



Granite Telecommunications

DISA Technical Exchange Meeting (TEM)

About Granite

Granite provides voice, data and other products and services to multi-site businesses and governmental agencies. Granite serves more than two-thirds of the Fortune 100 companies, 70+ federal agencies, and were in every branch of the military.

Since 2002, Granite has helped customers simplify and manage local and long-distance phone services, with a single point of contact and one invoice for all locations throughout the United States and Canada. Granite provides a full range of advanced communications solutions, including Internet Access, SD-WAN, Wireless WAN, Hosted PBX, SIP Trunking, Mobile Voice and Data, Mobile Device Management, Managed Security and Network Integration – all in a single, seamless solution.

**Nationwide carrier
agreements**

**Top telecom industry Net
Promoter Score**

**Focus on listening to our
customers**



**Cradlepoint Connect 2019 Partner
Summit Awards**
Recognized as Emerging Partner of
the Year



General Motors
Ranked #1 Best in Class Global
Telecom Supplier



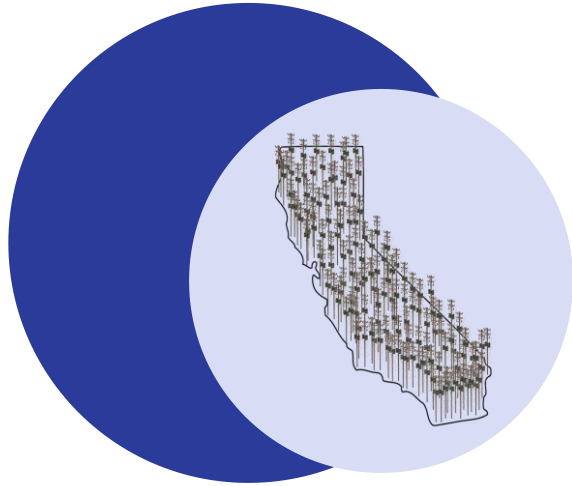
Government Contract
Selected Provider awarded Enterprise
Infrastructure Solutions ("EIS") contract



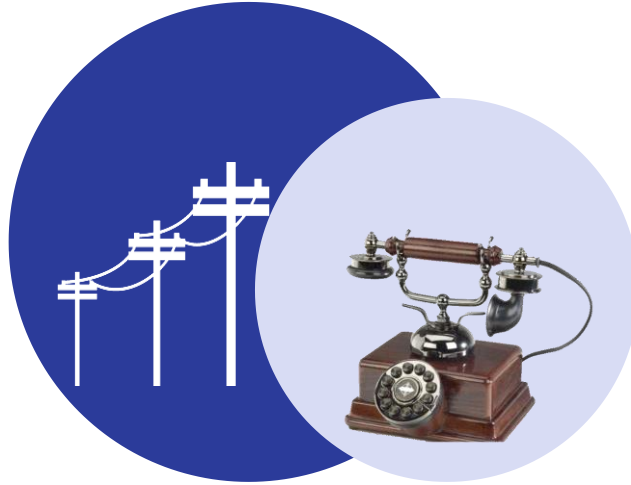
Forbes Best Lists
America's Best Mid-size
Employers 2019
Best Employers for Diversity 2019



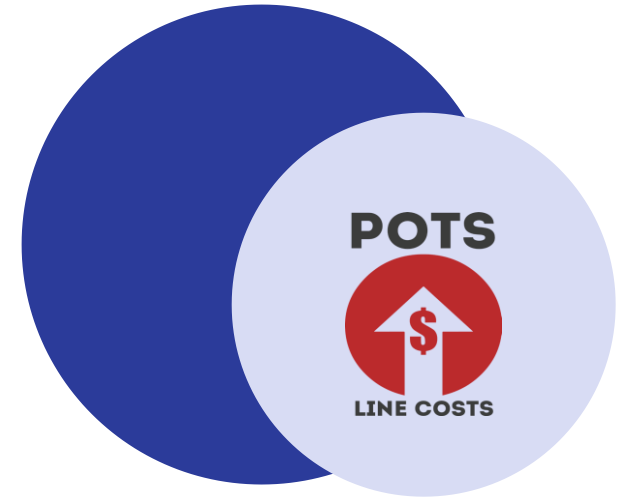
The State of POTS – Situation & Challenges



The FCC estimates that there are between 35 and 40 million specialty POTS lines still actively used in the U.S. That's roughly equivalent to the population of California.



Copper Infrastructure is aging and becoming difficult to maintain. Service outages are frequent, lengthy, and often difficult to fix. Service restoration after outages can be delayed for days or weeks.



Decreased demand and rising maintenance costs, **combined with some important regulatory rulings** is driving the cost of all copper services from ILECS (Including POTS Lines) exponentially higher.

- ❑ POTS (Plain Old Telephone Service) has long been the reliable foundation of telecommunications, especially for critical services like 911 and alarm systems due to its copper-based infrastructure and self-powered nature.
- ❑ However, POTS relies on aging TDM technology, and ILECs are shifting investments towards modern fiber and 5G solutions to meet increasing bandwidth demands and offer enhanced capabilities.
- ❑ The DoD CIO has mandated the elimination of TDM infrastructure to leverage the advantages of IP-based solutions, including improved security, interoperability, and cost-efficiency.
- ❑ This transition presents challenges for ensuring the continued reliability and resilience of critical defense systems, requiring careful planning and implementation to maintain operational continuity.

About Granite-EPIK

EPIK (Ethernet POTS Integration Kit) was founded in 2016 and launched in early 2017 specifically to address a few telecom challenges that most companies experience as the world moves from legacy facilities based-solutions to cloud-based solutions:

- To deliver a reliable, cost effective, and, most importantly, fully compliant solution to replace "specialty" copper POTS lines , without the limitations, and "vulnerabilities" of cloud solutions with a primary focus on Fire-Life Safety- and Fax.
- To provide high-speed 4G LTE Internet back-up for customers who are "single threaded" to the internet and depend on the cloud for many business functions – voice, data, video. UCaaS deployments.

EPIK's unique and robust design that incorporates 4GLTE, Ethernet, and Soft-Switch technology into a single appliance, addresses these challenges and many more which has enabled EPIK Edge to become the recognized leader in the industry. . . .

EPIK Edge fills in the missing puzzle pieces that help "Complete any Telecom solution without Competing with them" and makes EPIK Edge:

- ✓ The ultimate COMPANION PRODUCT for all UCaaS deployment
- ✓ A robust 'bridge solution" that enables emerging technologies to be incorporated into legacy telecom solutions.

In June of 2021, after years of evaluating the different POTS replacement products and being the Number 1 reseller of EPIK Edge to Granite's Enterprise customers, Granite acquired EPIK and its patented Technology in June of 2021 .



Granite EPIK: How it works

Granite EPIK is an MFVN replacement for existing POTS lines that delivers cost savings, reliability and availability with an all-in-one solution.

- Rack- or wall-mounted device that uses both 4G LTE, and customer-provided internet
- Up to 8 specialty analog phone lines with RJ-11, 66-block or RJ21X handoff.
- Direct replacement of existing POTS (all types) . EPIK supports both loop start lines or ground start trunks.
- Advanced Edge device with SBC IAD capabilities to process and deliver SIP services and hand-off in any required format - including PRI, CAS T1, and Native SIP. SIP services have auto-failover to 4G LTE in the event of an Internet outage.
- Internal Li-ion battery provides 24-hour standby power, with 6-hour capacity under full voice call usage.
- Dual-SIM capable on diverse wireless carriers for highest reliability
- Automatic Internet Failover option, utilizing 4G LTE Data plan
- Advanced security with end-to-edge encryption on all calls and faxes, private LTE network



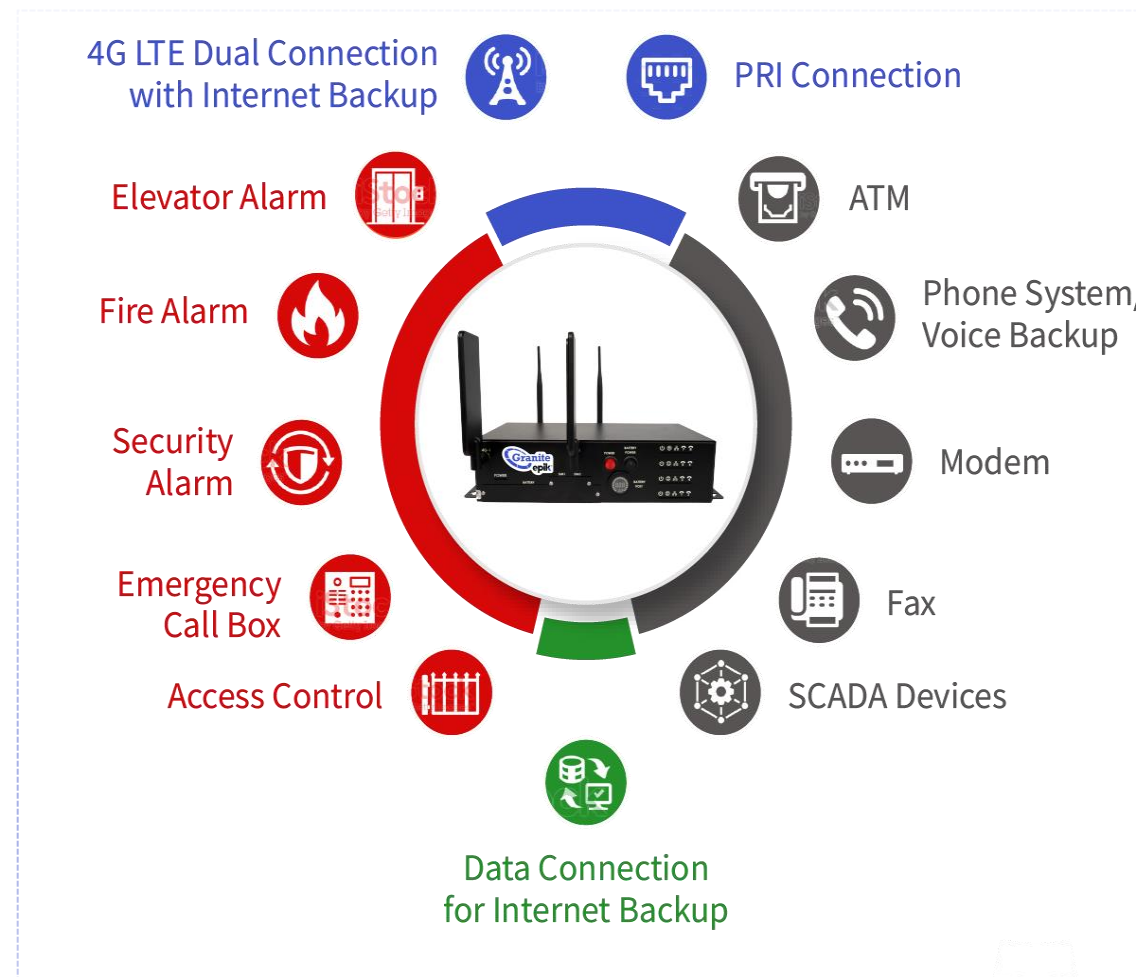
Meet EPIK Edge “Central Office as a Service”

EPIK EDGE™ Appliance

Fire Alarm Panel
Intrusion Alarms
Elevator Phones
Emergency Call Boxes

Fire-Life-Safety Lines use 4G LTE as primary communication path with internet back-up

Intercom / Overhead Paging / Gate Entry Analog Fax
Analog Voice
Voice Failover
T1PRI / SIP Trunk
Internet Failover
Dual Modem Capability
LTE Bonding
5G upgradeable



BRIDGING THE DIGITAL GAP

EPIK EDGE TECHNICAL SPECIFICATIONS

- ✓ Dual Path Capable - Cat 1, Cat M, & Cat 4 LTE 4G
- ✓ 4G LTE (Private WAN Access)
- ✓ Up to 8 analog connections (RJ 11 or RJ 48) and 8 simultaneous calls per appliance (can be “stacked”)
- ✓ Full Battery Back-up (24-hour standby and 8-hour full voice usage)
- ✓ (3) Gbps Ethernet LAN Ports
- ✓ Dual WAN equipped- LTE back-up/failover with multi-SIM card support
- ✓ Number Portability (LNP)
- ✓ Dual Path Capable - Cat 1, Cat M, & Cat 4 LTE 4G
- ✓ 24 x 7 x 365 monitoring and notification
- ✓ Intelligent PRI and PRI Failover
- ✓ Voice gateway

- ✓ Voice SRST (Survivable Remote Site Telephony) and survivable SIP Telephony
- ✓ Remote “off-band” monitoring and management
- ✓ Auto provisioning support and deployment
- ✓ Powerful, IoT firewall
- ✓ traffic shaping, QoS management
- ✓ Cloud VPN + Smart MPLS
- ✓ Robust, flexible Virtual Local Area Network
- ✓ Customer portal
- ✓ Compatible with all PBX’s and cloud-based VOIP Platforms
- ✓ Location Programable E-911 with monitoring and geo-fencing

HIPAA, PCI, & NFPA Compliance

National Fire Protection Association – Complies with NPA Rule 72 for fire alarms

Analog Fax with Fax to E-mail – Complies with HIPAA End to End Encryption

E-Fax – Fax@Fax.Epik.io – HIPAA compliant

Point of Sale (POS) Systems – PCI compliant

The Granite-EPIK Difference

- FXS /PRI/T1/CAS/SIP
- LTE X2 Bonding (5G Ready)
- 3 Gig Ethernet with Bonding and Layer 3 Routing
- Multifaceted Redundancy
- ESP (Epik Signaling Protocol)
- End to Edge Encryption
- IOT Firewall
- Fax Server Software

Class 5 Switch
Intelligent Router

EPIK 'SRST'
Survivable Remote
Site Telephony

ESP
EPIK Session
Protocol

PoLTE
POTS over LTE

ESC
EPIK Signaling
Controller

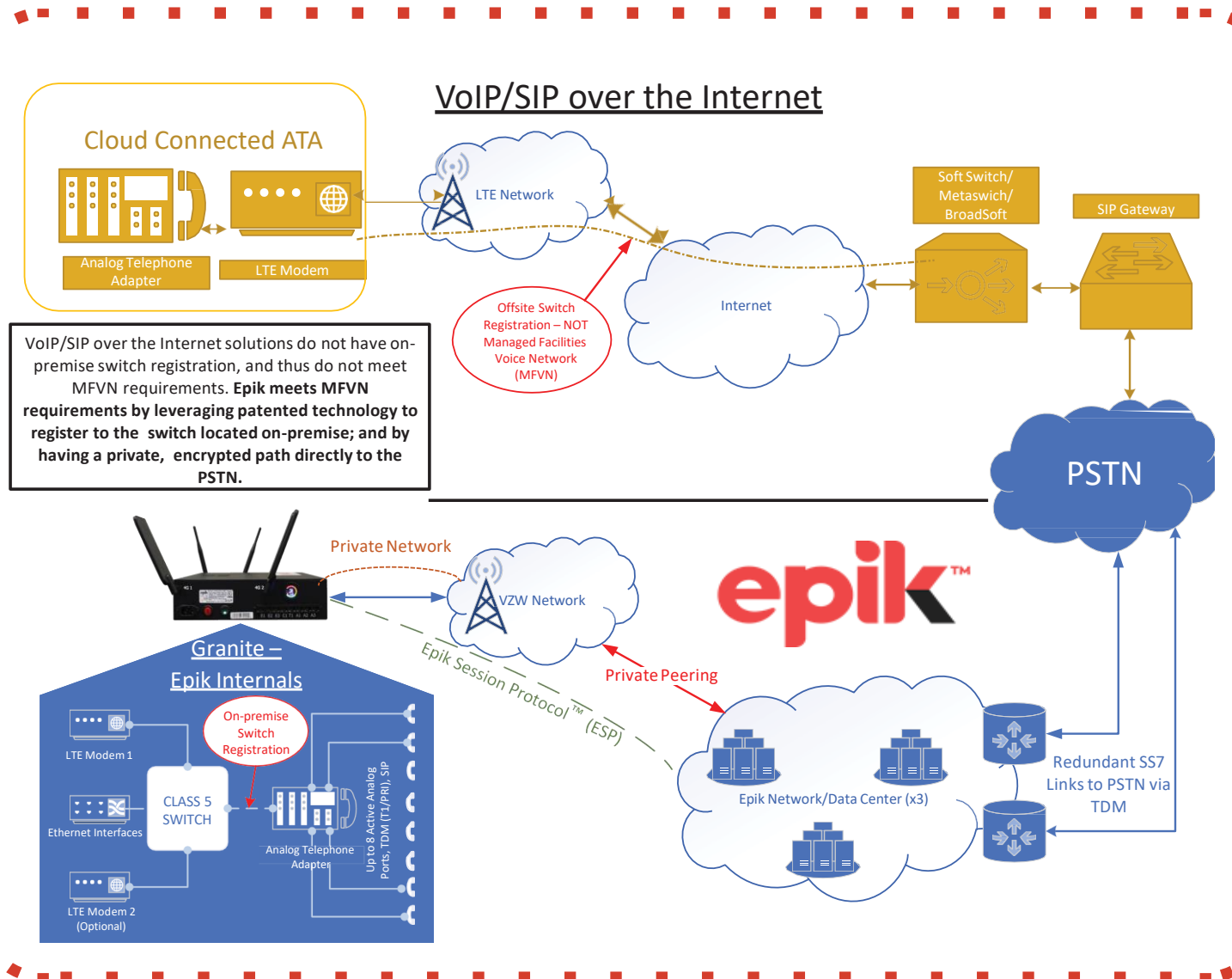
Carrier

TDM,SS7,SIP

PSTN



Granite EPIK MFVN – Compared to a typical cloud-based ATA



From Wikipedia, the free encyclopedia

managed facilities-based voice network (MFVN) is a physical network owned and operated by a voice service provider that delivers traditional telephone service via a loop start analog telephone interface. MFVNs are interconnected with the [public switched telephone network](#) (PSTN) and provide dialtone to end users.

Historically, this was provided by equipment at Bell company central offices, however today's MFVNs can include a combination of access network (last mile network of copper, coaxial cable, or fiber optics), customer premises equipment (CPE), network switches and routers, network management systems, voice call servers, and gateways to the larger PSTN. MFVN providers include [cable operators](#) and [telephone companies](#), but do not include Internet based providers such as [Vonage](#), [Magic Jack](#), and others that use the public internet to carry calls.

Granite Telecommunication's "Epik-Edge" premise-based appliance, a certified MFVN, accomplishes what a 4G-ATA Cloud Based Device Can NOT

IMPORTANT COMPLIANCES – SAFETY STANDARDS



Reliability, safety, and regulatory compliance are of foremost importance with technology involved with public safety. The introduction of next generation alarm panels that rely on digital/cellular “communicators”, instead of POTS lines, and questions as to their effectiveness and safety, has been a driving force in the adoption of several new regulatory compliance standards.

EPIK Edge™ is a universal telecom appliance that provides reliable service to any analog device and can best be categorized as a Central-Office-in-a-Box. **While EPIK was built to meet and exceed the strict regulatory requirements imposed on the industry by the National Fire Protection Agency (Namely NFPA 72, EPIK Edge™ is not actually required to meet these standards.**

Granite-EPIK’s unique architecture has earned EPIK Edge the distinction of being recognized as a **MFVN (Managed Facilities-Based Voice Network) which is the Gold Standard of compliances** and has made EPIK the recommended solution of the large monitoring companies. https://en.wikipedia.org/wiki/Managed_facilities-based_voice_network



All EPIK Edge Lines are fully encrypted “End to Edge” and meet the compliance requirements for the **Payment Card Industry Data Security Standard (PCI)** in applications where electronic payment information is exchanged as well as the **Health Insurance Portability and Accountability Act (HIPAA)** for applications where medical information involved. Faxing will be covered in more detail.



All EPIK-Edge lines have the ability to be enabled with E-911 (Enhanced 911) functionality and can be assigned distinct E-911 call routing and location management with secure delivery to PSAP’s (Public Safety Answering Points) throughout the US and Canada. Additionally, **EPIK Edge appliances are also equipped with geo-fencing software with auto-notification** to protect the integrity of E-911 location information should an appliance be relocated



EPIK Faxing Solutions

The Problem . . .

- ✓ Faxing over the internet utilizing SIP services and ATA's has well known reliability issues. In fact, an argument can be made that IP Faxing lacks compatibility by its very design.
- ✓ Faxing in general is time-sensitive. The digital data in fax transmissions is affected by packet loss, jitter, and latency. IP Faxing is far less reliable than PSTN and is not recommended in fax critical environments that require long-form faxing and encryption compliances.

The Solution . . .

- ✓ EPIK Edge™ solves the faxing dilemma through onboard intelligence that includes “store-forward” fax server functionality that resides in the patented appliance and on the network.
- ✓ EPIK™ fully supports all faxing requirements (formats and protocols) including long form faxes, and eFax while maintaining HIPAA and other important compliances.
- ✓ EPIK EDGE achieves 95% completion rates on long-form faxing and has full portal visibility and reporting



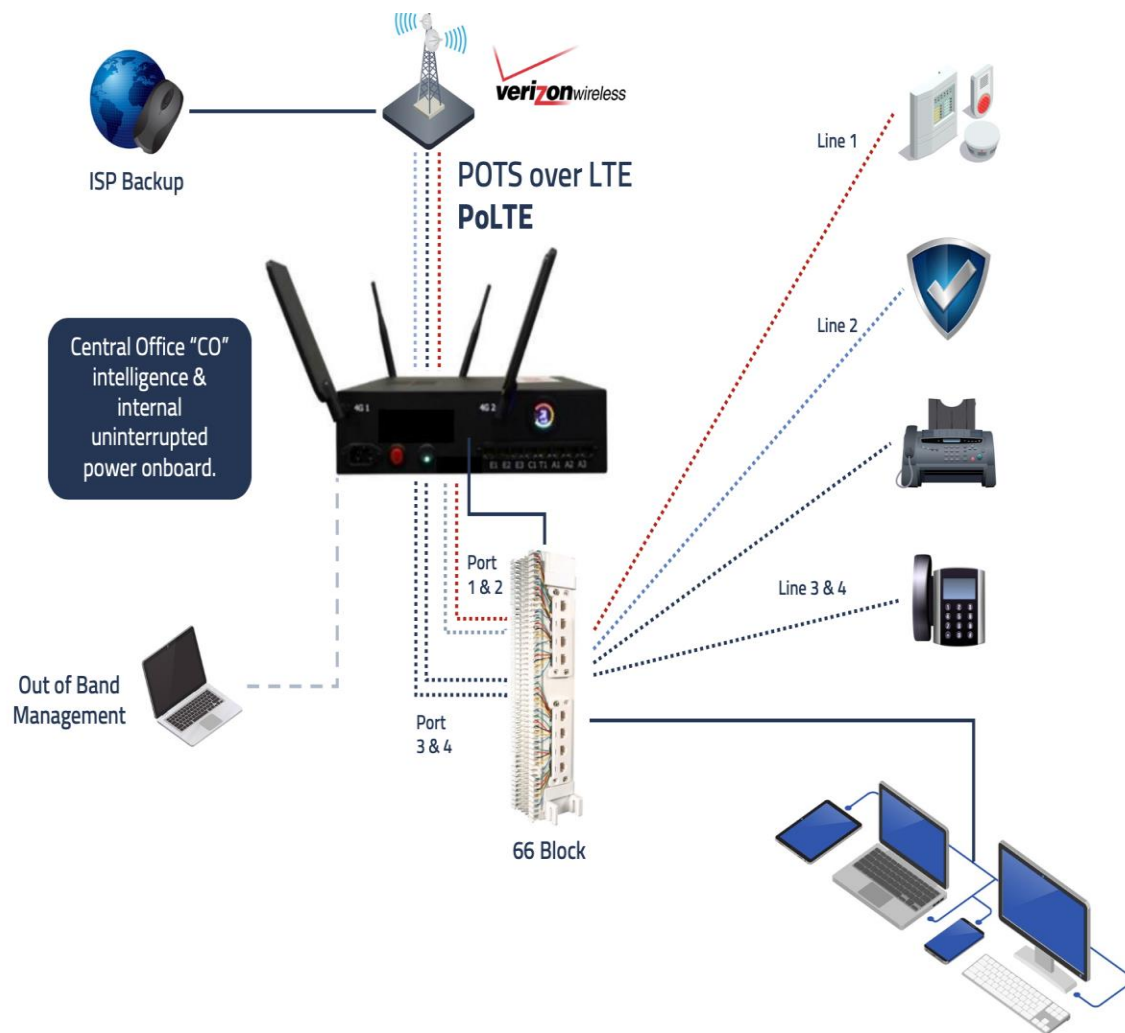
MANAGEMENT AND MONITORING

Granite-EPIK Provides 24/7/365 monitoring that continually monitors and inspects appliance health and key network and line metrics and includes auto-notification of detected trouble via e-mail and/or text.

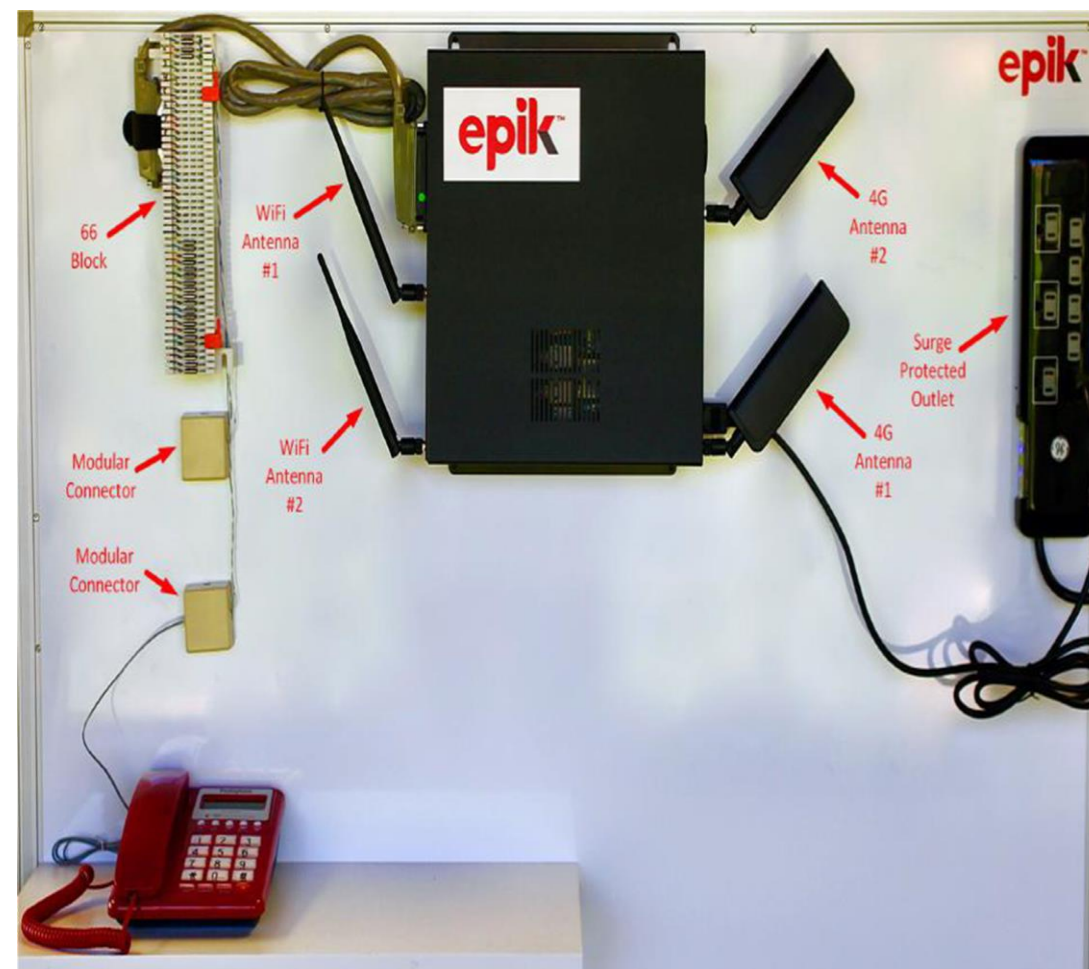
- ✓ Remote network monitoring software continually inspects connections for network stability and quality. Network Monitoring inspects stability, packet loss, latency, jitter, etc. and can redirect traffic from Customer's Internet to 4G .
- ✓ Appliance Health monitoring monitors up/down availability at 10-minute intervals and monitors 4G connectivity, bandwidth utilization as well as CPU usage and memory
- ✓ Port and Line monitoring monitors individual line line ports for availability and connectivity to PSTN.
- ✓ The EPIK Edge also has Advanced Monitoring capability that can be turned on to monitor, latency, throughput, concurrent calls. If the EPIK Edge is running exclusively on LTE, using advanced monitoring for long periods can utilize approximately 150mb of data per d

EPIK EDGE IMPLEMENTATION

Typical “66-Block” Deployment



Actual Installation Example



Customer Success Story

165th Air Wing, Georgia Air National Guard

The Issue:

- SIP Transition Challenge:** The 165th Air Wing successfully transitioned to a SIP system for their phone communications. However, this transition created a critical problem: their existing legacy TDM devices, including VIPER and STE phones, analog modems, and fuel tanker reading devices, became incompatible and would cease to function.
- Unexpected Incompatibility:** The Air Wing was unaware that these essential TDM devices would not work with the new SIP system, creating a significant operational downtime.
- Failed Initial Solution:** Their initial attempt to find a solution through AT&T was unsuccessful, leaving them without a viable option.

The Solution:

- Granite EPIK:** After a comprehensive review of available solutions, the 165th Air Wing deciding to implement our EPIK device.
- Seamless Integration:** The EPIK system integrated into the existing setup with minimal disruption. The device effortlessly linked to the pre-existing punch down lines, resulting in a clean and efficient installation within the server room, requiring minimal technical intervention.
- Complete Compatibility:** The EPIK service successfully restored functionality to all their TDM devices, ensuring uninterrupted operation of critical communications systems.
- Cost-Effective:** The EPIK solution was competitively priced, allowing the Air Wing to maintain the cost savings achieved by switching to the SIP system.
- Downtime Mitigation:** By implementing EPIK, the Air Wing effectively mitigated the potential downtime of their legacy devices, ensuring continuous operational readiness.
- Successful Procurement:** The process of procuring the EPIK service was based on a thorough evaluation of the Air Wings needs, and an extensive review of available solutions.



DEPARTMENT OF THE AIR FORCE
165TH AIRLIFT WING (AMC)
1401 ROBERT B. MILLER JR., DRIVE
GARDEN CITY, GA 31408-9001

10 DEC 2024

Subject: EPIK for analog solutions

165th Air Wing has successfully procured Granite Telecommunication's EPIK Analog/TDM Digital Conversion services. This decision was made after a thorough evaluation of our requirements following the conversion to a Session Initiation Protocol (SIP) system.

Our primary objective was to ensure compatibility and continued functionality for our VIPER and STE phones, analog modems, and communications with fuel tanker reading devices. After a comprehensive review of available solutions, we determined that Granite Telecommunication's EPIK Analog/TDM Digital Conversion services best met our needs.

Unfortunately, we were unable to find a suitable solution through AT&T. However, the EPIK service proved to be an excellent alternative, providing the necessary support for all our TDM devices. The service is delivered through the installation of a Wi-Fi configured box that ties into our punch down lines, making the installation process straightforward and seamless in our server room.

The pricing for the EPIK service was also highly competitive, allowing us to maintain the cost savings achieved by switching to a SIP system. Furthermore, we were unaware that these devices would not function once SIP was in place, making the EPIK digital conversion service an essential component in mitigating the downtime of our legacy devices.

In conclusion, the decision to procure Granite Telecommunication's EPIK Analog/TDM Digital Conversion services was based on a rigorous evaluation of our requirements and an extensive review of available solutions. The EPIK service has proven to be an effective and cost-efficient solution for meeting our needs, and we are confident that it will continue to provide the necessary support for our TDM devices.

Thank you for your attention to this matter. Please do not hesitate to contact me if you have any questions or require further information.

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David A. Hoffmann CMSgt
165th Communication Squadron

Thank you!



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