Project Experience of Brian A. Roth
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Summary of type and nature of projects:

Broadcast video systems. In the early 1980's, I was assigned the project of designing and constructing a "cuts only" offline video editing suite. Subsequently, I've engineered and installed a variety of other professional video systems, including a "CNN News"-style studio and control room. For additional details, please refer to page 2 in this document.

Recording, sound reinforcement and radio broadcast studio systems. I began my career in the radio broadcast business and soon moved into allied fields such as recording studios and sound reinforcement systems. I have extensive experience as both a recording and "front of house" PA system engineer. I have been involved with dozens of new studio construction, studio upgrades, and PA system installations as a systems engineer, equipment specifier, project supervisor, equipment serviceman and installer. For additional details, please refer to page 3 in this document.

Video conferencing and presentation theater design and implementation. In 1992, Ackerman McQueen Inc., Oklahoma City, OK, embarked on an ambitious series of construction projects at all of the company offices in the country to add a video conference/presentation theater to each location, eventually totaling eight facilities. Based on the office's requirements, I engineered the audio, video, and control systems and selected the equipment for each installation, acted as a liaison with the design architects and building contractors, assisted with equipment acquisition and delivery, and supervised and/or performed the actual physical installation and wiring of the systems. For additional details, please refer to page 4 in this document.

Personal Computer Systems. With the purchase of a Compaq portable PC in 1983, I became an early adopter of the new technology. In 1984, I added a modem and went online via Compuserve and local BBS systems. I have nearly 20 years of extensive experience with a variety of hardware, software, and local/wide area networking products and have served as a technical support person for a variety of different businesses. For additional details, please refer to page 5 in this document.

Business Voice and Data Systems. Also in the early 1980's, I was assigned the task of recommending a new business telephone system for my employer. I studied telephone system technology, made my recommendations to the company's Executive Board, and supervised the installation of a new PBX. Since then, I have been involved with approximately two dozen business telephone system installations and upgrades. My activities have included system design and engineering, equipment selection/recommendation/approval, supervision of and performing system installations, service and troubleshooting, coordinating services with the Bell LECs, writing RFPs then evaluating the proposals and bids from IXC carriers, call-cost accounting computer systems, and end-user support. I have been involved with a number of LAN and WAN (Wide Area Network) systems as designer, project supervisor, and installer. For additional details, please refer to pages 6-7 in this document.

Electronic equipment design, assembly, and manufacturing. I have engineered and built a variety of equipment, both analog and digital. For additional details, please refer to page 8 in this document.

For a partial listing of my current and past clients, please refer to page 9 in this document.

Design engineering and installation/project supervision of broadcast television facilities.

2002. Washington, DC Bureau of Energy News Live. This small studio provided hourly updates to the main ENL operations in Tulsa via a dedicated Vyvx broadcast loop. It was a single camera facility with a 16x16 Sigma router and also included the necessary intercom and IFB equipment for the air talent and technical personnel to be connected via dialup phone lines to the main studio in Tulsa.

2001. Houston, TX Bureau of Energy News Live. Remote facility, very similar to the D.C. bureau.

2000. Energy News Live, Tulsa, OK. This facility produced nine 15-minute newscasts each weekday targeted to the energy industry and was distributed via a high speed video stream on the internet at **www.energynewslive.com**. Three Sony studio cameras with teleprompters and Vinten robotic controls and eight smaller Panasonic 3 CCD cameras with robotic heads were switched via a Ross Synergy digital production switcher in conjunction with a 32x32 Sierra composite video router. Pinnacle DVE and CG, and Leitch video server systems were included as well as an array of tape and other video support equipment. Talent audio was handled by Lectrosonic wireless mics and a Wheatstone broadcast console. An extensive system for both wired, wireless and telephone dial-in IFB and intercom was included, featuring Telex/RTS, Telos and Gentner equipment. The system also featured multiple patch bays in the SDI video, composite video, RS-422 control, and audio subsystems.

1999. Ackerman McQueen, Tulsa, OK. Relocated Avid system to new area of building and integrated equipment with new video conference center control room.

1998. Ackerman McQueen, Oklahoma City, OK. Engineered the upgrade of the main audio/video router to new Sigma 64x64 model with capacity for new equipment that was being added, and supervised the rewiring of the control room racks.

1997. Mercury Group, Alexandria, VA. Designed and installed a hard disk video offline editing system for production of content for clients' web site streaming video feeds.

1995. Ackerman McQueen, Tulsa, OK. Designed and installed Avid online editing suite in conjunction with DigiBeta recorders.

1993. Ackerman McQueen, Oklahoma City, OK. Engineered and installed two Avid on-line suites with central electronics support systems, including 32x32 Sigma AV router, and Sony Beta recorders.

1993. Ackerman McQueen, Oklahoma City, OK. Designed and supervised the installation of a building-wide audio and video routing/distribution infrastructure to link various internal facilities located on multiple floors of the office tower.

1984. Ackerman McQueen, Oklahoma City, OK. Reinstalled offline system in new office facilities.

1983. Ackerman McQueen, Oklahoma City. Designed and built a ¾" offline editing suite with JVC decks (later upgraded to Sony BVU series machines) and custom built 8x8 AV router.

Partial list of recording and radio broadcast studio and sound reinforcement projects.

2004. NRAnews.com, Washington, DC. Designed and installed "talk radio" suite for Internet stream and Sirius Satellite radio channel program along with live in-studio video streaming feed.

2003. Bell Labs, Norman OK. Designed and installed entire audio system for new DDA 56 channel console with Studer 24 track analog and MOTU 24 channel digital recorders.

1998. Sunbelt Studio, Oklahoma City, OK. 32 track ADAT, Mackie 8-Buss console. The original wiring infrastructure had significant problems and errors. Designed new cabling system and supervised the rewiring.

1993-1999. Ackerman McQueen, Oklahoma City, OK. Designed and installed four ProTools editing suites and associated electronics systems.

1995. Bill Hagans private studio, Tulsa, OK. After a catastrophic power supply failure of the Allen-Heath Sigma-series console, I performed a complete rebuild and system test of all 32 modules.

1993. Golden Voice Studio, Ackerman McQueen, Oklahoma City. The existing MCI recorder and console were replaced with a new 2" 24 track analog Otari recorder and an Otari Concept console. Engineered the new cabling system, supervised and participated in the installation.

1993. KTNT radio, Oklahoma City. Engineered and installed a new on-air studio (with automation assist system for the air talent) and a new 4-track commercial production studio.

1991. The Church Studio, Tulsa, OK. The entire facility was dismantled (including the physical structure of the control room) and replaced by a new installation with a vintage Neve 8068 console, and a Studer A-800 24 track tape deck. Designed and installed the entire wiring system, performed some restoration/refurbishment and modifications of the Neve console.

1990. Amethyst Studios, Oklahoma City. I designed the floor plan for two independent studio/control

rooms, engineered the wiring systems, and supervised the installation of twin 16 track Otari decks (which could be optionally timecode synchronized) with associated consoles and support equipment.

1990. KNTU radio, Denton, TX. Designed and installed five studios for on-air, production, and teaching labs at North Texas State University.

1984. Ackerman McQueen, Oklahoma City. Relocated 24 track recording studio to new building.

1977. Maranatha Records. Built and installed a 32 input/24 output custom recording console that I designed.

1974-1978. Various small 4 and 8 track studios, typically with MCI or Tascam consoles and Ampex or Tascam recorders. In addition, I was part of a team that installed a number of sound systems in churches and auditoriums, and I designed and sold a number of portable PA systems for rock bands.

System engineering/installation of video conferencing/presentation theaters for Ackerman McQueen, Inc.

These multipurpose facilities consist of a very attractive, well-appointed main room where meetings and client presentations are held and a separate control room for the electronic systems. Each installation typically included multiple Sony or Hitachi 3-chip CCD video cameras with robotics controlled by Panja/AMX equipment (I have written and modified AMX control software for these systems), multiple BarcoVision video projectors, various professional video and audio recorders (Sony and others).

In addition, each control room includes audio/composite video/computer video signal routers by Sigma Electronics and Inline, two-way Vyvx network connectivity, and a professional grade multi-amped sound system with mixing console and Sound Control Technology echo cancellation systems. Most of these facilities now include Polycom Viewstation (ISDN) video conferencing equipment for alternative connectivity. Photographs of some of these facilities can be found on the Ackerman McQueen website: **www.am.com**.

With each of these projects, I designed and engineered the electronic systems (video, audio, and control), selected the majority of the equipment, acted as coordinator with project architects and contractors, and served as the installation supervisor as well as performing actual wiring tasks.

1999. Alexandria, VA. Two freestanding rear projection Barco projectors, two cameras, 16x16 AV router, EAW audio system, AMX touch screen controls for use by presenters in the room.

1999. Tulsa, OK. Five Barco projectors, five cameras, 32x32 router, EAW sound system, Crest audio console.

1997. Colorado Springs, CO. Single Barco projector, three cameras, 16x16 router, RCF and Digital Designs sound system, Amek/TAC audio console.

1996. Dallas, TX. Two Barco projectors, five cameras, 16x16 router, custom Digital Designs sound system, Amek/TAC audio console.

1994. Fairfax, VA. One Barco projector, three cameras, 16x16 and 16x8 AV routers, video wall with twelve monitors tuned to various broadcast news outlets. An AMX touch screen system allowed the user to instantly access any of the individual news feeds and redirect the program to a large screen Mitsubishi monitor, the Barco projector, or one of four VCR's.

1993. Tulsa, OK. One Barco projector, three cameras, 16x16 AV router, custom Digital Designs audio system.

1993. Dallas, TX. Interim, free-standing system with single camera and two large screen Mitsubishi monitors, 16x16 AV router.

1992. Oklahoma City, OK. Two Barco projectors, three cameras, 16x16 router, custom Digital Designs sound system, Amek/TAC audio console.

Personal Computer hardware, networking, and software

I have extensive experience with constructing, configuring, and upgrading PC compatible systems dating back to the mid 1980's. Additionally, I am an experienced equipment troubleshooter with the ability to isolate malfunctions down to individual components at the board level in many instances.

My initial experience with Local Area Networks was with the Apple LocalTalk and the later PhoneNet cabling schemes as well as Ethernet 10Base-2 for PC compatible machines. In 1990, I was immediately impressed when 10Base-T was introduced because of its star topology (unlike the buss topology of LocalTalk or 10Base2) and the ability to use data grade (Category 3) twisted pair cabling. Thus, all new PC LAN designs with my involvement became strictly 10Base-T topology, and networks using Apple computers were adapted to function on the 10Base-T system as soon as appropriate hardware became available. I have designed, and in many situations installed, numerous LAN infrastructures ranging in size from under 10 to many dozen ports.

A natural outgrowth of LANs is Wide Area Networking. In 1992, I investigated this type of connectivity for Ackerman McQueen so all the company offices in the country, present and future, could be linked together into one seamless network. I designed a system utilizing Newbridge 3600 channel bank components in the main office in Oklahoma City with a private T-1 circuit to the carrier company. Some channels were configured for voice applications (discussed in the "Business Voice/Data" section of this document), but the bulk of the channels were allocated for data connections. At the remote ends, either a CSU/DSU for DDS-type circuits, or a Newbridge 3624 (and later, 3620) channel bank for fractional T-1 circuits were used. A diagram of the system as it finally evolved is included on the last page of this document.

Beginning with the addition of my first modem, I became quite familiar with serial communications and the RS-232 standard. This later proved to be useful as I designed systems using statistical multiplexers to tie clusters of remote terminals (or PCs running terminal emulation software) and serial printers to a host system at another location. Later, I was able to extend this knowledge into RS-422 systems, such as commonly used in broadcast video control applications, and V.35 used in channel bank high speed data connections.

I have extensive experience with Microsoft operating systems, beginning with DOS 1.0 through various versions of Windows. Beginning in the late 1980's through the mid 1990's, I wrote and marketed a vertical business application (written in CA-Clipper) for pawnshops in the region, eventually making 16 installations. I have also written other custom applications and have supported some legacy applications (typically dBase) written by others. I am proficient with the various modules in Microsoft Office Professional, with a special interest in Access and am currently on a self-study course to become proficient with the VBA extensions. I have owned and used versions of DesignCAD to generate drawings for my various projects and have become experienced with scanners and various graphical formats and applications, including Adobe Acrobat.

Because of the equipment control requirements in the Ackerman McQueen video conference theaters, I am now experienced with Panja/AMX control system software and hardware.

Partial list of business voice, data, and computer networking projects.

1999. Ackerman McQueen, Oklahoma City OK and Dallas, TX. Assisted Williams Communications with installation of Cisco VOIP equipment to replace old voice muxes.

1999. Ackerman McQueen, Colorado Springs, CO. Project coordinator, replacement of Mitel SX-200 PBX with Nortel Meridian 11C PBX, including Companion wireless handsets and remote polling CDR system.

1999. Mercury Group, Alexandria, VA. Project coordinator, replacement of Panasonic 1232 hybrid key system with Nortel Meridian 11C PBX, including Companion wireless handsets and remote polling CDR system.

1999. Ackerman McQueen, Tulsa ,OK. Project coordinator, replacement of Mitel SX-200 PBX with Nortel Meridian 11C PBX, including Companion wireless handsets and remote polling CDR system.

1999. Mercury Group, Alexandria, VA. Supervised and assisted with the relocation of Panasonic KXT-1232 with voice mail to new office location. Installed new LAN with VPN router.

1999-2000. Ackerman McQueen, Oklahoma City and Tulsa, OK, Mercury Group, Alexandria, VA. Installed five Polycom Viewstation (ISDN) videoconference systems.

1998. Ackerman McQueen, Oklahoma City, OK. Project coordinator, replacement of Mitel SX-200D PBX with Nortel Meridian 44-C PBX, including Companion wireless handsets. Researched and installed polling CDR system for client bill-back reports locally and at future branch sites.

1997. Oklahoma Dental Association, Oklahoma City, OK. Acted as consultant to review existing telephone and computer systems and made recommendations for equipment upgrades, supervised installation of new Panasonic PBX and LAN cabling. Copy of the report available on request.

1997. Dr. Bruce Daniels, Oklahoma City, OK. Designed voice and LAN (and audio/video) infrastructure for a new house construction. Supervised and participated in the system installation.

1997. Ackerman McQueen, Oklahoma City, OK. Updated and revised 1994 Request For Proposals (RFP) and CAD system drawings covering the IXC portions of the current voice and WAN system. Met with representatives of the carrier companies and selected the new provider. A copy of this RFP is available on request.

1996. Ackerman McQueen, Colorado Springs, CO. Installed Mitel SX-200 with Panasonic cellular handset extensions, standalone CDR billing system, Newbridge 3620 channel bank, PCSI voice muxes to link PBX to Oklahoma City, and LAN with Novell router for WAN connection to other offices.

1996. Pro-Fab Mfg., Oklahoma City, OK. Relocated AT&T hybrid/key system to new headquarters/ factory building.

1996. Mercury Group, Alexandria, VA. Installed Panasonic KXT-1232 with voice mail and LAN in new office.

1996. Ackerman McQueen, Colorado Springs, CO. Installed Panasonic KXT-616 with standalone CDR cost accounting system and LAN in temporary office space.

1993. Ackerman McQueen, Fairfax, VA. Installed Mitel SX-100 PBX with standalone CDR cost accounting system and LAN.

1992. Ackerman McQueen, Oklahoma City and Tulsa, OK and Dallas, TX. Engineered and installed a Newbridge 3600 channel bank in Oklahoma City and 3624 channel banks in the other two locations with PCSI voice multiplexers to replace existing intercity voice tieline circuits and add WAN functionality via Novell Multiprotocol routers. Two to four channels in each channel bank were assigned for dedicated access outbound long distance, with a lower cost per minute compared to switched access calls. The PCSI muxes combined three voice channels plus a low speed (9600 BPS) data stream into one 64K channel. Within 15 months, the cost of a pair of the PCSI muxes was recouped from much lower monthly carrier charges. These have now been replaced by Cisco hardware operating with Voice Over IP. A system diagram is included with this document on page 10.

1992. Ackerman McQueen, Dallas, TX. Moved Mitel SX-200 PBX to new office space, installed LAN.

1991. Ackerman McQueen, Oklahoma City, OK. Upgraded SX-200 PBX to SX-200 Digital (2 cabinet) PBX to accommodate growth in office size.

1992. Wrote custom software for collecting call details from PBX or key systems to generate client billback reports. Base system was written using CA-Clipper with third-party libraries.

1989. American Collections, Oklahoma City. Subcontracted by Amtel Services to program new Mitel SX-200 PBX.

1987. Ackerman-Hood-McQueen, Tulsa ,OK. Replaced old Northern Telecom SL-1 PBX with Mitel SX-200 PBX and client billback CDR system.

1987. Ackerman McQueen, Dallas, TX. Replaced Intertel key system with Mitel SX-100 PBX.

1986. Ackerman McQueen, Oklahoma City and Tulsa, OK. Implemented interoffice PBX links via E&M tielines with services provided by MCI.

1986. Ackerman McQueen, Tulsa ,OK. Replaced old crossbar PBX/1A2 key system with Mitel SX-100 PBX and client billback CDR system.

1986. Ackerman McQueen, Washington, DC. Installed Mitel SX-20 PBX with client billback CDR system in new office.

1984. Ackerman-McQueen, Oklahoma City, OK. Supervised relocation of Mitel SX-200 PBX to new office location.

1982. Ackerman-McQueen, Oklahoma City, OK. Project coordinator, installation of Mitel SX-200 (with Superset desk sets) to replace old WECO crossbar/1A2 key system.

Electronic equipment design, assembly and manufacturing.

I have designed and built dozens of audio, video and control devices. My experiences include actual circuit design, parts specification and acquisition, printed circuit layout and fabrication, and circuit assembly. I am experienced in packaging design, metal fabrication, and silk screening as well as other methods of legending.

Below is a selection of a few of the more unique projects I have completed.

2000. Energy News Live, Tulsa, OK. The tally lights in the Panasonic robotic pan/tilt camera heads consisted of a small LED, which wasn't particularly visible to the on-air talent. I designed and built eight units that detected the light from the LED and activated a larger incandescent lamp, which did not require actual modification to the equipment, thus preserving the Panasonic warranty.

1993. Golden Voice Studio, Oklahoma City. The new Otari Concept console had provisions for only two sets of control room monitors, so I designed and built a FET-switched system for up to six pairs of speakers. Generated CAD drawings for use by the sheet metal fabricator to modify an existing blank "filler" in the console, laid out circuit boards and assembled the remotely-located switching unit.

1993. Golden Voice Studio, Oklahoma City. When the studio added their first ProTools computer editing system, they discovered a number of needed control room functions, normally found on a conventional recording console, were missing in the system. I designed and built a unit to provide multiple audio source selections, loudspeaker selector, plus cue and talkback functions.

1990. Amethyst Studios, Oklahoma City, OK. I engineered the electronic system for a four-channel cue system, designed the metal packaging, and supervised the assembly of the cue boxes.

1983. Ackerman McQueen, Oklahoma City, OK. At that time, there were no small, affordable audio/video routers available. Using a Panasonic video-only router as a basis, I engineered and built a 8x8 audio-follow-video (with breakaway) router for a new offline editing suite, including layout of printed circuit boards and the metal packaging.

1977. Maranatha Recording Studios, Costa Mesa, CA. I performed the electronic engineering of a 32 input/24 output recording console, including all audio circuitry design and layout of all printed circuit boards. I coordinated with the metal design and fabrication company on the mechanical aspects of the console and supervised the small electronic assembly line that made the finished modules.

1975-1977. Cimarron Systems div. Of Ford Audio, Oklahoma City, OK. I designed the circuitry, printed circuit boards and metal packaging for a line of electronic crossovers, used in both sound reinforcement and recording studio applications. I designed the front and back panel legends and silk screen printed the panels. Approximately 100 of these units were ultimately manufactured.

1974-1975. Cimarron Systems div. Of Ford Audio, Oklahoma City, OK. The original Tascam model 10 audio mixers had no provisions for monitor mixdown for the engineer or musicians, nor any control room and studio controls. I designed the circuitry, printed circuit boards, metal work, and panel legends, then assembled the circuitry and silk-screened the panels for six of these modules.

Partial Client list.

Oklahoma City, OK:

Ackerman McQueen, Inc., providing a variety of video, audio, and telcom technical services.

Studio Seven, MCI-equipped 24 track audio studio.

Bell Labs, Studer recorder and Neotek console, 24 track audio studio.

Richard Corner/Soundwerks, voiceover and dubbing studio.

Apple Valley, analog Otari and digital Mackie recorders and TAC console, 24 track audio studio.

Sunbelt Studio, Mackie 8-buss console with 32 tracks of ADAT digital recorders.

Dear Abby Road (Norman), analog Otari and digital Alesis recorders, 24 track audio studio.

Private studio for Ted Curtis. Amek 9098i 72 channel console, 48 tracks Radar recorder.

Amtel Services, business telephone and data sales and service company.

Tulsa, OK:

Church Studio, Neve and Studer 24 track recording studio.

Sounds Creative Studio, 24 track hard disk recorder, Soundcraft TS24 console.

Bill Hagans, private 24 track analog recording studio, Otari machines and Allen-Heath console.

Louis Newman, private studio, various equipment.

Other clients:

Western Claims, Oklahoma City, OK. I provided support for a custom dBase financial software system (written by another programmer) as well as hardware support. A "stock" program eventually replaced the custom application.

Oklahoma Dental Association, Oklahoma City, OK. I consulted with the management and employees at the headquarters of this professional association regarding their outdated telephone and computer systems. After making recommendations and securing funding, I supervised the installation of new PBX and LAN systems and installed new networked PC's. A copy of my report to the Executive Committee is available on request.