



*Technology Work Session for the South African Army; Hosted by the CSIR*



## Command and Control

### **Command Centre of the Future's Dismounted Soldier**

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CSIR Defence, Peace, Safety and Security

Date: 20 April 2012

**CSIR**

*our future through science*

# Outline of presentation

- Introduction
  - Current & Future Realities
  - ICT Trends
- Requirements
- Technologies
- Examples
- Conclusion



## Expanding Role

Operations other than war  
From foot soldier to strategic corporal  
Involved and making decisions  
Interacting with population  
Interacting with collaboration partners

## “Born Digital”

Technology enabled  
Digitally Socially Active

Ubiquitous communications

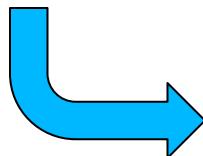
Mobile Computing

Applications availability

Bandwidth availability

# Requirements for the Future Dismounted Soldier C2

Joint Interdepartmental Multinational operations



“Intense Collaboration”

Requirements for landwards military operations by 2020:

- Superior situational awareness
- Effective layers of command and control
- Broad use of modelling and simulation

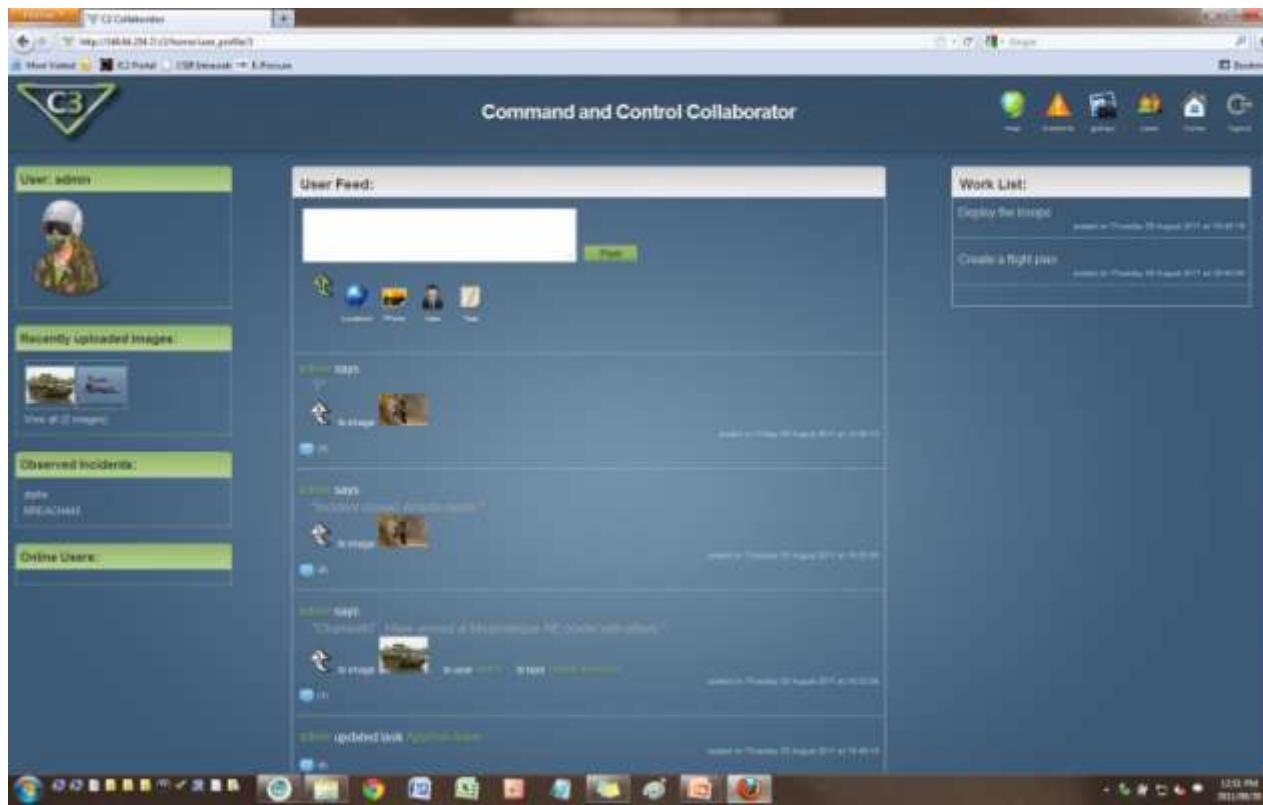
# Online Social Networks

*{An online community sharing interests and information via the Internet}*



## Online Social Networks

*Current Experiments include a C2 Collaborator  
“The C2 Facebook”*



# Technologies for the dismounted soldier C2

## Apps *{Small application with a narrow focus and specific function}*



The screenshot shows the U.S. Army Marketplace homepage. At the top, there is a navigation bar with a star icon, the text "U.S.ARMY MARKETPLACE", and links for "Hi, self select | Logout | Register". Below the navigation is a search bar with the placeholder "Search the Marketplace" and a magnifying glass icon. On the left, a sidebar titled "PRODUCT CATEGORIES" lists various categories with their counts: All Categories (1), Admin Tools (1), Application Development (0), Archiving and Discovery (0), Calendar and Scheduling (0), Customer Management (0), Document Management (2), GeoSpatial Solutions (5), Productivity (3), Social Networking (2), and Training and Management (0). The main content area features a large banner with the text "FIND THE TOOLS YOU NEED TO GET IT DONE. ARMY MARKETPLACE." and a "Get Started" button. Below the banner, there is a section for "Recently Added Products" and a detailed view of the "Casualty Assistance Program". On the right, there are two sections: "HIGHEST RANKED" and "MOST DOWNLOADED". The "HIGHEST RANKED" section shows the "Casualty Assistance Program" (ranked 60) and "LSK Pashto Medical Productivity" (ranked 60). The "MOST DOWNLOADED" section shows "New Soldier Handbook" (ranked 50) and "Family and MWR - W... Social Networking" (ranked 20). The "Casualty Assistance Program" product page includes a download count of 1543 and a description: "Provides web-based content, formatted for mobile devices, on...".

## Mixed Mode Communications

*{Communications using a variety of protocols changing as required}*

### Newly Released iPad 3 specifications

4G LTE (700, 2100 MHz);

UMTS/HSPA/HSPA+ (800, 900, 1900, 2100 MHz);

GSM/EDGE (850, 900, 1800, 1900 MHz);

Wi-Fi (802.11a/b/g/n)

Bluetooth 4.0 technology



## Web Applications

*{An application that is accessed over the network via a web browser}*

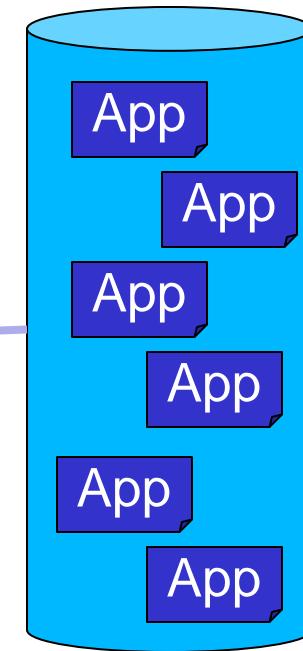


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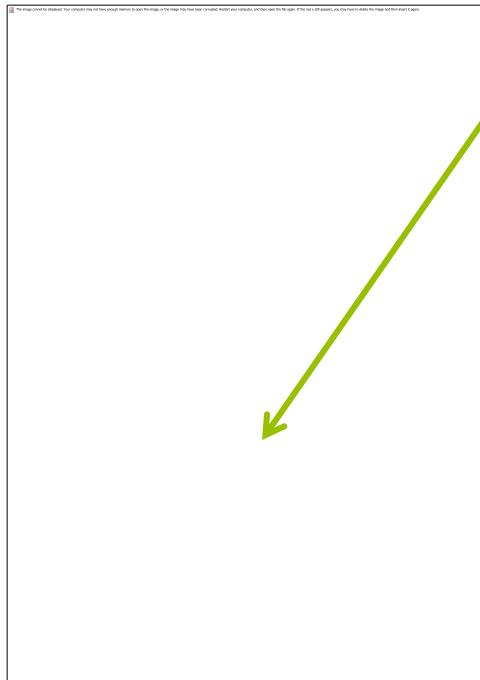


Multi-Function  
access  
on demand

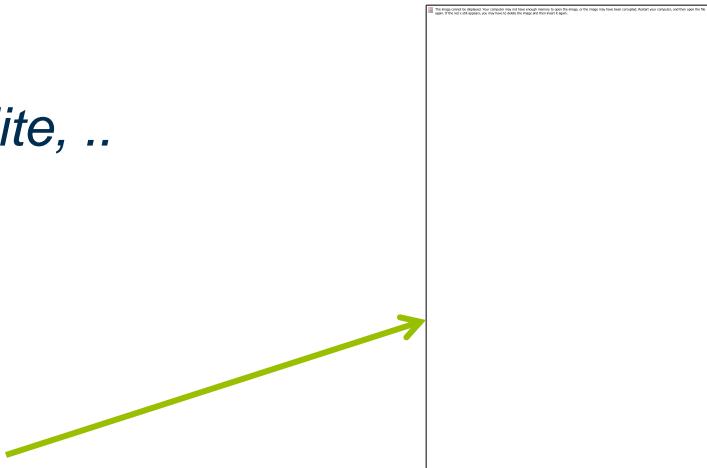


# Blue Force Tracking

*{Positional Information of Own Forces including collaborators}*



*IMPI*  
- *GSM, Satellite, ..*



*GPS Mic*  
- *Attached to tactical radio*

## Mobile Computing

*{Powerful, small, mobile, computing devices with integrated communications}*

*Rugged Tablet  
Computer  
GD3070*



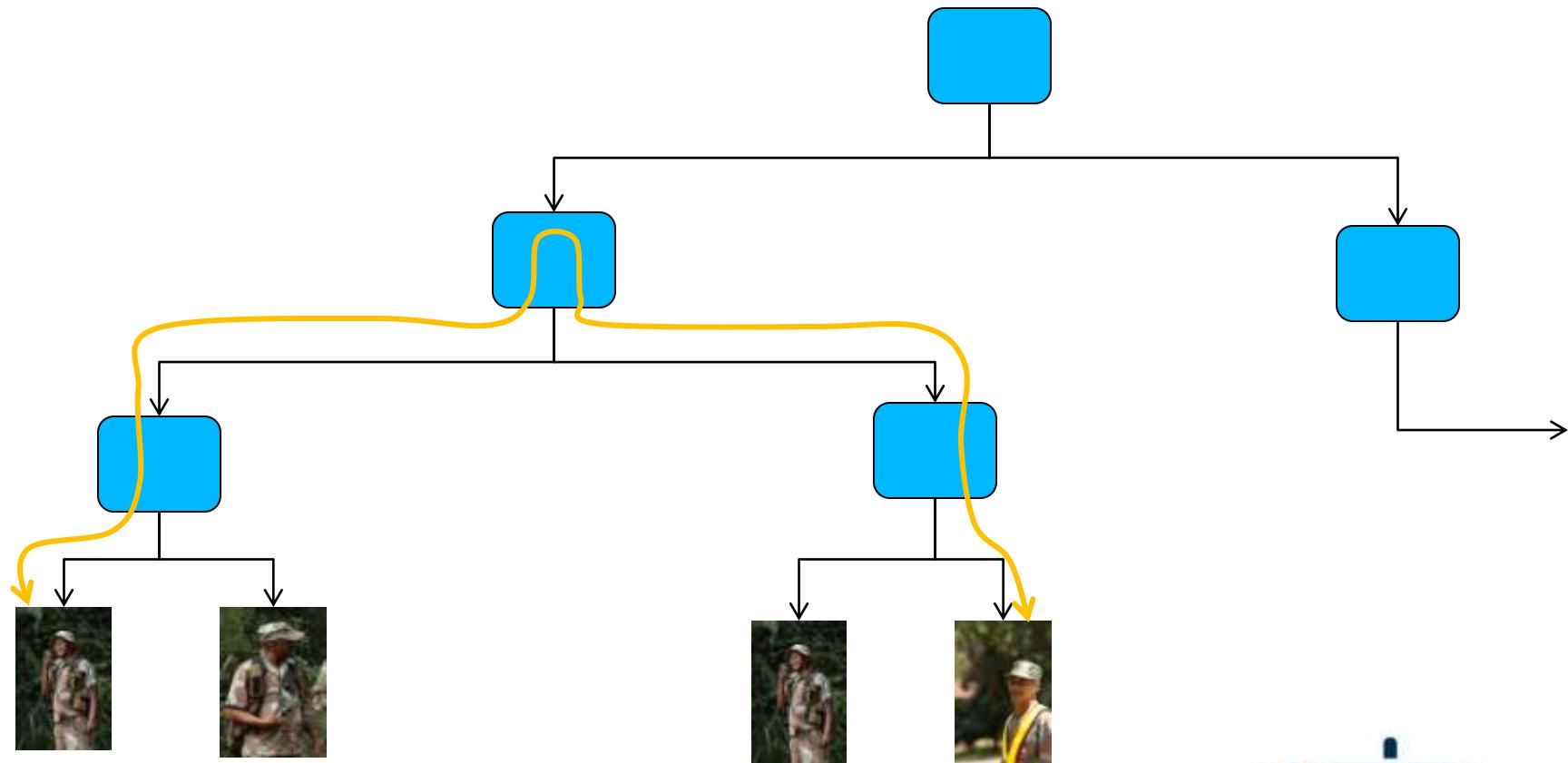
*General Purpose Tablet  
iPad*



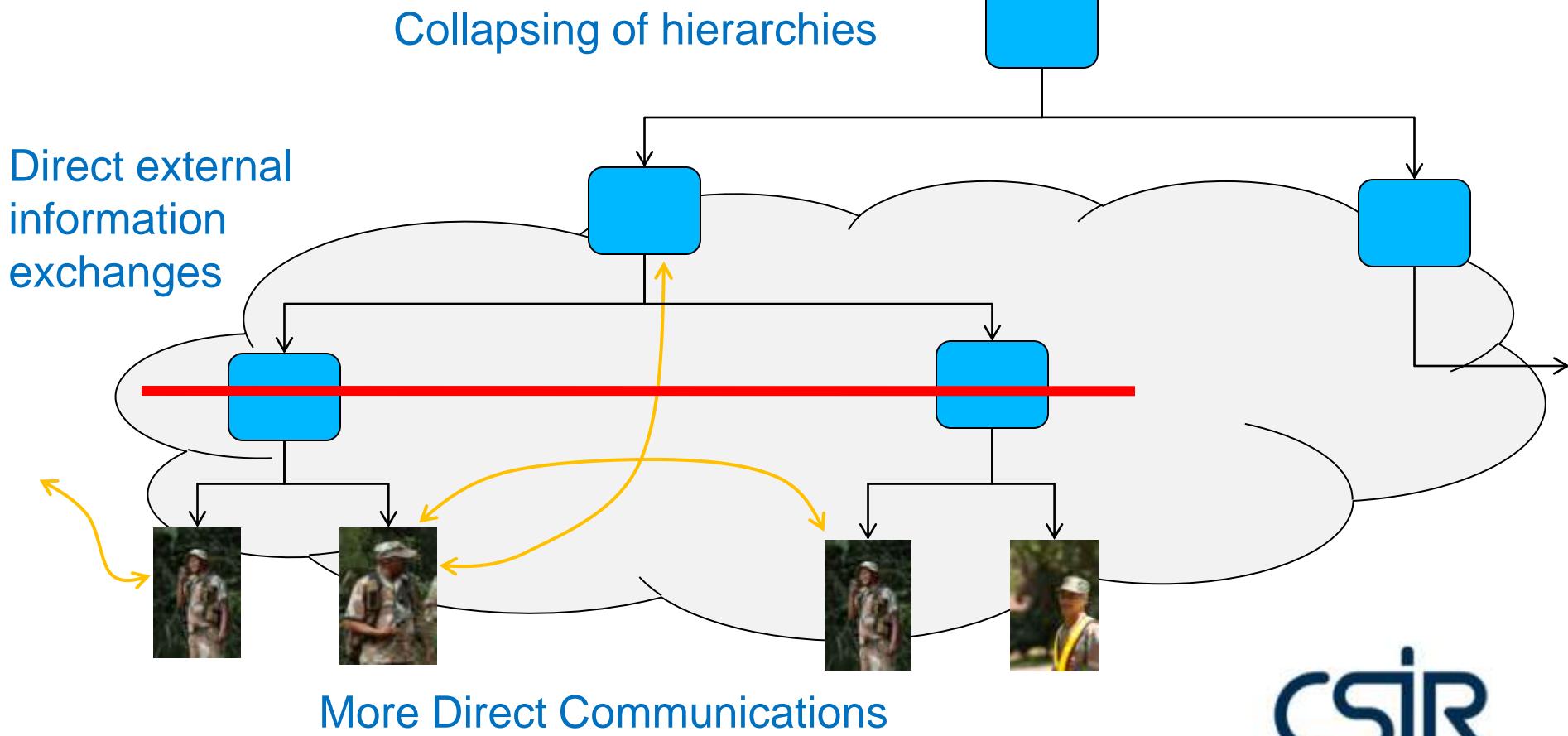
*Wrist Computer  
GD300*



## Implications



## Implications



# Examples of current activities

## International

### Canadian – Joint Fire Support Coordination Cell

#### Experiment Hypotheses

The JFS operators better perform JFS Coordination tasks and have better situation awareness when provided with a Joint Common Operating Picture and an integrated coordination tool compared to when they are limited to the decoupled in-service environmental C2 Systems.



# Examples of current activities

## International

### Canadian – Joint Fire Support Coordination Cell

#### Experiment Results

JFS Human Factor 1 Experiment has shown that Joint COP and Collaboration tools can:

- Increase task performance
- Reduced risk of human errors
- Improved the operators adequacy of confidence in own SA

# Examples of current activities

## International

### Canadian – Joint Fire Support Coordination Cell

#### Additional Benefits

- Establishment of a Canadian Joint Battle Lab for Joint Experimentation
- Realistic operational environment with limited “experiment control”:
  - Provides an environment for the operators to “think out of the box”
  - Explore new Tactics, Techniques and Procedures
  - Find ways that tools can support his tasks

*The JBL provides a single point where operators, engineers and scientists can collaborate on Force Development.*

# Examples of current activities

## National

### Future SA Army Strategy Experiment



# Conclusion

## Command and Control for the future dismounted soldier will:

- Use a variety of technologies
- Incorporate everyday life technologies
- Provide access to numerous applications “via the web”
- Feature “Intense Collaboration”

# Thank You

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