**Design Support**

**A Data Communication Historical Series**

Design Support (AUTODIN):

A brief history of the individuals that supported the AUTODIN (Automatic Digital Network) system in varying design and support capacities.

 Data Source: Historical documents & AUTODINERS

 Brief overview by Bob Pollard:

 Western Union Telegraph Company (W U) - Prime Contractor

The Western Union Telegraph Company / Western Union Corporation was selected by the Federal Government as the original prime contractor and developer of AUTODIN in the late 1950's. W U was selected based on prior successful record communications systems developed and implemented for the Air Force beginning in the early 1950's.

 Design, Technical, Maintenance and Management support

 Western Union AUTODIN personnel, and the major subcontractors, Radio Corporation of America (RCA) and International Business Machines (IBM), were located in various places. Such as: Western Union New York Headquarters, the computer laboratory at Mahwah, NJ, AUTODIN Switching Centers, Western Union's Watermill Long Island Laboratory, in the Western Union support and testing laboratory at RCA in Camden, NJ, and the AUTODIN laboratories at Arlington and McLean, Virginia, and later at the Ft. Detrick Automatic Switching Center (ASC).

 The Overseas AUTODIN system was supported by Philco-Ford at their Laboratories and on site, as well as, at other locations in the United States and overseas.

 The overseas AUTODIN system was government owned, whereas the Continental United States (CONUS) AUTODIN system was owned by Western Union, and originally leased to the Air Force. The CONUS system was subsequently leased to the entire Department of Defense (DOD).

 In the beginning overall AUTODIN management personnel were located at the W U Headquarters, 60 Hudson Street, NYK City. Basically, there were three groups of Management personnel: The Planning and Engineering Operations Department, the Technical Facilities (Technical Services) Department and a System Analysis & Programming group (SA&P), originally called the AAMPS (AUTODIN Automatic Maintenance Programs System) Programming group. In addition, there was the RCA and Western Union Production software Programming group (online application switching programs), which was originally located in Arlington, Virginia.

 During the years 1958 through 1969, prior to beginning of the reorganization activity many people, located at the New York Headquarters, were associated with the AUTODIN system. They held positions of Supervisor, Assistant Manager, Manager, Assistant General Supervisor, General Supervisor (General Maintenance Supervisor), Director, Assistant Vice President, Vice President, Engineer, Programmer, Programmer-Operator, Analyst Programmer, Software Engineer, and other various titles reflecting their assigned responsibilities that were applied to the world-wide AUTODIN system.

 In 1969 all of the AUTODIN management (Technical Services) responsibilities were transferred to Arlington, Virginia, WU Government Communications Services (in the very beginning of the Arlington office, it was referred to as the "Federal Systems Division" of Western Union). Then in 1972 this group transferred to McLean, VA. Also, during this period 1969 to 1972 the SA&P group was moved to Mahwah, NJ and became part of the Teleprocessing Industries Inc (TII) subsidiary of the Western Union Corporation also in Mahwah, New Jersey. This group's AUTODIN Diagnostic Programming (AAMPS and OLEX, On Line Exerciser), responsibilities were also handed off to the Arlington Programming section, a group managed by Mike O'Grady.

 Personnel assignment changes occurred frequently throughout Western Union's AUTODIN life cycle, therefore, the few individuals listed below are listed in the departments and sections where they were assigned at one particular time frame while working in New York headquarters or Arlington, Virginia, Government Communications Services. The following lists are based on the information currently available at this time.

 Planning & Engineering Operations (P & E O)

Dick Bachman, Robert Balch, Gary Bixon, William Blanton, Paul Brickmeyer, Dan Brosnan, Harold Caley, Ernie Capitola, Edward Chanowski, Arthur Clark, Bob Cleary, Howard Cusack, Michael Dale, Michael Demscak, Richard Eberle, Frank Falknor, W. H. Francis, Louis Fulkerson, Bill Guerin, Del Harmon, Dick Hein, Chuck Hendrix, Henry Janson, John Kennedy, Stan Kruse, George Lite, Charles Morgan, Douglas Morton, Charles Porter, Nick Pristouris, Victor Shakitus, Robert Synder, Martin Thompson, George Tillotson, William Wichendahl, and Chap Youden.

 Technical Services

James Booth, M.O. Davis Bill Darley, Robert DeLozier Mike Dennis, Joe Evans Frank Faulheffer, George Freund, Frank Heath, Lou Houck, Bud Hudson, Wes LaBar, Al LaFrance, Chuck Moritz, Bob Nolan, Mike Pistilli, Bob Pollard, Travis Ray Bob Schwenker and George Simmons.

 WU Technical Services Programming Section, SA&P - HQ

Nancy Biehler, Ray Barrett, Ed Borden, Gene Brennan, Charles Calmus, George Cameron, Larry Carnuccio, Charlie Combs, Ken Diddle, Tony Granese, Don Holtzclaw, Malcolm Jones, Glen Kelly, Wes LaBar, Herman Lunow, Pete Myers, Robbie Robinson, Brent Rowett, Del Sexton

 Automatic Switching Center (ASC) Staff

Initially called Automatic (Electronic) Switching Center (AESC)

 During the period between 1962 and 1970 a typical Switching Center staffing roster would include the following: Refer to the individual Site sections for a sample of the individuals assigned to the various Sites.

 A Site Manager, Assistant Site Manager, fifteen Site Supervisors, a Program Analyst (software), a MODEM/Technical Control Supervisor (usually from the Site Supervisor group), twenty-four Computer Center Technicians and one or two Secretary/Support/Parts Clerk. Later, the title of Administrative Assistant was created. Over the years, as the equipment moved into the integrated logic era and became more reliable, the number of required CONUS AUTODIN personnel at each AUTODIN Site decreased.

 Laboratories - Western Union, RCA and Philco-Ford (P F)

The various W U, RCA and P-F AUTODIN Laboratories and testing facilities had a normal on-site staff of a Site Manager, Site Supervisor and two Computer Center Technicians. The staffing requirements would change when the development and testing activity changed. Systems Engineers and Programmers were on site the majority of the time and testing engineers, additional technicians and other personnel would be on site during the ongoing test phases.

 Over the span of 38 plus years of operation, various contractors, subcontractors and Federal Government entities established AUTODIN Laboratories to continuously research, develop and test computerized message and packet switching communications systems for AUTODIN. As a result, AUTODIN continued to evolve into more sophisticated technologies over this same period of time.

 In the very early stages of AUTODIN, and prior to implementation of COMLOGNET (original name for the AUTODIN system), the initial "AUTODIN" Research & Development Laboratory work was performed by Systems Designers and Engineers at Western Union's Watermill Labs located in Watermill Long Island, NY. Here the experimentation and breadboard circuitry were accomplished. 2nd generation computers were employed to act as the research platforms for developing computer-based message switching for the AUTODIN system.

 The designs were completed and the basic concepts were tested, followed by the selection of RCA to build the computer equipment for the COMLOGNET (Communications Logistic Network), AFDATACOM (Air Force Data Communications), and finally named the AUTODIN system. RCA established a laboratory facility in Camden NJ. RCA also operated the main factory where they manufactured their 301/501, second generation line of computers, and their 601 Third generation supercomputer. RCA also manufactured the AUTODIN Communication Data Processor (CDP) at the Camden factory.

 Additionally, Western Union constructed an AUTODIN Laboratory at Arlington, and later at McLean, Virginia. Another laboratory adjunct was extended to the Ft. Detrick ASC for developing and testing new upgrades and enhancements before placing the new system online.

 When the DoD decided to expand the AUTODIN System overseas, Philco-Ford (PF) became the prime contractor for the overseas Sites. P-F established the first Laboratory for developing and testing the P-F line of computer systems in Willow Grove, PA. The Willow Grove Lab was eventually moved to Palo Alto, California in mid nineteen seventies. Finally, the P-F Lab (then known as the PPM Lab - Pilot Production Model), was relocated to Colorado Springs, CO where it remains today.

 Also, DynCorp, the current DMS (Defense Message System) DTH (Defense Message System Transition Hub) AUTODIN contractor, presently owns and operates a laboratory and testing facility at the Fort Detrick DTH Site location. This laboratory is designated as the AUTOFAC (AUTODIN Facility) Laboratory.

 Software Personnel

The software personnel staffing included those located at a central location in Arlington, VA and others were in NYK; at the WU Laboratory; in McLean, VA; and at least one at each Switching Center Site. These personnel also were relocated as necessary, both temporarily and permanently.

 Computer Software

AUTODIN Software applications were divided into two major categories. These were the on-line and off-line production application programs, and hardware diagnostic programs. The application software personnel were mainly located at a central location in Arlington, VA, and others were located in New York, and at Western Union Laboratories in McLean, Virginia, and the Watermill Laboratory on Long Island. Also, at least one (called a Maintenance Analyst) was located at each Switching Center Site. These personnel also were relocated as necessary, both temporarily and permanently. The major software groups consisted of Western Union programmers from P&EO, DSA (Data Systems Analysts, formed in 1963 and subcontracted to Western Union) RCA programmers, NCA (National Computer Analysts, an RCA subcontractor) and other contractors and subcontractors. DSA, Inc. and NCA were formed by ex-RCA programmers, and then contracted to Western Union, DoD, and to RCA receptively. In the latter years of Western Union's ownership of CONUS AUTODIN, the Western Union Application programming group was moved to the Albany AUTODIN site, where it remained until the Albany ASC was deactivated.

 Federal Personnel - All levels

The DCA (Defense Communications Agency) initially had the direct responsibility for managing the operations of the AUTODIN System. These offices and agencies we located in the Pentagon, Scott AFB, Belleville, Illinois, ADCS at Tinker AFB, and other various locations. The ASC computer operators and other federal AUTODIN center personnel worked under the auspices of a civilian OIC (Officer in Charge). The entire federal staff worked for the DCA.

 Around 1962, another major office was set up and eventually handled all day to day operation of the entire worldwide AUTODIN system. This Agency was designated as DISA, Defense Information Services Agency, and was located in various parts of the country. Government management of AUTODIN operations was directed from the DISA agency. The civilian and military personnel that worked in the DCA/DISA offices were also many in number and far too many to list by name.

 Military Personnel - All Levels

Initially the military support personnel in the AUTODIN system were U S Air Force personnel. The original five CONUS AUTODIN ASC's were secured by the Air Force who was responsible for the overall operation and security. Later, when the DoD took over the system, all branches of the military became involved in the security and operational management of AUTODIN.

 At the AUTODIN Switch (Site) level, there was a military OIC in charge. The military OIC had other center military personnel reporting to him/her. This included programmers and operations types, Technical Controllers and others that come under the aegis of the military OIC.

 Additionally, the military directly handled the maintenance of the transmission Cryptographic equipment. All ASC message transmissions, input and output, passed through the Cryptographic equipment. Only military personnel were cleared to perform the periodic maintenance on this equipment.

 Western Union Division and Area Offices - Field Support

Also directly allied with the AUTODIN system were personnel located in the Western Union Division and Area Offices. The management at the AUTODIN Switches and at the headquarters level, coordinated maintenance activities within the various Western Union field offices. Western Union Field Maintenance personnel performed the maintenance on the AUTODIN Tributary (outstations or subscriber terminals) equipment. Western Union Microwave Technicians maintained the microwave relay (radio beam) tower equipment on which many AUTODIN communication circuits were carried. Wire and Repeater (W&R) technicians throughout the country handled the maintenance on the AUTODIN land line wire transmission paths. There are too many personnel involved in the field support of AUTODIN to list their names here. However, they were all certainly integral to the support and successful operation of AUTODIN.

 Sub-Contractors

There were numerous sub-contractors. Major sub-contractors directly reported to Western Union, while these same major sub-contractors sub-contracted additional companies in the communications and electronics industry.

DSA (Data Systems Analysts, Inc.), and NCA (National Computer Analysts), were major subcontractors for the various online message switching programs, and off-line recovery and statistical programs. Many of the original founders of these two companies were previously RCA Programmers who worked on the initial AUTODIN Software programs.

 Support Staffs - World-wide

Lest we forget ... there were numerous office workers that handled and processed huge amounts of paper work for the AUTODIN system. Secretaries, Clerks, Data Entry Clerks, Terminal operators, and other’s, also contributed to the success of the system. Without them, rapid and reliable progress toward the system's technology advancement would not have proceeded at the accelerated pace that it did. Our hats off to all those folks in the Federal agencies and offices, Military offices, Contractor and Sub-contractor offices!

 It has been estimated that the worldwide total Number of Personnel associated with AUTODIN from 1958 to the DTH operations of October 2002 is somewhere between 15,000 and 20,000 people! This number consists of ALL Federal, Military, Contractor and Sub-contractor personnel. As you can see from the above listings, only a fractional part of this group is listed. However, there is no accurate count available at this time, and there may never be.