

Better Real-Time Monitoring of Cargo

The 'Town Crier' Method

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The 'Town Crier' method for monitoring moving cargo (or stationary valuable assets) in real-time is based on the following concepts:

1. Avoid conventional 2-way, high-bandwidth communications and state-of-health checks. These are too complicated, expensive, and impractical; exhibit too many vulnerabilities; and draw too much attention to the valuable cargo.
2. Don't sound an alarm when intrusion is detected and don't use complex encryption. The alarm can be blocked and the encryption greatly increases complexity without significantly improving security.
3. Instead, send an occasional "All-OK" bit or byte, the correct value of each at any given instant known only to the good guys.
4. The absence of the "All-OK" signal means intrusion.
5. Intrusion into the monitoring system causes instant erasure of the information needed to generate future "All-OK" signals.
6. The adversary gains nothing by blocking the signal and doesn't know how to counterfeit the "All-OK" sequence to hide his intrusion; the necessary information is gone.

Advantages

- Simple & low-cost
- One-way, ultra-low bandwidth communications (~ few bits/min)
- Very tolerant of communication glitches



- Thousands of containers or vehicles can use the same channel
- Very high levels of security
- Surreptitious real-time cargo monitoring is possible
- Allows for an *ad hoc* "Vault Type Volume": we wheel in a small amount of hardware on a cart, and in 5 minutes we have unattended, high-security monitoring of any given volume. Useful for tents in the field, customs inspections, emergencies, or to protect a conference room after a bug sweep.
- Already demonstrated on notebook computers, micro-processors, and in a field demonstration. (See *International Journal of Radioactive Material Transport* 13, 117-126 (2002) and "Improved Security Via 'Town Crier' Monitoring", Proceedings Waste Management '03, Feb 23-27, 2003, Tucson, AZ.)