Escape Technology

INTRODUCING SHERPA

A cloud integration and deployment tool

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SHERPA

INTRODUCTION

Since 2012 the cloud has been growing in popularity and uptake, becoming more robust in its position and technological deployment. With security concerns now addressed[1] we are at the stage where it offers a viable, stable, and secure solution to the everyday challenges of an image production environment. The landscape in visual effects and CGI has been evolving consistently for many years. As deliverables in a wide range of vertical markets become incredibly complex – demanding increased resources in compute and storage infrastructure – traditional pipeline and workflow solutions have begun to struggle under the burden placed upon them. Until recently, however, the cloud has only been able to offer limited solutions. To address the dilemma, Escape Technology has invested in developing a unique cloud integration and deployment platform: **Sherpa**.

While there are several cloud solutions in place that answer a degree of rendering or production needs none of them offer a fully integrated and native solution. Contemporary cloud systems can be broken down into two main categories:

1. Providing a solution to a particular need, e.g. burst rendering
2. Providing cloud-based access to a single vendor's portfolio of products

Sherpa offers a third route: the ability to spin up an entire infrastructure to either augment or replace an existing studio. By adopting a "bring your own license" model Escape Technology has been able to construct a system unrestrained by purpose of use or vendor portfolio, allowing cloud workstations, render, and storage to operate the way they do in a local machine room or desktop environment. This approach enables users to install any software they choose – including products from competing vendors – and run a standard production pipeline.

There are three main use cases for Sherpa:
1. Born in the Cloud
2. The Hybrid Studio
3. In The Field

1 "Content Security Best Practices Common Guidelines" - MPAA, 2018, https://www.mpaa.org/wp-content/uploads/2018/10/MPAA-Best-Practices-Common-Guidelines-V4.04-Final.pdf, "NIST Framework" - NIST, https://www.nist.gov/cyberframework

Born in the Cloud

Of all the limitations placed on business growth, physical space is a significant concern. Married with the mentioned growing demands placed upon technology we are presented with the difficulty of requiring more space to house both equipment and people. The observable increase in a propensity for remote working has further compounded the challenge insofar as secure access to data and software is concerned. With the projected rise in remote working to 50% of UK workforces by 2020[2] business owners are presented with the question of how to allow staff to work remotely while maintaining a secure data environment.

A significant environmental benefit is also at play. Deploying traditional on-site resources presents an inefficient use of energy. However, adopting a fully operable cloud-based approach greatly reduces the overheads of energy generation and, therefore, pollution. If the many hundreds of production studios were to migrate their infrastructure to large, shared data centres economies of scale would mitigate costs and environmental impact.

Sherpa provides a solution by enabling businesses to fully migrate their pipeline into the cloud. Workstations, render, and storage are accessed via the internet through a secure portal, requiring limited local hardware:

a. Desktop: monitor, keyboard, mouse, and a “thin client”
b. On the go: laptop, mobile phone or other device

All resources and data would then exist in a single online pool accessible only by authorised parties, thus enabling businesses to operate in a truly global fashion. The gains here are almost endless. From a simple saving on office space all the way through to engaging staff across continents to enable business operations to continue 24 hours a day, Sherpa provides a simple tool to setup, manage, and grow a complete and mature pipeline. With 73% of organisations having at least one application or portion of their computing infrastructure in the cloud[3] this evolution is a natural progression of an already in-adoption concept.

The Hybrid Studio

One of the greatest current uses for the cloud is to augment an existing pipeline with additional resources, typically “burst rendering”. The core concept is to leverage high capacity solutions on a temporary or short-term basis, enabling a team to complete work on a project where traditional on-site solutions are not viable for a number of reasons (including cost, space, cooling, and availability). With an almost limitless amount of resources, cloud providers such as Amazon Web Services, Google Cloud Platform, and Microsoft Azure put a vast amount of compute power directly in the hands of business owners. This power can be bolted on to an existing on-premises pipeline.

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2 “50% of UK workforce to work remotely by 2020” - HSO, https://www.hso.co.uk/leased-lines/technology-news/homeworking-news/50-of-uk-workforce-to-work-remotely-by-2020
3 “2018 Cloud Computing Survey” - IDG, 2018, https://www.idg.com/tools-for-marketers/2018-cloud-computing-survey

Via Sherpa, users are able to spin up a scalable amount of resources for a flexible period of time. Here, the unique ability of the system to provide a vendor agnostic solution comes into its own. For example, consider a studio delivering a final project to a client but needing to create an additional scene in the eleventh hour. In a traditional setup this would require engaging freelancers or additional staff and providing them with the local hardware and software required to complete the task. In a Sherpa Model workflow central cloud resources are deployed on demand and a global workforce can be engaged, increasing the options open to the business while decreasing time to completion.

Hybrid solutions can be divided into two approaches:

1. Providing access to data synchronisation between on-premises and the cloud
2. The cloud is treated as a remote resource, with jobs copied or checked-in to the cloud and then back to an on-premises location once the task has been completed.

In The Field

For years, mobile resources have had significant limits placed upon them by their form factor. A Sherpa driven pipeline is able to deploy powerful cloud resources directly to mobile workers as needed, giving them the ability to use their complete workstation setup on the road. This becomes particularly useful when considering staff visiting remote locations, such as architects in the field or pre-visualisation artists on film sets.

Because all processing occurs remotely, a user's tablet or laptop becomes a portal to a compute power normally only accessible from the desktop. Sherpa is able to put a complete workstation into the hands of a user via a web portal for laptops/Chromebooks or apps for tablets, with the only requirement being an internet connection.

DEPLOYING SHERPA

As a tool, Sherpa can be utilised in one of two core ways:

1. Deploying and managing cloud resources (Phase One)
2. Deploying and managing on-site resources (Phase Two - in development)

Sherpa is accessed via an online portal (sherpa.escape-technology.com), which grants users the ability to review existing resources and add additional capacity through a simple GUI. These resources can be set for a duration of life – spinning down the resource when it is no longer required and ceasing billing.

Because the cloud works through dedicated pools of shared resources per-hour billing and per-second monitoring are possible, removing the need for capital expenditure on compute and storage almost entirely. This accuracy contributes to an easing of the burden of cost and reduction in wasted spend typically associated with leaving cloud tools running[4].

Sherpa can be used to engage staff anywhere in the world, opening a dramatically larger pool of talent that has never previously been available. Projects can be worked on 24 hours a day by spreading team loads across countries. For example, while the main modelling team might be located in London, a studio could have additional texturing artists in Berlin, groomers in Tokyo, and lighting TDs in Montreal. And with Sherpa at the heart of the pipeline there is no need to limit the software available to those users. If your modelling team uses Autodesk Maya simply install the requisite number of licenses. If they need Cinema 4D, the same principle applies.

With the forthcoming deployment of 5G in the Western hemisphere the industry will benefit from a reduction in device sizes and an increase in speed, currently benchmarked in the 600MBit/s – 900MBit/s range (and in some cases reaching 1GBit/s). As this communications technology matures and becomes more reliable tools like Sherpa will come into their own, solving the challenges of remote staff, field workers, and data security as well as providing easy access to high-capacity workstations, render, and storage.

This Infrastructure as a Service (IaaS) solution paves the way for the future of computer graphics pipelines and resource-intensive workflows. Indeed, the next generation of compute deployment could well see a dramatic increase in cloud services as the standard 'go to' for pipeline infrastructure, raising questions of the typical CapEx vs. OpEx costings model faced by businesses around the globe.

4 "State of the Cloud Report" - Flexera, 2019, p. 24 -26

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