

**The Internet Society Blockchain Special Interest Group (ISOC-BSIG)**

# **Contributions to ITU Open Consultations on Over-the-top (OTT)**

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## Summary

OTTs are transforming how we communicate, interact, consume entertainment, work, play, and create many more opportunities for consumer choice. OTT applications and services are key drivers of this new digital economy and is what is leading to a future where more and more products use the internet to share data collected through sensors, inform decisions based on data analytics, and ensure efficiencies in processes, products, and services. As more and more people around the world use internet-enabled apps and blockchains to connect, interact, learn, and do business, this free flow of data across borders is a key ingredient to OTT's success, to innovation and to the economic growth that results.

The opportunities for OTT services are endless as long as the Internet remains as an open platform that respects the end-to-end principle. As long as OTTs remain open and are in an environment is fully compatible with consumer protection laws and regulations, they will continue to grow and create many more innovative approaches and can meet the demands of their citizens and in respect with human rights.

As OTTs expand in popularity and are increasingly included as part of mobile data plans, governments are faced with the decision of whether or how to intervene. There is no 'one-size-fits-all' solution that can be applied to different and diverse countries. What we can do is suggest some good principles to follow. Telecom regulators should recognize how different rules and regulations and using a lighter touch on regulation could enhance the innovation economy, create new businesses and enhance economic growth.

The OTT providers, network companies and all stakeholders should work closely to mitigate the risks of holding customer personal information, more importantly how this information is kept in a central environment prone to security flaws. Blockchain can solve both concerns.

Secondly, Blockchain technology can be leveraged to provide self-sovereign identity management systems on top of the OTT applications. Systems that can provide the end users with full ownership of their own information. It can also improve the ability to trace how the information is exchanged amongst OTT service providers or other third parties, whether traditional or autonomous, in a trusted distributed network.

Countries should create enabling environments in which all stakeholder groups, Academia, civil society, technical communities, private sector and the public sector are able to grow and thrive by the adopting Open Internet principles.

Local and international partnerships are necessary to scale up the over-the-top services, expand its reach and reduce costs for all players. This will definitely gives the opportunity to improve the service offerings and democratize the access to the over-the-top these services to

a large population. The Blockchain technology can be of a great help to achieve distributed partnership models

## CONTRIBUTION

The Blockchain Special Interest Group of the Internet Society welcomes the efforts of the ITU's Council Working Group on International Internet-Related Public Policy Issues (CWG-Internet) in this Open Consultation on Over the Top Services (OTT). We appreciate the opportunity to provide the CWG-Internet with our position on the Public Policy Considerations of OTTs.

### **What are the opportunities and implications associated with OTT?**

“Over the top” (OTT) services refer to a wide range of media and content services and applications offered via IP networks. For our purposes this includes OTT (or value added) services offered by both telecommunications companies and non-telcos such as content platform companies

The Over-the-top (OTT) market has rapidly grown throughout the last decade, with big players like YouTube, Netflix, Amazon, Hulu, and Spotify disrupting the brick-and-mortar media industry.

The opportunities for OTT services are endless as long as the Internet remains as an open platform that respects the end-to-end principle. In an open-Internet environment where any person can create a product or service and connect it to the network, OTTs will continue to improve consumer choice through innovation. As long as OTTs remain open and are in an environment is fully compatible with consumer protection laws and regulations, they will continue to grow and create many more innovative approaches and can meet the demands of their citizens and in respect with human rights.

OTTs are transforming how we communicate, interact, consume entertainment, work, play, and create many more opportunities for consumer choice. OTT applications and services are key drivers of this new digital economy and is what is leading to a future where more and more products use the internet to share data collected through sensors, inform decisions based on data analytics, and ensure efficiencies in processes, products, and services. As more and more people around the world use internet-enabled apps and blockchains to connect, interact, learn, and do business, this free flow of data across borders is a key ingredient to OTT's success, to innovation and to the economic growth that results.

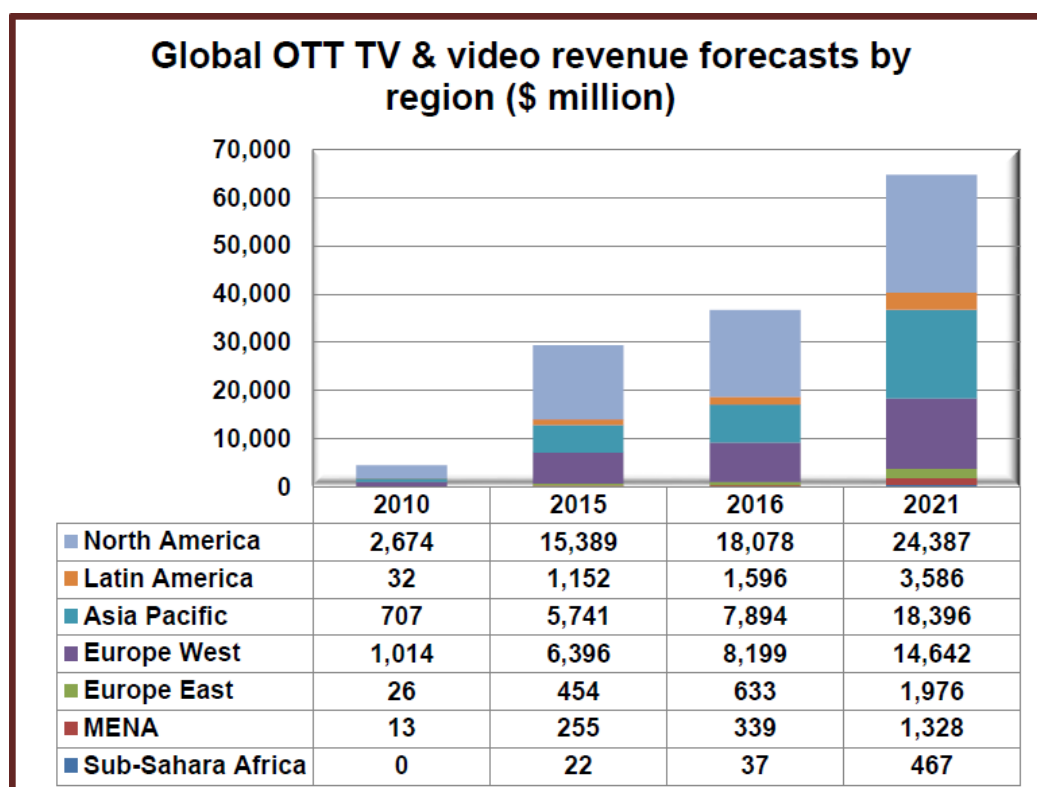
On 28 February 2017, YouTube rolled out its live TV service YouTube Red – at half the price of the cable TV packages and with no time commitment, and providing:<sup>1</sup>

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<sup>1</sup> <https://www.blog.google/products/youtube/finally-live-tv-made-you/>

- Live TV streaming from a dozen of general channels, sport networks, and cable networks;
- Unlimited recording via a cloud DVR; and
- Multi-device service available on TV, mobile, tablet, or PC.

According to Digital TV Research, revenues are expected to reach \$64.78 billion in the OTT TV and video market segment alone by 2021, up from \$4.47 billion in 2010 and \$29.41 billion in 2015.<sup>2</sup> This increase in revenue, however, raises the question of democratization of the OTT contents and the core foundation of the Internet. With more than a third of this revenue generation and service offerings concentrated in North America, we believe that it is a big challenge to tackle.



Source: Digital TV Research

Emerging blockchain technologies can play a pivotal to achieve global and fair accessibility of OTT content, and spur its sharing and creation around the world.

The potential of blockchain in this area is relevant and varied. Potential users of blockchain include:

- **Record labels/Publishers** – they can trace their productions utilizing the distributed ledger technology and decrease copyright infringement. An example is the “Proof of Existence” service, which utilizes the “Po.et” blockchain protocol.\*

<sup>2</sup> [https://www.digitaltvresearch.com/ugc/Global%20OTT%202016%20sample\\_sample\\_149.pdf](https://www.digitaltvresearch.com/ugc/Global%20OTT%202016%20sample_sample_149.pdf)

- **Independent users** – can produce and publish contents via a peer-to-peer network and monetize their production through licensing using blockchain (e.g., MusicCoin<sup>3</sup> in Canada).
- **Democratic citizens** – can improve transparency by empowering freedom of expression, providing anonymity using protocols like zero knowledge proof.
- **Smart agents** (such as autonomous cameras) – can be connected to the blockchain ledger, provide content via the Internet, and monetize autonomously.

## What are the policy and regulatory matters associated with OTT?

As online services and applications become more important for consumers and businesses, there is a pressing need to preserve the environment of permissionless innovation that allowed these services to grow and flourish.

As OTTs expand in popularity and are increasingly included as part of mobile data plans, governments are faced with the decision of whether or how to intervene. There is no simple answer to this — it would be impossible to develop a 'one-size-fits-all' solution that can be applied to different and diverse countries. What we can do is suggest some good principles to follow. 1) Regulators and/or others should evaluate strategies that allow for connectivity at the national level and try to identify the most sustainable options for increased connectivity and increased innovation. 2) Ensure that policy guidelines that allow for blockchain and other innovative services are aligned with the country's national broadband strategy. 3) If regulatory intervention is needed, what is the best way to intervene in the market?

Policy makers must insist on ensuring that there is a public consultation so that every citizen has a chance to engage with the government and present their ideas. It is only through these stakeholder consultations involving Academia, civil society, private sector and other entities that the Government can get a clear picture of the needs of citizens. These groups are often not part of the discussion but need to be. This information and knowledge can help inform and guide them to determine the best policy and regulatory approach to OTT services. These consultations should involve capacity building among the broader public as well, particularly to raise awareness around issues such as OTTs in a way that is understandable to all.

Regulators should also take steps to facilitate the participation of those who are not yet online, especially where the majority of the population is offline.

Governments and international institutions have played a role in democratizing access to new technologies, the development of broadband penetration rate is a great example of how sound

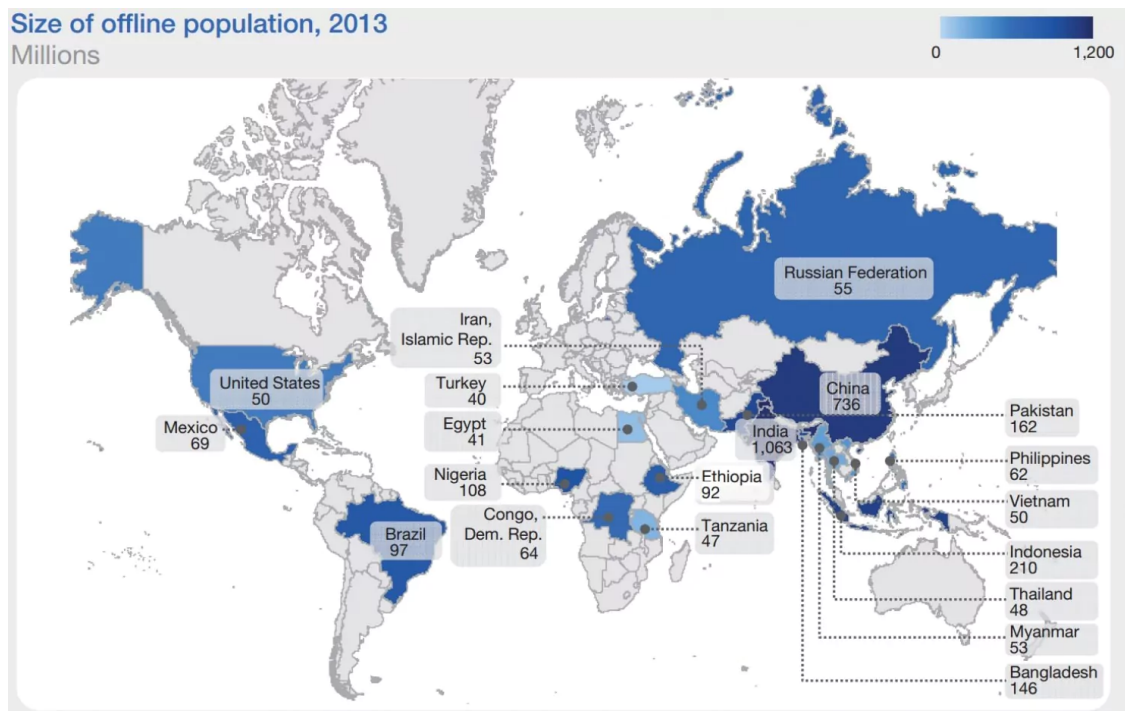
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<sup>3</sup> <https://musicoin.org/>

\* <https://po.et>

policies and regulations can spur innovation and technology inclusion.

However, more efforts are needed to increase access to the Internet, the backbone of the over the top contents. As of 2013, 4.4 billion people worldwide do not have access to the Internet<sup>4</sup>, the majority in developing countries, this is more than half of the population of the world today.



*Source: Washington Post*

To reduce this huge infrastructure gap, policy makers need to think of quick and cost effective solutions. The price tag of installing broadband cable can reach \$100000 per mile, making it challenging to connect rural and less densely populated areas to the Internet<sup>5</sup> and the blockchain technology can certainly help overcome this challenge. Blockchain is a decentralized peer to peer technology, which can be an important solution for reaching underserved regions and providing the framework for greater economic potential for community connectivity and fintech (financial technologies) basic infrastructure.

On 15 August 2017, Blockstream, a blockchain company based out of California, launched its first satellite network to broadcast the the bitcoin blockchain from the Space, this was possible using the open source software defined radio technologies giving the opportunity to anyone in the world to join the bitcoin network for a cost of equipment around \$100<sup>6</sup>.

<sup>4</sup> [https://www.washingtonpost.com/news/wonk/wp/2014/10/02/4-4-billion-people-around-the-world-still-dont-have-internet-heres-where-they-live/?utm\\_term=.9b1fc21e0b82](https://www.washingtonpost.com/news/wonk/wp/2014/10/02/4-4-billion-people-around-the-world-still-dont-have-internet-heres-where-they-live/?utm_term=.9b1fc21e0b82)

<sup>5</sup> <http://www.worldbank.org/en/topic/ict/brief/making-rural-broadband-affordable>

<sup>6</sup> <https://blockstream.com/satellite/blockstream-satellite/>

Therefore, policy makers need to think seriously of the huge impact of the blockchain technology in connecting people around the world through revamping regulations that encourage this kind of initiatives.

## **How do the OTT players and other stakeholders offering app services contribute in aspects related to security, safety and privacy of the consumer?**

Telecom regulators should recognize how different rules and regulations and using a lighter touch on regulation could enhance the innovation economy, create new businesses and enhance economic growth. In this new era where Internet made the over-the-top services global, one can use VOIP to call anywhere in the world using applications like Skype and Whatsapp, has the ability to access media contents at his fingerprints, security and privacy become big concerns.

Additionally, governments and regulators, particularly in countries with developing economies, need to ensure that legal framework and regulatory guidelines are in place to oversee and protect the access and exchange of personal and private end-user information. Private sector companies such as telecom operators, health care providers or OTTs, as well as information collected by public sector/government ministries and agencies can collect this information.

The OTT providers, network companies and all stakeholders should work closely to mitigate the risks of holding customer personal information, more importantly how this information is kept in a central environment prone to security flaws. In 2016, data breaches increase by 40%, also, big companies in industries ranging from telecom to education are experiencing the same dilemma in 2017<sup>7</sup>.

Furthermore, the question of how over-the-top giants like Youtube are utilizing users information and patterns to train their artificial intelligence algorithms hence driving more value has been lately a hot topic, especially that the industry relies solely on users to generate traction and revenue, so an optimum point need to be identified guaranteeing the development of more over-the-top applications and giving the power back to the users in controlling their own information.

We think that Blockchain can solve for both concerns, first of all, through its distributed application to ensure that the user's information is not centralized in one server and it's highly encrypted using cryptographic keys, for instance nodes can exchange in the bitcoin network using a public key that cannot reveal the identity of the parties involved in any transaction.

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<sup>7</sup> <https://www.identityforce.com/blog/2017-data-breaches>



Secondly, the Blockchain technology can be leveraged to provide self-sovereign identity management systems on top of the OTT applications. Systems that can provide the end users with full ownership of their own information. It can also improve the ability to trace how the information is exchanged amongst OTT service providers or other third parties, whether traditional or autonomous, in a trusted distributed network.

## **What approaches might be considered regarding OTT to help the creation of environment in which all stakeholders are able to prosper and thrive?**

Countries should create enabling environments in which all stakeholder groups, Academia, civil society, technical communities, private sector and the public sector are able to grow and thrive by the adopting Open Internet principles:

- An Internet that is equally accessible to all people for all purposes, and at every layer.
- One where no impediments are placed based on the sender, recipient, content, application or type of data being transmitted.
- One where policy and regulation promote, support, facilitate and guarantee access
- One where equality of access at a pragmatic level is ensured by assuring access at prices affordable to all members of society
- One where training is available about how to manage, operate and how to use the Internet, as well as education in how to use it effectively
- One where participation on an equal footing at all levels is encouraged, especially by those that might be discriminated against

An open Internet is one in which all people are empowered to contribute and to participate to build a worldwide culture that opens our hearts and minds and help us to understand and respect differences. It is an Internet that we, the people of the world, recognize as ours — something we have built together for one another.

In addition, over-the-top stakeholders should put on their collaboration hats to achieve interoperability of the different applications, providing the end users with ease of use and the possibility to change provider without too much hassle.

As a result, this will create a larger ecosystem, increase the adoption of the over-the-top services and spur opportunities of synergies amongst the different intervenants with regard to sharing resources, knowledge and expertise in a win-win deal.

## **How can OTT players and operators best cooperate at local and international level? Are there model partnership agreements that could be developed?"**

Local and international partnerships are necessary in order to scale up the over-the-top services, expand its reach and reduce costs for all players. This will definitely gives the opportunity to improve the service offerings and democratize the access to the over-the-top these services to a large population.

The Blockchain technology can be of a great help to achieve distributed partnership models, a great example is the R3 consortium in the financial industry, a group including over 80 banks, financial institutions, regulators, trade associations, professional services firms and technology companies aiming to enhance the interoperability of financial technology platforms and reduce inefficiencies and risk<sup>8</sup>.

In addition, it is important to mention that for any partnership model to succeed, it should involve all the intervenants involved in the end-to-end process and not only the over-the-top providers, including the end users, telecommunication companies, specialized agencies, non profit organizations and independent contents producers.

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<sup>8</sup> <https://www.r3.com/about/>