# Cyber Security in the Cellular World

## The Problem

Cyber Security is becoming more and more relevant with all of the attacks seen internally from persons in the U.S. as well as those attackers from outside the U.S. looking to disrupt our services and economy.

With the introduction of LTE (4G) more and more opportunity exists to utilize this flexible technology as long as we can resolve the barriers to entry as well as the barriers to run the systems securely and economically.

COSTLY

OVERLY COMPLEX

TAKES TO LONG

**Using a cost effective and simple method to implement a Private Network is the Answer!**

# China/Russia Cyber Attacks are Targeting U.S. Infrastructure

## Bloomberg: "UglyGorilla Hack of U.S. Utility Exposes CyberWar Threat"

"He sought access to systems that regulate the flow of natural gas. He cruised channels where keystrokes could cut off a city's heat, or make a pipeline explode."

UglyGorilla's surveillance sortie was one of dozens conducted on natural gas pipelines and electric utilities by People's Liberation Army Unit 61398 over at least 14 months in 2012 and 2013, according to documents obtained by Bloomberg News

According to the DHS presentation and slides, the unit stole lists of field sites, such as block valve stations and compressors, that could be manipulated remotely, as well as SCADA log-on and user manuals for servers.

"This is as big a national security threat as I have ever seen in the history of this country that we are not prepared for," said Representative Mike Rogers, a Michigan Republican



Photographer: Charles Dharapak via AP Photo

Press materials are displayed on a table of the Justice Department in Washington,... **Read More**

Already, the energy industry was the sixth-most targeted sector worldwide last year. It was the top target in the U.S., accounting for 59 percent of the 256 attacks recorded last year by the U.S. Department of Homeland Security. Almost all the specifics of the incidents are kept quiet to prevent damage to the companies victimized.

**Using a cost effective and simple method to implement a Private Network is the Answer!**

# PROBLEM:
## Cybersecurity is top of mind for all businesses
## Mobile assets in the IoT ecosystem are also under attack!

**Oil & Gas**

**Business Continuity**

**State & Local Government**

**Vending**

**Utilities**

**Disaster Recovery**

**Financial**

# Cyber Security Key Barriers

**COST**
- Customers spend $1000's on dedicated equipment just to follow Carrier termination rules
- Customer then spends 10,000's on teams to engineer and maintain a Private Network
- Overages from applications, miss-use of the network, or hackers driving up data usage
- Productivity loss is the hidden gem when businesses provide mobile access or smartphones

**OVERLY COMPLEX**
- Consultants design complex networks making them hard to use and maintain
- Vendors are not standard on termination techniques resulting in complexity and delays
- Each solution is unique, driving up cost to the end customer making them tough to maintain
- Many organizations do not have the technical expertise within IP and Wireless technology

**TAKE TO LONG**
- Carriers take 4-6 weeks to prepare their part of the overall solution
- IT Engineering firms take add another 1-4 months to plan and implement an overall solution
- Complete solutions range from 3-6 months to cover the solution with integration & testing
- Companies are making short term decisions resulting in bad security plans to meet deadlines

# Current Cyber Security Solutions

**CARRIER PRIVATE NETWORK**

- Carriers provide part of the solution leaving the Customer to design the transport/termination
- Partial solutions drive many SMB size customers to abandon projects due to cost and/or size
- Resulting support costs are high as the solution in many cases will be managed by a 3$^{rd}$ party
- Carrier's will often encourage public IP addresses as it is the quickest path to implementation

**MODEM ENCRYPTION**

- Many Modem vendors will provide a form of Security at the Modem
- Unfortunately this method does a great job for the data plane but exposes the control plane
- This results in exposure of the device and therefore the network driving up security exposure
- This also exposes customers to higher costs due to malicious pinging driving up data usage

**CLOUD BASED**

- Terminate the Carrier IPsec tunnel reducing cost and improving overall flexibility options
- Reduce data usage costs from malicious pinging and leaves the customer exposed to hackers
- Provides a strong partner for organizations acting as an extension of their IT group
- Reliable, Repeatable and Sustainable resulting in a High Value Private Networking Solution

# Cloud Based Solution Resolves PN Security Barriers

**COST**

**TAKE TO LONG**

**OVERLY COMPLEX**

- Cloud Solutions can design the network, maintain the network, and can act as an extension of the IT team as appropriate
- Support flexible terminations to cloud vendors and customer premise
- Cloud Solutions can support multi-carrier implementations into a single delivery vehicle

- Cloud Solutions terminate Carrier APN's removing the need for dedicated routers reducing CAPEX
- Pre-engineered so that 90+% of the overall solution is re-useable
- Bring a full toolkit of bandwidth management techniques reducing and/or eliminating overages resulting in higher customer satisfaction

- Customer deployments are reduced to weeks versus 2-6 months with the higher priced IT engineering firms
- Cloud vendors can deliver a complete solution fully tested and then handed over to the customer ready to roll!
- Customers are afforded the proper time to make good decisions base on their security needs
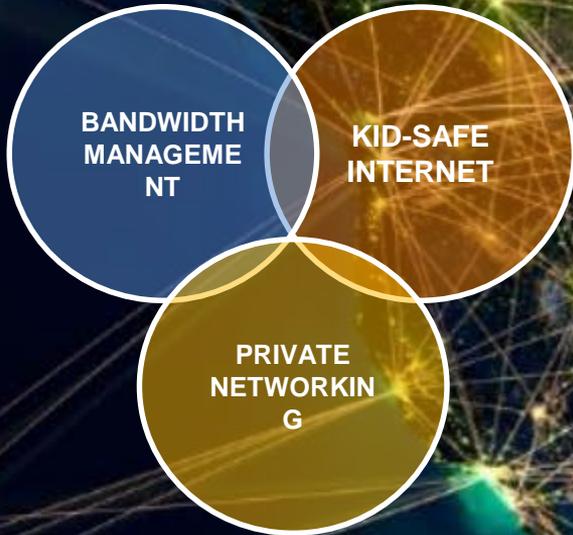
# CyberReef Solutions

**Our MISSION**

**BANDWIDTH MANAGEMENT**

**KID-SAFE INTERNET**

**PRIVATE NETWORKING**

**CyberReef Solutions is a Cloud-Based Managed Service Provider that offers affordable secure networking services for Machine (M2M) and Internet of Things (IoT) communications over MOBILE NETWORKS.**

**Primary Services include:**

- **Bandwidth Management – Reducing Rate Plans and Overages**

- **Kid-Safe Internet – Protecting Kids on the Internet**

- **Private Networking – Securing Mobile Data from Cyber Attacks**

**SmartIT and CyberReef Solutions partner to provide secure mobile M2M/IoT services**

**SOLUTION:**
**Leveraging fully integrated core network**
**CyberReef secures data for every application in every vertical**

Oil & Gas

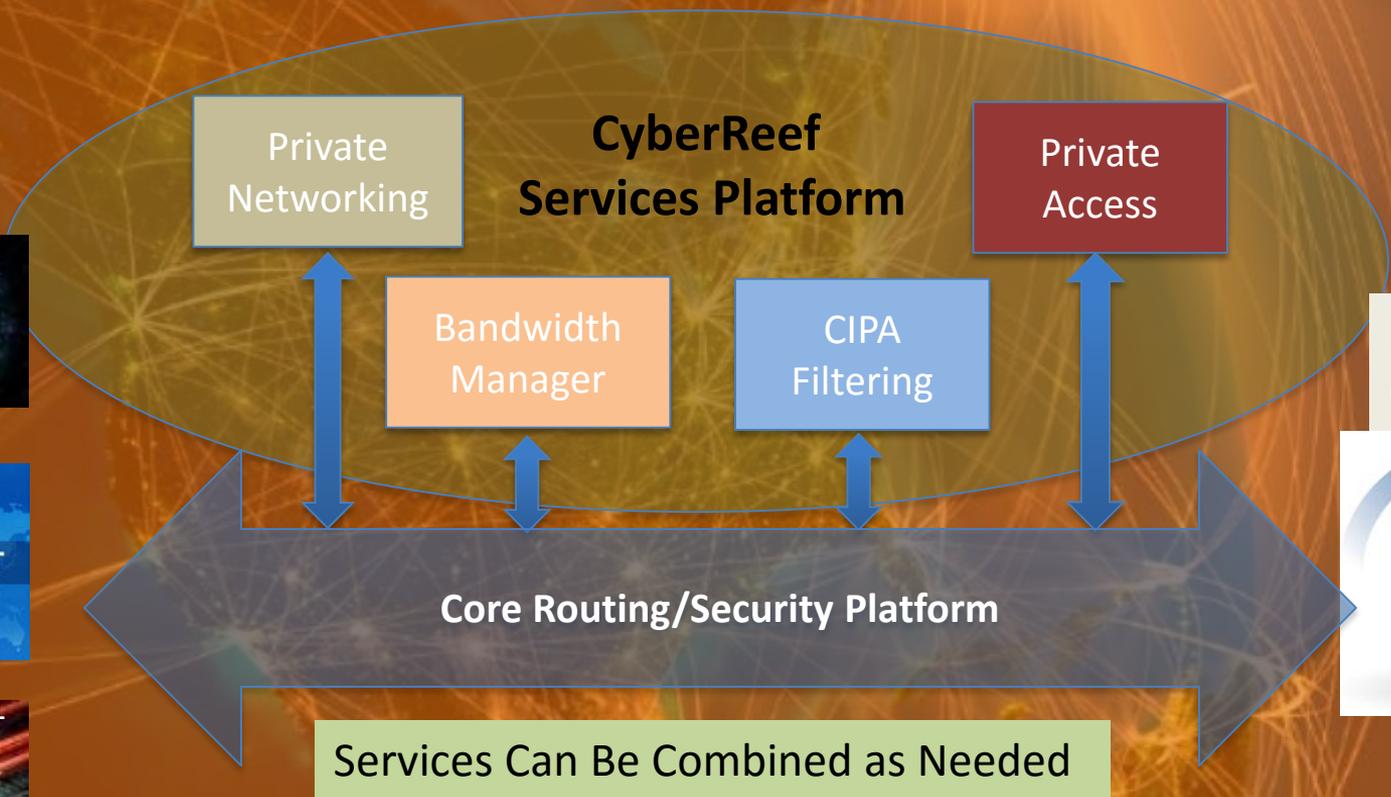Business Continuity

State & Local Government

Vending

Utilities

Disaster Recovery

CyberReef Solutions

Core Network Services

Financial

# CyberReef Solution's Cloud Services

**CyberReef Services Platform**

Private Networking

Private Access

Bandwidth Manager

CIPA Filtering

**Core Routing/Security Platform**

cloud server

INTERNET

CORPORATE FIREWALL

**Private IP (required)**

**Wireless Network**

Services Can Be Combined as Needed

# CyberReef Solution's Subscription-Base Offerings Summary

**Private Networking:  Securing Data Over the Cellular Network**
- CyberReef provides encryption of data from mobile devices to the enterprise
- Cut Deployment time from 2-6 months to weeks
- Average customer savings 30-40% over current
- Multi-Wireless carrier support resulting in a simplified single network for the end customer

**Bandwidth Management : Reducing Rate Plan Costs and Overages**
- CyberReef provides Bandwidth Management (BWM) services to Enterprises
- Misuse of company provided tablets and cellular hotspots is costing billions
- Typically, CyberReef BWM Services reduce data consumption by 25-40%
- CyberReef controls data usage by user and blocks non-business websites
- Reporting by user and top websites visited highlights the problems firms face

**Children Information Protection Act (CIPA) Filtering**
- CIPA is a Federal program that requires K-12 web filtering to protect kids online
- CyberReef has partnered with SmartIT and K12 Mobility to provide this critical service
- 'Sell With' approach with a simple deployment model and IT support for schools
- No specialized hardware or software with lower OPEX thru the solution's life cycle

**SmartIT and CyberReef Solutions partner to provide secure mobile M2M/IoT services**
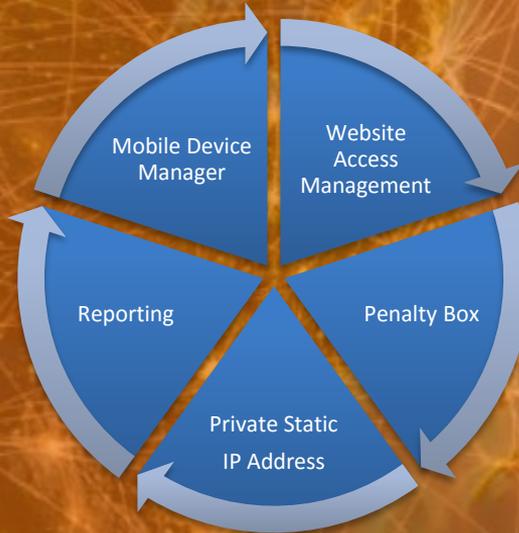
# CyberReef Solutions(CRS) Closing Summary

Industry Leading Bandwidth Management Techniques

Penalty Box extending monthly "all you can eat plans"

User Reporting details helping customers make real decisions

LAN Extension into the Cellular Domain

Secure Internet via
CyberReef Private Internet

EDIFI Secure Internet Access for School's (CIPA)

The Industry's lowest total CIPA OPEX

Industry's 1st CIPA Filter via Private Access

- Mobile Device Manager
- Website Access Management
- Penalty Box
- Private Static IP Address
- Reporting

## Vertical Agnostic Solutions– We make it happen across the board!

Questions?