



Company Prospectus
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SECTION ONE

GENERAL CORPORATE INFORMATION

SECTION ONE:
GENERAL CORPORATE INFORMATION

Corporate Profile, History, and Organization

JTM Associates, Inc. was founded by Joseph T. Massey, Jr. as an independent consulting firm in 1970. We specialize in domestic and international telecommunications facilities management, corporate strategic planning, and the engineering, design, supervision of implementation, and training of low voltage systems including but not limited to:

- Computer Telephony Integration (CTI) and Integrated Solutions systems
- Secure Voice Over IP (VOIP) enabled and Circuit Switched Telephone systems
- Data Communications systems
- Automatic Call Distribution (ACD) and Call Center Systems including Help Desk systems
- Wireless Voice and Data systems
- Global Tandem Voice Network and Voice Mail Network systems
- Video Conferencing systems
- Security Access Control and Surveillance systems
- Radio Paging and 2-way Trunked Radio systems and
- E911 systems
- Call Detail Recording, Billing, and Directory system
- Digital (microwave/fiber/broad band) transmission systems.

The firm provides telecommunications review and analytical and consulting services to small, medium, and large telecommunications customer clients.

We have assisted general business firms, hospitals, educational institutions, national television networks, telephone companies, as well as electrical and gas utility firms in the creation of their own communications departments. In addition, we have developed methods for controlling communications costs, specified, designed and supervised the procurement of the systems mentioned above. We also have provided consulting services to many major vendors of telecommunications services and equipment in the areas of product design and marketing analysis.

We have designed telephone systems ranging in size from several hundred lines to over twenty thousand lines. One of the first consulting firms in the nation, JTM Associates, Inc. is a charter member of the Society of Telecommunications Consultants and, JTM president Joe Massey is a former member of the Society's Board of Directors.

History

In 1969, Joe Massey began consulting on telephone system design and management while still an undergraduate engineering student at Georgia Tech. A school project led him to design a new telephone system for Emory Crawford Long Hospital, who then hired Joe to implement that system. While waiting for construction of the hospital addition, which would house his new 701, Step-by-Step PBX, he was referred to a major Atlanta bank and then to the American Management Associations (AMA) as a telecommunications consultant. AMA requested that he team up with Richard A. Kuehn of Cleveland, the only other national telecommunications consultant at that time, for the purpose of presenting a telecommunications management course. Massey & Kuehn presented seminars on telecommunications management, traffic engineering and major switch selection around the country throughout the 1970's.

Since 1970, JTM Associates has provided comprehensive consulting services in all phases of data and voice telecommunications as well as office automation design and management to institutions and businesses of all sizes. Working with major universities, large medical centers, banks, and high technology businesses, the firm has designed and implemented over 150 major PBX switching and data communications systems.

SECTION ONE:
GENERAL CORPORATE INFORMATION

History (concluded)

In addition, JTM Associates president, Joe Massey, developed one of the first shared tenant long distance networks, for associated hospital clients within the Atlanta area, as well as a computerized pocket paging system which has since been installed in major hospitals around the country. Mr. Massey has also provided expert testimony before regulatory bodies (including the FCC) in both rate and service complaint cases.

In 1984, the complexity of the industry forced many changes in the telecommunications consulting business. Where once most client projects ended when a system's implementation was complete, today many of our clients depend upon our services for on-going assistance in the strategic planning and management of their systems. Changes in technology, regulatory environments, and the new products available in the marketplace have created a need for continued consulting support for the analysis and design of new service configurations. Consequently, JTM Associates has evolved into a multi-faceted organization that provides all levels of consulting engineering services to existing clients as well as major project management services for new clients.

As telecommunications experts, one of the most critical services we perform for a client, especially since deregulation, is the supervision of equipment vendors, common carriers, and local operating telephone companies in the implementation of new communications systems. JTM not only provides design recommendations for procurement projects, but also provides complete project management and implementation services. These activities include the development and delivery of customized user training, engineering and ordering of the equipment, programming the switching and data multiplexing systems, and developing protocol standards. We provide our services through all phases of implementation to insure a successful cutover and acceptance of the new system.

This philosophy and expertise has enhanced JTM's reputation as "the experts" in making a new system work. Consequently, some of our largest and most complicated projects have resulted from the firm's being chosen to implement or "fix" a system that has already been installed or selected. While offering this level of detailed support to the client during implementation of a new system limits the number of projects we can handle at any given time, our clients have often indicated that this is the most valuable service we offer.

Indeed, client satisfaction with the implementation of new systems has been the major force behind our client loyalty and the enthusiastic references we receive. For that reason, we freely provide our complete client reference list, with an open invitation to potential clients to contact anyone listed for information regarding the firm.

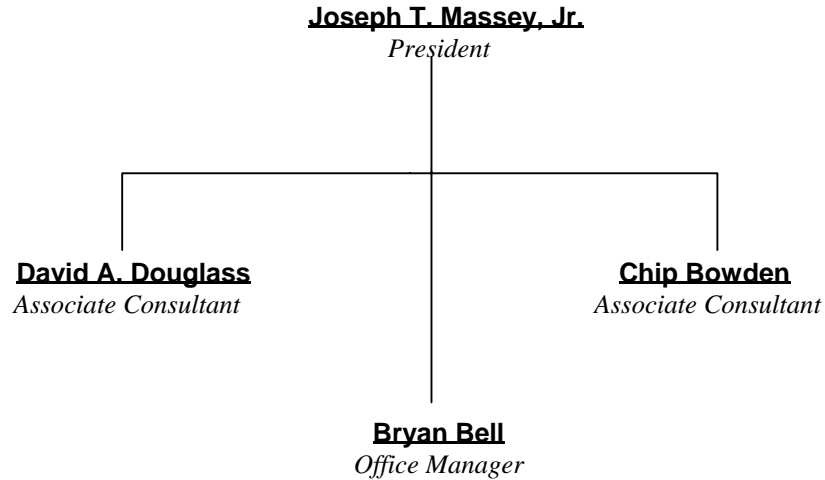
The services provided by JTM Associates are analogous to the Architect for a building project. The Architect analyzes the work to be performed, writes specifications, and supervises the installation to insure the construction meets the specification requirements. Once the building is turned over to the owner, the Architect leaves the project and is consulted only when a major change or addition is needed. JTM Associates also analyzes work to be performed, writes specifications, and supervises the installation. However, we take the project a step further because we thoroughly train our client on all facets of the new system so the client can manage the day-to-day activity.

Our focus is knowledge transfer to the client. We use the implementation of new systems and technologies as the lab to train our clients on the proper design and on-going programming and operations required to run the systems on a day-to-day basis. JTM Associates provides only consultative, engineering, design, and training services. No hardware or software is sold by JTM.

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Organizational Structure

JTM Associates is organized under the direction of Joseph T. Massey, Jr., the firm's president. Supporting the consulting staff is one Administrative Assistant.



JTM Associates has established working relationships with other Architectural, design and engineering firms with whom we contract for specialized projects from time to time.

Any work sub-contracted by JTM Associates is specified, designed, supervised and guaranteed by JTM Associates as a service to our clients.

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GENERAL CORPORATE INFORMATION

General Areas of Consulting Services Offered by JTM Associates, Inc.

We analyze the telecommunications needs of the client, make recommendations for improving the client's operation, and develop cost allocation systems and management programs for the telecommunications functions within the organization. If a either new or modified system is recommended, we write the contract and technical specifications in the form of a Request For Proposal (RFP). We then, with the client, evaluate the proposal responses and make a recommendation as to which vendor should be selected. After vendor selection, we engineer the system, supervise the ordering of the system, and supervise and/or provide the user training and installation of the system. We also assist in the evaluation and selection of in-house management and operations staff, if that is requested.

Our training courses emphasize the integration of the system design with the organizational structure and the personnel who will manage and use the system on a day-to-day basis. We take great care to insure that systems are designed to work well from the end user's viewpoint. Often the failure of modern technology to increase efficiency in the work place is simply a failure to design the system with an understanding of the human factors vis-a-vis the implementation of new technologies. Our training not only educates personnel on the complexities of the technology, but also prepares the people to interact in a more positive way with that technology. As a consequence, the people work at their optimum.

It is important to understand that another of our major strengths is pre-negotiated contract language. With the exception of certain government clients that require special contracts the contract language which goes into our standard specifications and RFPs has already been approved by the national vendors, e.g. Siemens, Avaya, Nortel, U.S West, South Central Bell, BellSouth, etc. This is different from the approach of most consulting firms and businesses where the contract is negotiated after award. After the experience of implementing dozens of systems, we decided that contract language is equivalent to money in the final analysis. As you negotiate, you can give up money that might otherwise be retained.

The concept of the RFP process is to keep all things equal among the vendors. If it is to be fully followed, the contract should be part of the RFP so that all vendors are responding under the same contractual conditions. In this regard, we write the contract to protect the client and include in the details the experiences of implementing over 150 systems. Using this concept, the clients obtain most of the options and operational controls which are desired because all of the vendors must either agree or not respond to the RFP. In other words, this concept basically says to the vendor community, "What will it cost to do business our way?"

As the market place changes, and new situations are experienced in each system implementation, the need to modify the contract language occurs. We modify and renegotiate the contract language with the major vendors. *Clients who use our national contract have never had a system fail to cutover on time, never had it cost more than the base bid price provided in the vendor's response, and have never had a successful vendor/bidder protest.* Indeed, our contract language, which was initially written by several attorneys and JTM Associates, has been reviewed and encouraged by the Attorney's General in three states as well as the corporate counsel of each client.

Using our national contract also allows our clients to fast track the implementation of the system. Once a vendor is selected, all that's needed to proceed is a client signature. Our contract language can always be tailored to be client specific.

SECTION ONE:
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General Areas of Consulting Services Offered (concluded)

Other services include writing, developing, and teaching telecommunications engineering and management courses.

These are offered to the public as seminars through: **the Center for the Study of Data Processing (Washington University), the American Telecommunications Institute (ATI) which is the teaching division of JTM, the Association of College and Telecommunications Administrators (ACUTA), the American Hospital Association**, trade magazines, university continuing education programs, and professional organizations. In addition, in-house courses are developed for larger clients as needed.

The consulting services offered to operating telephone companies, telecommunication services equipment vendors, and common carriers cover the areas of marketing effectively against competition, product development, and management of toll and directory assistance operating facilities. These services also include the production of materials for training programs and engineering support for telecommunications problem solving.

JTM Associates, Inc. awards approximately \$40 million each year in equipment and services to the telecommunications industry and, through its clients, represents over 700,000 business telephone stations to the industry.

SECTION TWO

SPECIFIC AREAS OF EXPERTISE

SECTION TWO: **SPECIFIC AREAS OF EXPERTISE**

JTM Associates, Inc. has had experience in every phase of construction, design, and management of telecommunications, data communications, network and distribution system design, and management systems development on over 300 projects since 1970. Listed below are some specific areas of expertise that are most often requested by our clients. Where appropriate, a *representative sample* of specific project references that demonstrate our experience in these areas are cited. For further details, please see the project descriptions contained in the section entitled Project Description List.

Sample of experience in developing, designing, and implementing:

Global Telecommunications Systems

Vivendi/Universal Studios/Universal Music Group - This project included the networking of voice and data systems for over 300 locations worldwide. In addition, specifications were written for the procurement of voice and video systems on a global basis and global contracts were negotiated with the vendors.

General Sports Ventures/The Athletes Foot - This project included voice system, voice network, electronic mail, and e-mail/voice mail integration for over 250 stores worldwide. A Software Defined Network was also designed and implemented as part of this project.

Voice Over IP (VOIP)/IP Telephony System Design and Implementation

Oregon University System (OUS) - This plan addressed the design and implementation supervision of the conversion of the nine campus telephone systems with over 64,000 ports to new Communications Management Servers and H.323 VOIP trunking and IP telephone implementations. The design included securing IP and new Firewall and Media Encryption functions, Quality of Service and DiffServ design, administration of the Communications Servers, IP call routing, reliable Call Detail recording over IP, and methods and procedures development for all. This implementation included Avaya and Cisco voice/data hardware with interoperability testing.

Washington Gas Company - This plan addressed the relocation of the Headquarters telephone system over a single weekend as well as the conversion of that system to Communications Management Servers and IP connected Media Gateways. Four remote offices in the metropolitan area were converted to IP Media Gateways on the new system and two offices were converted to IP Telephones under control of the new telephone system. In addition, three other telephone systems were upgraded to be IP enabled and all systems were connected using VOIP Tandem Trunks for carrying Uniform Dial Plan calls.

The design included securing IP and Media Encryption functions, Quality of Service and DiffServ design, administration of the Communications Servers, IP call routing, reliable Call Detail recording over IP, and methods and procedures development for all. This implementation included Avaya, Extreme, and Cisco voice/data hardware with interoperability

**SECTION TWO:
SPECIFIC AREAS OF EXPERTISE**

Sample of experience in developing, designing, and implementing: (continued)

Server and Sequel Query Language (SQL) Database Systems with Computer Telephone Integration (CTI)

Emory Healthcare, Duke University, Medical University of South Carolina, Oregon Health and Science University, and the Chicago Mercantile - JTM Associates has designed large, redundant, mission critical server and database systems supporting Client/Server operations using Oracle and Microsoft Access for the above locations. All of these systems support major Call Center operations and provide Directory, Paging, and Computer Telephone Integration (CTI) applications.

Strategic data, Voice, and Video/image Communications Plans

Washington Gas Company - This plan addressed the wide area voice, data, and video needs of the gas utility company serving Washington D.C., Maryland, and Virginia. The company, by nature, has many distributed operational sites with the need to provide graphical pipeline and plant layouts at all locations along with routine access to many administrative systems. Telephone service is distributed to the sites using Avaya G3 and S8700 MultiVantage PBX technology with remote switch cabinets connected by DS-1 Facilities and IP.

The recommendation, which has been implemented, was to upgrade station/terminal wire to Category 5 and to implement an ATM backbone for voice and data. This implementation required the design of the ATM system, databasing the system, resolution of dissimilar LAN connectivities and interoperability issues, Quality of Service Category design, bit and cell rate speed and class design, timing requirement and connection modes design for circuits, DS-1 Clock synchronization design, and specification/coordination of the interoperability assurance plan for voice over ATM.

Emory Healthcare/Crawford Long Hospital, Emory University Hospital, and The Emory Clinic - The first phase of this plan addressed the issues of conversion of coaxial and shielded wire to uniform telephone wiring plant (UTP) for the institutions. The first part converted the existing IBM 3270 coaxial cable devices to UTP using BALUNS. The second part converted the Token Ring and Ethernet Local Area Networks (LANs) to UTP with a fiber optic backbone supporting multiplexing equipment serving the LANs. The third part upgraded the UTP data jacks to 155 Megabits Per Second (Mbs) Cable Distributed Data Interface (CDDI) standards and was AT&T/Lucent's international Beta test site for this technology.

**SECTION TWO:
SPECIFIC AREAS OF EXPERTISE**

Sample of experience in developing, designing, and implementing: (continued)

Strategic data, Voice, and Video/image Communications Plans (continued)

Emory Healthcare (concluded) - The second phase of this plan addressed the implementation of fiber optic and UTP cable, 155 Mbs image transfer (FDDI/CDDI) for diagnostic as well as other applications. The third phase addressed the concept and design of video teleconferencing for education and operations applications and resulted in the implementation of multi-site teleconferencing equipment with a video teleconferencing bridge.

The fourth phase of this plan addressed the design and implementation of Integrated Services Digital Network (ISDN) technology for both internal use and for inward and outward trunk access to the public switched network using ISDN Primary Rate Interfaces (PRI). This was followed by development and implementation of a plan to use PRI services such as calling number display for marketing analysis, validation of access to secure data, and routing of customer/patient calls to the appropriate personnel. Also addressed were other applications of PRI services included transfer of diagnostic images to devices located in physician's offices and homes on a dial up basis.

The fifth phase of this plan addressed the design and implementation of an Integrated Voice Response (IVR) system to screen calls for Patient Accounts as well as to provide Patient Information for churches, florists, and physician offices. The IVR also provides bed status and patient location functions.

The Sixth phase consisted of the design and implementation of a Group Video system to support weekly joint Crawford Long/Emory Hospital Managers meetings. This system differs from most Group Video systems because of the design constraints imposed by large sized meeting rooms. Multiple cameras and a custom engineered, echo canceling sound system were designed. Camera operation is voice activated and all ancillary video services such as VCR playback and recording, Slide Projection, and PC/Mac video input are provided.

A second Group Video system was designed and implemented to provide Group Video for the joint Leadership and other large meetings. This system supports meetings held in Auditoriums seating 300+ people.

Both the Managers' meeting rooms and the Auditoriums use 384-512 Kbps ISDN dialup technology and can be used for video conferencing to any other ISDN equipped room using current video Standards anywhere in the world.

The latest aspect of the strategic plan was to implement desktop and stand alone 128 Kbps video technology using the built in Lucent G3 PBX Multi-Media Call Handling feature to provide six party conferencing and Video Kiosk to ACD video agent call processing. This not only supports individual video conferencing on demand but provides routine ACD agents equipped with desktop video units to receive and process video calls originating from locations such as the walk up Patient Information desks.

**SECTION TWO:
SPECIFIC AREAS OF EXPERTISE**

Sample of experience in developing, designing, and implementing: (continued)

Strategic data, Voice, and Video/image Communications Plans (concluded)

Duke University - Provided an analysis of a proposal from GTE to provide SONET connectivity (including fiber) and SONET service to all of Duke's locations in the Raleigh/Durham area. On going projects include rate analysis and development for services provided by the Office of Information Technology and implementation of various technologies. In addition, we chaired a technology committee overseeing voice, data, and video convergence.

Vivendi/Universal Studios - The strategic plan encompassed integrated voice, image, video teleconferencing and text transmission on a global basis. In addition, it included the planning, design, specifications, and creation of new entertainment and tour facilities in Orlando, Florida at Universal Escape.

University of North Dakota - The plan addressed the development of telephone wire and fiber backbone systems to support and distribute voice, data, and image to all campus buildings and resulted in a new wire plant and fiber optic plant. Additionally, the plan developed uniform standards for station jacks and wire supporting 100Mbs and the implementation of ISDN PRI facilities.

Oregon University System - The plan addressed the entire state-wide system of eight campuses including the development of protocol, wiring, integrated voice/data and voice messaging standards, and organizational requirements, creating a statewide data/voice network.

Mercer University - The planning process is under development, although portions have been implemented, to address the use of data over voice multiplexing applications using the existing telephone wiring plant, inter-campus data and voice communications standards and organizational and staffing changes.

Penn State University and Campus System - The plan addressed the issues of divestiture, their impact on the industry and the customers, the organizational structure changes required, recommendations for standards in data and voice communications, and the implementation of statewide data and voice communications systems.

Louisiana State University at Baton Rouge - Strategic plans were developed and implemented to address organizational and staffing requirements, student use of personal computers and their impact on the data/voice support systems which students access, the use of fiber to provide high volume computer communications and to provision channel connected devices at large distances from the main frames, and the issues of providing high speed data and integrated voice services at distances more than a mile from the communications wire center.

**SECTION TWO:
SPECIFIC AREAS OF EXPERTISE**

Sample of experience in developing, designing, and implementing: (continued)

Large Telecommunications Systems

The University of Virginia at Charlottesville - JTM Associates performed the design and implementation of a 7,000 station Siemens/ROLM CBX system. In addition, we designed, bid and implemented a large pocket paging radio system for the hospital and medical center.

Oregon University System - JTM Associates performed the design, wrote bid specification, and recommended the selection of an integrated network of digital telephone systems with a centralized trouble reporting and tracking system, and Call Management systems for ACD call routing and control for the nine campus system. It included the design and implementation of entirely new cable and fiber optic distribution plants with substructure for each campus totaling 387 building locations and over 100,000 cable pairs. Exceeding 28,000 stations and 120 off premises extension (OPX) locations at completion, this is one of the largest university telecommunications procurement projects in the United States to date.

Louisiana State University at Baton Rouge - JTM Associates has implemented four systems over the last twenty years. The most recent project being the writing of an Request For Proposal and implementation of a 17,000 station PBX which was awarded to AT&T/Lucent for a System 85 and subsequently upgraded to a AT&T/Lucent Generic 2.2 system followed by a migration to a Lucent G3 PBX system followed by conversion to an IP enabled S8700 Communications Management Server system. Ongoing projects have resulted in the implementation of a Centrex system operating as a satellite of the campus PBX system and connected with ISDN PRI facilities to provide residential service to fraternities and sororities.

University of North Dakota - JTM Associates performed the design, engineered the outside plant and substructure, wrote the bid specification, and implemented the 6,000 station PBX system. This system included 32,000 outside plant cable pairs terminated on a COSMIC central office distributing frame, 6,700 strands of fiber optic cable, a centralized trouble reporting system operating under Uniform Network Management Protocol (UNMP), and a Call Management System for call routing and control.

Washington University - JTM Associates performed the design, engineered the outside plant and emergency generator power system, wrote the bid specification, and implemented the 6,000 station Northern Telecom, DMS-100 system. This system also used the Northern Telecom DNC500 system for central administration and long distance Call Detail Recording.

**SECTION TWO:
SPECIFIC AREAS OF EXPERTISE**

Sample of experience in developing, designing, and implementing: (continued)

Voice/Data/Video Networks and Interfaces Using Microwave and Fiber Optic Media

Washington Gas Company - See "Experience in developing and implementing strategic data..." above.

Oregon University System - JTM Associates wrote bid specifications for the implementation of a statewide, nine campus, digital (DS3/DS1) backbone data/voice network linking the administrative and academic computing functions at each of the eight campuses. This project also included the specification and implementation of the data cabling and wiring standards for local area networks and synchronous data applications for the entire state system. The backbone system was migrated to Frame Relay later and a statewide, 384 Kbs, dial-up video teleconference system with conference bridge was designed and implemented.

Georgia Power Company Corporate Headquarters project - JTM Associates designed and implemented a 3,000 station Siemens/ROLM VLCBX which was specifically engineered to interface with a Sylvania Tandem switching system and a state wide T-Carrier/Microwave data network.

Louisiana State University project involved the design and implementation of a fiber optic campus distribution network.

Emory Healthcare - See "Experience in developing and implementing strategic data..." above.

Pennsylvania State University - See Project Description

Voice/Data/Video Network Management Systems

Emory Healthcare Network - JTM Associates conceived, designed, implemented, and provides daily operational management for a 10,000 station, six node Electronic Tandem Network using FDDI and T-Carrier systems for voice, data, and image transfer communications between four major Atlanta Hospitals, The Emory Clinic, and Emory University. Centralized long distance service with allocation and resale applications is provided through this network.

**SECTION TWO:
SPECIFIC AREAS OF EXPERTISE**

Sample of experience in developing, designing, and implementing: (continued)

Inbound/Outbound Call Centers, Help Desks, Interactive Voice Response (IVR) Systems, Voice Recognition, and Computer Telephone Integrations (CTI) Systems

Virtually all of our clients have some inbound call center functions. Many have Interactive Voice Response (IVR) systems in addition to voice mail. One of the largest and most recent projects was for **The Washington Gas Company**. In this project ISDN PRI trunks providing Calling Number ID were installed to the PBX system. Two IVRs systems were installed to handle the traffic and to separate the functions supports. One IVR allows customers to read their own gas meters and to enter the reading using the IVR. The other IVR serves as a front end to all calls attempting to reach the Customer Services department. The Customer Services IVR receives the calling parties telephone number, performs an inquiry to the IBM mainframe, and if the number is found, in the mainframe database, the call is transferred to the Customer Services Automatic Call Distribution (ACD) group using the ISDN gateway. When the ACD agent receives the call, the agent's terminal automatically displays the calling party's account information.

The Customer Services IVR also screens calls with voice prompts, to ensure that calls are transferred to the proper department. The Customer Services ACD group has eighty agents and a Call Management System.

At **Emory Healthcare**, an IVR system was designed to provide Patient Information, Patient Location by Physician, and Bed Tracking operations. Under consideration is the screening of calls for Patient Accounts and the Information Services Help Desk. As envisioned for the Help Desk, the system would provide the ability for a user to have their terminal reset or their password reset automatically without Help Desk agent intervention.

Computer Telephone Integration (CTI) systems using the desktop PC to control the telephone and to provide access for ACD agents to large Oracle SQL servers were designed for **Emory Healthcare, Duke University, Medical University of South Carolina, Oregon Health and Science University, and the Chicago Mercantile**. JTM recently designed and implemented Speech in several of these systems.

A Speech Recognition system was designed and implemented at **Universal Studios** to provide Global directory look-up and call transfer for all staff worldwide. Using speech recognition, the caller speaks the name of the party desired and the system responds with name verification, telephone number and transfers the call, if the caller desires.

**SECTION TWO:
SPECIFIC AREAS OF EXPERTISE**

Sample of experience in developing, designing, and implementing: (continued)

Audio and Video Teleconferencing, Electronic Mail/Voice Messaging Integration, Bypass Technology, Software Defined Network, T-Carrier, and FDDI Systems

For specific examples where this technology has been implemented, see Project Descriptions for **Vivendi/Universal Studios, Emory Healthcare, University of North Dakota, Washington Gas Light Company, Oregon University System, The American Dental Association, Medical University of South Carolina, The University of the South, University of South Florida, Louisiana State University, University of North Dakota, Washington University, The Athlete's Foot Group, and Gettysburg College.**

2-Way Trunked-Radio and Radio Paging (Beeper) Systems

JTM Associates has designed and implemented 2-way Trunked-Radio and/or radio paging (pocket paging/beepers) for **Emory Healthcare, Duke University, Sentara Health Systems, Oregon Health and Science University, Medical University of South Carolina, and University of Virginia.**

Voice and Data Traffic Management Educational Courses

JTM Associates has developed and presented seminars in virtually all areas of telecommunications including Data & Voice Traffic Management and Theory, Management of Telecommunications, Design of Data Communications Systems, Operation/Design/Implementation of Digital Transmission, Microwave and Optical Fiber Systems, and Long Distance Analysis. These have been taught for **Business Communications Review, Washington University's Center for the Study of Data Processing, the American Management Associations, Pennsylvania State University, the University of Calgary, the American Telecommunications Institute, The American Hospital Association (AHA), the Association of College and University Telecommunications Administrators (ACUTA),** and various other professional associations and clients through the years.

JTM Associates has performed system traffic design for both data and voice applications in most of our projects. The following projects are a representative sample:

- Gettysburg College** system implementation
- University of Virginia** system implementation
- Louisiana State University** system implementation
- Emory Healthcare** implementation and management
- Penn State University** outlying campus systems
- Lehigh University** network analysis
- Oregon University System** implementation, and management
- Vivendi/Universal Studios** network analysis, and ongoing administration
- Georgia Power Company** network analysis and system implementation
- Washington Gas Company** system implementation and ongoing administration

**SECTION TWO:
SPECIFIC AREAS OF EXPERTISE**

Sample of experience in developing, designing, and implementing: (concluded)

Maintenance Management Systems

Virtually all of our projects requiring a new system result in analysis, recommendations, and the development of maintenance management systems. In addition, JTM Associates developed and implemented an automated maintenance tracking system at Emory Crawford Long Hospital which keeps track of all telecommunications trouble reports by vendor, trouble type, and expected response time.

Wire, Cable, Space Management, and Facilities Systems

Almost all major campus and medical center projects have required detailed specifications for cable and facilities design purposes. See **Oregon University System, University of North Dakota, North Dakota State University, Emory Healthcare, Gettysburg College, Agnes Scott College, and Pennsylvania State University** project descriptions for details of a particularly complex projects.

The **Oregon University System** project required the replacement of campus distribution systems for all eight of the state system's campuses, including those currently served by Telephone Company Centrex systems.

Contemporary, Vendor Offerings

JTM Associates has implemented numerous large PBX systems. Using the RFP specification process to select vendors, we have direct experience with most of the contemporary product offerings from all the major equipment vendors. See the Project Descriptions for the various types of PBXs implemented in recent years.

Sample of experience with:

Vendor Pricing Schedules

JTM Associates requires detailed unit and component pricing in all formal RFP responses. Considering the number of systems bid in the past thirty-three years, we feel we have detailed pricing experience with almost every major vendor's products. Indeed, our practice of supervising the ordering, contract, and invoice auditing processes for major systems has given us detailed experience with vendor pricing of all types.

**SECTION TWO:
SPECIFIC AREAS OF EXPERTISE**

Sample of experience in:

Cost/Benefit Analysis

All of our RFP documents require detailed financial information for cost benefit analysis purposes. Therefore, we have extensive experience in this area. In addition, JTM Associates has developed and teaches a variety of seminar courses in this area.

Purchasing/Leasing Cost Analysis

All of our RFP documents require detailed financial information for lease/purchase analysis purposes. JTM Associates has developed and teaches a variety of seminar courses in this area as well. Most large projects have required an extensive financial analysis of all alternatives before the client could make an informed decision.

SECTION THREE

**PRINCIPAL CONSULTANTS
BIOGRAPHICAL INFORMATION**

SECTION THREE:
PRINCIPAL CONSULTANT BIOGRAPHIES

THE TEAM APPROACH

As JTM Associates grew, the number of major projects grew as well. A way had to be found to provide our clients the superior level of service that was expected of JTM Associates. The larger the project, the more critical in nature the work became.

As a result, JTM Associates developed a team approach to all major projects. This approach insures that the work is performed in a timely manner, but more importantly, our client is protected. Should something deleterious happen to one of our consultants or if the principal consultant for a client is not available at the time a client needs work performed, or a question answered, another consultant is familiar with the project and can be of assistance.

Since 1986, all Associate Consultants have worked on all phases of all major projects with Joe Massey as team leader, thus insuring the most flexibility and optimum availability of consulting resources for each client. This concept has proven to strengthen us in our consulting practice and has kept us with a strong client base. JTM Associates has provided system design and implementation consulting services to:

SUMMARY OF CLIENTS BY TYPE

30	Hospital and University Medical Center Clients
8	Major Banking Clients
43	College and University Clients
40	General Business Clients
3	Major Utilities
3	Entertainment/Television Clients
10	Inbound Call Center Clients
1	International Stock Exchange

SECTION THREE:
PRINCIPAL CONSULTANT BIOGRAPHIES

JOSEPH T. MASSEY, JR.

President, JTM Associates, Inc.

Joe Massey established his consulting practice while in his junior year at Georgia Tech. He has developed and taught hundreds of seminars and courses on telecommunications engineering, design, marketing, and management. In addition, Mr. Massey has developed seminars, training programs, and technical courses for more than 35 professional associations, publishing companies, and colleges and universities.

Mr. Massey has also provided expert testimony before regulatory bodies in both rate and service complaint cases, including testimony before the FCC on behalf of the American Hospital Association.

Past president of the Georgia Telecommunications Association, and a charter member of the Society of Telecommunications Consultants, Mr. Massey majored in Industrial and Systems Engineering at the Georgia Institute of Technology. His articles on telecommunications issues have appeared in professional publications such as Business Communications Review, and Communications News as well as numerous consumer publications.

JTM Associates was formed in 1970 to provide complete telecommunications consulting services to both the public and private sectors. Seeing the growing need for telecommunications professionals, Mr. Massey developed the American Telecommunications Institute, Inc., in order to provide comprehensive training to individuals seeking to improve their professional skills or seeking a career in telecommunications management. Mr. Massey serves as president of the Institute, and is one of the principal instructors on the faculty.

SECTION THREE:
PRINCIPAL CONSULTANT BIOGRAPHIES

DAVID A. DOUGLASS

Associate Consultant

David A. Douglass received his education in Business Administration at the University of Iowa with follow up study at Drake University. Mr. Douglass joined JTM Associates in 1982 and specializes in developing and teaching in-house telecommunications courses and in the implementation of telecommunications management systems. Systems design for data gathering, systems analysis of organizational communications patterns, telephone traffic engineering, and human factors engineering are the primary consulting responsibilities of Mr. Douglass.

Mr. Douglass has written specifications for and implemented many telecommunications systems. These include Lucent/AT&T/Avaya PBXs, Siemens/ROLM CBXs, and Northern Telecom PBX's, for regulated utilities, movie studios, universities and medical complexes. One of the more complicated designs Mr. Douglass has completed consists of a system configured with two separate hospitals located on different sides of a city that are connected via a T-Carrier system and use Electronic Tandem Network switching software for complete feature and station transparency.

Mr. Douglass has provided system design and implemented shared tenant PBX systems, one of which was the first truly shared tenant systems in the country. Mr. Douglass oversees the operations, network management and expansion programs for several rapidly growing medical complexes. In addition, Mr. Douglass has assisted in the development of multi-site corporate telecommunications departments and in the engineering of a multi-system communications network for a large studio/amusement park.

As an instructor for the American Telecommunications Institute, Mr. Douglass specializes in personnel management courses, operator and call center agent management/administration, and counselor course training program development. Mr. Douglass is a member of the Society of Telecommunications Consultants.

SECTION THREE:
PRINCIPAL CONSULTANT BIOGRAPHIES

CHESLEY (CHIP) L. BOWDEN, III

Associate Consultant

Chip Bowden received his education from Westminster Choir College and Indiana University where he received his B.M. degree. Prior to joining JTM Associates, Mr. Bowden worked for Northwest Airlines, and Pace Theatrical Group. Mr. Bowden specializes in developing and teaching custom tailored client courses in inbound call management, effective call screening and processing, telemarketing, and telephone etiquette. He also teaches Telecommunications Counselor/Coordinator classes and Database Management classes for SQL languages such as Oracle.

In addition, Mr. Bowden also has considerable experience in the management and implementation of major cable, wire, and fiber optic systems. He also has written specifications for and implemented many telecommunications systems and has implemented several Computer Telephone Integration (CTI) systems for Help Desks and major Call Centers.

As an instructor for the American Telecommunications Institute, Mr. Bowden specializes in operator and call center agent management/administration, counselor course training program development, and CTI agent instruction. Mr. Bowden is a member of the Society of Telecommunications Consultants.

SECTION FOUR

PROJECT DESCRIPTION LIST

SECTION FOUR
PROJECT DESCRIPTIONS - REPRESENTATIVE SAMPLE

The following pages list a sampling of some of the more interesting and complex projects performed by or currently under the direction of JTM Associates, Inc. Included with each description is the name of the client representative, size of the system involved, and a brief description of the key project elements. For its clients, JTM Associates, Inc. represents over \$40,000,000 each year, in services and equipment, to the telecommunications (voice/data) industry.

Vivendi/Universal Studios/Universal Music Group - GLOBAL

Ms. Marcia Beilfuss
Director of Global Telecommunications Strategic Planning
Universal City Studios
100 Universal City Plaza
Universal City CA 91608
(818) 777-7075

Vivendi/Universal Escape (Parks), Universal Music Group (world-wide)

Services Provided - (This project represents experience in developing specifications for telecommunications systems on a global basis, procuring and implementing those systems, and supervising project implementation world-wide).

In addition to the Telecommunications (voice/data) infrastructure design, procurement, and implementation for the parks, e.g. Universal Escape - Orlando, specifications were written for procurement of systems on a worldwide basis. Voice communications and Voice Mail systems were networked globally and JTM Associates assists in the supervision of International Operations.

SECTION FOUR
PROJECT DESCRIPTIONS - REPRESENTATIVE SAMPLE

Vivendi/Universal Studios/Universal Music Group - GLOBAL (continued)

Universal Studios Hollywood

<u>Station Lines</u>	- 22,000 -	Lucent Generic 3	- Main Studio
		Lucent Generic 1	- One (remote site)
		Lucent Generic 3I	- Two (remote sites)
<u>Voice Mail</u>	- 4 -	AUDIX Systems	- Networked & Shared
	- 1 -	OCTEL System	- Networked Worldwide
<u>Distrib. Com.</u>	- 9 -	DCS Nodes	- X.25 Distributed Comm. System
<u>Call Mgt.</u>	- 1 -	CMS	- Call Management System
<u>Call Centers</u>	- 10 -	Medium	- With ACD/CMS
<u>Cable Mgt.</u>	- 1 -	Angeles Group	- Cable, Fiber, Station Wire Mgmt.
<u>Order Mgt.</u>	- 1 -	Manager IV	- Service Order Mgt. & Processing
<u>Trouble Mgt.</u>	- 1 -	Trouble Tracker	- Trouble Tracking
<u>Group Video</u>	- 6 -	PictureTel	- Video Conference Centers
<u>Audio Bridge</u>	- 1 -	Lucent DCSS	- Digital Conf. & Switching System
<u>Disaster Pln.</u>	- 1 -		- Disaster Recovery Plan & System

Services Provided - (This project represents experience with a large campus system having the most complicated and sophisticated demands resulting from being a major motion picture studio as well as an entertainment theme park).

The project included the supervision of contract re-negotiations after installation of the system, re-engineering of the distributed node system, supervision and implementation of an upgrade in the processor and software, the development of a strategic telecommunications plan, the production and teaching of a telecommunications counselor course for all studio departments, the design and implementation of an integrated and networked voice messaging system, evaluation of all aspects of the telecommunications function, and the training and evaluation of the telecommunications staff.

Also included was the evaluation of and assistance in the implementation of a mainframe order processing, directory, equipment and cable inventory, repair reporting, and cable assignment system, and a long distance billing system.

In addition, subsequent projects have included:

1. The design and installation of an OCTEL voice mail system and worldwide voice messaging network system.
2. The writing of an RFP to outsource the maintenance on the PBXs and terminal equipment along with ongoing additions, moves, and changes of terminal equipment.
3. The design and implementation of several Call Centers, including the Information Services Help Desk, using multiple ACD systems with a Call Management application processor.
4. Upgrade of the systems to IP enabled platforms and VOIP/IP telephony implementation.

SECTION FOUR
PROJECT DESCRIPTIONS - REPRESENTATIVE SAMPLE

Vivendi/Universal Studios/Universal Music Group - GLOBAL (concluded)

Universal Studios Hollywood (concluded)

5. The design and implementation of a centralized service order processing application. This client processes over 3,000 telephone service requests per month.
6. The design and implementation of an automated trouble reporting and tracking system (Fault Management).
7. The design and implementation of a new Call Detail Recording (CDR) system.
8. The design and implementation of all trunking to ISDN/PRI format as well as the associated Automatic Route Selection changes required to take advantage of the ISDN/PRI switched digital enhancements.
9. The design and implementation of video teleconference centers using ISDN/BRI inverse multiplexers and 384 Kbps dial up service.
10. Recently completed, is the design and implementation of an upgrade of the two G2 PBXs to the Generic 3 platform, the consolidation of the two switch databases into one serving 22,000 lines, and the replacement of the Order Management and Call Detail/Inventory Billing systems.
11. An IVR with Speech Recognition was recently designed and implemented. Using speech recognition where the caller speaks the name of the individual/department desired, this system provides directory look-up, name confirmation, and transfer of the caller.

SECTION FOUR
PROJECT DESCRIPTIONS - REPRESENTATIVE SAMPLE

Emory Healthcare - Crawford Long Hospital, Emory University Hospital, and The Emory Clinic

Mr. Al Blackwelder
 C.O.O. Emory Crawford Long Hospital
 550 Peachtree Street
 Atlanta GA 30365
 (404) 686-2732

SYSTEMS IMPLEMENTED (except NorTel MSL-100 & Meridian Mail)

<u>Station Lines</u>	- 5,000 -	Avaya MultiVantage	- Crawford Long Hospital
<u>Hospital Beds</u>	- 760		
<u>Station Lines</u>	- 4,500 -	Avaya MultiVantage	- The Emory Clinic
	200 -	Avaya Generic 3i	- Georgia 1st. Facility
<u>Station Lines</u>	- 3,500 -	Nortel MSL-100	- Emory Univ. Hospital
<u>Hospital Beds</u>	- 500		
<u>Voice Mail</u>	- 1 -	AUDIX System	- Shared by Lucent systems
	- 1 -	Meridian Mail	- Emory Univ. Hospital
<u>FAX Server</u>	- 1 -	AUDIX FAX	- Uses the Voice Mail System
<u>Distrib. Com.</u>	- 3 -	DCS Nodes	- X.25 Distributed Comm. System
<u>Call Mgt.</u>	- 1 -	CMS	- Call Mgmt. System (Shared)
<u>Call Centers</u>	- 6 -	Large	- With ACD/CMS
<u>IVRs</u>	- 1 -	Conversant	- Integrated Voice Response Syst.
<u>Cable Mgt.</u>	- 2 -	Angeles Group	- Cable, Fiber, Station Wire Mgmt.
<u>Order Mgt.</u>	- 1 -	Manager IV	- Service Order Mgt. & Processing
<u>CDR/Inv.</u>	- 1 -	Bitek	- Call Detail/Inventory Billing Syst.
<u>Pocket Paging</u>	- 1 -	Motorola	- Simulcast Radio Paging System
<u>Cable TV Syst.</u>	- 2 -		- Cable TV Syst./in-house channels
<u>CTI</u>	- 2 -	AMCOM	- Computer Telephone Integration
<u>Help Desks</u>	- 2 -		- Information Svcs. & Telecom.
<u>Group Video</u>	- 5 -	Picturetel/ Polycom	- Video Conference Center/Bridge
<u>Trunked Radio</u>	- 1 -	Motorola	- 2-way Mobile Radio System
<u>Disaster Pln.</u>	- 1 -		- Disaster Recovery Plan & System

SECTION FOUR
PROJECT DESCRIPTIONS - REPRESENTATIVE SAMPLE

Emory Healthcare - (continued)

Services Provided - (This project represents experience in virtually all areas of telecommunications as well as experience in hospitals. In addition, this project is one where JTM Associates President, Joe Massey, provides an ongoing day-to-day management role providing him the resource to advise clients on the real management issues relating to the technologies and human resources in telecommunications).

This is a comprehensive and on-going-consulting project spanning over 30 years. It has included all strategic planning and implementation for data communications and the specification production, evaluation, design, and implementation of several systems that include:

1. The Crawford Long Hospital and Emory Clinic voice communications systems
2. An inter-institutional data communications network
3. A Security video system
4. Appearing on behalf of the American Hospital Association, before the FCC, in radio frequency allocation cases under the sponsorship of the hospital
5. The fire alarm systems
6. A centralized and shared computerized pocket paging system
7. The nurse call systems
8. The dictation systems for the radiology and medical transcription departments
9. Centralized word processing systems for the radiology and medical transcription departments
10. The Woodruff Health Sciences Center Electronic Tandem Network
11. A centralized long distance and equipment billing system
12. A voice messaging system networked using AMIS between Lucent and Northern Telecom systems
13. The writing and implementation of twelve programmed instructional texts for the uniform training of PBX attendants on console operation and administrative procedures
14. The implementation of ACD operations to replace attendant console operations and an associated MIS computer to track performance statistics
15. The conversion of data terminals to uniform telephone wiring
16. The design and implementation of an IVR to process calls to Patient Information, provide bed status, and to screen calls to Patient Accounts and the Information Services help desk
17. The design and implementation of a group videoconference centers.
18. The design and implementation of a cable television system with educational in-house broadcast channels as well as commercial television.

The first part of this project was the implementation of an electronic tandem network and centralized long distance message detail recording system to replace the existing Infoswitch LDCS long distance system. This long distance resale system, originally designed and implemented in 1977 by JTM Associates, was one of the first shared resale long distance systems in the country. The new system required using T-Carrier links to connect the 20,000 station users of the Emory University Medical School, Emory University Hospital, Grady Memorial Hospital, Emory Clinic, Egleston Hospital, and Crawford Long Hospital into one transparent network using coordinated dialing. This in turn required the coordinated simultaneous upgrade of two of the five PBX systems with the installation of a new PBX at one system location with virtually no service interruption at any location.

SECTION FOUR
PROJECT DESCRIPTIONS - REPRESENTATIVE SAMPLE

Emory Healthcare - (continued)

The specifications also required a mainframe computer, batch processed, message detail processing system to process the call detail captured by the centralized recording system. The system provided the ability to accurately rate and allocate local and long distance calls, using most major long distance carriers rates under equal access, and to provide an integrated long distance summary of all calls including authorization code, telephone company calling cards, collect calls, and third number billed calls. Upgraded in 1993 to a 486Mhz platform, this system processes over 1,000,000 call records a month.

The next part of this project was the design and implementation of a major data network, using T-Carrier technology, connecting the processors at Crawford Long Hospital with the processors at Emory University Hospital and the processor at Emory Clinic. This was followed by implementation of a centralized processing facility at Emory University Hospital serving both Crawford Long and Emory University Hospital. In 1993 JTM Associates designed and implemented an upgrade to this network using a fiber optic carrier vendor who provides alternative services to the operating telephone company. This system now provides DS1, DS3, FDDI, and native LAN services between the expanding locations of the Emory Enterprise Network.

In addition plans were developed and specifications were written and implemented for a fiber optic backbone to provide 3044 channel extenders for remotely located channel connected controllers and other high density data/voice traffic. The next phase of this plan addressed the issues of conversion of coaxial and shielded wire to uniform telephone wiring plant (UTP) for the two institutions.

The first part converted the existing IBM 3270 coaxial cable devices to UTP using BALUNs. The second part converted the Token Ring and Ethernet Local Area Networks (LANs) to UTP with a fiber optic backbone supporting multiplexing equipment serving the LANs. The third part upgraded the UTP data jacks to 100 Megabits Per Second (Mbps) Cable Distributed Data Interface (CDDI) standards and was AT&T's international Beta test site for this technology.

The second phase of this plan addressed the implementation of fiber optic and UTP cable, 100 Mbps image transfer (FDDI/CDDI) for diagnostic as well as other applications. The third phase addressed the concept and design of video teleconferencing for education and operations applications and resulted in the implementation of multi-site teleconferencing equipment with a video teleconferencing bridge.

The fourth phase addressed the design and implementation of Integrated Services Digital Network (ISDN) technology for both internal use and for inward and outward trunk access to the public switched network using ISDN Primary Rate Interfaces (PRI). This was followed by development and implementation of a plan to use PRI services such as calling number display for marketing analysis, validation of access to secure data, and routing of customer/patient calls to the appropriate personnel. Also addressed were other applications of PRI services included transfer of diagnostic images to devices located in physician's offices and homes on a dial up basis.

SECTION FOUR
PROJECT DESCRIPTIONS - REPRESENTATIVE SAMPLE

Emory Healthcare - (continued)

JTM Associates designed, wrote specifications for, bid, and implemented a microwave connected, shared, pocket paging (beeper) system used by Emory University Hospital, Emory Clinic, Emory Graduate Medical Education, and Crawford Long Hospital. We have specified and implemented the upgrading of the system to provide FLEX digital paging functions and simultaneous radio broadcasting on twelve transmitters.

This paging system processes over 4,000,000 pages per year. As part of the design/bid process, we implemented a paging terminal and integrated directory system using an Oracle SQL/NET Client/Server design to provide service to the entire system of health care. In addition, this system provides Computer Telephone Integration (CTI) for the operators at Emory Clinic and the Emory Hospitals where the operator telephone positions are controlled by the operators' PCs. CTI is used to decrease operator work time and increase productivity.

An experiment in the replacing of the traditional PBX operator consoles with an ACD and management information system was initiated by JTM Associates and has proven to be a major innovation in operator traffic processing. Under this arrangement, the operator traffic is routed through an ACD in order to improve operator efficiency and to give supervisors "real time" performance statistics. This design allowed for the combining of Emory University, Emory Hospital, Crawford Long Hospital, and The Emory Clinic operators into one central group. JTM recommended the consolidation, designed the combining process, and implemented the central operating facility. The centralization and ACD improvement is significant in that six operator ACD positions process over 5,000 calls a day.

JTM Associates designed and implemented a voice messaging and mail system. This system provides integrated messaging with coverage and message waiting applications on the PBX and provides shared messaging network functions with other institutions on the tandem network. This system also provides FAX Server and is currently waiting on final Information Services approval to implement the already installed Integrated Voice Mail/Email access. The integration will provide the ability to have the Voice Mail system read Email messages over the telephone to a subscriber using voice synthesis. In addition, it will provide a combined Voice/Email PC application so that Voice, Fax, and Email message headers can be viewed from one screen and messages accessed from that same screen.

JTM Associates designed and is implementing an Integrated Voice Response (IVR) system to screen calls for Patient Accounts as well as to provide Patient Information for churches, florists, and physician offices. The IVR also provides bed status and patient location functions.

We also designed and implemented a Group Video system to support weekly joint Crawford Long/Emory Hospital Managers meetings. This system differs from most Group Video systems because of the design constraints imposed by large sized meeting rooms. Multiple cameras and a custom engineered, echo canceling sound system were designed. Camera operation is voice activated and all ancillary video services such as VCR playback and recording, Slide Projection, and PC/Mac video input are provided.

SECTION FOUR
PROJECT DESCRIPTIONS - REPRESENTATIVE SAMPLE

Emory Healthcare - (concluded)

A second Group Video system was designed and implemented to provide Group Video for the joint Leadership and other large meetings. This system supports meetings held in Auditoriums seating 300+ people.

Both the Managers' meeting rooms and the Auditoriums use 384-512 Kbps ISDN dial-up technology and can be used for video conferencing to any other ISDN equipped room using current video Standards anywhere in the world.

JTM Associates also designed modifications to the telephone system to provide desktop, 128 Kbps, desktop and stand alone 128 Kbps video technology using the Avaya G3 Multi-Media Call Handling feature to provide six-party, video teleconferencing on demand and Video Kiosk to ACD video agent call processing.

In addition JTM Associates designed digital, multi-zone, wireless inhouse telephones for use by Crawford Long staff. This wireless system uses the integrated features of the PBX and will be upgraded to provide Dual-mode (wireless/cellular) phones.

A 2002 project was to provide Information Systems Infrastructure consulting services to the Architectural firm of HKS for the \$270 million Crawford Long Redevelopment project. This included the design of all low voltage systems in the facility and the project management for the implementation and occupancy of the new building.

In addition, work included the design and implementation of the upgrade of Crawford Long and The Emory Clinic to IP enabled platforms with Server Separation and VOIP trunking.

Most recently, JTM wrote the RFP for replacement of the Telephone/Data Billing, Work Order, and Inventory management system.

SECTION FOUR
PROJECT DESCRIPTIONS - REPRESENTATIVE SAMPLE

Duke University and Duke Medical Center

Ms. Paula Loendorf
 Director of Televideo Communications
 Office Of Information Technology
 Duke University
 Durham NC 27708
 Now Located at University of New Mexico
 505-277-4500

SYSTEMS

<u>Station Lines</u>	-24,000 -		- #5 ESS Privately Owned Central Office
<u>Station Lines</u>	- 5,000 -		- Distributed over 50 PBX Systems
			- (Avaya G3, NorTel Meridians, etc.)
<u>Hospital Beds</u>	- 1,124		
<u>Voice Mail</u>	- 1 -	AUDIX System	- G3 PBXs
	- 3 -	Meridian Mail	- NorTel PBXs
	- 2 -	Octel Serenades	- #5ESS Stations
<u>FAX Server</u>	- 1 -	AUDIX FAX	- Uses the Voice Mail System
<u>Distrib Com.</u>	- 2 -	DCS Nodes	- X.25 Distributed Comm. System
<u>Call Mgt.</u>	- 1 -	CMS-G3	- Call Mgmt. System
<u>Call Mgt.</u>	- 1 -	#5 Pinacale	- Call Mgmt. System
<u>Call Centers</u>	- 6 -	Large	- With ACD/CMS
<u>Cable Mgt.</u>	- 1 -	CompCo	- Cable, Fiber, Station Wire Mgmt.
<u>CDR/Inv.</u>	- 1 -	Bitek	- Call Detail/Inventory Billing Syst.
<u>Pocket Paging</u>	- 1 -	Motorola	- Simulcast Radio Paging System
<u>Cable TV Syst.</u>	- 1 -		- Cable TV Syst./in-house channels
<u>CTI</u>	- 1 -	AMCOM	- Computer Telephone Integration
<u>Help Desks</u>	- 2 -		- Information Svcs. Univ. & Med. Cntr.
<u>Group Video</u>	- 5 -	Various	- Video Conference Center/Bridge
<u>Trunked Radio</u>	- 1 -	Motorola	- 2-way Mobile Radio System
<u>Disaster Pln.</u>	- 1 -		- Disaster Recovery Plan & System

Services Provided - (This project represents experience with Central Office systems and Signaling System 7, strategic planning, Toll, Internet, Wireless/Cellular procurement, financial analysis and recommendations for new rate structures).

Joe Massey of JTM Associates was first asked to chair an ongoing group whose purpose is to analyze the strategic issues related to Voice, Video, and Data Integration/Convergence and to make recommendations to the University Information Technology Administrative Counsel. The next phase was an analysis of costs with recommendations for new rate structures. In addition, strategic analysis was performed to determine the need for an Enterprise PBX system to support the Medical Center. This was followed by development of an RFP for the procurement of Toll, Internet, and Wireless/Cellular services.

In addition, a number of telephony systems were designed and implemented along with a new Radio Paging and CTI call center server and workstations.

SECTION FOUR
PROJECT DESCRIPTIONS - REPRESENTATIVE SAMPLE

The University of the South

Dr. Laurence R. Alvarez
Associate Provost
The University of the South
Sewanee TN 37375
(615) 598-1231

SYSTEMS IMPLEMENTED

<u>Station Lines</u>	- 2,000 -	Nortel Meridian SL-1
<u>Voice Mail</u>	- 1 -	Meridian Mail
<u>Order Mgt.</u>	- 1 -	Meridian Admin Tools - Service Order Mgt.
<u>CDR/Inv.</u>	- 1 -	Telco Research - Call Detail/Inventory Billing Syst.
<u>Student Svcs.</u>	- 1 -	Student Long Distance & Service

Services Provided - (This project demonstrates the skills required to train the entire Telecommunications department consisting of newly hired personnel with virtually no telecommunications experience or background. The project was used as the laboratory in which the personnel were trained).

JTM Associates wrote an RFP for the replacement of the existing Lucent/AT&T Dimension PBX. The new system provides both administrative and student telephone service, including voice mail services for all. In addition, the project included the design and implementation of all new outside cable and fiber distribution plant and substructure as well as the design and implementation of new inside wiring for several buildings.

A major function of the project was the creation of a student services program for the resale of telephone, voice mail and long distance services. This included the development of the pricing structure and marketing materials for these services as well as the design and implementation of the billing system. In addition, the project included complete implementation services such as development of administrative telephone training material, delivery of training courses, supervision of cutover and testing for acceptance of the system.

SECTION FOUR
PROJECT DESCRIPTIONS - REPRESENTATIVE SAMPLE

Washington Gas Company

Mr. John Bradfield
Director of Telecommunications
Washington Gas Company
Springfield Operations Center
6801 Industrial Road
Springfield VA 22151
(703) 750-5582

SYSTEMS IMPLEMENTED

<u>Station Lines</u>	- 2,500 -		- Avaya Generic 3 - Two (D.C. & Springfield)
	- 100 -		- Avaya G3 SI - Two
<u>Voice Mail</u>	- 1 -	AUDIX System	- Shared
<u>Distrib. Com.</u>	- 4 -	DCS Nodes	- X.25 Distributed Comm. System
<u>Call Mgt.</u>	- 1 -	CMS	- Call Management System
<u>Call Centers</u>	- 10 -	Large	- With ACD/CMS
<u>IVRs</u>	- 2 -	Conversant	- Integrated Voice Response Syst.
<u>Cable Mgt.</u>	- 1 -	Angeles Group	- Cable, Fiber, Station Wire Mgmt.
<u>Order Mgt.</u>	- 1 -	Manager IV	- Service Order Mgt. & Processing
<u>Trouble Mgt.</u>	- 1 -	Trouble Tracker	- Trouble Tracking
<u>CDR/Inv.</u>	- 1 -	Bitek	- Call Detail/Inventory Billing Syst.
<u>Fast Packet</u>	- 1 -	Stratacom	- Fast Packet Data/Voice Switch
<u>Disaster Pln.</u>	- 1 -		- Disaster Recovery Plan & System

Services Provided - (This project represents experience with a major utility having complex data/voice communications needs, large Call Center/Customer Services Center demands, sophisticated IVR needs, and substantial Disaster Recovery planning and systems).

SECTION FOUR
PROJECT DESCRIPTIONS - REPRESENTATIVE SAMPLE

Washington Gas Company (continued)

Analysis of the existing environment, development of strategic plan, Request For Proposal (RFP) specification, evaluation, implementation, and acceptance of a new switching system that was integrated with a computerized customer support system. The system includes a centralized message detail recording system and long distance allocation system. Integral to the system design was a large Call Center with a customized ACD (Automatic Call Distribution) system and adjunct management information system that were modified by the manufacturer under the direction of JTM Associates to handle the customer service functions.

This project also included evaluation of the existing Motorola 6GHz analog microwave system using MC400A multiplexers with 600 channels and providing interfacing to the system both from a PBX and data communications standpoint. The project also included an evaluation of the company's data/voice transmission systems that resulted in the design and implementation of a Fast Packet integrated voice/data network. This system provides dynamic reallocation of bandwidth for voice and data to create a self-healing network in the event of circuit failure.

Washington Gas is one of the four largest gas utilities in the country. Virtually all telecommunications services are viewed as critical. This required the cut-over of the PBX, data communications services, and the ACD to be virtually transparent with almost no interruption in service. In addition, the project included the writing, production, and teaching of telecommunications counselor courses for the departments.

Phase two of this multi-year project saw the analysis of all other sites including the corporate headquarters and the re-design and up-grading of inter-site network facilities using T-Carrier, fiber, and microwave systems and the implementation of ISDN PRI inward and outward local trunking with inbound Calling Number ID.

Phase three of this project saw the implementation of Interactive Voice Response (IVR) systems to automate gas meter reading and to improve the efficiency of the Customer Services department. Two IVR systems were installed. One IVR allows customers to read their own gas meters and to enter the reading using the IVR. The other IVR serves as a front end to all calls attempting to reach the Customer Services department.

The Customer Services IVR receives the calling parties telephone number, performs an inquiry to the IBM mainframe, and if the number is found, in the mainframe database, the call is transferred to the Customer Services Automatic Call Distribution (ACD) group using the ISDN gateway. When the ACD agent receives the call, the agent's terminal automatically displays the calling party's account information. The Customer Services IVR also screens calls with voice prompts, to ensure that calls are transferred to the proper department.

SECTION FOUR
PROJECT DESCRIPTIONS - REPRESENTATIVE SAMPLE

Washington Gas Company (concluded)

A recent project addressed the wide area voice, data, and video needs of the company. Washington Gas, by nature, has many distributed operational sites with the need to provide graphical pipeline and plant layouts at all locations along with routine access to many administrative systems. Telephone service is distributed to the sites using Avaya G3 PBX technology with remote switch cabinets connected by DS-1 Facilities.

The recommendation, which has been implemented, was to upgrade station/terminal wire to Category 6 and to implement an ATM backbone for voice and data. This implementation required the engineering and design of the ATM system, databasing the system, resolution of dissimilar LAN connectivities and interoperability issues, Quality of Service Category design, bit and cell rate speed and class design, timing requirement and connection modes design for circuits, DS-1 Clock synchronization design, and specification/coordination of the interoperability assurance plan for voice over ATM.

Most recently, JTM designed and implemented a plan that addressed the relocation of the Headquarters telephone system over a single weekend as well as the conversion of that system to Communications Management Servers and IP connected Media Gateways. Four remote offices in the metropolitan area were converted to IP Media Gateways on the new system and two offices were converted to IP Telephones under control of the new telephone system. In addition, three other telephone systems were upgraded to be IP enabled and all systems were connected using VOIP Tandem Trunks for carrying Uniform Dial Plan calls.

The design included securing IP and Media Encryption functions, Quality of Service and DiffServ design, administration of the Communications Servers, IP call routing, reliable Call Detail recording over IP, and methods and procedures development for all. This implementation included Avaya, Extreme, and Cisco voice/data hardware with interoperability

SECTION FOUR
PROJECT DESCRIPTIONS - REPRESENTATIVE SAMPLE

The Oregon University System (OUS)

Ms. Shay Dakan
 Director of Networks
 Oregon State University – Room A012
 Kerr Administrative Services Building
 Corvallis OR 97331
 (503) 713-3500

SYSTEMS IMPLEMENTED

<u>Station Lines</u>	- 8,000 -	Lucent Generic 3	- University of Oregon
	- 8,450 -	Lucent Generic 3	- Oregon State University
	- 2,600 -	Lucent Generic 3	- Portland State University
	- 4,000 -	Lucent Generic 3	- Oregon Health and Science Univ.
	- 1,500 -	Lucent Generic 3	- Western Oregon University
	- 2,200 -	Lucent Generic 3	- Southern Oregon University
	- 800 -	Lucent Generic 3	- Eastern Oregon University
	- 800 -	Lucent Generic 3	- Oregon Institute of Technology
	- 200 -	Lucent Generic 3i	- Hatfield Marine Sciences Center
<u>Voice Mail</u>	- 15 -	AUDIX System	- Networked State Wide
<u>Distrib.Com.</u>	- 24 -	DCS Nodes	- X.25 Distributed Comm. System
<u>Call Mgt.</u>	- 8 -	CMS	- Call Management Systems
<u>Call Centers</u>	- 10 -	Large	- With ACD/CMS
<u>IVRs</u>	- 2 -	Conversant	- Integrated Voice Response Syst.
<u>Cable Mgt.</u>	- 8 -	Angeles Group	- Cable, Fiber, Station Wire Mgmt.
<u>Order Mgt.</u>	- 1 -	Manager IV	- Service Order Mgt. & Processing
<u>Trouble Mgt.</u>	- 1 -	Trouble Tracker	- Trouble Tracking
<u>CDR/Inv.</u>	- 1 -	Lucent	- Call Detail Recording Centralized
<u>Pocket Paging</u>	- 1 -	AMCOM/Motorola	- Simulcast Radio Paging System
<u>Group Video</u>	- 8 -	PictureTel	- Video Conference Centers

Services Provided - (This project represents skill in bringing nine, independent campus organizations together and managing the processes associated with developing a comprehensive RFP to replace all nine systems. In addition, it represents the skills necessary to design and implement eight, completely new outside plant cable/fiber systems with substructure as well as the project management skills associated with bringing to completion all systems on time and under budget from dates set two years before implementation began).

SECTION FOUR
PROJECT DESCRIPTIONS - REPRESENTATIVE SAMPLE

The Oregon University System - (concluded)

This multi year project, part of OUS's Total Information System project, involved the development and implementation of a strategic plan and telecommunications infrastructure addressing the communications needs for academic, administrative, library, medical center computing systems, and voice systems at all locations, using a state-wide voice/data network consisting of multiplexing, integrated voice/data, local area networks, and protocol conversion equipment and facilities. This included the development of communications standards at all levels.

In addition, the project included the design, RFP specification, and selection of eight university campus data and inter-PBX Feature Transparent voice telecommunications systems, and a statewide digital backbone data and voice network system to link them. The backbone system connected the administrative computing functions at each campus into a statewide network and provided a centralized electronic tandem voice network and long distance processing and student resale system.

The voice system specifications covered over 28,000 stations (now over 64,000 ports) and the replacement of four Centrex and four PBX systems. These specifications also included the design and implementation of a statewide coordinated five digit dialing plan and an X.25 Packet Switched network tying the processors of the nine PBXs and fifteen Voice Mail systems together to provide inter-switch feature transparency. The outside plant specifications covered 387 buildings with 4,644 strands of Fiber Optics, and over 100,000 copper cable pairs with complete substructure and building entrance design.

JTM Associates developed voice/data protocol, cabling and wiring standards for local area networks, synchronous data applications, as well as voice applications, and these standards were implemented statewide. JTM Associates recommended vendor selection and supervised engineering, ordering, and implementation of these voice and data communications systems and developed a centralized network management resource located at Oregon State University in Corvallis.

All system translation work (programming of the system's data base) was shared by JTM Associates and the telecommunications staff of each campus, using this process to train the University personnel on the operation of the system. In addition, a two day counselor course was developed along with course texts and training material and was then presented to representatives of every campus department. The course provided detailed instruction on the systems voice/messaging and integrated data operation and the application of the various features and terminal equipment to provide good station/terminal design and operation. In addition, this process provided instructions on the ordering of the equipment and features so that, in the future, the University would know what was needed and order it, both for the new system and on an on-going basis.

JTM Associates has completed the designing and implementing the conversion of the eight major PBXs to the Generic 3 platform. This includes the PBX database conversion as well as training for all of the Telecommunications staff.

Most recently JTM developed a plan that addressed the design and implementation supervision of the conversion of the nine campus telephone systems with over 64,000 ports to new Communications Management Servers and H.323 VOIP trunking and IP telephone implementations. The design included securing IP and new Firewall and Media Encryption functions, Quality of Service and DiffServ design, administration of the Communications Servers, IP call routing, reliable Call Detail recording over IP, and methods and procedures development for all. This implementation included Avaya and Cisco voice/data hardware with interoperability testing.

SECTION FOUR
PROJECT DESCRIPTIONS - REPRESENTATIVE SAMPLE

The American Dental Association (ADA)

Mr. Antony Chan
Chief Information Officer
The American Dental Association
211 East Chicago Avenue
Chicago IL 60611-2678
(312) 440-2918

SYSTEMS IMPLEMENTED

<u>Station Lines</u>	- 500 -	SIEMENS/ROLM CBX 9751
<u>Voice Mail</u>	- 1 -	ROLM PhoneMail
<u>Call Centers</u>	- 3 -	Large - With ACD

Services Provided - (This project represents experience with a national association operation accomplishing a substantial amount of its day-to-day business using the telephone. This type of client is an information gathering and disseminating organization with sophisticated requirements for using the communications facilities to accomplish the information processing).

This project began with JTM Associates' providing analysis of in place systems and a needs assessment. This resulted in a specification for a replacement system and implementation of a new system with full client training on the management of the system.

SECTION FOUR
PROJECT DESCRIPTIONS - REPRESENTATIVE SAMPLE

Washington University

Mr. William Orrick
Director of University Communications Services
Washington University
Campus Box 1152
One Brookings Drive
St. Louis MO 63130
(314) 935-4599

SYSTEMS IMPLEMENTED

<u>Station Lines</u>	- 6,000 -	Nortel DMS-100 - Plexar/Centrex Southwestern Bell
<u>Voice Mail</u>	- 1 -	Meridian Mail
<u>Call Mgt.</u>	- 1 -	Meridian CMS - Call Management System
<u>Order Mgt.</u>	- 1 -	Meridian DNC - Service Order Mgt. & Processing

Services Provided - (This project represents experience in replacing a premises based PBX system with a Central Office based Centrex system while maintaining the majority of the controls and management systems normally associated with the PBX marketplace).

In this project, we wrote an RFP for the replacement of the existing AT&T Dimension 2000 PBX. The new system provides both administrative and student telephone service, including voice mail services for all. In addition, the project included the design of new cable plant, and integration of multiple off campus locations into the new system using both DS-1 and DS-3 technologies. JTM Associates has provided design services to the campus MIS department to develop specifications for an integrated telemanagement system that will provide cost allocation and long distance resale systems, cable management systems, and inventory/asset management services.

The project included complete implementation services such as development of training material, delivery of training courses, and supervision of cutover and testing for acceptance of the system. Other services provided to this client in the past included engineering expansion options for the old system and development of telemanagement courses that were taught under the auspices of Washington University's Center for the Study of Data Processing (CSDP).

SECTION FIVE

**LISTING OF MAJOR TELECOMMUNICATIONS VENDORS
SELECTED IN PREVIOUS PROJECTS**

**SECTION FIVE:
LISTING OF MAJOR TELECOMMUNICATIONS VENDORS
SELECTED IN PREVIOUS PROJECTS**

In designing and implementing telecommunications systems for our larger clients, JTM Associates has selected and implemented systems or component equipment from the following **partial** list of vendors. In most university and medical center clients, both voice and data transmission networks have been designed using multiple vendors. In some applications such as computerized pocket paging and centralized long distance service, the system hardware or software was produced according to JTM Associates specification and design.

**TELEPHONE & VOICE RELATED SWITCHING
SYSTEMS & RELATED EQUIPMENT**

Lucent Technologies/AT&T/Avaya
Ericsson
General Telephone and Electronics, Inc.
Intecom/IBX
Nippon Electric Company (NEC)
Northern Telecom, Inc.
Siemens/ROLM
Stromberg-Carlson, Inc.
Wescom, Inc.
Toshiba

**FIBER OPTICS, T-CARRIER AND
MICROWAVE TRANSMISSION SYSTEMS**

Lucent/AT&T Technologies
Farinon, Inc.
General Telephone and Electronics, Inc.
ITT, Inc.
Motorola, Inc.

**RADIO, RADIO PAGING, &
PAGING TERMINAL EQUIPMENT**

Advanced Interactive Systems, Inc.
AMCOM Software
General Electric, Inc.
Motorola, Inc.
Mosman, Inc.
Nippon Electric Company (NEC)
Zetron

NURSE CALL SYSTEMS

Dukane
Executone
Rauland-Borg

**DATA PROCESSING AND
TRANSMISSION EQUIPMENT**

Lucent Technologies/AT&T/Avaya
Cabletron
Cisco
Codex, Inc.
Compaq, Inc.
Data General, Inc.
Digital Equipment Corp.
Extreme
Gandalf Data, Inc.
Hewlett-Packard, Inc.
IBM, Inc.
Northern Telecom, Inc.
Paradyne, Inc.
Periphonics, Inc.
Racal-Milgo, Inc.
T-Bar, Inc.
Technikron, Inc.
Texas Instruments, Inc.
3-Com

**CALL DETAILING
PROCESSING SYSTEMS**

Bitek
CDC/Comware
CGI, Inc.
Kennedy, Inc.
Moscom
Micro-Tel, Inc.
Rolm Analysis Center
Sykes, Inc.
Telephone Management Systems
TelWatch Inc.

SECTION SIX

**PROFESSIONAL AFFILIATIONS, PUBLICATIONS, PUBLISHED INTERVIEWS,
LECTURES, INSTRUCTIONAL COURSES, AND SEMINARS**

**SECTION SIX-A:
PROFESSIONAL AFFILIATIONS, PUBLICATIONS,
PUBLISHED INTERVIEWS**

PROFESSIONAL AFFILIATIONS

Member, American Institute of Plant Engineers

Member, American Society of Hospital Engineers

Charter Member, Georgia Society for Hospital
Telecommunications Administrators

Past President, Georgia Telecommunications Association

Past Member of the Board of Directors and Charter Member,
Society of Telecommunications Consultants

PUBLICATIONS AND PUBLISHED INTERVIEWS

"Comparison of AT&T Dimension, System 85, and Generic 2 Features with
AT&T Generic 3 Features"
Definitive Edge, April 1994

"Primary Rate Makes Applications Happen At Atlanta Hospital"
An interview with Joe Massey by Kevin Tanzillo
Communications News, July 1993

"The Consulting Profession's First Annual Report"
An interview with Joe Massey by Peter Meade
Communications Consultant Magazine, November 1989

"How to be a big consultant on campus"
An interview with Joe Massey by Michael Fahey
Communication Consultant Magazine, July 1989

"Definity: Definitely an improvement, but still deficient"
An editorial article by Joe Massey
Network World, March 6, 1989

"Consultants: For better or worse, business is booming"
An interview with Joe Massey by John T. Mulqueen
Data Communications Magazine, November 1988

"Baby Bells chafing at bit of expansion restraints"
An interview with Joe Massey by Robert Snowdon Jones
Atlanta Journal/Constitution, May 17, 1987

"Deregulation Has Birthed Many New Consultants"
An interview with Joe Massey by Don Ciandella
Atlanta Business Chronicle, September 1985

"Long Range Telecommunications Planning"
Proceedings of the 22nd Annual Conference of the
American Society for Hospital Engineering, July 1985

"Integrated Networks: Myths and Realities"

**SECTION SIX-A:
PROFESSIONAL AFFILIATIONS, PUBLICATIONS,
PUBLISHED INTERVIEWS**

Proceedings of the 22nd Annual Conference of the
American Society for Hospital Engineering, July 1985

"Politicians Urged to Stay Out of Phone Charge Feud"
An interview with Joe Massey by Pete Scott
Atlanta Journal, February 16, 1984

"Business Needs Telecommunications Managers:
Business Atlanta, September 1984

"Beating Telecom Tariffs: The Rules Have Changed, But the Game Goes On"
An interviews with Joe Massey by John Dix
Computerworld, August 1984

"Firms Face Jangled Array of Phone Choices"
An interview with Joe Massey by Rick Grove
Atlanta Business Chronicle, December 1983

"Sir, 27 Phone Vendors Are At The Door"
An interview with Joe Massey by Glenn Richards
Hospitals, September 1983

"American Bell, Inc. Will Sell Switch"
Hospital Engineering Bulletin, May 1983

"Consultant Liaison Interview"
An interview with Joe Massey by Essie Mason
Bell System News, Fall 1981

"Effective Telecommunications Management
Takes Understanding of Four Major Areas"
Communications News, April, 1981

"Competition - A Consultant's View"
Excerpts from a Southwestern Bell Seminar
Revenews Number 3, 1980

"University Gets Total Control With Phone Management System"
An interview with Joe Massey
Communications News, December 1979

**SECTION SIX-A:
PROFESSIONAL AFFILIATIONS, PUBLICATIONS,
PUBLISHED INTERVIEWS**

"Calculating Staff Requirements of Automatic Call Distributors"
International Telecommunications Exposition
Paper and Lecture
Business Communications Review, September/October 1978

"Worsening Communications Problems Force Replacement of Phone Systems"
An interview with Joe Massey by Donald Johnson
Modern Healthcare, August 1978

"New Centrex Tariff Foreshadows Major Changes"
Business Communications Review, January/February, 1977

SECTION SIX-B:
LECTURES,
INSTRUCTIONAL COURSES, AND SEMINARS

LECTURES, INSTRUCTIONAL COURSES, SEMINARS

2003

"Leveraging Technology for Disaster Recovery and Business Continuity"
(Guidelines for Creating Emergency Business Plans Using Practical Applications of VOIP for Disaster Recovery)
Detroit, Michigan April 9, 2003

1999

"Complications and Advancements of IP Telephony"
Keynote Speaker
AMCOM Software Annual Technology Conference
Minneapolis, Minnesota September 20-21

1998

"Managing the Complexities of Computer Telephone Integration (CTI)"
Keynote Speaker
AMCOM Software Annual Technology Conference
Minneapolis, Minnesota September 21-23

"Understanding and Managing ATM - A CIO's Perspective"
ITAC Forum
Duke University
Durham, North Carolina May 27, 1998

"Developing Systems for 2000 and Beyond"
Lucent Technologies/Bell Labs
Denver, Colorado January 14-16, 1998

"The Future of the Communications Industry"
Siemens Business Communications Systems
Santa Clara, California January 13, 1998

1997

"Bandwidth on Demand"
Association of College and University Telecommunications Administrators (ACUTA)
Annual Conference
Atlanta, Georgia July 13-17, 1997

"Desktop Video - Technical and Management Issues"
Association of College and University Telecommunications Administrators (ACUTA)
Annual Conference
Atlanta, Georgia July 13-17, 1997

SECTION SIX-B:
LECTURES,
INSTRUCTIONAL COURSES, AND SEMINARS

1996

"Desktop Video - Technical & Management Issues"
Association of College and University Telecommunications Administrators (ACUTA)
Fall Seminar
Alexandria, Virginia October 27-30, 1996

"The New Horizon - Managing Telecommunications in an Era of Bandwidth On Demand"
Michigan Association for Telecommunications in Healthcare/
Ohio Hospital Telecommunications Association
Keynote Address - Fall Conference
Detroit, Michigan, September 20, 1996

"Designing, Implementing and Supporting Video Technology"
The Angeles Group Users Group
Annual Convention
San Diego, California, March 20-23, 1996

1994

"The Future of Wireless in Business Environments"
(An Update on Current Regulatory and Technical Developments in Wireless)
Atlanta Area Definity User's Group
Atlanta, Georgia, October 19, 1994

"The Future of Wireless in Campus Environments"
(An Update on Current Regulatory and Technical Developments in Wireless)
Association of College and University Telecommunications Administrators (ACUTA)
Annual Conference
Anaheim, California, August 1-2, 1994

"AT&T G2.2 World Class Routing"
American Telecommunications Institute Spring Seminar
Atlanta, Georgia, April 14-15, 1994

"Understanding Telecommunications Equipment, Operations, and Management"
(Developing and Managing the Corporate/Institutional Telecommunications
Function)
American Telecommunications Institute Spring Seminar
Atlanta, Georgia, April 11-13, 1994

SECTION SIX-B:
LECTURES,
INSTRUCTIONAL COURSES, AND SEMINARS

1993

"Where Do We Go From Here"
Central New York Communications Association
Annual Conference Keynote Address
Syracuse, New York, November 17, 1993

"The Pitfalls and Pleasures of ISDN"
Association of College and University Telecommunications Administrators (ACUTA)
Annual Conference
Nashville, Tennessee, July 18-22, 1993

"AT&T Dimension/System 85/Generic 2 Feature Differences With Generic 3"
Association of College and University Telecommunications Administrators (ACUTA)
Annual Conference
Nashville, Tennessee, July 18-22, 1993

1991

"Staffing and Manning a Telecom Department"
Association of College and University Telecommunications Administrators (ACUTA)
Annual Conference
St. Louis, Missouri, July 7-11, 1991

"What Customers Want from their PBX Vendor"
Business Communications Review
Washington, DC, June 24-26, 1991

"Predictions for the Nineties"
United States Forestry Service
Atlanta, Georgia, April 17, 1991

"Fiber Optics in Health Care-The Strategy of Future Communications"
Woodruff Health Sciences Center
Atlanta, Georgia, March 12, 1991

"Managing Vendor Relations"
System 75 Users Group
Decatur, Georgia, February 19, 1991

1990

"Predictions for the Nineties"
American Newspaper Publisher Association (ANPA) Keynote Speaker
Las Vegas, Nevada, October 15, 1990

"Predictions for the Nineties"
Southeastern Telecommunications Association (SETA)
Miami, Florida, October 7-10, 1990

SECTION SIX-B:
LECTURES,
INSTRUCTIONAL COURSES, AND SEMINARS

"Predictions for the Nineties"
Association of College and University Telecommunications Administrators (ACUTA)
Miami, Florida, July 16-18, 1990

"ISDN - A Presentation to Telecommunications Managers"
Missouri Valley Communications Association (MVCA)
Lincoln, Nebraska, March 3, 1990

1989

"Planning for the '90's"
Keynote Address
Telecommunications Managers Association of the Capital Area (TMACA)
McLean, Virginia, October 18, 1989

"Basic Telephony I and II"
Oklahoma Communications Managers Association (OCMA)
Annual Conference
Oklahoma City, Oklahoma, September 13, 1989

"Future of ISDN from a Managers Standpoint"
Southeastern Telecommunications Association (SETA)
Nashville, Tennessee, August 28, 1989

"Impacts of ISDN"/"Hospital Communications Issues"
ACUTA- Summer Conference
Philadelphia, Pennsylvania, July 23-27, 1989

SECTION SIX-B:
LECTURES,
INSTRUCTIONAL COURSES, AND SEMINARS

"Student Services"
Seminar and Workshop
Association of College and University Telecommunications Administrators (ACUTA)
Memphis, Tennessee, April 2-5, 1989

"Connecting and Messaging"
SciTrek - Science and Technology Museum
Atlanta, Georgia, February 28, 1989

1988

"Exploring Telecommunications Technologies - The World of Information"
Healthcare Information and Management Systems Society
American Hospital Associations
Miami, Florida, November 8, 1988

"Allocating Critical Resources to Multiple Projects and Priorities (voice/data)"
Healthcare Information and Management Systems Society
American Hospital Associations
Miami, Florida, November 8, 1988

"Helping Clients Sell Internally"
Society of Telecommunications Consultants (STC) Fall Conference
Boston, Massachusetts, October 19-23 1988

"Managing Voice and Data Communications"
The Center for the Study of Data Processing of Washington University in St. Louis
St. Louis, Missouri, March 1-3, 1988

1987

"Supporting the End User From Design Through Implementation
or How to Make Your (communications) System Successful"
A seminar of the critical elements of office automation/telecommunications system design and implementation.
Association of College and University Telecommunications Administrators
New Orleans, Louisiana, October 5-7, 1987

"Managing Voice and Data Communications"
The Center for the Study of Data Processing of Washington University in St. Louis
St. Louis, Missouri, August 2-5, 1987

"Preparing for the Organizational Integration Of Data Processing and Telecommunications Services"
National, Capital Area Hospital Telecommunications Association
Washington, D.C., March 13, 1987

SECTION SIX-B:
LECTURES,
INSTRUCTIONAL COURSES, AND SEMINARS

1986

"Problems with Equal Access for the Everyday Consumer"
WGST Radio Talk Show: Speak Out, Guest Authority
Atlanta, Georgia, December 6, 1986

"Basic Voice Communications Seminar"
The Center for the Study of Data Processing of Washington University in St. Louis
St. Louis, Missouri, May 20-22, 1986

1985

"Managing Telephone Collections and Public Relations with Patient Populations"
Georgia Radiology Managers Association
Atlanta, Georgia, December 16, 1985

"Basic Voice Communications Seminar"
State of Missouri Department of Telecommunications
Jefferson City, Missouri, November 4-6, 1985

"Developing and Managing the Telecommunications Function"
The Center for the Study of Data Processing of
Washington University in St. Louis
St. Louis, Missouri, October 21-23, 1985

"Divestiture Update: Data Communications and ISDN"
CUE XXV-Comten Users Exchange Annual Convention
Atlanta, Georgia, September 26, 1985

"Dealing with Telecommunications Consultants"
AT&T Information Systems' National Sales School
Denver, Colorado, July 24, 1985

"Strategic Planning for Telecommunications"
American Society for Hospital Engineering of the American Hospital Association
Denver, Colorado, July 11, 1985

"Integrated Voice and Data Networks"
American Society for Hospital Engineering of the American Hospital Association
Denver, Colorado, July 11, 1985

"The Impact of Providing Voice and Data Communication Services to Campus Student Populations"
Keynote Address: 14th Annual Conference
Association of College and University Telecommunications Administrators
Banff, Alberta, Canada, July 1, 1985

SECTION SIX-B:
LECTURES,
INSTRUCTIONAL COURSES, AND SEMINARS

"Basic Voice Communications Seminar"
The Center for the Study of Data Processing of Washington University in St. Louis
St. Louis, Missouri, June 11, 1985

"A Strategic View of the Micro Computer Proliferation and Its Impact on Telecommunications"
Georgia Telecommunications Association
Atlanta, Georgia, May 21, 1985

"Selection and Implementation of Hospital Telephone Systems"
American Society for Hospital Engineering of the American Hospital Association
Milwaukee, Wisconsin, May 9-10, 1985

"Managing Patient Relations through Telephone Collections Seminar"
CWL Radiology, P.C.
Atlanta, Georgia, April 20-22, 1985

1984

"System 85 Switch Comparison & Customer Perspective"
ATTIS - Communications Research
Somerset, New Jersey, November 6, 1984

"A Consultant's Perception of Current Marketing Conditions"
ATTCOM First/Second Level Managers
Atlanta, Georgia, October 22, 1984

"A Consultant's View of AT&T's Future"
ATTCOM Advanced Marketing Support Conference
Morristown, New Jersey, October 18, 1984

"Major Switch Comparison Course"
Center for the Study of Data Processing Washington University
St. Louis, Missouri, October 3-4, 1984

"Management Problems and Implications under the Divestiture Environment"
Colorado Telecommunications Association
Denver, Colorado, September 27, 1984

"Industry Trends and Perceptions"
ATTCOM Marketing Conference
Cooperstown, New York, September 26, 1984

Invited Authority on Call-In Show
WGST Radio Station
Atlanta, Georgia, August 24, 1984

SECTION SIX-B:
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"Future of Centrex"
13th Annual Conference
Association of College and University Telecommunications Administrators
Boston, Massachusetts, August 6, 1984

Informal after Dinner Dialogue covering a variety of subjects with
AT&T-COM Public Relations Department Personnel
Pine Isle, Georgia, July 30, 1984

"Climbing the LATA Structure"
Central New York Communications Association
Waterloo, New York, May 15, 1984

"Fire Up!"
Telephone Systems Service Division Managers Meeting
Telephone and Data Systems, Inc.
Atlanta, Georgia, May 14, 1984

"Virtual Network versus Microwave Network"
Annual Spring Conference
Colorado State Data Processing Managers
Nature Place, Florissant, Colorado, May 4, 1984

"Virtual Networking - Where is it Going?"
"How AT&T-COM is Perceived in the Marketplace"
AT&T-COM Division Personnel and
"Overviews:Equal Access, Surveying Telecommunications Deregulation,and Microwave Feasibility"
AT&T Customers from the Denver Area
Denver, Colorado, May 3, 1984

"Pitfalls & Things to Consider When You Own Your Own Network"
Missouri Midwestern Regional State Government Managers
Lake-of-the-Ozarks, Missouri, April 25, 1984

"A Comparison of Switches and Concepts"
Spring Seminar
Association of College and University Telecommunications Administrators
Orlando, Florida, March 28-30, 1984

"Microwave Feasibility"
Spring Conference
Georgia Rural Electric Membership Association
Atlanta, Georgia, March 12, 1984

"Everything You Wanted to Know About Your Telecommunications Future...
But Were Too Mystified, confused, and Scared to Ask"
Midtown Business Association
Atlanta, Georgia, February 1, 1984

"Telephone and Data Systems Security"
Georgia Telecommunications Association
Atlanta, Georgia, January 17, 1984

SECTION SIX-B:
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1983

"Major Switch Comparison Course"
Administrators of Calgary University
Calgary, Alberta, Canada, December 19, 1983

Invited Authority on Channel 8
Georgia Public Television's "Money Line"
Atlanta, Georgia, December 10, 1983

"Fiber vs Microwave"
AT&T Communications State and Local Government Sales Force
Newark, New Jersey, November 16 1983

Invited Authority on Call-In Talk Show, WASG Radio Station
serving the Mobile, Alabama/Pensacola, Florida areas, November 9, 1983

Invited Authority on Call-In Talk Show, WGST Radio Station
Atlanta, Georgia, October 12, 19, and November 1, 1983

"The New LATA Structure," Fall Seminar
Association of College and University Telecommunications Administrators
Opryland, Tennessee, October 9-11, 1983

"Impact of Restructuring on User, Industry, and Telecommunications Managers" and "Net 1000"
Southeastern Telecommunications Association Annual Conference
Atlanta, Georgia, September 19-21, 1983

"Data Communications"
Seminar for the Georgia Telecommunications Association
Atlanta, Georgia, August 16, 1983

"Marketing Feature Package 8 Against Competition Using Systems and Operations Techniques"
American Bell, Inc., Marketing Managers, Industry Managers, Systems Managers,
Account Executives, and Communications System Representatives
from Texas Government, Education, and Medical Divisions
Dallas, Texas, August 7-8, 1983

"Break-Up of Bell" and "Take Your Choice"
Georgia Society of Hospital Telecommunications Administrators and
Georgia Hospital Engineers Association Annual Meetings
Rome, Georgia, July 27-28, 1983

SECTION SIX-B:
LECTURES,
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"Surviving Telecommunications Deregulation"

Keynote Speech

"Understanding Data Terminology,"

"Data Transmission Concepts"

"Data Network Management,"

20th Annual National Conference

American Society for Hospital Engineering of the American Hospital Association
Hot Springs National Park, Arkansas, June 20-24, 1983

"Government and Business -- The Right Mix"

Student/Faculty/Industry Conference, Georgia Tech Executive Round Table
Callaway Gardens, Georgia, May 13-15, 1983

Workshop: "Hospital Telecommunications: Making the Right Connections"

American Society for Hospital Engineering, Chicago, Illinois, May 4-5, 1983,
and Atlanta, Georgia, May 11-12, 1983

"Marketing SL-1 Against Competition"

Seminar for Northern Telecom Sales Representatives and Managers
Washington, D.C., April 19, 1983

"Telephone Basics" and "Relationships Between Telecommunications
Managers and Administrators/Upper Level Management," Spring Seminar for the
Northeastern and South Central Societies of Telecommunications Managers of the
Pennsylvania Society of Telecommunications Managers
Stroudsburg, Pennsylvania, April 18, 1983

"Management of Telecommunications in the Detariffed Environment,"

Seminar for the Georgia Telecommunications Association
Atlanta, Georgia, January 18, 1983

1982

"Measured Rate Service"

Interviewed on WGST, Atlanta, Georgia, December 1, 1982

"Voice and Data Integration" and Moderator for the panel of five vendors

Central New York Telecommunications Association Seminar
Rochester, New York, October 27, 1982

"Marketing Feature Package 8 Against Competition Using Systems and Operations Techniques"

New York Telephone Company
New York, New York, October 21-22, 1982

"What's Happening in our Telecommunications Environment -
Information, Insights, and Ideas about the Evolving AT&T Situation"

Georgia Telecommunications Association
Atlanta, Georgia, October 18, 1982

"Telecommunications in a Changing Environment"

South Florida Hospital Telecommunications Association
Ft. Lauderdale, Florida, August 25, 1982

"Selling in a Multi-Vendor Environment"

SECTION SIX-B:
LECTURES,
INSTRUCTIONAL COURSES, AND SEMINARS

Southern Bell Account Executives from the Miami/Ft. Lauderdale area
Ft. Lauderdale, Florida, August 25, 1982

"The Changing Regulatory Environment"
Eleventh Annual Conference
Association of College and University Telecommunications Administrators
College Park, Maryland, August 1-5, 1982

"Maintaining PBX Systems," "The Break-Up of Bell," and "GSHTA Curbside Clinic"
1982 Joint Annual Meeting, Georgia Society for Hospital Engineers and
Georgia Society for Hospital Telecommunications Administrators
Jekyll Island, Georgia, July 28-30, 1982

"The Evolving Telecommunications Environment and its Corresponding Management
Implications" and "Why Telecommunication Societies are Important"
Tidewaters Telecommunications Management Association
Norfolk, Virginia, June 24, 1982

Overview of Feature Package 8 Course
Telecommunications Consultants Meeting
Sponsored by AT&T Consultants Liaison Program
Boston, Massachusetts, June 22, 1982

"Marketing Feature Package 8 Against Competition Using Systems and Operations Techniques"
Business Marketing Sales Personnel from Louisiana
South Central Bell Telephone and Telegraph Company
Baton Rouge, Louisiana, June 10, 1982

"Marketing Feature Package 8 Against Competition Using Systems and Operations Techniques"
Account Executives, Industry Mangers, and Service Consultants from Michigan
Government, Education and Health Care Division
Michigan Bell Telephone and Telegraph Company
Detroit, Michigan, May 24, 1982

"The Evolving Telecommunications Environment and its Corresponding Management Implications,"
"The Emerging Importance of the Telecommunications Manager,"
and "How to Make Money Through Telephone Usage"
Seminar for West Pennsylvania Society for Communications Managers
Monroeville, Pennsylvania, April 19-20, 1982

"The Upcoming Changes in Telecommunications"
Department Head Meeting, Crawford W. Long Memorial Hospital
Atlanta, Georgia, March 30, 1982

SECTION SIX-B:
LECTURES,
INSTRUCTIONAL COURSES, AND SEMINARS

"Marketing Feature Package 8 Against Competition Using Systems and Operations Techniques"
Marketing Managers, Account Executives, and Service Consultants from South
Carolina and North Carolina, Government, Education, Health Care, and Lodging
Division, Southern Bell Telephone and Telegraph Company
Charlotte, North Carolina, March 29, 1982

"Marketing Feature Package 8 Against Competition Using Systems and Operations Techniques"
Marketing Managers, Industry Managers, Systems Managers, Account Executives,
and Communications System Representatives from Alabama and Mississippi,
Government, Education, Health Care, and Lodging Division
South Central Bell Telephone and Telegraph Company
Nashville, Tennessee, March 24-25, 1982

"Selecting and Implementing a Telephone System"
New Jersey Hospital Telecommunications Association
Cherry Hill, New Jersey, March 17, 1982

"A Consultant's View of the Bell System"
Seminar for Health Care Marketing Managers Throughout the Bell System
American Telephone and Telegraph Company
Tucson, Arizona, March 16, 1982

"Marketing Feature Package 8 Against Competition Using Systems and Operations Techniques"
Marketing Managers, Industry Managers, Systems Managers, Account Executives,
and Communications System Representatives from Tennessee and Kentucky
Government, Education, Health Care, and Lodging Division
South Central Bell Telephone Company
Birmingham, Alabama, March 8-9, 1982

1981

Marketing Feature Package 8 Against Competition Using Systems and Operations Techniques"
Account Executives and Service Consultants Chesapeake and Potomac, South Central,
and Southern Bell Telephone and Telegraph Companies
Atlanta, Georgia, December 17, 1981

"Understanding and Dealing with Consultants"
Bell System Planning Session for Account Executives, Industry Managers, and
Marketing Managers for the Automobile Industries
Southern Bell Telephone and Telegraph Co.
Orlando, Florida, November 30, 1981

"Evolving Telecommunications Environment and its Corresponding Management Implications"
Banquet Speaker, Northeastern Wisconsin Telecommunications Association
Green Bay, Wisconsin, November 18, 1981

"Third Party Reimbursement," Dimension Users Group Sponsored by
American Telephone and Telegraph Company
Des Moines, Iowa, November 11, 1981

SECTION SIX-B:
LECTURES,
INSTRUCTIONAL COURSES, AND SEMINARS

"Marketing Against Competition -- A Consultant's View"
Bell Operating Companies Competition Coordinators' Conference
American Telephone and Telegraph Company, Dallas, Texas, November 2-4, 1981

"Office of the Future" and "Deregulation"
Pennsylvania Hospital Association Fall Conference
Hershey, Pennsylvania, October 21, 1981

"Understanding and Dealing with Consultants"
Bell System Planning Session for Account Executives, Industry Managers, and
Marketing Managers for the Petroleum, Primary Metal, and Chemical Industries
Southern Bell Telephone and Telegraph Company
Kissimee, Florida, October 20, 1981

"Implications of Deregulation"
Georgia Hospital Association Telnet Series
Atlanta, Georgia, September 24, 1981

"Understanding and Dealing with Consultants"
Bell System Planning Session for Account Executives, Industry Managers,
and Marketing Managers for the Textile Industries
Southern and New York Bell Telephone and Telegraph Companies
Asheville, North Carolina, September 16, 1981

"Managing Telecommunications"
American Management Associations
Atlanta, Georgia, August 3-7, 1981

Communications Engineering Workshop
18th Annual Conference of the American Society of Hospital Engineers
American Hospital Association, Chicago, Illinois, June 22-26, 1981

"How to Select, Purchase, and Install a Telephone System"
American Management Associations, Atlanta, Georgia, May 27-29, 1981

"Organization of a Communications Department" and "Interconnect vs Bell System"
Georgia Society of Hospital Telecommunications Administrators
Atlanta, Georgia, April 9, 1981

"Cost Effective System Design," "Emergency Back-up Systems," "Toll Network
Design via Commercial Carriers," and "Radio Paging: Inhouse and Long-Range"
Annual Seminar for the Pennsylvania Society of Communications Managers
Valley Forge, Pennsylvania, April 7-8, 1981

"Managing Telecom Expenses for Banks, Savings and Loans, and Other Financial
Institutions: How to Save 15% on Your Telecom Bill"
1981 Bank Telecommunications Workshop, American Bankers Association
New Orleans, Louisiana, February 1-4, 1981

"The Hospital Telephone System: The Next Five Years:"
Teleconference Seminar for Hospital Administrators
American College of Hospital Administrators, Atlanta, Georgia, January 21, 1981

SECTION SIX-B:
LECTURES,
INSTRUCTIONAL COURSES, AND SEMINARS

1980

"Interaction of Hospital Telecommunications Administrators
with Regulatory Agencies - Responsibilities in Dealing with Public Utilities"
Georgia Society of Hospital Telecommunications Administrators Symposium
Atlanta, Georgia, December 11, 1980

"Managing Telecommunications," Course Leader, American Management Associations
Atlanta, Georgia, November 17-21, 1981

1980 Fall Seminar Update: "Regulation/Deregulation/Legislation" and
"Independent Consultants - Why Use?/What to Expect?"
Association of College and University Telecommunications Administrators
Williamsburg, Virginia, October 7-9, 1980

"Vendor/Consultant Relations," Health Care Seminar
Southern Bell Telephone & Telegraph Company, Atlanta, Georgia, October 6, 1980

"Making it Through the Wilderness - Bell vs Interconnect," "Office Automation,
Administration, and FCC Regulations," and "Using and Selecting a Consultant"
Sun Alliance Meeting of Member Institutions, Atlanta, Georgia, August 15, 1980

"PBX Operating Room Design & Architectural Considerations"
6th International Congress of Hospital Engineering
Washington, D.C., July 6-11, 1980

"The Application of Telephone Traffic Engineering
and its Importance to the Telecommunications Manager,"
"Long Distance Systems," and "How to Manage your Telecommunications"
Central New York Communications Association, Syracuse, New York, June 25, 1980

"Cost Containment in Telecommunications in Today's Health Care Field"
for the Delaware Valley Hospital Telecommunications Association's
presentation to the Mid-Atlantic Health Conference

"Developing Subordinates" and "Implementing a Telephone System"
New England Hospital Society Telecommunications Association
Annual Educational Seminar, Hartford, Connecticut, April 28-30, 1980

"The Emerging Importance of Telecommunications Management
in the Clinical Environment," Spring Meeting
Georgia Medical Group Administrators, Atlanta, Georgia, April 25, 1980

SECTION SIX-B:
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INSTRUCTIONAL COURSES, AND SEMINARS

"Telephone Company Management Attitudes and Their Effects on Marketing Against Competition"
Southern Bell Telephone and Telegraph Company Managers' Meeting
Atlanta, Georgia, January 31, 1980

Interconnect Seminar Course Co-Leader, American Management Associations
Atlanta, Georgia, March 3-5, 1980

1979

"Cost Effective Communications"
1979 Midwestern Telecommunication Association
Conference on Telecommunications - Today and Tomorrow
Chicago, Illinois, November 2 & 3, 1979

Co-Leader, Summary Session
American Management Associations
San Francisco, California, October 24-26, 1979

"Automatic Call Distributor" and "Programmed Learning Guides"
Seminar for Internal Revenue Service, American Management Associations
San Francisco, California, October 15-17, 1979

"Data for Non-Data Person" and "Producing a Hospital Operators' Training Manual"
Combined meeting, Minnesota Hospital Engineers and Minnesota Hospital Telecommunications Managers
Brainerd, Minnesota, October 11-12, 1979

"How to Select and Implement an Interconnect System"
Business Communications Review's Telecommunications Seminars
Fall 1979 Course Co-Leader
New York, New York, October, 3-4, 1979
San Francisco, California, October 18-19, 1979
Chicago, Illinois, November 8-9, 1979
Washington, D.C., December 12-13, 1979

"Office of the Future - Traffic Implications of a Digital PABX"
Society of Telecommunications Consultants Fall Meeting
San Diego, California, September 23-25, 1979

"Basic Traffic Engineering," "Evaluation of Computerized Telephone Systems," and
session leader on "Regulation Update" and "Paging System Design Alternatives"
American Hospital Association Meeting
Pittsburgh, Pennsylvania, September 20 & 21, 1979

Interconnect Seminar Co-Course Leader, American Management Associations
Atlanta, Georgia, September 5-6, 1979

"Hospital Paging: Issues Update," American Hospital Association's Convention
Chicago, Illinois, August 27-September 1, 1979

"Tariff and Regulatory Trends and Developments," Eighth Annual Conference,
Association of College and University Telecommunications Administrators
Atlanta, Georgia, August 6-11, 1979

"Hospital Network and Infoswitch," Georgia Telecommunications Association

SECTION SIX-B:
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INSTRUCTIONAL COURSES, AND SEMINARS

Atlanta, Georgia, July 16, 1979

"Systems and Equipment Management," "Patient Information,"
"Data Communications," and Computerized Telephone Systems"
American Society of Hospital Engineers Meeting
San Francisco, California, June 17-21, 1979

"The Alpha & Omega of Interconnect," Tele-Communications Association Seminar
Los Angeles, California, June 22, 1979

"Hospital and Medical Paging," American Hospital Association Symposium
Kansas City, Kansas, April 26-27, 1979

"How to Select and Implement an Interconnect System"
Business Communications Review's Telecommunications Seminars
Spring 1979 Co-Course Leader
Chicago, Illinois, April 24-25, 1979
Dallas, Texas, May 8-9, 1979
Los Angeles, California, May 24-25, 1979
New York, New York, June 5-6, 1979
Boston, Massachusetts, June 13-14, 1979

"Data Communications," "Total System Design and Evaluation,"
and Leader, Open Forum - "Cost Containment"
American Society of Hospital Engineers Telecommunications Seminar
Virginia Beach, Virginia, March 15-16; Mt. Laurel, New Jersey, April 19-20, 1979

"Managing Telecommunications," Seminar for American Management Association
Atlanta, Georgia, January 29-February 2, 1979

1978

"Another View"
Competition Seminar for Managers, Account Executives and Staff Specialists
Southwestern Bell Telephone and Telegraph Co.
Little Rock, Arkansas, December 11-13, 1978

"How to Select and Implement an Interconnect System"
Business Communications Review's Telecommunications Seminars
Fall 1978 Co-Course Leader
Dallas, Texas, November 1-2, 1978
San Francisco, California, November 16-17, 1978
Chicago, Illinois, November 29-30, 1978
New York, New York, December 6-7, 1978

Member, User Panel on Controlled Systems
Southeastern Telecommunications Association Annual Meeting and Exposition
Orlando, Florida, November 6-8, 1978

SECTION SIX-B:
LECTURES,
INSTRUCTIONAL COURSES, AND SEMINARS

"Hospital and Medical Paging"
Course Leader, American Hospital Association Symposium
Chicago, Illinois, October 30-31, 1978

"Getting the Most from Your Telephone Dollars" and "Third Party Disbursements"
Minneapolis Health Care Engineering Seminar
St. Cloud, Minnesota, October 12-13, 1978

"Dealing with an Outside Consultant - An Outsider's View"
Southern Bell Telephone and Telegraph Company
Health Care, Insurance, Motel and Hotel Marketing Managers
Atlanta, Georgia, September 14, 1978

"The Telecommunications Tug-of-War"
Georgia Telecommunications Association
Atlanta, Georgia, August 21, 1978

"Practical Techniques for the Experienced Telecommunications Manager"
Course Leader, American Management Associations
Chicago, Illinois, June 6-8, 1978

"The Telecommunications Tug-of-War"
Keynote Speaker, New England Telecommunications Association Educational Seminar
Hyannis, Massachusetts, June 12, 1978

"Regulatory Bodies," "Interconnect and Vendor Relationships,"
and "Telecommunications: The State of the Art"
Annual Conference of American Society of Hospital Engineers
Minneapolis, Minnesota, May 21-June 3, 1978

"Users Eye View of Active Long distance Management System of Controllers for Hospitals"
Harry Newton Seminar
Hyannis, Massachusetts, May 3-4, 1978

Advanced Courses: "Interconnect vs Bell System: Pros & Cons," "Total Systems
Design," "Traffic Engineering," and "Data Telecommunications"
Delaware Valley Hospital Communications Associations
Second Telecommunications Seminar
Philadelphia, Pennsylvania, April 3-5, 1978

SECTION SIX-B:
LECTURES,
INSTRUCTIONAL COURSES, AND SEMINARS

"How to Deal with Regulatory Commissions & the FCC"
New England Telecommunication Association
Boston, Massachusetts, March 28, 1978

"Hospital Policy & Procedure," "Technical Aspects of Switches and Trunks,"
"Basic Traffic Engineering," "Paging," "Optimizing Your Present System," and "Data Communications"
Hospital Telecommunications Institute, American Hospital Association
Los Angeles, California, March 14-15, 1978

1977

"Managing Telecommunications"
American Hospital Association
Los Angeles, California, December 4-9, 1977

"Managing Administrative Operations"
American Hospital Association
Atlanta, Georgia, November 18, 1977

"Hospital Policy and Procedures," "Technical Aspects of Switches and Trunks,"
"Basic Traffic Engineering," "Paging," "Optimizing Your Present System,"
and "Data Communications"
Hospital Telecommunications Institute, American Hospital Association
New Orleans, Louisiana, October 31-November 3, 1977

"Managing Telecommunications"
American Management Associations
Loyola University, Baltimore, Maryland, October 3-7, 1977

"Advantages and Disadvantages of Interconnect" and "Contract Pitfalls"
American Management Associations
Atlanta, Georgia, August 29, 1977

Main Address
Ohio Hospital Association Annual Convention
Columbus, Ohio, May 27, 1977

Speaker
Annual Conference of American Society of Hospital Engineers
Columbus, Ohio, April 20, 1977

"Grades of Service," "Staffing and Scheduling," "Problem Solving - Switching
and Trunks," "Interconnect," and "Cost-saving Ideas" (Forum)
Basic Telecommunications Program, American Hospital Association
Cherry Hill, New Jersey, April 19-21, 1977

"Managing Telecommunications"
American Management Associations
New York, New York, March 21-24, 1977

SECTION SEVEN

COMPLETE CLIENT AND REFERNECE LIST

SECTION SEVEN:
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Agnes Scott College

Atlanta, Georgia

Mr. William Gailey (404) 638-6278

Alliance Health Systems, Inc.

(now Sentara Health Systems)

d/b/a Norfolk General & Leigh Memorial Hospitals

Norfolk, Virginia

Mr. Gary Campbell (804) 668-4123

AmeriCall Systems of Louisville

Louisville, Kentucky

Mr. Jeff Zahner (502) 245-2525

The American Dental Association

Chicago, Illinois

Mr. Antony Chan (312) 440-2918

The American Telephone and Telegraph Company

Bedminster, New Jersey

Ms. Barbara Coulter (908) 658-6130

American Telephone and Telegraph Information Systems

Bell Laboratory Product Development

Ms. Carol Barnett (201) 561-7100

Avery Dennison K&M Division

Ms. Charmaine Parent (310) 781-2667

Bankers First

Augusta, Georgia

Mr. Richard Robinson (404) 823-3200

Beers Construction

Atlanta, Georgia

Mr. Chris Williams (404) 656-1666

Bell South

Birmingham, Alabama

Mr. Allen Jones (205) 945-0866

Charter Medical Corporation

Macon, Georgia

Mr. Ben Porter (912) 743-1356

Children's Hospital of the Kings Daughter

Norfolk, Virginia

Mr. Richard D. Knox, Jr. (804) 668-7065

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Central Banks for Cooperatives

Denver, Colorado
Mr. Jon Greeneisen (303) 740-4000

The Chicago Mercantile

Mr. Leo Papillon (312-930-3250)

Cleveland Electric Company

Atlanta, Georgia
Mr. Jimmy Cleveland, Jr. (404) 696-4550

Cornell University

Ithaca, New York
Ms. Patricia Searles, (607) 255-5525

The Crawford Long Hospital

Atlanta, Georgia
Mr. Al Blackwelder (404) 686-2732

Crested Butte Mountain Resort

Crested Butte, Colorado
Mr. Ralph Walden (303) 349-2000

Decatur Memorial Hospital

Decatur, Illinois
Mr. Jim Scherer (217) 877-8144 Ext. 2114

Doctors Hospital

Tucker, Georgia
Mrs. Shirley Alexander (770) 938-2811

Diagnostic Imaging Specialists

Decatur, Georgia
Mr. Bob Becker (404) 377-1380

Dialysis Clinic Incorporated

Atlanta, Georgia
Mr. Bob Krilla (404) 589-3756

Duke University

Durham, North Carolina
Ms. Paula Loendorf (505) 277-4500

Eastern Virginia Medical School (EVMS)

Norfolk, Virginia
Mr. James K. Sands (757) 446-5962

The Emory Clinic

Atlanta, Georgia
Mr. Mike Mason (404) 778-2550

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Emory Healthcare
Crawford Long Hospital
Emory University Hospital
The Emory Clinic
Atlanta, Georgia
Mr. Al Blackwelder (404) 686-2732

Erlanger Medical Center
Chattanooga, Tennessee
Ms. Susan Fisher (615) 778-7808

Fairfax Hospital Systems (INOVA)
Cameron Glen Care Center
Commonwealth Care Center
Fairfax Hospital
Fair Oaks Hospital
Mt. Vernon Hospital
Fairfax, Virginia
Mr. Robert Hager (703) 321-4370

The Farm Credit Banks
Columbia, South Carolina
Mr. Silas N. Pearman, Jr. (803) 799-5000

The First National Bank of Rome
Rome, Georgia
Mr. Larry Osborne (706) 291-4421

The Fulton-Dekalb Hospital Authority
d/b/a Grady Memorial Hospital
Atlanta, Georgia 30302
Mr. Earl LeVan (404) 589-4212

General Sports Ventures, Inc.
d/b/a The Athlete's Foot Group
Atlanta, Georgia 30331
Mr. Bonnie Nestle (770) 514-4510

Georgia Hospital Association
Atlanta, Georgia
Mr. Robert Searfoss (404) 955-0324

Georgia Hospitals Shared Services, Inc.
Decatur, Georgia
Mr. Carl N. Richardson (404) 292-6811

Georgia Power Company
Atlanta, Georgia
Mr. E. Reggie Clay or Judy Langston (404) 526-7468

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Gettysburg College

Gettysburg, Pennsylvania 17235
Mr. Donald Kingston (717) 337-6915

Guilford College

Greensboro, North Carolina 27410
Mr. Miles Bowker (919) 292-5511

Hard Rock Cafe Global

Orlando, Florida
Mr. Bart Sutherin (407) 445-7625

Howard University

Washington, D.C. 20059
Mr. Joseph Collins (202) 806-2911

Howard University Hospital

Washington, D.C. 20060
Ms. Vickie Gaylord (202) 865-1118

Hughes Spalding Medical Center

Atlanta, Georgia 30302
Mr. Thomas L. Collier (404) 222-2400

Hurt, Richardson, Garner, Todd and Cadenhead

Attorneys-at-Law, Atlanta, Georgia
Mr. Charles Hurt (404) 853-8143

Immanuel Medical Center

Omaha, Nebraska
Mr. Ron McGaughey (402) 572-2026

Internal Medicine Group Atlanta

d/b/a Atlanta Medical Associates,
Atlanta, Georgia
Dr. Richard E. DuBois (404) 688-1918

Lanier Park Hospital

Gainsville, Georgia
Mr. Dan Warlick (404) 531-2300

Lehigh University

Bethlehem, Pennsylvania
Ms. Debra Gehringer (215) 758-5024

Life College

Marietta, Georgia
Mr. Morris W. Lutes (404) 740-0376

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Lockheed-Georgia Company
Marietta, Georgia
Mr. Jack Emery (770) 424-4188

Louisiana State University
Baton Rouge, Louisiana
Mr. Ric Simmons (225) 578-5212

Marshfield Clinic and St. Joseph's Hospital
Marshfield, Wisconsin
Mr. Frederick Wenzell (715) 387-5123

Medical University of South Carolina
Charleston, South Carolina
Ms. Jane Lunn (843) 792-7992

Mercer University
Macon, Georgia
Mr. Jeffrey W. Noyes (912) 751-2700

Michigan Bell Telephone and Telegraph Company
Ms. Carol Lenic (313) 223-6682

M & I Marshall & Ilsley Bank
Milwaukee, Wisconsin
Sharon Siegel (414) 765-8394

NBC
Los Angeles, California
Mr. Ted O'Karma (818) 840-4194

The New York Daily News
New York, New York
(Joint project with RAK Associates, Cleveland, Ohio
Mr. Richard A. Kuehn (216) 228-2045

North Dakota University System
Minot State University
North Dakota State College of Sciences
North Dakota State University
University of North Dakota
Valley City State University
Fargo, North Dakota
Mr. Dick Rayl (701) 231-8411

Northside Hospital
Atlanta, Georgia
Mr. Dwight Hill (404) 851-8000

SECTION SEVEN:
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Northern Telecom Inc.
McLean, Virginia
Mr. David L. Bier (703) 442-0670

Office Of Information Resources (OIR)
State of South Carolina
Columbia, South Carolina
Mr. Walt Able (803) 896-0334

The Ohio Bell Telephone Company
Columbus, Ohio
Mr. Patrick J. Bambrick (614) 460-5123

The Oregon State System of Higher Education
The University of Oregon
Oregon State University
Portland State University
Oregon Health Sciences University
Western Oregon State College
Southern Oregon State College
Eastern Oregon State College
Oregon Institute of Technology
Corvallis, Oregon
Ms. Shay Dakan (541) 713-3500

Pennsylvania Hospital and the Pennsylvania Institute
Philadelphia, Pennsylvania
Ms. Cheryl Maiden (215) 829-3446

Pennsylvania State University System
Altoona Campus
Beaver Campus
Behrend College
Fayette Campus
Hazleton Campus
Mckeesport Campus
New Kensington Campus
Schuylkill Campus
University Park Campus
York Campus
University Park, Pennsylvania
Mr. Jeff Kuhns (814) 865-1940

Penfield Rowland Printers
Macon, Georgia
Mr. Jeff Noyes (912) 745-5822

SECTION SEVEN:
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The Portman Companies
John Portman & Associates
Portman Properties Development
Peachtree Center Management Company
The Atlanta Market Centers
Atlanta, Georgia
Mr. Simon Bailey (404) 522-8811

Psychiatric Health Services
Macon, Georgia
Ms. Sandra Noyes (912) 746-0531

St. Joseph's Hospital
Atlanta, Georgia
Mr. Ken Wheeler (404) 851-7001

St. Mary's Hospital
Rochester, New York
Mr. Nicholas P. Kafasis (716) 464-3000

Scientific Atlanta
Atlanta, Georgia
Mr. Charles Leonard (404) 441-4000

Sheffield Investment Management
Atlanta, Georgia
Roger Sheffield (404) 953-1597

Siler and Jonap
Attorneys at Law
Atlanta, Georgia
(404) 321-1000

Sisters of Providence
Portland, Oregon
Mr. Gary Walter (503) 291-4505

Southern Bell Telephone and Telegraph Co.
Atlanta, Georgia
Mr. Paul Harmon (404) 391-4588

South Central Bell Telephone and Telegraph Co.
Metairie, Louisiana
Mr. Ed Breaux (504) 832-6605

Southwestern Bell Telephone and Telegraph Co.
Little Rock, Arkansas
Mrs. Nancy Hughes (501) 371-6673

SECTION SEVEN:
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Sparks Regional Medical Center
Fort Smith, Arkansas
Mr. Charles R. Shuffield (501) 441-4000

The Technical Association of Pulp and Paper Industries
Atlanta, Georgia
Mr. Terry Ferris (770) 209-7281

Trust Company Bank
Atlanta, Georgia
Mr. Robert Long (404) 588-7711

Trust Company Bank of Middle Georgia
Macon, Georgia
Mr. Neal Propst (912) 742-3161

Trust Company Bank of Savannah
Savannah, Georgia
Mr. Neal Propst (912) 742-3161

The University of Arizona
Tucson, Arizona
Ms. Paula Loendorf (602) 621-5100

The University of Calgary
Calgary, Alberta Canada
Mr. Mal Reader (403) 220-3880

University of Kentucky
Lexington, Kentucky
Mr. Gene Williams (606) 257-1786

The University of Nebraska
Lincoln, Nebraska
Ms. Ruth Michalecki (402) 472-7211

The University of the South
Sewanee, Tennessee
Dr. Laurence Alvarez (615) 598-1231

University of South Florida
Tampa, Florida
Mr. George Ellis (813) 974-8393

University of Virginia & University Hospitals
Charlottesville, Virginia
Ms. Judy Lynch (804) 924-2822

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Universal Studios Global

See Vivendi

USA Network

New York, New York

Mr. James P. Degni (212) 408-8868

Vivendi/Universal Studios/Universal Music Group Global

Los Angeles, California

Ms. Marcia Beilfuss (818) 777-7075

Washington Gas Light Co.

Washington, D.C.

Mr. John Bradfield (703) 750-5582

Washington University

St. Louis, Missouri

Center for the Study of Data Processing

Mr. John Wooley (314) 889-5330

Washington University

St. Louis, Missouri

Communications Services

Mr. William Orrick (314) 935-4599

Yancey Brothers Company

Atlanta, Georgia

Mr. Goodloe Yancey IV (404) 941-2300

SECTION EIGHT

THE AMERICAN TELECOMMUNICATIONS INSTITUTE

SECTION EIGHT:
THE AMERICAN TELECOMMUNICATIONS INSTITUTE, INC.

General Information

The American Telecommunications Institute was formed in July of 1984 to develop and provide a complete curriculum of courses and seminars in the areas of telecommunications management, data communications, and telephone engineering, design, and project implementation. ATI is a subsidiary of JTM Associates, Inc., an Atlanta based telecommunications consulting firm. JTM Associates has been offering complete telecommunications consulting services to businesses and institutional organizations since 1970, specializing in specification, design, engineering, and implementation of telecommunications, data communications and office automation systems.

ATI develops and presents seminars and courses both independently and through various universities and professional organizations such as Georgia State University in Atlanta, Washington University in St. Louis, the Healthcare Information and Management Systems Society, the American Society of Hospital Engineering under the auspices of the American Hospital Association, and the Association of College and University Telecommunications Administrators.

In addition to the regular courses listed in the curriculum, specific training programs are developed for in-house presentation to consulting clients, general businesses, telecommunications industry vendors, and institutional organizations. Special marketing force training modules in basic telephony are available to vendors of telecommunications products. All courses listed in the curriculum are available for private presentation to individual businesses, organizations, and associations.

The faculty of the American Telecommunications Institute is drawn from the consulting staff of JTM Associates, fellow consultants who are members of the Society of Telecommunications Consultants, and technical specialists on loan from companies such as Lucent, NorTel, IBM, and Siemens/Rolm Corporation.

Course schedules are developed independently by the sponsoring schools or organizations. Course information brochures are mailed to interested parties by the organization sponsoring the scheduled seminar. For inclusion in mailing lists, interested parties should contact Bryan Bell at the Institute. Current course schedules will be promptly forwarded, and interested organizations will be added to appropriate mailing lists at their request. Additional information regarding the American Telecommunications Institute is available upon request through the offices of JTM Associates.

For development of individually tailored seminars or training programs, organizations should contact JTM Associates, Inc.

SECTION NINE

SOCIETY OF TELECOMMUNICATIONS CONSULTANTS



Society of Telecommunications Consultants

STC Consultants

**Dedicated to
Excellence in
Serving our
Clients**

Experience

Knowledge

Resources

Commitment

Ethics

Objectivity

Professionalism

STC

Profile

The Society of Telecommunications Consultants was formed in 1976 and incorporated in New York in 1979 by a group of concerned telecommunications consultants who saw a need for a self-regulating professional body in the profession. The Society Membership includes a broad spectrum of voice and data communications professionals who objectively serve clients worldwide in business, industry and government.

The STC has a Vendor Advisory Council (VAC) comprised of companies who provide emerging and ever-enhancing voice and data products and services. The VAC supports consultant members with comprehensive technical information and solutions to client application challenges.

A major voice in regulatory, legislative and commercial concerns, the STC is working as a positive force in the telecommunications

STC

Code of Ethics

1. Every member has the professional responsibility of fair dealing towards the member's clients, past and present, fellow members, and the general public.
2. Every member has the professional responsibility of adhering to generally accepted standards of accuracy, truth and good taste at all times.
3. No member shall represent conflicting or competing interests, nor shall be placed in a position where the member's interest is, or may be, in conflict with duty to the client.
4. Each member shall safeguard the confidences of both present and former clients, and shall not accept retainers which may involve the disclosure or use of these confidences to the disadvantage or prejudice of such clients.
5. No member shall intentionally disseminate false or misleading information, and each member is obligated to use as much care as is humanly possible to avoid dissemination of false or misleading information.
6. No member shall intentionally injure the professional reputation or practice of another member. However, if a member has evidence that another member has been guilty of unethical, illegal or unfair practices, including practices in violation of this Code, the member is obligated to present the information to the proper authorities of the Society for action in accordance with the procedure set forth in the by-laws.
7. In performing services for a client, no member shall accept fees, commissions, or any other valuable consideration in connection with those services from anyone other than the member's client.
8. Each member shall, prior to the commencement of the services to be performed, make the client fully aware of the fee structure, and all associated costs.
9. It is imperative that no member should be in conflict by retaining ownership in any company selling or leasing telecommunications products where such interest constitutes a conflict of interest.
10. A member shall, as soon as possible, sever the relationship with any organization when the member knows or should know that continued employment would require the member to conduct himself contrary to the good conduct principles of this Code.



Society of Telecommunications Consultants

Experience

Only experienced consultants are admitted to membership. The STC consultant works on a wide range of projects with requirements similar to yours. This broad-based accumulation of experience coupled with skillful use of problem-solving techniques assures that your project will run as smoothly as possible.

Knowledge

Twice-yearly conferences provide your STC consultant with up-to-the-minute information about systems and services that are vital to your business. Throughout the years, bulletins keep STC members abreast of new developments in the telecommunications industry.

Resources

The entire STC membership, including specialists in a wide variety of voice and data disciplines, serves as a resource pool for its individual consultants. The collective expertise of over two hundred consultants is thus available to you.

Commitment

Membership in the STC requires formal commitment to excellence of service to the profession and its clients. STC consultants actively participate in charting the course of the developing telecommunications industry.

Ethics

The STC was founded upon a Code of Ethics by which each member abides. This code appears in full on the opposite page.

Objectivity

With the multitude of systems and services available, it is imperative that your consultant provide objective recommendations based upon your specific requirements. The STC consultant is independent of any connection that might engender conflict of interest. You are thus assured that the necessary objectivity will be maintained.

Professionalism

STC Consultants are business people and professionals. They will handle your project responsively, with sensitivity to your personnel and the needs of your organization.

Additional Services Available through the Society of Telecommunications Consultants

Education

The STC welcomes telecommunications professionals from the end user community at all STC conferences and educational events. Communications professionals, along with educators and members of the media may also join the society as affiliate members.

Training

Many STC consultants are also professional trainers in a wide variety of telecommunications related topics including Customer Service, the Internet, Phone Skills and Call Center Management.

Public Speaking

STC members gain valuable insight and knowledge through their varied experiences in end user consulting. They are available for speaking engagements to share their expertise on a broad spectrum of subjects.

Writing

STC consultants are widely published and are available to write custom articles for your newsletters, strategic plans, training documents and the like.



For More Information:

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