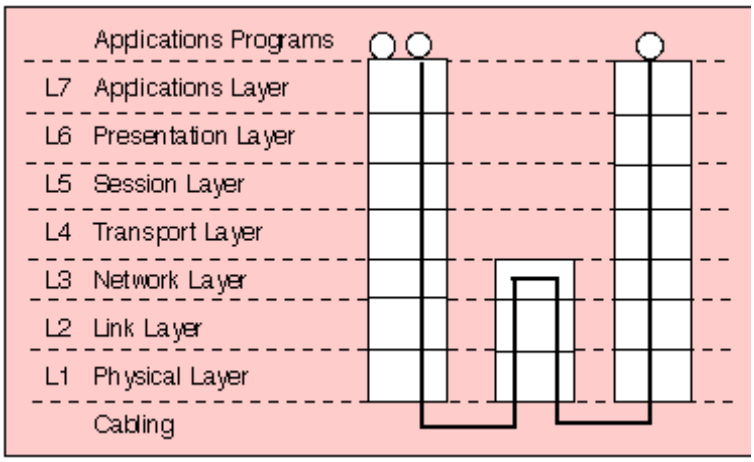
Ocean Blue Software White Paper

A guide to IPTV and Internet TV

Introduction

Tim Berners Lee is acknowledged as starting the revolution via his creation of the World Wide Web (WWW) and responsible for assisting in the seven layer OSI Internet Protocols.



The seven layers of the OSI reference model showing a connection between two end systems communicating.

Internet Protocol Television (IPTV) is another application of the WEB and utilising broadband also called Digital Subscriber Line (DSL) transmission technology to broadcast for example Video-on-demand, Digital Television and Video conferencing.

The DSL standard was designed to offer streaming services, such as Video on Demand films and voice to the consumer. DSL networks are generally multicast systems.

The functions, broadcast applications and software applications as indicated above require an Internet Protocol based set top box (IP STB). The hardware and software aspects of an IP STB are explained later in section 3.

Triple Play

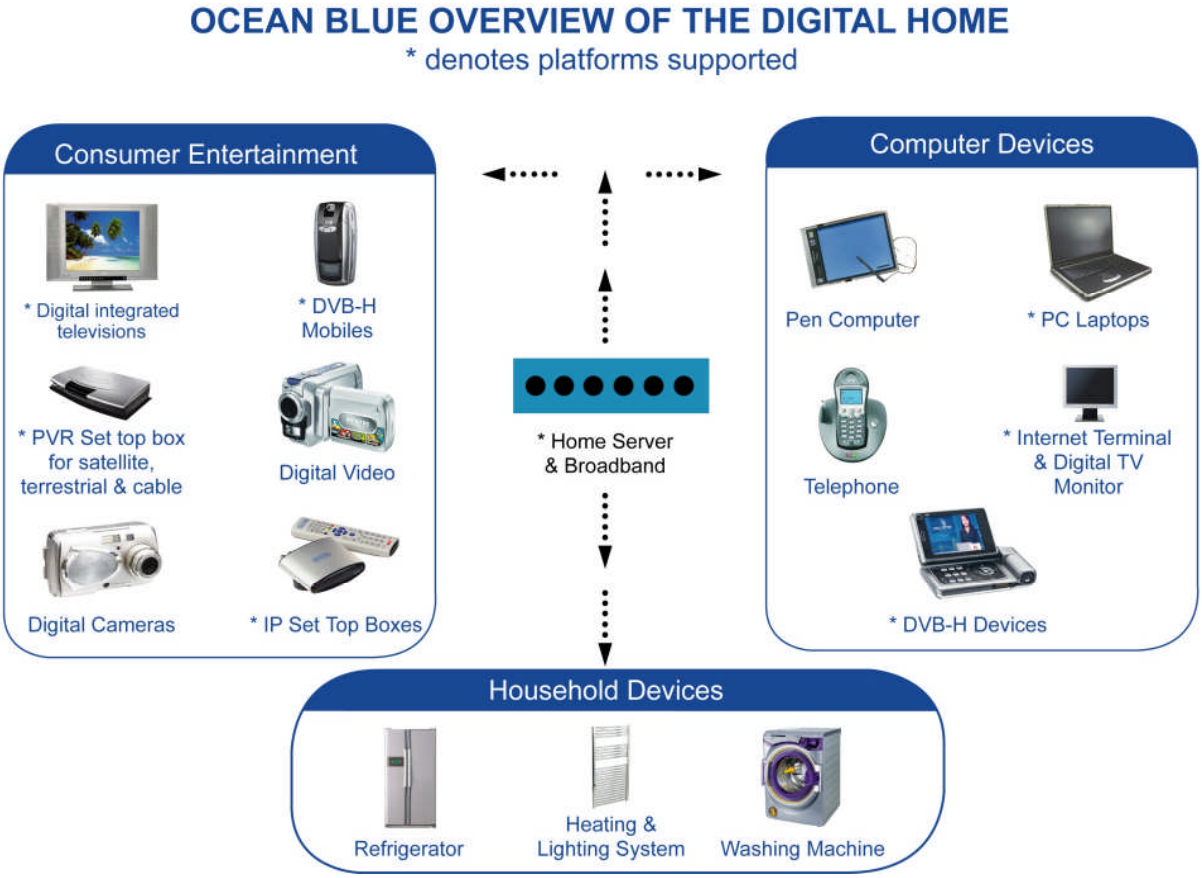
Broadband vendors will generally offer consumers an IP STB, and a Triple play package consisting of phone, internet and television broadcasts for a fixed price per month.

The Connected Home

IPTV forms part of the jigsaw for the Connected Digital Home. The Digital Home is essentially consumer electronic devices i.e. a digital TV set top box or IP STB, connected seamlessly to a wireless and connected Home

Computer Network

This allows multi-media content consisting of, for example Music, Video, audio, pictures, text, data and security checking and control procedures to flow throughout a normal household via the Home Network.

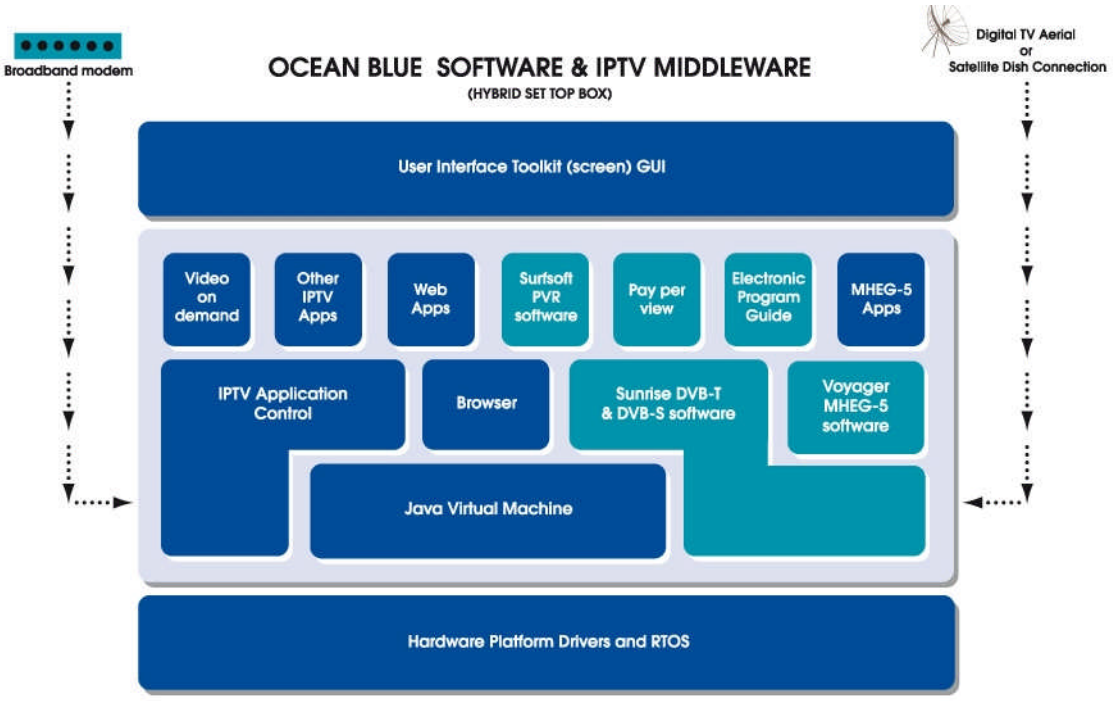


IP STB Hardware and Middleware Software

The IPTV device delivers a new experience to consumers and with two way communication capability for fast rapid interactivity via the Internet.

A number of consumer electronics companies will also offer an IP STB with a single chip solution; it remains to be seen if this will provide enough horsepower to drive both the DVB and IP software application and systems software.

Software inside an IP STB will consist of both IP and DVB software layers, as per diagram below;



DVB and IP middleware software is essential for the digital home and any form of digital TV broadcasting or streaming of content. The value of middleware software is to allow operators the flexibility to scale, adopt new application and help generate new business opportunities and revenue streams.

IP STB and broadband communication will allow a natural telephone return path, opening up numerous business opportunities for interactive services and applications. Examples will be listed later in this report.

Interactivity and UK Digital Terrestrial Television

The UK-based DVB-T interactive two way experience is currently limited on conventional digital terrestrial television due to the lack of support for a telephone return channel both inside a Freeview set top box and within the MHEG specification at this time.

For further details on MHEG please see Ocean Blue paper on digital TV software standards available free of charge from http://www.oceanbluesoftware.co.uk/publications.html

Current Digital TV broadcasting platforms include cable, terrestrial and satellite.

Example applications of IP STB are as follows:

- Video on Demand (VoD) in near real time; consumers will be able choose which TV programmes to watch, when and on a 24/7 basis
- Consumers will be able to catch up and view favourite TV programmes

- Full access to all the World Wide Web for example, download and store web based information on a set top box
- Connect digital cameras and devices to upload and store data, information, audio, music, image and pictures on the hard disk embedded in the set top box
- Voice Over Internet Protocol (VOIP) telephony
- Video Conferencing
- Interacting with digital TV broadcast via the WEB i.e. Big Brother voting
- Home shopping
- Downloadable games and quizzes

Video Compression Systems

Compression technologies play an important part in the viability of TV over DSL networks. There are a number of compression offerings in the market, for example:

- Microsoft TV's VC-1
- MPEG 4 AVC
- D9154 MPEG 4 advanced compression platform
- MPEG 2