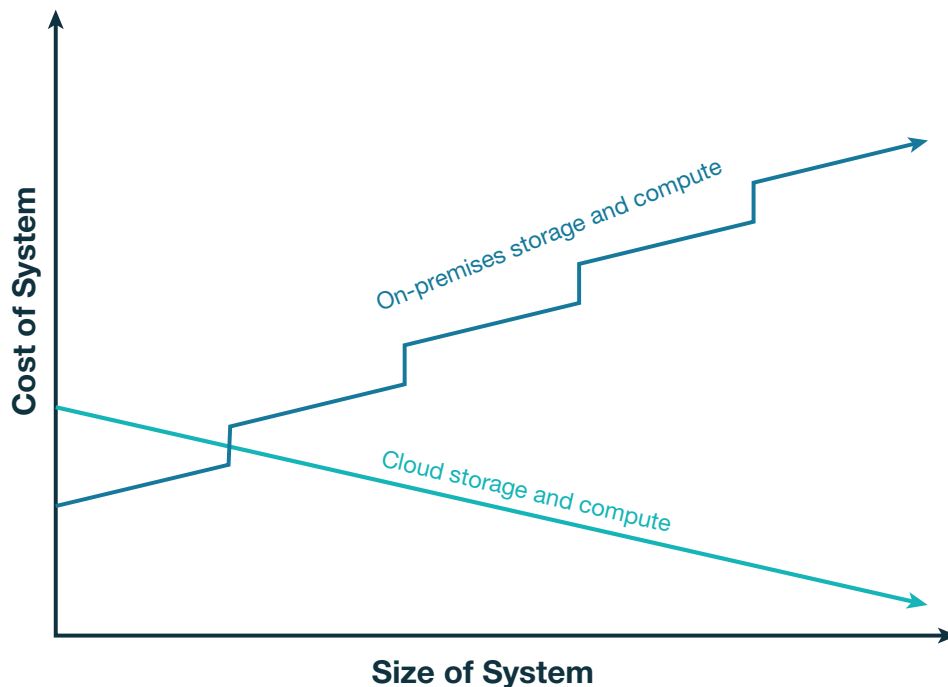
Operating assets are economic resources used in the business operations rather than for resale. Assets include property, plant and equipment. The more efficiently these assets can produce goods for sale, the better off the company will be. In other words, if I can produce more content from the same assets, or reduce the amount of assets while maintaining the same level of output, then I will improve the return on my investment.

Capital expenditures (CapEx) are typically the largest investments in a traditional broadcast operation. There are a variety of ways that transitioning to a cloud-based media production workflow can reduce CapEx.

## Reduction in Hardware

Moving to the cloud does not mean just shifting the same costs to a different account. The unique hardware required for broadcast production is typically very expensive. Produced in quantities of hundreds or thousands, the development cost is spread over a limited amount of units. Manufacturing in smaller lots also reduces the opportunity for production efficiencies. On the other hand, cloud data centers run on COTS hardware that is produced in quantities of millions, making them much less expensive per unit to develop and manufacture.

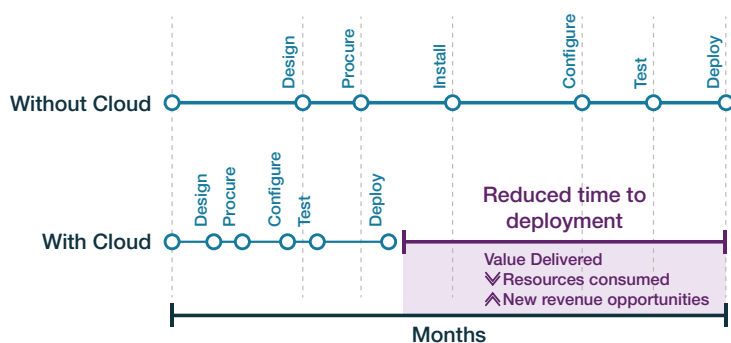
Specialized hardware also has fixed limits to its capabilities. A traditional broadcast production chain has to be sized to accommodate its maximum expected capacity. That means that the typical equipment purchase is larger than its average usage because that higher capacity has to be available for the few times it is needed. This is very inefficient as much of the time a portion of this system remains idle. The unused resources cannot be freed to use in creating other content. When producing a piece of media in a cloud environment processing is more efficient. Using SaaS tools means that compute resources can share the load of many tasks.



## Cloud Financial Models

Even more important is the elastic nature of cloud processing. Unlike a proprietary data center, which must grow exponentially as redundant physical racks and servers along with management systems and accompanying SANs scale to larger sizes, the cloud doesn't charge more for redundancy or management as the size grows. In fact, cloud pricing offers volume discounts. The more you use, the cheaper it gets.

Part of the cost of any CAPEX equipment is the time and labor required to design and install the system. In a cloud-based system, design time is minimal and installation is non-existent. This can result in tens of thousands of dollars saved in the total price of the system. This rapid execution and simple provisioning also frees resources for developing new ways of earning revenue. When deployment of new concepts can be done in minutes rather than weeks there is much less risk involved in creative experimentation.



(Adapted from: [http://www.opengroup.org/cloud/cloud\\_for\\_business/p6.htm](http://www.opengroup.org/cloud/cloud_for_business/p6.htm))

## Increasing Revenue and Rate of Return

The third way to improve ROI is to increase revenue. As the amount advertisers are willing to pay for sponsoring a specific event or property is generally in decline, it's becoming hard to charge more for a specific piece of content. The alternative means of increasing revenue is to increase the number of times the same piece of content can be repurposed and "sold."

There are many ways to repurpose content. In most instances, having that content in the cloud simplifies and reduces the cost of repurposing. For example:

- ▶ It is much less expensive to provide live feeds for in-region commentators to create local language versions of the content.
- ▶ A wide range of digital content providers are already cloud natives. Content in the cloud can be automatically transcoded and routed to these target distribution platforms with fewer steps and greater efficiency.
- ▶ Video and audio content analysis tools can automatically provide greatly enhanced metadata tagging that enables fast location of content for reuse in new short- or long-form content.

Unique cloud production features like these examples make it much easier to maximize the value of every creative asset.

## Reconcile Costs with Revenue

Now that we've considered how cloud-based technology can improve your media production ROI, let's take a look at a couple more strategically important financial topics.

Josh Steinhour (IABM) stated earlier this year that "broadcasters have never been able to truly reconcile production costs with revenue." As a result of missing this basic matching principle of accounting, it becomes extremely difficult to determine whether creation of a particular piece of content was a good investment of resources.

Tracking revenues and expenses down to a single distribution platform or piece of content provides the tools you need to establish ongoing learning and improvement, a risk-reduced way to experiment with new ideas and programming concepts. Cloud technology can make that reconciliation possible.

Rather than undertaking the complex estimated allocation of all resources that we discussed earlier, in the SaaS world you can accurately measure what you are using on an event-by-event basis. Well-designed cloud services such as Grass Valley's AMPP are based on orchestrated microservices. There are no wasted resources that sit idle. Instead, as an elastic system, it can expand or contract as needed, giving you always the right size for any production. Resources consumed match resources purchased. This allows production costs to be matched to specific content.

Because of the tracking tools available through digital content distribution, it is also much easier to determine exactly how many viewers that content had on each platform and how much they paid for it either through subscription or accepting targeted advertising.

In a cloud environment, assessment of the profitability of any production is greatly simplified. Perhaps even more valuable than accurate historical accounting is the reduction in development risk made possible by much more accurate estimates that can be derived from that financial data.

## Refocus Resources

Content is king. Yet the broadcast industry continues to tie up a significant amount of resources to maintain technology infrastructure. Outsourcing technology complexity as much as possible allows internal resources to focus on high value content creation.

### Lump Sum vs Payments over Time

Would you rather invest money in a fixed infrastructure now and continue to spend further money to maintain it over time or pay in smaller increments over time for cloud capability which will continue to grow? Consider your investment in production capability in terms of the present value of money. Present value is the concept that an amount of money today is worth more than that same amount in the future because you can use today's money to make more money. Spending that money now creates an opportunity cost. So it is important to consider how the use of today's money can maximize its future value.

The cost of hardware maintenance inevitably increases as the system ages. On the other hand, the cost of cloud-based systems has declined. [Bezos' law](#) states that the cost of a unit of computing power price will be reduced by 50% approximately every three years. Prices in recent years have not declined as aggressively as predicted; however, we fully expect the cost of cloud storage and compute to continue its downward slope.

As shown in the chart below, the total cost of ownership for a cloud-based system with payments based on usage may not only be less than a similar hardware system, it also frees up a large amount of cash that can be used for creating new revenue.

Whether you are improving your ROI, reducing investment risk, or using cash to build new revenue streams, cloud-based media production provides important, ongoing financial benefits that must be a part of any investigation of solutions for improving business models.

