

VALUE ADDED TAX AND CROSS BORDER E-COMMERCE
THE UBIQUITY CHALLENGE POSED BY THE INTERNET
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INTRODUCTION

In e-commerce, suppliers use the Internet as a means for concluding contracts, and as a means for delivering the goods that are the object of the transaction (digitized products like music, video, etc.). Additionally, suppliers also use the Internet as a means for selling, but the actual delivery of the goods may take place physically.

In this context, the jurisdictional black hole constituted by the so called cyber space is probably the most important challenge posed by modern times to consumption taxation. This work purports to address the difficulties of taxing with a value added tax (VAT) commercial transactions that use the Internet to order and/or deliver goods or services in the cross-border context. I intend to show that value added taxation must make assumptions and work on the basis of legal conventions when taxing transactions taking place in whole or in part over the Internet. Legal assumptions or conventions are needed because the nature of the Internet is about communication between nodes, not about facilitating taxation of suppliers and consumers. Virtually, the Internet has turned into an ubiquitous paralegal jurisdiction that spreads its footprint all over the globe.

In the following part I include a detailed explanation of those technical aspects of the Internet whose understanding I believe necessary before tackling the complexity of applying a VAT to commercial transactions that are difficult to attribute to a single taxing jurisdiction or to any taxing jurisdiction at all in the light of the virtual character of the market space presented by the Internet; and to understand that a VAT applied to e-commerce transactions may only happen effectively on the basis of assumptions and legal conventions established from a practical and neutral perspective.

THE INTERNET: WHAT IS IT AND HOW DOES IT WORK?.

The Internet began in 1962 as a resilient computer network for the US military (ARPANET¹) and over time grew first into a system for fostering academic research and interaction and, thereafter, into a global communication tool of thousand of computer networks, which share a common addressing scheme (protocol²), and which is used for communication, commerce and entertainment.

A network is, in simple words, two or more computerized devices (computers, terminals, printers, servers) linked by wired or wireless transmission means which allow them to communicate effectively. Devices in the network, also known as nodes, can act as transmitters or receivers of information, and all information exchanged in the network is subject to certain rules called communication protocols which make communication possible.

Electronic information transmitted through networks is the product of digitization, that is, the process of converting information into a basic sequence of numbers using only 1 and 0 (1 representing “on” and 0 representing “off”). Each digit within the sequence is called a bit, and

¹ See <http://www.zakon.org/robert/internet/timeline/>, last accessed on April 3, 2010.

² See http://en.wikipedia.org/wiki/Communications_protocol, last accessed on April 3, 2010.

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each 8-digit sequence is called a byte. This use of sequences using 1 and 0 is known as binary language. As an example, every time that we write an “a” in a computer, the appropriate sequence for that letter is 01100001 while the sequence for an “A” would be 01000001³. The word “Gator” would be represented by the following sequence: 01000111 01100001 01110100 01101111 01110010. Every piece of information in a computer is digitized and transmitted in this way.

The Internet is a network of Client/Server networks hence the largest of all networks in the world. Now, how do these networks communicate among one another?. Access to the Internet is generally provided by specialized providers called Internet Service Providers or ISPs who, in turn, lease service (in the form of capacity) from the owners of the actual transmission means (wired and wireless) who are called Network Service Providers (NSPs) or carriers.

Electronic commerce or e-commerce generally refers to the use of computers networks to facilitate transactions involving the production, distribution, sale and delivery of goods and services in the marketplace.

Although new commercial uses of the Internet appear every single day, the most common commercial applications are: a) Advertising and marketing; b) order entry, processing and payments in connection with the sale of products or services; c) telecommunications and, sometimes, d) a combination of two or more of the foregoing. Electronic commerce embraces not only the relationship between business and consumer (B2C or “Business-to-Customer”), but also more efficient business processes within a business (B2E or “Business to Employee”) between different businesses (B2B or “Business-to-Business”) or between consumers (C2C or “Consumer-to-Consumer”).

For example, a client sitting in Poland accesses a link of Gator’s Amazing Caps to check for models, colors and sizes of caps in the server while, at the same time, another client in Japan is awaiting confirmation from the server for the purchase of two thousand brand new caps, and while another client is providing feedback on his last purchase. Gator’s Amazing Caps Corp. could have its headquarters in Gainesville, FL and yet have its servers located in Panama without its clients ever knowing or caring at all and without impairing its ability to have a 24/365 dedicated connection with the server. In fact, it might even be possible for Gator’s Amazing Caps to completely avoid the need to purchase server hardware and software by simply contracting server services with specialized providers in Panama (Internet Data Centers⁴).

Now, why would any business decide to locate servers away from their headquarters?. There are many reasons for that. One reason could be simply to reduce costs (i.e. real estate or the cost of server service). Another, perhaps more compelling reason, is the need to have the servers located near the e-customers or to have mirror servers⁵ which can be used for “paraloading”, that is, downloading simultaneously from different mirror servers, all in order to improve the speed of the connection (throughput).⁶ As previously noted, Internet connection

³ <http://home2.paulschou.net/tools/xlate/> has a very interesting application that translates any text into binary language, last accessed on March 28, 2010.

⁴ See http://en.wikipedia.org/wiki/Data_center, last accessed on March 30, 2010.

⁵ Mirror servers are duplicates that contain everything available on the original server. Mirror servers are used to reduce the traffic load on the original server, for backup and recovery, and for faster access when the main server is geographically distant. http://reviews.cnet.com/4520-6029_7-6111528-1.html?tag=txt, last accessed on March 28, 2010.

⁶ See Allen Miu & Eugene Shih, *Performance Analysis of a Parallel Downloading Scheme From Mirror Sites Throughout the Internet* (December 3, 1999), available at <http://nms.csail.mit.edu/~aklmiu/comet/Para2.ppt>, last accessed on March 28, 2010.

sometimes requires node to node jumps, sometimes passing through slow networks. By having the server located near the customer the connection speed increases and likewise, the overall user experience.

Regarding further the location of a server [node], one must address the essential issue of Internet Protocol (IP) addresses. An IP address is a numerical label that is assigned to each device [node] that participates in a computer network using the Internet Protocol for communication between its nodes. An IP address consists of a 32-bit binary number that is displayed in a sort-of-friendly readable notation, such as 128.227.135.1⁷ and fulfills two main functions: **node identification** and **location addressing**. That is, technically, an IP address indicates the **geographical location** of the Internet node to which it is assigned. A public IP address is, basically, a number indicating the geographical location of a node participating in the public Internet. Thus, a public IP address specifies the location of each node in the topology of the public IP network, that is, in the topology of the public Internet, the cyber space.

In addition, it is most relevant for this part of our work to refer to the issue of IP masquerading. Basically, what IP masquerading means is that a public IP address may be used to identify just one computer or a whole private client/server network composed of many computers connected to the single node that was assigned a public IP address by an ISP. A private IP network may be composed of computers located in one room or by computers located in different countries or even by computers located on planet Earth and computers located in orbiting satellites that communicate to one another in a private secure environment. So, technically, in an extreme and over simplified example, a man inside a space shuttle orbiting the Earth could use his computer to access the public Internet by using NASA's private network as a bridge to jump into the public Internet. In such extreme case, the computer of the man inside the space shuttle would be masquerading behind the public IP address being used by NASA's server in FL to jump into the public Internet. Only the NASA IP would show during the communication session since the computer in the space shuttle would not be assigned a public IP address but a private IP address within NASA's private network. Which jurisdiction would have the right to tax the purchase of an Amazing Gator Cap by the man in the space shuttle if valued added tax were to be imposed on such e-commerce transaction? Why?

Only legal assumptions and conventions may tell us why.

THE UBIQUITY CHALLENGE POSED BY THE INTERNET TO VAT

Can the existing VAT tax base be maintained, particularly provided the difficulty of tracking B2C sales over the Internet? Can on-line providers of goods and services be made to account for consumption taxes like a credit invoice European style VAT? Can they be collected some other way?

There is no paradigm solution to all the problems. In the end, a series of trade-offs between the need to ensure traditional businesses do not lose out to unfair competition from untaxed dot-com's and the need to maintain the tax base without imposing unrealistic compliance burdens on new businesses. Whatever new rules are put in place have to be credible and enforceable at least against the major players. It has to be taken into account that no

⁷ This was the IP address assigned by my ISP (the University of Florida in Gainesville, FL) to my laptop (client node) while writing this work at the library, on March 31, 2010. See <http://www.ip-address.com/>, last accessed on March 31, 2010.

consumption tax can be enforced and collected 100%. Development of uniform tax base definitions for e-commerce and accepted and uniform sourcing rules⁸ are a must.

Moreover, it is challenging how the technical and regular phenomena of paraloading and IP masquerading turn futile all efforts to source an e-commerce transaction taking place over the Internet on the basis of the nodes participating in the transaction. For example, a software vendor may use the Internet to deliver its product (direct e-commerce) to the purchaser and employ two mirror servers located in two different countries to make the purchaser's experience faster and smoother because paraloading increases downloading speed and ameliorates the transaction risk represented by potential network failure. In such a case, each mirror server would be assigned a different public IP address by each of the ISP's operating in different countries. Technically, the download would be being made from two servers located in two different countries simultaneously. Which of the two countries is the originating country from a network perspective? How do we allocate "value or a tax base" to each country on the basis of the portion of the download being made from each of them? Are we supposed to do that at all?

On the other hand, from the side of consumption, a University of Florida alumna could buy a baseball cap designed by Gator's Amazing Caps from her desktop office computer in India that communicates to the public Internet through a virtual private connection with her company server located in Canada that is assigned a "Canadian" public IP address. The server of Gator's Amazing Cap intervening in the transaction could be located in Hong Kong and would be using a public IP address allocated to Hong Kong. The item would be mailed by Gator's Amazing Caps from its warehouse in Gainesville and physically delivered at the vacation home of the purchaser in Miami Beach as indicated in the electronic purchase order. What is the destination country: India, Canada or the U.S.? The "purchasing" server in Canada is the node showing a "Canadian IP address" as initiating the communication with the server of Gator's Amazing Caps located in Hong Kong even though the actual purchaser is masqueraded and located in India. What is the country of consumption?

Intuitively, we see the ubiquity of a single e-commerce transaction. It happens in many places simultaneously, or from many places, or with several places as possible destinations. This is especially true with digitized goods and products. The topology of the Internet is not of great aid in sourcing an electronic transaction, really. So the questions of jurisdiction, nexus and legitimacy are still the fundamental ones. The Internet itself, cyber space, is not a jurisdiction but a huge communications network that pervades every single jurisdiction in the world in a collaborative and efficient way to transmit data.

So the issue is how to apply VAT to electronic commerce taking place over the public Internet and on a cross-border context be it a federal context or the international context provided that the Internet topology does not provide answers but more questions because the Internet was not designed to facilitate taxation but to facilitate communication. An origin based or a destination based credit invoice European style VAT; that is also the question.

Thus governments need to take another yet more traditional approach to the taxation of these transactions either in the VAT context or in any other context of international or cross-border taxation: States have to resource to place of incorporation, ownership, substance and management to source the origin of an e-commerce transaction or to determine place of consumption. The location of a server and its IP address do not provide the answer but mere

⁸ In the U.S., the case of *Quill v. North Dakota* in 1992 established that businesses are not responsible for collecting a use tax unless they have a physical presence or nexus in a customer's home State. Where there is still too much room for debate is how far the Quill tests – derived from mail-order transactions – read across to Internet sales.

indicia of potential substance. VAT rules applicable to e-commerce need to be enacted either in an origin based VAT or a destination based VAT. In formulating these rules national policies and harmonization need to be addressed at the national and international context. An operating presence, with the management powers should probably be a necessity for the Tax Authorities to accept that a business is resident in a certain location; or the place where the business is incorporated. The rules would deem the sale or consumption to occur in a certain place by establishing a legal nexus between the transaction, the taxpayer or the consumer.

The tax base would be circumscribed to B2B and B2C transactions as B2E and C2C are typically not the object of Value Added Taxation. The allocation of such tax base would depend on the rules adopted to source a transaction and determine consumption.

For example, in the case of services, there are also issues of nexus to be addressed when the provider is offshore if we are to apply a destination based VAT. It may be required that the provider has his seat of business or a fixed establishment in the jurisdiction before VAT can be applied. For certain types of cross-border supplies, like services, the VAT liability may rest with the customer under the reverse charge when he receives a supply from a supplier based in another country. This is precisely the main problem – while traditional services can in practice be taxed under the reverse charge principle, so that VAT is accounted for by the receiver, B2C supplies from third country suppliers of on-line services cannot effectively be taxed. The heart of the matter is then how to deal with the problem of supplies of digitised products or services. Basically, in locating place of consumption of a digitized product, we are left alone with a public IP address that may or may not indicate the actual place of consumption provided the masquerading technique referred to above. Moreover, any system of self-assessment based on a reverse charge system extended to final consumers would lack any credible means of enforcement and would bring the tax into disrepute.

Then, reasonable and practicable conventions are necessary to apply VAT to electronic commerce in a way that is enforceable and facilitates compliance. In our opinion, the use of a European style credit invoice VAT is the most practicable way to go since VAT is imposed on a transactional basis. All cross-border transactions of intangible goods and services should be taxed applying the same principle, either the principle of origin or the principle of destination (taxation at consumption) in order to avoid double taxation or double non-taxation. Additionally, the application of different principles to electronic commerce and traditional commerce would violate the principle of neutrality, albeit tangible and intangible goods could be treated differently in our opinion without distorting neutrality. Moreover, in determining the place of consumption, a logical rather than a physical place (as revealed by intervening public IP address in the specific transaction) would need to be established; this requires legal fictions or assumptions. It is then probably more practicable to establish the VAT on e-commerce on an origin basis in both the B2B and B2C scenario in the case of digitized products and services hence dissolving the challenge posed by the transaction being cross-border. In the case of physical goods, a destination based VAT is more practicable in the cross-border context by means of the reverse charge methodology.

The other more practical requirement is to deal with the question of identification of business customers – how can the on-line service provider determine that the person he is dealing with really is a business customer (B2B) and not a final consumer when billing formalities are not the same in each case or when goods or services may be exempted when the buyer is a final consumer? In the context of a destination based credit invoice VAT system, it has been proposed the need for an on-line 24 hour verification system to check the existence and

validity of VAT registration number, the assurance being that if the supplier makes the necessary check before completing an on-line transaction, his liability will be at an end, and tax will be collected by self-assessment from the business customer⁹. However, in our opinion, in the context of digitized products, a destination based system is founded on way too many unrealistic assumptions provided the topology of the Internet and self-assessment would rest credibility to the VAT system overall as it would only apply to major players.

CONCLUSIONS

1. The Internet was not designed to facilitate taxation but to facilitate communications in a secure and efficient way. Therefore, the Internet's topology does not facilitate determinative elements to identify place of origin or place of consumption of goods and services. Specially, in the context of digitized goods and services. Geographically assigned IP addresses are mere indicia indicating potential place or origin or consumption, hence far from conclusive and sometimes leading to a dead-end like when paraloading is present (from the origin side) and masqueraded private networks operate at the origin or destination sides. The topology of the Internet should not be seen as a means to justify or establish a territorial-jurisdictional nexus with a transaction.
2. Conventional approaches must be resourced to if VAT is to be applied to e-commerce transactions. Traditional concepts like permanent establishments, fixed base, economic substance, place of incorporation and place of management are necessary as logical approaches to taxation of e-commerce.
3. An origin based VAT is more practicable to e-commerce of intangible goods and services than destination based VAT, in both the B2B and B2C contexts as dissolves the issue of the transaction being cross-border or not and facilitates fiscal control.
4. Destination based value added taxation does not facilitate the imposition of a VAT on intangible goods and services as the place of consumption is too difficult to determine and too many non-factual assumptions would need to be made to make it practicable.
5. Cross-border value added taxation of commercial transactions of tangible goods on the basis of destination based taxation, and of intangible goods and services on the basis of origin based taxation should be imposed on all transactions regardless of the electronic or traditional means of carrying out the deal, thus fostering neutrality of the VAT.

⁹ See "The digital VAT (D-VAT)", Richard Thompson Ainsworth, 25 Va. Tax Rev. 875.