



International Journal of Innovative Research in Computer and Communication Engineering

(A High Impact Factor, Monthly, Peer Reviewed Journal)

Website: www.ijirccce.com

Vol. 7, Issue 1, January 2019

D2H vs IP Video Delivery Comparison

Aishwarya Kanetkar¹, Madulika Chaudhari²

MBA-IT, Symbiosis Institute of Computer Studies and Research, Shivajinagar Pune, India^{1,2}

ABSTRACT: This paper aims to compare performance measure of D2H and IP video delivery. With increasing demand for television, it has led to the introduction of IP video as an option for D2H. In this paper properties like quality, reliability, convenience, interactivity and customer service are analyzed to improve performance. As far as the analysis and acceptance is concerned D2H has won an Oscar but with certain areas of concerns and improvements such as charges, choice of shows as per the users, high picture quality and portability makes IPTV competitor to D2H. Operators are aggressively promoting D2H services and not IPTV services. If IMS-based IPTV gets deployed it will attract many subscribers which will result in churn out of D2H subscribers. Companies are playing safe and waiting to see the results of IPTV launch of some of the existing companies. Operators are waiting for the broadband infrastructure to grow and be IPTV ready.

KEYWORDS: Quality, performance, IPTV, D2H, Video On Demand

I. INTRODUCTION

The Indian entertainment industry has been experiencing steady growth over the years. The high profile economic growth and increasing income levels in the recent years have made the Indian entertainment industry one of the fastest growing sectors of the economy. The biggest and most constant source of entertainment is the television. The system where television services get delivered through the internet by the use of Internet Protocol is known as Internet Protocol Television (IPTVs).

Nowadays, TV channels, television programmes, music videos, and video songs are being delivered to the TV through the use of the broadband connection. In Direct-To-Home (D2H), the services are telecasted over the television sets with the help of a conventional cable or through broadcast formats. The D2H offers the audience a wide variety of streaming channels in decent quality. They are readily available, whether there is an internet connection or not [4].

The technology that is being used in IPTV is based on the encoding system; the videos streamed are encoded into series of various IP packets ranging from different sets of codes. These are then carried out by means of public internet. The number of IPTV providers has thus enhanced.

What are we aiming at is the comparative study of D2H vs IPTV and finding which one is better in the longer run. We will now go ahead and explain the features of both, comparing both through quality measures followed by conclusion and references [5].

II. METHODOLOGY

1. Internet Protocol Television (IPTV)

IPTV refers to a means of distributing both live TV and stored video (on-demand or pay-per-view) to the end user in the same fashion in which internet content is sent, and over the exact same network [1]. IPTV has reached a point where it is now a very attractive alternative to cable or digital broadcast satellite. The video in the form of IP packets is sent over the existing broadband infrastructure and assembled at consumers' end with the help of a set top box (STB). This is beneficial for broadcasters as they can offer the 'triple play' service of voice, data and TV over the same network, using the same infrastructure. For the IPTV to be in full-fledged functioning stage, IMS implementation in the transport layer of operator's network is very much essential.

Let's concentrate on a few key areas that already make IPTV superior and ready for the future by taking the example of watching a live cricket match on Hotstar.



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Features:

- Continuous streaming of content
- Uses a secured private IP network
- Can be accessed from anywhere.
- Networks controlled by telecommunication providers and operators.
- Payment is mostly based on monthly subscription
- The match can be auto recorded
- Requires no special installation assuming user already has broadband Internet.
- Rewind, pause and play even while watching live TV Broadcast (Match).
- Video on Demand (VOD): Users can Rewind, fast forward, pause and play the broadcasting of the match as per their convenience within 7 days of live broadcasting.
- Unlike D2H, IPTV is a wired connection and provides an all-weather, un-interrupted broadcasting experience[2].

Challenges:

- Still in the stage of infancy
- High bandwidth D2H requirement which creates hurdle for broadcasting hundreds of channels simultaneously [7].
- Delay while changing the requested video as request goes to content server.

2. Direct to Home (D2H):

This is the common name of Satellite TV where the signal in Ku band is received using dish antenna installed in user's premises. Signal in the encrypted form from satellite is received by these variable sized antennas. Unlike IPTV, there is no intermediate operator between the broadcaster and the viewer[3].

The provider (D2H platform) does not create original programming itself; it pays other companies (example STAR SPORTS) for the right to broadcast their content via satellite. In this way, the provider is like a broker between the subscribers and the actual programming sources. The satellites receive the signals from the broadcast station and rebroadcast them to the ground. The subscriber's dish picks up the signal from the satellite and passes it on to the receiver in the subscriber's house. The receiver processes the signal and passes it on to a standard television. Let us discuss the features of D2H by taking the same example of Live Broadcasting of a cricket Match on television [6].

Features:

- Dedicated line for high-quality video with no "buffering" during broadcasting of a match.
- 5.1 Surround Sound
- Universal remote i.e. one remote for both TV and Set top box
- Easy relocation of D2H can be done
- Multiple recharge options
- Some Add on Services like Interactive services to interact with the TV.

Challenges:

- Loss of signal due to heavy rains and storms
- Regulatory concerns

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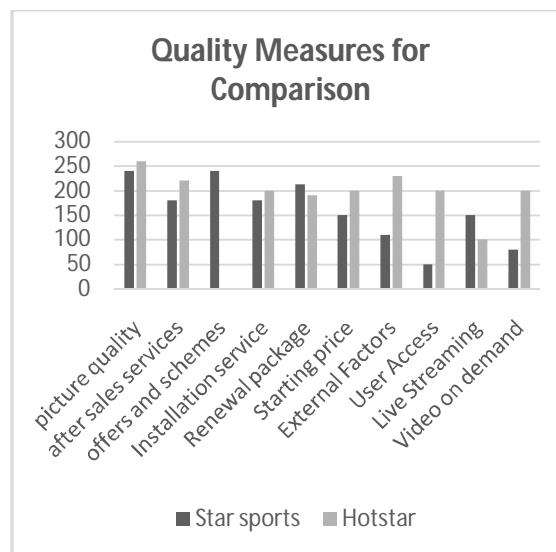
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III. ANALYSIS

Quality Measures for Comparative Study of D2H vs IP



The graph depicts certain quality measures to compare the performance of both with respect to the mentioned score. It is observed that quality features of Hotstar while watching the match are in benefits to the customers than watching it on Star Sports. From the above analysis, we could understand that more than 40% of respondents are not sure whether D2H services are effective or not. Though IPTV services of Hotstar are effective, they have to improve more to attract more customers into their market and reduced the cost to change their customer's perception.

Some of the Comparative Preferences are listed:

- **Picture Quality:** D2H (Star Sports) has got a very strong place in the minds of the customers regarding the quality of the television services but IPTV (Hotstar) has improved one step ahead of them by making it even better but the picture quality depends upon the internet connectivity making it unpopular amongst the user but has a bright future in long run.
- **After Sale Services:** According to the respondent's opinion IPTV services are extending best after the sale services.
- **Offers and Schemes:** IPTV service providers does not provide any other add-on services to the customers, on the other hand, D2H service providers extend seasonal discounts, etc.
- **Installation Service:** Installation service provided by the D2H service is good but once the application of Hotstar is installed the user do not have to do any separate installations to avail the services provided by IPTV through the application.
- **Renewal Package:** As far as the packages and prices are concerned, the D2H customers are highly satisfied with wide variety of options they are provided with, whereas in IPTV the prices are less economical making it unpopular amongst the users.
- **Starting Price:** Installation of D2H services are not separately charged, all the prices are included in the package required by the users making it better than IPTV services.
- **External Factors:** D2H services are interrupted and impacted badly by the external weather conditions making it unreliable during the rainy season whereas IPTV services are not affected by any external conditions making it more reliable as it can be accessed from anywhere and anytime.



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- **Live Streaming:** Users get access to live streaming of cricket match through D2H services i.e. Star Sports without any delay whereas in case of Hotstar applications users face a time lag by getting access to live streaming of the match.
- **Video on Demand:** The concept of VOD is based on the transmission of videos and audios in a coded and compressed format and stored and later decoded and decompressed by the converters and then sent to the local server. The users can demand and get access to the video as and when needed through IPTV services whereas in case of D2H services users can get access only to live streaming. If the video is recorded during the livestreaming then only it can be viewed by the user later.

IV. CONCLUSION

With data rates getting cheaper, broadband getting faster than ever and streaming services becoming more popular by the day, D2H has lost the charm it once spoke of. D2H, if we recall was a game changer, a decade ago and now it's certainly failed to catch up to the advancement in technology. While operators can try adding more HD channels to their catalogue with additions like a smart TV interface that lets you use streaming apps too, even such an upgrade would only take D2H a little further down the road [8].

The price issue gives a different perspective to this scenario; higher prices of IPTV as compared to D2H is the main drawback. By looking at price sensitive market of India, any comment over this cannot be confidently put as of now. But consumers who are willing to pay more for better quality and ease of access of TV will show inclination towards IPTV. With the uninterrupted signal and dynamic services offered, IPTV will overcome its low weighing basket of concern about cost. If full-fledged functioning of IPTV happens, then we may see the total paradigm shift of scenario and possibility of the whole D2H industry going for toss.

V. ACKNOWLEDGEMENT

We would like to thank Mr. Supratik Ghatak for his immense guidance. We would also like to thank Symbiosis International (Deemed University) for providing us platform to do the same.

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BIOGRAPHY

¹**Aishwarya Jayant Kanetkar** (BE IT, 1 year of experience as Software Engineer in ETL)currently pursuing Master of Business Administration from Symbiosis International (Deemed University),Pune

²**Madulika Avinash Chaudhari** (BE Computer)currently pursuing Master of Business Administration from Symbiosis International (Deemed University),Pune