Cimarron Systems

Consultant Biographies

Charles F. Newby, founder and principle systems engineer, is a skilled executive with broad experience successfully developing lines of business based on new technologies for the categories of interactive television, high-speed data, and telephony services delivered via broadband cable, satellite, and wireless networks deployed by commercial and governmental customers. A key factor in that success is the use of a rigorous, realistic product development process that begins and ends with the needs of the end user.

Before founding Cimarron Systems, LLC Mr. Newby held key business development, program management, and engineering positions at several major corporations including AT&T Broadband, PrimeStar, M/A-COM Linkabit, Megatek, and General Dynamics. During his tenure at these companies, Mr. Newby led a number of interdisciplinary teams with annual budgets in excess of $10M through the development of advanced products for applications that included multi-channel interactive television, high-speed data, and telephony services utilizing hybrid fiber/coax, satellite, and wireless transmission networks; special application satellite and wireless networks delivering high-speed data, voice, and fax; and high-performance graphics processing systems used in the electronic design automation industry; and avionics for DoD cruise missile systems.

Key Application and Technology Competencies

Broadband Networks:

- Conditional Access: expert knowledge of the design, implementation, and assessment of leading Conditional Access Systems (holding several patents in the field) including Motorola's DigiCipher II and DigiCable; Scientific-Atlanta PowerKEY; Nagra-Kudelski Nagravision; and NDS VideoGuard.
- Interactive Television: H.264, MPEG-2/4 video compression as well as MPEG-2 Layers I/II, AAC, and Dolby AC-3 audio compression algorithms/systems; interactive television application servers; DOCSIS cable modem network infrastructure; and advanced OpenCable-compliant set-top terminals with embedded DOCSIS modem, DVR, and VOD technologies.
- Content Distribution: Internet protocols including RTP, RTCP, IPSec, and others for applications such as streaming media distribution, electronic commerce, high-speed local networks, and Internet access.

Hardware Systems:

- Signal Processing: standard and custom DSPs for processing QAM, VSB, PSK, FSK, and PCM modulated signals; FIR/IIR digital filtering; linear and convolutional error correction coding; interleaving; spread spectrum techniques; vocoding; and real time control systems.
- Components: video/audio/data content management, encoding, and decoding equipment for cable, satellite, and wireless networks; digital, analog, and RF circuits including FPGA, gate array, and full custom analog, digital, and mixed signal VLSI for advanced transmit, receive, and network management components used in high-speed transmission networks; digital and analog circuits for advanced graphics processing and display systems; and digital, analog, and RF, and electro-optical circuit design for military avionics packages.

Software Systems:

- Applications: robust Subscriber Management, Program Control, and Conditional Access Systems; and interactive television server applications. Set-top terminal application clients; middleware, e.g., OCAP (tru2way), MHP, and TVWorks; and the embedded Linux kernel.
- Development Languages, Methodologies, and Technologies include: assembly, C, C++, and Objective-C; object-oriented design methods; reliable system architectures using distributed processing, fault tolerant, and network management technologies.

Education

Undergraduate: BS degree in Physics and Electrical Engineering from San Diego State University, 1976.

Post-graduate: course work including the theory, design, and implementation of digital communication systems; the application of digital signal processing algorithms including their implementation in hardware, software, and firmware; multi-processing, fault tolerant, and microprogrammed computing systems; and design of analog, digital, and mixed signal VLSI circuits.

Patents and Awards

Named inventor on a number of fundamental patents in the fields of interactive television delivery systems; algorithms, architectures, designs, and protocols for conditional access/encryption system; and techniques for mitigating broadband network impairments.

Our team was awarded an Emmy for “Outstanding Achievement in the Science of Television Engineering—VideoCipher Satellite Technology”.

Military Service

A Vietnam-era veteran with service in the U.S. Army.

Greg H., is a seasoned RF engineer with extensive experience performing the end-to-end design, implementation, and testing of advanced communication systems. Previously, Greg held executive research and development positions at: ComStream Corporation, M/A-COM Linkabit, and Oak Communications.

Key Application and Technology Competencies

Satellite Systems:

- Satellite communication subsystems including QPSK modulators/demodulators, forward error correction encoders/decoders, and timing/frequency acquisition/tracking control loops.
- Block up/down converters, frequency synthesizers, and phase-locked loops.
- Digital video, audio, and high-speed data systems.

RF Systems:

- RF system/circuit design—DC to 6 GHz.
- Passive/active lowpass, bandpass, highpass filter design with phase and amplitude equalization.
- Designs for crystal oscillators, voltage controlled crystal oscillators, and voltage controlled oscillators.
- High volume/low cost implementations.

Education

BSEE from Lawrence Technological University, 1979.

Patents

Named inventor on a number of fundamental patents in the field of techniques for mitigating broadband network impairments.

Bill B., is an experienced engineer with extensive knowledge of analog, digital, and RF subsystems performing circuit design, implementation, and testing of advanced television, radio, and satellite systems. Previously, Bill held senior research and development positions including at: Sony Electronics, M/A-COM Linkabit, and Oak Communications.

Key Application and Technology Competencies

Television Systems:

- Television video, audio, and data systems based on international standards including: SCTE-40, DOCSIS, ATSC, and NTSC.
- MPEG-2 systems, video, and audio for broadcast over IP.
- Satellite, cable, and wireless television networks.

Analog, Digital, and RF Systems:

- High-speed digital audio/video A/D and D/A circuits.
- Matched filters, data slicers, combiners, diplexers, and AGC circuits.

- Regimes for testing systems and circuits for compliance with EMI/EMC standards.

Education

AS Radio Communications from Los Angeles Trade Technical College, 1976.

Patents

Named inventor on a number of fundamental patents in the field of digital and analog television systems.