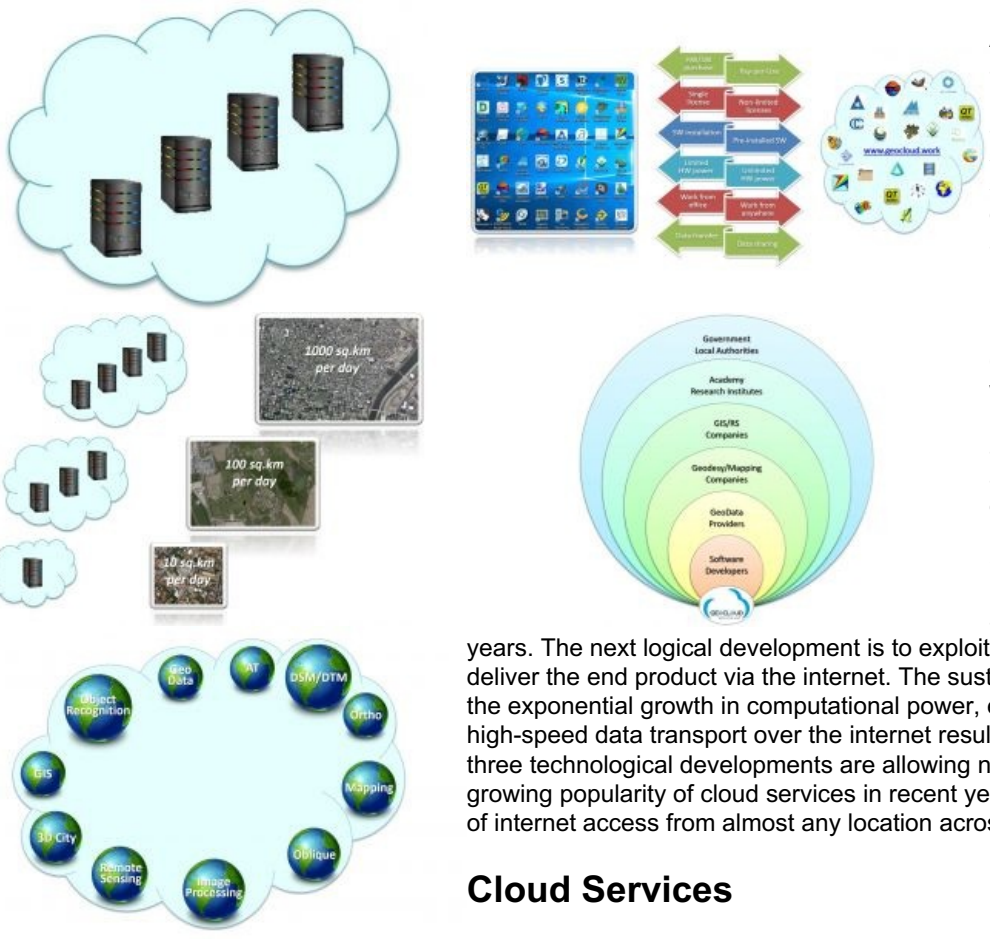
FROM LICENSING TO SUBSCRIPTION

Geoinformation Software as a Service



Accurate geoinformation about urban areas, public buildings or historical sites is in great demand. It has become astonishingly easy to capture these scenes through cameras or laser scanning or to acquire open data from a diversity of sources. Professionals without a surveying background can do the job, but such professionals require reliable, robust, easy-to-use and affordable processing tools. Today, cloud computing can meet that need, enabling users to work with software packages running on remote servers on either a pay-per-use or a subscription basis. This article presents a cloud computing service dedicated to geoinformation software.

Storing data in the cloud has become increasingly popular among companies and the general public alike over recent years. The next logical development is to exploit remote servers for data processing and to deliver the end product via the internet. The sustained rise of cloud computing is fuelled by the exponential growth in computational power, ever-faster access to storage devices and high-speed data transport over the internet resulting from broadband networks. These three technological developments are allowing new business opportunities to flourish. The growing popularity of cloud services in recent years has been further boosted by the ease of internet access from almost any location across the globe.

Cloud Services

Cloud services can be divided into three main models: Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS). IaaS creates a virtual desktop environment in which all data and all applications, including the operating system, are in the cloud. To process data and perform other IT tasks, the user can choose from a broad spectrum of software running on remote servers. In contrast, PaaS allows the user to deploy self-developed or self-purchased software using the hardware, programming languages, libraries and tools offered by the platform provider. The provider manages and controls the cloud infrastructure, but users have control over their applications. Meanwhile, SaaS goes a step further than PaaS: users uses the software supplied by the provider to process their own data and run it in a cloud infrastructure. Then, the data and the end product are safely returned to the user or shared with the user's customer via the internet. The provider hosts application software which can be accessed by users via the internet on either a subscription basis or a pay-per-use basis. Figure 1 compares the main features of licensed software installed on a desktop against software offered as a service in a cloud infrastructure.

Figure 1: Software on a desktop versus cloud infrastructure.

Opportunities

The capabilities of today's geodata acquisition technologies – with at the forefront laser scanning and photogrammetry in the broadest sense – are tremendous. As a result of the advancements in smart software and miniaturization of electronics, relatively small devices can capture a variety of sites, both indoors and outdoors, at high levels of detail and accuracy. This means that the focus of geomatics specialists is increasingly shifting from the exploration of geodata for certain applications, to the acquisition and processing of geodata itself and the development of software to support automated processing. This shift in focus has also been reflected in the geomatics

curriculum at many universities over the past decade. Besides this, professionals such as architects, constructors, cultural heritage conservators and urban green-space managers are becoming incidental users of geodata acquisition technologies. They lack the time and/or the inclination to get to grips with the nitty gritty of these technologies. Instead, they merely want to be able to process the geodata – which they may have acquired using a handheld device or by pushing a trolley – into a file and format suitable for use in their BIM or CAD software. These casual users welcome services which make their jobs easier. They regard geomatics end products as raw material for their own applications. It is simply a matter of uploading the data and indicating the desired processing steps on a digital form. Then, a little while later, the processed data becomes available to them in the desired format and the user can focus on utilizing it to create their actual product or service. Such users represent tremendous opportunities for providers who offer cloud-based geomatics software.


Figure 2: Scalable and â€˜always availableâ€™ computer environment.

GeoCloud

One recent example of a cloud computing service for geomatics software is GeoCloud. Launched in July 2018, the platform enables software vendors to host their geomatics software. “Users benefit from unlimited remote access to fully licensed, preinstalled and ready-for-use dedicated software,” says Dr Yuri Raizman, CEO of GeoCloud Ltd. “Our cloud computing services cover all geomatics fields, including geodesy, photogrammetry, mapping, cartography, remote sensing, GIS, CAD, image processing, 3D city modelling, point cloud processing and automatic object recognition. We started less than a year ago, and the platform already supports over 50 geomatics software products.”

The platform has been built on Amazon Web Services (AWS), which is the world’s largest cloud service infrastructure, and has inherited all its advantages. By installing their software on the platform, vendors benefit from doing business round the clock at lower marketing, pre-sale and support costs. After installation, vendors can test how well their software works. Small software producers, start-ups and other firms with limited financial resources can offer their software packages to a worldwide audience without high and risky investment. Established firms with a large consumer base also benefit from the platform since it enables them to extend their coverage globally and also to build awareness of their services and solutions among professionals outside of the geomatics field. After all, a single platform bringing together a variety of software is more likely to be found by smaller firms or casual users. “The potential is huge since today over 180 geoinformation software vendors are serving hundreds of thousands of geomatics and GIS professionals worldwide,” continues Raizman. Users do not need to invest in computers with powerful processors; a fast internet connection suffices. A cloud infrastructure is very flexible for both users and software vendors since cloud computing provides a scalable and ‘always available’ computer environment (Figure 2).

Can GeoCloud’s business model be compared with how an intermediate or broker operates? “Today, we are an intermediate between software vendors and customers,” Raizman confirms. ‘Soon we will bring together producers of imagery and maps, and other data providers with data users followed by connecting mapping service providers and their customers. What is important and new with us is the pay-per-use model.” (Figure 3).


Figure 3: Shared use of software and data fosters collaboration among organizations and companies.

Subscription

When a user signs up for a subscription, an account is created which provides access for all employees within the user’s organization. The accountholder pays for the total amount of time the software, computer and storage facilities have been used within their company or organization. The usage hours per account are added together every month and billed – at a predefined price per hour – at the beginning of the next month. Incidental users can subscribe for a limited period, e.g. one quarter, one month or even one week. Periodic subscriptions can be prolonged at any time. The main difference with a continuous subscription is that the user pays in advance for the selected software licence. The payments for the computer and storage are calculated on a pay-per-use basis.

After gaining access to the platform, the customer first selects the relevant apps and storage units for uploading and processing their data. The storage volume should be sufficient to hold the customer’s data, temporary files and end products. The volume of standard storage ranges from 1GB to 10TB, but can be extended on request. The next step is to sign up, including selection of the payment method. After finalizing this administrative procedure, customers can upload their data and start the selected apps (each of which runs independently of the other apps). In the case of software vendors, after signing up and selecting a payment method they then select one or more computer configurations from the choice of nine. Lastly, the software vendor uploads their software and can start doing tests.


Figure 4: Unified and easy access to many software packages and data.

Reliance and Security

Cloud computing provides unified and easy access to a variety of geoinformation software packages and data (Figure 4). While this is beneficial, the other side of the coin is that one has to rely on the service provider, which means relinquishing autonomy. One also depends on the security features with which the provider has surrounded his platform, and this is where trust comes in. Behind any digital service, there are not just robots, machines or computers but also an organization run by people. These people want to grow their business, which requires customers to keep coming back and recommend the organization’s services to others. This is a powerful driver for companies to do their upmost to satisfy customers. On the other hand, it is very conceivable that organizations that work with sensitive information will be reluctant to use cloud computing services, instead preferring to establish their own secure data-processing environment.

Concluding Remarks

The ongoing developments in information and communication technology (ICT) continue to ignite new business opportunities and ideas.

One relatively new business model is to offer software as a cloud computing service rather than on a licence basis. This encourages the shared use of software and data, thus fostering collaboration among organizations and companies. It is highly likely that these ICT advancements will further boost the use of geomatics tools and create greater public awareness of the benefits of geomatics.

More information

www.geocloud.work