

## Internet Business 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		
<b>E-mail</b> Receive a Simple E-mail Send a Simple E-mail Receive E-mail with Attachment Send E-mail with Attachment	Receive a plain text or HTML e-mail. Send a plain text or HTML e-mail. Send an e-mail that contains text and an attachment. Send an e-mail that contains text and an attachment.	Negligible# 1-20 KB Negligible# 65-600KB	1-20KB Negligible# 65-600KB Negligible#	5 sec 5 sec 10 sec 10 sec	32.8 Kbps 32.8 Kbps 491 Kbps 491 Kbps
<b>Web Browsing</b> 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	Visit simple web site – text and few images (Bing, Google). Visit next page of simple web site. Some content already cached. Visit Complex web site; contains images, audio, video and/or Flash. Visit next page of complex web site. Some content already cached. View pictures, send text status updates and messages, chat, and play simple online games with friends and family. Note: some social networking sites such as Facebook limit the file sizes that you can upload. If you try to upload a picture larger than Facebook supports, they will automatically reduce the quality so that it does not require as much disk space and so that it will display faster and use less bandwidth when people view the picture.	Negligible# Negligible# Negligible# Negligible#	100 KB 25-50 KB 200-400 KB 100-300 KB	2 sec 2 sec 3 sec 3 sec	409 Kbps 204 Kbps 1.1 Mbps 819 Kbps
FTP Download a 10 MB File FTP Upload a 10MB File	Download files from FTP site. Upload files to FTP site.	Negligible # 10 MB	10 MB Negligible#	60 sec 60 sec	1.3 Mbps 1.3 Mbps
<b>VPN</b> Terminal Services	Mobile, branch users, and telecommuters connect through a secure tunnel to establish a secure connection.	Terminal Services requires between 50-100 Kbps of low latency bandwidth for a high quality experience.			
<b>Web Site Hosting</b> Host Simple Web Site Host Complex Web Site	Host site with text and few images – average page size of 100 KB Host site with images, audio, video, etc. – average page size of 300 KB	100 KB 300 KB	Negligible# Negligible#	2 sec 2 sec	409 Kbps 1.2 Mbps
<b>Online Database/Online App</b> Read/Write data contained in Online Database or Application.	Check supplier inventory in online database. Enter shipping, credit card information into payment site (Paypal).	For a high quality, responsive online database experience (2 second or less page loads) about 400 Kbps is needed.			
<b>STREAMING DATA TRANSFERS**</b>	<b>DESCRIPTION</b>	<b>BANDWIDTH UTILIZATION</b>			
<b>COLLABORATION/ONLINE MTG.</b> Desktop Sharing Online Meetings (with Video)	Remotely connect to or control another computer. View an online meeting with a PowerPoint presentation and video.	<b>Upload</b> Negligible# Negligible#	<b>Download</b> About 43 Kbps About 200 Kbps		
<b>WEBINAR/VIDEO BROADCAST</b> Webcam Video Broadcast (One Way) YouTube Audio Broadcast, Webinar Podcasts, Internet News	View video and audio broadcast via a basic webcam. Listen to an audio-only broadcast (or audio, plus a slideshow) while participating in an online meeting.	Negligible# Negligible#	Minimum 50 Kbps High Quality 350 Kbps Minimum 50Kbps; High Quality 80Kbps		
<b>VOICE APPLICATIONS</b> VoIP Calls – G.711 Codec VoIP Calls – G.729 Codec Skype Voice Calls – G.729 Codec Skype Video Conferencing	Make voice call using G.711 voice codec. Make voice call using G.729 voice codec. Make a voice call using Skype. Have a video conference using Skype.	87.2 Kbps 32.2 Kbps 10-64 Kbps 384 Kbps	87.2 Kbps 31.2 Kbps 10-64 Kbps 384 Kbps		

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.submitempress.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](http://www.popp.com) and use a calculator to determine the amount of bandwidth needed to view this page within a specified timeframe.