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**US 20040237098 A1**

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(54) Title of the Invention: **An improved set top box and system for the provision of enhanced television services**  
Abstract Title: **Targeted advert insertion in an STB**

(57) A Set Top Box (STB) 30 for supplying television services to a consumer's TV 50 comprises a digital feed assembler 34 which inserts advertisements into programmes. The adverts can have limitations as to time and/or date of showing and may be further restricted eg by postcode. The commercials can be targeted at specified consumer characteristics to a predetermined level of accuracy (eg 80%) to protect privacy; this is achieved by use of an enhanced privacy database 46 which stores personal characteristics or data of each STB user and generates for each a pseudo identity. The STB may incorporate a firewall 36 and a decrypter to decrypt encoded television programmes.

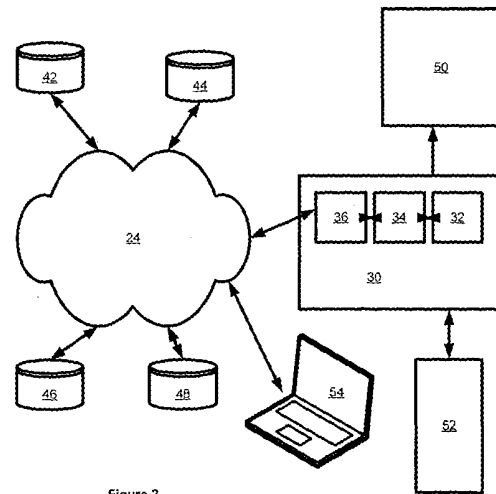
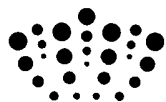


Figure 2



The following terms are registered trademarks and should be read as such wherever they occur in this document:

Paypal

**An improved set top box and system for the provision of enhanced television services**

**BACKGROUND OF THE INVENTION**

5      **1. Technical Field**

This invention relates to Set Top Boxes (STB) which are purchased by consumers to convert digital broadcast audio and television (TV) signals for supply to the consumer's television set or visual display unit. The invention also relates to services which can be supplied using a STB.

10     **2. Description of the Related Art**

As shown in Figure 1, a known STB 10 contains a computer-type hard disc 12 and twin signal decoders/tuners 14. The STB 10 is controlled by a remote control 16, such as an Infra Red control, and supplies signals to the consumer's viewing station such as a TV set or visual display unit 18. The STB receives  
15 broadcast digital television and audio signals from an aerial 20 or a satellite dish 22 or from the Internet 24.

The remote control 16 allows the consumer to navigate through the received digital and audio broadcast channels, to call up an on-screen guide to current  
20 and forthcoming programmes, either for live viewing or for recording on the hard disc 12 for later viewing, and to set parental controls. The consumer can pause live TV, schedule the recording of programmes into the hard disc 12, and watch one channel while viewing another by use of the twin decoders 14. The STB may contain facilities to decrypt encrypted broadcasts, sometimes by use of a  
25 smart card authorisation device (not shown).

With the Internet connection, the remote control 16 can be used to navigate through a series of menus, sub-menus and sub-sub-menus to select TV and radio content for downloading for live viewing or for storage on the hard disc 12.  
30

When supply through the Internet 24 is selected by the consumer, the consumer

is able to retrieve video and audio content from the Internet for storage on the STB 10. The commercial operator can additionally send commands to the STB 10 so that it records broadcast programmes and advertisements, selected by the commercial provider, for storage in the hard disc for later viewing.

5 Additionally, programmes and advertisements can be “pushed” into the STB 10 instead of being broadcast. Save for a blanket refusal to accept this service, the consumer cannot control this process

Whatever the source of a programme with associated advertisements, if it is stored for later viewing it is a current practice for consumers to “fast forward” through the adverts, and while it is technically possible to disable fast forward controls during advertisements, this is disliked by consumers. A result is that advertising in association with programmes provided over Internet services is unpopular, given the loss of potential revenue to service providers.

15

Further, an STB with Internet connection is technically capable of being used to monitor and control what a consumer views, which is a growing concern for democratic institutions. While such monitoring would allow the provision of targeted advertising with 100% accuracy, the loss of privacy is unlikely to be tolerable.

20

These two issues are believed to inhibit the take-up of STBs by consumers.

It is an object of the invention to provide an improved STB which protects consumer privacy while permitting the provision of targeted advertising services. It is a further object to provide a STB in which the consumer can select from the options of paying for programme content or of having programme content supported by general or by targeted advertising or a blended mixture of paying for content and advertising

30

### **Brief Summary of the Invention**

According to the invention a Set Top Box (STB) for decoding digital transmitted signals for supply to a consumer's viewing unit comprising data storage means; input connection means for connection to a source of digital video and/or audio signals; output means for connection to a consumer's viewing unit; and control means to control operation of the viewing unit; characterised by further comprising a digital feed assembler.

Also according to the invention a system for supplying targeted advertisements to a multiplicity of STBs comprising a privacy enhanced database arranged to store personal data relating to the owner of each STB in a first, identity domain and arranged to generate and store, in a second, pseudo identity domain, at least one pseudo identity for each STB owner.

Further according to the invention a method of providing advertising to consumers of on-demand video and/or audio programmes comprising the steps of:-

- a consumer registering with a commercial service provider;
- an advertiser providing at least one advertisement to an advertising database, the advertisement having at least one limitation on time of showing;
- the consumer requesting a programme;
- the commercial service provider providing the requested programme to the consumer and inserting into the programme at least one advertisement in accordance with the limitation on time of showing.

25

### **Brief Description of the drawings**

The inventions will be described by way of example with reference to the accompanying drawings in which:

Figure 2 illustrates a STB according to the invention connected to a system permitting the supply of privacy-enhanced services;

Figure 3 illustrates by means of a flowchart how the user downloads content

from the Internet to the STB of Fig 2;

Figure 4 illustrates the format of first and second types of encrypted feed;

Figure 5 illustrates the process of setting up the STB with personal data;

Figure 6 illustrates the operation of privacy-enhanced services in the  
5 downloading of programmes;

Figure 7 illustrates the operation of getting paid for watching adverts;

Figure 8 illustrates the process of receiving vouchers for interacting with adverts;  
and

Figure 9 illustrates the process of funding programme development using  
10 viewing credits.

#### **Detailed description of the preferred embodiment**

**Figure 2** shows an enhanced STB 30 containing a computer-style hard disc 32, a digital feed assembler 34 and a privacy firewall 36. . The STB 30 supplies television and audio signals to a TV set 50 and is controlled by a remote control  
15 52 such as an IR control. The STB 30 is connected to the Internet 24, and the consumer's laptop 54 is also connectable to the Internet..

The Figure also shows the system for providing privacy-enhanced television services. The commercial operator 42 (shown as a processor) is connected to  
20 the Internet 24. A content-provider 44 (shown as a processor) is also connected to the Internet, as are a privacy-enhanced database 46 and an advertisement database 48.

A brief general overview of the operation of the system in fig 2 will be given,  
25 followed by detailed descriptions of parts of the system.

The commercial operator 42 controls the operation of the privacy-enhanced television service via the Internet 24. The content-provider 44 supplies commercial television programmes funded by advertising and the programmes  
30 are encrypted. The advertisement database 48 stores advertisements ready for insertion by the commercial operator 42 in accordance with its commercial

relations with advertisers . The privacy-enhanced database 46 is also controlled by the commercial operator 42 via the Internet 24 and it includes personal data relating to every owner of an STB such as STB 30 who wishes to benefit from the service provided by the commercial operator 42. The owners' personal  
5 information is kept private by use of pseudo-identities to which access is permitted. When an advertiser sets criteria for recipients of an advert, the system is arranged to give a less than 100% match, such as a 80% match. Thus perfectly targeted adverts are not possible.

10 In the STB 30, the privacy firewall 36 blocks access to the STB 30 except by the commercial operator 42, and then only in accordance with privacy rules set by the owner of the STB 30.

The Digital Feed Assembler (DFA) 34 receives encrypted television signals from  
15 the Internet 24 through the firewall 36 and decrypts them for provision to the TV 50; the signals are stored in the hard disc 32 of STB 30 for immediate or later viewing. The DFA 34 also, when privacy rules set by the owner of STB 30 permits, interleaves advertisements from the advertising database 48 with the television signals.

20

On initial purchase of the STB 30, the consumer plugs it in and it automatically registers itself via the Internet 24 by logging its Internet Protocol (IP) address and its unique serial number in the privacy enhanced database 46. The database 46 returns a confirmatory signal to the STB 30, providing a unique  
25 code which is stored by the STB and can be called up at any time. If the consumer does not wish to benefit from privacy-enhanced services, no personal data is entered by the consumer and the STB operates in the same way as a prior art STB as shown in figure 1. The owner of the STB can at any time decide to benefit from the enhanced services by registering, as will now be  
30 described.

For a consumer who does wish to have privacy-enhanced services via the STB 30, instructions are provided when the STB is purchased. The consumer uses the laptop 54 to call-up the registered anonymous STB 30 on screen and to start a personal registration process in the privacy enhanced database 46 via the Internet 24. The unique code number of the STB is displayed on the TV screen 50 and the consumer enters this into database 46 via the laptop 54. Suppose the consumer wishes to accept advertising material in return for free programmes via the Internet; the consumer is asked for their name, address, postcode, number of people in the household, their sexes, and whether they are adult or children; the information is supplied to the privacy database 46, which will be described in detail below.

If the consumer decides to receive television service from the system operator 42 but does not wish to see any advertisements, a fee relating to the unique code number of the STB 30 is paid by any suitable means, such as a debit/credit/card payment over the Internet or the use of Paypal or similar service. The fee can be topped up at any time. The privacy-enhanced database 46 accepts, registers and keeps track of the fees but does not permit any withdrawals of money.

20

**Figure 3** illustrates the process to authorise downloading of encrypted signals to STB 30; there is a three-way handshake involving the STB 30, the privacy-enhanced database (PED) 48 and the content provider 44.

In step 102 the STB 30 requests the down load of a specific programme provided by the content provider 44. The programme can be requested by selection from a menu which can be called up on the TV screen 50 by use of the remote 52; this extra feature in the remote is provided by the electronic programme guide software within the STB 30. Following selection of the programme, additional software within the STB 30 takes the STB's unique code (which was generated upon registration of the STB), takes the unique identity

code associated with the specific programme and creates an encrypted data packet which the STB 30 sends across the Internet to the privacy enhanced database (PED) 46.

- 5 In step 104 upon receipt of this encrypted data packet the privacy enhanced database 46 decrypts it, extracting the STB's unique code and the unique identity code associated with the specific programme. If these are found to be valid the privacy enhanced database will authorise the downloading of the specific programme to the STB 30. In this example the specific programme is  
 10 hosted (in the conventional sense of running the servers on which the programmes are located) by the content provider 44.

In step 106, the privacy enhanced database 46 sends a request acknowledgement to the STB 30 and creates two codes; a Website  
 15 Authorisation Code WAC is sent to the content provider 44 in step 108, and a STB AuthorisationCode SAC is sent to the STB 30 in step 110.

In step 112, on receipt of the WAC the content provider 44 enables the download of the requested programme in encrypted form and sends it to STB  
 20 30;

In step 114, the STB 30 stores the encrypted material together with the SAC in the hard disc 32 which acts as a buffer store.

- 25 In step 116, the consumer requests viewing of the programme by calling up a menu on the TV 50 by use of the remote control 52 and selecting the programme for immediate viewing

The DFA (digital feed assembler) 34, which is an appropriately-programmed  
 30 processor now assumes control of the STB 30; the DFA has two main functions:-

1. to decrypt encrypted signals and supply them to the TV 50;
2. in certain circumstances controlled by the STB owner to insert advertisements into TV programmes shown on TV 50;

5

The second function is controlled by the consumer when setting up the STB 30 initially; if the consumer has authorised the viewing of advertisements and has provided personal data to the PED 46, then the STB 30 accesses the advertisement database 48 at intervals and downloads advertisements for storage in the hard disc 32; each advertisement has a date code and a time code associated with it. Alternatively the STB 30 may receive the advertisements by selectively downloading broadcast advertisements which contain codes that match the characteristics of the personal data recorded in the PED 46 and storing those with their date codes and time codes on the hard disk 15 32.

The signals supplied to the STB in step 112 of Figure 3 may be represented as in Figure 4A; as is conventional in TV programmes supported by advertising, the programme or copyright content 70 is divided into parts separated by time slots 20 72. The fact that the copyright material is encrypted is indicated at 74.

The DFA 34 decrypts the copyright material 70 and sends it to the TV 50. For each time slot 72 the DFA 34 selects one or more advertisements from the advertisements stored in hard disc 32 and having appropriate time and date 25 indicators, and provides them to TV 50. The viewer sees a programme with advertisements at intervals, as is known in conventionally-provided commercial TV.

Figure 4B shows the situation for a consumer who has decided not to see 30 advertisements; the copyright material 70 is not separated by time slots and the consumer views the programme without interruption.

The operation of the privacy-enhanced database 46 will now be described with reference to Figure 5, which illustrates both the hardware and the directions of information flows. The database 46 includes an identity domain 46A which is  
5 accessed by each STB owner to record personal data, and a pseudo identity domain 46B which is not accessible by the STB owners.

When the owner of STB 30 wishes to benefit from enhanced television services according to the invention, the owner's laptop 54 is used to enter personal data  
10 into the STB 30 through connecting to the identity domain 46A of the PED 46 via the Internet 24, which sends the data to the STB 30 over the Internet 24. This personal data passes through the privacy firewall 36 in STB 30. A copy is retained in the identity domain 46A of the privacy enhanced database 46. From this copy of the personal data, the identity domain 46A generates one or more  
15 pseudo-identities for each provider of real data and stores them in the pseudo-identity domain 46B. It will be seen that the information flow arrow 62 is unidirectional; there is no information flow from domain 46B to 46A.

**Figure 6** illustrates the position once the STB 30 has been registered and the  
20 user has supplied it with some personal data so that advertisements can be targeted. Suppose now that an advertiser 66 informs the commercial operator 42 of the criteria of a target group, such as males between 30 and 70 having a specific postcode. Advertisers will have pre-registered with the commercial operator and in accordance with the terms of their registration will be entitled to  
25 access the pseudo-identity domain 46B as shown by the arrow 68. Under these terms the advertisers 66 can access the pseudo-identity domain 46B, enter the criteria and in return receive a required number of entries in the form of pseudo identities; the advertiser cannot access the real identities in domain 46A.

30 There is a further level of privacy for STB owners. It is a novel feature of this aspect of the present invention that it is never possible to target specific

consumer groups precisely and accurately, because the system is designed to target consumer groups only to a certain level of probability, which is always less than 100%. The level may be set at eg 80%.

- 5 The pseudo-identity domain 46B is arranged to assess the probability of the records extracted by the advertiser meeting the criteria set by that advertiser and, if the probability exceeds 80%, further records are extracted from the domain 46B, (for example records in which the post code is matched but the age range is not) and mixed with the first-extracted records until the probability  
10 of the criteria being met is less than 80%.

The advertiser 66 then sends the extracted records together with the advert to the commercial operator 42 who sends this information to the domain 46A. Domain 46A decodes the real identities and sends the advert to those STBs.

15

All communications are via the internet 24, not shown in this figure.

The generation of pseudo identities will now be described. Suppose that the database 44 is loaded with a number of consumer records from STB owners, eg  
20 name, address, postcode or zipcode, number of people in the household including their sex and whether they are adult or not. (It will be appreciated that this is similar to the information requested when registering a household appliance such as a washing machine for warranty). It is assumed that the information supplied by each consumer is correct, but this can be checked on a  
25 mass basis from the publically available trusted sources of information such as Census Records, Council Tax Registration details and Voter Registration. By use of such records, the probability of each record being correct can be assessed by known techniques taking into account factors such as the age of the database with which a comparison is made, the legal penalty for supplying  
30 false information to a public database, and the benefit to the consumer for supplying accurate information to a public database.

The assessment of the probability of the personal information supplied by STB owners being correct is by use of Bayes' Theorem. In a simple situation involving discrete distributions, Bayes' theorem relates the conditional and  
 5 marginal probabilities of events A and B, where B has a non-vanishing probability, the relationship being given by:

$$P(A/B) = \frac{P(B/A)P(A)}{P(B)}$$

Each term in Bayes' theorem has a conventional name:

- 10 P(A) is the prior probability or marginal probability of A. It is "prior" in the sense that it does not take into account any information about B.  
 P(A/B) is the conditional probability of A, given B. It is also called the posterior probability because it is derived from or depends upon the specified value of B.  
 P(B/A) is the conditional probability of B given A.  
 15 P(B) is the prior or marginal probability of B, and acts as a normalising constant.

In the present invention, A may be the probability that the viewer watching a particular STB is male, and B may be the probability that the viewer watching a particular STB is between the ages of 30 and 70.

20

The assessed probability of correctness of each item of data supplied by each STB owner to identity domain 46A is used to calculate one or more pseudo identities for each actual identity, and the pseudo identities are stored in the pseudo identity domain 46B. This domain is not accessible by the STB owners,  
 25 or indeed by anyone other than the commercial operator 42.

The advertisements stored in the advertisement database 48 and downloaded to hard disc 32 include various codes. One code may prevent showing before 9pm. Another code may allow the advert to be shown not more than once in  
 30 three days. Yet another code may set date limits so that it must be shown before eg Christmas Day.

A substantial advantage of the provision of advertisements according to the invention is that the adverts will be different on repeated viewing of the programme. Further, if a consumer requests a programme before Christmas but  
5 does not view it until after the New Year, the DFA 34 in the consumer's STB 30 will assemble only appropriate advertisements, eg those relating to a New Year Sale.

A further advantage is that the adverts can be targeted; the privacy-enhanced  
10 database 44 includes personal data provided by all STB owners and an advert can be targeted using any type of data.

For example, an advert includes coding indicating that it is to be shown only to consumers having a specified postcode; this can be used by local businesses to  
15 advertise their services only to local residents; the charge made by the content provider 44 for such an advert will be much less than the cost of traditional nation-wide TV advertising, which has previously been prohibitive for local businesses. In combination with a timing indicator, a local restaurant whose bookings are low on Tuesday evenings could place an advert to be shown early  
20 on Tuesdays up to a specified time, the advert reading "If you make a booking for this evening and give the following codeword (to show that the advert is the origin of the booking) then you will receive a 20% discount on your bill".

Since the advert codes can include time-of-showing, it is possible using the  
25 invention to hold dynamic auctions for prime time slots. Suppose an auction is held for a 30 second time slot in a time interval between 8pm and 8,30pm. The auction runs until 7.30pm, and the advert of the winner is inserted into the advertising database 48 in a prioritised manner so that it is downloaded immediately to STBs for showing in the prime time slot, provided the STB owner  
30 is in fact watching TV during that time interval.

An advantage of use of the invention is that, when a STB is registered, it can be provided with a customised Home Page. When the remote control 52 is used to navigate through a programme guide displayed on the TV 50, the display can be arranged to contain programmes and playlists based on personal choices,  
5 which can be registered by the STB user, or generated from the user's viewing statistics. For multi-users such as a family, each person can have an individual Home Page selectable on the TV screen.

A privacy-enhanced system according to the invention may also be used to  
10 provide direct financial benefits, such as cash, money-off vouchers and the like. For this the consumer must supply his mobile 'phone number. This is shown in **Figure 7**. The system to which the STB 30 is connected now includes a mobile phone 56, whose number is registered in the privacy-enhanced database 44. This is information which has not previously been provided or used in this  
15 description.

The mobile 56 is used to receive payments from the system provider 42, because in effect the consumer is being paid to watch TV with adverts; the arrangement is shown in Figure 7. The STB 30, TV 50 and remote 52 are as  
20 shown in figure 2; the STB is connected to the Internet 24 and the STB owner's mobile 56 is connected either to the Internet 24 or on a mobile network which supports SMS messaging. The system now includes a viewer credit database which is located in the identity domain 46A of the privacy enhanced database 46. When the consumer watches an advert inserted into programmes by the STB  
25 30 (rather than "fast forwarding" through the advert), this fact is recorded by the STB and a signal is sent to the commercial operator 42; for watching the adverts, the consumer receives an electronic payment which is recorded in the Identity Domain 46A shown in Figure 7. Upon the instruction of the consumer the reward could be transferred to the mobile 56 as a barcode. The barcode  
30 can be used for purchases in a shop or restaurant etc (on condition that the shop or restaurant is a participator in the advertiser's programme and is

prepared to accept the barcode as a mode of payment for goods or services). Alternatively the rewards for watching and responding to advertisements could be accumulated in the Identity Domain 46A and used as credits for use in the STB 30 to watch downloaded content without adverts, as described with  
5 reference to Figure 4B.

The arrangement may also be used for benefits such as money-off vouchers as shown in **Figure 8**. An advert includes in the last ten seconds it is shown the message "Press the green button on your remote for a 20% voucher off your next purchase" (of the product just advertised); if the consumer presses the  
10 green button, an electronic voucher is delivered to the mobile 56 as a barcode. Naturally other benefits can be offered such as free entry into a raffle. Such an arrangement helps to ensure that the consumer does in fact watch the adverts supplied to the TV 50.

15 The same facility can be used to fund the creation of new copyright material; this is shown in **Figure 9**. Suppose a creator wishes to produce a new video or audio programme with consumer support, ie support from fans. The creator makes available the option of viewers earning credits by responding to advertisements. The system now includes a viewer credit database 72  
20 connected to the Internet 24. In this embodiment the consumer responds to an advertisement-linked message on the TV screen reading "Press the green button on your remote control to buy a share in a (specified new programme. for 500 credits". The consumer builds up credits, by responding to other advertisements, which are recorded in the viewer credit database 72; in effect,  
25 the creator benefits instead of the consumer, from watching advertisements. When the appropriate total of credits is reached, the consumer/fan can directly fund the programme development because the credit total is transferred to the creator. Once the programme is made, the consumers who funded it could be granted a share of royalties derived from the programme. The credit database  
30 can also be used to refund the credits in the event that the programme is not made..

While the invention has been described with reference to the full range of possible services, the choice lies with the consumer on registration. As explained above, if a consumer does not make any contact with the privacy-  
5 enhanced database and its services, the STB will operate in the same way as a prior art STB.

In another variation, the consumer may be asked to agree to viewing statistics from the STB being sent to the system operator 42. The consumer may agree,  
10 in which case he will be given full access to the statistics and will have the right to delete entries if he should so wish. Such statistics may be used by advertisers to send, for example, adverts about books on golf to viewers who watch golf programmes.

15 An important difference from prior art STBs is that with an STB associated with a privacy-enhanced database, the consumer has complete control over the video and audio material provided to his TV. Programme providers cannot monitor which programmes and/or adverts the consumer receives and cannot control which programmes are supplied to the STB.

20

Further, an advertiser can sell his adverts to consumers without the use of a distributor or other intermediary.

Yet further, consumers, programme creators, advertisers, broadcasters and set  
25 top box makers can participate in a trusted digital content platform in which each consumer controls access to his personal data, unless he specifically permits access to it.

While the Figures show programmes provided through the Internet, use of  
30 aerials and satellite dishes can also be incorporated so that broadcast programmes can include targeted advertising with the permission of the

broadcaster. While the invention has been described with reference to television services, the same service may be applied to radio.

## CLAIMS

- 5
1. A Set Top Box (STB) for decoding digital transmitted signals for supply to a consumer's viewing unit comprising data storage means; input connection means for connection to a source of digital video and/or audio signals; output means for connection to a consumer's viewing unit; and control means to  
10 control operation of the viewing unit; characterised by further comprising a digital feed assembler.
  2. A STB according to claim 1 in which the digital feed assembler is arranged to decrypt received encrypted signals for supply to an associated viewing unit.
  - 15 3. A STB according to claim 2 in which the digital feed assembler is arranged to insert advertisements into the decrypted signals.
  4. A STB according to any preceding claim further comprising means to store  
20 personal data relating to the owner of the STB.
  5. A STB according to claim 4 further comprising a privacy firewall.
  6. A system for supplying targeted advertisements to a multiplicity of STBs  
25 according to any preceding claim comprising a privacy enhanced database arranged to store personal data relating to the owner of each STB in a first, identity domain and arranged to generate and store, in a second, pseudo identity domain, at least one pseudo identity for each STB owner.
  - 30 7. A system for supplying targeted advertisements according to claim 6 in which the privacy enhanced database is arranged to pass personal data unidirectionally from the identity domain to the pseudo identity domain.

8. A system for supplying targeted advertisements according to claim 6 or claim 7 further comprising an advertisement database.
- 5 9. A system for supplying targeted advertisements according to claim 8 in which the privacy enhanced database, the advertisement database and the STBs communicate via the Internet.
10. A method of providing advertising to consumers of on-demand video and/or  
10 audio programmes comprising the steps of:-  
a consumer registering with a commercial service provider;  
an advertiser providing at least one advertisement to an advertising database, the advertisement having at least one limitation on time of showing;  
the consumer requesting a programme;  
15 the commercial service provider providing the requested programme to the consumer and inserting into the programme at least one advertisement in accordance with the limitation on time of showing.
11. A method according to claim 10 in which the time of showing limitation is a  
20 time of day.
12. A method according to claim 10 in which the time of showing limitation is a date.
- 25 13. A method according to any one of claims 10, 11 or 13 in which the consumer is rewarded for watching an advertisement.
14. A method of providing targeted advertisements in video and/or radio programmes comprising the steps of :-  
30 a multiplicity of consumers supplying personal data to a first, identity domain of a privacy enhanced database;

said database generating at least one pseudo identity for each consumer and storing the pseudo identities in a second, pseudo identity domain of the privacy enhanced database;

an advertiser specifying personal characteristics of a target consumer to  
5 the pseudo identity domain and requesting a number of pseudo identities;

the database supplying the requested number of pseudo identities which match the specified characteristics to a predetermined level less than 100%;

the advertiser supplying a targeted advertisement;

10 the privacy enhanced database retrieving the real identities corresponding to the pseudo identities and sending the targeted advertisement to those consumers.

15. A method according to claim 14 in which the predetermined level is 80%.

15 16. A method according to any one of claims 10 to 15 in which the video and/or audio programmed are encrypted programmes provided over the Internet.

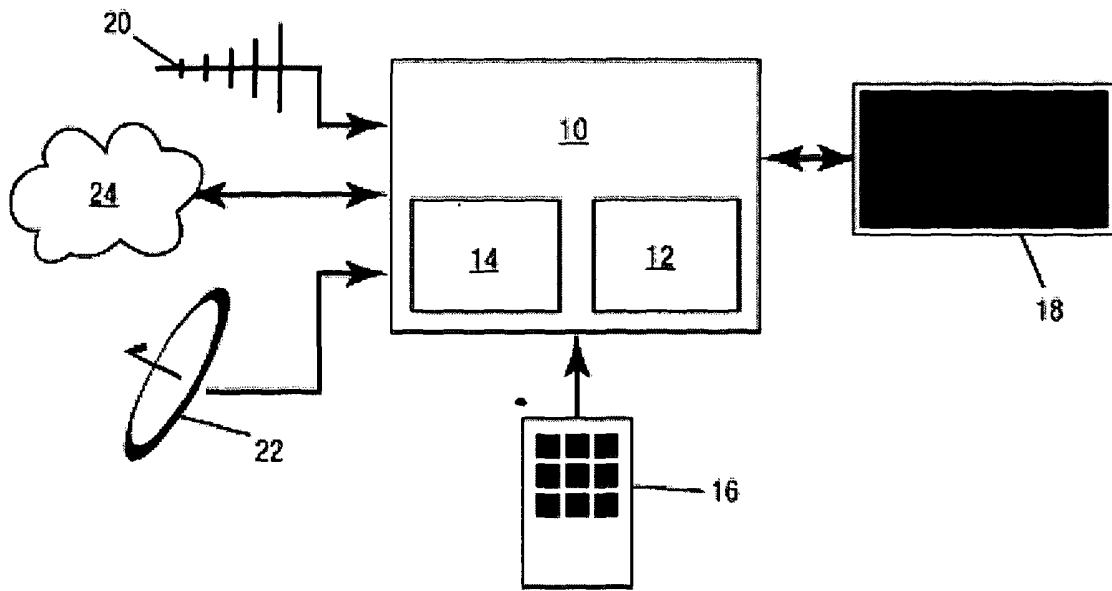


Figure 1

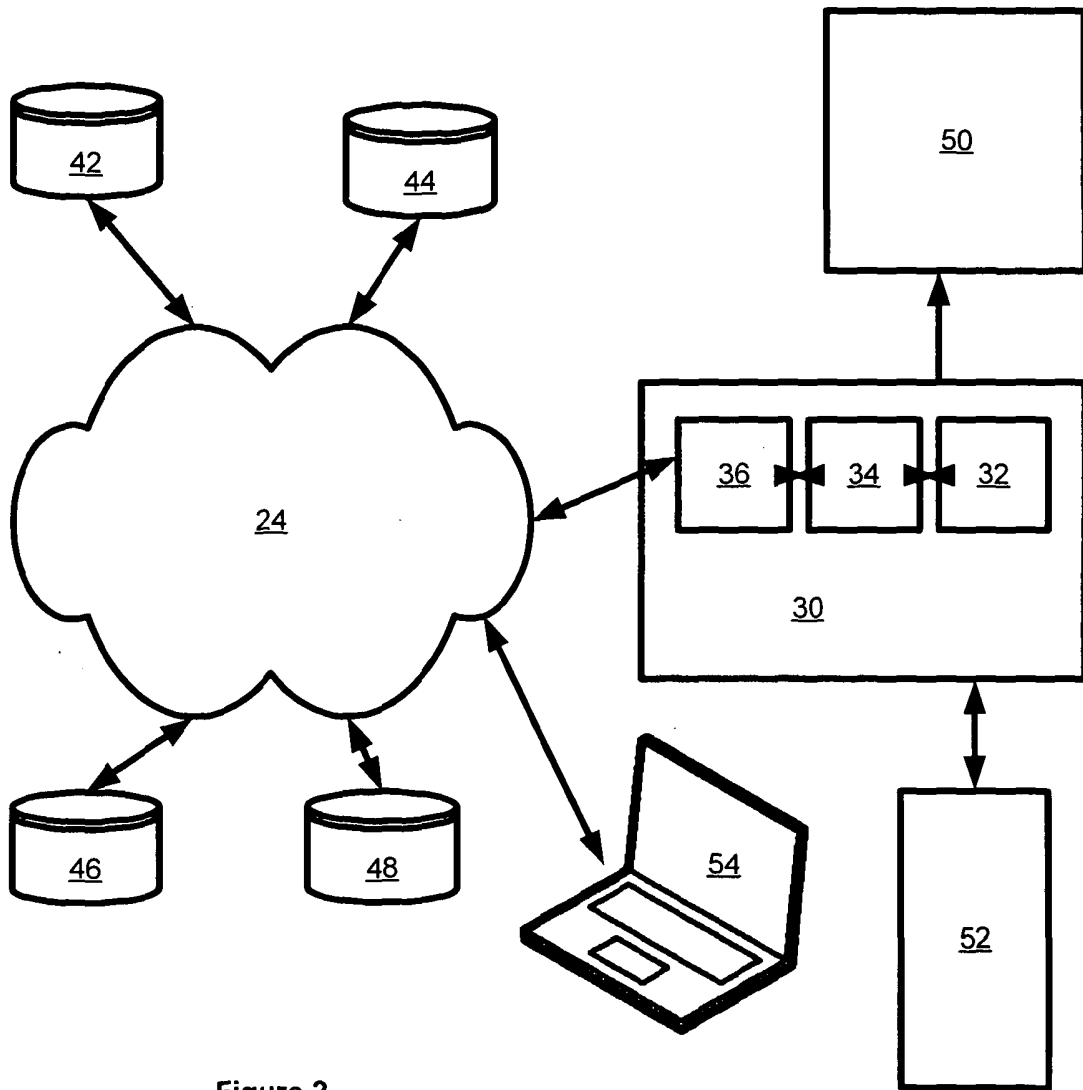


Figure 2

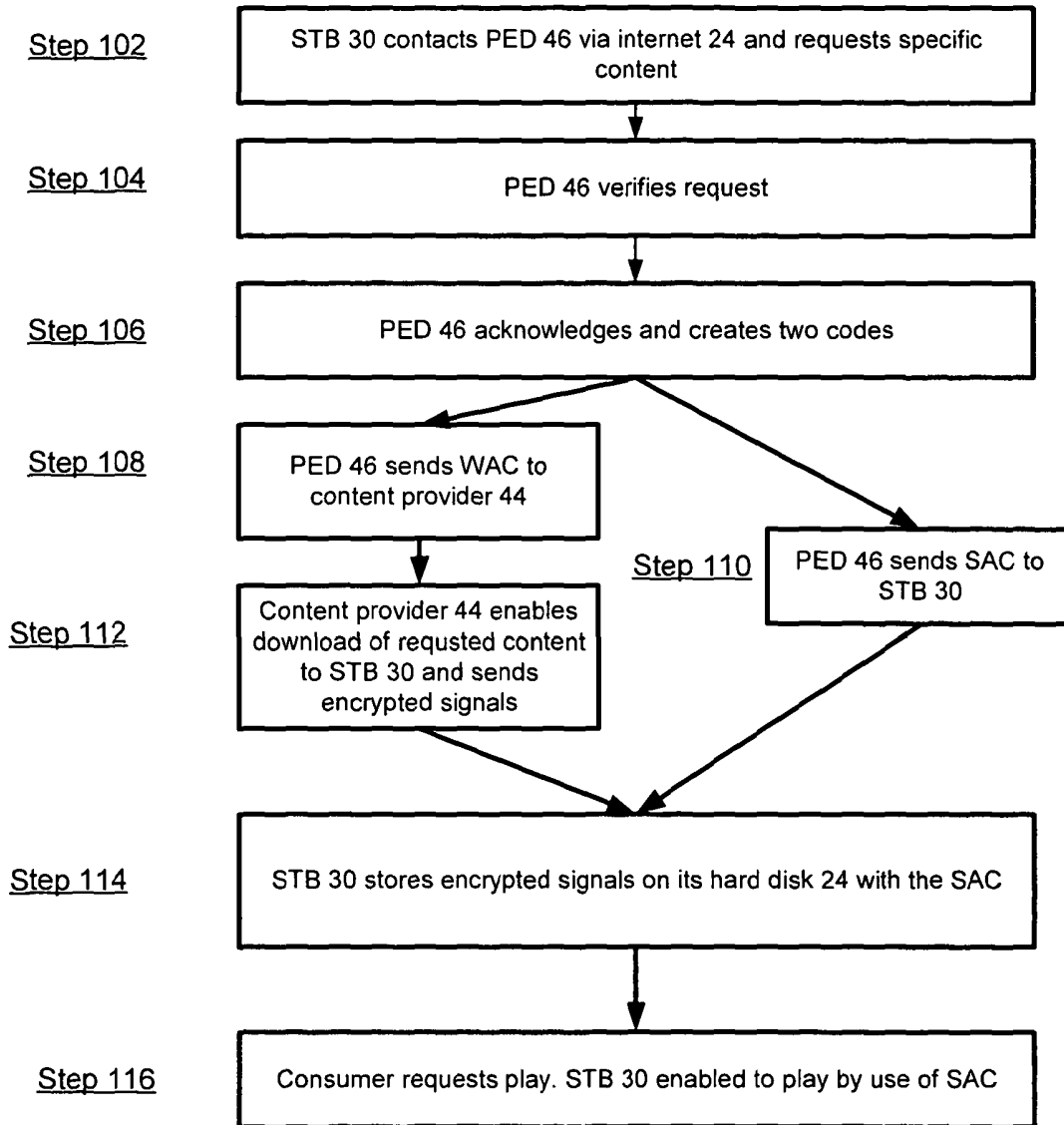


Figure 3

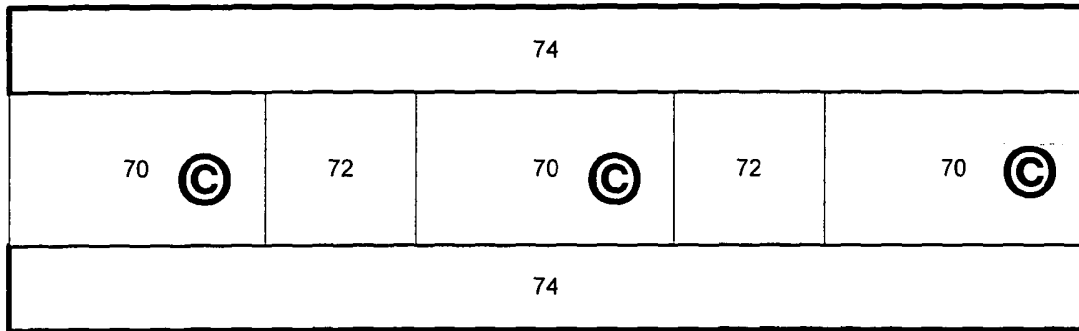


Figure 4A

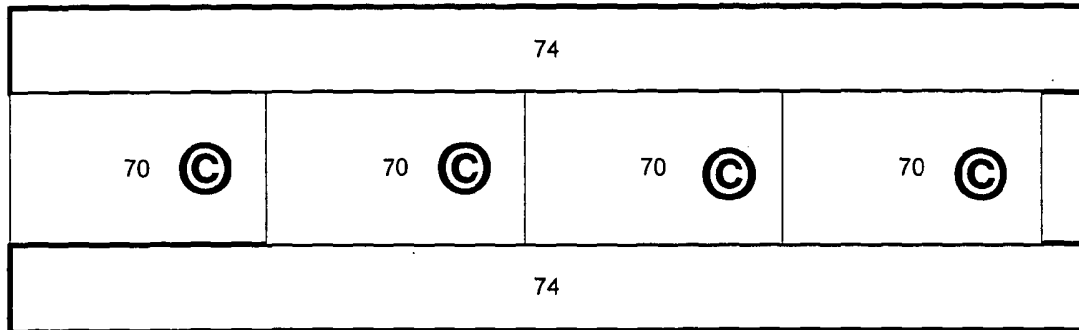


Figure 4B

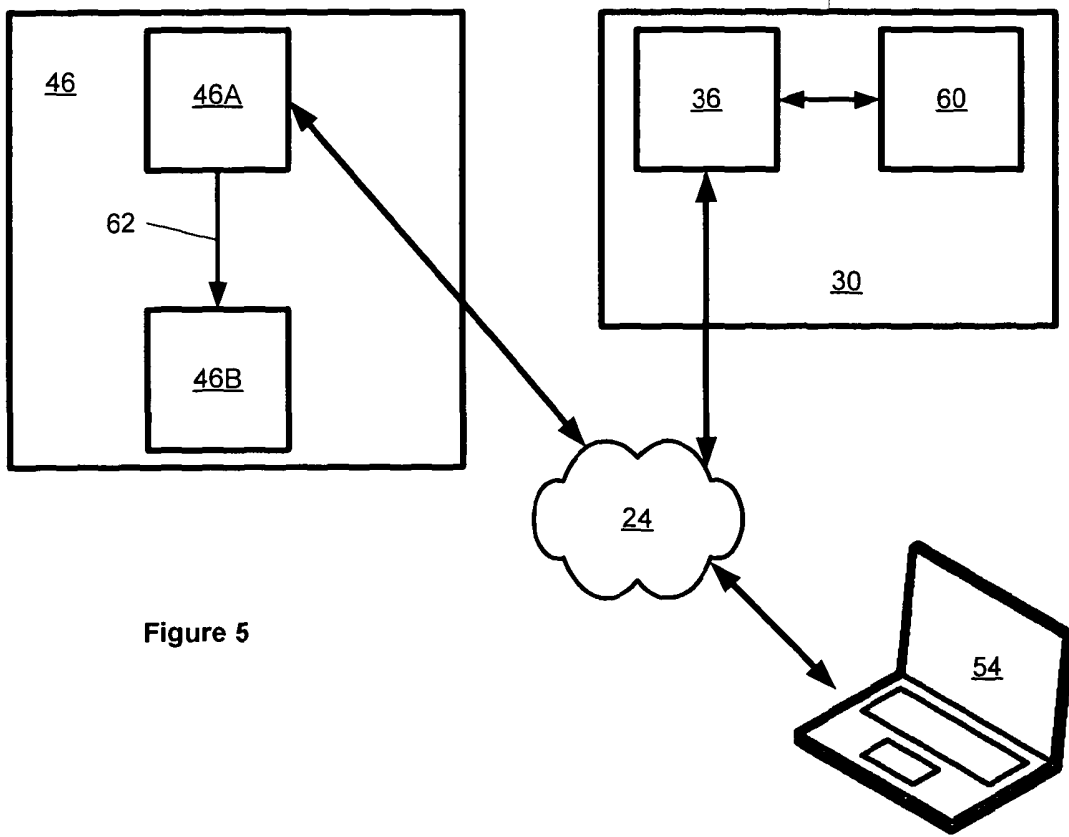


Figure 5

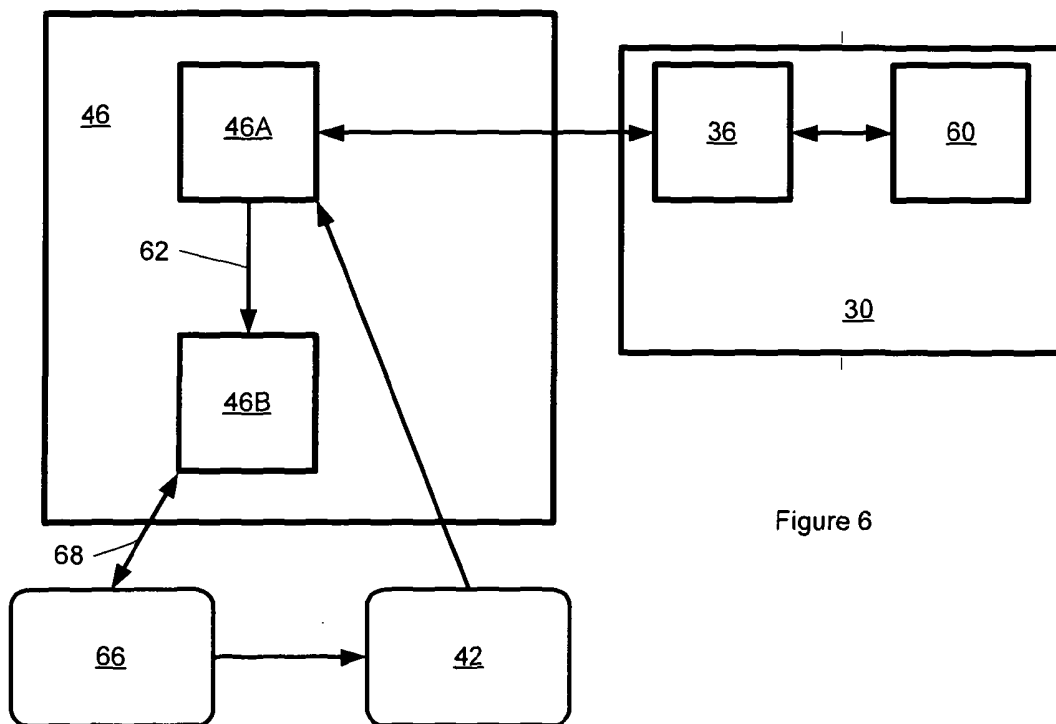


Figure 6

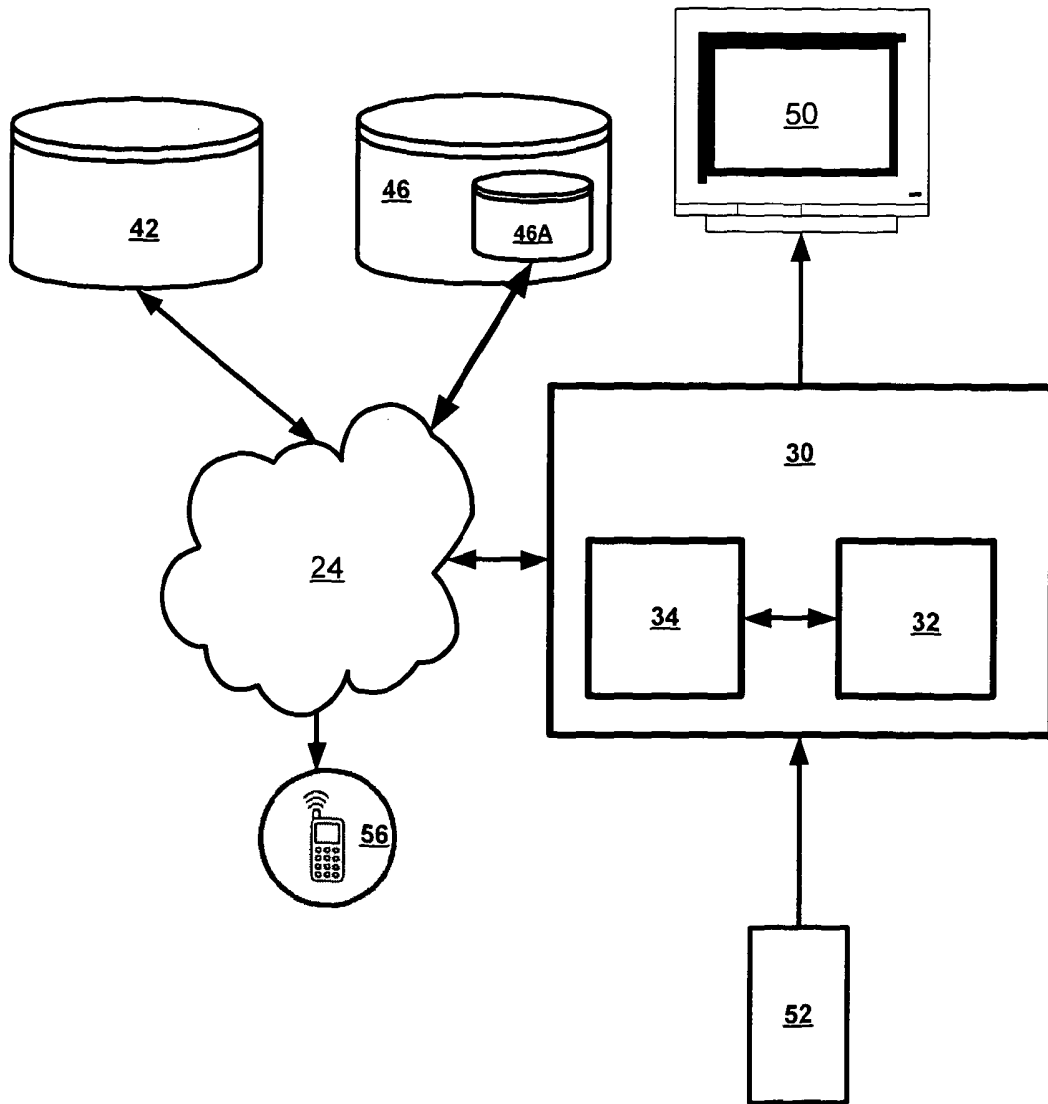


Figure 7

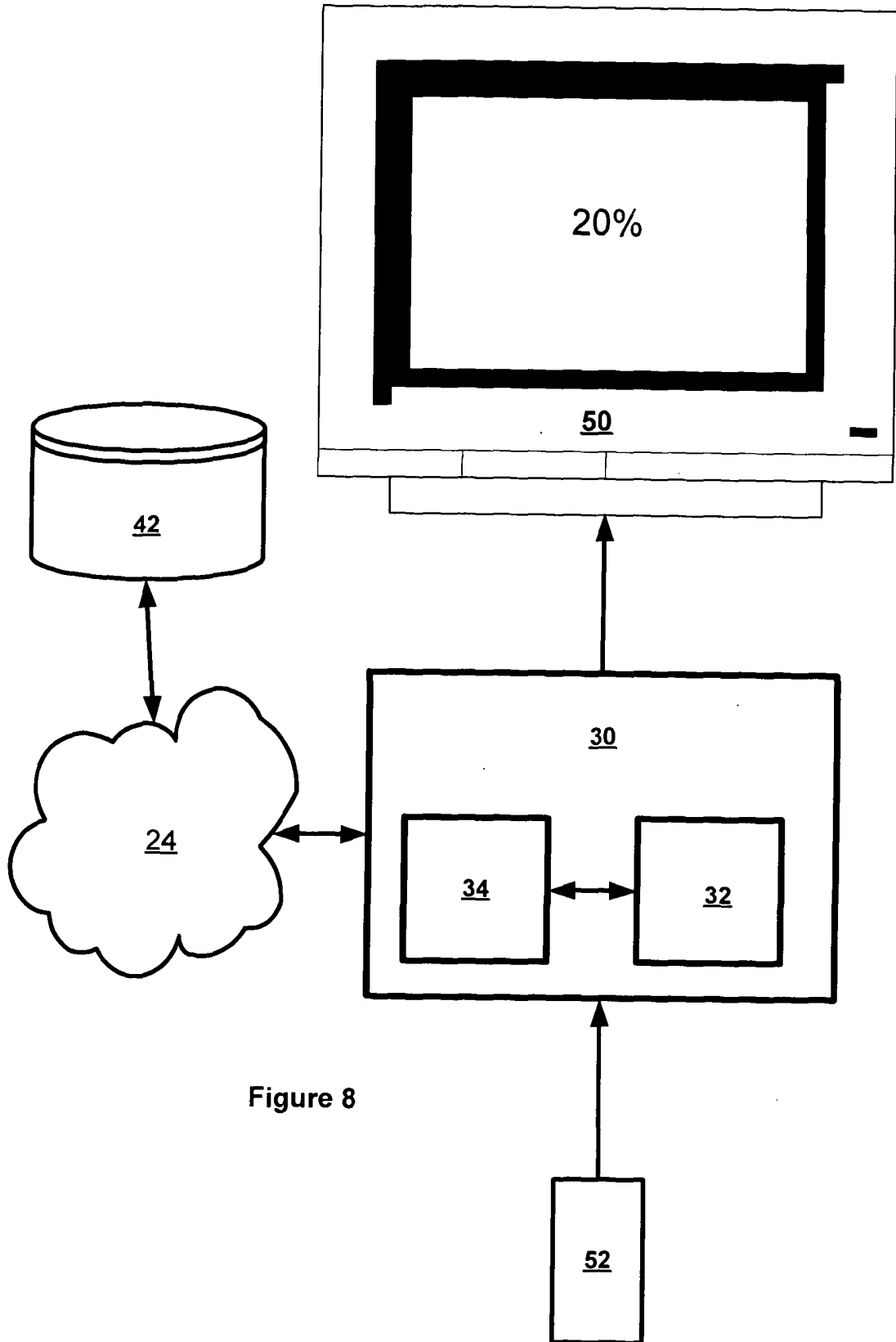


Figure 8

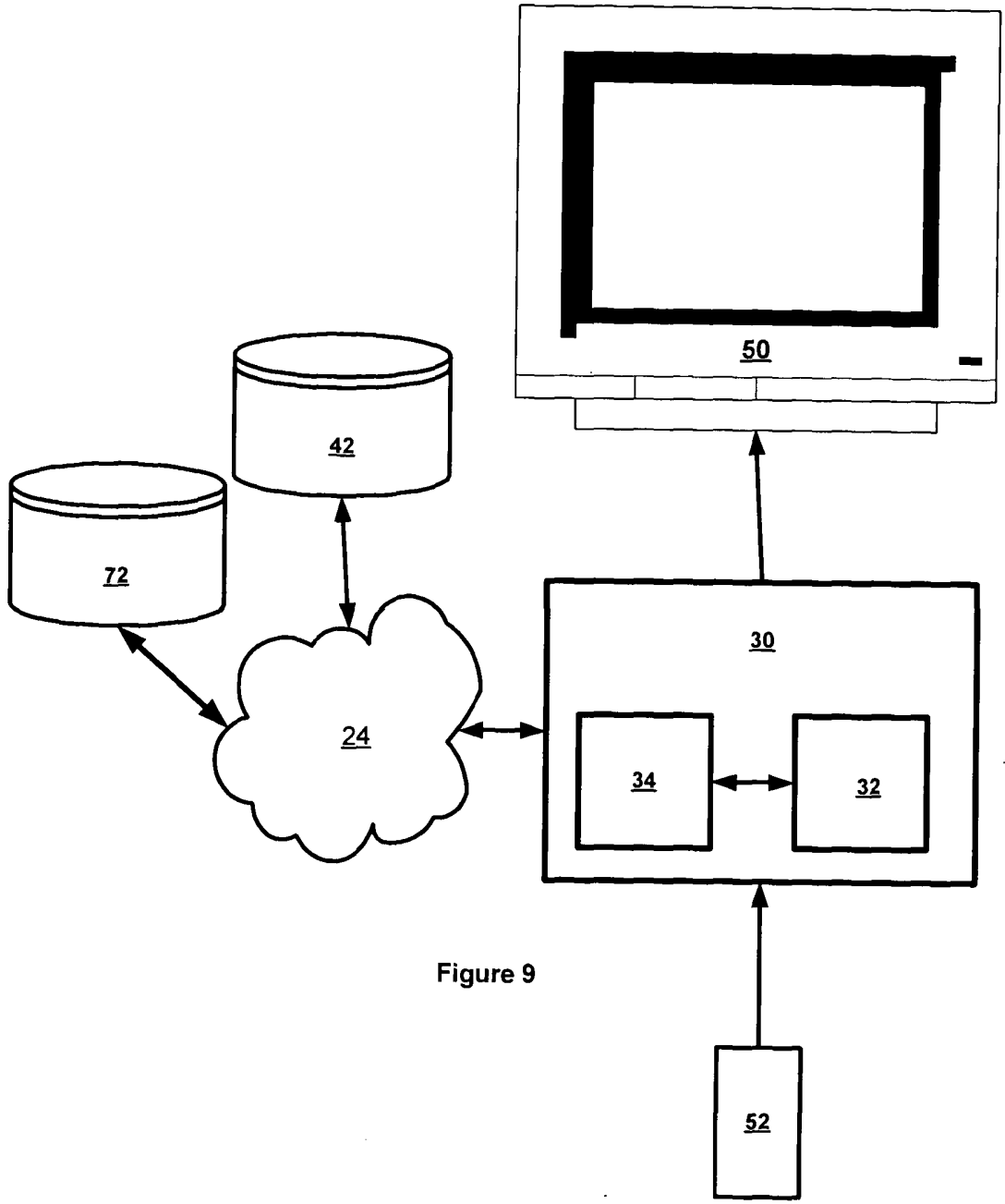
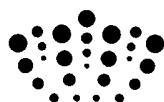


Figure 9



**Application No:** GB1000338.2

**Examiner:** Richard Baines

**Claims searched:** 1

**Date of search:** 9 March 2010

**Patents Act 1977: Search Report under Section 17**

**Documents considered to be relevant:**

Category	Relevant to claims	Identity of document and passage or figure of particular relevance
X,Y	X: 1 - 4 Y: 5	WO2009/036028 A3 (DISNEY) - abstract, figure and paragraphs 36, 55, 60 & 62
X,Y	X: 1 - 4 Y: 5	US2009/0222853 A1 (AT&T) - abstract, figure 2 and paragraphs 34, 45, 48, 50, 52 & 57
X,Y	X: 1 - 4 Y: 5	US2008/0288975 A1 (CHEN) - abstract, figure 5 & 6 and paragraphs 64, 66, 66 & 72
Y	5	US2004/237098 A1 (AT&T) - abstract

**Categories:**

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.

**Field of Search:**

Search of GB, EP, WO & US patent documents classified in the following areas of the UKC<sup>X</sup> :

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Worldwide search of patent documents classified in the following areas of the IPC

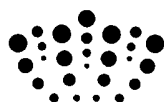
H04N
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The following online and other databases have been used in the preparation of this search report

Online: WPI, EPODOC
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**International Classification:**

Subclass	Subgroup	Valid From
H04N	0007/173	01/01/2006
H04N	0005/00	01/01/2006
H04N	0007/16	01/01/2006



**Application No:** GB1000338.2

**Examiner:** Richard Baines

**Claims searched:** 14

**Date of search:** 18 March 2010

**Patents Act 1977**  
**Further Search Report under Section 17**

**Documents considered to be relevant:**

Category	Relevant to claims	Identity of document and passage or figure of particular relevance
A	-	US2009/0254971 A1 (PINPOINT)
A	-	US6850252 B1 (HOFFBERG)

**Categories:**

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
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**Field of Search:**

Search of GB, EP, WO & US patent documents classified in the following areas of the UKC<sup>X</sup>:

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Worldwide search of patent documents classified in the following areas of the IPC

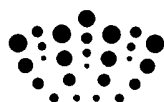
G06F; H04N
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The following online and other databases have been used in the preparation of this search report

Online: WPI, EPODOC, TXTEN
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**International Classification:**

Subclass	Subgroup	Valid From
H04N	0007/173	01/01/2006
G06F	0017/30	01/01/2006
H04N	0005/00	01/01/2006
H04N	0007/16	01/01/2006



**Application No:** GB1000338.2

**Examiner:** Richard Baines

**Claims searched:** 10

**Date of search:** 18 March 2010

**Patents Act 1977**  
**Further Search Report under Section 17**

**Documents considered to be relevant:**

Category	Relevant to claims	Identity of document and passage or figure of particular relevance
X	10 - 13	US6611813 B1 (LISTEN.COM) - abstract and paragraphs 3, 6, 7, 9, 10 & 23
X	10 - 12	US2009/0222851 A1 (TALMI) - abstract, figures 1 & 3 and paragraphs 59, 85 & 95
X	10 - 12	US2006/0293954 A1 (ANDERSON) - abstract and paragraphs 2, 13, 80 & 292
X	10 - 12	US2006/0085816 A1 (FUNK) - abstract, figure 4 and paragraphs 2, 11, 40 & 48

**Categories:**

X Document indicating lack of novelty or inventive step	A Document indicating technological background and/or state of the art.
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& Member of the same patent family	E Patent document published on or after, but with priority date earlier than, the filing date of this application.

**Field of Search:**

Search of GB, EP, WO & US patent documents classified in the following areas of the UKC<sup>X</sup> :

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Worldwide search of patent documents classified in the following areas of the IPC

H04N
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The following online and other databases have been used in the preparation of this search report

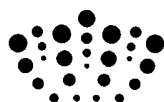
Online: WPI, EPODOC, TXTEN
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**International Classification:**

Subclass	Subgroup	Valid From
H04N	0007/173	01/01/2006
G06F	0017/30	01/01/2006
H04N	0005/00	01/01/2006



<b>Subclass</b>	<b>Subgroup</b>	<b>Valid From</b>
H04N	0007/16	01/01/2006



**Application No:** GB1000338.2

**Examiner:** Richard Baines

**Claims searched:** 6

**Date of search:** 18 March 2010

**Patents Act 1977**  
**Further Search Report under Section 17**

**Documents considered to be relevant:**

Category	Relevant to claims	Identity of document and passage or figure of particular relevance
Y	6, 8 & 9	WO2009/036028 A3 (DISNEY) - abstract, figure and paragraphs 36, 55, 60 & 62
Y	6, 8 & 9	US2009/0222853 A1 (AT&T) - abstract, figure 2 and paragraphs 34, 45, 48, 50, 52 & 57
Y	6, 8 & 9	US2008/0288975 A1 (CHEN) - abstract, figures 5 & 6 and paragraphs 64, 66 & 74
Y	6, 8 & 9	US7584223 B1 (HP) - abstract, figures 1, 3 & 24, column 5 lines 42 - 47, column 18 lines 12 - 21 and column 65 lines 3 - 21

**Categories:**

X Document indicating lack of novelty or inventive step	A Document indicating technological background and/or state of the art.
Y Document indicating lack of inventive step if combined with one or more other documents of same category.	P Document published on or after the declared priority date but before the filing date of this invention.
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**Field of Search:**

Search of GB, EP, WO & US patent documents classified in the following areas of the UKC<sup>X</sup> :

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Worldwide search of patent documents classified in the following areas of the IPC

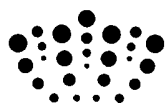
G06F; H04N
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The following online and other databases have been used in the preparation of this search report

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**International Classification:**

Subclass	Subgroup	Valid From
H04N	0007/173	01/01/2006
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H04N	0005/00	01/01/2006



<b>Subclass</b>	<b>Subgroup</b>	<b>Valid From</b>
H04N	0007/16	01/01/2006