Networked PVR based services and application over IPTV

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**List of applications**

- Time Shifted TV
- Follow Me TV
- Remote Programming
- Remote Parental Control
- Interactive Information
- Interactive Purchases
- TV on the Go
- Caller ID on TV
- Call Logging
- Do Not Disturb
- Voice Mail
- Voice Telephony via TV
- Watch TV with Online Friends
- Video Telephony/Video Chat
- Video Surveil

**Result of the survey**

<table>
<thead>
<tr>
<th>Service</th>
<th>Interest</th>
<th>pay</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time-shifted TV</td>
<td>90</td>
<td>58</td>
</tr>
<tr>
<td>Video telephony/chat</td>
<td>53</td>
<td>48</td>
</tr>
<tr>
<td>Video Home Surveillance</td>
<td>43</td>
<td>37</td>
</tr>
<tr>
<td>Caller ID on TV</td>
<td>63</td>
<td>0</td>
</tr>
</tbody>
</table>

(In-Stat, 2006/3/1 US Consumer Attitudes toward Interactive IPTV Applications)
### Service classification & terms

#### TPSS (TV Program Storing Service)

<table>
<thead>
<tr>
<th>Service name</th>
<th>So called</th>
<th>Service definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time-shifted TV</td>
<td>Pause TV</td>
<td>- record all the channels for 1 to 2 hours&lt;br&gt;- ready to use at any time</td>
</tr>
<tr>
<td>TV on Demand</td>
<td>Time-shifted TV</td>
<td>- record all the channels programs&lt;br&gt;for 3 to 7 days&lt;br&gt;- ready to use after hours</td>
</tr>
<tr>
<td>PVR</td>
<td>DVR</td>
<td>- record the user requesting programs&lt;br&gt;- ready to use after the program ended</td>
</tr>
</tbody>
</table>
Example Services

- TPSS
- ToD
- TV of Demand
- TV of Yesterday (Siemens)
- Season Pass (TiVo)
- PVR
- nPVR (KT trial)
- TS TV
- TS-TV (KT trial)
- Start Over (TimeWarnar)
Space convergence

- Any Time, Any where

Follow me TV

TiVoToGo
ToD system

ITU-T IPTV Global Technical Workshop
Seoul, Korea, 12-13 October 2006
Deploy the ToD service
|. a few programs take large portion of total access count
| memory-based system’s performance is higher than disk-based system’s
| reduce about 30% of TCO

![Diagram showing comparison between disc-based and memory-based systems.](attachment:diagram.jpg)
Time-shifted TV do not need distribution servers.
Personal channel & AD service system

- Personal EPG
- AD Clip
- Stream Selector
- CRM
- PVR
- Time-shifted channel
- Controller
- SetTopBox
- Head End
- distributor
Break down the channel zapping time

- Channel zapping time: 2 ~ 3 sec

- quote from ‘Managing delay in IP video networks’, CISCO
**Channel zapping reduction method**

- Channel zapping time: 0.5 sec

- error packet retransmission
- AD insertion for target AD
- stream monitoring