

# New solutions for massive monitoring

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## Military communications characteristics :

- numerous
- redundant/coupled
- reconfigurable (waveform, topology) : Software Defined Radio (SDR)
- multi-bandwidth



# Evaluation of spectrum activity on theaters 2/2



Paramilitary forces/terrorist groups... communications characteristics :



- civilian coms (mobile phones...)
- Private Mobile Radio (PMR)
- civilian HF
- satellite coms (VSAT, Inmarsat, Iridium, Aces, Thuraya...)
- @ (Wi-fi, Wimax, Bluetooth...)
- old military equipment

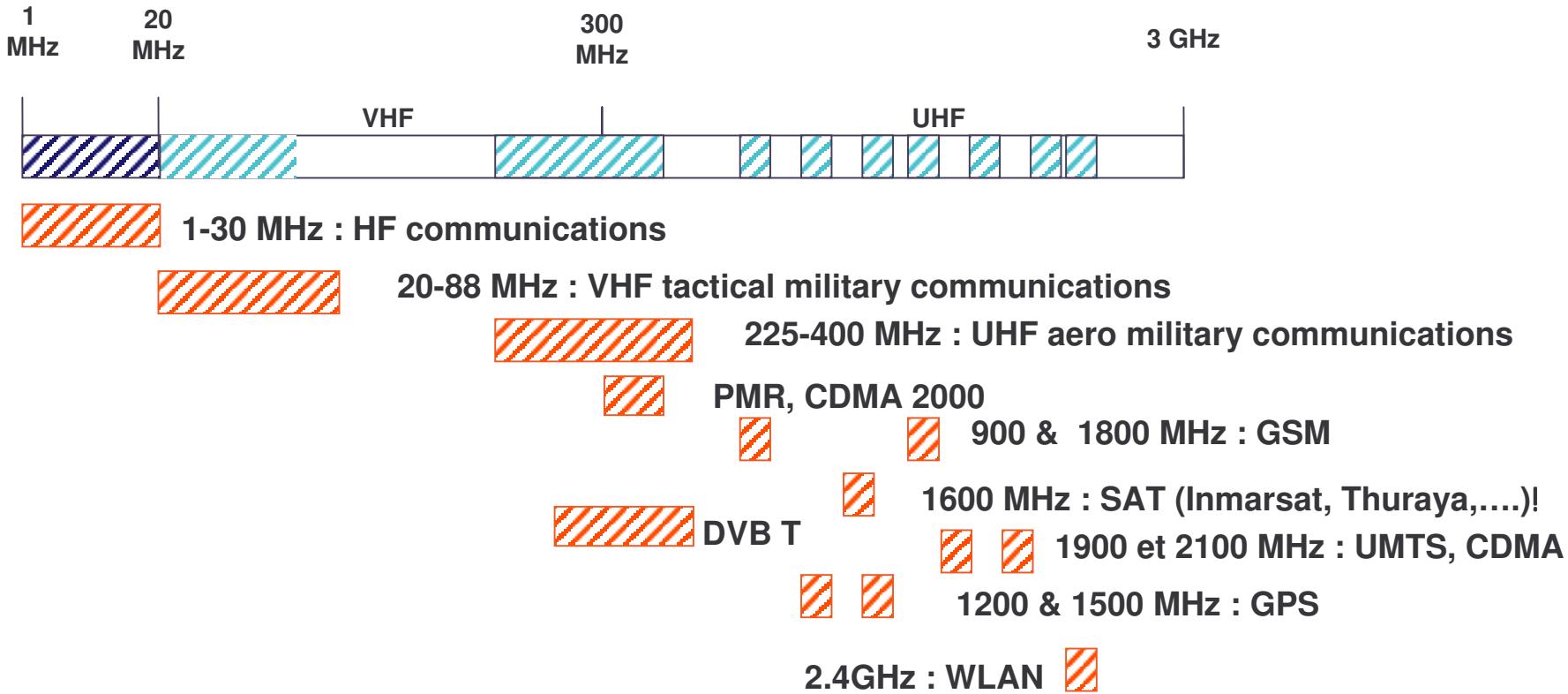


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## COMINT Target trends

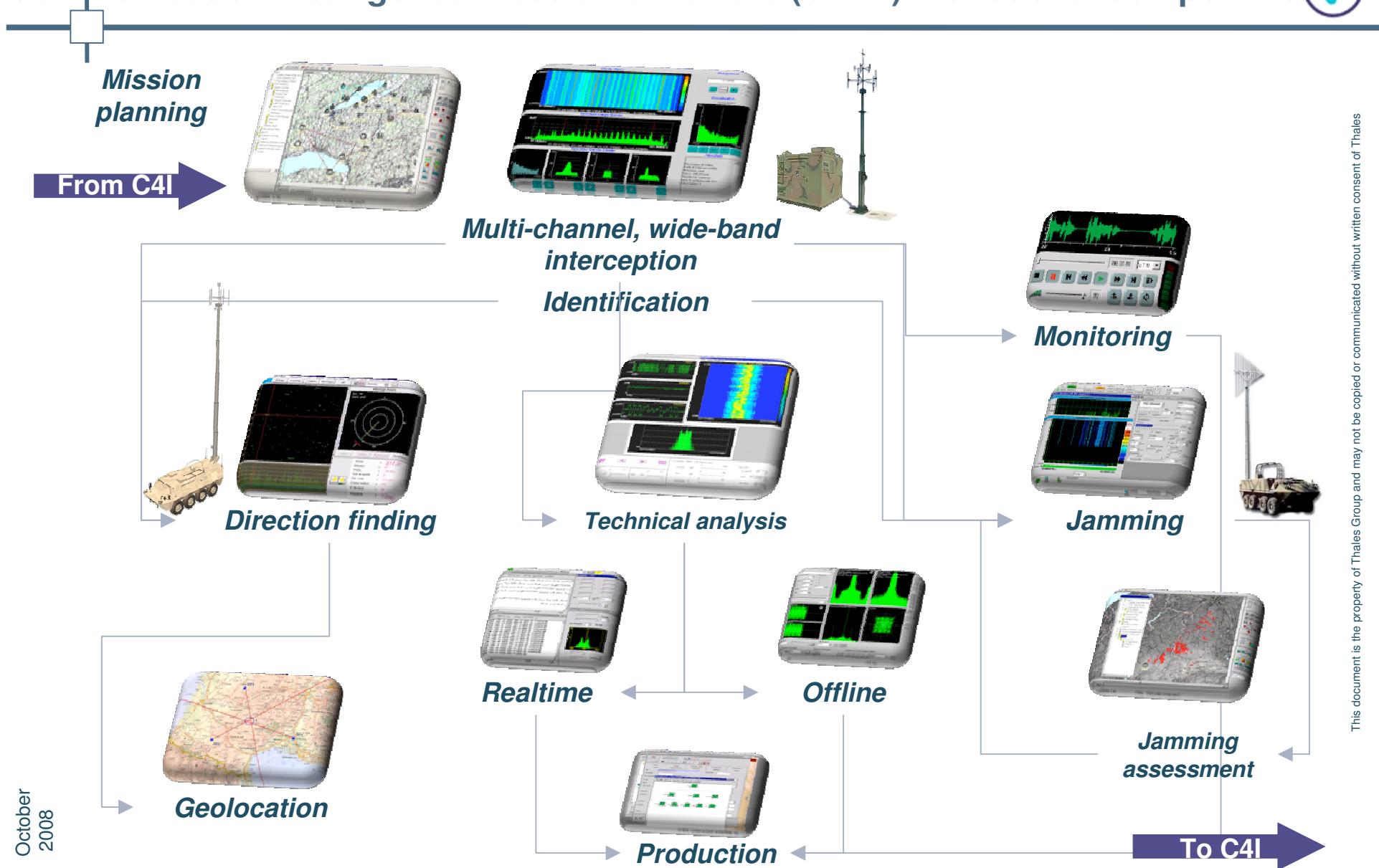


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# Communication Intelligence Electronic Warfare (CIEW) : functional components



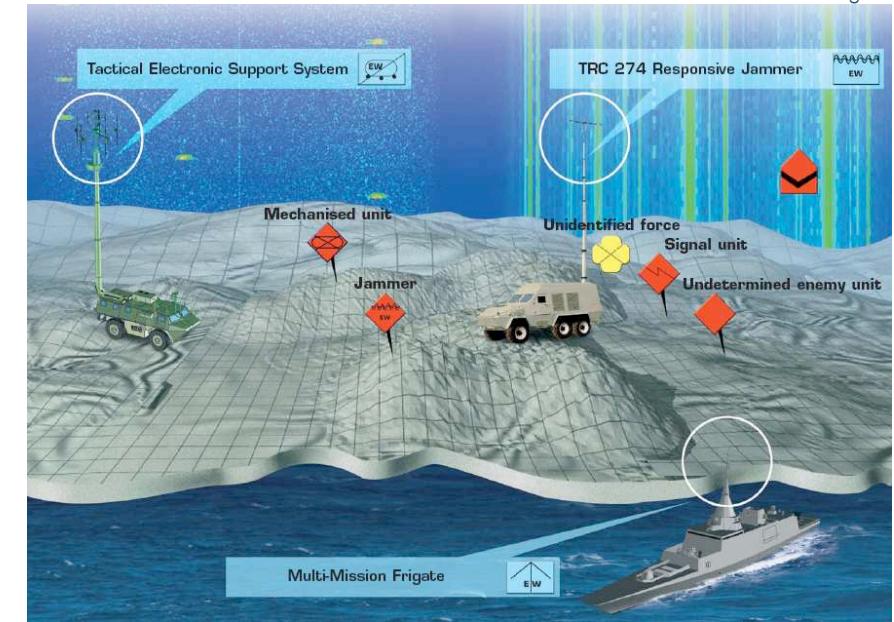
*The hidden part in an intangible process : information superiority*

# Impact on Communication Intelligence Electronic Warfare missions



Spectrum occupancy  
higher density  
higher number of coms  
increase of the bandwidth to monitor  
higher bitrate/Hz => more  
compressions  
vocoders  
corrector codes  
multiplexers  
proprietary modes  
...  
crypto use

- => It is getting more complicated
- ⇒ Apparent paradox : mass production is required to target
- ⇒ Automatisation
  - ⇒ Capture
  - ⇒ Recording
  - ⇒ Processing





- Broad spectrum monitoring
- Multimode/reconfiguration
- Multiple simultaneous networks monitoring
- Access to the content issue =>
- Increasing need for cryptoanalysis : « back in USSR »
  - => direction finding
  - => technical analysis
  - => surgical neutralisation



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# CIEW: Thales answer to these challenges



The leading European exporter of CIEW solutions worldwide : sensors, systems, and CIEW operation centres



EW System engineering and integration expertise in more than 20 countries



All-source intelligence collection, fusion and dissemination to C4I



Dedicated CIEW hardware and software expertise :

- Sensor design
- Technical analysis
- All-source data fusion
- Intelligence dissemination



End-to-end offerings of CIEW as part of C4ISR capabilities :

- Single-source multi-sensor
- Multi-source intelligence and surveillance
- Sensor-C2 integration
- Networked communication architecture



Threats to national security, external and internal

- Terrorists, guerilla, mafia, adverse military

Users : strategic military intelligence or government security forces

- Can be civil or military, joint or operated by Army, Navy, Air Force or Government



Mission package : intelligence collection platforms, COMINT exploitation centres

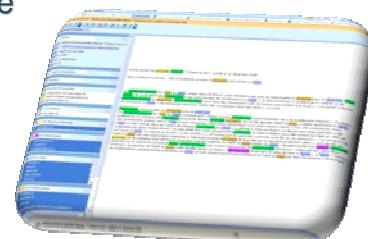
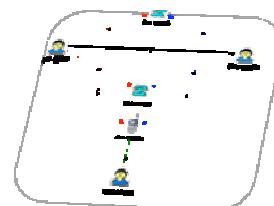
Fixed or mobile interception (HF, V/UHF, SHF, Internet, PSTN...)



Monitoring centre



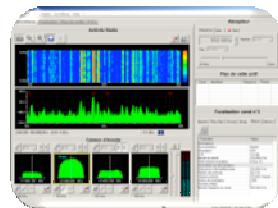
Dedicated exploitation software



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# CIEW : A 3-tier offering

- Transverse know-how : from sensor to system, from COMINT to C4ISR



COMINT production



SIGINT exploitation



Multi-source fusion



Intelligence-C2 integration

- 3 user-oriented solutions



National solutions for threat assessment



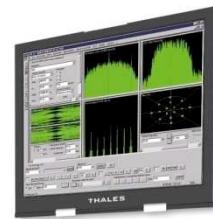
Tactical solutions for maritime communications electronic support



Tactical solutions for Army communications electronic support and attack

- Common hardware & software equipments (building blocks)

TRC 6000  
Technical analysis suite



# TRC 6500 : Thales solution for massive interception



Receivers (HF, VHF, UHF, SHF)



Front end



Back end



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### *Front end capabilities*

- Frequency range from 300 kHz to 6 GHz (C/X/Ku band as an option)
- Comprehensive Automatic Wideband Monitoring solution
  - 30 MHz in HF,
  - 80/160/320 MHz in V/UHF,
  - Nx 72 MHz in SHF
- Software defined & Scalable architecture up to 200 MHz Instantaneous Bandwidth
- Real-time & automatic detection, classification, demodulation and decoding of all modern and stealthy signals (FH, LPI) (HF modem, V/UHF, Combat Net Radio, Micro-Wave, SATCOM, VSAT, Thuraya/Inmarsat/DVB...)
- Multi-channel automatic/manual processing : n X 128 channels
- Real time listening-in of communications channels
- Wideband and Narrowband Digital recording for off-line analysis

### *Back end capabilities*

#### *Monitoring center*

Questions?



Thank you!

Welcome to our booth

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