

# RT<sup>10</sup> Overview

June 2006

# Current Challenges – Why Innovate?

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- ▶ **Network is converging and dataflow is increasing**
- ▶ Pushing everything back means front-end filtering → dropped data
- ▶ Substantial lag to process, store, and query data
- ▶ Restricted geo-spatial capabilities (not just because of the hardware)
- ▶ Manual correlation between SIGINT, HUMINT, SIGACTs
- ▶ Non-integrated toolsets
- ▶ No comprehensive theater knowledge base
- ▶ Non-optimal collaboration between analysts
- ▶ Manually intensive production processes
- ▶ Cannot scale / work targets in volume
- ▶ Reaching limits of legacy systems
- ▶ Analysis takes a lot of time

*Think: Atlantic Monthly vs. CNN scrolling bar*

# RT-10 Goals

- ▶ Overall Objective: Order of magnitude improvements in real-time SIGINT architecture for the U.S. Cryptologic System, initially focused on national and tactical intelligence in Baghdad, to enable **better** decisions in **less** time
- ▶ Providing:
  - Access to **more comprehensive** data
  - Immediate access to local data sets, with query back to NSA
  - Integrated Analytic Workflow, with **better** tools
  - Real time Alerting: National and Tactical
  - Automation of tasks → Query to Dissemination
  - Distributed Analytic Collaboration
  - Scalability
  - **Integration** across brigade-level SIGINT capabilities



# Tools and Workflow

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## ▶ Better Tools

- New relationship visualization w/temporal capabilities
- Real-time geo-spatial alerting framework
- Web-based applications optimized for speed in a distributed environment
- Partnership with Green Dragon to identify and inject new COTS/GOTS technologies in **much less** time

## ▶ Integrated Framework

- Work in any tool of choice, seamlessly switch to alternative views (think development → presentation)
- Automated, one-click mentality from query to dissemination
- Developers available to react to analyst needs and inject new capabilities

# Substantial Improvements in Data Access

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## ► Initial

- Traditional Data Sources (Global Reach touching NSA databases)
- SCS GSM collection
- Tactical GSM Accesses
- Checkpoint Data
- HUMINT / All-Source derived SIGINT Selectors (parsed CIA TDs, DOD IIRs, TAREX, DOCEX)
- Local knowledge base

## ► Future

- Fully-integrated Iraqi DNI Data flows (initially accessible through separate web interface)
- OBELISK / LETC GSM Coverage
- WISPYKNIT, VICTORYUNIFORM and other special source

*Think: Know everything we collectively know, and faster*

# VoiceRT: Index / Search of Voice Cuts

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- ▶ Goal: Better filtering and selection using latest generation of voice-processing technologies
  - Perform phonetic indexing on 1 million voice cuts per day
  - Run incoming cuts against 1000 individual voice prints to drive real-time filtering and selection
  - Optimizes linguist scarce time, does not replace linguists
  
- ▶ Increases efficiency of available linguists
- ▶ Allows analysts to affect collection priorities and react to changing linguistic / word patterns
- ▶ Possible future integration with checkpoint collection (voice / biometrics)

# Real time Alerting: National and Tactical

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- ▶ **Real-time alerting on hard selectors**
  - Creating a knowledge base within the collection architecture
  - Drives selection and filtering
  - Provides relevant information to war fighter in seconds
- ▶ **Algorithms to Detect and Alert from Patterns of Interest**
  - Constant enrichment of incoming data flows based on NSA and GCHQ-developed algorithms
  - Robust framework to allow analysts to submit / modify / reject existing techniques
  - Capability to extend algorithms to correlate and react to friendly actions, geospatial and geotemporal vicinity, etc.

***Dedicated effort to identify and detect new potential targets based on known behavioral patterns***

# Automation of Standard Tasks

## ► One-Click Report Generation

- Chaining diagram
- Products containing target
- Frequent calling list
- Temporal trends
- Geospatial trends



## ► One-Click Alert-to-Analysis

- Alerting framework fully integrated with analytical toolsets
- Geospatial / Temporal / Network views of data

## ► One-Click Analyst Actions

- Drive collection through interface to EDB / Keycard
- Effortlessly affect knowledge base confidence / details



# Checkpoints

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- ▶ Provide advanced sensors to generate checkpoint metadata:
  - Active cell phone interrogation
  - Active RF Illumination: goal to fingerprint vehicles, identify threats (artillery shells, ammunition, gun barrels, electronic triggers)
  - 360 degree imagery
  - Chemical and radiological detectors
- ▶ Fed real time to tip and cue other Ints
  
- ▶ Proof of concept in vicinity of BIAP, tentatively checkpoint 538 on Route Irish
- ▶ Operational test, tentatively checkpoint 502 near Abu Ghurayb

# Implementation

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## ▶ Construct the JIOC-I “SIGINT Brain”

- Distributed Databases in Baghdad and Ft Meade
- Aggregate Metadata from tactical and national collection, focusing on GSM for initial efforts
- Massive data flows: 50 Million+ GSM metadata events / day
- Content access from all possible collectors
- Integration: “Know what we know”

## ▶ Timeline

- End June – Initial site surveys, theater coordination
- 15 July – Hardware Ships
- 1 August – Hardware Arrives, People begin arriving
- 15 August – System Online
- 31 August – Data Flowing
- 15 September – IOC

# Achieving Success with Spins

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## ► Spin Methodology:

- Iterative activity consisting of a series of spins
- Each 90-day spin expands capability
- Demonstration of integrated capabilities
- Application of new and existing technologies
- Make discoveries and apply lessons learned to future spins



# RT<sup>10</sup> Spin Schedule

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## Spin 1: August 2006

- System Installed
- JUGGERNAUT Data
- Initial Software Testing

## Spin 2: Nov 2006

- Demonstration of integrated capabilities
- Cable / FORNSAT Integration
- Enhance Checkpoint Capability
- Analyst-Identified Areas of Improvement

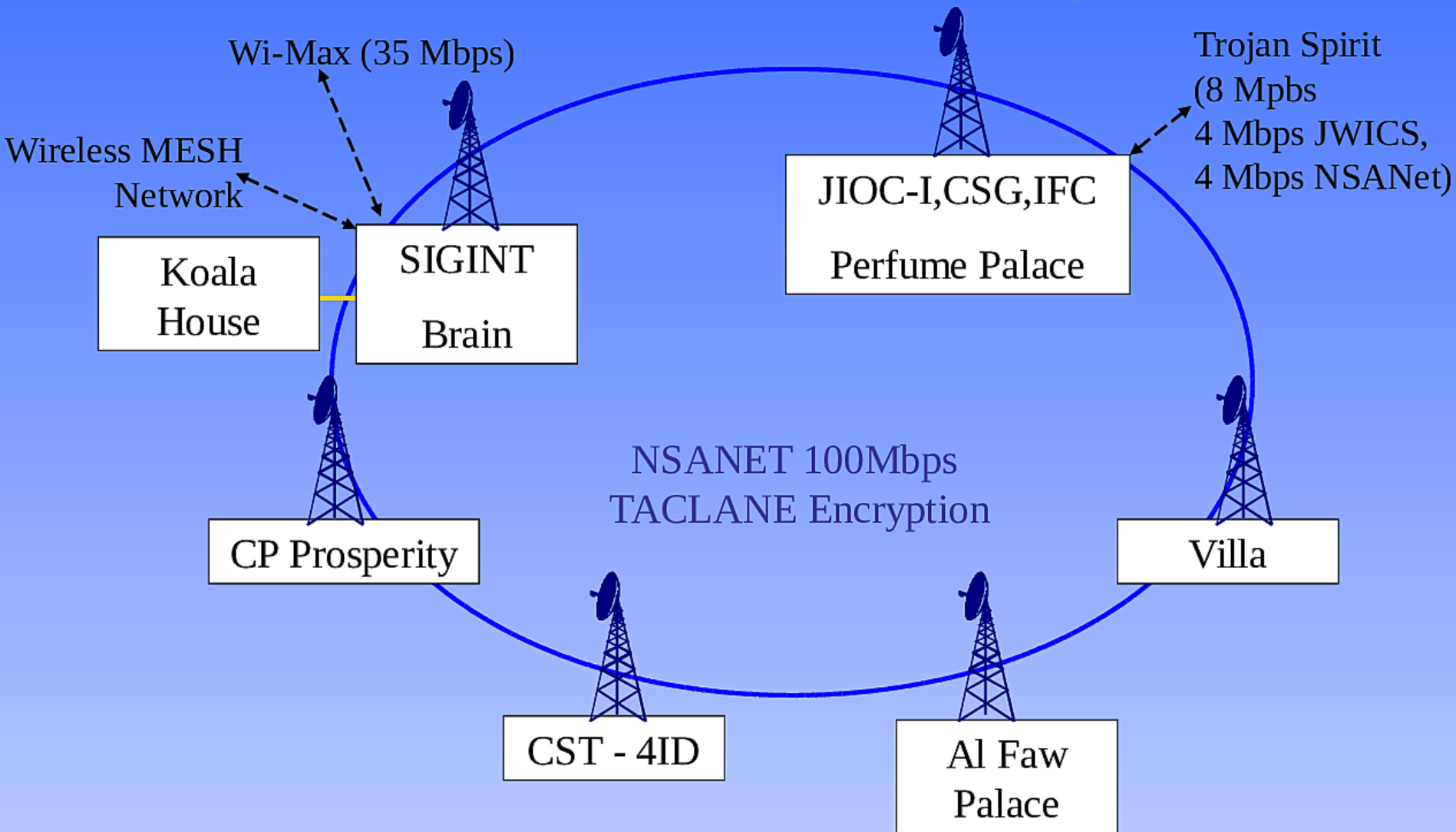
## Spin 3: Jan 2007

- Analyst-Driven Modifications
- Next-Generation Analytical Tools



# RT<sup>10</sup> Line of Sight Microwave Network

## Wi-Max, Mesh, NSAnet Connectivity



# RT<sup>10</sup> Analytic Nodes

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- ▶ Iraq
- ▶ MOC
- ▶ NSA Product Lines
- ▶ NSA-G
- ▶ COBRA FOCUS

# GSM Architecture & Access Points

