Leading Trends in Tactical Communications

US-based REDCOM Laboratories, the leading global supplier of modular and transportable communications core switching leads the way to standardizing On-The-Move packages

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Founded in 1978 and headquartered in New York, REDCOM has a long history of supplying high-reliability communications to a global customer base. REDCOM has established itself as the preferred supplier for the core Command and Control switching equipment for Next Generation tactical networks.

REDCOM products are used in an OEM capacity by integrators including L3, BAE, General Dynamics, and others. End customers include US Armed Forces, UK Navy, Saudi Air Force, Canadian Defence Forces, NATO, Vietnam Army, and many governments worldwide. REDCOM products are battlefield proven in all environmental conditions.

Communications Evolution

Until about a decade ago, military core communications were effectively the same as they had been since the 1960s. Huge core telephone switches required extensive airlift, and weeks to get operational. Forward operating communications depended on antiquated Switchboards with wires run many kilometers back to the core switch. Radio networks had no interconnection to the Command Center and most certainly not back to the military HQ.

While asymmetrical warfare has only recently become a popular term, it is in fact an age-old element of warfare. Unfortunately, the size and complexity of legacy military communications prevented the mobility required for communications to be in-step with anti-asymmetrical campaigns.

Today, modern military networks are utilizing much more Commercial Off The Shelf (COTS) IP-based equipment which offers greater capability and extensive use of integrated voice, video, and multi-party conferencing. At the same time, miniaturization of components allows expeditionary forces to carry the same communications that previously had been available only at the Forward Operating Base (FOB) level, but now in

a lean and agile package. REDCOM's SLICE 2100 Micro platform provides direct interconnectivity from forward operators to HQs via satellite, all in a package the size of a book.

REDCOM's standards-based platforms provide the discriminating procurement officer with lower "total cost of ownership" and are compatible with a vast array of COTS and Government Off The Shelf (GOTS) equipment while proving the benefit of meeting MIL-SPEC standards and interoperability specifications set forth by the Joint Interoperability Test Command (JITC). Now, military Land Mobile Radio and satellite systems can be utilized to provide interconnectivity between troops on the move, observation posts, FOBs, and overseas HQs.

Asset Re-Deployment via Modularity

What happens when the Area of Operations (AOR) surrounding an FOB is considered secure? Typically, telephone communications remain restricted to the FOB. With REDCOM's scalable and Comms On The Move (COTM) switching cores, pre-packaged modular elements may be re-deployed as forces move forward.

US Marines use REDCOM's HDX for first-in communications. Once the core communications are established, the REDCOM-based solutions are modularly expanded to include video, broadband satellite, Land Mobile Radio and Air-Ground Radio. Thus, the communications for a FOB are not a replacement, but an expansion of familiar, scalable modules. Once the FOB AOR is secured, the modular REDCOM HDX-based communications solutions are re-deployed as several "jump packages" with expeditionary forces.

In this way, a stock of REDCOM-based communications packages in man-portable transit cases can be employed in a "building block" design to grow FOB communications and then

later re-deployed as the AOR changes.

Mobility is the Key

Rapid deployment (and re-deployment) of communications absolutely must be in concert with fast changing battle groups. The solution, of course, are COTM packages that are vehicle mounted or small Tactical Communications Packages (TCP) which can be deployed by vehicle, or by air assets such as helicopters.

REDCOM's Tactical Communications Packages are man-portable and easily moved as ground assets are redeployed. COTM systems with a REDCOM switching core provide a complete command center which can move in lock-step with the logistics train.

The reduced size of REDCOM's SLICE-based platforms do more than increase space for other transported goods. They reduce energy requirements, thus downsizing genset and other requirements. Reduced manpower requirements for transportation and operation have a trickle-down effect, drastically reducing food requirements and other critical resources.

Thus, the deployment of REDCOM's miniaturized communications equipment results in lean, agile, and quickly deployed forces while enjoying the same level of communications found in the FOBs and central command.

Interoperability Increases Performance

Disconnects in communications (eg., between aircraft and ground forces) cause, at best, delays, and at worst the loss of life and assets by decisions based on stale information. Today's military operations require seamless, integrated communications between ground forces, command centers, aircraft, ships, etc. This type of fully integrated and interoperable communication is available today with

REDCOM's solutions. By integrating satellite, LMR, A/G radio, GSM, and other communications terminals, REDCOM's "one box" solution ensures seamless communications uninhibited by geography or technology.

All militaries employ some level of outdated (legacy) communications equipment. Most legacy equipment also employs proprietary communications methods which prohibit seamless communications. REDCOM's support for legacy network interfaces means that the aging assets may be retained, yet a modern, IP-based network delivering secure voice, video, and conferencing may be initiated. REDCOM's gateway functions provide the means to mesh two or more legacy networks into one based on Next Generation architectures. REDCOM platforms

REDCOM SLICE 2100 Micro provides call control for 2000 VoIP/ MSAN subscribers with E1 and SIP Trunking backhaul via wire, satellite, or LMR

the legacy communications network and modern VoIP communications, allowing the government to retain the existing infrastructure while at the same time enabling modern, IP-based services.

REDCOM RDEC3 man transportable Command Center with call control for 2000 VoIP/ MSAN subscribers, Mobile MSC, and VHF/UHF and E1 and SIP backhaul

support everything from magneto phones to packet voice in one device, bridging 1960s technology with that of tomorrow, thus eliminating the need for "Rip and Replace".

Voice over IP (VoIP) is the new standard in inter-device transmission, which promises to ease interoperability issues. This has a significant impact on the future of networks, since technologies and services still yet to be developed may be integrated into existing IP-based networks. Migrating to a VoIP-based network not only makes sense now, but provides the foundation for "future proofing" communications networks. REDCOM systems provide enhanced VoIP with the industry standard SIP 2.0 and support both the IPV4 and developing IPV6 protocols.

In fact, REDCOM's SLICE 2100 is deployed in the official residence of the president of the Republic of Turkey (Cankaya Kosku) as just such a gateway. The SLICE 2100 bridges

Increasing Efficiency and Effectiveness

The effectiveness of every fighting force- from the individual soldier to the Chief of General Staff- may be markedly increased with modern concepts that move beyond simple phone-to-phone calls. These applications drive advanced efficiency in communications resulting in faster and more accurate response.

With the push of a button, commanders have access to up to 1000 warfighters, bringing them all

into REDCOM's Conference Bridge. Integrated into the core platform (not just another box), REDCOM's Conference Bridge can combine all manner of end instruments whether they be analog, VoIP, ISDN, LMR, aircraft and shipboard, or radio into a single conference. GUI-based control terminals allow administrators immediate control of loudest party, push to talk, and other priority assignments to balance the conference as required.

One major threat to military operations is unauthorized interception of voice communications. REDCOM's platforms are available (with export license) with encryption interfaces. Furthermore, the popular IP-based and industry standard V.150.1 protocol is often employed by third-party developers to create customized (and nationalized) encryption strategies. REDCOM's V.150.1 equipped products are widely acknowledged to have the best implementation of the protocol, and as a result are used world-wide to secure critical Command & Control voice networks. Real-world users currently using REDCOM's secure capable products include oil and gas exploration firms, national Defence and internal affairs authorities, and national capital communications.

Most national networks are separated into two distinct (and incompatible) networks- the public

REDCOM HDX(left and low center) provides core communications integrated with air-ground radio (top center) and secure encryption modules (right) in Asian theater

network and the military network. In reality, the fact is that often critical military and government communications must be capable of reaching parties in the other network, and cannot. This problem is alleviated by REDCOM's Red/Black Gateway, which can provide a path between public, non-secure, and secure networks. This is particularly important in regions where military networks are incomplete and rely on the public network for transport, which leaves communications vulnerable to intercept. With REDCOM's Red/Black Gateway, secure encrypted terminals in the public network may be employed to provide secure communications into the secured military network.

During a crisis, phone numbers are easily lost or forgotten, immediately eliminating critical communications. With REDCOM's GUI Link Command System, agency operators may quickly find and control calls with Directory Assistance Lookup, quick

reference compartments, and one-touch "hot buttons." Command and Control centers with REDCOM's Link Command System ensure commanders low-stress and fast access to key personnel.

Migrating to a Modern Network

It has been repeatedly proven in the battlefield that communications are as important as ordnance and strategy. It is unlikely in today's world that the fighting force with lesser communications capabilities can win any major battle. Thus, it is imperative that the military have access to the most modern communications facilities.

However, that is not to say that the entire network be replaced. The key is a planned migration strategy with the newest applications and technologies in key locations. With REDCOM's solutions, a planned migration to Next Generation Networks can retain

the existing infrastructure while providing today's mobility, security, and interoperability- often to all users within the network.

The key to selecting the proper communications architecture, technology, and solution provider relies upon a clear strategy embracing a new military doctrine encompassing tactical mobility, scalability, and interoperability, while keeping the packaged solution as small as possible. REDCOM's SLICE 2100 Micro is such a solution, maximizing each of these key elements in a single device the size of a book.

Ultimately, security of the homeland depends upon the investment in communications. An "only the best will do" mentality embracing all of the driving factors and basing the solution on the very best equipment and services is the only means to ensure that communications meet the standards set by modern warfare doctrine.

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About REDCOM Laboratories, Inc.

As a leading global supplier of modular and transportable communications systems for more than 35 years, REDCOM has established itself as the preferred source for the core Command and Control switching equipment for Next Generation tactical networks. REDCOM enables secure and interoperable communications by delivering Strategic and On The Move Communications for Joint, NATO, and Coalition Forces. REDCOM's standards-based communications platforms work with with a vast array of Commercial Off The Shelf (COTS) and Government Off The shelf (GOTS) equipment while meeting rigorous MIL-SPEC standards and interoperability specifications.

All REDCOM products are proudly designed, manufactured, assembled and supported in Victor, NY, USA.