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CAPABILITIES

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A Statement of Capabilities for Force Protection ISR in [Country]

[Date], 2014

[Map]

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THE NEED

Recent events, including the assassination of political leaders, civil and political unrest, bombing of hotels and voting places, the school shootings in Connecticut, the Marathon Bombings in Boston, Massachusetts, and the massive tornadoes in Moore, Oklahoma, have underscored the need for faster, more efficient, more certain collaboration when handling emergencies. Furthermore, several of these events have shown that it is not only important for such a network to be separate and apart from public communications, but also that it is imperative that the network be capable of surviving even in the event of the failure of public communications carriers and public safety communications networks.

THE SOLUTION

The City of Boston, NATO, the California earthquake preparedness alliance, the nation of Brazil in preparation for the 2016 Olympics, the US Military, and other agencies and organizations around the world have addressed this need by purchasing the Mutualink Emergency Collaboration Network, the same emergency collaboration solution Boston used in its highly acclaimed response to the Boston Marathon bombings.

WHAT IS MUTUALINK?

Mutualink is an interoperable communications and multimedia sharing platform consisting of public safety quality hardware, easy to use software, and a highly secure global ip network. The Mutualink workstation allows users to create incident-specific sessions, invite other agencies to join sessions, and allows each agency to share its multimedia resources with all others in the incident. Agencies can be invited and resources can be shared with a simple drag and drop motion by the operator. Shared resources are accessed via hardware end points which convert available resources to audio and video streams within the secure network. End points include conversions for all radios, videos, telephones, and public address systems.

MUTUALINK EQUIPMENT

- Interoperability Work Station (IWS)
- Radio Network Interoperability Controller (RNIC)
- Video Network Interoperability Controller (VNIC)
- Telephony Network Interoperability Controller (TNIC) Keyboard
- Mouse
- Public Safety Quality Speakers
- Public Safety Quality Mic
- Network Provisioning
- Configuration, Setup, and Training



WHERE IS MUTUALINK DEPLOYED?

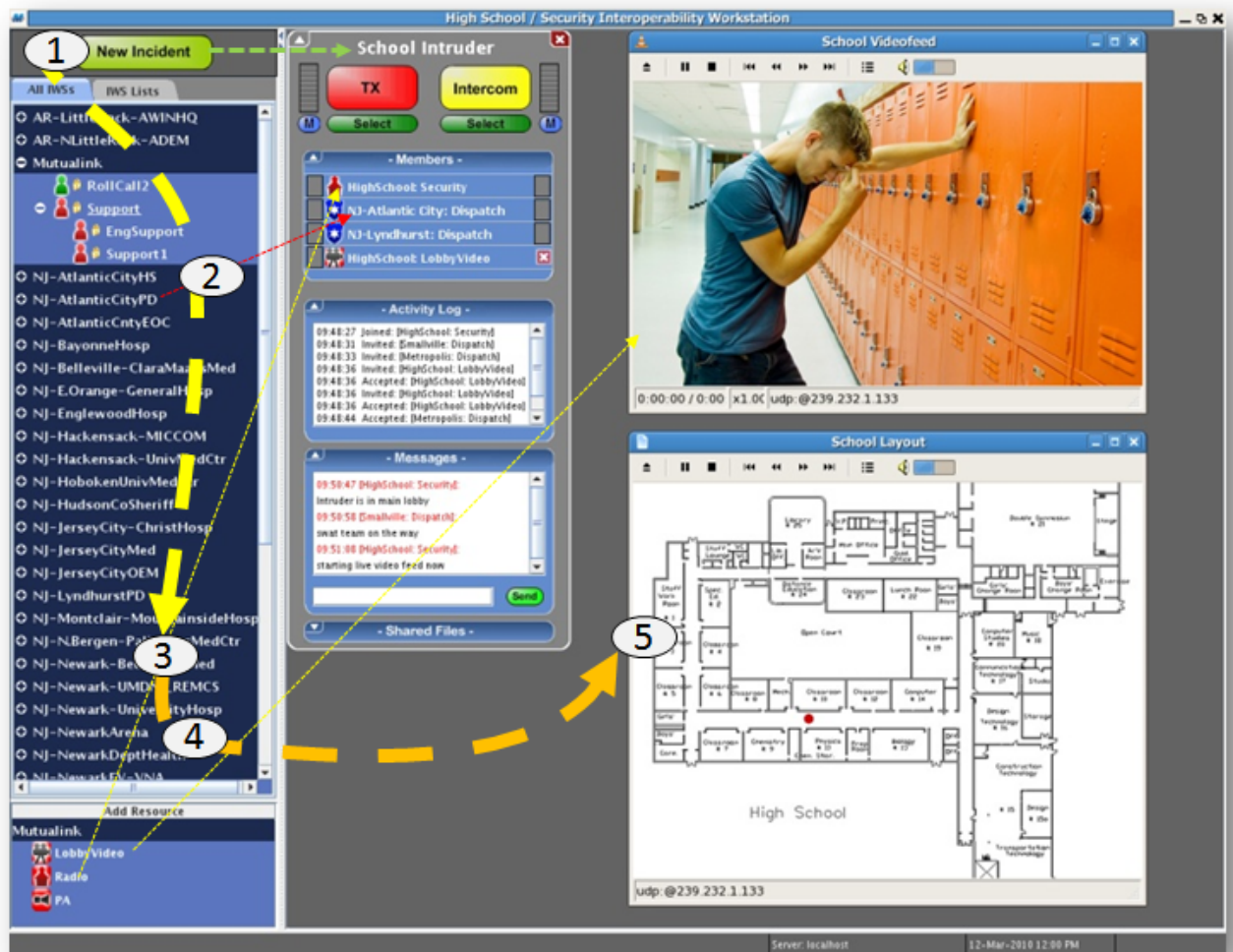
Mutualink is deployed in numerous key locations within the United States and internationally. Mutualink is currently being deployed as the gateway technology for the Border Interoperability Deployment Project (BIDP) sponsored by the US Dept. of Homeland Security. The project involves 14 systems in 12 sites--8 in the US (in Michigan), and 4 in Canada (in Ontario).

In New Jersey, Mutualink has several hundred agencies using the system in a regional preparedness and emergency network, including the State Police, city and county OEMs, police and public safety agencies, fire agencies, over 75 hospitals, NJ Transit, Stadiums, utilities, schools and private sector security. New Jersey is currently considering adding 1,000 new locations, making it the most interconnected location in the world for public safety.

Mutualink is also deployed in the San Francisco Bay Area, Boston, and the New York Capitol region. In the military, Mutualink is designated as the interoperable system of choice by NATO Special Operations Forces, and is also being used by US Special Forces and the US Army. Mutualink is also deployed with the State of Rio de Janeiro, Brazil and is now being deployed in preparation for the World Cup and the 2016 Olympics throughout Brazil. Most recently, Mutualink was awarded sole source status by the Brazilian government for unique technology and a critical role in preparations for world events.

EASE OF USE

The major distinction between Mutualink and other emergency systems is that Mutualink is designed for EMERGENCY COLLABORATION, not just emergency communication. This means that Mutualink must be easier to deploy and easier to use than conventional communication systems. Hence, Mutualink Systems are designed to be easily deployed and easily used with minimal training. All interactions during an emergency must be swift and certain so that no valuable time is lost attempting to make connections that are not active or present. Mutualink dispatch consoles, All available agencies and resources (radio, video, telephone, and public address systems, etc.) The Graphic User Interface is designed for simple drag and drop operation. In timed trials Mutualink users were able to create a session (known as an incident), invite in all needed agencies, and bring in all required agency resources within a few seconds, compared to minutes using conventional systems. Furthermore, the conventional systems were unable to connect to agencies which had not been contacted in prior drills, whereas the Mutualink systems were easily able to reach all agencies in the Mutualink network as well as to connect to outside agencies using radio and telephone.



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SURVEILLANCE APPLICATIONS

Mutualink does not replace existing radios, videos, or other surveillance resources. Mutualink enhances and extends those resources using the strengths of the Mutualink hardware and software technology, in concert with the Mutualink Global Emergency Collaboration Network. This means that Mutualink technology is cost effective and easy to deploy, and that it provides maximum compatibility with related products in the marketplace. It is therefore feasible to link airborne cameras, fixed cameras, wearable cameras, etc. for sharing via the Mutualink Emergency Collaboration network. It also means great gains in resource access with minimal effort and cost. For instance during President Obama's inauguration in 2009, five federal and local agencies, including the Pentagon Force Protection Agency were able to implement the system in a matter of a few days, including a resource base of over 18,000 video surveillance cameras operated by the five different agencies. Each agency managed its own resources, so that there was minimal added effort for maximal interagency cooperation. Here is an example of multi-agency resources being used in an incident.



STEALTH APPLICATIONS

The range of equipment with which Mutualink is compatible includes most wearable and stealth cameras, UAV mounted cameras, and stealth antennas. In some countries, agencies are outfitting ordinary vans camouflaged as delivery vans, with Mutualink and other equipment inside. InterLink's Meshed RF-IP Private Networks use stealth antennas and allow the vans to interoperate with mobile command posts as well as central command facilities tens of miles away.

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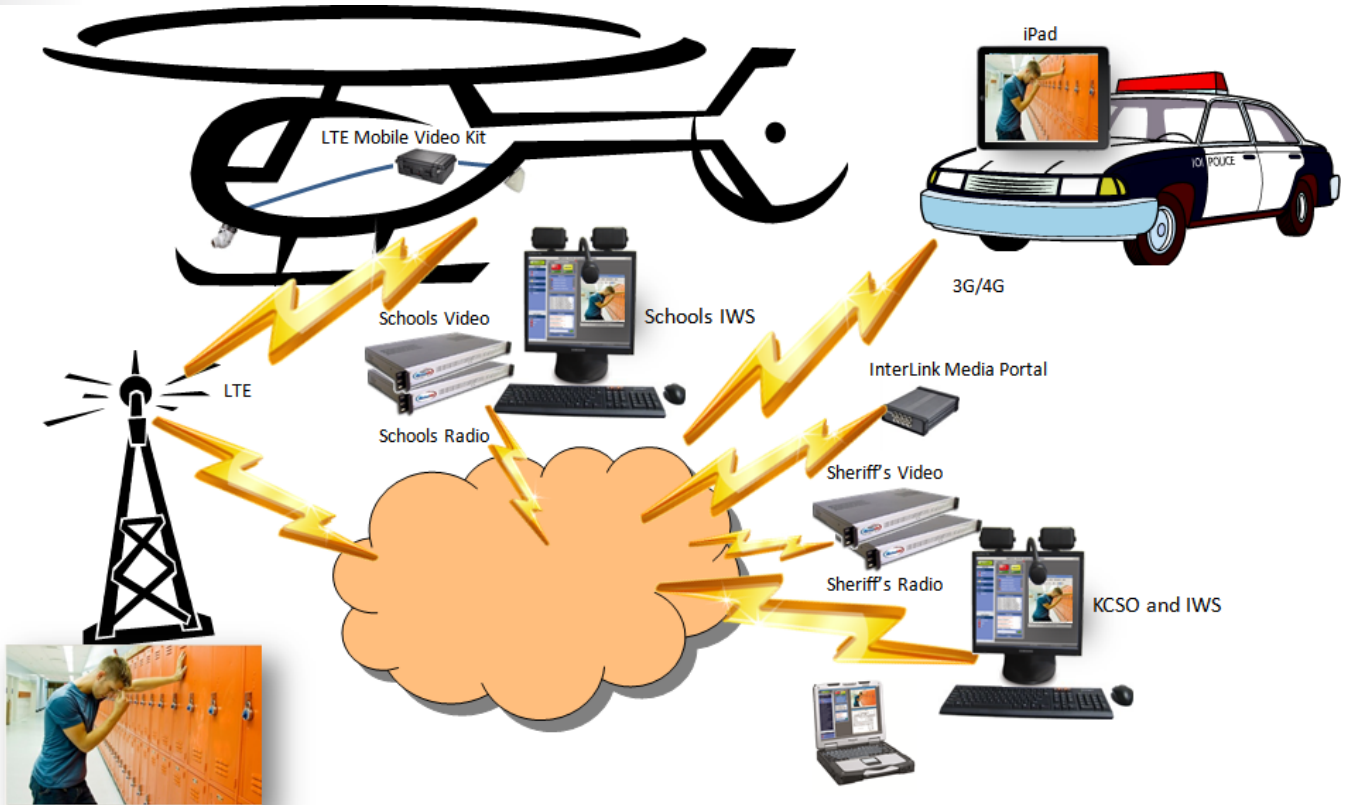


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MUTUALINK IN KNOX COUNTY, TENNESSEE

With the tragic events in Newtown, CT and the bombings in Boston, there is renewed interest in both school safety and enhanced agency cooperation at national, regional, and local levels. Communities such as Knox County, Tennessee have chosen InterLink and Mutualink as the best available technology to address their public safety issues. InterLink and Knox County Sheriff's Office have conducted numerous drills in Knox County involving emergency scenarios at Knox County Public Schools. In-school cameras, airborne surveillance cameras mounted on KCSO Helicopters, Skype Cameras located on smartphones in patrol vehicles, County and Schools radios, and other sources are routinely brought into these incidents. This has demonstrated the ability for schools and other agencies to instantly share live video and audio from inside the schools with police and simultaneously communicate with responding officers, dispatch operators, and emergency operations centers over otherwise incompatible radio systems. Because of Mutualink's always on, always ready community-wide system, responders were able simultaneously to communicate with other agencies such as the Public Building Authority, local hospitals, and local utilities as well as other local, state, and regional public safety agencies. Critical communications were seamlessly bridged and responders were able to quickly assess the situation, and identify, track and capture persons of interest quickly.

The Knox County Sheriff's Office uses its InterLink Media Portal (tm) to instantly stream live video and Video on Demand to PCs and desktops as well as handheld devices including Android phones and tablets, iPhones, iPads, and PC phones and tablets.



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US DEPT of HOMELAND SECURITY, BORDER INTEROPERABILITY PROJECT

On at least five occasions, InterLink USA, in conjunction with Global InterLink, InterOp Canada, and Mutualink, conducted exercises to demonstrate to the members of the BIDP community in Michigan and Ontario the suitability of the Mutualink Interoperability platform for the purposes of the BIDP. Mutualink equipment was deployed in Detroit, Wayne County, Windsor, and Montreal. Other existing user agencies in Tennessee, New Jersey, Connecticut, Toronto, and other locations participated as well. Users included the University of Tennessee Police Department, Oak Ridge National Laboratory, the City of Morristown TN Police Department, the City of Newport TN Police Department, and the Knox County (TN) Sheriff's Office. As many as 12 participants were included in the key exercises and 15 or more agencies were included in at least one exercise. Resources brought into the incidents included the Mutualink "dispatch" workstations of the above agencies plus the radios of several participants including the Michigan P25 statewide network via the radios of the Detroit Office of Homeland Security. On the Canadian side radios of the Montreal Police Department and Montreal Fire Department and the Toronto Pearson International Airport were brought in as well. Live video streams were brought in from the Ambassador Bridge in Windsor, from the helicopters of the Knox County Sheriff's Office, and from a public transportation department highway cam in Maryland. Numerous agencies in Canada and the US were permitted to join the exercises via a telephone conference bridge that was established on the Mutualink TNIC. File transfers of photos of suspects and photos and live streaming videos of suspicious vehicles were shared. The response of participants to this range of capabilities was overwhelmingly positive.



- **Emergency Agency Sites (Purchased via BIDP)**
- ◆ **Companion Sites for Public Safety (Purchased via BIDP)**
- ◆ **Mobile Units for Emergency Agencies and Public Safety (Purchased via BIDP)**
- ◆ **Companion Sites for Public Safety (Recommended for Purchase by Receiving Agency)**

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IMAGE ENHANCEMENT

Through the use of InterLink's Media Server/Media Portal, Mutualink is compatible with the Lentix system of image enhancement both for photos and videos, and for both daylight and night vision. Acting as an adjunct special purpose processor the Lentix system is able to perform on the fly enhancement of standard images when these images are routed to the InterLink Media Server. The enhanced images can then be accessed directly from the InterLink Media Server/Portal or shared via the Mutualink Emergency Collaboration Network.

MOBILE MESHED IP over RF (IPoRF) PRIVATE NETWORKS

Mutualink and the related InterLink products are accessed via the Internet Protocol (IP). The near ubiquity of IP networks is a huge advantage for connectivity. However, in remote areas or for users on the move, stationary of public carrier networks may not be sufficient for universal access. To overcome this obstacle, InterLink offers a broad set of private network options. The premier mode is Meshed RF based, IP Private (IPoRF) Networks which communicate via RF in bands from UHF to multi GHz. These radios have an IP subcarrier to deliver extremely fast IP to any place where the need arises. Mobile units can be mounted in vehicles, in waterproof cases, or in back packs. Each unit can connect over a range of a few miles to many miles depending on frequency and depending on whether the corresponding units are within line of site (LOS) or are non line of site (NLOS). However, even in short range configuration, the radios mesh to deliver IP via relay over multiple units. The result is freedom of movement and very high speed access in the most remote locations including open range, deserts, mountains, and jungles.



Transmits up to 100 km (62 miles)

CONCLUSION

At the heart of every community essential personnel from diverse organizations interact under a wide range of critical circumstances. While conventional solutions to communication interoperability focus on first responders, Mutualink's revolutionary approach enables all critical organizations within a community to participate in incidents as required. Mutualink's interoperable communities include:

- All levels of local, state and national government
- Fire, police, and EMS
- Hospitals
- Critical infrastructure such as utilities
- Schools and universities
- School buses and mass transit
- Airports, ports and shipping
- High value community and industrial assets
- Agencies charged with the protection of key personnel


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OTHER DEPLOYMENTS

Events



Obama Inauguration 2009

- Collaboration among five federal and local agencies
 - DC Metro Police
 - United States Park Police
 - Washington Metro Transit Authority
 - Pentagon Force Protection Agency
 - New Jersey Transit Police
- Integration of more than 18,000 cameras

Coalition Warriors Interoperability Demonstration

- Hosted by the Department of Defense Joint Chiefs of Staff
- Sponsored by NATO
- Deployed at four U.S. military sites and fusion centers, connected with warfighters in Afghanistan
- Performed 75 events over the 9-day period
- Warfighters overwhelmingly agreed Mutualink surpassed any other interoperability system

BIDP




Border Interoperability Demonstration Project (BIDP)

Project Sponsor: US Dept. of Homeland Security (USDHS)

Participants:

- In the U.S.
 - Wayne County Airport Authority
 - Wayne County OHSEM
 - Detroit DHSEM
 - Chippewa County
 - Monroe County
 - Macomb County
- In Canada:
 - Essex County
 - City of Windsor fire and police
 - Town of LaSalle
 - Sault Area Hospital Central Communication Center.

Milestones: 17 Agencies 10 Locations, 40+ Smart Endpoints

New Jersey




New Jersey

Almost the entire state of New Jersey has deployed this safety initiative. Here are three specific examples:

- **Atlantic City**
New Jersey State Police and the New Jersey Office of Homeland Security Preparedness working with the Division of Gaming Enforcement. Now all 11 Atlantic City casinos use the Mutualink solution to collaborate with each other and with NJ State Police.
- **Newark**
Started with Newark Police Department as a community wide deployment including one hospital. Today, three years later, 55 hospitals in Northern NJ use the system in collaboration with the police department, public transit, colleges, Prudential Arena, and each other. Unlimited growth potential. All agencies working in cooperation.
- **Trenton**
Every public school is able to work in collaboration with city police, fire, and ambulance when needed.

BOSTON UASI




- Boston Police Department
- Criminal Investigation Division
- Boston Emergency Medical Services
- Massachusetts Bay Transit Authority
 - College Campuses
 - Other Municipalities
 - Area Hospitals

Cal IRAPP




Northern California Interoperable Regional Alliance Preparedness Platform (Cal IRAPP)

Project Sponsor: Northern California Regional Intelligence Center (NCRIC)
 Champion: Ronald Brooks - Director, NCRIC
 Advisors: General (Ret.) Wesley Clark & General (Ret.) Barry McCaffrey

Phase 2 Participants:

1. NCRIC
2. San Francisco Police
3. San Francisco Fire
4. San Francisco Emergency Management
5. San Francisco Airport Police
6. San Mateo County Office of Emergency Management
7. Alameda County Office of Emergency Management
8. Trans America Tower Building Security Center
9. San Francisco Federal Reserve Building Security Center

Next Milestone: 48 Agencies / Locations, 130+ Smart Endpoints by the end of 2012

Oak Ridge National Lab



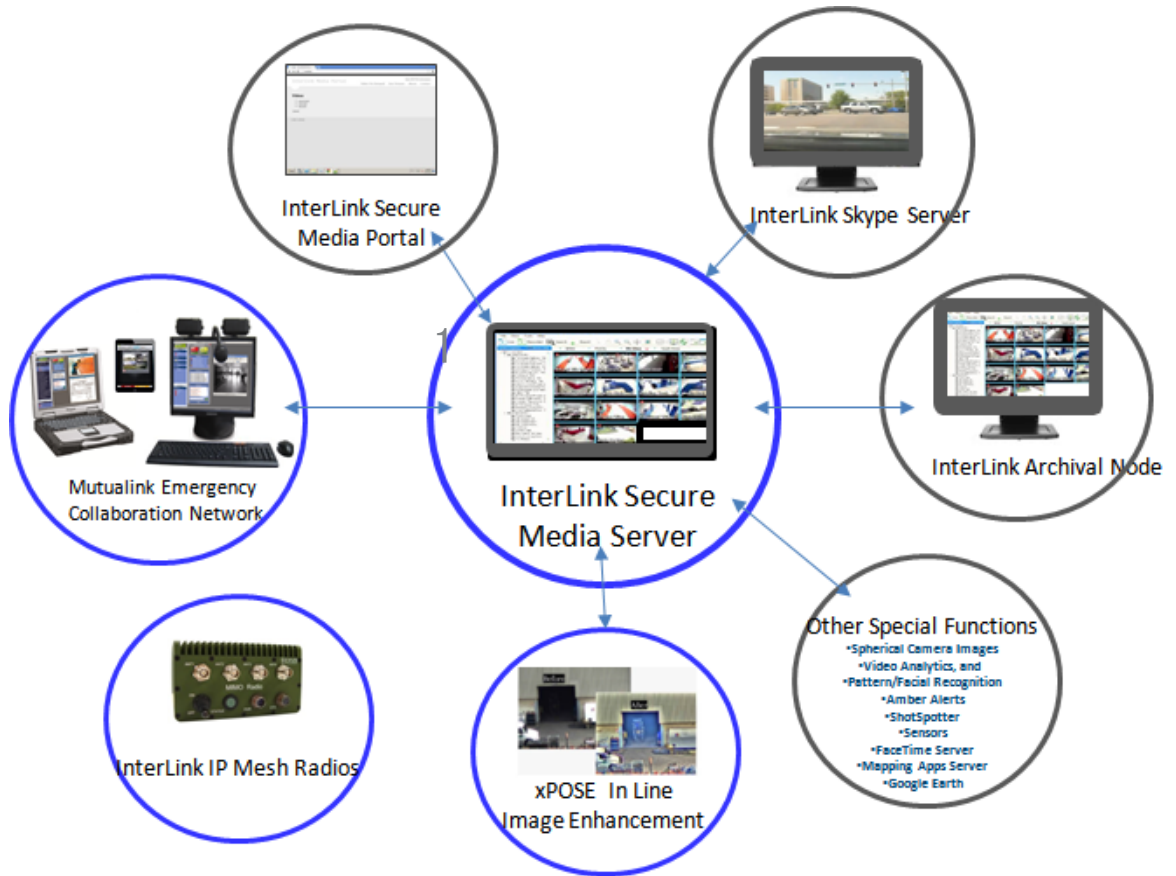

Phase I: LSS and Dispatch
 Phase II: Fire, Radios, Video, DoE ORO
 Phase III: Other Labs, DoE HQ

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InterLink Architecture

InterLink has developed a comprehensive media centric architecture for Force Protection ISR (Intelligence, Surveillance, and Reconnaissance). The architecture consists of an InterLink Media Server which serves as a "clearing house" for incoming and outgoing live video streams as well as storage and display of video on demand. The Media Server has linkages to and from the Mutualink Network as well as to other special-purpose processing nodes for functions such as video enhancement, Skype video camera input, and archiving of video.



OTHER COMPONENTS OF THE ARCHITECTURE

The architecture is IP based. All components rely on access to ip networks, which is generally available. However, in remote areas, airborne sites, or other places where wired ip access is difficult or lacking, InterLink provides LTE access as well as IP over RF access (IPoRF) for connections anywhere service is required.

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ADDITIONAL CAPABILITIES

Appendix 2

Private Wireless Networks

InterLink Model 800 IP-Routing Mesh Radio

- Create LANs and WANs wirelessly over RF
- Connectivity under highly mobile conditions on the ground, water, and in the air
- High data throughput rates
- Wide selection of frequencies (from 400 MHz to 6 GHz including VHF, UHF, 800 MHz, etc.)
- Mesh network (self-forming, or managed)
- Multiple antenna configurations available; omnidirectional, high-gain directional or hybrid
- GPS and Support



Transmits up to 100 km (62 miles)

Mutualink Mobile OPS Fusion Kit

A Fully Portable Mutualink System

- Portable IWS, 4 RNICs, 1 VNIC, 1TNIC, Camera, 2 Routers
- Deployable 4G infrastructure that creates a private LTE network for deployment at emergency sites
- Replaces lost or degraded or missing LTE infrastructure
- Bridges to Optional Wi-Fi, LTE, Satellite, or wired ip
- Transitional power with optional long term power sources, including solar
- Automatic node-to-node meshing



Range - radius of up to 8 km



InterLink Skype Server

Relays Skype Camera Stream to Mutualink Network and Public Safety

- Bridges Skype streaming video from an iPhone or Android via a PC to a Mutualink Input VNIC
- Enables officers, teachers, parents, or citizens in general to provide video content directly to the Mutualink network on an as needed ad hoc basis, under the secure control of the owner/administrator
- Enables real-time streams from any smartphone, tablet, or pc
- Enables ideo feeds from any location with ip access—wired, LTE, wifi, satellite, microwave
- Dial in or dial out via Skypename or phone number



InterLink Media Server

Routes live streaming videos and Videos on Demand*

- Stream live video or video on demand to and from devices outside the Mutualink Network—smartphones, tablets, pcs
- Save video streams for future viewing
- Allows users to create URLs and stream names for streams from Mutualink Output Video adapters (OVNICs)
- Facilitates streaming of live streaming videos inside and outside the Mutualink environment
- Provides enabling security and functionality used by the InterLink Media Portal

*InterLink Media Portal is recommended to be purchased with this product.



Mutualink EDGE (iPad Mutualink App)

Access a Mutualink Workstation as a Client via iPad

- Allows an iPad user to access a Mutualink IWS
- Allows an iPad user to create an incident via the host IWS
- Allows iPad user to enter into an existing Incident via the host IWS
- Allows live streaming video to and from an iPad
- Ideal for use by SWAT teams and other tactical teams who need real-time access to video streams that are controlled by the Mutualink network
- Ideal for tactical teams to stream live video from fast breaking events




InterLink Media Portal

Web-based GUI access to InterLink Media Server*

- Easily save video streams for future viewing
- Easily access live video streams or video on demand from devices outside the Mutualink Network—smartphones, tablets, pcs
- Controlled access via user name and password, ip authentication, time sensitive for shifts, user groups
- Masks raw URLs so end users never see the actual URLs themselves
- Logs users by access time and videos viewed
- Creates shareable, time-limited hot links for access by other agencies when needed

* InterLink recommends that this product be purchased in conjunction with the InterLink Media Server™

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ADDITIONAL CAPABILITIES

Appendix 2

InterLink PTT Network NIC




Allows a smartphone based Push To Talk (PTT) radio App to be accessed in Mutualink incidents

- Works like a walkie-talkie operating over 4G (LTE) networks versus rf
- Creates a mechanism for instantaneous alerts to a network of individuals with smartphones such as teachers, students, or employees
- Allows smartphone users to send alerts to a central point which can then be added to the Mutualink network
- Allows creation of special private networks as needed
- Perfect for instantaneous alerts such as school intrusions, campus incidents, etc.




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- Mesh network (self-forming, or managed)
- Multiple antenna configurations available; omnidirectional, high-gain directional or hybrid
- GPS and Support




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InterLink Archival Node



Constantly records all activities of a Mutualink workstation—video and voice.

- Creates easily retrieved time stamped files of recorded activity
- Allows easy replay on demand with searches by date and time or user applied tags
- Allows DVR-type access to captured video/audio images
- Creates a Blu-Ray disk of up to 50 Gigabytes of captured images
- Unalterable media from capture to replay
- Stores up to weeks of captured images



Other Applications



Mutualink does not provide sensors, video analytics, or facial recognition software.

We do provide an Application Programming Interface (API) that allows InterLink to create Mutualink Incidents in response to alerts from any source including:

- Amber Alerts
- ShotSpotter
- Sensors
- FaceTime Server
- Mapping Apps Server
- Video Analytics, and
- Facial Recognition
- Google Earth
- Etc.




Image Enhancement



xPose™

- Enhance Video or Still Shots
- Real Time, In Line Processing
- Continuous or On Demand
- Post processing



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