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December 17, 2008

VIA ELECTRONIC FILING

Mr. Charles Terreni
Chief Clerk of the Commission
Public Service Commission of South Carolina
Synergy Business Park, Saluda Building
101 Executive Center Drive
Columbia, SC 29210

Re: Central Telecom Long Distance, Inc.
Docket No. 2008-404-C
Our File No. 30544-0001

Dear Mr. Terreni:

Enclosed for filing please find the Testimony of Deborah Baker on behalf of Central Telecom Long Distance, Inc. By copy of this letter we are serving same on the Office of Regulatory Staff. If you have any questions, please have someone on your staff contact me.

Very truly yours,

ROBINSON, MCFADDEN & MOORE, P.C.

Bonnie D. Shealy

Bonnie D. Shealy

BDS/tch
Enclosures

cc w/enc: F. David Butler, Esquire (via email & U.S. Mail)
Mr. Andrew Isar (via email)
Ms. Deborah Baker (via email)
Lessie C. Hammonds, Esquire, Office of Regulatory Staff (via email & U.S. Mail)

STATE OF SOUTH CAROLINA

In the Matter of the Application of Central Telecom Long Distance, Inc. for a Certificate of Public Convenience and Necessity to Provide Resold Interexchange Telecommunications Services Throughout The State of South Carolina and for Alternative Regulation

BEFORE THE PUBLIC SERVICE COMMISSION OF SOUTH CAROLINA

COVER SHEET

DOCKET NUMBER: 2008-404-C

(Please type or print)

Submitted by: Bonnie D. Shealy

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NOTE: The cover sheet and information contained herein neither replaces nor supplements the filing and service of pleadings or other papers as required by law. This form is required for use by the Public Service Commission of South Carolina for the purpose of docketing and must be filled out completely.

DOCKETING INFORMATION (Check all that apply)

☐ **Emergency Relief demanded in petition** ☐ **Request for item to be placed on Commission's Agenda expeditiously**

☐ **Other:**

INDUSTRY (Check one)	NATURE OF ACTION (Check all that apply)		
☐ Electric	☐ Affidavit	☐ Letter	☐ Request
☐ Electric/Gas	☐ Agreement	☐ Memorandum	☐ Request for Certificatio
☐ Electric/Telecommunications	☐ Answer	☐ Motion	☐ Request for Investigatior
☐ Electric/Water	☐ Appellate Review	☐ Objection	☐ Resale Agreement
☐ Electric/Water/Telecom.	☐ Application	☐ Petition	☐ Resale Amendment
☐ Electric/Water/Sewer	☐ Brief	☐ Petition for Reconsideration	☐ Reservation Letter
☐ Gas	☐ Certificate	☐ Petition for Rulemaking	☐ Response
☐ Railroad	☐ Comments	☐ Petition for Rule to Show Cause	☐ Response to Discovery
☐ Sewer	☐ Complaint	☐ Petition to Intervene	☐ Return to Petition
☒ Telecommunications	☐ Consent Order	☐ Petition to Intervene Out of Time	☐ Stipulation
☐ Transportation	☐ Discovery	☒ Prefiled Testimony	☐ Subpoena
☐ Water	☐ Exhibit	☐ Promotion	☐ Tariff
☐ Water/Sewer	☐ Expedited Consideration	☐ Proposed Order	☐ Other:
☐ Administrative Matter	☐ Interconnection Agreement	☐ Protest	
☐ Other:	☐ Interconnection Amendment	☐ Publisher's Affidavit	
	☐ Late-Filed Exhibit	☐ Report	

BEFORE THE
PUBLIC SERVICE COMMISSION
OF SOUTH CAROLINA

In the Matter of the Application of Central Telecom Long Distance, Inc. for a Certificate of Public Convenience and Necessity to Provide Resold Interexchange Telecommunications Services Throughout The State of South Carolina and for Alternative Regulation	))))))))	Docket No. 2008-404-C

TESTIMONY OF DEBORAH BAKER
ON BEHALF OF
CENTRAL TELECOM LONG DISTANCE, INC.

Central Telecom Long Distance, Inc.
102 South Tejon Street, 11th Floor
Colorado Springs, CO 80903

Telephone: 719.471.2265
Facsimile: 719.471.2270

1 Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

2 A. My name is Deborah Baker, and my business address is 102 South Tejon Street, 11th

3 Floor, Colorado Springs, CO 80903.

4 Q. BY WHOM ARE YOU EMPLOYED?

5 A. I am employed by Central Telecom Long Distance, Inc. ("CTLD")

6 Q. WHAT IS YOUR POSITION WITH CTLD?

7 A. I serve as President of the Company.

8 Q. WHAT ARE YOUR JOB RESPONSIBILITIES?

9 As CTLD President, I am responsible for the entirety of the Company's operations,

10 profitability, strategic planning and implementation of strategic initiatives.

11 Q. COULD YOU PLEASE TELL US ABOUT YOUR BACKGROUND?

12 A. I have served as CTLD's President since its inception in December 2007. Prior to that

13 time, I served in a senior management capacity for other interexchange

14 telecommunications providers with a focus on marketing and operations. I also have

15 experience in managing large independent telemarketing service order verification

16 organization, where I was responsible for personnel, training, and service order

17 verification operations. I have extensive sales, marketing, and management experience,

18 been a small business owner, and provided professional management, operations, and

19 sales consulting to other telecommunications providers.

20 Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

21 A. The purpose of my testimony is to present evidence in support of CTLD's *Application for*

22 *Certificate of Public Convenience and Necessity to Provide Resold Interexchange*

23 *Telecommunications Services Throughout The State of South Carolina* by demonstrating

that CTLD has the ability to provide reliable competitive interexchange telecommunications services throughout the State of South Carolina, and by demonstrating why the granting of a Certificate of Public Convenience and Necessity to CTLD is in the public interest.

Q. IS CTLDAFFILIATED WITH ANY OTHER COMPANY?

A. CTLD is a privately-held company, not affiliated with any other company. CTLD does not maintain subsidiaries, nor is it a subsidiary of a parent company.

Q. HAS CTLD REGISTERED TO DO BUSINESS IN THE STATE OF SOUTH CAROLINA?

A. CTLD was issued a Certificate of Authority to transact business in the State of South Carolina on June 23, 2008. A copy of CTLD's Certificate of Authorization to transact business in the State of South Carolina has been included in CTLD's Application for Certificate of Public Convenience and Necessity under Exhibit B.

Q. WHAT IS THE NATURE OF CTLD'S OPERATIONS?

A. CTLD was organized under the laws of the State of Colorado on December 21, 2007. The Company proposes to offer competitive non-facilities-based interexchange telecommunications services, including intrastate, inter and intraLATA toll services. The Company's South Carolina intrastate operating expenses will be incremental in nature. Applicant does not plan to construct facilities nor will it incur additional debt to operate in South Carolina. The Company is profitable, has no accumulated debt, and is internally and fully funded.

1 Q. PLEASE DESCRIBE THE SERVICES CTLD PROPOSES TO OFFER?

2 A. As described above, CTLD proposes to offer a variety of competitive intrastate,
3 interLATA and intraLATA toll services, at rates and terms which are competitive with
4 other local exchange carriers. Specifically, CTLD proposes to provide non-facilities-
5 based switched access outbound "1 Plus" interexchange telecommunications services
6 under a variety of service plans, post-paid interexchange "travel" card service, and
7 alternative dialed interexchange service for the direct transmission and reception of voice
8 and data between locations throughout the State of South Carolina. Applicant does not
9 propose to offer alternative operator services to the transient public. CTLD's goal is to
10 provide customers with a comprehensive set of interexchange telecommunications
11 services at desirable rates, to meet customers' calling needs. When approved, Applicant
12 will provide telephone exchange services to residential and commercial customers in
13 South Carolina.. The specific competitive local and interexchange services CTLD
14 proposes to offer are more fully described in its proposed interexchange tariff, which
15 appears at Exhibit E of the Company's Application for Certificate of Public Convenience
16 and Necessity.

17 Q. WILL THE COMPANY TARGET A PARTICULAR MARKET?

18 A. CTLD proposes to offer intrastate interexchange services to residential and commercial
19 customers throughout the state of South Carolina.

20 Q. FROM WHOM DOES CTLD OBTAIN ITS LOCAL AND INTRASTATE LONG
21 DISTANCE SERVICES?

22 A. CTLD will obtain combined or "finished" switching, transport and access services from
23 certificated interexchange carriers to provide interexchange services, based on

1 competitive service pricing considerations. CTLD currently uses Global Crossing and
2 Qwest Corporation as its underlying carriers.
3 Q. DOES CTLD OWN ANY SWITCHING OR TRANSPORT FACILITES IN SOUTH
4 CAROLINA?
5 A. No. CTLD owns no switching equipment or transport facilities in South Carolina, nor
6 does it initially plan to purchase switching equipment of transport facilities in South
7 Carolina. CTLD will be relying on the technical network capabilities of its underlying
8 carrier(s) for all network and transport facilities in the provision of access and egress for
9 its local and interexchange services.
10 Q. PLEASE DESCRIBE THE COMPANY'S TROUBLE REPORTING PROCEDURES.
11 A. All service-related problems, including trouble reporting, may be directed to CTLD
12 customer service department via either of the Company's toll-free numbers,
13 888.988.9818, in writing to the Company's headquarters address or via e-mail addressed
14 to customerservice at centraltelecomlongdistance dot com. Immediately upon report of
15 local service trouble, CTLD will contact the designated service representative of the
16 underlying carrier providing the network service at issue to report the trouble and
17 ascertain the estimated time of repair. The underlying carrier will take corrective
18 procedures and will report the resolution of the trouble to CTLD. The Company will then
19 contact the customer to verify that the service has been restored.
20 Customer service representatives are available at 888.988.9818 Customer service
21 representatives are available twenty-four (24) hours per day, seven (7) days per week.
22

1 Q. HOW WILL THE COMPANY BILL ITS CUSTOMERS?

2 A. CTLD utilizes incumbent local exchange carrier billing through its billing service
3 provider, BSG. CTLD's name and a toll free telephone number appear on the monthly
4 bill.

5 Q. HOW FREQUENTLY WILL BILLS BE RENDERED TO CUSTOMERS?

6 A. Bills will be rendered on a monthly basis.

7 Q. HOW ARE BILLING DISPUTES RESOLVED?

8 A. CTLD's customer service department is available to resolve any disputes. Customers
9 may reach the Company's customer service staff via its toll-free telephone number,
10 888.988.9818, in writing to the Company's headquarters address or via e-mail addressed
11 to customerservice at centraltelecomlongdistance dot com. Customers may escalate the
12 dispute to the responsible Company manager, if necessary, and may, of course, seek
13 intervention by the Office of Regulatory Staff if necessary. CTLD's employees embrace
14 a strong customer service orientation that makes meeting customer needs an absolute
15 priority.

16 Q. HOW ARE RATE AND SERVICE INFORMATION REQUESTS PROCESSED?

17 A. CTLD's customer service representatives are prepared to respond to rate and service
18 information requests through whatever medium customers elect to communicate with the
19 Company. The Company advises prospective customers of the standard services fees and
20 surcharges that will apply during its telemarketing call. In addition, new subscribers are
21 informed of the applicability of standard industry fees and surcharges that apply to the
22 account in its service contract and accompanying welcome letter.

1 Q. HOW ARE OPERATOR-ASSISTED AND DIRECTORY ASSISTANCE CALLS
2 PROCESSED?
3 A. CTLD provides directory assistance through its underlying carrier as an ancillary service
4 exclusively to its customers of record. Directory Assistance is accessible by dialing "1",
5 the area code of the desired number and "555-1212." CTLD does not provide alternative
6 operator services to the transient public.
7 Q. PLEASE DESCRIBE CTLD'S PROPOSED SOUTH CAROLINA TARIFF.
8 A. CTLD's interexchange tariff establishes the rates, terms and conditions of the Company's
9 service offerings, including specific service requirements established by the Public
10 Service Commission of South Carolina. The Company believes that its services are
11 competitive with similarly-situated service providers.
12 Q. DESCRIBE CTLD'S ORGANIZATION?
13 A. I direct the company's operations and am assisted by a professional, technical,
14 operations, and sales staff, which are outsourced under established contractual
15 agreements. The professional staff is eminently qualified to support the Company's
16 telecommunications service offerings in each of their respective disciplines, through
17 years of experience in similar positions working with other interexchange
18 telecommunications service providers. We have determined that such outsourcing of key
19 functions under CTLD's strict supervisory control is not only cost effective, but
20 moreover, ensures the highest level of professional care possible for an emerging
21 provider.
22 Q. HOW DOES CTLD MARKET AND SELL ITS SERVICES?
23 A. CTLD plans to market its services through outsourced telemarketing. The Company's

telemarketing firm specializes in telecommunications sales, complies with Federal Trade Commission and Federal Communications Commission regulations and restrictions governing telemarketing, including use of current do-not-call registries. All telemarketing sales in independently verified, as set forth in Section 64.1120(b)(3) of the Federal Communications Commission's rules, 47 C.F.R. § 64.1120(b)(3). Applicant will not engage in multi-level marketing. CTLD oversees all telemarketing operations and assumes full responsibility for the actions of its telemarketing company. The company does not have a telemarketing script, but does have telemarketing guidelines with sample language within its training manual. Attached as **Exhibit 1** are Marketing Practices, Memorandum Re: Policy for Maintaining Do Not Call List, and the Company's Training Manual. Pages 39 through 49 of the Training Manual discuss verification methods used and sample telemarketing questions.

Q. DESCRIBE CTLD'S INDUSTRY EXPERIENCE?

A. Although CTLD was organized within the past year, my decades long telecommunications and management experience, coupled with that of its professional partners, enable the Company to operate effectively and responsibly, on its subscribers' behalf. CTLD's professional team maintain the necessary experience to effectively manage the Company's operations.

Q. DESCRIBE CTLD'S FINANCIAL ABILITY TO SERVE AS A RESALE PROVIDER OF TELECOMMUNICATIONS SERVICES IN SOUTH CAROLINA?

A. CTLD's financial statements have been submitted to the Commission with its application as Exhibit D. The Company's financial position demonstrates the Company's ability support its operations and serve the public in the State of South Carolina. The Company

1 is fully funded and requires no external funding. As a reseller of telecommunications
2 services, CTLD's liabilities to its underlying carriers are incurred upon the rendering of
3 service. CTLD does not plan to construct facilities, hire additional employees or open
4 offices in South Carolina or elsewhere. The Company will, therefore, require no
5 additional capitalization nor resource expenditure to expand its operations in South
6 Carolina.

7 Q. WHERE IS CTLD CURRENTLY AUTHORIZED TO PROVIDE SERVICE?

8 A. CTLD has been granted, authority to provide resold interexchange service in the states of:
9 Michigan, Iowa, and North Dakota. Applicant has applications pending in the States of
10 California, Iowa, Maine, Montana, North Dakota, New Jersey, North Carolina, New
11 York, Nevada, Oregon, South Dakota, Texas, Washington, Wisconsin, Utah, and
12 Vermont. In no instance has Applicant's application or authority been rejected.

13 Q. HOW WILL GRANTING CTLD'S CERTIFICATE AFFECT THE AVAILABILITY
14 OF AFFORDABLE LOCAL AND INTEREXCHANGE SERVICE?

15 A. By granting CTLD's certificate, the Commission will be fostering greater competition in
16 the interexchange telecommunications services market. With additional competition,
17 existing providers will strive to offer services at the lowest rates and most innovative
18 features possible to attract new customers and retain existing customer bases.

19 Q. HOW WILL SOUTH CAROLINA CONSUMERS BENEFIT FROM CTLD'S
20 SERVICES?

21 A. CTLD's proposed services will provide consumers with another option for competitive
22 interexchange services. Competition in the telecommunications marketplace inspires
23 innovation and development of services that meet customer needs cost effectively.

Customers will benefit from CTLD's innovative service offerings and billing options. Additionally, an increase in the traffic generated through the provision of the Company's proposed intrastate services over existing facilities will help improve the efficiency of those facilities and reduce the underlying carriers' costs in provisioning such services. And the State of South Carolina will realize an increase in tax revenue. I believe that CTLD will operate as the very type of responsible, solid interexchange carrier that the Commission wishes to enter the State of South Carolina.

Q. WHY IS THE COMPANY SEEKING EXEMPTIONS FROM REQUIREMENTS TO MAINTAIN RECORDS IN SOUTH CAROLINA AND FROM USOA ACCOUNTING REQUIREMENTS?

A. CTLD requests a waiver of the requirements of 26 S.C. Reg. 103-610 that require a carrier to keep all records required by the Commission's rules and regulations with the State of South Carolina. Since the company's corporate records are maintained in Colorado, and CTLD does not anticipate maintaining offices or personnel in South Carolina, it would create an additional expense and be unduly burdensome to maintain records in South Carolina. CTLD maintains a registered agent in South Carolina and will bear any costs associated with the Commission's inspection of our records and books at our headquarters. Further, records will be made available to the Commission and the Office of Regulatory Staff upon request, at no charge. The Commission and the Office of Regulatory Staff will not be inconvenienced, and the public will not be exposed to any risk through the grant of this waiver request. I understand that similar requests for waiver of R.103-610 are routinely granted by the Commission.

CTLD has also respectfully requested exemption from Commission requirements that might require CTLD to maintain its financial records in conformance with USOA. As a competitive carrier, CTLD maintains its books in accordance with Generally Accepted Accounting Practices ("GAAP"), and therefore, do not possess, nor is it required to maintain the detailed cost data required by USOA. Otherwise, maintaining books under GAAP and USOA would create a hardship to maintain a separate accounting systems.

Q. HAS CTLD REQUESTED MODIFIED ALTERNATIVE REGULATION OF ITS LONG DISTANCE BUSINESS SERVICES, CONSUMER CARD AND OPERATOR SERVICE OFFERINGS?

A. Yes. Since CTLD will operate as a non-dominant, competitive provider of interexchange services, the Company has requested that its long distance business, consumer card and any future operator service offerings to subscribers of record be regulated pursuant to the procedures described in Order Nos. 95-1734 and 96-55 in Docket No. 95-661-C, as modified by Order No. 2001-997 in Docket No. 2000-407-C. Because of both the level of competition found by the Commission in Docket No. 95-661-C and the Commission's decision to permit AT&T greater rate flexibility, CTLD submits that it is critical to the continued development of a competitive market for telecommunications services that the Commission apply the alternative regulation described in Order Nos. 95-1734 and 96-55 to Applicant's service offerings. Further, CTLD has requested that the Commission: a) remove the maximum rate tariff requirements for these service offerings; b) presume that CTLD's tariff filings for these services will be valid upon filing unless an investigation of a particular filing is instituted within seven (7) days, in which case the tariff filing will be

1 suspended until further order of the Commission; and c) grant CTLD the same treatment
2 as similarly situated carriers in connection with any future relaxation of the
3 Commission's reporting requirements.

4 Q. WILL THE COMPANY SUPPORT UNIVERSAL SERVICE AS REQUIRED?

5 A. Yes, the Company avers to support South Carolina's Universal Service Fund as required.

6 Q. DOES THAT CONCLUDE YOUR TESTIMONY?

7 A. Yes, it does.

EXHIBIT 1

BEFORE THE
PUBLIC SERVICE COMMISSION
OF SOUTH CAROLINA

In the Matter of the Application of Central Telecom Long Distance, Inc. for a Certificate of Public Convenience and Necessity to Provide Resold Interexchange Telecommunications Services Throughout The State of South Carolina and for Alternative Regulation	))))))))	Docket No. 2008-404-C

CENTRAL TELECOM LONG DISTANCE, INC.

EXHIBIT 1

OF THE TESTIMONY OF DEBORAH BAKER

Marketing Practices
Memorandum Re: Policy for Maintaining Do Not Call List
Training Manual

Marketing Practices for Central Telecom Long Distance, Inc.

All marketing practices must be strictly followed within the following guidelines. Failure to follow these marketing practices will result in the immediate termination of employment.

- You ***cannot*** represent, infer or imply that "Central Telecom" is affiliated in any way with the customer's local or long distance phone company.
- You ***cannot*** represent "Central Telecom" as an agent or program of the customer's local or long distance phone company.
- You ***cannot*** tell a customer that the rates are automatic, mandatory or approved by any governmental agency.
- You ***cannot*** be aggressive, rude, harass or use foul language to a customer.
- You ***cannot*** hang up on a customer without allowing them the courtesy of asking to be placed on the company "do not call list".
- For any customer that asks to be placed on our "do not call list", ***the representative must fill out a "remove from calling list card" and terminate the call with the correct key.***
- You ***must*** confirm to potential customers declining the service that their current long distance phone service will not be changed.

Slamming

The term "slamming" is used to describe the practice of changing a consumer's utility service without their permission. Central Telecom is only interested in obtaining customers who knowingly agree to change service to the company. Therefore, you must adhere to the following:

- When calling potential customers, you ***must*** first state your name, state that you are calling form or on behalf of "Central Telecom", and ***must*** tell the potential customer that you are calling to solicit a change to "Central Telecom" as their long distance provider.
- You ***must*** make sure you are talking to an authorized decision-maker.
- You ***must*** fully and accurately inform the potential customer of the calling plan rate and fees.
- You ***must*** obtain the customer's verbal agreement to change long distance service to "Central Telecom".
- You ***must*** advise the customer that their local phone company may charge a switching fee.
- You ***cannot*** transfer anyone to verification that has not already agreed to switch to "Central Telecom" as his or her long distance phone service provider.
- You ***cannot*** sell "Central Telecom" to anybody that cannot speak English or who cannot hear clearly or fully understand what you are saying.

The undersigned had read the foregoing and agrees to fully adhere to the same.

_____
Print Name

_____ _____
Signature Date

CENTRAL TELECOM LONG DISTANCE,INC.

102 S. Tejon Street Suite 1100
Colorado Springs, CO 80903

MEMORANDUM RE: POLICY FOR MAINTAINING DO NOT CALL LIST

TO:	**ALL EMPLOYEES AND AGENTS OF CENTRAL TELECOM LONG DISTANCE, INC.**
EFFECTIVE DATE:	**IMMEDIATELY**
SUBJECT:	**POLICY ON MAINTAINING DO NOT CALL LIST**

Prefatory Statement:

It is extremely important to Central Telecom Long Distance, Inc. that no telephone solicitations be made by or on behalf of the Company to any persons who do not wish to receive telephone solicitations. In furtherance of this policy, Central Telecom Long Distance, Inc. maintains a Do Not Call List. This list maintained by Central Telecom Long Distance Inc. identifies the person's name and telephone number. Once a request is made by a person to be placed on the Do Not Call List, the person is immediately placed on this list and no telephone solicitations will be initiated by or on behalf of Central Telecom Long Distance to the requesting party.

Specific Sales Procedure:

If any person requests to be removed from the call list, or asks to be put on a Do Not Call List, the sales representative must immediately:

1. Write out the customer's name and telephone number on a "Do Not Call" slip;

2. Terminate the call using the icon on the screen that states "remove from list." The correct disposition of the call using the correct icon will automatically place the person on the Do Not Call List maintained in the Company computer.

3. Sales Managers are responsible at the end of each day to collect all completed "Do Not Call" slips and all of this information is then manually entered in the Company's computer system as a double-check safeguard.

Provide A Copy of this Policy upon Request:

In the event any person or entity requests a copy of the written policy of Central Telecom Long Distance for maintaining a Do Not Call List, a copy of this policy is to be immediately sent to the requesting party, either by way of mail or fax, at the option of the requesting party.

_____ _____

Date Signature

CENTRAL TELECOM LONG DISTANCE, INC.

Training Manual

Who is Central Telecom Long Distance, Inc.?

Central Telecom Long Distance, Inc. (Central Telecom) is a switchless reseller of long distance service. As a switchless reseller, Central Telecom does not own any of its own lines, or (switching) equipment. Instead, Central Telecom Long Distance, Inc. uses the lines and switching equipment of the underlying carrier(s). Central Telecom Long Distance, Inc. can either directly bill the customer or have the charges for its services billed on the customers local phone bill.

Calling Plan Summary:

- *Competitive flat minute rate on all "State to State" domestic calls, 24 hours a day 7 days a week.*
- *Low monthly service fee.*
- *Convenient local phone company billing.*
- *Competitive "In State and International" rates.*
- *Dial around and travel card services.*

Introduction to the Telephone Industry

A telephone is an instrument that sends and receives voice messages and data. Telephones convert speech and data to electrical energy, which may be sent great distances. All telephones are linked by complex switching systems called central offices or exchanges, which establish the pathway for information to travel. Telephones are used for casual conversations, to conduct business, and to summon help in an emergency (as in the 911 service in the United States). The telephone has other uses that do not involve one person talking to another, including paying bills (the caller uses the telephone to communicate with a bank's distant computer) and retrieving messages from an answering machine. In 1998 there were 661 main telephone lines per 1,000 people in the United States and 634 main telephone lines per 1,000 people in Canada.

About half of the information passing through telephone lines occurs entirely between special-purpose telephones, such as computers with modems. A modem converts the digital bits of a computer's output to an audio tone, which is then converted to an electrical signal and passed over telephone lines to be decoded by a modem attached to a computer at the receiving end. Another special-purpose telephone is a facsimile machine, or fax machine, which produces a duplicate of a document at a distant point.

Parts of a Telephone

A basic telephone set contains a transmitter that transfers the caller's voice; a receiver that amplifies sound from an incoming call; a rotary or push-button dial; a ringer or alerter; and a small assembly of electrical parts, called the antisidetone network, that keeps the caller's voice from sounding too loud through the receiver. If it is a two-piece telephone set, the transmitter and receiver are mounted in the handset, the ringer is typically in the base, and the dial may be in either the base or handset. The handset cord connects the base to the handset, and the line cord connects the telephone to the telephone line.

More sophisticated telephones may vary from this pattern. A speakerphone has a microphone and speaker in the base in addition to the transmitter and receiver in the handset. Speakerphones allow callers' hands to be free, and allow more than two people to listen and speak during a call. In a cordless phone, the handset cord is replaced by a radio link between the handset and base, but a line cord is still used. This allows a caller to move about in a limited area while on the telephone. A cellular phone has extremely miniaturized components that make it possible to combine the base and handset into one handheld unit. No line or handset cords are needed with a cellular phone. A cellular phone permits more mobility than a cordless phone.

A. Transmitter

There are two common kinds of telephone transmitters: the carbon transmitter and the electret transmitter. The carbon transmitter is constructed by placing carbon granules between metal plates called electrodes. One of the metal plates is a thin diaphragm that takes variations in pressure caused by sound waves and transmits these variations to the carbon granules. The electrodes conduct electricity that flows through the carbon. Variations in pressure caused by sound waves hitting the diaphragm cause the electrical resistance of the carbon to vary—when the grains are squeezed together, they conduct electricity more easily; and when they are far apart, they conduct electricity less efficiently. The resultant current varies with the sound-wave pressure applied to the transmitter.

The electret transmitter is composed of a thin disk of metal-coated plastic and a thicker, hollow metal disk. In the handset, the plastic disk is held slightly above most of the metal disk. The plastic disk is electrically charged, and an electric field is created in the space where the disks do not touch. Sound waves from the caller's voice cause the plastic disk to vibrate, which changes the distance between the disks, and so changes the intensity of the electric field between them. The variations in the electric field are translated into variations of electric current, which travels across telephone lines. An amplifier using transistors is needed with an electret transmitter to obtain sufficiently strong variations of electric current.

B. Receiver

The receiver of a telephone set is made from a flat ring of magnetic material with a short cuff of the same material attached to the ring's outer rim. Underneath the magnetic ring and inside the magnetic cuff is a coil of wire through which electric current, representing the sounds from the distant telephone, flows. A thin diaphragm of magnetic material is suspended from the inside edges of the magnetic ring so it is positioned between the magnet and the coil. The magnetic field created by the magnet changes with the current in the coil and makes the diaphragm vibrate. The vibrating diaphragm creates sound waves that replicate the sounds that were transformed into electricity by the other person's transmitter.

C. Alerter

The alerter in a telephone is usually called the ringer, because for most of the telephone's history, a bell was used to indicate a call. The alerter responds only to a special frequency of electricity that is sent by the exchange in response to the request for that telephone number. Creating an electronic replacement for the bell that can provide a pleasing yet attention-getting sound at a reasonable cost was a surprisingly difficult task. For many people, the sound of a bell is still preferable to the sound of an electronic alerter. However, since a mechanical bell requires a certain amount of space in the telephone to be effective, smaller telephones mandate the use of electronic alerters.

D. Dial

The telephone dial has undergone major changes in its history. Two forms of dialing still exist within the telephone system: dial pulse from a rotary dial, and multifrequency tone, which is commonly called by its original trade name of Touch-Tone, from a push-button dial.

In a rotary dial, the numerals one to nine, followed by zero, are placed in a circle behind round holes in a movable plate. The user places a finger in the hole corresponding to the desired digit and rotates the movable plate clockwise until the user's finger hits the finger stop; then the user removes the finger. A spring mechanism causes the plate to return to its starting position, and, while the plate is turning, the mechanism opens an electrical switch the number of times equal to the dial digit. Zero receives ten switch openings since it is the last digit on the dial. The result is a number of "dial pulses" in the electrical current flowing between the telephone set and the exchange. Equipment at the exchange counts these pulses to determine the number being called.

The rotary dial has been used since the1920s. But mechanical dials are expensive to repair and the rotary-dialing process itself is slow, especially if a long string of digits is dialed. The development of inexpensive and reliable amplification provided by the introduction of the transistor in the 1960s made practical the design of a dialing system based on the transmission of relatively low power tones instead of the higher-power dial pulses.

Today most telephones have push buttons instead of a rotary dial. Touch -Tone is an optional service, and telephone companies still maintain the ability to receive pulse dialing. Push-button telephones usually have a switch on the base that the customer can set to determine whether the telephone will send pulses or tones.

E. Business Telephones

A large business will usually have its own switching machine called a Private Branch Exchange (PBX), with hundreds or possibly thousands of lines, all of which can be reached by dialing one number. The extension telephones connected to the large business's PBX are often identical to the simple single-line instruments used in residences. The telephones used by small businesses, which do not have their own PBX, must incorporate the capability of accessing several telephone lines and are called multiline sets. The small-business environment usually requires the capability of transferring calls from one set to another as well as intercom calls, which allow one employee to call another without using an outside telephone line.

F. Cellular Telephones

A cellular telephone is designed to give the user maximum freedom of movement while using a telephone. A cellular telephone uses radio signals to communicate between the set and an antenna. The served area is divided into cells something like a honeycomb, and an antenna is placed within each cell and connected by telephone lines to one exchange devoted to cellular-telephone calls. This exchange connects cellular telephones to one another or transfers the call to a regular exchange if the call is between a cellular telephone and a noncellular telephone. The special cellular exchange, through computer control, selects the antenna closest to the telephone when service is requested. As the telephone roams, the exchange automatically determines when to change the serving cell based on the power of the radio signal received simultaneously at adjacent sites. This change occurs without interrupting conversation. Practical power considerations limit the distance between the telephone and the nearest cellular antenna, and since cellular phones use radio signals, it is very easy for unauthorized people to access communications carried out over cellular phones. Currently, digital cellular phones are gaining in

popularity because the radio signals are harder to intercept and decode.

Making a Telephone Call

A telephone call starts when the caller lifts a handset off the base. This closes an electrical switch that initiates the flow of a steady electric current over the line between the user's location and the exchange. The exchange detects the current and returns a dial tone, a precise combination of two notes that lets a caller know the line is ready.

Once the dial tone is heard, the caller uses a rotary or push-button dial mounted either on the handset or base to enter a sequence of digits, the telephone number of the called party. The switching equipment in the exchange removes the dial tone from the line after the first digit is received and, after receiving the last digit, determines whether the called party is in the same exchange or a different exchange. If the called party is in the same exchange, bursts of ringing current are applied to the called party's line. Each telephone contains a ringer that responds to a specific electric frequency. When the called party answers the telephone by picking up the handset, steady current starts to flow in the called party's line and is detected by the exchange. The exchange then stops applying ringing and sets up a connection between the caller and the called party.

If the called party is in a different exchange from the caller, the caller's exchange sets up a connection over the telephone network to the called party's exchange. The called exchange then handles the process of ringing, detecting an answer, and notifying the calling exchange and billing machinery when the call is completed (in telephone terminology, a call is completed when the called party answers, not when the conversation is over).

When the conversation is over, one or both parties hang up by replacing their handset on the base, stopping the flow of current. The exchange then initiates the process of taking down the connection, including notifying billing equipment of the duration

of the call if appropriate. Billing equipment may or may not be involved because calls within the local calling area, which includes several nearby exchanges, may be either flat rate or message rate. In flat-rate service, the subscriber is allowed an unlimited number of calls for a fixed fee each month. For message-rate subscribers, each call involves a charge that depends on the distance between the calling and called parties and the duration of the call. A long-distance call is a call out of the local calling area and is always billed as a message-rate call.

A. Switching

Telephone switching equipment interprets the number dialed and then completes a path through the network to the called subscriber. For long-distance calls with complicated paths through the network, several levels of switching equipment may be needed. The automatic exchange to which the subscriber's telephone is connected is the lowest level of switching equipment and is called by various names, including local exchange, local office, central-office switch, or, simply, switch. Higher levels of switching equipment include tandem and toll switches, and are not needed when both caller and called subscribers are within the same local exchange.

Before automatic exchanges were invented, all calls were placed through manual exchanges in which a small light on a switchboard alerted an operator that a subscriber wanted service. The operator inserted an insulated electrical cable into a jack corresponding to the subscriber requesting service. This allowed the operator and the subscriber to converse. The caller told the operator the called party's name, and the operator used another cord adjacent to the first to plug into the called party's jack and then operated a key (another type of electrical switch) that connected ringing current to the called party's telephone. The operator listened for the called party to answer, and then disconnected to ensure the privacy of the call.

Today there are no telephones served by manual exchanges in the United States. All telephone subscribers are served by automatic exchanges, which perform the functions of the human operator. The number being dialed is stored and then passed to the exchange's central computer, which in turn operates the switch to complete the call or routes it to a higher-level switch for further processing.

Today's automatic exchanges use a pair of computers, one running the program that provides service, and the second monitoring the operation of the first, ready to take over in a few seconds in the event of an equipment failure.

Early telephone exchanges, a grouping of 10,000 individual subscriber numbers, were originally given names corresponding to their town or location within a city, such as Murray Hill or Market. When the dialing area grew to cover more than one exchange, there was a need for the dial to transmit letters as well as numbers. This problem was solved by equating three letters to each digit on the dial except for the one and the zero. Each number from two to nine represented three letters, so there was room for only 24 letters. Q and Z were left off the dial because these letters rarely appear in place-names. In dialing, the first two letters of each exchange name were used ahead of the rest of the subscriber's number, and all exchange names were standardized as two letters and a digit. Eventually the place-names were replaced with their equivalent digits, giving us our current U.S. and Canadian seven-digit telephone numbers. In other parts of the world, a number may consist of more or less than seven digits.

The greatly expanded information-processing capability of modern computers permits Direct Distance Dialing, with which a subscriber can automatically place a call to a distant city without needing the services of a human operator to determine the appropriate routing path through the network. Computers in the switching machines used for long-distance calls store the routing information in their electronic memory. A toll-switching machine may store several different possible routes for a call. As telephone traffic becomes heavier during the day, some routes may become unavailable. The toll switch will then select a less direct alternate route to permit the completion of the call.

B. Transmission

Calling from New York City to Hong Kong involves using a path that transmits electrical energy halfway around the world. During the conversation, it is the task of the transmission system to deliver that energy so that the speech or data is transmitted clearly and free from noise. Since the telephone in New York City does not know whether it is connected to a telephone next door or to one in Hong Kong, the amount of energy put on the line is not different in either case. However, it requires much more energy to converse with Hong Kong than with next door because energy is lost in the transmission. The transmission path must provide amplification of the signal as well as transport.

Analog transmission, in which speech or data is converted directly into a varying electrical current, is suitable for local calls. But once the call involves any significant distance, the necessary amplification of the analog signal can add so much noise that the received signal becomes unintelligible. For long-distance calls, the signal is digitized, or converted to a series of pulses that encodes the information.

When an analog electrical signal is digitized, samples of the signal's strength are taken at regular intervals, usually about8000 samples per second. Each sample is converted into a binary form, a number made up of a series of 1s and 0s. This number is easily and swiftly passed through the switching system. Digital transmission systems are much less subject to interfering noise than are analog systems. The digitized signal can then be passed through a digital-to-analog converter (DAC) at a point close to the receiving party, and converted to a form that the ear cannot distinguish from the original signal.

There are several ways a digital or analog signal may be transmitted, including coaxial and fiber-optic cables and microwave and

longwave radio signals sent along the ground or bounced off satellites in orbit around the earth. A coaxial wire, like the wire between a videocassette recorder, or VCR (see Video Recording), and a television set, is an efficient transmission system. A coaxial wire has a conducting tube surrounding another conductor. A coaxial cable contains several coaxial wires in a common outer covering. The important benefit of a coaxial cable over a cable composed of simple wires is that the coaxial cable is more efficient at carrying very high frequency currents.

This is important because in providing transmission over long distances, many telephone conversations are combined using frequency-modulation (FM) techniques similar to the combining of many channels in the television system. The combined signal containing hundreds of individual telephone conversations is sent over one pair of wires in a coaxial cable, so the signal has to be very clear.

Coaxial cable is expensive to install and maintain, especially when it is lying on the ocean floor. Two methods exist for controlling this expense. The first consists of increasing the capacity of the cable and so spreading the expense over more users. The installation of the first transatlantic submarine coaxial telephone cable in 1956 provided only about 30 channels, but the number of submarine cable channels across the ocean has grown to thousands with the addition of only a few more cables because of the greatly expanded capacity of each new coaxial cable.

Another telephone-transmission method uses fiber-optic cable, which is made of bundles of optical fibers (see Fiber Optics), long strands of specially made glass encased in a protective coating. Optical fibers transmit energy in the form of light pulses. The technology is similar to that of the coaxial cable, except that the optical fibers can handle tens of thousands of conversations simultaneously.

Another approach to long-distance transmission is the use of radio. Before coaxial cables were invented, very powerful longwave (low frequency) radio stations were used for intercontinental calls. Only a

few calls could be in progress at one time, however, and such calls were very expensive. Microwave radio uses very high frequency radio waves and has the ability to handle a large number of simultaneous conversations over the same microwave link. Because cable does not have to be installed between microwave towers, this system is usually cheaper than coaxial cable. On land, the coaxial-cable systems are often supplemented with microwave-radio systems.

The technology of microwave radio is carried one step further by the use of communications satellites. Most communications satellites are in geosynchronous orbit—that is, they orbit the earth once a day over the equator, so the satellite is always above the same place on the earth's surface. That way, only a single satellite is needed for continuous service between two points on the surface, provided both points can be seen from the satellite. Even considering the expense of a satellite, this method is cheaper to install and maintain per channel than using coaxial cables on the ocean floor. Consequently, satellite links are used regularly in long-distance calling. Since radio waves, while very fast, take time to travel from one point to another, satellite communication does have one serious shortcoming: Because of the satellite's distance from the earth, there is a noticeable lag in conversational responses. As a result, many calls use a satellite for only one direction of transmission, such as from the caller to the receiver, and use a ground microwave or coaxial link for receiver-to-caller transmission.

A combination of microwave, coaxial-cable, optical-fiber, and satellite paths now link the major cities of the world. The capacity of each type of system depends on its age and the territory covered, but capacities generally fall into the following ranges: Frequency modulation over a simple pair of wires like the earliest telephone lines yields tens of circuits (a circuit can transmit one telephone conversation) per pair; coaxial cable yields hundreds of circuits per pair of conductors, and thousands per cable; microwave and satellite transmissions yield thousands of circuits per link; and optical fiber has the potential for tens of thousands of circuits per fiber.

Telephone Services

In the United States and Canada, universal service was a stated goal of the telephone industry during the first half of the 20th century—every household was to have its own telephone. This goal has now been essentially reached, but before it became a reality, the only access many people had to the telephone was through pay (or public) telephones, usually placed in a neighborhood store. A pay telephone is a telephone that may have special hardware to count and safeguard coins or, more recently, to read the information off credit cards or calling cards. Additional equipment at the exchange responds to signals from the pay phone to indicate to the operator or automatic exchange how much money has been deposited or to which account the call will be charged. Today the pay phone still exists, but it usually serves as a convenience rather than as primary access to the telephone network.

Computer-controlled exchange switches make it possible to offer a variety of extra services to both the residential and the business customer. Some services to which users may subscribe at extra cost are call waiting, in which a second incoming call, instead of receiving a busy signal, hears normal ringing while the subscriber hears a beep superimposed on the conversation in progress; and three-way calling, in which a second outgoing call may be placed while one is already in progress so that three subscribers can then talk to each other. Some services available to users within exchanges with the most-modern transmission systems are: caller ID, in which the calling party's number is displayed to the receiver (with the calling party's permission—subscribers can elect to make their telephone number hidden from caller-ID services) on special equipment before the call is answered; and repeat dialing, in which a called number, if busy, will be automatically redialed for a certain amount of time.

For residential service, voice mail can either be purchased from the telephone company or can be obtained by purchasing an answering machine. An answering machine usually contains a regular telephone set along with the ability to detect incoming calls and to record and play back messages, with either an audiotape or a digital system. After a preset number of rings, the answering machine plays a prerecorded message inviting the caller to leave a

message to be recorded.

Toll-free 800 numbers are a very popular service. Calls made to a telephone number that has an 800 area code are billed to the called party rather than to the caller. This is very useful to any business that uses mail-order sales, because it encourages potential customers to call to place orders. A less expensive form of 800-number service is now available for residential subscribers. Because of the popularity of 800 numbers, the area code 888,877 and 866 have been added to the toll-free group.

In calling telephone numbers with area codes of 900, the caller is billed an extra charge, often on a per-minute basis. The use of these numbers has ranged from collecting contributions for charitable organizations, to businesses that provide information for which the caller must pay.

While the United States and Canada are the most advanced countries in the world in telephone-service technologies, most other industrialized nations are not far behind. An organization based in Geneva, Switzerland, called the International Telecommunication Union (ITU), works to standardize telephone service throughout the world. Without its coordinating activities, International Direct Distance Dialing (a service that provides the ability to place international calls without the assistance of an operator) would have been extremely difficult to implement. Among its other services, the ITU creates an environment in which a special service introduced in one country can be quickly duplicated elsewhere.

The History of the Telephone

The history of the invention of the telephone is a stormy one. A number of inventors believed voice signal might be carried over wires, and all worked toward this end. The first to achieve success was a Scottish-born American inventor, Alexander Graham Bell, a speech teacher in Boston, Massachusetts.

Bell had built an experimental telegraph, which began to function strangely one day because a part had come loose. The accident gave Bell insight into how voices could be reproduced at a distance, and he constructed a transmitter and a receiver, for which he received a patent on March 7, 1876. On March 10, 1876, as he and his assistant, Thomas A. Watson, were preparing to test the mechanism, Bell spilled some acid on himself. In another room, Watson, next to the receiver, heard clearly the first telephone message: "Mr. Watson, come here; I want you."

A few hours after Bell had patented his invention, another American inventor, Elisha Gray, filed a document called a caveat with the U.S. Patent Office, announcing that he was well on his way to inventing a telephone. Other inventors, such as Amos E. Dolbear, also made claim to having invented the telephone at the same time. Various individuals filed lawsuits, and Bell's claim to being the inventor of the first telephone had to be defended in court 600 times before the Supreme Court of the United States decided in his favor.

A. Advances in Technology

After the invention of the telephone instrument itself, the second greatest technological advance in the industry may have been the invention of automatic switching. The first automatic exchanges were called Strowger switches, after Almon Brown Strowger, an undertaker in Kansas City, Missouri, who invented the system because he thought his town's human operators were steering prospective

business to his competitors. Strowger received a patent for the switches in 1891.

Long-distance telephony was established in small steps. The first step was the introduction of the long-distance telephone, originally a special highly efficient instrument permanently installed in a telephone company building and used for calling between cities. The invention at the end of the 19th century of the loading coil (a coil of copper wire wound on an iron core and connected to the cable every mile or so) increased the speaking range to approximately 1000 miles. Until the 1910s the long-distance service used repeaters, electromechanical devices spaced along the route of the call which amplified and repeated conversations into another long-distance instrument. The obvious shortcomings of this arrangement were overcome with the invention of the triode vacuum tube, which amplified electrical signals. In 1915 vacuum-tube repeaters were used to initiate service from New York City to San Francisco, California.

The vacuum tube also made possible the development of longwave radio circuits that could span oceans. Sound quality on early radio circuits was poor, and transmission subject to unpredictable interruption. In the1950s the technology of the coaxial-cable system was combined with high-reliability vacuum-tube circuits in an undersea cable linking North America and Europe, greatly improving transmission quality. Unlike the first transatlantic telegraph cable placed in service in 1857, which failed after two months, the first telephone cable (laid in1956) served many years before becoming obsolete. The application of digital techniques to transmission, along with undersea cable and satellites, finally made it possible to link points halfway around the earth with a circuit that had speech quality almost as good as that between next-door neighbors.

Improved automatic-switching systems followed the gradual improvement in transmission technology. Until Direct Distance Dialing became available, all long-distance calls still required the assistance of an operator to complete. By adding a three-digit area code in front of the subscriber's old number and developing more sophisticated

common-control-switching machines, it became possible for subscribers to complete their own long-distance calls. Today customer-controlled international dialing is available between many countries.

B. Evolution of the Telephone Industry

In the late 1800s, the Bell Telephone Company (established in 1877 by Alexander Graham Bell and financial backers Gardiner Greene Hubbard, a lawyer, and Thomas Sanders, a leather merchant) strongly defended its patents in order to exclude others from the telephone business. After these patents expired in 1893 and 1894, independent telephone companies were started in many cities and most small towns. A period of consolidation followed in the early 1900s, and eventually about 80 percent of the customers in the United States and many of those in Canada were served by the American Telephone and Telegraph Company (AT&T), which had bought the Bell Telephone Company in1900. AT&T sold off its Canadian interests in 1908.

From 1885 to 1887 and from 1907 to 1919 AT&T was headed by Theodore Vail, whose vision shaped the industry for most of the 20th century. At that time, AT&T included 22 regional operating companies, each providing telephone service to an area comprising a large city, state, or group of states. In addition to owning virtually all of the long-distance circuits in use in the United States, AT&T owned the Western Electric Company, which manufactured most of the equipment. Such a corporate combination is called a vertically integrated monopoly because it dominates all facets of a business.

Both the long-distance part of AT&T and the operating companies were considered to be "natural monopolies," and by law were decreed to be the sole provider of telephone service within a designated area. More than 5000 independent companies remained, but each independent was also a monopoly with an exclusive service region. This arrangement reduced the costs

associated with more than one company stringing wires in an area, and eliminated the early problems that had arisen when customers of one company serving a region wished to call customers of another company serving the same area. In exchange for the absence of competition, the companies were regulated by various levels of government, which told them what services they must provide and what prices they could charge.

During this time, telephone sets were never sold to the customer—they were leased as part of an overall service package that included the telephone, the connecting lines to the exchange, and the capability of calling other customers. In this way, the telephone company was responsible for any problems, whether they arose from equipment failures, damage to exposed wires, or even the conduct of operators on their job. If a telephone set broke, it was fixed or replaced at no charge.

Since stringing wires between exchanges and users was a major part of the cost of providing telephone service, especially in rural environments, early residential subscribers often shared the same line. These were called party lines—as opposed to private, or single-party, lines. When one subscriber on a party line was making a telephone call, the other parties on the line could not use the line. Unfortunately, they could listen to the conversation, thereby compromising its privacy. Such arrangements also meant that, unless special equipment was used, all the telephones on the line would ring whenever there was a call for any of the parties. Each party had a distinct combination of short and long rings to indicate whether the call was for that house or another party.

Business telephones were usually private lines. A business could not afford to have its service blocked by another user. This meant that business service was more expensive than residential service. Businesses continued to be charged more for their private lines than were subscribers with private lines in homes. This subsidization of telephones in homes permeated the government-regulated rate structure of the telephone industry until about 1980. Long-distance service was priced artificially high, and the consequent extra revenues to the telephone company were used to keep the price of residential service artificially low.

While most consumers were happy with the control of all equipment by the telephone companies, some were not. Also, because of strong vertical integration within AT&T, the purchase of equipment from independent manufacturers was tightly controlled. AT&T initially refused to allow the independently manufactured Carterphone, a device that linked two-way-radio equipment to a telephone, to be connected to its network. After protracted lawsuits, AT&T agreed in 1968 to allow the connection of independently manufactured telephones to its network, provided they met legal standards set by the Federal Communications Commission(FCC). While the AT&T agreement did not directly involve the other telephone companies in the country, over time the entire industry followed AT&T's lead.

In 1974 MCI Communications Corporation challenged AT&T about its right to maintain a monopoly over long-distance service. Antitrust proceedings were brought, and eventually settled in 1982 in a consent decree that brought about the breakup of AT&T. In a consent decree, the federal government agrees to stop proceedings against a company in return for restrictions on or changes in the company.

The antitrust proceedings were dropped when AT&T agreed to sell off its local operating companies, retaining the long-distance network and manufacturing companies. The former AT&T operating companies were regrouped into seven Regional Holding Companies (RHCs), which were initially restricted from engaging in any business other than telephone service within their assigned service area. The RHCs promptly began sidestepping these restrictions by setting up subsidiaries to operate in the unregulated environment and seeking legislation to further remove restrictions. At the same time, alternate long-distance carriers, such as MCI and Sprint, sought legislation to keep AT&T under as much regulation as possible while freeing themselves from any regulation.

C. The Telephone Industry Today

In 1996 the U.S. government enacted the Telecommunications Reform Act, which removed government rules preventing local and long-distance phone companies, cable television operators, broadcasters, and wireless services from directly competing with one another. The act spurred consolidation in the industry, as regional companies joined forces to create telecommunications giants that provided telephone, wireless, cable, and Internet services.

In other countries, until the 1990s, most of the telephone companies were owned by each nation's central government and operated as part of the post office, an arrangement that inevitably led to tight control. Many countries are now privatizing telephone service. In order to escape government regulation at home, U.S. companies are investing heavily in the phone systems of other countries. For example, in 1995 AT&T announced it would attempt to gain a share of the market for telephone services in India. In a reverse trend, European companies are investing in U.S. long-distance carriers.

Other major markets for telephone companies are opening up around the globe as the developing world becomes more technologically advanced. Nonindustrial countries are now trying to leapfrog their development by encouraging private companies to install only the latest technology. In remote places in India and Africa, the use of solar cells is now making it possible to introduce telephones in areas still without electricity.

Recent Developments

The introduction of radio into the telephone set has been the most important recent development in telephone technology, permitting first the cordless phone and now the cellular phone. In addition to regular telephone service, modern cellular phones also provide wireless Internet connections, enabling users to send and receive electronic mail and search the World Wide Web.

Answering machines and phones with dials that remember several stored numbers (repertory dials) have been available for decades, but because of their expense and unreliability were never as popular as they are today. Multifunctional telephones that use microprocessors and integrated circuits have overcome both these barriers to make repertory dials a standard feature in most phones sold today. Many multifunctional telephones also include automatic answering and message-recording capability.

Videophones, telephones that transmit a picture of the talking parties as well as their voices, have long been a favorite topic of science fiction and are now on the verge of commercial practicality. Since the transmission of a picture requires much more bandwidth (a measure of the amount of material a system can transmit per period of time) than the transmission of voice, the high cost of transmission facilities has limited the introduction of video telephone service. This problem is slowly being overcome by technologies that compress the video information, and by the steadily declining cost of transmission and video-terminal equipment. Video service is now used to hold business"teleconferences" between groups in distant cities using specially ordered high-capacity transmission paths with wide bandwidth. Videophones suitable for conversations between individuals over the normal network are commercially available, but because they provide a picture inferior to that of a television set, have not proven very popular.

Telecommunications companies are rapidly expanding their use of digital technology, such as Digital Subscriber Line (DSL) or Integrated Services Digital Network (ISDN), to allow users to get more information faster over the telephone. Telecommunications are also investing heavily in fiber optic cable to meet the ever-increasing demand for increased bandwidth.

As bandwidth continues to improve, an instrument that functions as a telephone, computer, and television becomes more commercially viable. Such a device is now available, but its cost will likely limit its widespread use in the early part of the 21st century.

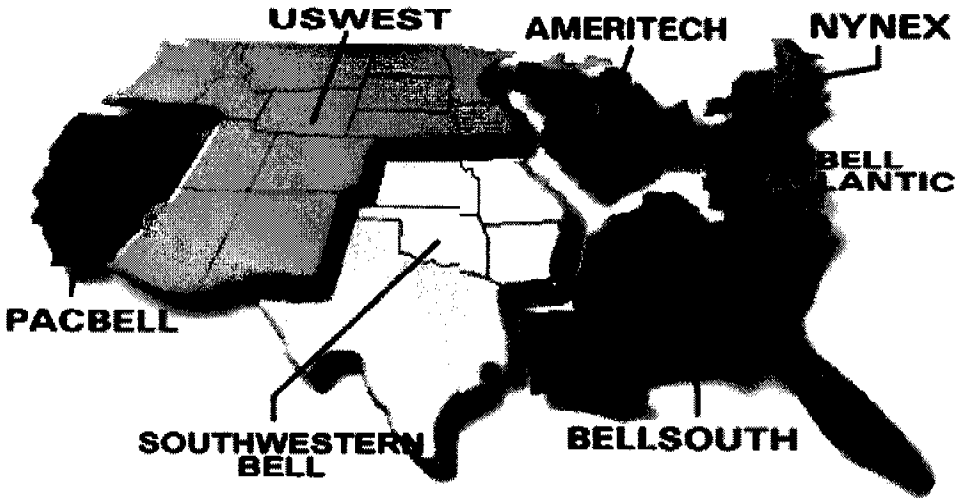
BREAKUP OF AT&T

In 1984 The Supreme Court ordered divestiture of AT&T based on a Department of Justice suit. Fred Henck, publisher of Telecommunications Reports and Bernie Strassburg, retired Chief of the Common Carrier Bureau, in their book covering the divestiture of AT&T estimated that legal fees and settlements cost AT&T more than $5 billion.

As a result of the 1984 divestiture of AT&T and the Bell Companies, major competition opened up in the long distance market in the USA. MCI was a driving force in the breakup of the Bell System and previous to divestiture, other carriers such as Sprint and Wiltel (now MCI Worldcom) formed.

Since then literally thousands of aggregators, switched and switchless resellers have come into the market vying for a piece of the $99 billion per year business.

Also, as a result of the 1984 divestiture of AT&T and the Bell Companies, there were 7 Regional Bell Operating Companies (RBOC's) in the US.



In addition to thousands of Independent Telephone Companies (ICO's) across this country RBOC's and ICO's were referred to as Local Exchange Carriers (LEC's). These companies provided local telephone service in addition to various other services and were typically the only local service provider in their specific geographic area.

THE LONG DISTANCE RESELLER: THE BIRTH OF A NEW INDUSTRY

In 1984, a successful anti-trust suit brought about by the Federal Government initiated the break-up of American Telephone and Telegraph (AT&T). Because AT&T was considered a monopoly, the Federal Communications Commission (FCC) prohibited AT&T from lowering its long distance rates, in effect, guaranteeing a price advantage to its fledgling competition: MCI, SPRINT, and a group of smaller carriers. When the smoke cleared, AT&T lost over 35% of its customer base. Rather than sit back and watch their market share further erode, AT&T devised a way to effectively lower their rates to their most valued customers: Large Multi-Location Companies.

In 1985, Software Defined Network (SDN) was developed by AT&T and later sanctioned by the FCC. Businesses spending more than $100,000 on their long-distance were offered rates that were 23% below AT&T's standard business program rates. In addition, these large companies would "enroll" their smaller, affiliated locations and received the SDN discount on their entire long distance usage. These large companies also benefited from additional corporate volume discounts based on the combined volume of their affiliated locations.

In 1989, AT&T filed with the FCC a seemingly innocuous SDN modification that abruptly changed the telecommunications industry. This tariff contained a provision that allowed the for SDN Plan Holders to arbitrarily pass their discounts on to smaller UNAFFILIATED companies. Entrepreneurs, sensing a tremendous marketing opportunity, became SDN Plan Holders and signed-up

hundreds of unrelated small companies, whose total volume collectively qualified for the SDN Program Discounts. These pooled companies received discounts of 23% off their current AT&T rates, while the entrepreneurs collected a hefty corporate volume discount.

Many of their smaller commercial customers "switched-over" to SDN, where an environment was created whereby AT&T lost revenues despite having the lowest tariffed rates. Even more ironic, and much to AT&T's chagrin, the SDN program further depleted AT&T margins by accidentally creating an explosive industry and new competitor - *The Reseller!*

The discount long distance market had virtually erupted. A host of other national and regional long distance carriers, anxious to build their market share, aggressively courted Resellers as cost effective bulk-distributors of their products and services. In addition, Resellers were instrumental in the development of innovative and sophisticated concepts such as International Callback, Debit Cards and other enhancements. However, the commercial customer (end-user) was the real beneficiary of the symbiotic relationship between carrier and reseller as the cost of long distance service and ancillary products became even more competitive. Many business owners became aware of the advantages of purchasing their long distance from a reseller. There were two types of resellers in the industry:

- ***Switchless Reseller*** - A reseller of long-distance services that does not utilize any of its own lines, or (switching) equipment. All actual service and equipment is handled by the underlying carrier. The reseller may do the billing themselves or have their services billed on the customers local phone bill.

- ***Reseller*** - A long-distance carrier (IXC) that does not own a network, but may have their own carrier identification code (CIC) loaded into their underlying carriers switches and leases bulk capacity and resells portions of it at a higher rate.

Commercial customers are migrated from their direct carrier relationships in favor of feature-rich and substantially discounted products and services available only from resellers and their marketing arms. Through a reseller, long distance customers could purchase the services of their preferred carrier at rates discounted by as much as 60%.

The $50 Billion per year "Local" service market opened up to their competition for the first time in our history. Traditional Long Distance Carriers such as AT&T, MCI & Sprint planned to begin offering Local Services in certain areas of the country. Some carriers built their own network infrastructure, but the services that were offered were primarily through resale agreements with the existing LEC's, in addition to the current service offerings of that time.

Additionally, LEC's anticipated offering services such as Inter-LATA & Interstate Long Distance services in addition to an array of other services which LEC's were previously prohibited from providing to customers. The passage of the Telecommunications Act of 1996 changed the regulations and roles of these companies, as we know them today.

CONGRESS APPROVES 1996 TELECOM ACT

February 1996 - Congress passed the 1996 Telecommunications Act, which required FCC to develop 80 new rulemakings within a six-month period leading to an increase in competition, in all aspects of telecommunications.

Summary of the Act

Telephone Service:

The Act declares invalid ("preempts") all state rules that restrict entry or limit competition in telephone service, both local and long-distance. It dismantles the AT&T and GTE antitrust consent decrees, including their controversial prohibitions on entry by the Bell Operating Companies ("BOCs") -- the so-called "Baby Bells" -- into the interLATA telephone market. (LATAs, or "Local Access and Transport Areas," are regional areas, similar to area codes, that divided the local and long-distance telephone markets under the AT&T consent decree.) Competitive safeguards, known as "separate affiliates" and a prohibition of cross-subsidization, are required to protect against anti competitive behavior by local telephone companies.

The essential trade-off in the Act is that the BOCs and GTE will be permitted to offer interLATA service once they have taken steps to remove entry barriers to competition for local exchange service, i.e., local telephone service. The Act requires the BOCs to implement a series of reforms known as the "competitive checklist" in order to qualify for providing long-distance service outside their regions. It also requires all local exchange carriers ("LECs") to interconnect with new entrants, "unbundle" their networks and allow "resale" by competitors, provide "number portability" so customers can keep their phone numbers when switching local providers, and other steps to promote an effectively competitive local exchange market. Although the FCC has an increased role in defining the minimum thresholds of these obligations -- and judging whether BOCs have met the checklist requirements in order to offer interLATA services -- state PUCs are charged with a major responsibility in implementing local telephone

competition. (See our Summary of Local Exchange Competition Issues for more on this subject.)

The Act substantially changes the rules governing "universal telephone service," a concept implicit in the 1934 Communications Act but subject to widely varying interpretations by federal and state regulators. The Act defines universal service as an "evolving" level of telecommunications services that takes into account technological changes, and delineates principles to be applied in setting of FCC policies designed to promote universal service, including quality and rate reasonableness, access to advanced services, access in rural and high-cost areas, nondiscriminatory and competitively neutral support mechanisms, and special access for schools, hospitals and libraries. All telecommunications companies are requited to provide services to schools, hospitals and libraries, on bona fide request, at rates "reasonably comparable" to urban rates and at a discount from standard prices.

Local Telephone Companies

- *Local Exchange Carrier (LEC)* - The local or regional telephone company that owns and operates lines to customer locations and Class 5 Central Office Switches.

- *Regional Bell Operating Companies (RBOC)* - One of the seven "Baby Bell" Companies created by the 1982 Modified Final Judgement that specified the terms of the AT&T Divestiture. The seven RBOC's include: *NYNEX, Bell Atlantic, Bell South, Southwestern Bell, U.S. West, Pacific Bell and Ameritec.*

- *Competitive Local Exchange Carrier (CLEC)* – A local carrier that either has built its own local network or resells the service of an existing LEC under its own name, like a long distance reseller.

- As of January 2001, Bell Atlantic merged with NYNEX and GTE (the largest ILEC Independent Local Phone Company) and is now called Verizon.

- SBC Corporation (Southwestern Bell's parent company) has acquired Pacific Bell and Ameritec.

- Qwest, the nation's fourth largest long distance carrier, acquired US West.

Services Offered by Local Phone Companies

Flat Rate Service - The cost of unlimited calling in your local calling area (defined as 12 miles between "rate centers" rather than phones), without any optional services.

Measured Rate Service - Customers who choose measured rate service pay a lower monthly charge than Flat Service but pay by the minute for their local calls beyond a certain level.

Optional Services

Listed below are some of the many optional services available from your local phone company.

- Call Waiting - A beep tells you that someone is calling you while you are already on the phone.
- Call Forwarding - Forwards your calls to whatever number you punch in.
- Select Call Forwarding is also available.
- Call Return - Permits you to automatically return your last incoming call by pressing a two-number code.
- Call Screen- You can screen out calls from up to 10 numbers.
- Call Trace - permits you to trace a threatening or harassing phone call.
- Priority ringing- A distinctive ring alerts you to calls from 10 numbers of your choosing.
- Repeat Dialing - Redials a busy number for up to 30 minutes automatically.
- Speed Calling 8 - Permits you to call 8 frequently called numbers by punching in a one-digit code.
- Three Way Calling- Permits you to talk to two different phone numbers at the same time.

The Telephone Number

- ***BTN – Billing Telephone Number*** – The main phone number used for billing purposes.

- ***WTN – Working Telephone Number*** – Any additional numbers associated with the billing telephone number. (BTN)

- ***ANI – Automatic Number Identification*** – The number associated with the telephone station(s) from which switched calls are originated (or terminated). An ANI may also be used to refer to any phone number.

- ***NPA – Numbering Plan Areas*** – North American "Area Codes."

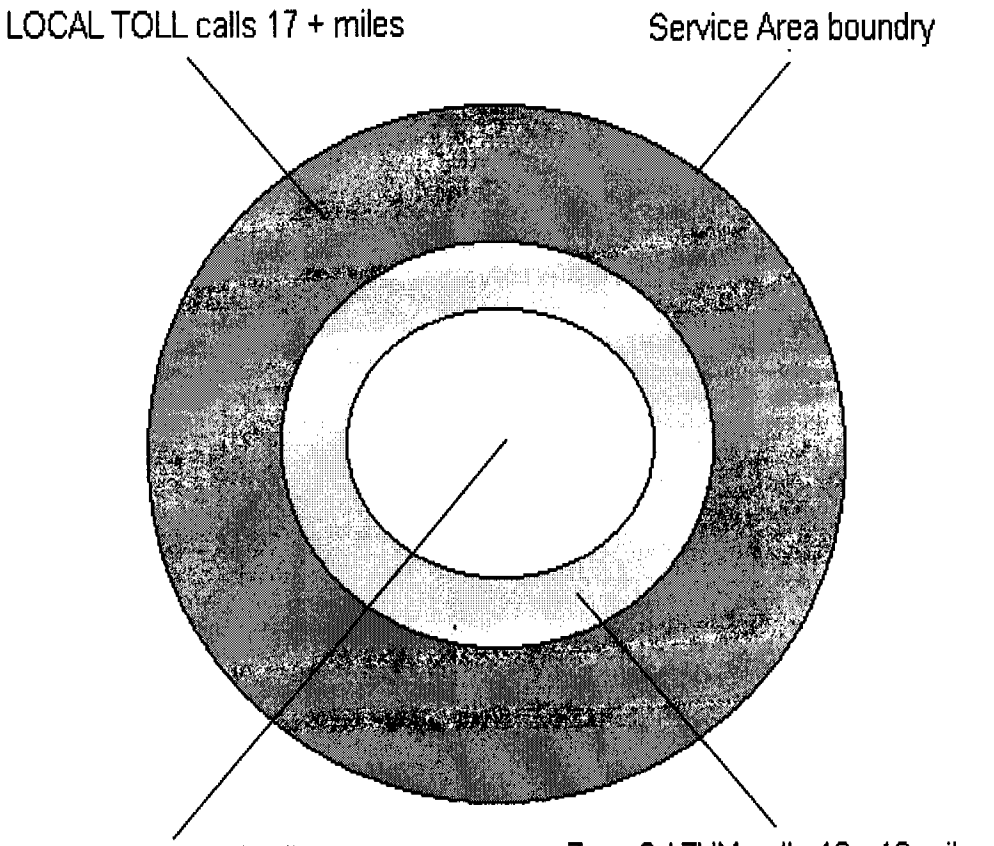
- ***NXX – Exchanges*** – (First 3 digits of a 7-digit phone number). (2-to-9, 0-to-9, 0-to-9) (Digits 4, 5 and 6 in a 10 digit NANP telephone number – NPA-NXX-XXXX).

Local, Local Toll, and Long Distance Calling

Calls made to places within the same service area break down in the following way:

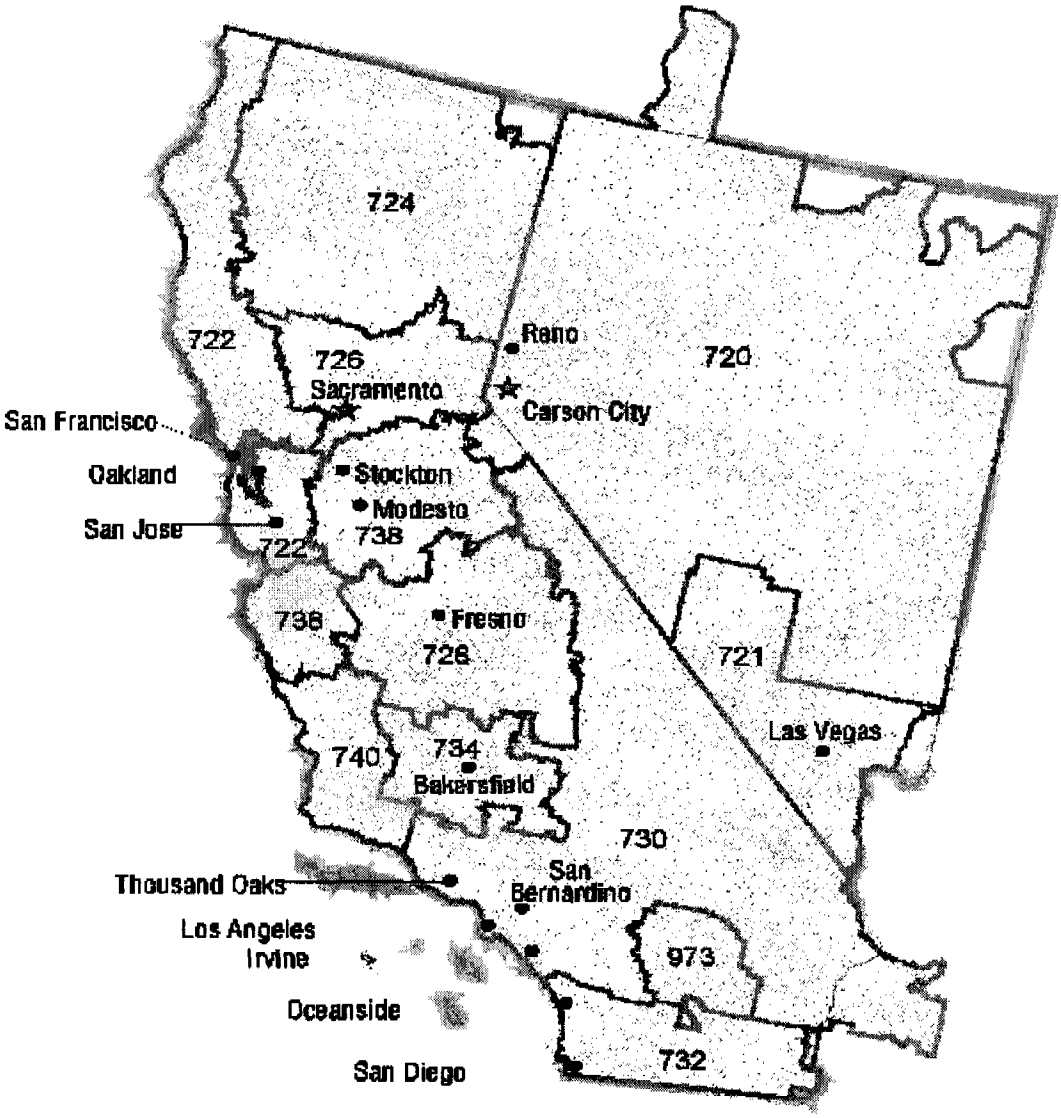
Rural:
- Local Calls: 0 -12 miles from the CO (Central Office)
- Local Toll: 13 + miles (within service area) from the CO (Central Office)

Urban:
- Local Calls: 0 -12 miles from the CO (Central Office)
- Zone Usage Measurement (ZUM), or Zone 3: 13 -16 miles from the CO (Central Office)
- Local Toll: 17 + miles (within service area)


LOCAL TOLL calls 17 + miles
Service Area boundry
Local calls 0 - 12 miles
Zone 3 / ZUM calls 13 - 16 miles

L.

Local Access and Transport Areas (LATA) were created after the breakup of the Bell System. They are sometimes called service areas, or local toll calling areas. California is divided into 10 service areas (see LATA map) where we provide local and local toll service. Local phone companies cannot yet carry calls that cross service area (LATA) boundaries (long distance calls).



Statistics of the Long Distance Telephone Industry for 1999

Introduction:

This report contains a variety of information on the market for long distance telephone service. It is divided into two sections. The first section contains information that describes the total long distance market--including both residential and business calling. The second section shows data on residential long distance calling, focusing on usage patterns, market shares, prices, and expenditures.

Until the 1970s, AT&T had a virtual monopoly on long distance service in the United States. In the 1970s, competitors such as MCI and Sprint also began to offer long distance service. With the gradual emergence of competition, long distance rates dropped, calling volumes surged, and AT&T's dominance declined.

More than 700 companies now offer long distance service. These carriers remain subject to the Commission's jurisdiction. The Commission, however, has chosen to rely on competition rather than regulation as much as possible. Thus, the Commission forbears from regulating most aspects of long distance service. Nevertheless, the Commission continues to monitor the long distance market, in part because the market for toll services remains more highly concentrated among a handful of carriers than many other industries in the competitive market place.

The amount of information available on the long distance industry has increased as competition has developed and this report has evolved over the years. The Industry Analysis Division of the Common Carrier Bureau began a quarterly report on AT&T's share of interstate switched access minutes in 1987. At that time, when AT&T was a dominant provider of long distance services in the U.S., that data was the only periodic and consistent market share information available.

As more data became publicly available, information on other carriers was added and alternative market share calculations were included (based on such measures as revenues and lines). The final quarterly report of *Long Distance Market Shares* was published in 1999 when the collection of some of the underlying information was discontinued. The current report has been developed to meet the continuing need to monitor the long distance industry and to provide the information frequently requested by consumers, Congressional staff, other government agencies, carriers, and members of the business and academic communities.

Summary

- In 1999, the long distance market had more than $108 billion in revenues, compared to $105 billion in 1998. In 1999, long distance carriers accounted for over $99 billion and local telephone companies accounted for the remaining $9 billion. Interstate long distance revenues increased by 12.8% in 1999 compared to1.5% to the year before.

- Since 1984, international revenues have grown more than 5 fold from less than $4 billion in 1984 to over $20 billion in 1999. The number of calls has increased from about half a billion in 1984 to almost 8 billion in 1999.

- In 1984, AT&T's market share was about 90% of the toll revenues reported by long distance carriers. By 1999, AT&T's market share had declined to about 40%, Worldcom's share was 25%, Sprint's was 10% and more than 700 long distance carriers had the remaining quarter of the market.

- According to a sampling of residential telephone bills, in 1999 the average household spent $64 monthly on telecommunications. Of this, $21 were for services provided by long distance carriers, $34 for services by local exchange carriers and the remainder for services by wireless carriers.

- According to the same sampling of residential telephone bills, 38% of toll calls in 1999 were interstate and accounted for 50% of toll minutes. In addition, the average length of haul for interstate calls was 702 miles. Also, 33% of residential long distance minutes were on weekdays, 30% on weekday evenings and 37% on weekends.

Regional Bell Operating Company
Update as of 2005

The **Regional Bell Operating Companies (RBOC)** are the result of the U.S. Department of Justice antitrust suit against the American Telephone and Telegraph Company aka AT&T (not the new AT&T Company that was created when SBC acquired the old AT&T company.

History

On January 8, 1982, AT&T settled the suit and agreed to divest ("spin off") its local exchange service operating companies in return for a chance to go into the Internet services industry. Effective January 1, 1984, AT&T's local operations were split into seven independent Regional Bell Operating Companies known as "Baby Bells." RBOC's were originally known as **Regional Holding Companies,** or **RHCs.**

After the Modification of Final Judgment, the resulting Baby Bells were originally:

- Ameritech—(acquired by SBC in 1999)
- Bell Atlantic—(acquired GTE in 2000 to form Verizon)
- BellSouth—(merging with AT&T pending regulatory approval)
- NYNEX—(acquired by Bell Atlantic in 1996)
- Pacific Telesis—(acquired by SBC in 1997)
- Southwestern Bell—(changed its name to SBC in 1995; acquired and changed its name to AT&T in 2005)
- US West—(acquired by Qwest in 2000)

Prior to 1984, AT&T also held investments in two smaller and otherwise independent companies, Cincinnati Bell and Southern New England Telephone (SNET). Following the 1984 breakup, these became fully independent as well. All nine local-exchange companies were assigned a share of the rights to the Bell trademark. Additionally, many of these companies have since merged, leaving only 4 regional telephone companies in the United States. After the 1984 breakup, part of AT&T's Bell Labs was split off into Bellcore,

which would serve as an R&D and standards body for the seven Baby Bells.

- In 1997, Bell Atlantic was acquired by NYNEX (taking the Bell Atlantic name), which later, in 2000, merged with GTE form Verizon. In 2005, following a protracted bidding war with rival RBOC Qwest, Verizon announced that it would acquire the long distance company MCI. The Verizon and MCI merger closed on January 6, 2006.
- Southwestern Bell corporation changed its name to SBC Communications in 1995, and acquired Pacific Telesis in 1997, SNET in 1998, and Ameritech in 1999. In February 2005, SBC announced its plant to acquire former parent company AT&T Corporation for over $16 billion. SBC kept the AT&T name upon merger closure, which closed on November 18, 2005. SBC began trading as AT&T, Inc. on December 1, 2005 but began re-branding as early as November 21.
- In 2000, US West was merged into Qwest, a Denver-based fiber optics long-distance company.
- In March 5, 2006 it was announced that AT&T would purchase BellSouth for $67 billion U.S., in an all-stock deal.
- The former independent Bell System franchise Cincinnati Bell will be the only Bell that remains as originally conceived, and – along with Bell Canada, which was divested by AT&T in 1956 – will be one of two companies that still carry the "Bell" name. It used the last Bell logo, designed in 1969 by Saul Bass, until mid – 2006, though Verizon continues to use the Bell logo on its payphones (including former GTE payphones), hard hats and trucks.

Different Types of Billing Long Distance Companies May Offer

- ***Direct Carrier Billing*** – Is when the carrier sends out it's own bill or invoice. This gives the carrier more options in which the call details can be customized to fit each of their customers' needs.

- ***Local Exchange Carrier Billing (LEC Billing)*** – Is when the carrier has a billing agreement either directly with the local

telephone company or through a third party. The charges of the long distance company are put on the customers local phone bill.

- ***Internet Billing*** – Is when the customers pays their bill by going to the carriers web site and accessing their account information and paying by credit card or check draft. Some carriers will waive monthly service fees if the customer chooses this option.

- ***Credit Card / Checking Account Debit*** - Is when the carrier debits the customers account on a specific day of the month for the amount of the bill. And a call detail statement is mailed or e-mailed to the customer for their records.

Types of Long Distance Calls

- ***Intra LATA (Local Long Distance)*** - Communication within a Local Access Transport Area.

- ***Inter LATA (In State Long Distance)*** - Communication between Local Access Transport Areas.

- ***Intrastate (In state Long Distance)*** - Communication within a single state.

- ***Interstate (State to State Long Distance)*** - Between multiple states.

- ***International*** - Between multiple nations.

Verification Methods required by the FCC

December 17, 1998

FCC Adopts New Anti-Slamming Rules and Unveils Further Measures to Protect Consumers from Phone Fraud; Slammed Consumers Relieved From Paying Phone Charges (CC Docket No. 94-129)

The Commission modified the methods by which a carrier can fulfill its obligation to verify consumers' authorizations to change their telephone service providers. In particular, the Commission eliminated the "welcome package" as a verification method. Under that method, a carrier that signs up a customer mails to the customer a package containing a postcard that the customer has 14 days to mail back if he or she wishes to cancel the change. The Commission noted that this method has been subject to abuse by unscrupulous carriers, and consumers should not have to take affirmative action to avoid being slammed.

As a result, there are now three acceptable methods to verify carrier changes:

- A consumer signature on an authorization form, known as a Letter of Agency.

- An electronic authorization, usually resulting from a customer-initiated call to toll-free number.

- And verification by an independent company.

Today's Order applies these verification methods to carrier switches that result from in-bound calls, thus providing consumers who initiate calls to carriers the same protection given to consumers who receive telemarketing calls. The Commission also applied the verification rules to all changes made in telecommunications carriers, including local carriers. (An exception was made, however, for wireless carriers since slamming is not currently a problem in that area.) In addition, the Commission applied the verification methods to requests for preferred carrier freezes, which provide an additional safeguard against slamming by requiring the local telephone carrier that executes a switch to confirm the switch with the customer. The Commission further required that solicitations for preferred carrier freezes be clear and explain to the consumer how such a freeze may be lifted. The Commission explained that, although preferred carrier freezes may protect consumers against slamming, the freezes may also be subject to anti competitive abuses. The new rules are

intended to address these concerns in a manner that protects consumer choice. The Commission also noted that its verification methods do not preempt state law; states must use these verification methods at a minimum but may add additional verification procedures for intrastate carrier changes.

** Verification methods shown above are only part of the order.*

AS A TELEMARKETER YOU NEED TO SPEAK TO THE AUTHORIZED DECISION-MAKER.

(An example might be.)

- "Good morning, may I speak to the person who is authorized to make changes on your long distance phone service".

(or)

- "Hello, I need to speak to the person who handles your long distance phone bill".

(or)

- "Hi. May I speak to the person who can approve changes to your long distance service".

(or)

- "Hello is this Mary Johnson? Can you approve changes in your long distance service?"

YOU NEED TO MAKE SURE THE PERSON IS 18 YEARS OF AGE OR OLER.

(An example might be.)

- "Are you over the age of 18,"

or

- "Mr. Or Mrs. _____, I need to make certain you are qualified to make the change. Are you at least 18 years old"

YOU NEED TO STATE YOUR NAME, THAT YOU ARE CALLING FROM CENTRAL TELECOM LONG DISTANCE, INC. AND THE REASON FOR THE CALL.

(An example might be.)

- "Hi this is _____, from Central Telecom, and the purpose of my call is to ask you if you would like to change to Central

Telecom Long Distance, Inc. as your long distance service provider?"

(or)

- "Good morning. This is _____, I'm calling from Central Telecom. We are a long distance service provider and we're calling the residents of your state to see if they would like have their long distance service switched to the Central Telecom, any time flat rate service?"

(or)

- "This is _____, from Central Telecom. We're calling today to let you know that you have the option of having your monthly service fee reduced from the amount that your current long distance carrier is charging you and to receive a simple flat per minute on all of your continental state to state long distance calls"

LET THE CUSTOMER KNOW WHO CENTRAL TELECOM LONG DISTANCE, INC. IS. WHY YOU ARE CALLING AND WHAT THE COMPANY IS OFFERING.

(An example might be.)

- "Mr. /Mrs. _____, besides the competitive rates that we can offer, there are more reasons to choose Central Telecom Long Distance, Inc. as your carrier. We offer consolidated billing and no service fees. All of your calls will be placed utilizing the latest fiber optic technology. But the best and probably most exciting reason is that you have a choice in which carrier you use".

(or)

- "Central Telecom, is offering the residents of your state the latest in long distance technology. Our long distance lines are all fiber optics, so that all of your calls will be completed with the utmost speed and clarity. We have arranged with the majority of local phone carriers, so that we can place our charges on your local phone company bill. We also offer state of the art calling cards to take care of all of your calling needs. Central Telecom, offers all this, in addition to low competitive rates on all your domestic state to state calls".

YOU MUST FULLY EXPLAIN ALL CHARGES, FEES AND RATES THAT CENTRAL TELECOM LONG DISTANCE, INC. IF OFFERING.

(An example might be.)

- "Central Telecom Long Distance, Inc. if offering the residents of your state a simple flat rate of $____, for the first _____ minutes of monthly serve and $0.____ per minute thereafter. This offer is good 24 hours a day and 7 days a week with no monthly service fee. And for your convenience we can arrange to have it billed directly on your local phone bill so all you have to do is to write one check for all of your phone service. Doesn't that sound great?"

(NOTE: MAKE SURE YOU KNOW ALL THE RATES AND FEES BEING OFFERED AT THE TIME. A MISREPRESENTATION OF RATES OR FEES IS GOURNDS FOR AUTOMATIC TERMINATION.)

YOU MUST INFORM THE CUSTOMER THAT ALL OF THE CHARGES OF CENTRAL TELECOM WILL APPEAR ON THE BILLING OF THEIR LOCAL EXCHANGE CARRIER UNDER THE HEADING OF USBI.

(An example might be.)

- "For your convenience, Central Telecom Long Distance, Inc. places all of its charges on the bill of your local carrier under the heading of USBI, so all you will have to do is write one check for all of your phone service. Doesn't that sound great?"

YOU MUST ASK THEM IF THEY AGREE TO CHANGE TO CENTRAL TELECOM LONG DISTANCE AS THEIR INSTATE, STATE TO STATE AND INTERNATIONAL LONG DISTANCE SERVICE PROVIDER.

(An example may be.)

- "Mr./Mrs. _____, knowing that you could receive a lower monthly service fee, and a flat per minute rate on all of your instate, state to state and international long distance calls, would

you like to take advantage of this offer and change your service to Central Telecom Long Distance, Inc.?"

(or)

- "Mr./Mrs. _____, in order to take advantage of these benefits and the per minute flat rate, all you need to do is allow us to become your new long distance service provider. Would you like to switch to Central Telecom, as your instate, state to state and international long distance provider?"

(or)

- " So Mr./Mrs. _____, would you like to change to Central Telecom, and start receiving a lower long distance bill every month for all of your instate, state to state and international call?"

YOU MUST EXPLAIN TO THE CUSTOMER THAT THEIR LOCAL PHONE COMPANY MAY CHARGE A SWITCHING FEE.

(An example might be.)

- "Now Mr./Mrs. _____, your local phone company may charge you a switching fee.

(or)

- "I know this may not seem fair, but your local phone company can charge you a per line switching fee to switch to Central Telecom.

(or)

- "Now Mr./Mrs. _____, your local phone company is probably going to charge you a small per line switching fee to switch your long distance service. But with no monthly service fee, you should be able to make up the difference in about 1 to 2 months.

IF THE CUSTOMER AGREES TO CHANGE, YOU MUST EXPLAIN TO THE CUSTOMER WHEN THE SERVICE WILL START AND THAT THEY WILL RECEIVE A GENERAL SERVICE AGREEMENT THROUGH THE MAIL.

(An example might be.)

- "Mr./Mrs. _____, after you go through the verification process I will submit your order and the change to Central Telecom should take place within 1-2 weeks. Within 10 business days of today you should receive a General Service Agreement explaining all of the terms of service with Central Telecom.

YOU MUST EXPLAIN TO THE CUSTOMER THAT THEY WILL BE TRANSFERRED TO AN INDEPENDENT THIRD PARTY VERIFICATION COMPANY.THIS IS TO CONFIRM THEIR CHANGE TO "CENTRAL TELECOM LONG DISTANCE, INC." AS THEIR INSTATE, STATE TO STATE AND INTERNATIONAL LONG DISTANCE CARRIER.

(An example might be.)

- "Mr./Mrs. _____, one last step and we're done. To complete your change of service, I am going to transfer you to a third party verification company. They will confirm your account information and they also want to make sure that you authorize the switch to Central Telecom Long Distance, Inc. as your instate, state to state and international long distance carrier".

(or)

- "Mr./Mrs. _____, we're almost done. I need to transfer you to a third party verification company. This is done for your protection. They will make sure that you give your approval for the switch to Central Telecom Long Distance, Inc. as your instate, state to state and international long distance service provider. This is done to protect you against any unauthorized changes to your long distance service".

(or)

- "Mr./Mrs. _____, We are almost done. We have one last step to complete. For your protection. I need to transfer you to a third party verification company. They're going to make sure that you want to change your long distance service to Central Telecom Long Distance, Inc. for all of your instate, state to state and international long distance calls, alright? Now do you have any questions I could answer before I transfer you? Have a nice day and please hold.

Frequently Asked Questions

Possible Examples:

Q: Is there a switching fee?

(An example might be.)
A: We do not charge a fee, but your local phone company may or may not charge you a fee to switch carriers.
(or)
A: Your local phone company may charge you a switching fee.
(or)
A: Your local phone actually makes the change in inter and intraLATA carriers and may charge a fee.

Q: Does this include my local long distance calls (intra LATA)?

(An example might be)
A: no, Central Telecom does not offer local long distance srvices and you will remain with your same carrier for local long distance.

Q: How long are these rates good for?

(An example might be.)
A: These are the rates currently being offered, and I can't tell how long they will continue to be offered. However the company will notify you in advance if the rates are going to change
(or)
A: You must understand that rates are set partly by the market conditions and service offerings. The rates and service offerings may change.
(or)
A: These are rates, but all rates are subject to change.

Q: What about international rates?

(An example might be.)
A: Our international rates are competitive with the 3 major carriers.
(or)
A: All of our rates are competitive with the 3 major carriers including international rates.

Q: I've never heard of you – how long have you been in business?

(An example might be.)
A: We are a corporation founded in 2008 registered and certified to provide long distance services in several of the US states.
(or)
A: That's because we don't do any expensive advertising, this enables us to offer competitive rates. We were incorporated in 2008, and have been in business since then.
(or)
A: One of the ways you would have heard of us, is if through one of our satisfied customers. We were founded in 2008.

Q: How do you bill for the long distance services?

(An example might be.)
A: We have arranged billing services to have all of the billing for our services to be put on the bill of your local phone company under the heading of USBI.
(or)
A: Your charges will be placed on your local phone bill under the heading of USBI; this is called a consolidated bill. Because of this you'll only need to write one check for all of your phone services.
(or)
A: We have an agreement to place your long distance charges on their bill of your local phone company under the heading of USBI.

Q: Must I dial any extra numbers to call long distance?

(An example might be.)
A: No, just dial "1" plus the phone number you want to call.
(or)
A: No, we've found that to be too inconvenient. So all you have to do is dial "1" plus the number you want to call.
(or)
A: You don't have to dial any extra numbers to call long distance, you just need to dial "1" then the number you are calling.

Q: How long will it take for my phone number to be switched?

(An example might be.)
A: It should take approximately one to two weeks for your long distance service to be switched to Central Telecom.
(or)
A: It usually takes on average, 1 to 2 weeks. But it could be less time; it depends on many factors.
(or)
A: It takes approximately 1 to 2 weeks for a phone number to be switched.

Q: How do I obtain Calling Cards?

(An example might be.)
A: I'll have somebody from that department call you back right away.
(or)
A: What we have to do is submit a request to that department and they will give you a call back to work out the details.
(or)
A: All you have to do is tell me that you would like one and I'll have the appropriate person give you a call back.

Q: What is a PIC Freeze?

(An example might be.)
A: A "PIC Freeze" prevents the long distance from being switched for the specified lines. It's useful to prevent slamming, or the

unauthorized switching of long distance services. Contact your local phone company for details.
(or)
A: A PIC Freeze is a hold that is placed on your long distance service account, prohibiting any changes to be made to it. This is used to prevent slamming, which is the unauthorized switching of your long distance provider.
(or)
A: This is a hold that is placed on your long distance account; it stops anyone from making unauthorized changes to your long distance service provider.

Q: Can I get a PIC Freeze?

(An example might be.)
A: You can call your local telephone company and they will take care *of it for you.*
(or)
A: Yes, anyone can get one put on his or her account. Now all you have to do is call your local phone company, and request it. Unfortunately, I'm not authorized to do this for you.
(or)
A: Call your local phone company and they will process it for you.

Glossary

Account Codes
Also known as Project Codes or Bill-Back Codes. Account Codes are additional digits dialed by the calling party that provide information about the call. Typically used by hourly professionals (accountants, lawyers, etc.) to track and bill
clients, projects, etc.

Aggregator
An independent entity that brings several subscribers together to form a group that can obtain long-distance service at a reduced rate. Subscribers are billed by the original IXC. The aggregator only provides the initial set-up of the plan. He usually provides no service after that. Different than a reseller.

ANI - See Automatic Number Identification.

Automatic Number Identification
(1) The number associated with the telephone station(s) from which switched calls are originated (or terminated).

(2) A software feature associated with Feature Group D (and optional on Feature Group B) circuits. ANI provides the originating local telephone number of the calling party. This information is transmitted as part of the digit stream in the signalling protocol, and included in the Call Detail Record for billing purposes.

(3) ANI may also be used to refer to any phone number.

Baby Bells - See RBOC Backbone

BTN - Billing Telephone Number
The phone number associated, for billing purposes, with the Working Phone Number.

Calling Card
A telecommunication credit card with an AuthCode for using a long distance carrier when the customer is away from their home or office(ANI).

Carrier
A telecommunications provider which owns switch equipment.

Carrier Identification Code - CIC
A three digit number used with Feature Groups B and D to access a particular IEC's switched services from a local exchange line. One or more CIC codes are assigned to each carrier. (i.e. there may be multiple CICs per ACNA).

Casual Calling
Allow any ANI (including undefined ANIs) to access a given carrier. For example, if the originator is calling from a non-coin phone, they may dial 1010555 + destination number and have the call routed through WorldCom and billed to the originating phone.

Centrex
A service that is functionally similar to a customer-premise PBX, but provided by means of equipment located in a Central Office.

CIC
See Carrier Identification Code.

Collect Call
A call that is paid for by the receiving/destination phone number. Requires approval/authorization of the person being called.

Common Carrier
A carrier that holds itself out as serving the public (or a segment thereof) indifferently (i.e., without regard to the identity of the customer and without undue discrimination). Common carriers may vary rates based on special considerations and may in fact serve only a small fraction of the general public.

Country Code
Two or three digit codes used for International calls outside of the North American Numbering Plan area codes. Dial: 011 + country code + city code + local phone number) (e.g. "011 + 91 + 22 +123-4567" 91 = India, 22 = Bombay)

Dedicated Line
A private line leased from a telecommunications carrier.

Default Carrier
Your regular Dial-1 carrier. Call 1-700-555-4141 to find your default carrier.

Equal Access
(AT&T Divestiture - 1982 Modified Final Judgement) The provision of one-plus capability to interLATA competitors of AT&T. Customers should be able to reach the carrier of their choice by dialing 1+ the long-distance number. The MFJ and the FCC require local exchange carriers to provide equal access (most central offices now have this capability). Equal Access may also refer to a more generic concept under which the BOCs must provide access services to AT&T's competitors that are equivalent to those provided to AT&T.

Facilities-Based Carrier - FBC
A carrier that uses its own facilities to provide service, in contrast with resellers, that purchase the services of other carriers and then retail the services to customers. (Most facilities-based carriers use the services of other carriers to some extent.)

FCC - Federal Communications Commission
Regulates interstate communications: licenses, rates, tariffs, standards, limitations, etc. Appointed by U.S. President .

IEC - Interexchange Carrier
IC - IXC (IEC is preferred). A company providing long-distance phone service between LECs and LATAs.

Interexchange
Communication between two different LATAs.

InterLATA
Communication between Local Access Transport Areas. 1982 MFJ requires LECs to use an IEC for InterLATA services.

International
Between multiple nations.

Interstate
Between multiple states. Interstate communications are regulated by the FCC.

IntraLATA
Communication within a Local Access Transport Area. 1982 MFJ allows LEC to handle these calls without an IEC.

Intrastate
Communication within a single state. Intrastate communications are regulated by each state's PUC.

IXC
1) Interexchange Carrier (IEC is preferred). A company providing long-distance phone service between LECs and LATAs.
2) Interexchange Circuit. A circuit that connects PoPs.

LATA
Local Access Transport Areas (200 in the U.S.). A geographic service area defined in the AT&T Modified Final Judgement. The RBOCs (baby Bells) and GTE are restricted to operations within, but not between, LATAs. Long distance service within a LATA is provided by the LEC. Service between LATAs is provided by an IEC. LATAs are represented by a 3-character code, and there are 164 of them across the country.

LEC - See Local Exchange Carrier

LEC Billing
Arrangement whereby the Local Exchange Carrier invoices the customer for some or all telecommunications services.

LEC Charges
Charges that are the responsibility of the local exchange carrier.

Letter of Agency - LOA
A document that authorizes changing the service provider.

Local Exchange Carrier - LEC
The local or regional telephone company that owns and operates lines to customer locations and Class 5 Central Office Switches. LECs have connections to other COs, Tandem (Class 4 Toll) offices and may connect directly to IECs like WorldCom, AT&T, MCI, Sprint, etc.

Local Exchange Service
Local phone calls.

Long Distance Carrier
A company providing long-distance phone service between LECs and LATAs.

NPA - Numbering Plan Areas
North American "Area Codes."

NXX
Exchanges (First 3 digits of a 7-digit phone number). (2-to-9, 0-to-9, 0-to-9) (Digits 4, 5 and 6 in a 10 digit NANP telephone number - NPA-NXX-XXXX).

One Plus - 1+
Customer ability to access the long distance service provider of their choice by first dialing 1, then the long distance number. Equal Access guaranteed by the 1982 AT&T MFJ. 1+ is an outbound service where the calling station pays the charges.

Operator Service Call - OSC
A call that is placed through a human or automated operator (0+).

Outbound
Outward Sending - Call Originating - Dialing Out

PIC - Primary Interexchange Carrier
The IEC that 1+ calls are routed to. Specified by ANI.

PIC Charges
A LEC charge for changing the PIC. Often paid by the new IEC. If a LEC sends a PIC charge to a customer, the new IEC will typically credit the customer's account.

PIC Freeze
A PIC Freeze prevents the long distance from being switched for the specified ANI's. Useful to prevent slamming, or the unauthorized switching of long distance services.

PIC Request
A request record sent to a LEC asking for an ANI to be activated, deactivated or changed in some way.

Point Of Presence - POP
The physical access location interface between a local exchange carrier and an Interexchange Carrier fiber network. The point to which the telephone company terminates a subscriber's circuit for long distance service or leased line communications.

Point-To-Point
Non-switched, dedicated communication circuit.

Primary Interexchange Carrier
The long distance company that is automatically accessed when a customer dials 1+.

Provisioning
The process by which a requested (ordered) service is designed, implemented and tracked (providing the subcomponent parts).

PUC - Public Utilities Commission
The agency regulating intrastate phone service.

Rates and Tariffs
Standards published by AT&T, OCCs, LEC's and IXC's that define service availability, cost and provisioning procedures.

***RBOC* - Regional Bell Operating Company**

Rebiller - See Reseller

Regional Bell Operating Companies - RBOC
One of the seven "Baby Bell" Companies created by the 1982 Modified Final Judgement that specified the terms of the AT&T Divestiture. The seven RHCs include: NYNEX, Bell Atlantic, Bell South, Southwestern Bell, U.S. West, Pacific Telesis, and Ameritech. "RBOC" is sometimes used informally to refer to the Regional Holding Companies defined in the 1982 MFJ.

Regulators
FCC, PUC, Federal Courts (e.g. MFJ), etc.

Reseller - Also known as Rebiller
A long-distance carrier (IEC) that does not own a network, but leases bulk capacity and resells portions of it at a higher rate.

Residential Customer
An individual (non-business) telephone system subscriber.

Responsible Organization - R/O
With 800 Portability,the Number Administration Service Center (NASC) allows the RespOrg to make changes such as carrier, termination, 800 call routing (by time of day, location.) A Letter Of Agency (LOA) must be on file to change the RespOrg for each customer/account.

State Tax
A collection of tax types that each state is allowed to charge. Tax jurisdiction (which state can charge tax for a call) is based on the two-

out-of-three rule: where it originates, where it terminates, where it is being billed to - if two match, that state can charge the tax.

Surcharge
An additional charge on top of a base rate for a specified reason.

Switch
A device (like a DMS-250 or a PBX) that responds to originator signals and dynamically connects the caller to the desired communication destination.

Switched Resellers
Resellers that utilize their own switching hardware (and sometimes their own lines) and the lines of other IXCs to provide long-distance service to its subscribers. They provide their own billing and service.

Switched Services
All dial up long-distance services including conventional residential and WATS (most have incremental use charges). (See Message Toll Service)

Switching Fee
A per-line fee (usually around $5) imposed by the LEC to reprogram their switching system to change your default carrier. Subscribers must usually pay this fee when switching to a reseller.

Switchless Reseller
A reseller of long-distance services that does not utilize any of its own lines, or (switching) equipment. All actual service and equipment is handled by the IXC. The reseller usually does billing themselves, to the customers.

T1/DS-1
(Facility) The equivalent of 24 multiplexed voice grade channels. 1.544 million bits per second (1.5Mbps)

Tariff
A public document filed with the FCC or a PUC that outlines services and rates. Usually, all customers are offered the same rate for a specific service, based on published constraints.

Telco - Telephone Company
The local or regional telephone company that owns and operates lines to customer locations and Class 5 Central Office Switches. Telcos have connections to other COs, Tandem (Class 4 Toll) offices and may connect directly to IECs like WorldCom, AT&T, Sprint etc.

Third Party Billing
Use of an outside service bureau for bill processing such as: call rating, customer invoicing, collections, etc.

Voice Mail
An automatic answering service with the ability to record a message. Unlike simple answering machines, Voice mail uses a programmable computer system with options such as temporary call routing, monitoring and reporting, etc.

WATS - Wide Area Telephone Service
Flat rate, or special rate pay-by-the-minute(measured) billing for a specified calling area. May be outbound or inbound (e.g. 800).

Wireless
Radio waves, cellular, satellite, microwave, etc.

WTN - Working Telephone Number
Any additional numbers associated billing telephone number. (BTN)

NOTES:

BEFORE
THE PUBLIC SERVICE COMMISSION
OF SOUTH CAROLINA
DOCKET NO. 2008-404-C

In Re: In the Matter of the Application of Central Telecom Long Distance, Inc. for a Certificate of Public Convenience and Necessity to Provide Resold Interexchange Telecommunications Services Throughout The State of South Carolina and for Alternative Regulation	)))))))))))	**CERTIFICATE OF SERVICE**

This is to certify that I, Leslie L. Allen, a legal assistant with the law firm of Robinson, McFadden & Moore, P.C., have this day caused to be served upon the person(s) named below the **Testimony of Deborah Baker on behalf of Central Telecom Long Distance, Inc.** in the foregoing matter by placing a copy of same in the United States Mail, postage prepaid, in an envelope addressed as follows:

Lessie C. Hammonds, Esquire
Office of Regulatory Staff
1401 Main Street
Suite 900
Columbia, SC 29201

Dated at Columbia, South Carolina this 17th day of December, 2008.

Leslie Allen

Leslie L. Allen