Observations from TTC's Internet of Things for Defense Symposium

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The Department of Defense and U.S. federal law enforcement community are increasingly interested in what has come to be called the "Internet of Things." Labeled the "IoT" for short, the Internet of things consists of a growing network of small, low power, low bandwidth, low cost sensors and devices that are connected to networks and which send and receive data. Think of the sensors that automatically turn on room lights or flush toilets and you have an idea of some of the uses for IoT technology. Additional uses for IoT technology, however, are about as varied as one can imagine. For example, the General Services Administration recently awarded a contract to IBM to outfit its facilities with sensor technology that will allow more efficient monitoring of energy use. Similarly, tiny sensors can be used to monitor jet engine performance, or just about any other structure in the world.

As many of the speakers at the Technology Training Corporation's IoT symposium discussed, the DoD is eyeing sensor technology to determine how it might best be used. There are even several use cases already in progress. Rear Admiral Scott Jerabek, Director of Command, Control, Communications and Computer Systems, at U.S. Southern Command kicked off the symposium by listing a few of these uses in his area of responsibility. Noting that USSOUTHCOM employs IoT technology in its GeoShare program for humanitarian assistance, Jerabek also explained that the Navy is investigating a "nano-satellite network," in addition to developing a Deep Sea Web of low observable, wide area capabilities to track dark targets at sea.

Subsequent speakers, like Air Force CTO Frank Konieczny, detailed multiple other uses for IoT technology that the defense establishment is considering. These include:

- Base Facilities Maintenance – trash pickup, light replacement, food replenishment
- Vehicle management – maintenance prediction, location tracking
- Secured, smart workplace – presence for workers integrated with facilities management
- Logistics and transportation – inventory/tracking, automated assembly/packing, geo-location in supply chain
- Robotics – autonomous drones and vehicles, sensor based maneuvering

Needless to say, the expansion of networks to everyday items carries with it tremendous risks as well as benefits. Multiple speakers mentioned the need to build security protocols into IoT devices so that they could be resistant to hacking. Enhanced network security will be necessary as well given the vast expansion of data that networks will be handling. Advanced analytics for continuous monitoring will be required, but not only that, analytics will need to be deployed to make sense of all the data and make decisions based on it. In short, IoT will render the already big data world in which we live even bigger.

Herein lay other challenges. Chief Warrant Officer 5, Ricardo Pina, Chief Technology Officer and Senior Technical Advisor to the Army CIO/G-6, pointed out that an organization like the Army currently does not have the network infrastructure required to handle the flow of data that an Army IoT would create. This is one of the primary factors driving the Army's modernization of its networks using multi-protocol label switching (MPLS) technology. A standardized protocol will be required to enable seamless integration and use of IoT and the DoD is betting that this standard will be Internet Protocol. Effectively, the new IP-based Joint Information Environment will enable the DoD to vastly expand its use of IoT technologies. This expansion will in turn drive investment in the analytics and any attendant services required for IoT implementation. Vendors therefore take note. The **business opportunity in the area of IoT is growing**, particularly among informed defense customers.

For more information on upcoming symposia, visit the **Technology Training Corporation**. I'll see you at the one on **Software-Defined Networking scheduled for December 9-10, 2014**.