ECOMMERCE TAXATION AND THE LIMITATIONS OF GEOLOCATION TOOLS[1]

Introduction

New European Union (EU) value added tax (VAT) rules that will go into effect on July 1, 2003 will require non-EU vendors that sell certain electronically supplied goods and services to EU consumers to charge VAT based on where their customers are resident. The OECD, in its paper titled 'Tax Treaty Characterization Issues Arising from Electronic Commerce', concluded that most types of e-commerce transactions were sales. This laid the foundation for the EU subsequently asserting that VAT should be imposed on such transactions based on the residence of the consumer. By concluding that most digital transactions are sales, rather than licenses or services, the geographic incidence of the EU VAT shifts from the location of the seller (which would remove non-EU sellers from the burden of collecting and remitting VAT on sales to EU customers) to the residence of the consumer, thus forcing non-EU vendors to collect and remit EU VAT on e-commerce sales to EU-resident customers. Once these new rules go into effect, non-EU vendors selling electronically supplied goods and services to EU consumers will be required to determine and charge VAT based on a customer's country of residence. Absent any technological tools that are capable of providing accurate information regarding a customer's place of residence on a real-time basis, non-EU vendors must be allowed to rely on customer provided information in determining country of residence.

Geolocation technology, a fairly recent innovation, purports to be able to address some, if not all, of the challenges

associated with identifying the physical location of a customer.

It is the purpose of this paper to examine what this new technology is capable of in the context of complying with this new EU VAT legislation and potential future U.S. sales/use tax laws.

Background

EU VAT Directive on Electronically Supplied Services

In June 2000, the European Commission proposed requiring its member countries to enact laws mandating the collection of VAT on sales of certain electronically delivered products and services to non-business customers resident in the EU. The proposal, which was approved by ECOFIN in February 2002, requires all member states to adopt implementing legislation that is effective as of July 1, 2003. Compliance with the new rules is now a challenge that must be met by non-EU vendors. The new rules will require non-EU vendors to collect and remit VAT on sales of certain electronically delivered products and services (both of which will be deemed to be services for VAT purposes and which are referred to in the Directive as electronically supplied services or "ESS") to non-business customers residing within the jurisdiction of the EU, at the rate applicable to their country of residence. Certain e-commerce vendors[2] not maintaining a

physical presence within the EU will be able to register in a single EU member state, file a single return and remit taxes to that country under a simplified registration regime. However, such non-EU vendors that elect to VAT register under this simplified regime will still be required to identify the customer's country of residence, *collect VAT based on the customer's country of residence* and will be subject to the tax regimes of all 15 EU member states. In order to enable the member state of registration to transfer the relevant VAT to the other 14 EU member states (where the vendor is not registered but is liable for VAT), the vendor will have to complete a VAT return providing the details of their sales by country and applicable taxes.

U.S. State Sales & Use Tax

The challenges of compliance with an ever-expanding tax base are not limited to the sales to the EU. Within the United

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However, Art. 9.3 of the Sixth Vat Directive permits EU member countries to alter this sourcing rule in order to prevent double taxation, avoidance of taxation, or competitive distortions within the EU. In such instances, EU member countries can elect to have services sourced to outside the EU (and thus not be subject to VAT) if the effective use and enjoyment of the services is outside the EU. Conversely, Art. 9.3 (b) provides that if the effective use and enjoyment of a service is found to have been within the EU even though the purchaser was otherwise located outside the EU, a member country can require a non-EU vendor to nonetheless collect and remit VAT. Where an EU member country has implemented Art. 9.3 (b) of the Sixth VAT Directive, and several have in connection with a disparate list of services, it would have had the effect of requiring non-EU vendors to administer VAT on service sales to EU customers in such countries.

*To the extent non-EU e-commerce vendors have had to register for the VAT in the past in specific EU countries due to their adoption of Art. 9.3 (b), then the new EU E-Commerce Directive makes it clear that such non-EU vendors would **not** be permitted to avail themselves of the simplified e-commerce one-country VAT registration and remittance regime.*

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[2]   *Art. 9.2(e) of the EU's Sixth VAT Directive generally requires that services, including specified e-commerce services, are sourced for VAT purposes to the country where the customer has established its business, has a permanent address or usually resides.*

States, a growing movement to simplify the state and local sales tax system stems from increased state and local government concern about lost sales tax revenues associated with both mail-order and e-commerce transactions (collectively referred to as "remote commerce"). If states are able to sufficiently simplify their sales tax structure, it is possible that Congress may be convinced to overturn the US Supreme Court prohibition on remote sales taxes as embodied in the *Quill* decision.

What is Geolocation Technology?

Geolocation products match IP addresses associated with online customers with outside sources of data to pinpoint the geographic location of the online customer at the point where the customer's computer signal enters the Internet. For the overwhelming majority of Internet users, every time they connect to the Internet, they are provided with a registered IP address for the duration of their session. This process, utilized in the United States and some other developed countries, is referred to as the dynamic IP addressing system that assigns "new" IP addresses to users every time they connect to the Internet. Because of a shortage of IP addresses for all possible Internet users, this dynamic numbering system was designed to overcome this problem by assigning to an Internet user for the duration of any given visit to the Internet a specific IP address drawn from a fixed pool of addresses "assigned" to each geographical area – typically cities within the US, Europe and other developed parts of the world.

Various geolocation software providers claim that they can identify the customer's physical location within 50 miles of where they are actually located, under the very best of circumstances. Because most software deployed to locate an individual Internet user is non-invasive and does not utilize cookies, web beacons, registration information or click-stream data, it is possible only to isolate the user's location to a level of precision that reflects the point where the customer joins the Internet. For dial-up Internet users this location is commonly called a POP, or point of presence, the first point at which their computer signals interfaces with routing equipment utilized by an Internet Service Provider (ISP).

Vendors subscribing to these software-based customer geolocation services have the option to receive either local or remote direct links to the software's database. IP addresses gathered contemporaneously with an ongoing e-commerce transaction are cross-referenced with existing information previously gathered and the geolocation position of the Internet user is relayed back to the vendor's e-commerce servers.

Some, not all, geolocation software providers go a step further and administer a confidence tag to the information they release which allows the vendor to determine the likelihood that the information they received is correct.

Geolocation software vendors claim their products' response speed is sufficient for most commercial applications, but individual e-commerce vendors would be wise to make this determination themselves. If the geolocation systems degrade that transaction processing speed materially, sales will be lost.

The software technologies that trace the location of an e-commerce customer do it by linking huge databases of all IP addresses (either active or issued) with information on the geographical locations to which specific portions of the global pool of IP addresses are assigned. However, due to the fluid nature of the IP addressing system, geolocation software databases must be constantly monitored and updated.

What are the Limitations?

IP Addresses are Often Reassigned and IP Address Assignments are Not Consistent Internationally.

In developed countries, the assigning of IP addresses is most often done at a city level, however in less developed countries, the assignation may be done at a regional or country-only level. This can preclude knowing the location of a customer with accuracy more precise than the country level.

In addition, larger IP address users, such as regional, national, or international ISPs, for example, may obtain only a single block of IP addresses for one country, or perhaps even one region of the world, and then subsequently undertake reassignment

of such IP addresses to different locations as their business requires. These reassignments of IP addresses require no change of the IP address itself, but are instead reflected in the router table directories utilized by the Internet. Incorrect changes to the router tables, or delays in reflecting these reassignments, both common occurrences, will negatively impact the overall quality of data the geolocation software can provide. Indeed, the reassignment process necessarily causes changes, and occasional errors, in the router tables, which the geolocation software will not learn about for some time.

Geolocation Technologies Assume That Users are in Same Jurisdiction as POP Jurisdiction

Another area of concern is that geolocation technologies must assume that a specific Internet user is located in close physical proximity to the POP through which their computer signal accesses their Internet service provider. If the customer is not accessing that POP from the same geographic area as the POP itself, the geolocation software will send back inaccurate customer location data. Although the probable occurrence of such an error would not likely be great in developed countries with geographic saturation by Internet service providers, in countries with less developed markets it is far more difficult to identify the location of online customers at a sub-national level. This is due to the fact that all the Internet traffic for a country may

be channeled to a few Internet Service Providers, which may have only a few POPs throughout the country. Wireless Internet access devices also present unique problems since the POP accessed need not be in close proximity to the user.

In addition, where an individual Internet user utilizing a dial-up Internet connection chooses to connect into an ISP outside of their local telephone calling area, their location would not be accurately reported by the geolocation software. An example of this would be where a user calls an ISP via a POP call-in number located in another state or country.

Limitations of Tracing Customers Logging on Through Anonymizers, Corporate Networks, and Large ISPs Like AOL

A significant limitation of these technologies relates to their inability to pierce the server architecture of a large user base. In such situations, identifying merely the country location of the user is often the best that can be done, and even this capability can be degraded when the customer is near a border. A number of companies and some large ISPs (e.g., AOL) have server architectures that deploy one or a number of proxy servers that function as main gateways or hubs. Often fortified security, filtering and control resources are deployed at these locations, which geolocation software vendors admit that they cannot pierce without using more invasive technology. Some geolocation software vendors have tried to develop data

models to help predict location of IP addresses and claim to have had varying amounts of success in establishing 50% or higher results for even these proxy server situations.

Accuracy Rates

Geolocation companies promise the ability to locate within 50 miles a customer engaged in an e-commerce transaction with accuracy levels in the range of 98-99.5% at the country level; this claimed level of reliability falls to 85-90% at city level within the United States. Internationally, geolocation companies claim the accuracy range generally stays the same for country level identification and then declines for the state/province and city level depending on the architecture of the Internet in a specific country. In some places, it is completely impossible to drive the level of customer location identification to a level of specificity greater than country location, and even this can be compromised in certain situations.

At a less granular level of concern, the stated levels of accuracy that geolocation software vendors claim must be also questioned. The way the vendors arrive at their accuracy statistics is to cross-check the physical location of a sampling of Internet users (as determined by their software) against customer provided locational information already in the possession of the software vendors. There is no way to independently verify whether the software could provide the claimed levels of accuracy if the software vendors

didn't first have other customer location information which their software may be using to determine customer location. Put somewhat differently, it is as if a "psychic" claimed to be able to accurately know what card a customer held in their hand 99.5% of the time, and to prove it, the psychic would ask to see the cards in the hands of a sampling of customers before announcing that indeed those were the same cards he knew the customers to possess.

Problems Raised in the Context of a Subscription-Based or Account-Based Commercial E-Commerce Business

For e-commerce vendors that utilize a subscription-based or account-based business model, information about the customer and the proper transaction or consumption taxes to apply to all future sales is typically accumulated by the vendor as a part of the first transaction. This data (e.g., country of residence) would remain in use until and unless the customer provided information to the vendor that required the data to be changed. If the customer sets up an ongoing account with a vendor when he is in a different place than his country of residence, and by using geolocation software, an assumption is made that wherever the customer is physically located at the time of the transaction is deemed to be their country of residence, not only will the taxes be incorrectly computed on the first transaction, but would likely be computed incorrectly on all future transactions. It is certainly possible that

customers will attempt to "game" the system by setting-up subscription or account based arrangements with a vendor while they are in a low or no-tax jurisdiction. If, as a "cure" for such a problem, vendors were required to continually reassess a customer's location (which may be deemed their residence) with each new transaction, this will likely prove unworkable because funds are often collected in advance for such subscription accounts and the related tax would then be altered after the fact. Alternatively, prices (inclusive of any applicable taxes) for subscription accounts are typically established at the outset for a fixed period of time. If the tax rate applicable to the future transactions under the subscription account is susceptible to change because the customer's location (and deemed residence) is found to have changed via utilization of geolocation software, then it will either become impossible for a vendor to honor the terms of the customer's contract, or the vendor may have to absorb some portion of the VAT (if the VAT rates increase as the customer's location changes). Neither option is commercially viable.

Implications of Migration to IPv6

One further development raises significant concerns about the ability of geolocation software to maintain even their current purported levels of accuracy in connection with identification of a user's physical location.

The global Internet structure is currently transitioning from the current

Internet Protocol (IPv4) to a new version IPv6, which will allow ISPs to dynamically reassign their address ranges at any time. The process for IP address reassignments is rather cumbersome under IPv4 due to the need to reconfigure routers and servers, and therefore they do not happen with anywhere near the frequency that is expected under IPv6, which will make the reassignment of IP address far easier to accomplish.

With no actual geographic constraint, under IPv6 these IP address blocks could be reassigned to a new area at any time that demand shifts. As the Internet continues to expand and the need for renumbering grows, blocks of IP addresses will be shifted geographically with increasing regularity. Keeping track of all the growing number of reassignments of IP addresses may overwhelm geolocation software's capabilities. Moreover, during the multi-year global transition to Ipv6, dual sets of router table data will have to be maintained for both Ipv4 and Ipv6 IP addresses. The need to translate and correlate between tables may also introduce latency that negatively impacts the ability to conduct real time analysis.

Consumption Tax Conclusions

Geolocation technologies do provide valuable non-tax commercial functionalities (i.e., marketing data, etc.) where a high degree of accuracy regarding a user's jurisdiction is not required at a transaction level. However, given the current inability of such technologies to overcome obstacles presented by corporate networks, anonymizers, AOL users, IPv6, and the other issues discussed above, coupled with their lack of complete certainty as to customer location, they cannot be relied upon for consumption tax purposes.

Moreover, given that the new EU VAT rules base taxation on customer residence, not physical location of a customer at the time of a transaction, geolocation software do not resolve any of the concerns about being able to independently identify the correct taxing jurisdiction. The ability to rely on customer declared information regarding the physical location or country of residence (depending on tax type) is, at present, the best interim approach for e-commerce vendors.

Furthermore, the decision to use geolocation software – now or in the future, or possibly successor technologies that may provide a better quality of information at a lower cost, is something that should be left up to individual businesses; it would be inappropriate for governments to mandate their use for tax or any other purpose. This approach should, therefore, be given favorable consideration for the time being by legislatures and administrators of consumption taxes. Indeed, as geolocation technologies evolve, business and governments should work together to monitor the capabilities of new systems and their possible application in the context of facilitating consumption tax compliance.