



4K Solutions, LLC

Service-Disabled Veteran Owned Small
Business (SDVOSB)

4K Solutions® the global leader in deployable 5G/4G/LTE mobile broadband solutions!



Executive Overview

- **4K Solutions, LLC**

- Dept of Veteran's Affairs Certified Service-Disabled Veteran Owned Small Business (CVE - SDVOSB)
- Established 2006

- **Pedigree:**



- **Services**

- Solutions Architecting
- Systems Integration /VAR
- Kitting Experts
- Professional Services
- Information Technology Training
- Top Secret Facility Clearance (eligible)

- **Value-Added Reseller**

- **Light Manufacturer**



4K Ecosystem... *trading partners*

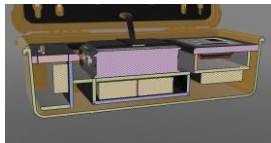
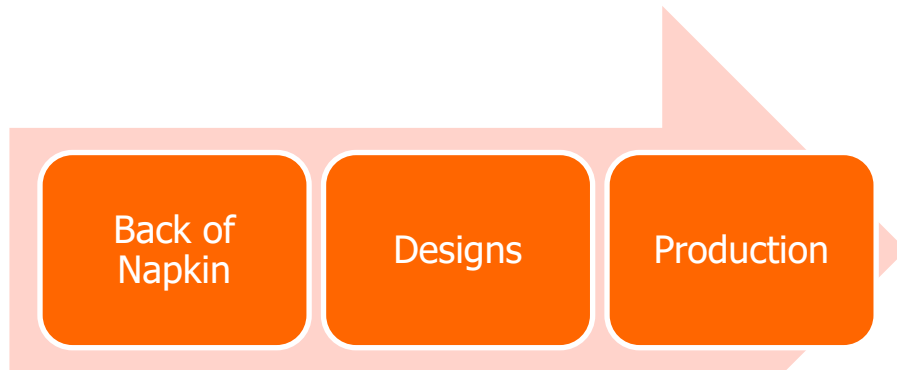


Global Customer Base ... DoD, SOF, Fed, Systems Integrators, National Labs and Academia...



Solving Your Problems... how we do it...

- **Engineering Methodology...**
- **Concept to Production.... "rapid fielding..."**
- **Special Operations + Common Sense = 80%**



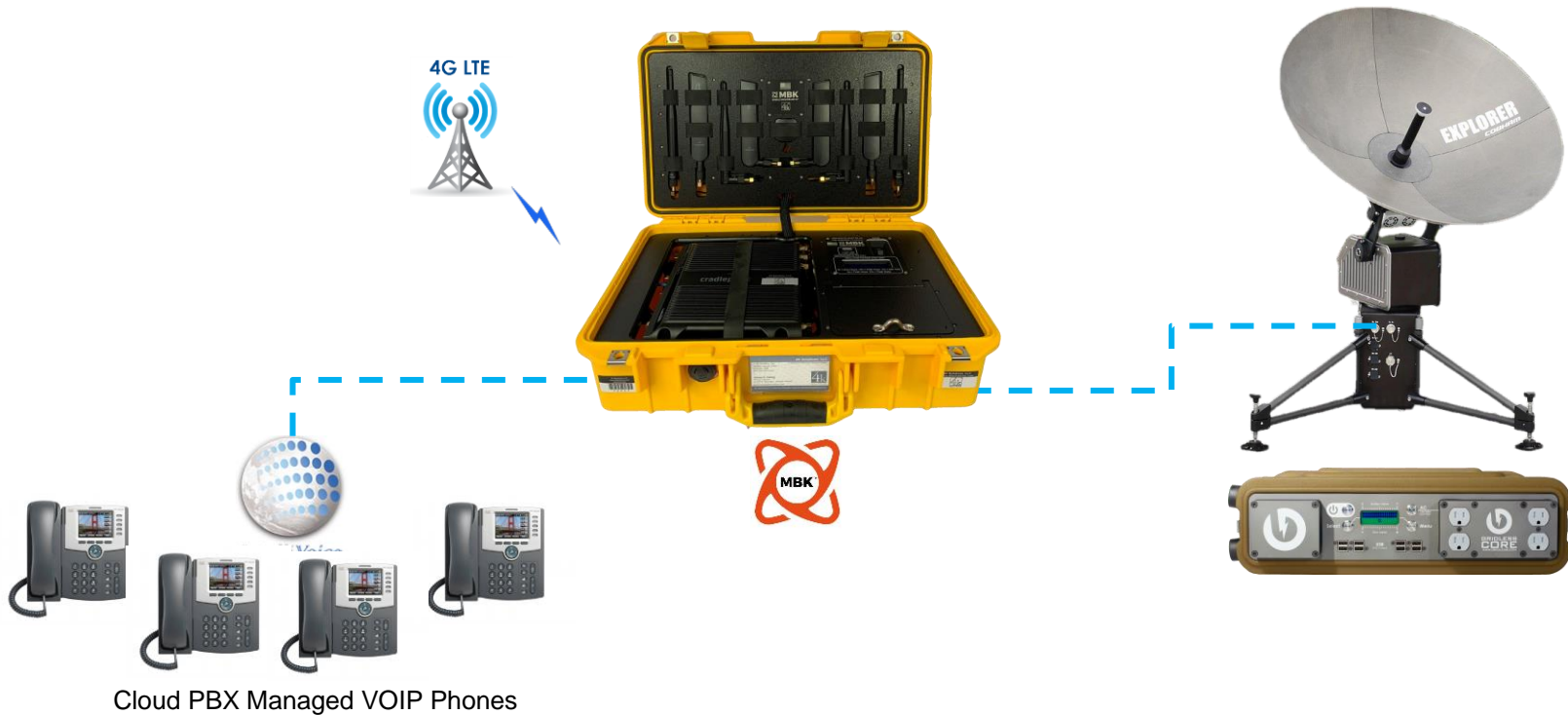
Deployable Communications & Networking

- **Backhaul**
 - 5G/4G/LTE
 - Satellite Systems
 - MANET (MESH)
- **Radio Over IP (ROIP) (WAVE)**
- **Deployable Systems Design**
 - Baseband
 - CSfC & Type-1 HAIPE
 - Route/Switch
 - Push to Talk (PTT)
 - VOIP
 - VTC



Communications PACE Planning

Primary - Alternate - Contingency - Emergency



Backhaul Methods (PACE)

5G



Mobile Broadband Kits

4G LTE



Vehicle Broadband Kits



Satellite on the Move



Micro – Medium VSAT



.45 to 1.2m 0.75 Meter Auto-and Manual Deploy Fly-Away Antenna System

Medium – Large VSAT



Airbus Ranger 1.2 – 4.0 VSATs



MBK-1900

- 50+ users
- Cradlepoint R1900
- 8-14 hour battery run time



MBK-Chameleon Classified Network (CN)

- 50+ users
- Cradlepoint R1900 or IBR 1700 (4G)
- ADDC BPC 12 /R8K Computer
- Mounting/Power for ViaSat KG-250XS
- 4 -8 hour battery run time



Fully Integrated (FI)



MBK-Lite

- 30 users
- Global & First Responder Ready
- No Cellular amplifier
- 4-6 hour battery run time
- p/n: 4K-MBK-L-DM-SA

MBK-900 DD (SNOC)

- 30 users
- Global & First Responder Ready
- Cellular amplifier available
- 11-14 hour battery run time
- p/n: 4K-MBK-900-SA

MBK-1700

- 50 users
- Global & First Responder Ready
- Cellular amplifier available
- 7-14 hour battery run time
- p/n: 4K-MBK-17DM-SA-3

Integrated (I)



Fully Integrated (FI)



MBK-Lite

- 30 users
- Global & First Responder Ready
- No Cellular amplifier
- 4-6 hour battery run time

MBK-900 DD (SNOC)

- 30 users
- Global & First Responder Ready
- Cellular amplifier available
- 11-14 hour battery run time

MBK-1700

- 50 users
- Global & First Responder Ready
- Cellular amplifier available
- 7-14 hour battery run time

Integrated (I)





MBK-Lite

- 30 users
- Global & First Responder Ready
- Cellular amplifier available
- 4-6 hour battery run time



MBK-900 DD (SNOC)

- 30 users
- Global & First Responder Ready
- Cellular amplifier available
- 11-14 hour battery run time



MBK-1700

- 50 users
- Global & First Responder Ready
- Cellular amplifier available
- 7-14 hour battery run time



MBK™ (Cisco Technology)



MBK-829

- 50+ users
- Cisco 829 router
- 11-14 hour battery run time



MBK-829 w/ IBR 900

- 50+ users
- Cisco 829 router
- Cradlepoint IBR 900
- 4K's Chameleon chassis
- 4 -8 hour battery run time

Emergency Operations Center (EOC)



MBK-EOC

200+ users

Dual Cradlepoint IBR-1700's or R1900's

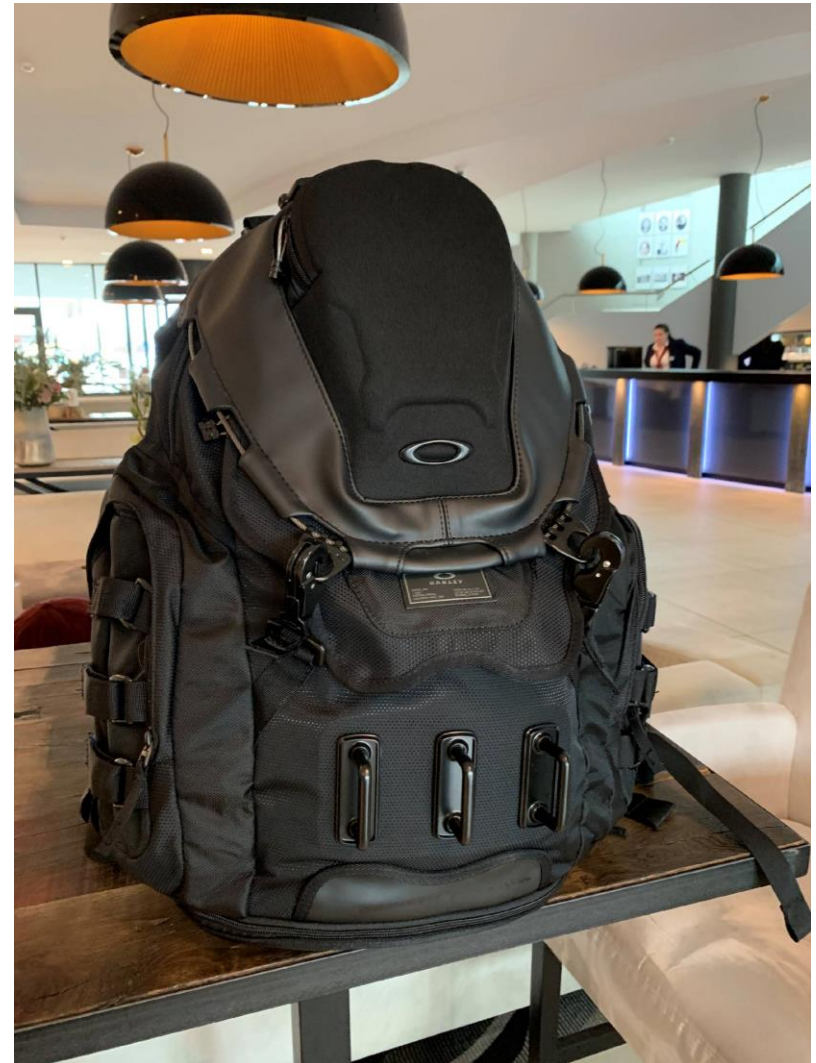
4-6-hour battery run time

Executive Broadband Kit – EBK™

4K Solutions' Executive Broadband Kit - EBK™ are designed for easy to carry and discrete travel providing 4g/LTE network backhaul via Wi-Fi or ethernet .

The EBK™ is running the CradlePoint IBR-900 series mobile broadband router, powered by the 4K Solutions RPC-RV LifePo4 battery.

4K's rugged mil-spec 3G/4G/LTE and Wi-Fi antennas are integrated into the backpack.



Cellular Deployable Antenna Systems

4K Solutions **Antenna Accessory Kits** help solve the “no cellular signal” problem many customers experience inside buildings and structures.

Designed for our **Mobile Broadband Kits—MBK™**, our **Antenna Accessory Kits** are used around the globe in disaster response, military operations, wildfire operations, Emergency search & rescue, hurricane and tsunami response, remote areas, concrete and metal buildings and large events.



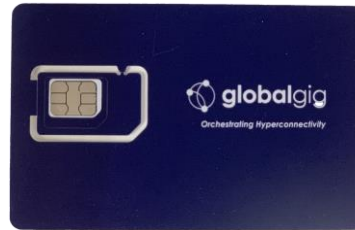
What comes in an Antenna Accessory kit:
5G/4G/LTE Outdoor Antennas
802.11 Wireless Outdoor Antennas
Coax
Mil-spec rugged case
Solar Panel
Quick Deploying Antenna Mast



Cellular & Satellite Pre-Paid Data

4K Solutions are authorized resellers for the following Cellular Carriers (directly or through distribution):

- Globalgig
- AT&T
- FirstNet™
- TampNet
- T-Mobile
- Verizon



4K Solutions are authorized resellers for the following satellite carriers (directly or through distribution):

- Korea Telecom
- Kymeta
- Inmarsat
- Intelsat
- Iridium
- SES

“Pre-Paid plans are available”



Private 5G/4G/LTE Networks



Private 5G, 4G/LTE, GMS, UMTS Systems available:

- Aerial Systems
- Base Stations
- Base Camp / Campus
- CBRS
- Lab Systems
- ManPack
- Range Systems
- Unlicensed



Comms on the Move



5G/4G/LTE

Satellite Communications



SATCOM On the Move (COTM)

LOW PROFILE, LOW POWER

Kymeta terminals offer incredible versatility and mobility. The ease of operation and network access speed make Kymeta solutions valuable in a range of environment and field operations where deployment and high mobility are critical factors



KYMETA™
GOVERNMENT SOLUTIONS

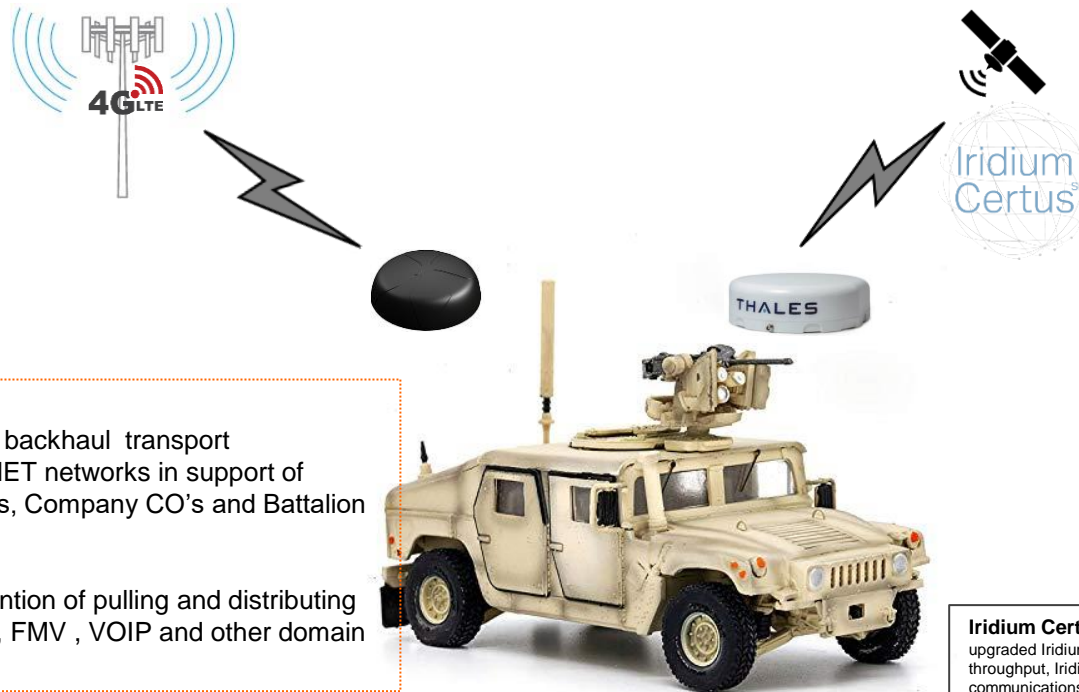
MANTA
CONNECTED BY
KYMETA



Vehicle Network Kit – VNK™

4G/LTE & BLOS Network Diagram Comms-on-the-Move (COTM)

4G/LTE and Satellite BLOS *ATAK Backhaul*



Summary:

Provide LTE & Iridium Certus backhaul transport with NIPR/SIPR and/or TACNET networks in support of ODA, ODB's, Platoon Leaders, Company CO's and Battalion vehicles.

Vehicle mounted with the intention of pulling and distributing TAK, WAVE, TACNET, SIPR, FMV, VOIP and other domain services.

2019-9-28 v3.0

Iridium Certus® is an advanced multi-service platform enabled by the upgraded Iridium® constellation. Offering the highest L-Band data throughput, Iridium Certus® redefines the capabilities of mobile satellite communications across maritime, IoT, aviation, land mobile, and government applications. Iridium Certus® is ideal for supporting critical connectivity needs regardless of location, terrain, and weather events – all in a single platform.

Speeds: 600 kbps downlink and 250 kbps uplink (estimated)

Multi-Mission Mount (MRZR)



4K Solutions' "Multi-Mission Mount" for the Polaris MRZR!



Ranger Designed – Mission Ready™

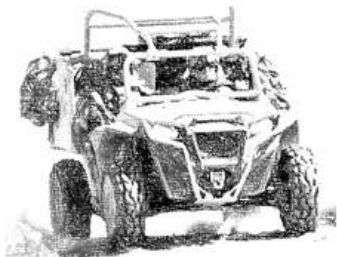


The 4K Solutions **Multi-Mission Mount** is a perfect mounting solution for a myriad of Communications and Mission Packages:

- MissionLINK™ Antennas (Thales)
- BGAN Antennas (Cobham)
- TACSAT / MUOS Antennas (ARA)
- 4G/LTE – 802.11 Antennas
- CNR / LOS Antennas
- LMR Antennas
- GPS Antennas
- ISR Receiver Antennas

- Ammo Cans
- Cargo
- Rucks

4K Solutions' Multi-Mission Mount!



sales@4ksolutions.com
www.4ksolutions.com
 (706) 593-9070

Satellite Systems

Global Satellite Communications Kit (GSCK)

4K Solutions' Global Satellite Communications Kit—**GSCK™** is configured for our customers with portable beyond line of site communications needs in remote locations leveraging the **Thales™** MissionLINK or VesseLINK™ terminals utilizing the **Iridium Certus®** global satellite constellation.



Satellite Solutions



WGS CERTIFIED

Antenna Sizes From 1.0m To 2.4m

Field Interchangeable Feed Boom (C, X, Ku, Ka-band)

Pointing Assistant

Field Upgradable Motorized, Non-Motorized

We make establishing a connection effortless. Operators just follow the on screen arrows to locate the satellite. It is just that easy.



Push To Talk (PTT) & Radio Over Ip (ROIP)



WAVE™

WAVE Systems Design

WAVE Professional Services

WAVE Training

We build and train WAVE on all major OEM's!

- Cisco
- CISTECH
- Cubic / DTECH Labs
- Cubic / Vocality
- ICOM
- Klas Telecom
- PacStar



MOTOROLA SOLUTIONS

Channel Partner

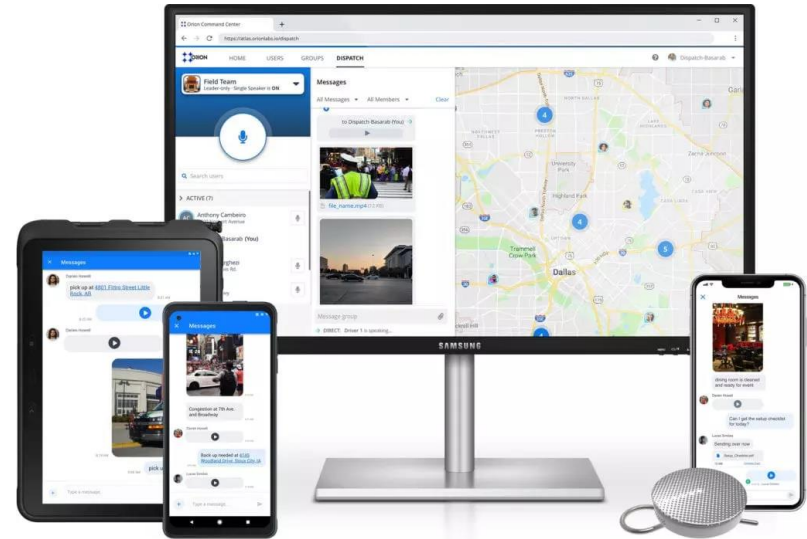






Orion Labs Systems Design





Orion Labs Professional Services

Orion Labs Training




Voice-First, Multimodal Collaboration

  **Voice-First Communication =**
Heads Up + Hands Free


  **Multimodal =**
Voice + Text + Photos
  + Videos + Files


Next-Generation Voice Technology

 **High-Quality Voice With Low Latency**

 **End-to-End Encryption (E2EE)**


 **Any Size Group Communication**


 **Real-Time Language Translation**

 **Process & Workflow Automation With Bots**

Unmatched Coverage

 **Any Distance**

 **Any Network**

 **Any Device**

Mobile Radio Gateway – MRG™

((())) MRG™

Mobile Radio Gateway

The MRG's are an intelligently designed portable battery powered 4G/LTE Radio Over IP (ROIP) networking system configured with the Vocality ROIP.

A first in its class and designed to provide interoperability between disparate communications networks, the First Responder Cubic Vocality RoIP provides a rapidly deployable and easy to use bridge between existing Land Mobile Radio (LMR) networks, amateur and military radios and First Responder LTE based Push-To-Talk over Cellular (PoC) system.



Tactical Voice Bridge (TVB)



Tactical Voice Bridge (TVB)

Off/On Interoperability

Link radios irrespective of band, protocol, talk-group or crypto

Automatic interface configuration

Lowest Size, Weight, Power & Cost

Operational with NATO forces



Cellular Boosters

Mobile Repeater Kits – MRK (Cell Boosters)



MRK-1

1 x CEL-Fi GO's / Go Red's



MRK-3

Up to 3 CEL-Fi GO's / Go Red's



Voice Over IP (VOIP) Deployment Kits

Managed VOIP Services

Cloud Based
Communications



IP Phones - IP Conference Phones - IP Video Phones - IP DECT Cordless Phones

4K Solutions are authorized resellers for the cloud managed voip services:

- Hosted PBX is a service where the call platform and PBX features are hosted at the service provider location (ie. The Cloud). With Hosted PBX, the business end users connect via IP to the provider for voice service.
- Regardless of where your users are, they can access the phone service using a PC, Desk Phone or Mobile App as long as you have an internet connection.
- Virtual PBX telephone systems have numerous advantages for customers.
- **IP Phones**
- **IP Conference Phones**
- **IP Video Phones**
- **IP DECT Cordless Phones**
- **Satellite phones**



Deployable VOIP Kits

4K's custom Deployable VOIP Kits provide the customer with centrally managed Voice over IP (VOIP) services hosted in dual-homed call centers in Atlanta and Miami

System Features

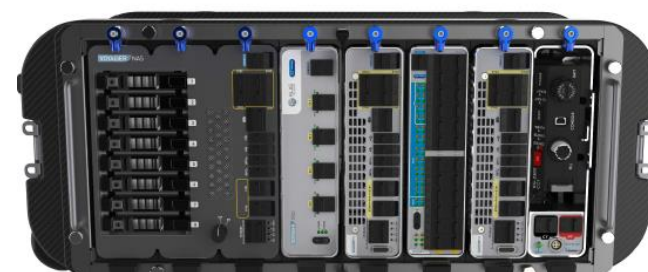
- Easy to set up and use
- Cisco, Polycom and Yealink phones available
- Telephone app for Android and iOS available
- 0.75 m Axis-Symmetric Reflector
- Managed VOIP Services (plu and play)
- WLAN Access Point and LAN interface
- Single Case Solution, Airline Checkable with 4 phones



Deployable Systems

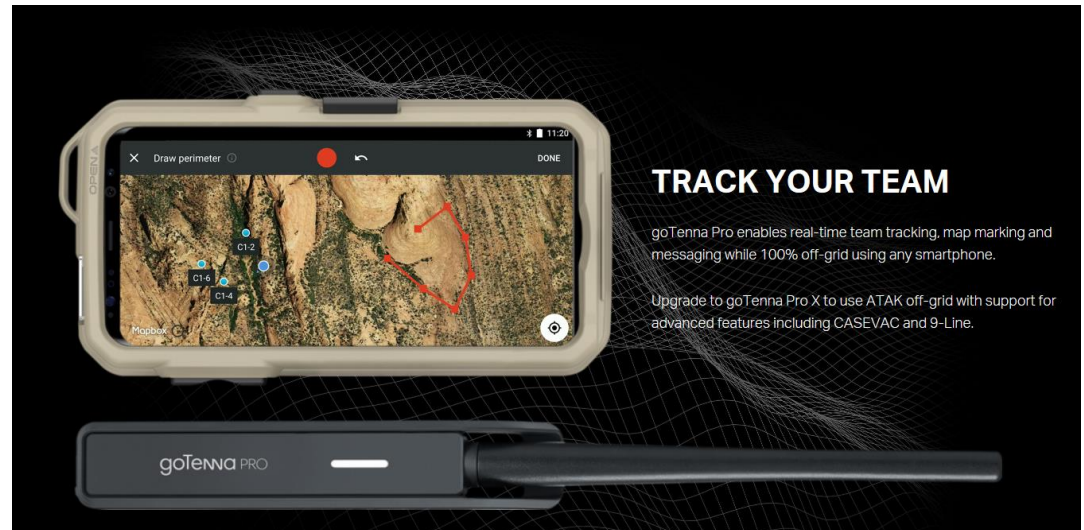
Deployable Networking Systems

- Executive Communications
- Commercial Solutions for Classified (CSfC) capabilities
- Deployable Data Storage
- Cross Domain Solutions
- Tactical Radio Integration Kits (TRIK)



Mobile Adhoc MESH Wireless Radios

goTenna



Silvus Technologies



PLI Data

Full Motion Video

Black Node Extension (LOS)

Airborne – Vehicle - Manpack

TAK™ backhaul



Deployable Power

Gridless Power



Gridless CORE

The Gridless CORE is an all-in-one battery system.

Technical Specifications

High Capacity, Durable LiFePO4 Battery

- + 1000Wh True Capacity
- + 2000-3000 Cycles

Powerful Outputs

- + 1000W Continuous, 2000W Surge AC Output
- + 8X IP66 USB Ports, 2.1A Each

Unmatched, 1 Hour Charging Speed

- + 1000W total charging power
- + 4X 9A Charging Channels
- + 12.5V-42V Input Range

Portable, Rugged Case

- + 50lbs, 21.5" x 21.5" x 6.5"
- + Drop, Shock, and Weather Resistant

Smart and Connected

- + Simple, Automatic Controls
- + Advanced, Predictive SOC Calculations
- + Wired and wireless remote monitoring



Virideon (CopaSat)



**XX90 MANAGER
VIR-EM-XX90-04**



DESIGN FEATURES

- Input / Output per VIP/ER Specs Reference datasheet for VIR-VP-X2P4
- Intelligent Battery Management System
- Manages up to Four XX90 Series Batteries
- Max Charge Rate: 200W per battery (battery dependent)
- Max Discharge Rate: 50A (battery dependent)
- Battery Hot Swappable
- Small and Lightweight
- Durable Ruggedized Design
- Passively Cooled (No Fans/ Filters)

SPECIFICATIONS

- Dims. with batteries: 10.25 x 5.5 x 5.5 in.
- Weight with batteries: < 15 lbs.
- Dims. no batteries: 10.25 x 5.5 x 1.25 in.
- Weight no batteries: < 2.5 lbs.
- 4 Rubber Straps for Securing Batteries
- Rugged Aluminum Housing
- Black Mil-Spec Anodized
- Designed to meet IP68
- Designed to meet MIL-STD 810G

TECHNICAL DATASHEET

**ENERGY MANAGER
VIP/ER BUILDING BLOCK**

The **XX90 MANAGER** is a 4-Bay Battery Management Device that mounts to **VIP/ER** and allows the safe discharge operation of up to four **XX90 Series Batteries**, simultaneously.

When rechargeable **XX90 Series Batteries** are used, the **XX90 Manager** can both rapidly charge and discharge them through any combination of **VIP/ER's** on board **25 Amp Bi-directional Smart Ports** or **60 Amp Expansion Modules Bays** using **AC, DC, or Solar**.

Data Analytics such as **SOC%** are sent to **VIP/ER** for monitoring and display.

**COMPATIBLE XX90 SERIES BATTERIES
(Not Sold by VIRIDEON)**

- 2590 Rechargeable Lithium Ion
- 5590 Non-Rechargeable Lithium Sulfur Dioxide
- 3590 Non-Rechargeable Alkaline Manganese Dioxide
- 5390 Non-Rechargeable Lithium Manganese Dioxide



TOP

BOTTOM



Tactical Power – 110/220 vac & Solar

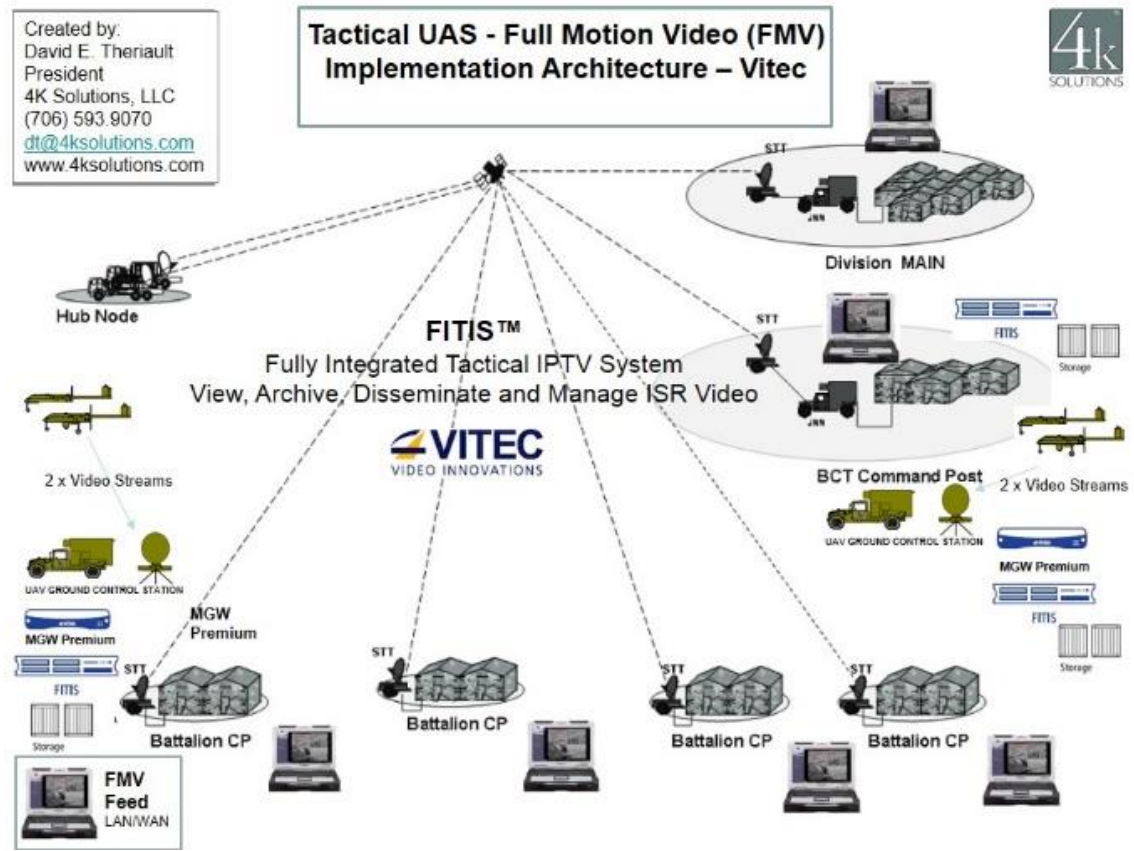


FMV Distribution Solutions

Full Motion Video (IP TV)

- Vitec
- Haivision

IPTV Systems is an advanced solution that empowers organizations to deliver live and recorded on-demand basis, to computers, TV's, mobile devices.



Cyber Training

Cyber Network Operators Class (CNOC)

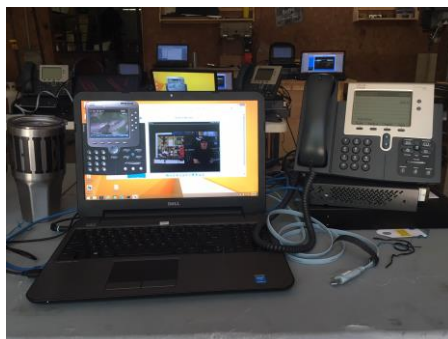
4K Solutions – delivers the best hands-on pre-deployment Network Operators course in the world!

- Cisco Routers
- Cisco Switches
- Cisco VOIP
- Video Encoders (FMV)



Realistic Production LAN and WAN Environment

- VLAN's
- Trunks
- Tunnels
- Dial-Peers
- Multicast



Cyber Training

Full-Service Cyber Training (CONUS / OCONUS)

- A+
- Security +
- Network +
- Cisco
- Microsoft
- CISSP
- WAVE
- Full Catalog



WAVE Training



4K Delivers the “Best” WAVE Training Anywhere!





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Thank you

4K Solutions® the global leader in deployable 5G/4G/LTE mobile broadband solutions!