Historical Communication Rates
(words per minute)

- **World War I** • 30
- **World War II** • 60
- **Vietnam** • 100
- **Gulf War** • 192,000
- **Estimated 2010** • 1,500,000,000,000 words per minute**

** = to the content of the Library of Congress being transmitted every minute.
Communication
Issues with Current Command and Control Operations

• High volume of Voice and Chat communication
• Perishable voice communication
• Interoperability issues with multiple communication systems
• Accessibility of communication data is limited
Multi-Modal Communications (MMC)

- Integrated Network-Centric Comm. Management Suite
- Records and Transcribes Radio Messages
- Intuitive and Immediate Accessibility to Comm. Data
- Increases Speech Intelligibility
- User configurable
Multi-Modal Communications
Radio Channel

Radio communications are transcribed using ASR.

Search for words or Flagged items.

Listen to past audio by selecting desired text.

Flag lines for later review.

Highlight Keywords - create alerts to critical words.
Multi-Modal Communications
Chat Channel

**Message Activity**
Count number of new messages

**Text-to-Speech** to listen to chat messages

**Speech-To-Text** sending chat messages

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Multi-Modal Communications

[Image of a computer screen showing a chat monitoring interface with text and timestamps in English, along with some military logos and graphics.]
Dual Use of the MMC Tool

MMC as a Communication Management Suite

• MMC increases message detection and reduces workload for communication monitoring task

• Universal support from C2 operators

• Written in as requirements for communication system upgrades

MMC as a Communication Research tool

• Flexible interface and capabilities

• Open architecture

• Timestamp, record, and transcribe messages

• Logs information about the sender and receiver of messages (frequency & duration)

• Used in experimental testbed and academic research laboratories
Questions?

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