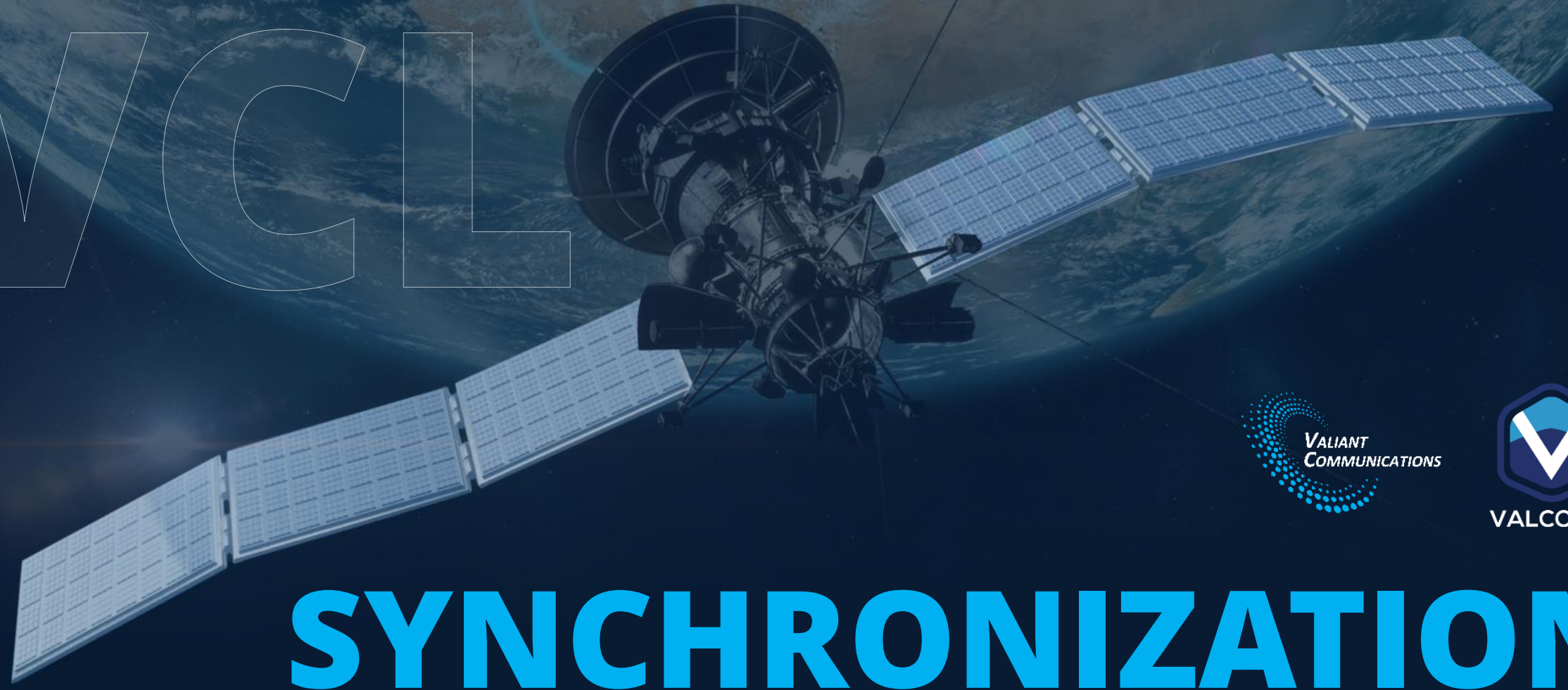


WCLL



VALCOMM

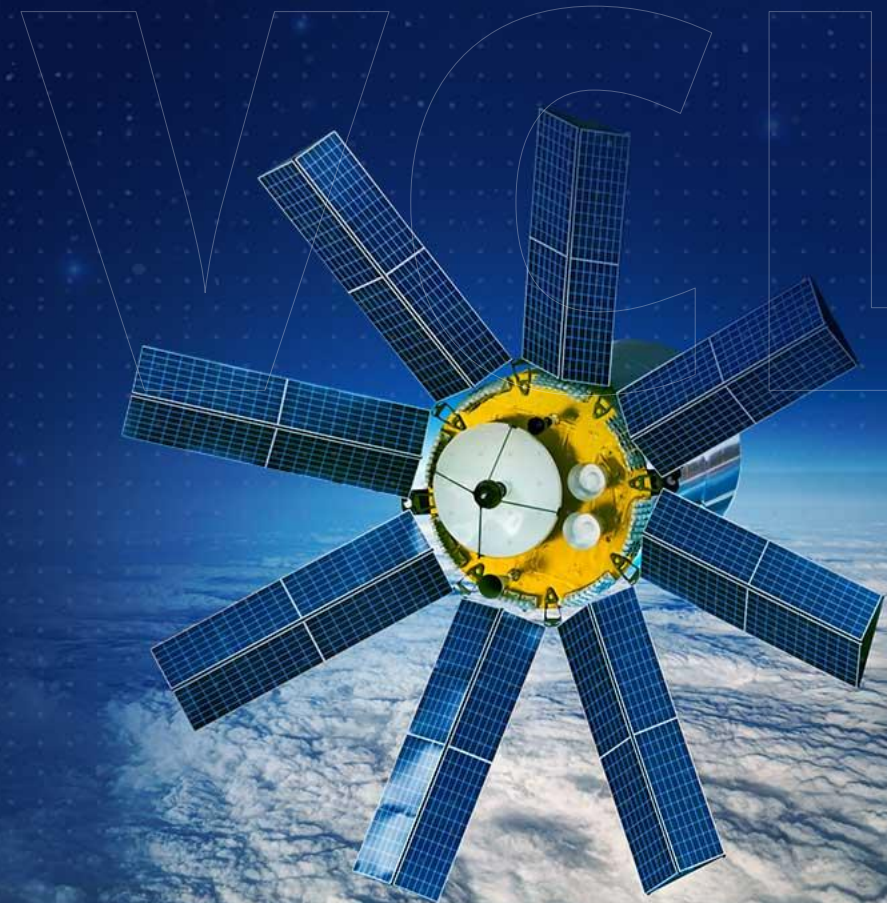
# SYNCHRONIZATION SOLUTIONS

# GPS/GNSS Synchronization solution



- Time Synchronization – **PTP 1588v2, NTP**
- Time Distribution – **NTP, IRIG-B**
- Frequency and Phase
  - **Primary Reference Clock, PTP 1588v2**

GPS/GNSS





# NTP TIME SERVERS



- NTP Time Servers\* with 1G and 10G Options
- NTP Client / NTP Slave

*\*From 5000 to more than 1 Million requests per second.*

NTP





# PTP 1588v2 (Precision Time Protocol)

- PTP 1588v2 Grandmaster
- PTP Slave Clocks
- PTP Switches
- PTP Transparent Clocks

PTP  
1588v2

# GPS/GNSS

## Primary Reference Clock (ITU-T G.811)

- Primary Reference Master Clocks (ITU-T G.811)
- SSU (Synchronization Supply Unit)
  - fully redundant (1+1) architecture
    - GPS/GNSS, E1, NTP, PTP

VCLL





# TIME DISTRIBUTION SOLUTIONS



- GPS/GNSS/NTP
- Supported interfaces IRIG-B, 1 PPS, NMEA, 1/5/10MHz, 2.048MHz, 2.048Mbits clock outputs
- GPS to IRIG-B converters
- NTP to IRIG-B converters
- PTP to IRIG-B converters

VCL



# VCL UNIFIED NMS

Network Management Software



Monitor all Synchronization devices **From Central location**

It monitors, logs and reports **alarms and events** in "real-time"

This platform provides the user, the data, to conduct real time **Network Synchronization analysis**

Identify the points of **Network disruption**

# PRESTIGIOUS REFERENCE CUSTOMERS



## End-users, using VCL equipment



ABB



Siemens



Schneider Electric



Power Grid (PGCIL)



Turkish Electricity Company



Tantransco



Perusahaan Listrik Negara



Vietnam Electricity



TNB Malaysia



National Grid Philippines



AXPO Switzerland



Harris Corporation



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MSCTCL



# VCL

# GLOBAL DISTRIBUTION NETWORK





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