SoldierLink™ System (SLS)

Providing dismounted soldiers on the battlefield access to the Tactical Cloud
Achieving the goals of the Army Modernization Plan requires connectivity to the edge of the network, and support of the lowest-tier fighting units. The SoldierLink™ System from Northrop Grumman meets this need.

**Filling the Transport Gap in Mission Command**

As the Army Modernization Plan states, “The Army Strategy is to develop and field a versatile set of tailorable and networked organizations that operate on a rotational cycle.” The priorities for implementing the strategy and equipping the Army are to:

- Network the force
- Deter and defeat hybrid threats
- Protect and empower the soldier

While the priorities of the modernization strategy are well established, the Mission Command Center of Excellence (MC COE) describes the need for a transport network providing better soldier connectivity. MC COE further defines the need for an information architecture that supports the lowest-tier fighting elements with relevant data. This capability would:

- Function as a local information repository riding on company communications
- Work when connected to higher echelons
- Provide the company some measure of autonomy when severed from higher-tier networks due to disruption access to robust and relevant information resources.

**The SoldierLink™ System (SLS): Northrop Grumman’s Mission Command Solution**

SoldierLink™ System supports the Army Modernization Plan equipping strategy and meets key Mission Command on the Move (MCOTM) capability gaps. Soldier Link™ System does this by providing a mobile tactical cloud transport network that connects soldiers at squad and platoon levels to company-level informational services.

Today, there is a critical short-fall with (1) dismounted soldier and leader connectivity and (2) access to company information resources. Data generated by company-level resources cannot be shared internally among the lowest tier fighting elements, the command post and leaders. Although threshold capabilities based upon older Joint Tactical Radio System (JTRS) performance requirements address minimum voice and position location needs, there is still a “transport gap” to the edge of the network – where soldiers perform missions and require access to robust and relevant information resources.

Using Advanced Kinetic Networking Waveform (AKNW) and modern networking protocols, SoldierLink™ System establishes a high-speed data network that is secure, “infrastructure-less” and Mobile Ad-hoc Networks (MANET). This allows lower echelons at the tactical edge to share operational data over bandwidths similar to higher echelon networks (like WIN-T). Lower- and upper-tier networks are bridged over limited bandwidth combat networking radios with boundary cyber-protection and gateway services – which are applied between the company and battalion networks.
The SoldierLink™ System radio network is a technological and operational innovation that:

• Provides significant improvement over planned lower-tier network threshold capability
• Offers improvements in doctrine, operations, materiel, leaders, personnel (DOTMLP)
• Resolves current Army lower-tier networking issues for future capability sets

Connection to Soldiers
The SoldierLink™ System provides an all-IP mobile-meshing radio-transport technology using advanced protocols and packet aggregation algorithms to form high speed MANETs. SoldierLink™ System AKNW radio nodes function as a switch, router, access point or gateway to other networks and connect via Ethernet standards. Real-world networks in mining operations today scale up to 1000 nodes.

Data throughputs per dismounted user and vehicle platform range from 5 to 20Mbs encrypted. Throughput at this level enables web-based services and cloud applications resident in the company command post and throughout lower-tier networks connecting platoons and squads. SoldierLink™ System AKNW radio nodes interface with several programs of record and commercial networks including:

- Harris 117G (ANW2)
- HMS/RR (SRW)
- MNVR (WNW)
- WIN-T
- BFT2
- 3G/4G Tactical Cellular
- BGAN (Commercial)

Soldiers enter the network through a ruggedized commercial-off-the-shelf Android OS smartphone called the Battle Sleeve™ End-User-Device (EUD). Every soldier or platform is an end-point client with computing capabilities that support a host of applications and depend upon role (leader or follower) privileges authorized according to position. The Battle Sleeve™ EUD is the soldier’s personal information center. It hosts a number of information resources and web-service applications, including:

- Tactical radio-over-IP (PTT)
- Voice-over-IP (VoIP telephony)
- C2/SA (FBCB2/BFT and JBC-P)
- ISR reporting (TIGR)
- Fire Support (FOS)
- Video access (OSRVT Air, Ground Recon, Soldier)
- Mission Provisioning/File Transfer Protocol (Maps, Orders, Graphics)
- Chat
- Training POI
- Maintenance POI

Components and Features

Dismount Kit:
- SLS Radio (2 Ch)
- BattleSleeve™ EUD (Android OS)
- Cables, headset and batteries
- 7.2 lbs excluding battery weight

Vehicle Kit:
- SLS (AKNW) Radio (4 Ch)
- C2/SA vehicle computer
- Cross Domain Guard (CDG)
- Cables and headsets
Benefits that empower soldiers and leaders

Access to “cloud services” provides soldiers and leaders with:

- Increased force protection
- More accurate situational awareness
- Improved visual recognition and identification
- Precise targeting and synchronized weapons effects
- Better collaboration and information exchange between combat users groups
- Other vital Mission Command capabilities

SLS is a turnkey communication and information network that provides a robust transport capability connecting soldiers and leaders to fighting platforms and company information resources. This enables better sharing, collaboration, coordination and connectivity – which, ultimately empowers the soldier.

Experience

Northrop Grumman was the prime contractor for the Blue Force Tracking (BFT) system and supports Joint Battle Command – Platform (JBC-P) software maintenance. The company works with the U.S. Army Network Integration Evaluation (NIE) program to develop, deliver, evaluate and test tactical networking solutions for Brigade Combat Teams (BCTs) down to the squad levels.

For more information, please contact:

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Command Post Kit:

- Video encoder
- Cross domain guard
- Routing and IP configuration
- Un-interrupted Power Supply
- Cloud services management
- Cloud storage
- Net-centric Network Management (N2M)

Features:

- Higher aggregate throughput per user
- Better connectivity to Soldiers
- Peer discovery / initialization
- Routing / tunneling Protocol
- Supports Voice / SA
- Minimal or no Fixed Infrastructure
- Simplified for combat Operations (on/off Devices)
- Scales to support combat organizations (BNs and COs)
- Net-Centric Network Management (N2M)
- Network Service Gateway (NSG)
- Configuration Over-the-Air (COTA)
- Significantly higher throughput compared to JTRS (x10s)
- Flat hierarchy – forms-on-the-fly
- Interoperable with POR networks (BFT, WIN-T, JTRS, Harris, others)
- Technology readiness level 7/8/9
- Secured via approved encryption means (NIST FIPS/NSA Suite B)
- Full Motion Video (FMV)
- Situational awareness via tactical multicast
- Spectrum agility via mutli-band mutli-frequency
- Radio Mean Time Between Failure (MTBF) at 160K hrs
- Platform approved for UH60 Aerial UAV applications