# Journey of Comsat Labs, Comsat Corp. from the historic Clarksburg, MD location to Comsat Labs, Viasat, Inc. in Germantown, MD

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Viasat

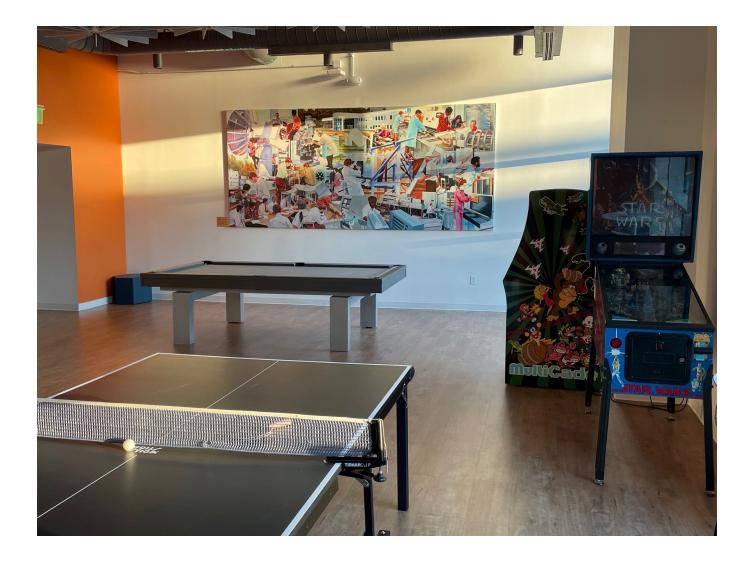# Comsat Labs, Comsat Corporation, Clarksburg, MD

# Comsat Labs, Viasat, Germantown, MD

# Comsat Labs, Viasat, Germantown, MD

# Major Programs and Technologies During the Last 40 Years

> Enduring Achievements in the 1980s and 1990s

> Significant Programs from 2001-2021

> Awards and Recognition for Viasat

> The Future of Satellite Communications

*Important Caveat: Only a subset of technologies and programs that I am most familiar with are discussed. My apologies for not mentioning many other significant Comsat Labs achievements and programs during the 1980s, 1990s, and before 1980.

# Major Enduring Achievements in the 1980s and 1990s

> Real-time Operating System and Data Protocols
>
> - COSMOS and associated libraries and utilities
> - TCP/PEP
> - High speed International Packet Switching demonstration (HIPS)

> Linkway and Linkstar
>
> - Modems/ Codecs
> - Dynamic Resource Control and Management
> - Network Control Center and Management System

> Digital Signal Processing
>
> - Multicarrier Demux and Demod (MCDD)
>   - › NASA, Intelsat, Eutelsat

> On-board Packet Processing and Ground Network
>
> - NASA
>   - › ACTS Program (Network Control Center and Terminals)

# Major Programs

## Comsat Labs, Viasat: 2001 - 2021

> Test-bed for NASA's deep space missions

- Design and testing of data protocols for ultra-long delay links

> Transformational Satellite (TSAT) Communications System

- On-board Dynamic Resource Allocation

> Ground Based Beam Forming (GBBF) System

- Design, develop, analyze, and simulate algorithms (ICO)
- Build, field deploy, and support GBBF system in four gateways (Ligado/Boeing contract for $70M)
- Build, field deploy, and support GBBF system in two gateways (Mexsat/Boeing contract for $55M)

> Internet Router in Space (IRIS): Cisco/Intelsat

> Australia's National Broadband Network (NBN)

- Ground System
- I&T Test-bed

> Protected Tactical Satcom (PTS) (Boeing; NG)

# Major Programs

## Comsat Labs, Viasat: 2001 – 2021 (continued)

> Mesh, One-hop Satellite Network for Telstra USOSat Service

> Very High Throughput Satellite Networks

- VS1 (140 Gbps)
    - › Service launch in 2012
- VS2 (250 Gbps)
    - › Service launch in 2018
- VS3 (>1 Tbps)
    - › Three satellites for global coverage
    - › The first one covering America to be launched and in service 2022
    - › The second one covering EMEA and the third covering APAC to be launched and in service 2023

# Major Programs

## Very High Throughput Satellite Networks (continued)

> System Engineering

  - Algorithms, Analysis, and Simulation

> Hardware and Software Development

  - Terminals

  - Gateways

  - Network control and management

> Integration and Testing

  - Test-beds

  - Payload testing in anechoic chamber

> Continuing work on next generation higher throughput satellite network

# Awards and Recognition for Viasat

> Guinness Book of Records for highest capacity satellite (VS-1)

> On Fortune Magazine's list of companies for "Change the World for the Better"

> Euroconsult Selected Viasat for its 2021 Global Satellite Business of the Year award

> On the Glassdoor's list of 2022 Best Places to Work Among Large US Employers

> Viasat named One of Via Satellite Magazine's Top Ten Hottest Satellite Companies for 2022

Viasat꞉ᴧ

# The Future of Satellite Communications

> Huge Total Addressable Market and Growing at a Fast Clip

> Trillion Dollar Mobility Market

  - Aviation (3 Billion airline passengers annually)

  - Maritime

  - Land Mobile

> Hybrid Networks

  - Multi-orbit and terrestrial

> Traffic Demand Uneven

  - 95% traffic demand from 25% of the Earth's surface