Network Centric Operations
Urban Warfare

National Defense Industrial Association
Net Centric Operations, Interoperability & Systems Integration Conference

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The Results - Unpredictable Engagements – Interdependence

Agility is the Key Measurement

Sensor input linked to Command Center

Imarsat (V)
Iridium (V)
UHF TAC SAT (V/D)
Laser Rangefinder - GPS
Locates Target for engagement

C2 Center request more Data to task weapons
Platform
Link 16 (D)
UHF Sat (V)
Combat Track II (D)

Link 16 (D)
Radar (D)
UFH (v)
Mensurate Target

Final Link To Target GPS (D)

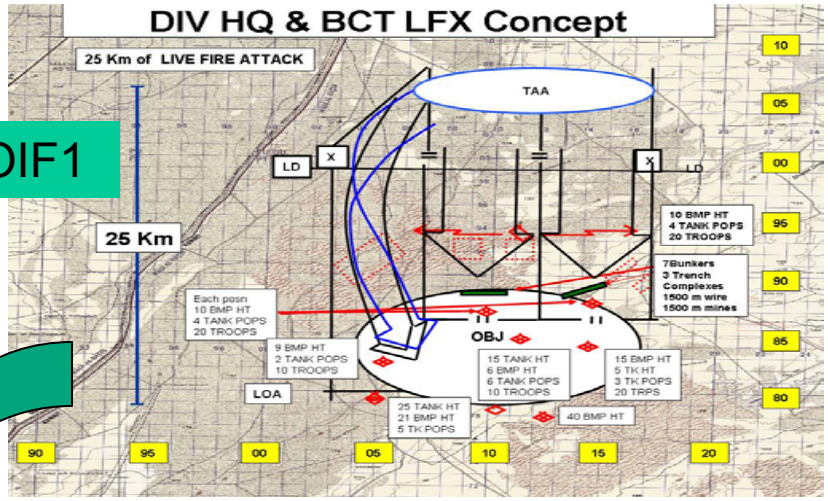
UHF (V)
Combat Track II (D)
Keyboard to Bomb
Engages Targets

Global Trends

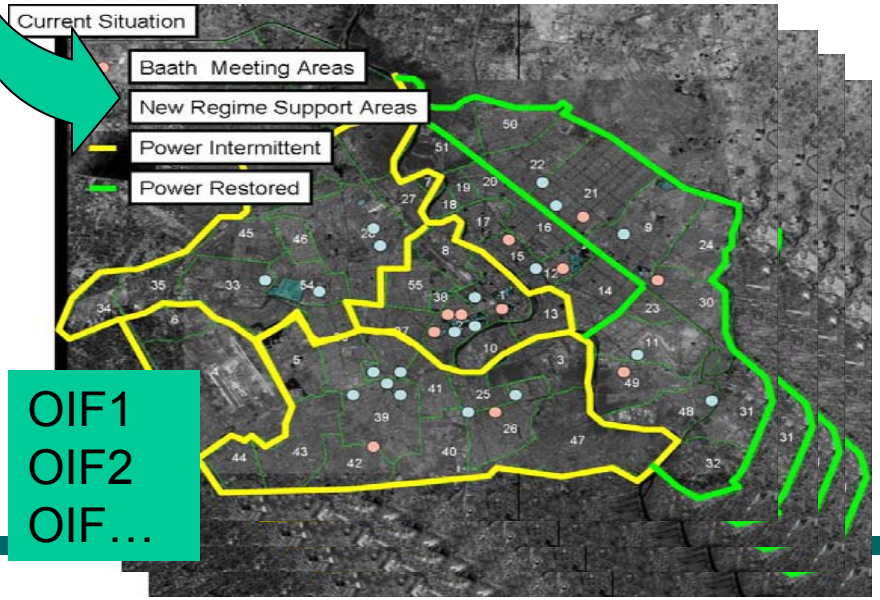
Celebrity magazines have encouraged readers to snap the famous on their camera phones AP

Transformation to Net-centric Operations

Rapid Transition Calls for Flexible C2 Capabilities



OIF1



OIF1
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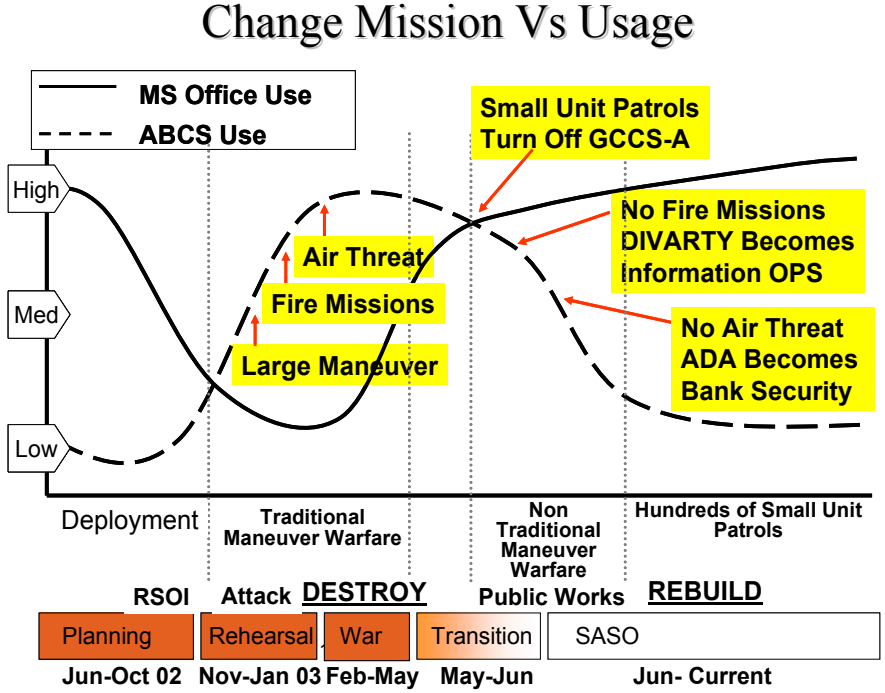


Change in Emphasis Areas in SASO

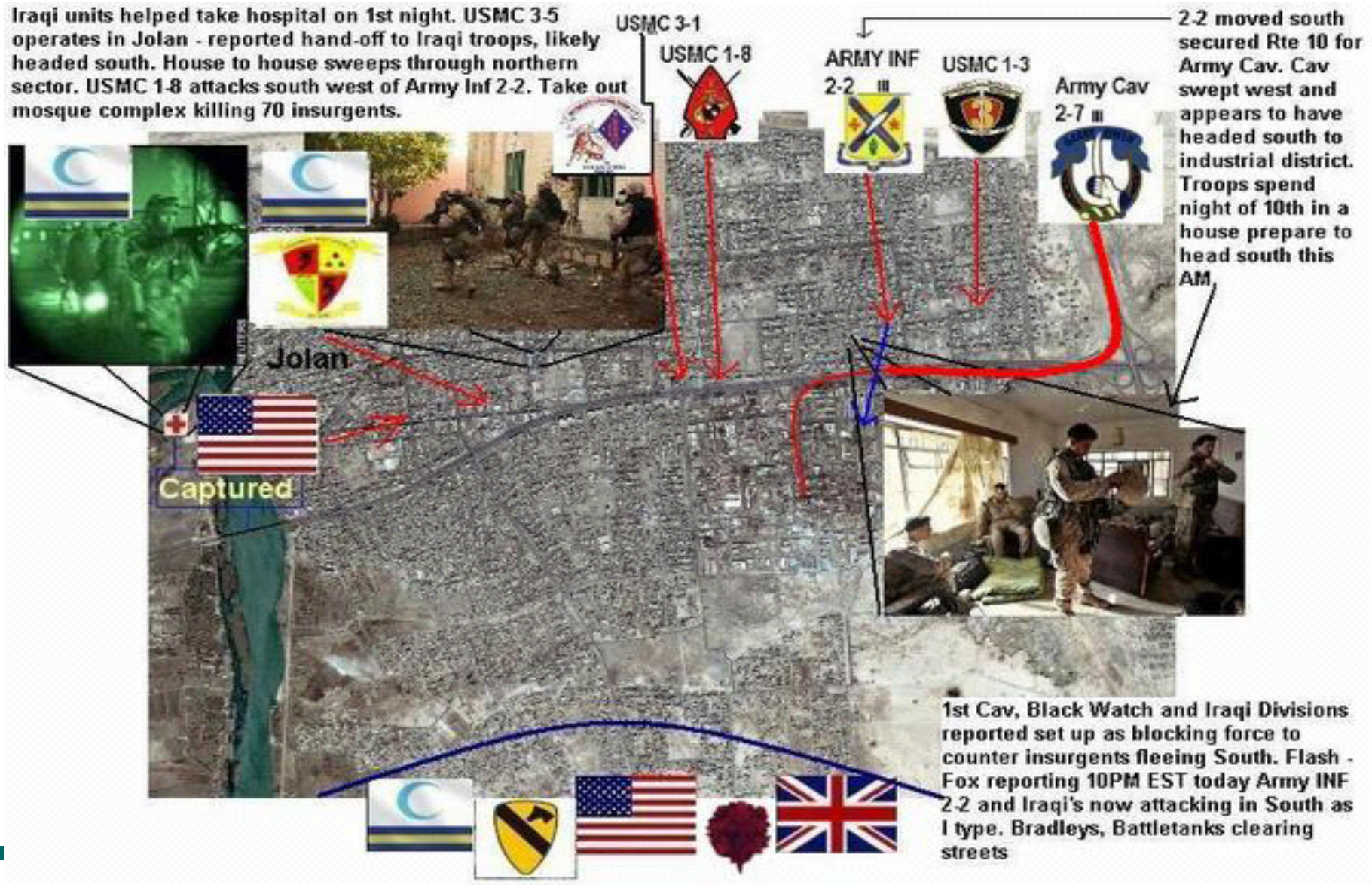
- Public Works (Water/Power…)
- Patrols
- Insurgent Strong Points, Tracking, Trend Analysis
- Local Population Attitude
- "Mayor" type duties
- Food/Water Distribution

Urban Warfare Then and Now

- Coalition Forces in Iraq destroy insurgents/terrorists with limited impacts on cities and low loss of life and equipment
- Conducting warfare with network enabled capabilities
  - Technology
    - Leveraging ISR assets all types of UAVs for ISR and engagements – Integrating ISR and C2 systems with weapons systems
    - Linking ground night vision capabilities to air delivered effects
    - Moving toward persistent ISR
  - Tactics
    - Use of small probing actions to bring enemy out and then destroy
    - Back the enemy into an increasing smaller area

Transformation to Net-centric Operations

Coalition Operations in Fallujah



Coalition Operations in Fallujah

- The battle for this urban maze will be largely a battle for line of sight – Battle for Information
- Marines possess imaging devices, comms ,computers – part of the Infrastructure Grid, range finders – part of the Sensor Network and their rifles – Part of the Engagement Network
- Their role as sensors maybe more damaging then their role as engagers - key is Information though ***observation***.

Recent Fallujah Examples

1. Abrams Tanks Commander observed a group of enemy through the optical sight of his tank at 2,400 meters – Sensor network
2. Enemy started throwing Molotov cocktails and pouring gasoline on the road to create a smokescreen… thought the smoke would obscure them from view.
3. Constraints of firing into another AOR, where US marines might be operating, and the danger of damaging the mosque, which would have provoked outrage in the Arab world,
4. Required authorized at a more senior level.

5. A Humvee from Phantom troop fitted with a Long Range Acquisition System (LRAS) was moved to within two kilometers of the mosque, to provide more detail Senor Network
6. Plt Leader was asked to provide a grid co-ordinate, accurate to within a meter, to minimize the chance of hitting the mosque, about 50 meters from the building.
7. Authorization came through and the order to fire a barrage of 20 155mm high-explosive shells from howitzers about three miles away from the mosque. Engagement network
8. Soldier manning the LRAS, watched the burst of shells hit .BDA

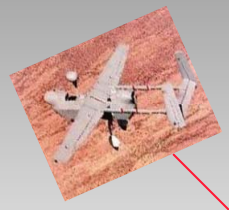
Bottom Line

- **U.S. forces are networking their sensors from those on the tanks to UAVs to Command all were exploited to gain an information advantage.**

- **The information infrastructure grid linked these sensors to the decision makers and ultimately to the engagement network from whose assets the target was matched.**

- **What is clear in these examples are the Flexibility and Agility of the U.S. forces enablered by the Infrastructure Grid while conducting Network Centric Operations**

Urban NCW Capability



- Cmd requests that Sniper to laser mortar firing location.
- Apache/Harrier/ AUAV vectored to enroute target.
- Terrorists fire mortar fires and then moves toward sanctuary.
- Firefinder radar detects location of mobile mortar.

NC Integration of systems to engage Urban Targets Infantry Shooting Mortar

C2 via AFTADS / CPOF TACSAT/FM

- Target successfully engaged and destroyed

Questions?