



# Video compression: which scenario?

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# Outline

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- o **Advantages of compression in communication**
- o **Definition of importance of compression**
- o **Current scenario and trends**
- o **Conclusions**



# Advantage of Compression

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- o **Increasing compression efficiency PROPORTIONALLY translates into higher number of customer per channel: more efficient utilization of the resources, more revenue for the operator**
- o **Number of users of digital video communication services is increasing**



# Importance of compression

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## Importance of compression:

**Information needed to transmit a message/channel capacity**

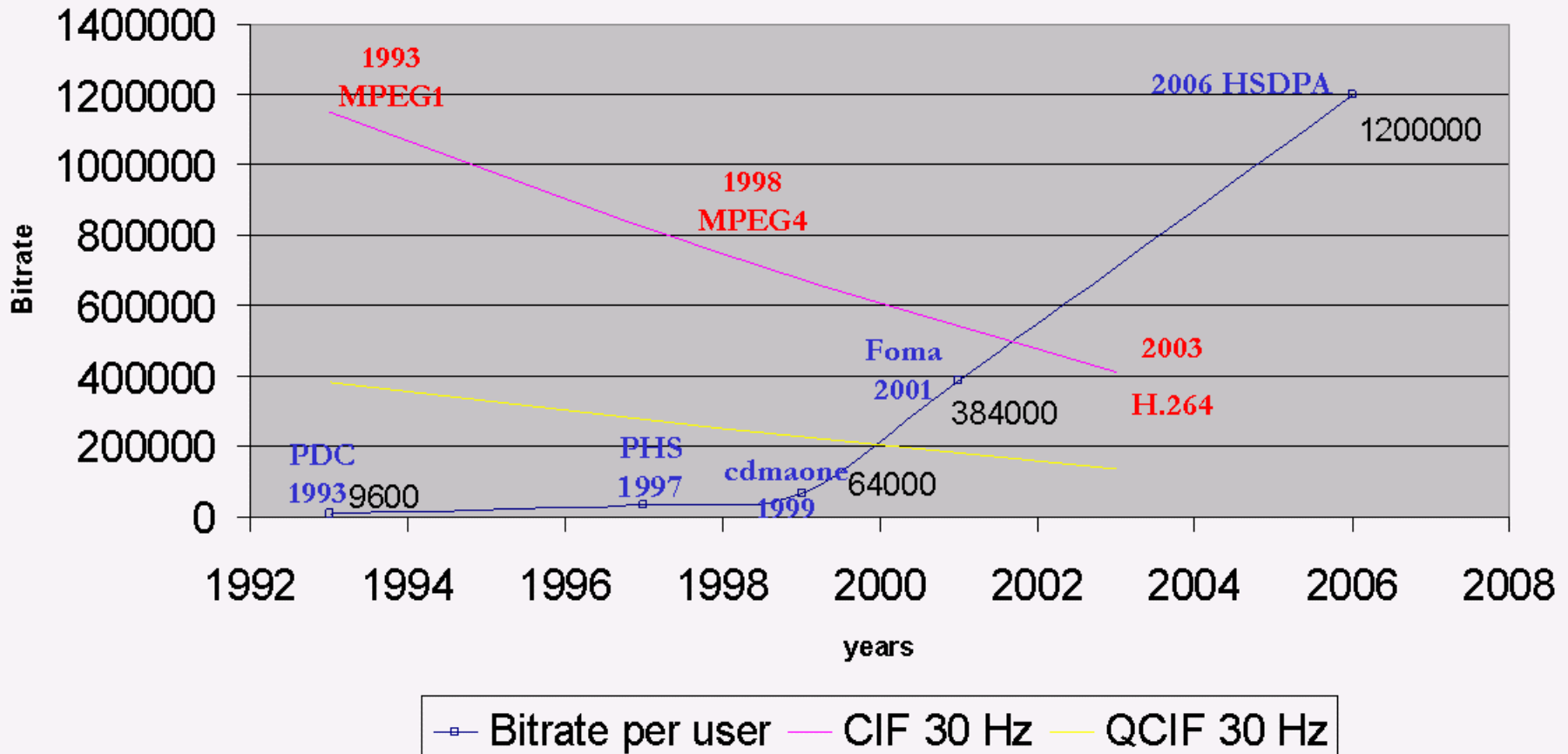
**>1 impossible => Highest importance, highest research and technical challenge**

**<1 possible => Limit is broken**



# Evolution of available bitrate for wireless connection and the bitrate needed for video information on wireless devices

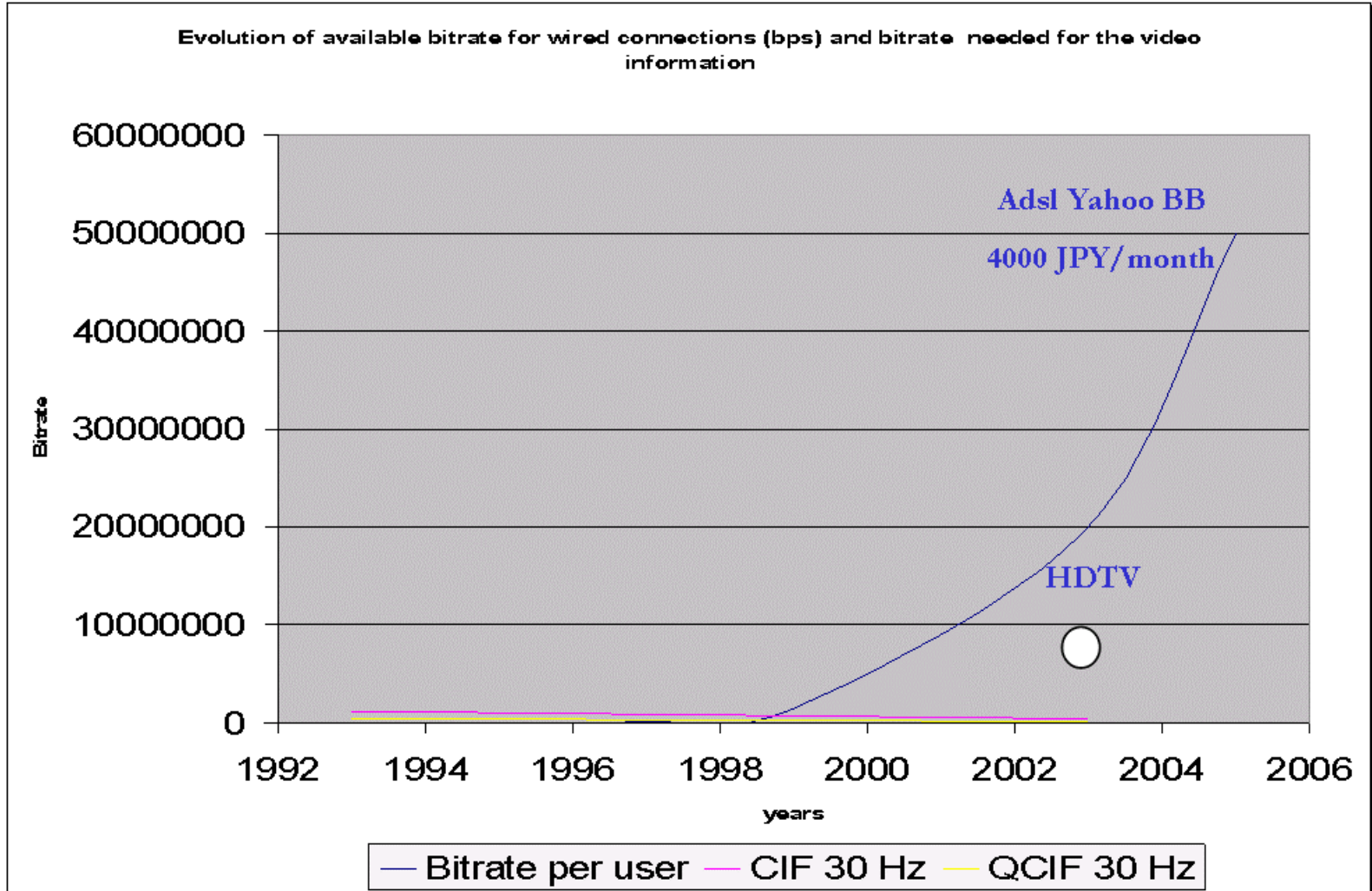
Evolution of available bitrate (bps) and bitrate needed for the video information





# Evolution of available bitrate for wired connection and the bitrate needed for video information

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# 3G scenario

## 3G characteristics and problems:

## Needed technologies:

**Quasi no-loss in W-CDMA  
(arq)**

**Error control, error  
resilience and  
concealment**

**Fading and overload**



**Networks heterogeneity**



**Rapid and scalable  
adaptation to  
variation of QoS**

**Flat rate?**

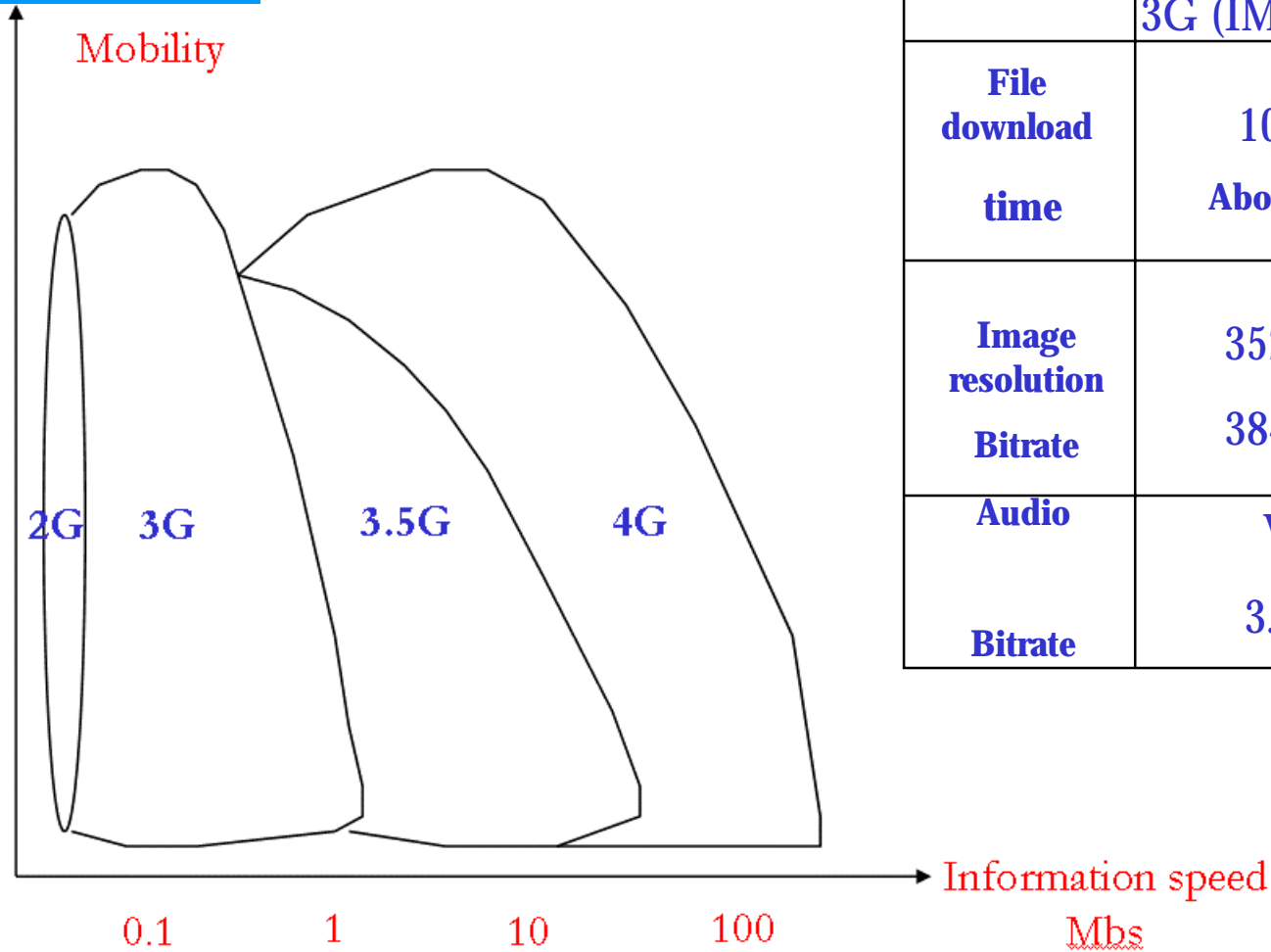


**More compression**

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# 3G-4G



	3G (IMT-2000)	4G
<b>File download time</b>	10MB About 200s	10MB About 2s
<b>Image resolution</b>	352x288	1024*1920
<b>Bitrate</b>	384 Kbs	24 Mbps x2
<b>Audio</b>	Voice	3D audio-video
<b>Bitrate</b>	3.4 Kbs	50Mbs

dates





# Conclusions

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- Lots of bandwidth available (already there)
- Needed adaptability to sudden variation of operational conditions (Qos, error resiliency)
- Virtual reality, 3D audio/video, stereovision as 4G applications and still much above current available bandwidth