

Business as a Service

Software as a Service Billing and Business Models



The challenging economy and increasing competition make businesses constantly seek for cost reductions. Be it large enterprises using sophisticated ERP and BI applications or SMEs performing simple word-processing and invoicing operations, the software and the hardware platforms required to host it are a significant spending. On the other hand, software providers are finding selling solutions based on expensive licensing models more difficult than ever. This is why vendors and their customers have been looking for alternatives. One of them is Software as a Service.

According to Gartner, Software as a Service (SaaS) is software that is owned, delivered and managed remotely by one or more providers. This means that the application users are not licensed and charged for software availability in extended periods of time, but only billed for the amount they actually use. In most scenarios, the software is either available in the form of web applications or terminal services. In the first case, the entire application is hosted on the provider's hardware and no client software except for a web browser is needed. In the latter case, the only difference is a requirement for the customers to download a client application, but the core of the system is also hosted by the provider.

Benefits from SaaS

These facts combined mean vast savings for the consumers. The lack of an initial license fee and hardware requirements can reduce the CAPEX significantly. It is also easier to plan the spending and adapt over time. The actual cost of ownership (TCO) depends on how much the applications are used at a particular time and not on future capacity. This flexibility and affordability of the model are especially vital for businesses in today's economy.

As for the software vendors, the SaaS model offers equally valuable benefits. Initially lower, but recurring revenue streams are much more predictable and provide the ability to plan the budgets more effectively and precisely. Due to the centralized hosting, the software is also much easier to maintain and support. All upgrades are limited to one environment and have instant effect for all users. In addition, direct access to the application logs facilitates bug fixes. Finally, SaaS can help overcome sales difficulties in a period when businesses reorganize and freeze their IT budgets, so they cannot afford the lack of flexibility and expenses of software based on EULA licensing models.

These advantages are clearly confirmed by good results of the market leaders and optimistic projections of its researchers. Contrary to mostly negative growth forecasts coming from all over the economy, the global SaaS market is expected to grow in 2009 by as much as 30% (Gartner) to 40% (IDC).

Billing and other challenges

The positive aspects of SaaS for software vendors are unquestionable. However, a number of topics need to be addressed before an application can be offered in this model.

The inevitable challenge faced by all Software as a Service providers is setting up the **billing process**. Whereas traditional IPR or EULA-based sales required simple license invoicing and handling of usually long-term maintenance contracts, the "pay-per-use" model and proper management of frequently recurring transactions impose a requirement for a rating and billing engine, as well as a set of procedures. This means additional analyses and investments need to be made in order to kick off the provision of SaaS.

The necessary infrastructure is offered by many vendors (e.g. Verax Systems with its OSS/BSS Billing). In order to achieve good results, software businesses are required to develop a profitable and competitive usage billing model. One of the first steps is defining the main billing units and UDRs (Usage Data Records) related with them or software license key limitations. The most commonly used aspects are:

- Number of users and sessions per user
- Number of concurrent sessions
- Number of enabled modules / functionalities
- Number of business artifacts generated by the application (e.g. reports, invoices etc.)
- Number of objects created or stored in the application (e.g. articles, contacts etc.)
- Number of emails sent

Obviously, the rating and billing must cater for the business value of the applications, service maintenance costs (like customer support and SLAs), as well as the hardware required to host it (e.g. CPU and storage capacity). The diversity of the parameters may be a difficulty alone. However, this is where another critical challenge occurs.

It is the scalability required to handle a varying number of customers and users. Obviously, a well-established business can make long-term customer base growth plans and set sales targets in order to adapt the infrastructure on time. However, the recent economic reality has made it increasingly difficult for companies to reach those targets. In addition, some of the services offered to customers have a very seasonal nature (e.g. consumer e-commerce usually booms in the Christmas season). This means businesses need to make upfront spending on hardware capacity which is likely to be redundant for extended periods of time. A related challenge is also the provisioning of the services, which also requires appropriate infrastructural solutions to be in place.

A conclusion from the above is that it is not easy for a specialized application provider to offer their software in the SaaS model on their own. Fortunately, the market is rich in solutions similar in the idea, but oriented on hardware infrastructure. It is usually referred to as Infrastructure (or Platform) as a Service, and a combination of the services is commonly named Cloud Computing.

“Hardware as a Service”

The Infrastructure as a Service providers reduce most of the CAPEX required from software vendors in order to start offering SaaS. Their huge data centers cater for the flexibility allowing for instant multiplication of the hardware resources as the needs grow. The dynamic scalability and provisioning is achieved with the latest platform virtualization monitoring infrastructure (hypervisors), out of which the most commonly used are Citrix Xen and VMWare (Information Week Analytics, Sept. 4, 2009). Costs are kept down to the minimum due to built-in load balancing mechanisms.

The dynamic growth of interest in SaaS had turned providing scalability, redundancy and provisioning for its purposes into a core business of many companies. Even though, as the concept is relatively new, the implementations and market offerings differ quite considerably. The most commonly listed three services – Amazon’s EC2, Google’s App Engine and Microsoft’s Azure represent different philosophies, with hardly any platform restrictions and added services in the first case, very restrictive policies for a low price in the second, and single platform with value added services in the last example.

With specializations ranging from virtualized and scalable web hosting and disaster recovery through provision of SaaS and test environments for software vendors to leasing high-performance computing resources for research and industrial simulations, the leaders in the most common appliances include Amazon (EC2), Rackspace and GoGrid.

A majority of the providers impose a minimum service duration, although in most cases it is as low as monthly. The services are usually billed according to utility-based or availability models. The charges are commonly applied for the following parameters:

- Hours of virtual machine availability (e.g. Amazon)
- CPU cycles (e.g. Rackspace, Google)
- RAM-hours (e.g. GoGrid)
- Data transfer
- Storage

Additional services, such as monitoring, load balancing, software license fees etc. are also offered and billed for as part of bundled plans or separately. Some providers offer pre-paid plans and monthly or annual subscriptions, although their practical aspect is a price discount or a fee for the “reservation” of a machine (either virtual or physical) with additional per-use pricing on top of it.

One of the most frequently raised disadvantages of entrusting the hosting of applications to 3rd party companies is the aspect of data security and uptimes. This is addressed by most providers who offer suitable service level agreements (SLA) with uptime levels exceeding 99%. However, it is the small-print that matters. For example, Amazon’s SLA guarantee of 99.95% is calculated on an annual basis, which means a critical system may be down for a few hours within a week with no obligation from the provider. As another one, GoGrid’s 100% SLA level refers to availability as indicated by the operator’s proprietary monitoring tools.

Service separation model

The most typical and common model of offering Software as a Service by specialized application providers is a direct sales approach with 3rd party hosting, depicted in Diagram 1 below.

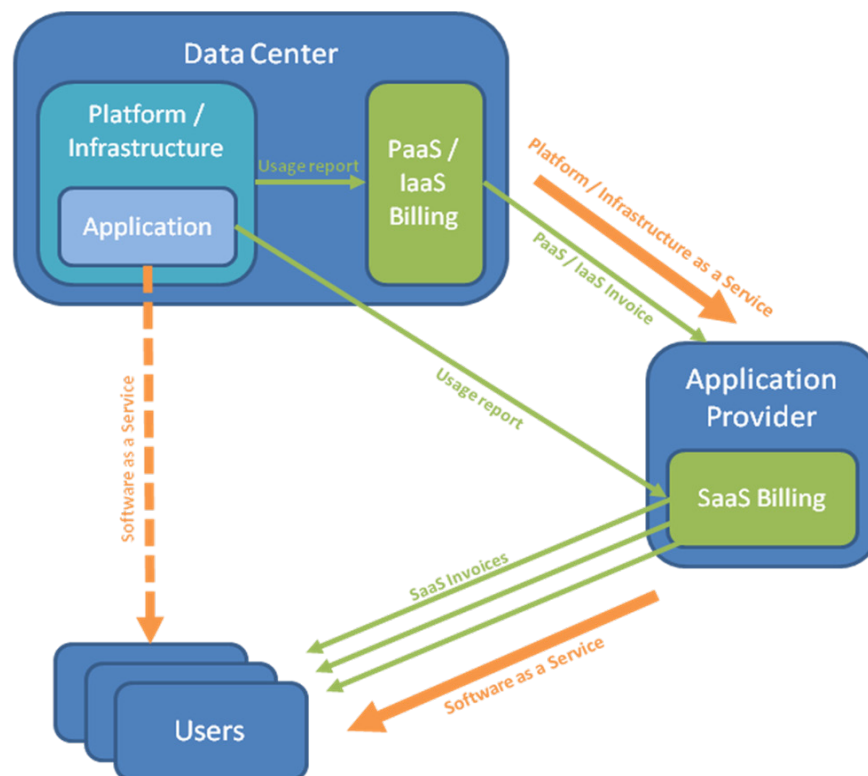


Diagram 1. Software as a Service direct sales with 3rd party hosting model.

In this model, the software vendor hosts its applications in a selected Data Center providing platform or infrastructure services. The software is offered and sold to end users directly by the application provider and the data center is not part of the process. The application provider is billed for the infrastructure usage. The application sends usage reports to the provider's billing engine. The entire billing and invoicing process is also handled by the application provider.

The main advantage of this model for the application provider is that the scalability and provisioning is entirely taken care of by the data center. This means a significant cost reduction, as no hardware needs to be purchased and set up in order to provide the service. The sales is directly between the software vendor and the customers. Both the data center and the application provider offer their core business services only.

Despite offering undoubted advantages, this model is not without flaws from the software vendor's perspective. The requirement of running dedicated sales & marketing departments has been enough of a struggle for many software engineering businesses. The billing and invoicing on top of that may be too much for some executives to handle in a short timeframe.

Revenue sharing model

This is why an **alternative and less conservative model** is proposed by Verax Systems. It is based on the assumption that it is easier for a large service provider (i.e. data center) with existing billing infrastructure and procedures in place to integrate additional application usage billing processes into it than setting up two separate engines. The model is demonstrated in Diagram 2.

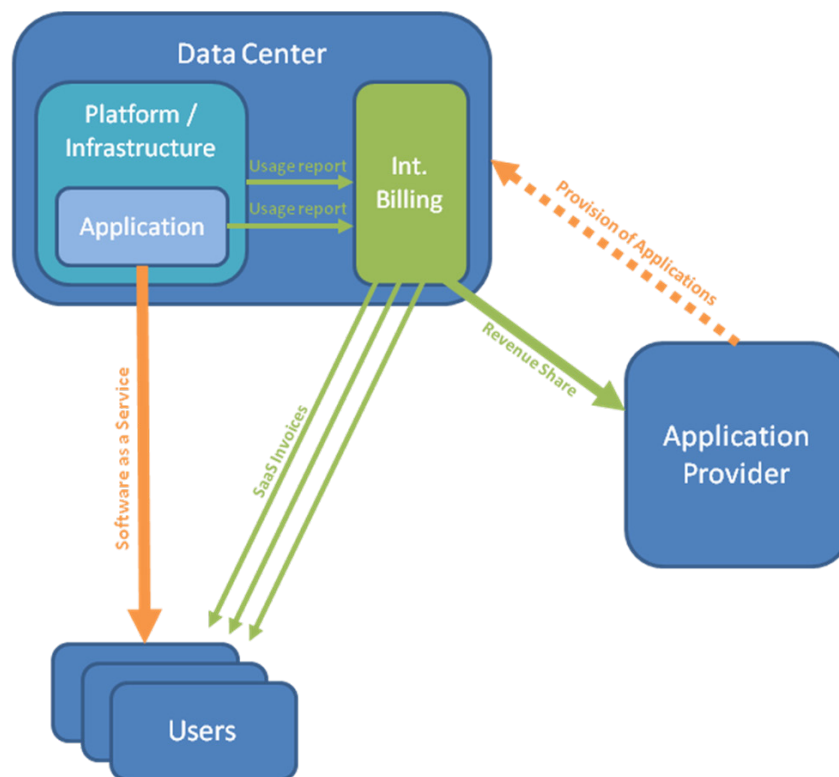


Diagram 2. Software as a Service revenue sharing model.

The advantages of this model are clearly evident for both the data centers and the application providers. As the revenue is shared between the two parties, both of them have a common business goal, so there is an obvious synergy effect. Also the total cost of this model seems to be lower, so a more competitive and profitable offer can be directed to the customers.

Application providers without the need to handle billing, invoicing and collection processes can put more focus on what they do best. This should result in lower prices for the service, as well as in development of new features or applications. Many small and rather unheard of software companies can vastly benefit due to the service provider's footprint and market recognition. It also means a safer business with less investments in expensive infrastructure and processes.

The data centers as service-as-a-whole providers gain an opportunity to increase their market share and recognition. First of all, they can expand their customer base by attracting more application providers due to a convenient business model. In a time of increasing competition among infrastructure providers, more of them aim to find market differentiators. This objective can be met by offering added value – clearly achieved by directly providing applications in the SaaS model. Value Added Services at a low expense combined with additional revenue from commission should provide a quick ROI and increase the company's footprint.

Verax SaaS provisioning and billing infrastructure

Verax Systems positions itself as an infrastructure enabler for the provisioning and billing of SaaS applications supporting various business models, including the revenue sharing in particular. The Verax OSS/BSS Suite covers important areas of building SaaS infrastructure, including:

- Defining new services (Product Catalogue)
- Provisioning (Provisioning Service)
- Customer self management (Self Care Portal)
- Billing of both **infrastructure and application usage** (Billing)
- Monitoring of the service infrastructure and measuring SLA compliance (NMS)

What is worth mentioning is that Verax Systems' applications are not limited to the SaaS platform – all our products are oriented at carrier-grade services for IP-centered, convergent telecommunications.

Defining the services

In order to be able to efficiently handle the billing of any kind of services, they have to be precisely defined. What could be just a one-off exercise for a small business offering a limited number of rarely-changing services is usually not the case. Strong market competition enforces introducing new ways of attracting customers and thus, new services. This means that the configuration of new applications becomes a daily routine. The challenging economy is also a time when acquisitions or mergers become very common, resulting in an increase of the number and complexity of the product packages offered. In order to handle the product and service offerings in an efficient and error-free manner, a sophisticated product catalogue, capable of handling SaaS specifics is required.

The Verax Product Catalogue offers a flexible tool to define the SaaS services and means of their billing, such as:

- Service name
- Activation times
- Eligibility criteria
- Billing criteria:
 - Platform usage, such as storage, CPU cycles, data transfers and others
 - Additional application criteria, resembling more a classic license, such as the number of users, sessions, modules enabled, etc.

The Product Catalogue offers an easy, intuitive interface for not only defining the technical details of the services, but also allowing to categorize them for easier browsing, create service bundles (with mandatory and optional products), provide descriptions and photos for the customers and define multi-currency pricing.

Provisioning the services

Provisioning of individual applications is likely the most complex process of a scalable and flexible SaaS infrastructure. In order to attract customers, the offering must be tailored to the needs to the maximum extent. The resulting wide range of pricing and licensing models needs to be reflected in the provisioning mechanism. An indication of the potential challenges is that the provisioning of various SaaS applications may include the following:

- Instantiating a virtual machine from a template
- Setting platform parameters such as storage, database and others
- Setting DNS names
- Managing HTTPS certificates
- Configuring a default administrative account
- Configuring the application license, e.g. three modules for five concurrent users
- Activating the service and billing notification

Verax Systems has been working on a Provisioning Service solution to meet all the challenges faced by our current and potential customers.

Managing the services

A wide range of applications and a large number of users make for an excellent business aspect, as they directly affect the revenue gained. However, the management of customer service becomes more difficult and expensive as the customer-base grows. It is not just a question of instantiating the particular applications, but also responding to the customers' changing needs.

The easiest way of reducing the customer service costs and making it more manageable is providing the customers with a front-end, where they can manage the parameters of their services on their own. It not only helps to improve and reduce the call center costs, but also increases customer trust and loyalty.

The Verax Self Care Portal allows this and much more, by providing enhanced possibilities of customer communication (e.g. broadcasting news, events, new products), improving the service with a service rating feature and accelerating the cash flow by presenting outstanding payment information to the customers.

SLA compliance

The provider's liability and proposed Service Level Agreements are one of the most frequently asked questions when it comes to managed services. Security concerns are the main argument against using SaaS for 30% of decision makers surveyed by Forrester in 2009. This is why it is essential for any SaaS provider to deploy the right tools and procedures to maintain the required level of availability and data security, as well as to demonstrate them to their current and potential customers.

It is not just the hardware infrastructure that matters. In order to avoid dropping below the SLA-declared parameters by reacting to problems before they become critical, the SaaS providers need to have a proper monitoring system in place.

Verax Systems' Network Management System is a perfect match to those needs, both for the platform as well as the applications. The Verax NMS provides proven SLA compliance and features full FCAPS (fault, configuration, accounting, performance, security) functionality to help maintain the highest level of availability and provide tools for fault prevention. Due to support of rules-based business logic and pluggable architecture, it can be integrated with any existing platforms and applications.

Integration challenges

SaaS applications are usually built on top of existing infrastructures and services. This means that there may likely already be some systems in place. Be it existing client databases, some forms of billing systems or other environments, Verax Systems can integrate with them via:

- SOA-ready architecture with pluggable services – e.g. it is possible to replace the integrated Verax OSS/BSS database and modules with a custom plug-in connecting to an existing database
- Verax mediation, which can be used to relay the UDRs to and from the existing billing system.

Verax Systems has broad experience as an integrator of applications for telecommunications (including Tier-1 operators) and financial markets.

Growing with the needs

It seems obvious that building a proper SaaS infrastructure is an investment. While some businesses can afford to create it within a short period of time, others may need to prioritize and get going with only the most essential parts in place in the start-up period.

Verax Systems understands this and offers delivery of a perfectly-suited solution over time. The suggested and most common order would be to first deploy the provisioning service, followed by automating the billing process, and finally improving SLAs with the NMS and the customer service with the Self Care Portal at a later stage. However, we are open to any needs and ideas.

Summary

Building a SaaS platform is undoubtedly a complex and demanding task. However, setting up the necessary infrastructure around it in order to provision and bill particular applications is also a challenge. Verax Systems with its OSS/BSS Suite offers a perfect set of applications to address these challenges.

For more information please visit our website www.veraxsystems.com or contact us.