Making sense of a complex world: Cloud computing—the impact on revenue recognition

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Introduction

In the current economy, companies are searching for ways to save money, limit their fixed costs (including infrastructure and capital expenditures) and improve efficiencies. In addition, trends such as the use of smart phones, tablets, multiple devices, and telecommuting have created a perfect storm ripe for an alternative IT solution such as cloud computing. Although cloud computing in its various forms has been around for a few years, it is gaining momentum as a tangible solution. Companies have started using the cloud computing paradigm internally to improve on IT service delivery and foster innovation. Some telecommunication providers ("operators") are offering a range of services such as network data backup and in some cases are partnering with established cloud providers to either resell their services or provide infrastructure and hosting services.

By 2017 global cloud service providers ('CSPs') are expected to generate approximately $235 billion of revenue from cloud computing services.[1] At the same time as companies are turning to the cloud, individuals are increasingly finding answers there as they jump from laptop to smart phone to tablet in their daily work and play. Data and services can be accessed from anywhere, from any device. As cloud services are gaining ground, "operators" business models need to be constantly evolving to meet the business needs of their clients. Operators can provide cloud services directly or they can work with other CSPs to offer various business solutions that incorporate different aspects of the cloud models. For operators, when accounting for revenue generated for cloud services, challenges may arise specifically in revenue recognition patterns and costs associated with these services. Often it is difficult to identify cloud computing contracts' multiple elements, the potential for lease accounting or whether an operator is acting as principal or agent on behalf of another service provider.

"There are no rules of architecture for the clouds."

—Gilbert K. Chesterton

The objective of this paper is to consider the types of cloud service models available and then set out considerations for operators when accounting for these arrangements.

We hope you will find this paper useful and, as always, will welcome your feedback.

Finally, I would like to take this opportunity to thank Geoff Leverton and Arjan Brouwer for their contribution to this publication.

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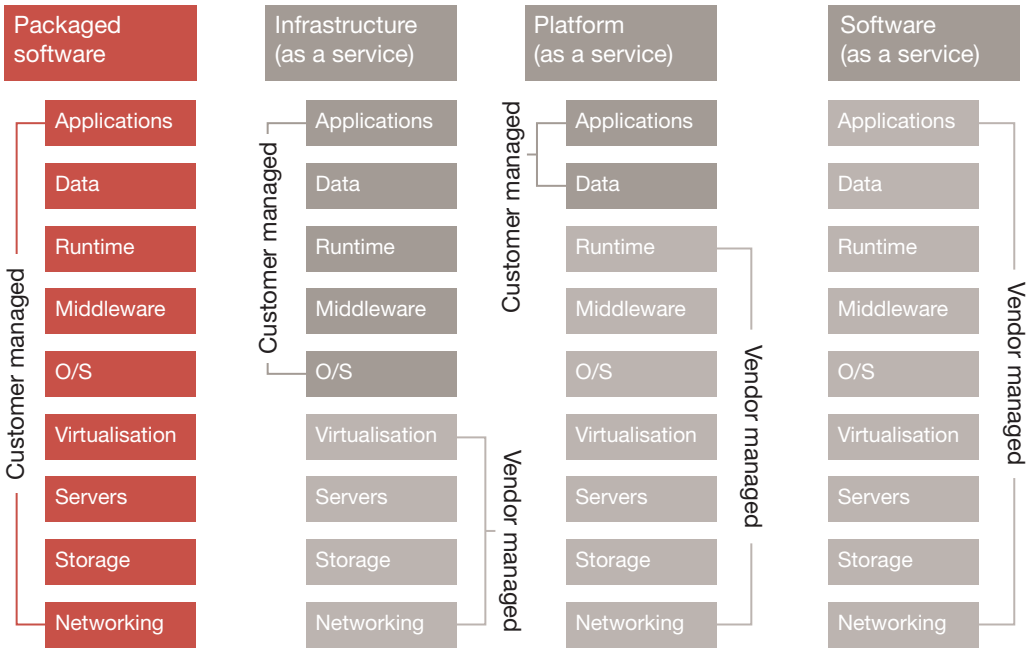
1 IHS, 2014. http://press.ihs.com/press-release/design-supply-chain/cloud-related-spending-businesses-triple-2011-2017

Cloud computing explained

Cloud computing is generally defined as using a shared pool of computing resources—from servers to applications to services, depending on the model—accessible via the internet. Those resources can be rapidly acquired as needed, with minimal management effort or service provider interaction.

Cloud services usually fall into one of three service models: infrastructure, platform, software. These are best understood through comparison with typical, pre-cloud packaged software (as in figure 1).

Figure 1—How the service models compare to typical packaged software



Let's take a closer look at each of these service models and highlight some key accounting issues:

Infrastructure as a Service ("IaaS")

Under IaaS, an organisation essentially rents space on the computing equipment it needs to support its operations, including storage, hardware, servers, and networking components. Users then run their own applications on the virtual servers they have rented. Services can be deployed through a private cloud (the user's own internal servers), public cloud (accessed through the internet), or a hybrid cloud.

Companies often turn to IaaS to host their websites, allowing them to avoid straining their in-house infrastructure with that function. Examples include Amazon EC2, Windows Azure and Rackspace.

Platform as a Service ("PaaS")

PaaS goes a step further. In addition to renting infrastructure, users also rent an operating system. The user then creates the particular software it needs with tools and/or libraries provided by the cloud system operator. Google's App Engine is an example of PaaS—as anyone can build an app on Google's infrastructure.

Under the PaaS model, the operator offers customers a computer platform and solution stack as a streamlined service, including application hosting and a deployment environment. Customers can then build specific add-ons as necessary. Within that basic package, networking, security and server space are standard services.

The cost of the basic package typically includes an upfront fee for the initial set up and an ongoing monthly subscription fee, allowing for a set number of users. Additional users mean an additional fee. Additional services, such as anti-virus software or back-up, also cost additional fees, based on the number of users.

Software as a Service ("SaaS")

SaaS is a software distribution model that allows users to access applications or programs via the internet. The end user does not manage or control the cloud infrastructure or application capabilities, nor are they responsible for upgrades to the underlying systems and software.

An operator provides access to web-based business applications ("apps") made by respected vendors from across the globe to its users. The purchase of any app is typically done on a subscription per user basis, with no upfront costs or installation fees. The operator pays a licensing fee to the vendor of the app. In addition, the operator pays a commission to its sales team per app sold. A volume discount is provided when a customer purchases a specified number of apps.

Accounting issues

Operators who provide cloud services face a number of complex accounting challenges. In particular, bundling cloud services with non-cloud services will likely complicate revenue recognition patterns. Adding cloud services to the equation means operators may face problems in pricing mechanisms and revenue allocation amongst the various elements. There are also re-seller arrangements to consider—in which it is sometimes difficult to determine the principal and agent—thereby making things even more complex. Some arrangements could result in embedded leases, where an operator is providing exclusive use of an asset.

We have considered some of the key accounting issues in relation to cloud services offered by operators below.

Consideration of a lease

Some cloud services allow users to rent equipment from an operator, so it is important to consider whether a lease arrangement exists. Under IFRIC 4, the following factors should be considered:

IFRIC 4 factors	Considerations
Fulfilment of the arrangement is dependent on the use of a specific asset or assets	• Does the arrangement stipulate specific asset(s) and is it dependent on the use of that specific asset? • Does the arrangement grant exclusivity to the client?
The arrangement conveys a right to use the asset, that is, the right to control the use of the underlying asset	• Does the client have the ability or right to operate the asset or direct others to operate the asset in a manner it determines while obtaining more than an insignificant amount of the output? • Does the client have the ability or right to control the physical access to the underlying asset while obtaining more than an insignificant amount of the output? • Facts and circumstances indicate it is remote that one or more parties other than the client will take more than an insignificant amount of the output and that the price paid by the client is neither contractually fixed per unit nor equal to the current market price per unit of output at the time of the output.

Analysing whether fulfilment of the arrangement is dependent on the use of a specific asset should focus on the substance of the agreement. Common contractual clauses that may suggest that the supplier does not have the right or ability to use alternative assets, and so are indicative of the existence of a "specific asset", are summarised below:

Aspect	Contractual clause
To ensure continued provision of goods or services at the end of an arrangement	• The customer is entitled to purchase the assets used to provide the goods or service at the end of the arrangement. • The supplier is required to maintain an asset register and keep the assets separate from other assets of the supplier. • The supplier is restricted from using the assets for any other purposes (such as servicing another customer).
To protect the interests of the customer, through protecting image or data	• The assets are decorated in the corporate logo of the customer and the assets cannot be used to service other arrangements. • Assets containing customer data must be disposed of when taken out of service for data protection purposes.
To ensure that the assets deliver the appropriate quality and are fit for purpose	• Replacement profiles (other than normal warranties for malfunction) are detailed within the arrangement and effectively result in the customer deciding on which assets to use. • The performance criteria require the use of assets that are specialised or heavily modified, which restrict ability to use alternative assets in the fulfilment of the arrangement.

Example

A CSP provides and manages the virtualisation infrastructure, servers and storage using on-demand virtual machines and associated networking services. This allows clients to provision, run, manage and scale virtual assets as needed. The client manages the operating system, database and applications. This would be a typical IaaS arrangement.

The contract between the CSP and the operator sets a level of service the CSP must provide, but it does not say what specific infrastructure assets must be used to provide this service—this is up to the CSP. The infrastructure isn't on land owned by the operator. The insurance and maintenance of the infrastructure is the responsibility of the CSP and the infrastructure assets are also used by other operators.

The billing is based on a self-service, pay-as-you-go model. There are no set-up fees and no usage commitments. A client can log on, request service and obtain features almost instantaneously.

Based on the above, the operator has determined that the arrangement for the infrastructure assets does not contain a lease. It accounts for it as a managed service contract instead. This determination is based on the following:

- The contract does not specify which assets are to be used.
- The assets are shared with other operators and maintenance/insurance is the responsibility of the CSP.
- The operator does not appear to have the right to control the assets and is paying a standard amount based on a pay-as-use model.

Operators should review their contracts closely—it may not be as clear as the above situation. In particular, they should consider carefully the use of dedicated infrastructure, which is sometimes needed when highly sensitive data, such as for banks or government agencies, is involved. In some instances, hardware may be installed at a client's location in addition to infrastructure being available through the cloud. Under these circumstances, a lease may exist.

Some differences exist in lease classification between IFRS and US GAAP. This discussion is outside the scope of this paper.

Multiple element revenue arrangements

A CSP may provide its users with a number of different services. If that is the case, the CSP will have to determine how to allocate revenue among the various components. IAS 18 clearly indicates that revenue must be allocated to the individual components of a bundled contract. The method of allocation can be tricky when considering cloud services.

If an operator sells the different components of a product bundle separately, or has done so in the past, it is a good indicator of the relative value of each component and therefore of how the revenue can be allocated. Likewise, the market price of a similar product or service sold by another operator may be an acceptable indicator. However, proving a product's similarity can be difficult in practice because cloud service offerings are often tailored to specific customer needs.

Example

An operator offers the PaaS model to a customer as an integrated offering that combines a computer platform and solution stack. The operator then manages these services for the customer and the customer can request additional services as needed. The contract is made up of different revenue components. The following considerations are used to determine their value:

	Component	Explanation of component	Considerations for fair value allocation
1	Implementation (the operator implements the hosting system and platform for the customer)	In this particular product offering, the customer is obliged to purchase both the implementation and the subsequent services provided by the operator. It may be difficult to separate the hosting application and platform implementations as one only has limited value without the other.	The upfront implementation fee might be recognised as revenue immediately if its value to the customer can be determined as a separate component of the contract, and there are no further obligations that the operator must fulfil. It is usually difficult to conclude that subsequent to the implementation, the operator has no further obligations to fulfil, as the operator is required to manage the hosting of the network. Therefore it is likely that the implementation fee should be deferred alongside the revenue for the ongoing services that are provided.
2	Management of the services provided	These can be sold as separable services.	Revenue for the monthly subscription should be deferred and recognised incrementally when the PaaS services will be used by the customer.
3	Additional services	These are available at an additional cost.	Revenue from the additional services should be recognised incrementally as they are provided.

US GAAP Difference

US GAAP provides specific guidance to determine revenue recognition in the software industry. One aspect focuses on the need to demonstrate vendor specific objective evidence ('VSOE') of fair value in order to separate different software elements in a contract. Revenue recognition is then evaluated independently for each separate unit of accounting.

US GAAP notes that VSOE can only exist if the component in question is also sold separately. If there is no VSOE of fair value, no revenue can be recognised, although there are a few exceptions, such as for maintenance. This implies that fair value cannot be measured using estimated costs for completion of the products or services to be delivered by an operator. Nor is an estimate based on the market price of similar products acceptable. The only factor that can be taken into account in practice is the price of the element when sold separately. The prescriptive rules under US GAAP may mean that revenue is deferred for a longer period of time if evidence of fair value is not available for a specific product offering.

Consideration of acting as a principal or an agent

Cloud service arrangements sometimes involve entities re-selling a product. In these situations, operators must determine whether they are acting as a principal or an agent. These roles can be defined as:

- An agent is an intermediary who earns a fee or commission in return for arranging the supply of goods or services on behalf of a principal.
- A principal acts on its own account when contracting with customers for the supply of goods or services.

Sometimes distinguishing the two roles can be complicated and depends on the facts and circumstances of the relationship. In general, principals have exposure to the significant risks and rewards associated with selling goods or rendering services. Indicators that an entity is acting as a principal include:

- The entity has the primary responsibility for providing the goods or services to the customer or for fulfilling the order. For example, the entity is responsible for the acceptability of the products or services purchased by the customer.
- The entity has inventory risk before or after the customer order, during shipping or on return.
- The entity has the latitude in establishing prices, either directly or indirectly, for example by providing additional goods or services.
- The entity bears the customer's credit risk for the amount receivable from the customer.

It is important to distinguish between the two in accounting. For the principal the revenue will be accounted for gross, while for the agent revenue represents only the commission earned.

Example

A CSP is providing an application to an operator who is then packaging it within a software sale to a customer. The operator has made the following considerations in determining whether it is acting as an agent or a principal:

Indicators	Considerations
Who has the primary responsibility for providing the goods or services to the customer or for fulfilling the order?	The application is provided to the operator by the CSP. The operator then provides the software as a service to the customer and is responsible for ensuring the customer receives the software. If the customer does not receive the services as expected, they will approach the operator who is responsible for rectifying the situation with the CSP. In other words, the operator is responsible for overall service delivery to the customer.
Who has the latitude in establishing prices, either directly or indirectly?	The operator pays a price to the CSP for the application and establishes a margin that it then passes on to the customer.
Who bears the customer's credit risk for the amount receivable from the customer?	The operator is responsible for obtaining payment from the customer and bears the credit risk.

Based on the simple facts in our example, it appears that the operator is acting as principal as it has primary responsibility for service delivery to the customer, has the ability to vary the margins, and is exposed to credit risk; thus the operator would record revenue gross. However, differences in the fact pattern could change the conclusion, such as if the application stands alone and the customer has a direct interface with the CSP. The decision to record revenue gross vs. net is an area of significant judgment that is dependent on the relevant facts and circumstances. Each arrangement must be assessed individually.

Impact of IFRS 15

Accounting for cloud services is already complicated. As cloud-based products and services become more sophisticated, so will the associated accounting become more complicated. The Financial Accounting Standards Board (FASB) and International Accounting Standards Board (IASB) have issued a final revenue standard that is expected to go into effect for all reporting periods beginning on or after 1 January 2018[2]. The guidance codifies all revenue recognition around a single core principle: revenue is recognized when the customer obtains control of the asset or service delivered. Revenue from cloud offerings will generally be recognized over time under the proposed standard. Some key implications will be around identifying performance obligations and allocating revenue amongst them.

Performance obligations: Companies should identify performance obligations (promises to deliver a good or service) in a contract and account for each distinct performance obligation separately.

Revenue allocation: Consideration for a contract must be allocated based on the actual or estimated value of associated performance obligations. Value must be estimated when stand-alone prices are not readily determinable. This may require process and systems enhancements, but these may not only enable compliance with the standard, but can also result in both scale and efficiency.

With incentive-based contracts, CSPs may need to estimate performance-based fees or similar value. With usage-based contracts, providers must determine whether additional usage is an option to purchase new services, or if this represents contingent consideration. Contingent consideration needs to be estimated as part of the overall contract value.

Whether implementing a new cloud services model, or preparing for accounting changes brought about by the new revenue standard, companies should prepare for an impact on their accounting systems, processes, and models. The changes in recognition and pricing models could cause significant volatility in revenue, as usage-based services become prominent and as models are refined for better estimation and planning. The proposed changes may also affect revenue deferral, and may impact both margins and profitability in the near term as companies and models adapt.

2 At the time of writing, the FASB and IASB have proposed deferring the effective date to 1 January 2018, but this is yet to be confirmed.

To have a deeper conversation about how this subject may affect your business, please contact:

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