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onlineGAMING
location.location/location

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ABSTRACT

Online gambling is quickly becoming one of the fastest growing sectors of the industry. Pundits, futurists and stakeholders all talk breathlessly about the boundless limits of virtual reality, the possibilities of new hardware, AI, social and multiplayer functionality. There are many good reasons for the optimism and excitement. The opportunities for technology and business to expand online are huge and growing exponentially every day.

This paper is not another swing at the crystal ball of the future of online gaming. The purpose of this paper is to outline some of the challenges facing this new frontier of gambling and to dive deeper into one fascinating facet that most people don't recognize until they are playing an online casino game while crossing state lines, geolocation.

ON THE RADAR

- Navigation, cartography, geolocation and online gambling: a history in knowing where you are and where you can place an online wager

- An interview with a pioneer in geolocation services, the Chairman and Founder of GeoComply, Anna Sainsbury

  - How GeoComply started

  - The geolocation equation at the outset of online gaming

  - Where geolocation is working

  - Spoofing

  - What's next for geolocation

NAVIGATION, CARTOGRAPHY, GEOLOCATION AND ONLINE GAMBLING

Geolocation: /ˌdʒioʊloʊˈkeɪʃ(ə)n/

the identification or estimation of the real-world geographic location of an object

It's easy to think that geolocation is a somewhat modern concept that gained traction when you first frowned at people walking around looking for Pokémon characters on sidewalks and into traffic. People think of satellites, servers and devices, however interest in location goes back to the earliest days of civilization. It's a modern term but is inextricably linked to the very first practices of navigation and cartography (the science and art of map making).

LANDMARK DATES OF NAVIGATION, CARTOGRAPHY AND GEOLOCATION

Prior to the compass: landmarks, position of the sun, angles between celestial objects

Between 3000 and 1000 BC: Austronesians used bird migration patterns, stars and patterns in ocean currents and waves

Between the 2nd century BC and 1st century AD: the compass is invented in China

Make Amerigo Great Again.

1507: Martin Waldseemüller's world map that led to "America" being named after Florentine navigator Amerigo Vespucci.

1623: Jesuit missionaries are thought to have created the first terrestrial globe of a Chinese Emperor

Skipping ahead a few years…

1885: the gyrocompass is patented (which indicated true north and was unaffected by metals that skewed compass readings)

1931: The iconic London Tube map is designed

1957: Sputnik, the bowling ball-sized first artificial satellite in space

1961: The Interstate Wire Act, also known as the Federal Wire Act is passed. Unlike many laws, this one is summed up pretty well in one run-on sentence: "Whoever being engaged in the business of betting or wagering knowingly uses a wire communication facility for the transmission in interstate or foreign commerce of bets or wagers or information assisting in the placing of bets or wagers on any sporting event or contest, or for the transmission of a wire communication which entitles the recipient to receive money or credit as a result of bets or wagers, or for information assisting in the placing of bets or wagers, shall be fined under this title or imprisoned not more than two years, or both."

1973: The Navstar Global Positioning Satellite (GPS) system is proposed by the Pentagon

This is a network of 24 GPS satellites orbiting Earth every 12 hours
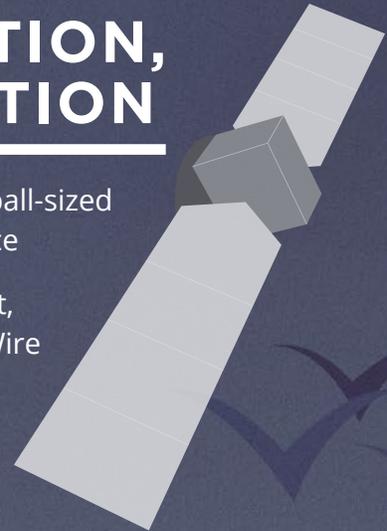
LANDMARK DATES OF NAVIGATION, CARTOGRAPHY AND GEOLOCATION
CONTINUED

1989: The first fully functioning GPS satellites are launched into orbit

1994: Antigua and Barbuda pass a law allowing online casino gambling

1994 to today and tomorrow: Across countries and jurisdictions thousands of online gambling regulations and laws are crafted, proposed, ridiculed, praised, passed, rejected, ratified and amended. Technology creeps and leaps ahead.

1996 to 1997: Internet gambling website numbers go from 15 to over 200

1996: Intertops claims to be the first site to accept an online sports bet

1998: Poker comes to the internet

2000: Former President Clinton ends 'selective availability' which limited the functionality of GPS for commercial use

**2002**: Live sports betting online (placing a wager on a sporting event while it was being played)

2005: Google Earth, Google Maps

2005 and on: Yelp, Map My Run and others mix and mash geolocation with applications to track nearest restaurants, bike routes, tell you when the next/nearest bus is arriving, shoot you advertisements & coupons for the dog sweater you Googled earlier that day (as you pass by the closest dog sweater store) and where to get a donut at 2am

2:04 AM
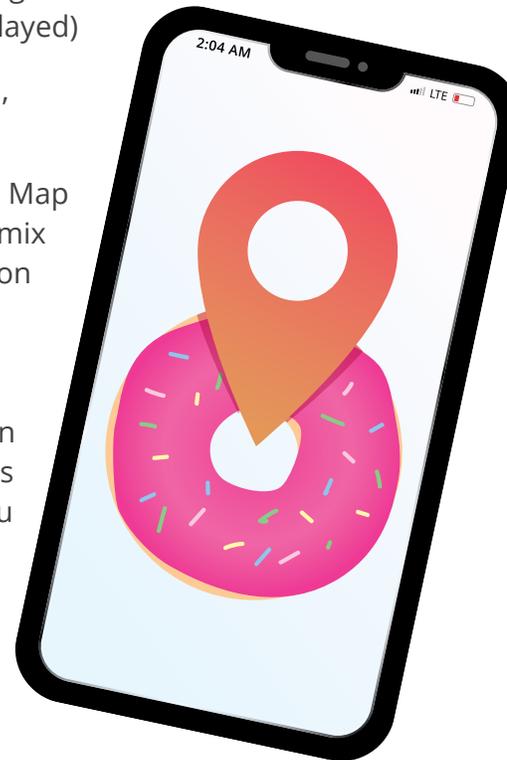
THE RISE OF ONLINE GAMBLING

ONLING GAMBLING MARKET SIZE IN BILLION U.S. DOLLARS

https://www.statista.com/statistics/270728/market-volume-of-online-gaming-worldwide/
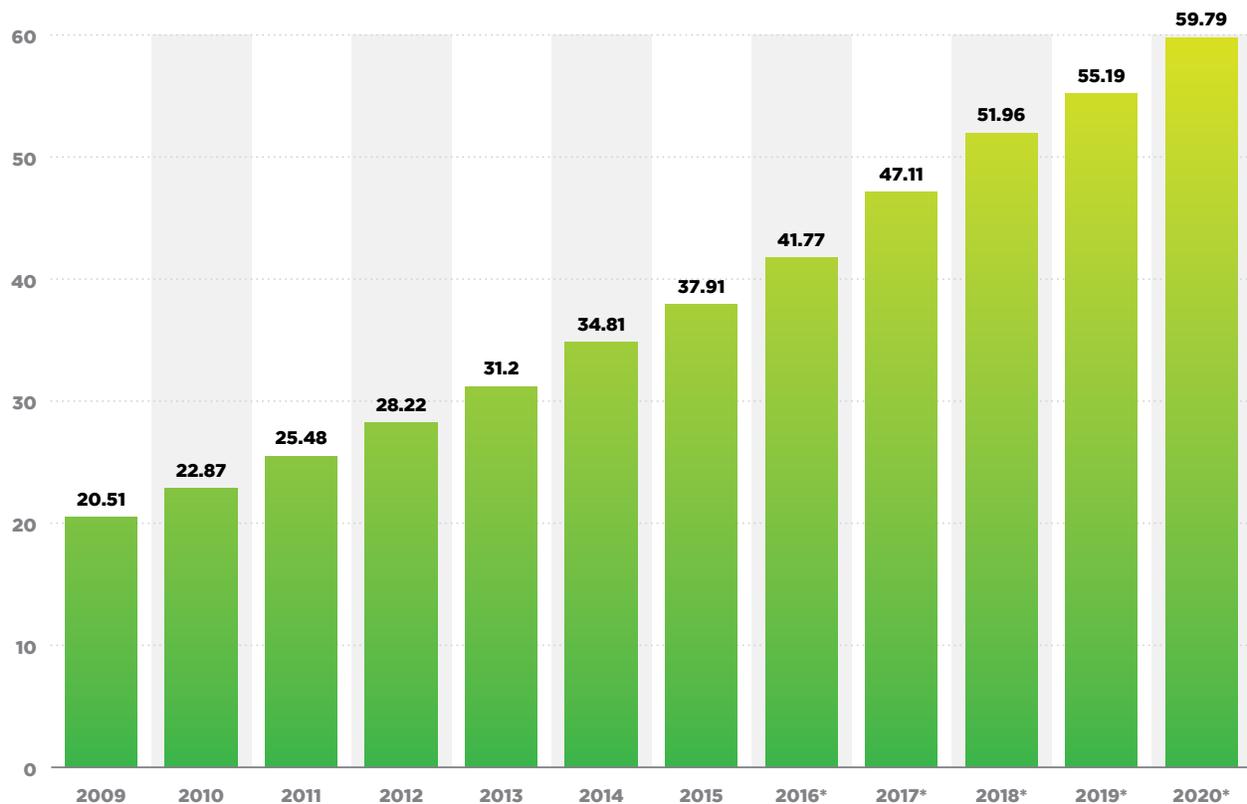
"A map is the greatest of all epic poems. Its lines and colors show the realization of great dreams."

– Gilbert H. Grosvenor,

Editor of National Geographic (1903 – 1954)

AN OVERVIEW OF ONLINE
GAMING CHALLENGES

Considering all these developments, what's the relationship between geolocation and online gambling?

To connect the dots and provide insight and perspective, below are excerpts from an interview with **Anna Sainsbury, Chairman & Founder of GeoComply.**

What prompted you to start GeoComply?

Too many years ago, I was working in Washington D.C. with the D.C. lottery who hired me as a consultant to help them write the rules and regulations for their operator, Intralot in order to comply with state and federal regulations should the D.C. lottery be the first to go online in the U.S. There were a lot of complex considerations as this was essentially the first introduction of legalized online since Black Friday[1].

There were a lot of companies in the market that I assumed would be able to meet age verification, payment processing and geolocation requirements at that time. I had spent most of 10 years focusing on the European online gaming market, working in highly regulated jurisdictions. But geolocation, although it's considered,

only captured IP addresses. At that point, an IP address was deemed, 'good enough', but Europe is different. Many countries speak different languages, so when you land on a page, an operator can see what language you're looking at, which is an important data point. Combined with an IP address this tells the gaming provider a lot about where someone is located.

IT'S A FELONY IN THE U.S.

In the case of the U.S. we have HUGE issues if someone was incorrectly identified as being in Washington D.C. It's a felony in the U.S. for the operator as well as the payment processor. Going forward, we spoke to several companies including Microsoft, Nokia, Google, MaxMind and Neustar. These are all big companies who own a lot of IP in the geolocation space. Although many of them had patents that alluded to technology that the gaming industry would need to go online, none of them had built a solution because the use case was so specific to gaming.

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1   Black Friday: On April 15, 2011 the U.S. Department of Justice unsealed a 52-page indictment against top executives of PokerStars, Full Tilt Poker, and Absolute Poker, as well as a civil complaint against those companies. Those named in the indictment faced years in prison while the civil complaint sought $3 billion in assets from the sites. PokerStars and Full Tilt Poker immediately stopped serving U.S. players, with Absolute Poker and its sister site UltimateBet (of the Cereus Network) following suit afterwards.

AN OVERVIEW OF ONLINE GAMING CHALLENGES CONTINUED

EVEN NOW, GEOLOCATION COMPLIANCE IS ONLY RELEVANT TO HIGHLY-REGULATED GAMING MARKETS.

Even now, geolocation compliance is only relevant to highly-regulated gaming markets. I saw a need to develop this solution out and only had two options. Option A was to convince these large companies, that stand across multiple markets, to develop compliance-grade geolocation specific to the gaming-lottery industry while accepting all the risk and liabilities, relative to a comparatively small market. They didn't go for it.

My original plan was NOT to start a geolocation company but having grasped the opportunity should the market go live, I cobbled together the idea for a solution with David Briggs. We found three different companies to build us a proof of concept, chose one, refined our solution and moved forward. This was option B.

How has GeoComply evolved in step with technology?

In terms of what I initially thought would be required to what we have today – they're VERY different. Trends in technology emerge and either gain traction, or don't. Look at the release of HTML5 as an example. HTML5 promised us highly accurate geolocation data for every website. It was an internet beyond IP, but it never really took off, it's not compliance grade and there are probably 50 times more tools to mask your HTML5 location than there are companies that even look at your HTML5 location.

Where do you see the casino industry keeping pace with technology?

Educated regulators like you find in New Jersey know this. New Jersey regulators follow trends and understand technology; especially as new technology applies to their market. They work with companies like GeoComply to make sure their market is relying only on the most compliant and trust-worthy data sources that can also be independently verified as valid and unaltered.

AN OVERVIEW OF ONLINE GAMING CHALLENGES CONTINUED

Where have you seen geolocation spoofing outside of online casino gaming?

When I moved to Canada, I'd see Canadians churning through and testing different VPNs[2] to see which one will allow them to see Netflix U.S., which has more selection than you get in Canada. There are about 15 million extremely talented geolocation hackers in Canada just because they want to access U.S. content sites.

Geolocation spoofing has shaken up that industry, but they don't seem to mind. They have a need for geolocation to protect IP rights and they do put some stops in place. They check IP and stop VPNs quite well, but not so well that they are moving beyond IP detection. There is still a massive industry selling DNS Proxy Servers[3] and VPN Connections that allow users to mask their IP location so that they can bypass the simple IP guards of the streaming video industry.

Do you remember *Pokémon Go*? Essentially, the entire game relies on knowing where you are. It was pulling

THERE ARE ABOUT 15 MILLION EXTREMELY TALENTED GEOLOCATION HACKERS IN CANADA JUST BECAUSE THEY WANT TO ACCESS U.S CONTENT SITES.

that data from Android and iOS devices that would allow you to call for location data from the device, or in the case of Apple, push you a data packet that gives a location indication. Without that geolocation being compliance-grade, all sorts of computer savvy players could sit anywhere they wanted to with their mobile devices and still participate in the game without actually moving by spoofing their location. In the case of *Pokémon Go*, it ruined the integrity of the game.

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2   VPN: A virtual private network extends a private network across a public network and enables users to send and receive data across shared or public networks as if their computing devices were directly connected to the private network.
3   The DNS (domain name system) is a network system of servers that translates numeric IP addresses into readable, hierarchical Internet addresses, and vice versa. - Watchguard.com

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AN OVERVIEW OF ONLINE GAMING
CHALLENGES CONTINUED

Are there places in the gaming industry that have a blind spot to geolocation?

How do I say this? In the gaming industry, we loosely use the words, 'online gaming', 'land-based gaming', 'lottery', 'horse racing' and 'sports betting', but I think to an outsider, to a vulnerable consumer, it's all the same thing.

Some of those areas of the industry have regulators, as you see in New Jersey, who educate themselves and take a very hardline on jurisdictional requirements. Unfortunately, there are a lot of other places in the U.S. where you can place a bet that don't consider best practices in terms of age, identity, payment processing or geolocation.

Racetracks and lotteries tend to have a risk profile that doesn't meet compliance-grade standards for geolocation. Some do, however most don't because they view their activities as different. But as I said, to most, it's all the same thing.

What is the future of geolocation?

I think there are a couple of areas to address in looking at the future of geolocation:

- First, there is a need to look at geolocation as a compliance or regulatory requirement

- Secondly, the industry must also consider putting ownership on the operator to both do a real-time geolocation and follow the trends that are revealed through data

- Lastly, the industry has to monitor device updates to keep pace with new technology in order to maintain the same level of integrity

In the gaming industry, we have this federal regulation that says the user and the operator must be in the same state, and we are going to hold everyone accountable including the payment processor. The industry already has so much integrity attached to the land-based casino space. As gaming goes online, geolocation is about maintaining that leve of integrity.

Be sure to follow BMM Testlabs, the world's best gaming testing laboratory and technical consultancy for further insight, perspective and thought leadership across the casino gaming industry.

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white paper

BMM Testlabs is the longest established and most experienced private independent gaming testing laboratory in the world.

We have been serving the gaming industry for over 37 years. Our experience, expertise and dedication in this fast paced and evolving market ensures we always exceed client expectations.

BMM HEADQUARTERS

815 Pilot Rd, Suite G
Las Vegas, NV 89119 USA

+1 702 407 2420
wendy.anderson@bmm.com

bmm.com

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