

Lab – Researching WAN Technologies (Instructor Version)

Instructor Note: Red font color or Gray highlights indicate text that appears in the instructor copy only.

Objectives

Part 1: Investigate Dedicated WAN Technologies and Providers

Part 2: Investigate a Dedicated Leased Line Service Provider in Your Area

Background / Scenario

Today's broadband Internet services are fast, affordable, and secure using VPN technologies. However, many companies still find the need for a 24-hour dedicated connection to the Internet or a dedicated point-to-point connection from one office location to another. In this lab, you will investigate the cost and availability of purchasing a dedicated T1 Internet connection for your home or business.

Required Resources

Device with Internet access

Part 1: Investigate Dedicated WAN Technologies and Providers

In Part 1, you will research basic characteristics of dedicated WAN technologies, and in Step 2, you will discover providers that offer dedicated WAN services.

Step 1: Research WAN technology characteristics.

Use search engines and websites to research the following WAN technologies to complete the table below.

WAN Technology	Dedicated Connection (yes/no)	Last Mile Media			Speed/Range
		Copper (yes/no)	Fiber (yes/no)	Wireless (yes/no)	
T1/DS1	yes	yes	yes	yes	1.544 Mb/s
T3/DS3	yes	yes	yes	yes	44.736 Mb/s
OC3 (SONET)	yes	no	yes	no	155.52 Mb/s
Frame Relay	yes	yes	yes	yes	56 Kb/s - 1.544 Mb/s
ATM	yes	yes	yes	yes	155 Mb/s – 622 Mb/s
MPLS	yes	yes	yes	yes	Up to 10 Gb/s
EPL (Ethernet Private Line)	yes	yes	yes	no	Up to 10 Gb/s

Step 2: Discover dedicated WAN technology service providers.

Navigate to <http://www.telarus.com/carriers.html>. This webpage lists the Internet service providers (also known as carriers) that partner with Telarus to provide automated real-time telecom pricing. Click the links to the various carrier partners and search for the dedicated WAN technologies that they provide. Complete the table below by identifying each service provider's dedicated WAN services, based on the information provided on the website. Use the extra lines provided in the table to record additional service providers.

Internet Service Provider	T1/DS1/PRI	T3/DS3	OC3 (SONET)	Frame Relay	ATM	MPLS	EPL Ethernet Private Line
Comcast							X
Integra	X	X	X			X	X
tw telecom		X	X			X	
AT&T							
Cbeyond							
Earthlink							
Level 3 Communications							
XO Communications							
Verizon							


Part 2: Investigate a Dedicated Leased Line Service Provider in Your Area

In Part 2, you will research a local service provider that will provide a T1 dedicated leased line to the geographical area specified. This application requires a name, address, and phone number before the search can be performed. You may wish to use your current information or research an address locally where a business might be looking for a WAN connection.

Step 1: Navigate to <http://www.telarus.com/geoquote.html> to try GeoQuote.

GeoQuote is a web application that automates the search for WAN technology service providers, and provides price quotes in real-time. Fill in the required fields.

- Click the **Service Type** drop-down list and select **Data (High Speed Internet)**.
- Type your **First Name** and **Last Name**, your sample **Company**, and your **Email** address.
- Type the **Phone Number** to connect to the WAN. This number should be a landline number.
- Click the button marked **Step 2**.



"GeoQuote has had a profound effect on commercial telecom. Before Telarus had the insight and fortitude to build the industry's first real-time quoting tool, it was almost impossible for an agent to get pricing for a client in a reasonable time frame. With the advent of GeoQuote, many thousands of businesses have been able to find and compare the different telecommunications providers without waiting days to do so. GeoQuote is amazing!"

Dan Baldwin, President
[Telecom Association](#)

New Agents [sign up online](#) or call (877) 346-3232.

Need carrier services?
[Create a quote online](#) or call (800) 880-2001.

GeoQuote: Providing Agents Real-Time Quotes Since 2003

Shop Now!?

After we had created and filed for a United States patent on our new real-time quoting system in 2003, we needed to give it a name. The term "GeoQuote" just made sense, since the price of T1 and other commercial telecom products are so sensitive to geography. Since then GeoQuote has become a term that has gained universal acceptance and use in the context of our real-time price engine.

All of our marketing web sites are endowed with GeoQuote so that our visitors get instant gratification when looking for pricing and availability. ([watch video](#))

A sample of the public-facing GeoQuote output is show here.

Take GeoQuote for a Spin!

Service Type:
Data (High Speed Internet) ▼

Your Name:
First Name Last Name

Company:

Email:

Phone Number:
 - -

▶ Step 2

Use this form to generate a real-time quote using GeoQuote, our patented real-time quoting technology. GeoQuote can currently generate real-time quotes for only these products listed below:


- Cable (Coax)
- Business DSL
- Data T1
- Bonded T1
- Data DS3
- Wireless 3G
- Local Voice / PRI
- Integrated Voice/Data
- Integrated SIP
- Long Distance T1/DS3
- Ethernet over Copper

Request Custom Quotes for "Big" and/or "Complex" Deals


Step 2: Select the service type.

Choose **Internet T1 (1.5 MB)** and scroll down to **Step 3** on the webpage.

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STEP 2 - SELECT SERVICE TYPE

<input type="radio"/> Business DSL	real-time
<input type="radio"/> Business Cable	real-time
<input type="radio"/> Fractional T1 Internet (< 1.5 MB)	real-time
<input checked="" type="radio"/> Internet T1 (1.5 MB)	real-time
<input type="radio"/> Bonded Internet (3MB to 12MB)	real-time
<input type="radio"/> Fixed Wireless Broadband	real-time
<input type="radio"/> Satellite High-Speed Internet	real-time
<input type="radio"/> Fractional DS3 Internet (6MB to 45 MB)	real-time
<input type="radio"/> DS3 Internet(45MB)	real-time
<input type="radio"/> Ethernet (Copper)	real-time
<input type="radio"/> Ethernet (Fiber)	real-time
<input type="radio"/> Mobile Wireless Card	manual quote
<input type="radio"/> High BW Fixed Wireless (> 2.0MB)	manual quote
<input type="radio"/> 4G WiMax	manual quote
<input type="radio"/> OC-3 Internet (155MB)	manual quote
<input type="radio"/> OC-48 Internet (2.5GB)	manual quote
<input type="radio"/> OC-12 Internet (622MB)	manual quote

STEP 3 - ENTER INSTALLATION INFORMATION

Installation BTN:

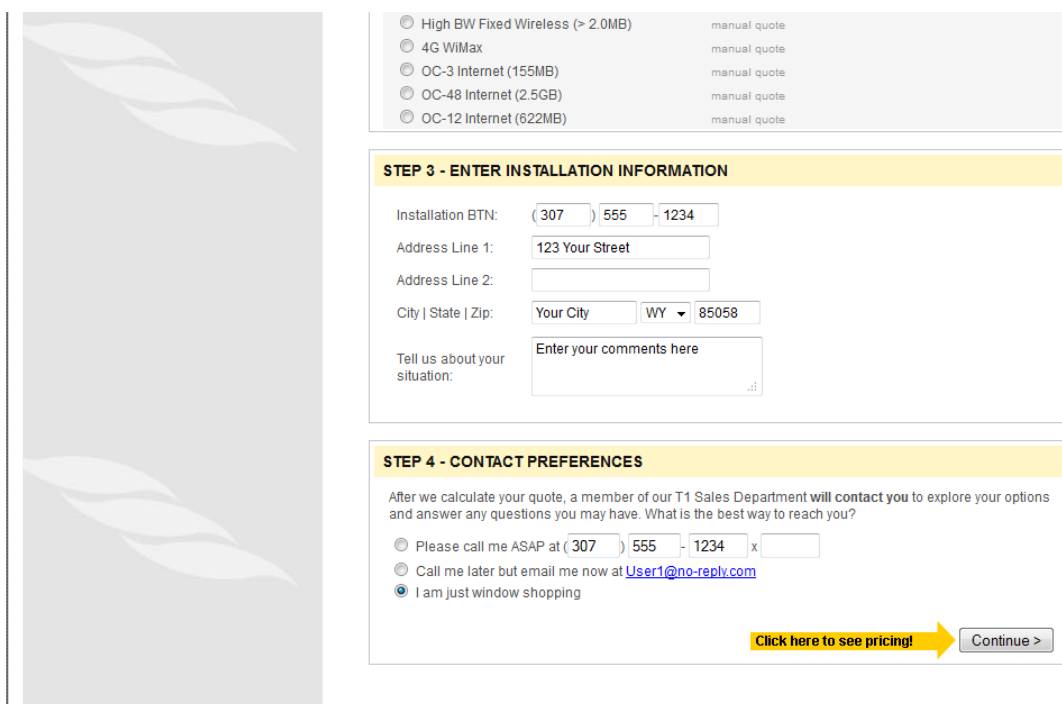
Address Line 1:

Step 3: Enter installation information.

- In the **Installation BTN** field, enter your sample business telephone number. This should be a landline number.
- Enter your address, city, state, and zip code.

Step 4: Enter contact preferences.

- Do not click the first radio button (**Please call me ASAP at**), but do provide your contact telephone number.
- Click the **I am just window shopping** radio button.
- Click **Continue**.



The screenshot displays a web form for configuring a T1 service. On the left is a large gray placeholder image. The form is divided into two main sections: **STEP 3 - ENTER INSTALLATION INFORMATION** and **STEP 4 - CONTACT PREFERENCES**.

Service Options:

- ☐ High BW Fixed Wireless (> 2.0MB) manual quote
- ☐ 4G WiMax manual quote
- ☐ OC-3 Internet (155MB) manual quote
- ☐ OC-48 Internet (2.5GB) manual quote
- ☐ OC-12 Internet (622MB) manual quote

STEP 3 - ENTER INSTALLATION INFORMATION

Installation BTN: (307) 555 - 1234

Address Line 1: 123 Your Street

Address Line 2:

City | State | Zip: Your City WY 85058

Tell us about your situation:

STEP 4 - CONTACT PREFERENCES

After we calculate your quote, a member of our T1 Sales Department will contact you to explore your options and answer any questions you may have. What is the best way to reach you?

☐ Please call me ASAP at (307) 555 - 1234 x

☐ Call me later but email me now at User1@no-reply.com

☒ I am just window shopping

[Click here to see pricing!](#)

Step 5: Examine the results.

You should see a list of quotes showing the available pricing of a T1 connection to the location you specified. Was the pricing in the area you chose comparable to those pictured below?

Answers will vary depending on service location and availability.

What was the range of prices from your results?

Answers will vary depending on service location and availability.

Lab – Researching WAN Technologies

Plan	Service Type	Bandwidth	Install	Rebate	Term	Router	Loop	Monthly Cost ↓	Order
1	Internet T1 (1.5 MB)	1.5M x 1.5M	\$0.00	\$0.00	3 Year	No	\$35.33	\$210.33	Order Now
2	Internet T1 (1.5 MB)	1.5M x 1.5M	\$0.00	\$0.00	3 Year	No	\$128.51	\$229.91	Order Now
3	Internet T1 (1.5 MB)	1.5M x 1.5M	\$0.00	\$0.00	2 Year	No	\$46.67	\$231.67	Order Now
4	Internet T1 (1.5 MB)	1.5M x 1.5M	\$345.87	\$0.00	5 Year	No	\$117.13	\$246.73	Order Now
5	Internet T1 (1.5 MB)	1.5M x 1.5M	\$345.87	\$0.00	3 Year	No	\$117.13	\$254.83	Order Now
6	Internet T1 (1.5 MB)	1.5M x 1.5M	\$0.00	\$0.00	3 Year	No	\$202.02	\$256.62	Order Now
7	Internet T1 (1.5 MB)	1.5M x 1.5M	\$345.87	\$0.00	2 Year	No	\$117.13	\$262.93	Order Now
8	Internet T1 (1.5 MB)	1.5M x 1.5M	\$0.00	\$0.00	1 Year	No	\$58.01	\$268.01	Order Now
9	Internet T1 (1.5 MB)	1.5M x 1.5M	\$345.87	\$0.00	1 Year	No	\$117.13	\$279.13	Order Now
10	Internet T1 (1.5 MB)	1.5M x 1.5M	\$50.00	\$0.00	3 Year	Yes	\$70.33	\$280.33	Order Now
11	Internet T1 (1.5 MB)	1.5M x 1.5M	\$0.00	\$0.00	3 Year	Yes	\$202.02	\$285.62	Order Now
12	Internet T1 (1.5 MB)	1.5M x 1.5M	\$0.00	\$0.00	3 Year	Yes	included	\$288.00	Order Now
13	Internet T1 (1.5 MB)	1.5M x 1.5M	\$0.00	\$0.00	3 Year	No	included	\$299.00	Order Now
14	Internet T1 (1.5 MB)	1.5M x 1.5M	\$50.00	\$0.00	2 Year	Yes	\$81.67	\$301.67	Order Now
15	Internet T1 (1.5 MB)	1.5M x 1.5M	\$0.00	\$0.00	3 Year	Yes	\$146.00	\$306.00	Order Now
16	Internet T1 (1.5 MB)	1.5M x 1.5M	\$0.00	\$0.00	3 Year	Yes	included	\$318.00	Order Now

Reflection

1. What are the disadvantages to using a T1 leased line for personal home use? What would be a better solution?

A symmetrical service such as T1 would be more expensive and unnecessary for home use. Home users typically do much more downloading than uploading and an asymmetrical service such as DSL or Cable could provide faster downloads at a more affordable price.

2. When might the use of a dedicated WAN connection, of any type, be a good connectivity solution for a business.

Answers will vary. A business, which requires fast Internet speeds, both download and upload, and an uninterrupted connection would benefit from a dedicated connection.

3. Describe other WAN technologies that provide high-speed, low-cost options that could be an alternative solution to a T1 connection.

Frame Relay, MPLS, and Metro Ethernet or Ethernet Private Line (EPL) are technologies that would be worth researching.