

An Update on the OmniTRACSr Two-Way Satellite Mobile Communications System and Its Application to the Schneider National Truckload Fleet

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Abstract -- A novel two-way mobile satellite communications and vehicle position reporting system currently operational in the United States, Canada and Europe was introduced by QUALCOMM Inc. in 1988 and Schneider National was the innovative initial implementor, equipping more than 7000 trucks over a three year period and incorporating significant organizational and computer systems changes in order to take full advantage of the new communications technology and capabilities. During the years since initial implementation, significant product enhancements have occurred with QUALCOMM and Schneider National co-operating in the development and implementation of many of them. In their oral presentation, Mr. Bernard and Mr. Sellers will elaborate on the current description of the system and its enhancements as illustrated in the viewgraphs that follow along with a description as to the implementation status and some of the benefits being derived at Schneider National



QUALCOMM, INCORPORATED

Presents



MOBILE COMMUNICATIONS SYSTEM



QUALCOMM, INC. THE COMPANY

- Specializes in design and manufacture of complete "end to end" High Quality advanced communications systems for government and private industry
- International leader of advanced communications technologies:
 - First to have two-way mobile satellite systems in production
 - First to deliver satellite position location and reporting
 - Developer of CDMA Digital wireless telephony products - up to 20 times capacity of today's cellular phone analog systems
- Provider of advanced communications equipment to U.S. Government
- Contractor to Government for HDTV development
- Patent holders for Advanced Mobile Communications Satellite Systems

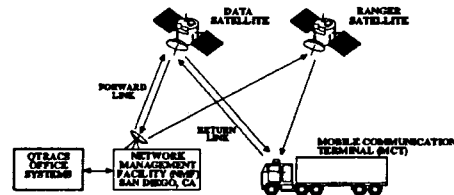


QUALCOMM, INC. THE COMPANY (Cont'd)

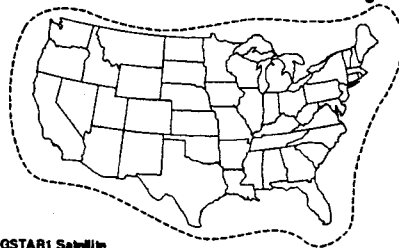
- San Diego, California based company with core of management and technical staff together for over 15 years.
- The founders include Drs. Irwin M. Jacobs and Andrew J. Viterbi who are internationally recognized and honored as leaders in the communications field
- Rapidly growing, expanding internationally, over 765 employees world wide
- Sales and service offices in major metropolitan areas
- Over 180,000 Sq.Ft. of systems operations, manufacturing, sales, engineering and test facilities



TWO WAY SATELLITE COMMUNICATIONS WITH QASPR POSITION REPORTING



U.S. OmniTRACS® Communications Coverage



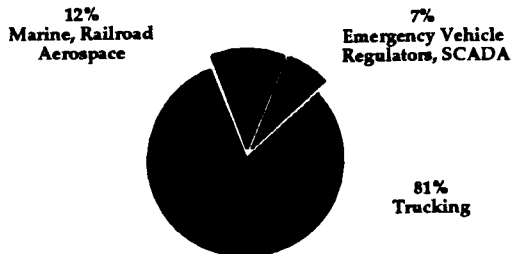
GTE GSTAR1 Satellite
Satellite location: 103 West



U. S. MARKET ACCEPTANCE

Profile	Total U.S. Customers	180
	Transport Customers Tracking (50,000 Unit Potential)	125
	Other Users: Marine, Aero, Railroad, TV Station, Emergency Vehicles, Monitoring, Regulators, etc.	15
Volumes	Fleet Units on Order (includes options)	5,500
	Units in Use	28,500
	Messages Per Day	500,000
	Messages Per Year	182,500,000
	"User Miles" Driven	5,000,000,000

OmniTRACS U.S. Market Distribution



OmniTRACS SOME LEADING CARRIERS WHO USE OmniTRACS®

AmeriGas	Challenger
Aptus	Creech Bros.
Area Interstate	Cyanco
Arrow	Dallas Carriers
Baggott	Dart
Baldwin	Deaton
Bendix	Denny's Corporation
BoaTRACS	Diablo Trucking
Bork Transportation	Digby
Boyd Brothers	Direct Transit
Builders Transportation	DSL Transportation
Burns	Earl Henderson
Buske Lines	East-West Transport
Butler	Econ Express
Car Van	Emerson Electric
Casey's	Engelhard Industries
C.I. Whitton	Enterprise
C.R. England	Falcon/Compass

OmniTRACS SOME LEADING CARRIERS WHO USE OmniTRACS®

FFE	La Rochelle
FMC Corporation	Laser Services
Four States Petroleum	Lexington Carriage
G E Transportation	Maverick
General Dynamics	Mediquik
George Transfer	McClendon
Godbee Trucking	McGill
Great Western Meat	MDX
Gulf Radio	Monsanto
Hayden	Munson Transportation
Hitzman	Navajo
Hovmet	Norseman
IDM	North American Van Lines
Interstate Distributors	Northern Telecom
Jack B. Kelley	Oliver
KLLM	Pegasus
KMD	Phelco
Knox	Pretera

OmniTRACS SOME LEADING CARRIERS WHO USE OmniTRACS®

Pretera	Southern Pride
Pryzlack	Southland Express
R & D Trucking	Star Delivery
RICH Foods	T.F. Boyle
Ranger	Transport Corp of America
Roberts Express	Transport Technology
Rohm & Haas	Transportation Resources
Ryder Truck Leasing	Tripi Foods
SMX	Tri-State Expediting
Sandia Labs	Tri-State Motors
Schneider National, Inc.	Trucks for You
Service Trucking	U.S. Xpress
Shorewood	Victory
Signal/Leaseway	Waggoners
Silica Transport	Whitehead
Southeast Wood Products	Yowell
Southern Freightways	

OmniTRACS SYSTEM ACCEPTANCE

INTERNATIONAL:

North America

- Canada - Operational license granted, units installed and operating
- Mexico - Pending
- South America - Pending

Europe

- EUTELSAT (Multi-Country Consortium) providing transponders and manage uplink in operation since January 1990 in Western Europe
- Signed agreements or in negotiations with service providers in 9 West European Countries, others pending

Asia

- JV with C. Itoh for Japan, pending government agreement

Other

- Discussions in South Pacific and North Africa

OmniTRACS Selected OmniTRACS. Options

- Driver Pager
- DTTS System-Panic Button (MTMC)
- Password Messages
- Message Return Receipt (Confirmation of Driver "Read")
- Macro Field Editing
- MCT "Wake Up"
- QASPR - (Qualcomm Automatic Satellite Position Reporting)
- SensorTRACS
 - Vehicle Management Specification (Trip Reporting)
 - Vehicle Diagnostics Monitoring System
 - Refrigerated Trailer Monitor Interface
- Power to Load Match Dispatch Optimization



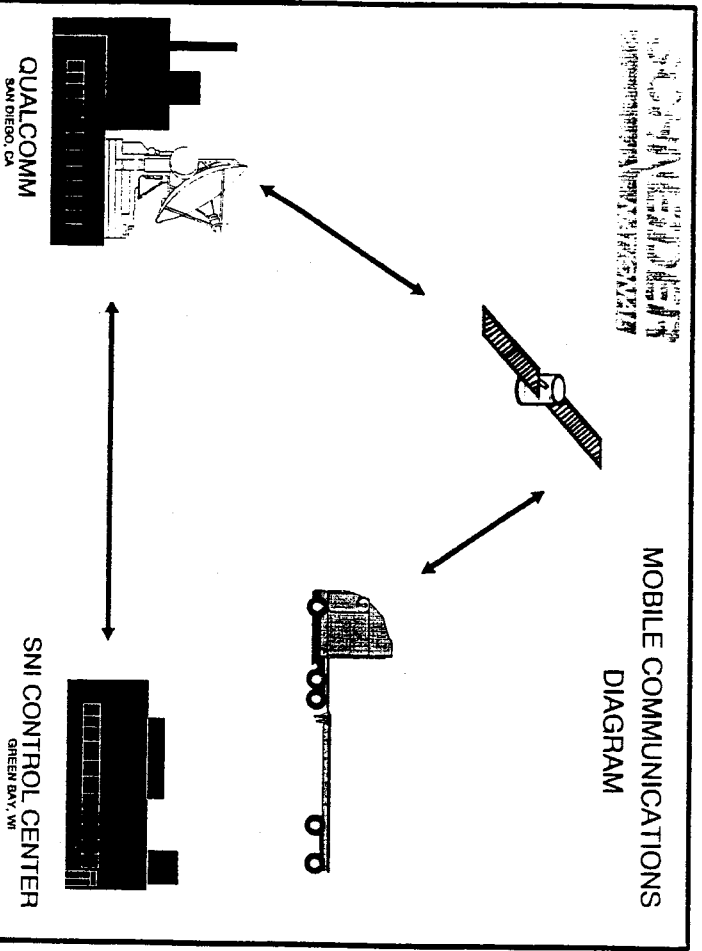


A REVOLUTION IN THE TRUCKING INDUSTRY

Satellite Qualcomm

- KU Band Capacity
- 2,000 Characters
- Two-Minute Turnaround
- Nation-Wide Coverage Currently Availal

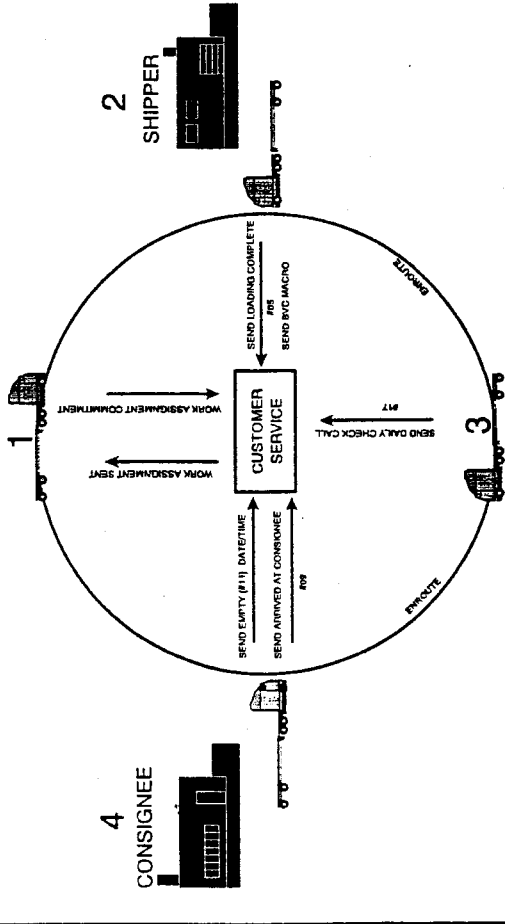
MOBILE COMMUNICATIONS
DIAGRAM



General Messaging Feature

- Formatted Or "Canned" Messages
- Status From The Driver
- Check Call
- At The Shipper
- At The Consignee
- Dispatch Information
- Automatic Vehicle Location
- Emergency Messaging

STAR SERV CIRCLE OF SERVICE



Benefits to STAR SERV Users:

- Achieve a higher level of quality assurance.
- Provide or receive real-time delivery confirmation.
- Manage in-transit inventory for both outgoing products and incoming materials and supplies.
- Change service requirements enroute to respond to changing customer needs.
- Expedite loads to avoid product stockouts.
- Maximize scheduling efficiency of loading/unloading personnel for shipper and consignee.

Other Benefits

- Voice Communications Costs
- Management Utilization
- Equipment Utilization
- Driver Retention
- Wasted Miles
- Routing
- Load Ratio

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