

Is IPTV.1 a waste of Internet bandwidth?

Andrew Odlyzko

Digital Technology Center

University of Minnesota

<http://www.dtc.umn.edu/~odlyzko>

*Is IPTV.1 a waste of Internet
bandwidth?*

YES

Is IPTV.1 a waste of Internet bandwidth?

YES, but it doesn't matter

- ◆ waste enables innovation
- ◆ winning feature of the Internet has always been flexibility, not low cost

Conclusions from presentation deck at 2000 CITI conference:

- ◆ **TV will have little impact on Internet backbones**
- ◆ **Internet will have a large impact on TV**

<http://www.dtc.umn.edu/~odlyzko/doc/tv.internet.pdf>

More precisely:

- ◆ consumers change their habits slowly
- ◆ Internet capacity and traffic are growing rapidly
- ◆ magnetic storage capacity is growing rapidly
- ◆ displays are improving slowly



- ◆ local storage and replay (a la Napster) likely to dominate
- ◆ streaming real time multimedia a minor factor
- ◆ Internet delivery likely to facilitate evolution of TV (HDTV, interactive TV, ...)

Misleading myth of “Internet time”:

Build it and they will come

Misleading myth of “Internet time”:

~~**Build it and they will come**~~

**Build it and they may come,
but always in their own sweet time**

Internet traffic per capita (as of mid-2005):

Australia	0.3 GB/month
United States	1.2
Japan	1.2
S. Korea	7
Hong Kong	9

**growth rates: usually about a doubling each year
(but U.S. is now down to about 60% a year)**

http://firstmonday.org/issues/issue3_10/coffman

Current Internet costs too high for TV:

- ◆ **Internet transit prices \$20-30 Mbps/month**
- ◆ **but they are declining (and can use local distribution, ...)**
- ◆ **already can afford a lot of experimentation**

Rates of change:

- ◆ **technology: fast**
- ◆ **consumer habits: slow**
- ◆ **industry dogmas: slowest**

Misleading dogma of streaming video:

- ◆ **file transfers much more natural**
- ◆ **predicted long ago**
- ◆ **faster-than-real-time file transfers predicted long ago**
- ◆ **faster-than-real-time file transfers already dominate (P2P music in US, P2P video in Korea)**
- ◆ **yet industry is still mesmerized by streaming video**
- ◆ **Internet's flexibility is allowing natural evolution to take place without the industry noticing or understanding what's happening**

Faster-than-real-time video file transfers:

- ◆ cater to human impatience
- ◆ enable transfer to portable devices
- ◆ enable far simpler networks

...

AND ALREADY DOMINATE

Conclusions:

- ◆ **IPTV.1 (as well as IPTV.2 as usually conceived) IS a waste of Internet bandwidth**
- ◆ **waste enables innovation**
- ◆ **flexibility of the Internet is enabling innovation that bypasses misleading industry dogmas**

further data, arguments, and speculations at

<http://www.dtc.umn.edu/~odlyzko>