



Broadband Considerations for Tennessee

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Broadband Throughput Comparison

- File size examples

Size	Bytes	Example/Use Cases
Very small	1MB	Email, Email with small attachment, picture or graphic
Small	10MB	Music file, trailer or short video, complete website, hand MRI scan
Medium	100MB	Photo or music album; OS software update; head, cardiac or abdomen PET, MRI or CT scan; streaming video
Large	1GB	1 hour movie or TV show, complete SW distribution, 200 image CT scan; Windows 10 download (3GB)
Very Large	1TB	Audio/movie collection, PC or server backup, individual CT scan collection
Research & Industrial	1PB	Research file collection, hospital or laboratory image collection

Broadband Throughput Comparison

Size	Bytes	5Mbps	20Mbps	100Mbps	1Gbps	10Gbps	100Gbps
Very small	1MB	1.6sec	<1sec	<1sec	<1sec	<1sec	<1sec
Small	10MB	16sec	4sec	<1sec	<1sec	<1sec	<1sec
Medium	100MB	2min	40sec	8sec	<1sec	<1sec	<1sec
Large	1GB	27min	7min	1.3min	8sec	<1sec	<1sec
Very Large	1TB	18days	4.6days	22hrs	2.2hrs	13.3min	1.3min
Research & Industrial	1PB	50yrs	12.7yrs	2.5yrs	92days	9.2days	22hrs

8 bits = 1 byte
 1MB = 1 Megabyte = 10^6 bytes

1GB = 1Gi gabyte = 10^9 bytes
 1TB = 1Terabyte = 10^{12} bytes
 1PB = 1Petabyte = 10^{15} bytes