

Internet Personal/Entertainment Applications and Bandwidth Utilization

TRANSACTIONAL DATA TRANSFERS*	DESCRIPTION	QUANTITY OF DATA TRANSFERRED OR FILE SIZE (KB)		AMOUNT OF TIME TO COMPLETE TRANSACTION (SECONDS)	BANDWIDTH NEEDED
		Upload	Download		
E-mail Receive a Simple E-mail Send a Simple E-mail Receive E-mail with Attachment Send E-mail with Attachment	SAME AS BUSINESS				
Web Browsing Visit Simple Web Site Next Page of Simple Web Site Visit Complex Web Site Next Page of Complex Web Site Social Networking Sites Facebook, MySpace, LinkedIn FTP Download a 10 MB File FTP Upload a 10MB File	SAME AS BUSINESS				
Entertainment Download Music Download a Movie Download a TV Episode	Download a 3.75 MB MP3 song to computer. Download a 2-hour (600 MB) movie to computer. (High Quality) Download a 1-hour (200 MB) TV show to computer. (Med Quality)	Negligible# Negligible# Negligible#	3.75 MB 600 MB 200 MB	1 min 2 hrs 30 Min	512 Kbps 1.3 Mbps 910 Kbps
Instant Messaging Online Chat MSN Messenger/Twitter	Send and/or receive small instant messages via the Internet.	Each message is less than 2 KB		1 sec	15 Kbps
Online Database/Online App Read/Write data contained in Online Database or Application	Log into a bank's online bill pay web page or Paypal.	As a general rule, about 400 Kbps is needed for a responsive online database experience.			
STREAMING DATA TRANSFERS**	DESCRIPTION	BANDWIDTH UTILIZATION			
Entertainment Streaming Radio Streaming TV Episodes Streaming Movies Interactive Video Games	Listen to a radio broadcast over an Internet connection. Watch a 1-hr TV episode over an Internet connection. Watch a 2-hr movie over an Internet connection. Play video games online with other players, including voice chat.	Upload Negligible# Negligible# Negligible# About 50 Kbps	Download 32 Kbps -192 Kbps 300 Kbps 700 Kbps-2.4 Mbps About 50 Kbps		
VOICE APPLICATIONS VoIP Calls – G.711 Codec VoIP Calls – G.729 Codec Skype Voice Calls – G.729 Codec Skype Video Conferencing	SAME AS BUSINESS				

Note: The information in this document is intended to provide general guidelines about bandwidth utilization. Because of the wide variety of applications, technologies, and usage scenarios – you may experience different results than those outlined above.

* **Transactional Data Transfers** **Transactional Data Transfer** describes a short term exchange of data between two computers. A request to send or receive data is transmitted from one computer to another. Once the other computer acknowledges the request, data is transferred to or from the computer or server that initiated the communication. Then, when this transaction is complete (data has been completely transferred), the communication between the two computers ends (uses no bandwidth) until more data needs to be exchanged.

** **Streaming Data Transfers** **Streaming Data Transfers** describes content sent in compressed form over the Internet and presented by the player application in real time. Using streaming, a user does not have to wait to download an entire file before beginning to play the content. Instead, the content is sent in a continuous stream of data and is played as it arrives.

Negligible Data Transfer Many transactional data transfer applications (such as sending and receiving e-mails) will send small amounts of data back and forth to/from the remote computer or server in order to begin, maintain, or end the transaction. The amount of data transferred and bandwidth needed varies from one application to the next, but it is typically a tiny fraction of the bandwidth needed to move the actual content.

Testing Web Page Content Size If there is a web page that is visited very frequently, you can use this online utility to measure the size of the content on that page. <http://www.submitexpress.com/analyzer/>
 In the **URL** field, you can enter the full http:// address of the web page you would like to analyze. Click **Submit**
 The page will return the size of the web page in bytes. Clients will then be able to go to www.popp.com and use a calculator to determine the amount of bandwidth needed to view this page within a specified timeframe.