

Robert A. Hart, IV, PE, Chief Technology Officer



Mr. Hart is currently the owner of Hart Engineers and Hart Communications Consulting LLC in Baton Rouge, Louisiana. Hart Engineers designs and oversees the implementation of every type of communications subsystem and total end-to-end and interconnected communications systems from state, regional, and local access to in-home and on-person networks. Hart Engineers has designed and overseen construction of networks of all types, including telephone, CATV, broadband, multimedia and wireless networks, all of which are headed toward provision of bandwidth upon demand with QoS.

Hart Communications Consulting LLC specializes in strategic planning and teaching technologies to others. This includes a balance of TDM, IP, QoS, purpose-built equipment and a TCA commoditized hardware, the IMS-ICS/IPTV/Voit/FMC based managed IP future with new services, UNI/NNI and software control and ownership. Through his companies, Mr. Hart has designed support infrastructures including hardware and software, land, buildings, C&MH, towers, intelligent and "open" nodes supporting selective routing. Mr. Hart's customers span telephone to active broadband companies, evolving CATV to multimedia, licensed and unlicensed wireless systems. Mr. Hart's recent focus is on active Ethernet, 10G EPON, renewed TDM (parallelism, system interworking and fallback), IP MPLS/FECs/G-MPLS, H-QoS including strategic implications of aTCA, IMS-ICS/IP QoS PEPs/TISpan standards evolving to NFV/SDN, NNI/UNI, cloud/virtualization and hybrid decentralized technical architectures complementing the drastically expanding fixed, mobile and portable Internet.

Pursuant to an authorization by the FCC in 1992, Mr. Hart began conducting experimental propagation and other field tests of Personal Communications Systems (PCS) systems, including all IP networking nodes. These studies have been ongoing for a number of years and have most recently focused on unlicensed wireless bands and small cell/home cell and low power radio, smart but high gain antennas and space division multiple access. In connection with his professional responsibilities, Mr. Hart has developed a number of business plans, technical models and bidding strategies for PCS beyond 3G PCS wireless (past and future). Mr. Hart has been personally associated with the prudent spending of approximately \$1 Billion in Capital Expenditures associated with communications infrastructure solely within the USA. Since 2005, Mr. Hart has prepared, updated and completed strategic long range plans for small telephone companies. Mr. Hart is a graduate of Louisiana State University with a degree in electrical engineering and is a Registered Professional Engineer ("PE") in Louisiana and Tennessee. Since 2015, Mr. Hart working with the Company, and he became the full-time CTO in 2019.