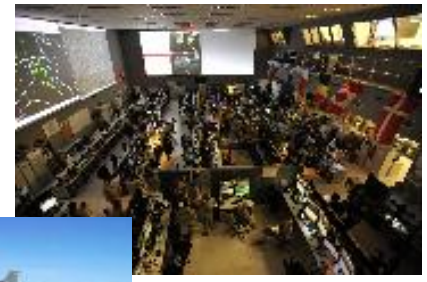
Combat Identification "CID 101"

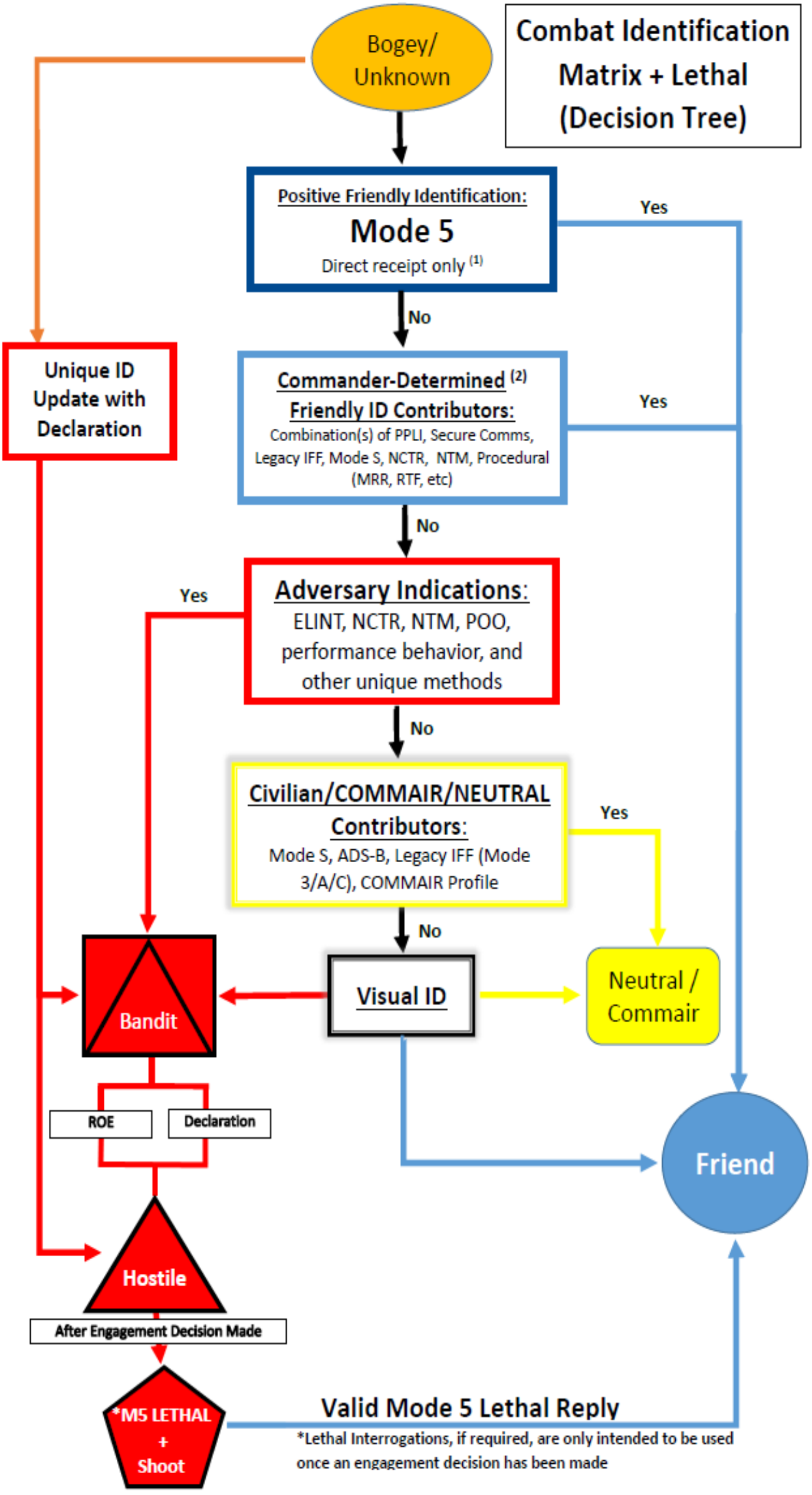
Ask the right questions, shoot the right targets

CDR Matt "Judy" Cady
CJOS COE, Norfolk, VA

TCF, Portmouth UK, September 2024



~27 years
In various uniforms


Combat Identification Matrix + Lethal (Decision Tree)
Bogey/ Unknown
Positive Friendly Identification:
Mode 5
Direct receipt only (1)
Yes
No
Unique ID Update with Declaration
Commander-Determined (2) Friendly ID Contributors:
Combination(s) of PPLI, Secure Comms, Legacy IFF, Mode S, NCTR, NTM, Procedural (MRR, RTF, etc)
Yes
No
Adversary Indications:
ELINT, NCTR, NTM, POO, performance behavior, and other unique methods
Yes
No
Civilian/COMMAIR/NEUTRAL Contributors:
Mode S, ADS-B, Legacy IFF (Mode 3/A/C), COMMAIR Profile
Yes
No
Bandit
Visual ID
Neutral / Commair
ROE
Declaration
Friend
Hostile
After Engagement Decision Made
*M5 LETHAL + Shoot
Valid Mode 5 Lethal Reply
*Lethal Interrogations, if required, are only intended to be used once an engagement decision has been made

Notes

1. Direct receipt of Mode 5 Levels 1/2 or Level 2B. Mode 5 data received through TDLs is considered a contributor, not a stand-alone single-source positive friendly identification.

2. The Commander determines contributor viability based on environment and intelligence. Specific guidance must be provided to determine what will be accepted as friend indications.

Acronyms and Glossary

Mode S	Mode Select: Civilian IFF System
ADS-B	Automatic Dependent Surveillance – Broadcast: Civilian IFF "self-reporting" system
POO	Point of Origin
PPLI	Precise Position Location and Identification: Self-reported Link-16 track
IFF	Identification Friend or Foe
NCTR	Non-Cooperative Target Recognition
NTM	National Technical Means
MRR	Minimum Risk Route
RTF	Return to Force procedures
ELINT	Electronic Intelligence, including passive detection and identification systems
ROE	Rules of Engagement
COMMAIR	Commercial/Civilian aircraft
M5	Mode 5: NATO/Allied military Positive Friendly Identification system
Legacy IFF	Identification Friend or Foe modes, which may include Modes 1, 2, 3/A, C. Sometimes Legacy IFF is referred to as SIF (Selective Identification Feature)
Mode 5 Level 1	M5L1: Mode 5 interrogation and reply term for traditional "Challenge and Reply" IFF. M5L1 replies contain identification data, but does not include geographic coordinates in reply the data fields. Location of transponder platform is determined by calculations done on the Interrogator platform
Mode 5 Level 2	M5L2: Mode 5 interrogation and reply term, which can be either "Challenge and Reply" or "Squittered" IFF, which contains identification data and geographic coordinates of the transponder platform within the reply data fields.
Mode 5 Level 2-B	M5L2-B: Mode 5 interrogation and reply term, where the transponder platform "squitters" (self-reports), referred to as M5L2-B-Out. M5L2-B-In is the term for receiving squittered reports. M5L2-B has additional information/formats that are not available in M5L2.
Squitter	Term used to describe a system that automatically emits identification and location information (currently IFF based) within the transmission formats. ADS-B (Civilian) and M5L2/M5L2-B (Military) are capable of emitting squittered information.

Link-16

Secret Decoder Ring

- Terms
  - TADL-J/Link-16/JTIDS/MIDS
  - NPGs- Network Participation Groups
  - JUs- JTIDS Units
  - JICO: Joint Interface Control Officer (Whack-a-Mole)
  - OPTASK-LINK: Reference document summarizing operational TDL parameters
- Sales Pitch
  - Spread Spectrum, Encrypted, Jam Resistant, Time Division Multiple Access (TDMA), Stacked/Multi-Net
  - ~UHF Line of Sight (~1030-1090)
  - “Relative Navigation” (very)
  - Secure Voice/Text Messages
  - Multi Nets: Fighter-to-Fighter / EW / Air Control / etc
- J- Series Messages (to the right)
  - Used by the inner-circle to keep lesser-beings out of the conversations

LINK 16 MESSAGES

Network Management
J0.0 Initial Entry
J0.1 Test
J0.2 Network Time Update
J0.3 Time Slot Assignment
J0.4 Radio Relay Control
J0.5 Repromulgation Relay
J0.6 Communication Control
J0.7 Time Slot Reallocation
J1.0 Connectivity Interrogation
J1.1 Connectivity Status
J1.2 Route Establishment
J1.3 Acknowledgment
J1.4 Communication Status
J1.5 Net Control Initialization
J1.6 Needline Participation Group Assignment
Precise Participant Location and Identification
J2.0 Indirect Interface Unit PPLI
J2.2 Air PPLI
J2.3 Surface PPLI
J2.4 Subsurface PPLI
J2.5 Land Point PPLI
J2.6 Land Track PPLI
Surveillance
J3.0 Reference Point
J3.1 Emergency Point
J3.2 Air Track
J3.3 Surface Track
J3.4 Subsurface Track
J3.5 Land Point or Track
J3.6 Space Track
J3.7 Electronic Warfare Product Information
Anti-submarine Warfare
J5.4 Acoustic Bearing and Range
Intelligence
J6.0 Amplification Message
Information Management
J7.0 Track Management
J7.1 Data Update Request
J7.2 Correlation
J7.3 Pointer
J7.4 Track Identifier
J7.5 IFF/SIF Management

Information Management (Continued)
J7.6 Filter Management
J7.7 Association
J8.0 Unit Designator
J8.1 Mission Correlator Change
J9.0 Command
Weapons Coordination and Management
J10.2 Engagement Status
J10.3 Hand Over
J10.5 Controlling Unit Report
J10.6 Pairing
J11.0 From the Weapon
J11.1 To the Weapon
J11.2 Weapon Coordination
Control
J12.0 Mission Assignment
J12.1 Vector
J12.2 Precision Aircraft Direction
J12.3 Flight Path
J12.4 Controlling Unit Change
J12.5 Target/Track Correlation
J12.6 Target Sorting
J12.7 Target Bearing
Platform and System Status
J13.0 Airfield Status Message
J13.2 Air Platform and System Status
J13.3 Surface Platform and System Status
J13.4 Subsurface Platform and System Status
J13.5 Land Platform and System Status
Electronic Warfare
J14.0 Parametric Information
J14.2 Electronic Warfare Control / Coordination
Threat Warning
J15.0 Threat Warning
Imagery
J16.0 Imagery
Weather Over Target
J17.0 Weather Over Target

National Use	
J28.0	U.S. National 1 (Army)
J28.1	U.S. National 2 (Navy)
J28.2	U.S. National 3 (Air Force)
J28.2 (0)	Text Message
J28.3	U.S. National 4 (Marine Corps)
J28.4	French National 1
J28.5	French National 2
J28.6	U.S. National 5 (NSA)
J28.7	UK National
J29	National Use (reserved)
J30	National Use (reserved)
Miscellaneous	
J31.0	Over-the-Air Rekeying Management
J31.1	Over-the-Air Rekeying
J31.7	No Statement

NETWORK PARTICIPATION GROUPS

NPG	Function
1	Initial Entry
2/3	RTT-A/RTT-B
4	Network Management
5/6	PPLI and Status
7	Surveillance
8	Mission Management/ Weapons Coordination
9	Control
11	Image Transfer
12/13	Voice A/B
18	Network Enabled Weapons
19/20	Fighter-to-Fighter A&B
21	Engagement Coordination
27	Joint Net PPLI
28	Distributed Network Management

What is a NATO Centre of Excellence?

A NATO Centre of Excellence (COE) is a multinational entity offering expertise and experience in support of NATO transformation.

"...not part of the NATO Command Structure..."

MCM 236-3, dated 4 Dec 2003

Efforts

- Requests from Sponsor Nations
- Requests validated by a Steering Committee of representatives from contributing nations
- Programme of work built from requests

COE Organization

- Belong to the Sponsoring Nation(s)
- Funded by Framework Nation and Sponsoring Nations
- Directed by Steering Committee (SC)
- COE Director is a Chief Executive Officer responsible to the Steering Committee

28 NATO COEs

1. Air Operations
2. Civil-Military Cooperation
3. Cold Weather Operations
4. Combined Joint Operations from the Sea
5. Command and Control
6. Cooperative Cyber Defence
7. Counter-Improvised Explosive Devices
8. Counter Intelligence
9. Crisis Management and Disaster Response
10. Defence Against Terrorism
11. Energy Security
12. Explosive Ordnance Disposal
13. Human Intelligence
14. Integrated Air and Missile Defence
15. Joint Air Power
16. Joint Chemical, Biological, Radiological and Nuclear Defence
17. Maritime Geospatial, Meteorological and Oceanographic
18. Maritime Security
19. Military Engineering
20. Military Medicine
21. Military Police
22. Modelling and Simulation
23. Mountain Warfare
24. Naval Mine Warfare
25. Operations in Confined and Shallow Waters
26. Security Force Assistance
27. Stability Policing
28. Strategic Communications

Combined Joint Operations from the Sea COE

- Maritime-focused warfighting development
- Maritime interoperability and integration experts
- Trans-Atlantic coordinator for Maritime Enterprise

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Iraq-April 14, 1994

Day, Clear weather

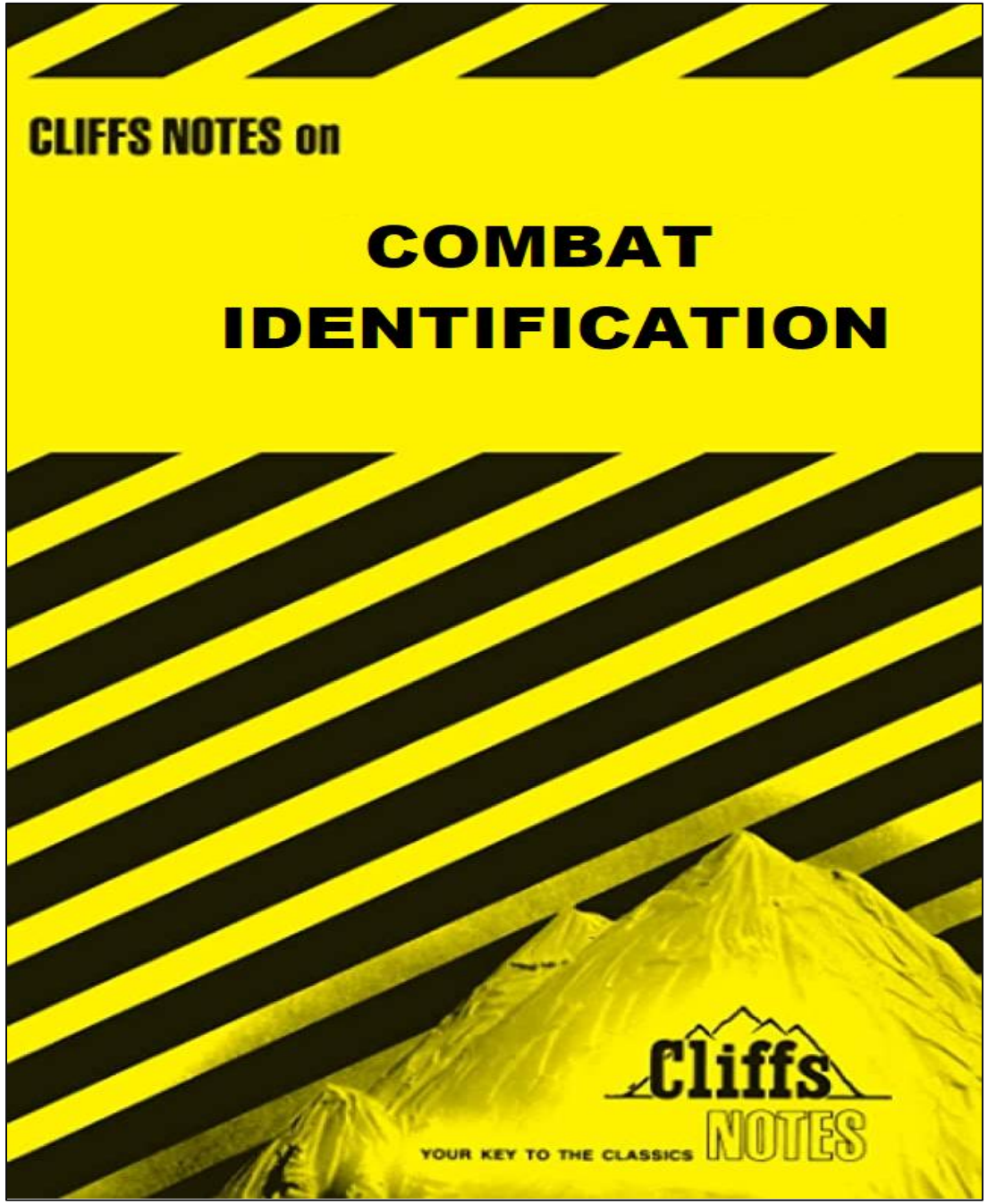
- Tiger 01 and Tiger 02
  - 2x F-15C Eagles
- Eagle flight
  - 2x UH-60 Blackhawks
  - 26x Crew/Pax
- Cougar
  - E-3 AWACS
- Eagle flight checked in with AWACS and reported assigned operating point, south of No-Fly Zone (NFZ)
- Tiger 1/2 assigned to delouse area where “Eagles” were operating, and enforce NFZ
- Improper ID + Poor Battlefield Management
- 26x Personnel losses

Combat Identification is the process of attaining an accurate characterization of detected objects in the operational environment sufficient to support an engagement decision. Also called CID.

(Source: JP 3-09)

Where to Learn About CID

- United States Pubs: (Contained in Air and Missile Defense TTP)
  - Army:
    - ATP 3-01.15
  - Air Farce:
    1. AFDP 3-01 COUNTERAIR Operations
    2. Air Force Doctrine Publication 3-60 – Targeting [The “most/best” information]
  - Marine Corps:
    - MCTP 10-10B
  - Navy:
    - NTTP 3-2.31
  - Joint:
    - JP-3-01, Multi-service tactics, techniques, and procedures for air and missile defense
- NATO Pubs:



CliffsNotes

Get hundreds more study guides at CliffsNotes.com.

At a Glance

CID:

1. Is very important.
2. Reduces likelihood of Friendly Fire
3. Enhances joint fire support

Three levels of CID:

1. Identify as friendly, foe, or neutral
2. Identify Type of Platform
3. Determine intent

Use the CID Matrix to help you figure it out.

Topic Summary

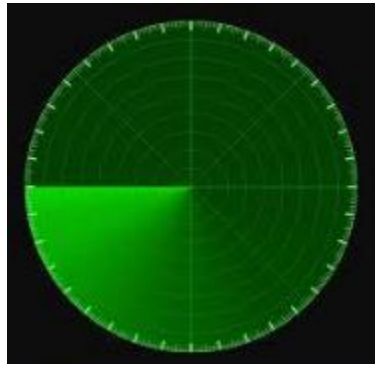
All references effectively say: "Look at other references for more information."

Yep, that's pretty much it...

We will try to do better than that today

CID is part of the "Engagement Process"

1. **Detect**: Active/Passive system "sees" that something is out there
2. **Identify**: Use all of your available tools to determine what the "something" is
3. **Decide**: Using ROE, figure out what to do about the "something"
4. **Act**: Skip-it, Monitor, Escort, Shadow, Target



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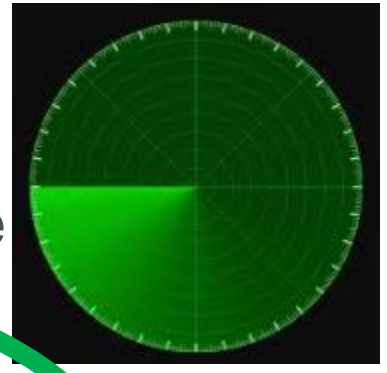
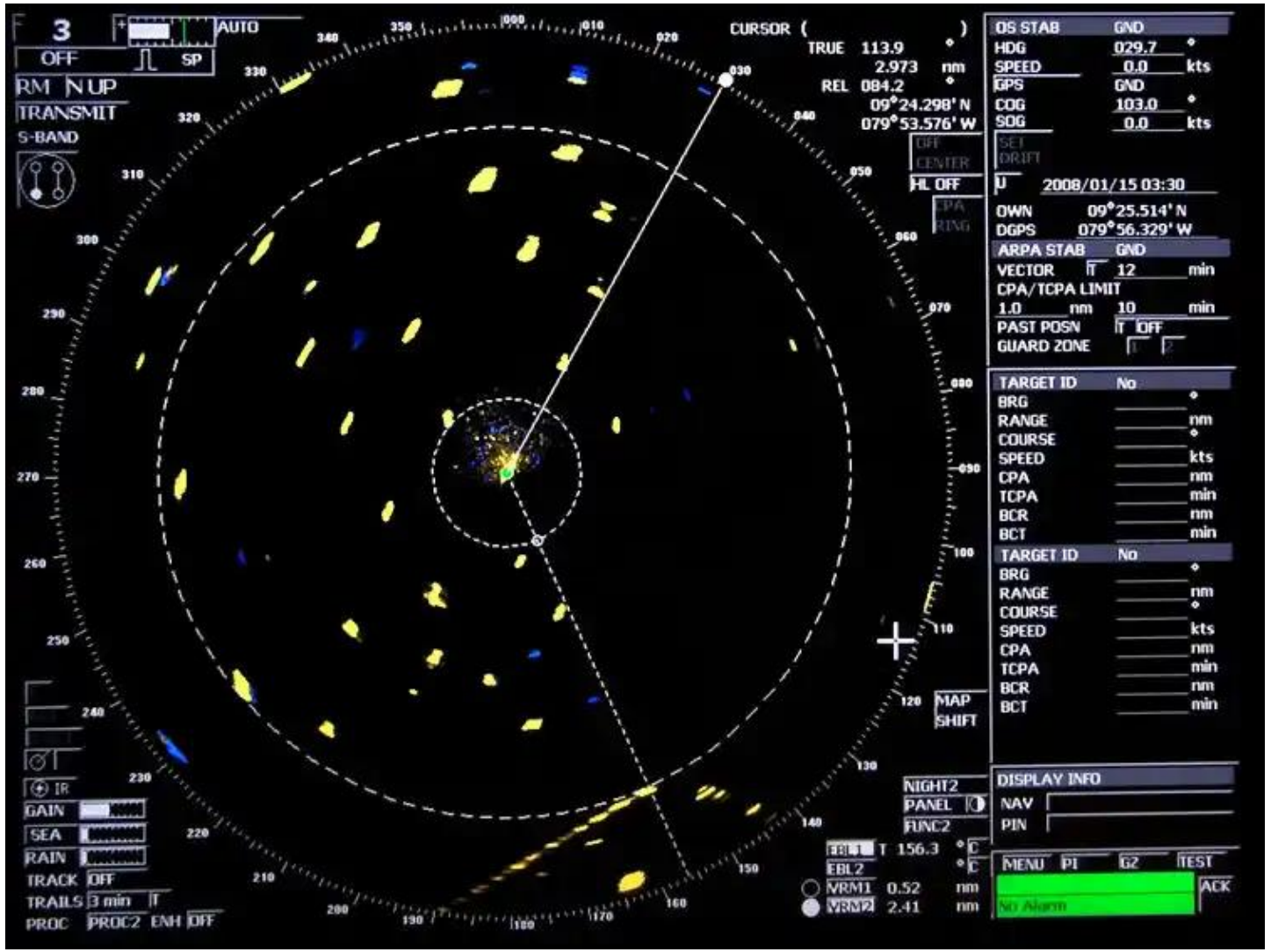


It all starts with a “blip” on the scope



Combat Identification is a dangerous game of "Guess Who?"

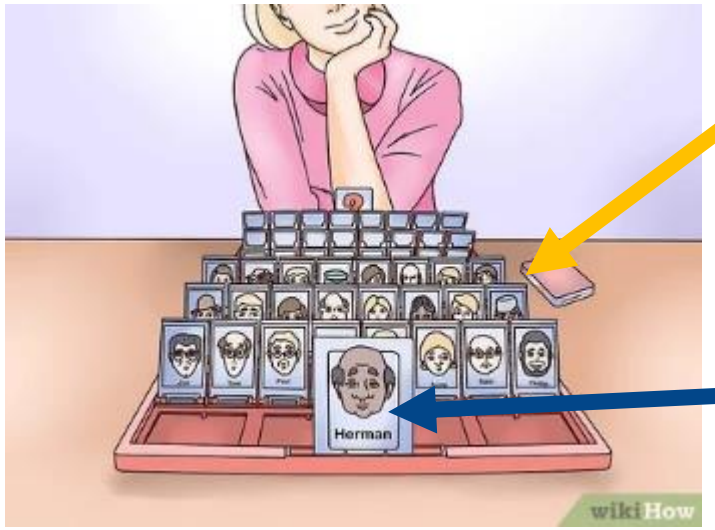
CHANGE MY MIND


The mystery face game
GUESS WHO?
Retro
SERIES
GUESS WHO?* 1988 EDITI
Hasbro Gaming
Does your person have a big
No
Is your person wearing a h
Yes
I know!
It's Maria!
George
Charles

Demonstration Video

How to Play "Guess Who?"

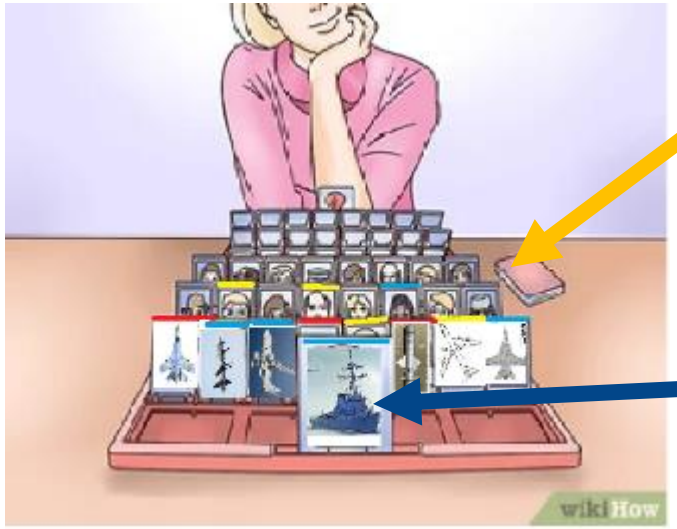
- **<u>Ask Questions</u>**: Ask your opponent a "yes or no" question about their character.
  - "Do they have blue eyes?"
  - "Are they a girl?"
  - "Does your character have a beard?"
  - "Do they wear glasses?"
- **<u>Narrow Possible Options</u>**: With each response from your opponent, you narrow down the options.
- **<u>"Guess" their Character</u>**: Once you eliminate enough options, you guess who they are

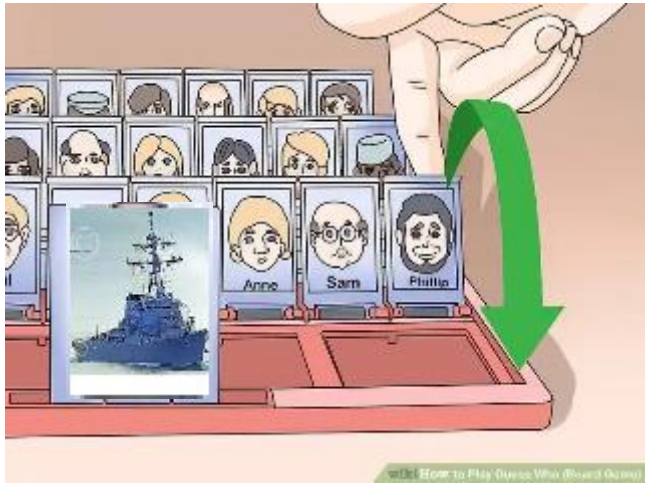


How to “Play” Combat ID

The game doesn’t change, just the questions and consequences

- **Ask Questions**: Ask your opponent a “yes or no” question about their character.
  - “Do you have Mode 5?”
  - “Do you have Mode Select?”
  - “Are you flying a commercial airline route?”
  - “Are you using a targeting radar?”
  - “Are you flying on a weapons release profile?”
- **Narrow Possible Options**: With each response from your opponent, you narrow down the options.
- **“Guess” their Character**: Once you eliminate enough options, you choose to shoot or not shoot the target





Combat Identification is a dangerous game of "Guess Who?"

CHANGE MY MIND

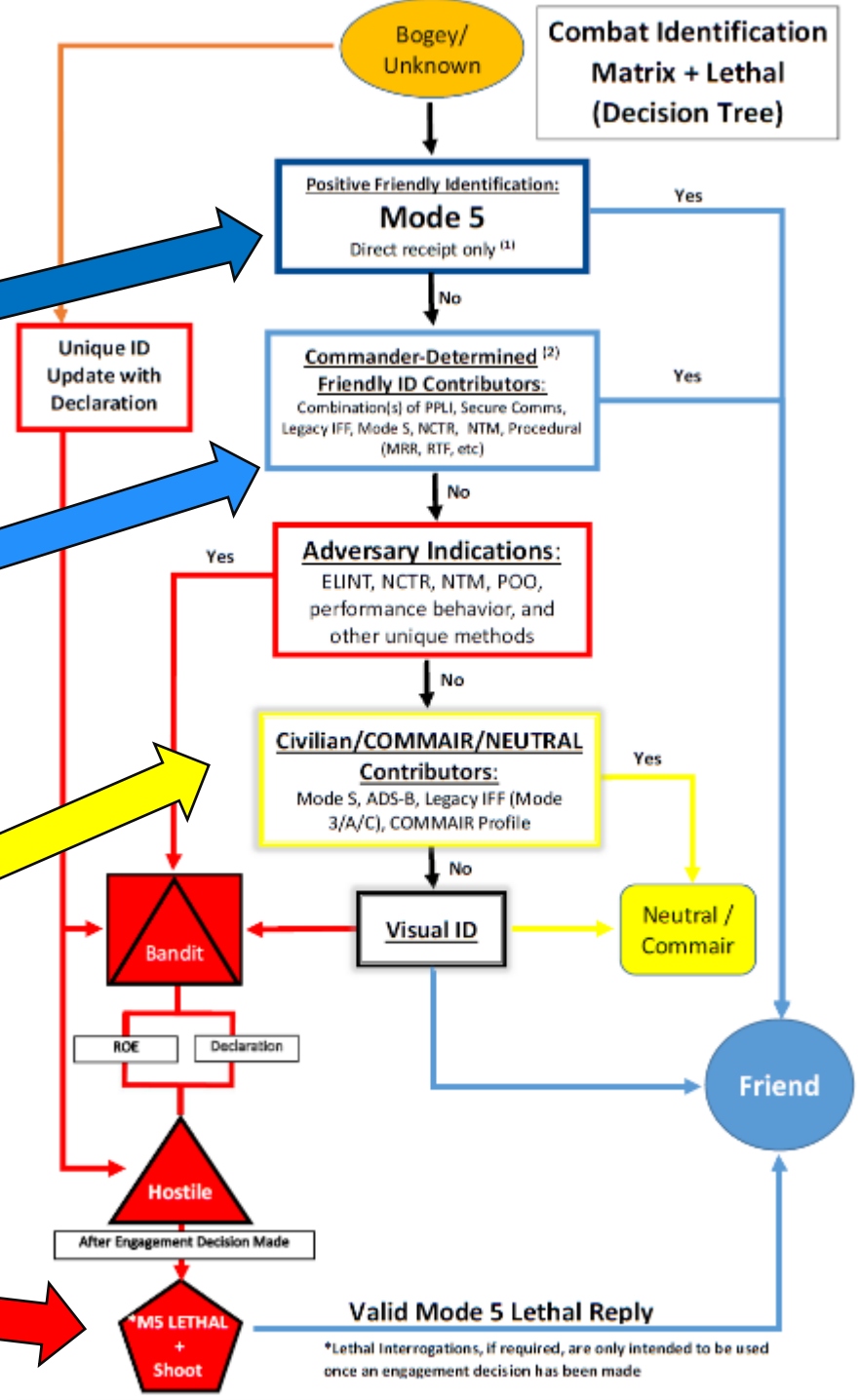
Mode 5 AND Mode S in Combat Identification

PFID: Positive Friendly Identification
"Single Source"

Contributors to Friendly ID

Civil IFF: Mode S/ADS-B

Lethal Interrogations

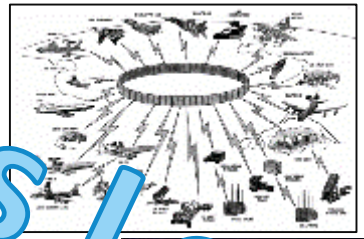


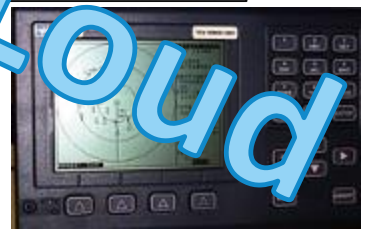
Types of Combat Identification

Cooperative

Target is Loud

- IFF System
  - Mil: Mode 1, 2, 3, 5
  - Civil Mode A, C, ADS-B
  - Ships: AIS
- Data Links:
  - Link-11, 16, 22
  - PPLI*
- Communications Open/Secure
- Etc.





Non-Cooperative

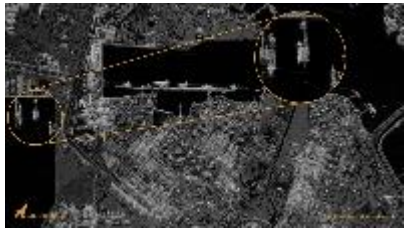
Target is Quiet

- Visual ID (MK-1 Mod-0 Eyeball)
- Electro-Optical
- Radars
- SONAR
- ELINT/COMMINT
- Non-Cooperative Target Recognition
  - ~Radar with Databases
- Etc.

Active Detection

You are Loud

- Non-Cooperative Target Recognition
  - ~Radar with Databases
- Synthetic Aperture Radar (SAR)
- Inverse Synthetic Aperture Radar (ISAR)
- High Resolution Radar
- Sonar imaging
- Etc.



Passive Detection

You are Quiet

- Passive Detection and Reporting Systems (PDRS)
- Electronic Support Measures or ES
  - ELINT
  - COMMINT
- Etc.

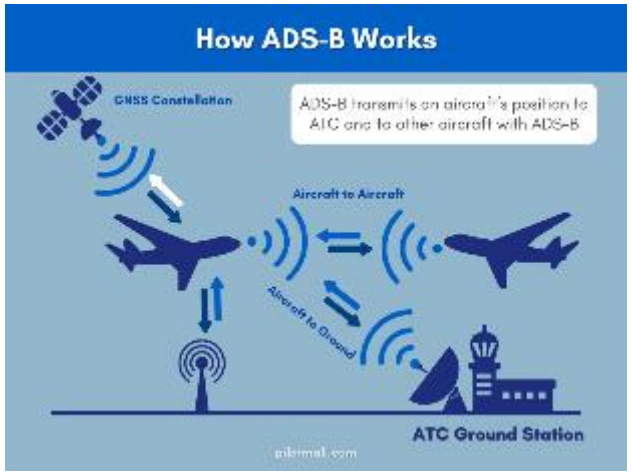
Military Vs. Civilian Cooperative Identification

Military

- IFF Mode 1,2 and 5,
- M5L2/M5L2-B
- Secure Voice Communications
- Encrypted Data Links

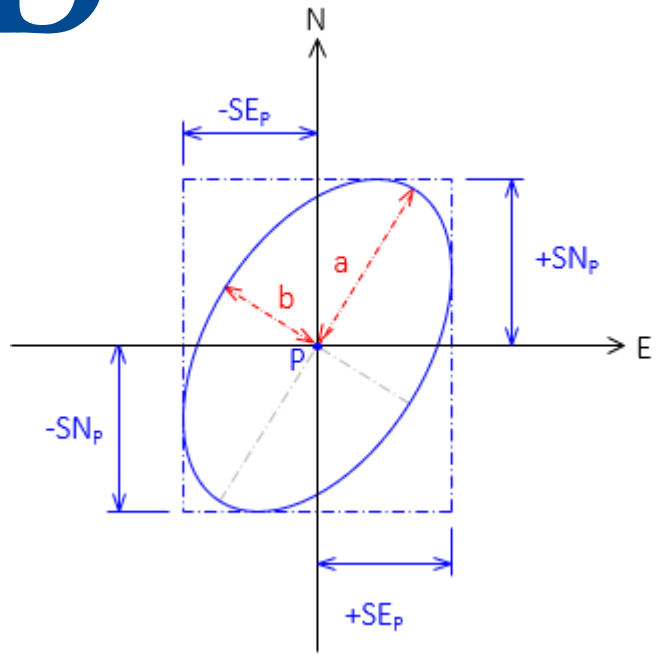
Civilian

- Modes 3 and S
- ADS-B
- Open voice Communications



Challenges to CID

- Timing / Crypto / Range / Libraries
- Resolution mis-matches (Error Ellipses)
- Track Swaps
- “Shared Errors”
- Partial Modernization/System Integration
- Drones/UAS
- etc



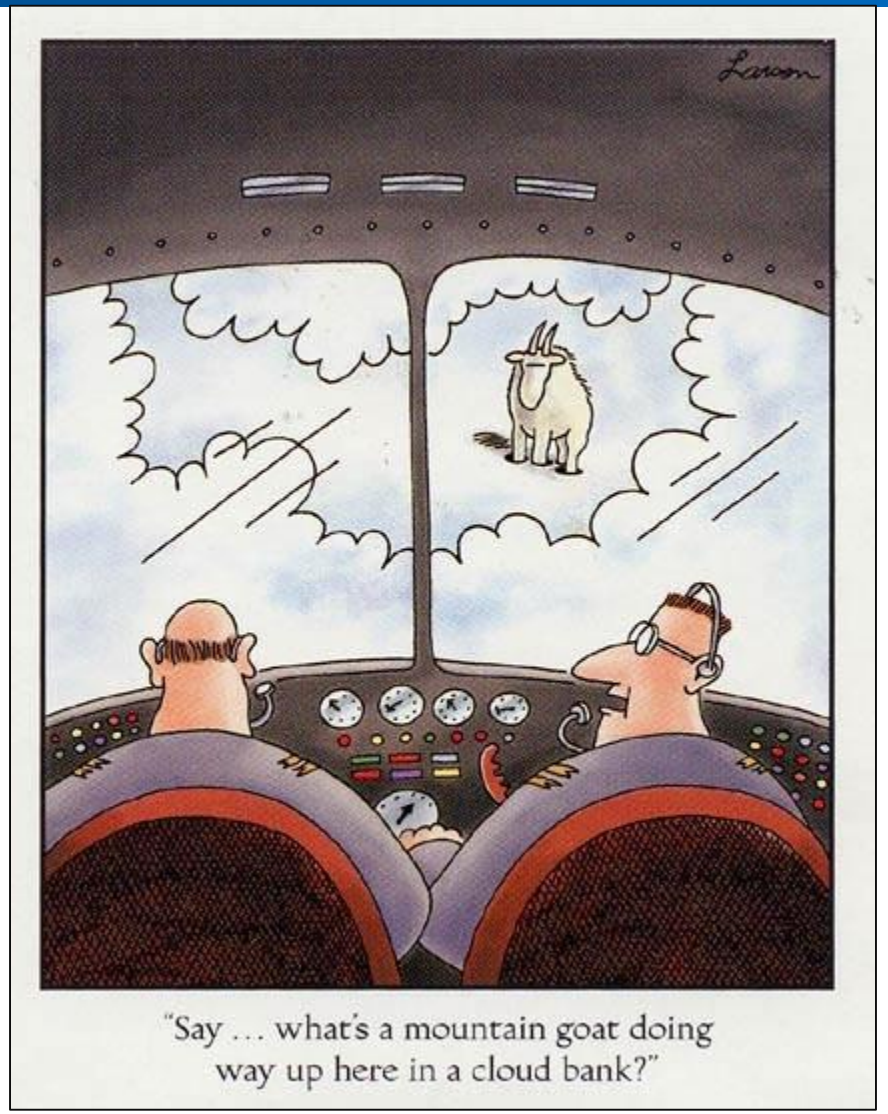
Join the Navy, because CID is awesome

Not me

"My plane"

-Said,
No one

See - Comprehend - Act



IAMD

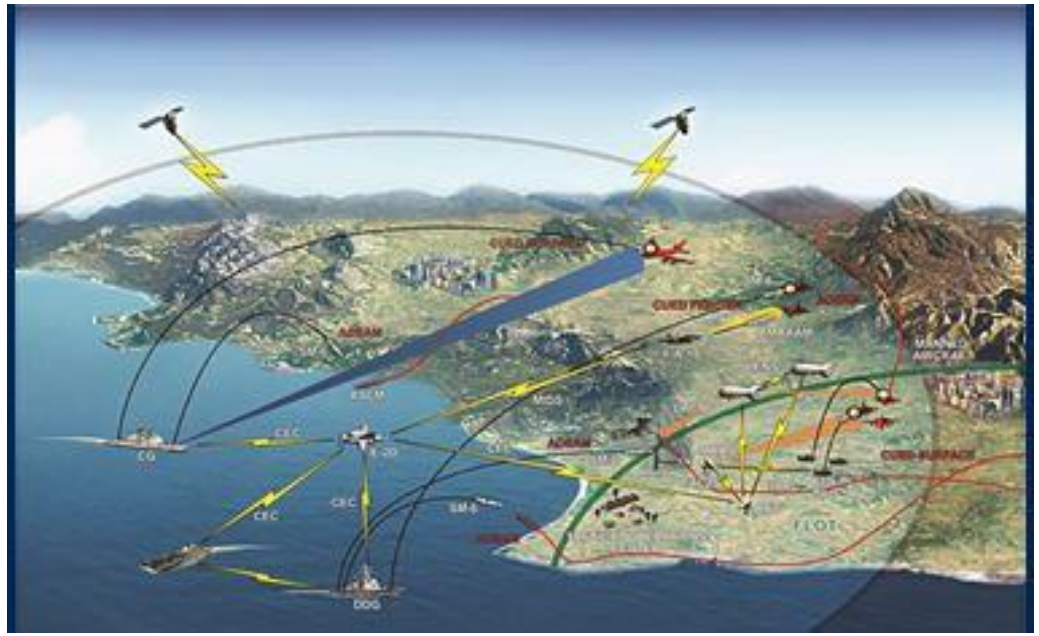
Integrated Air and Missile Defense

They are shooting at you, what do you do?

CDR Matt “Judy” Cady

Integrated Air and Missile Defense

“Safeguarding and protecting of Alliance territory, populations and forces against any air or missile threat or attack.”



(NATO Website: https://www.nato.int/cps/en/natohq/topics_8206.htm)

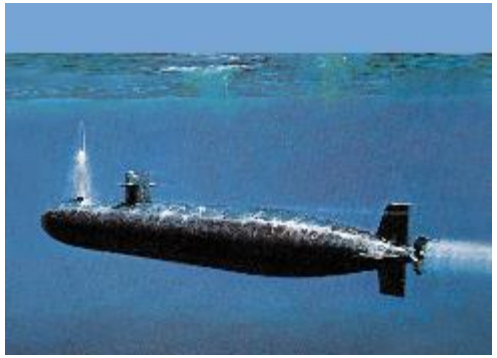
Interoperability

IAMD In the "News"

- Adversary Misbehavior
  - Russia and China
- New Missile Threats
  - Hypersonics
  - Anti-Carrier Missiles
- Counter UAS

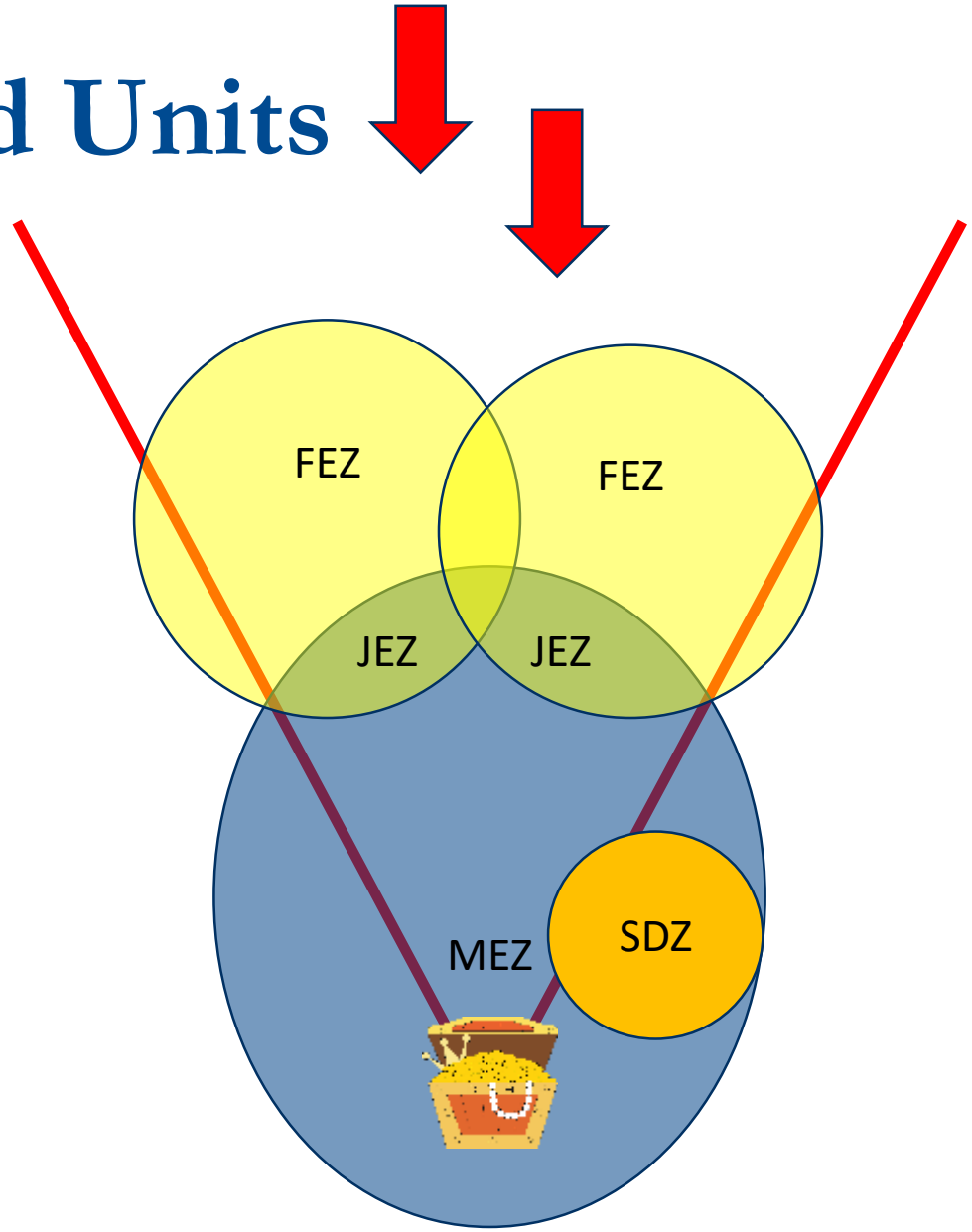
IAMD Basics

- Air, Land and Maritime *defense* platforms
  - NATO Integrated Air and Missile Defence System (NATINAMDS)
  - NATO's Supreme Allied Commander Europe controlled
- Focused on intercepting, redirecting or destroying inbound threat airborne platforms
- Detect to Engage (D2E) Sequence
  - Engagement Process
- Command and Control-Centered
  - Air Warfare Commander



Threats and Protected Units

- High Value Unit
- Threat Axis
- Weapon Engagement Zones:
  - SDZ: Self Defense
  - FEZ: Fighter Engagement (DCA)
  - MEZ: Missile Engagement
  - JEZ: Joint Engagement



C2 in IAMD

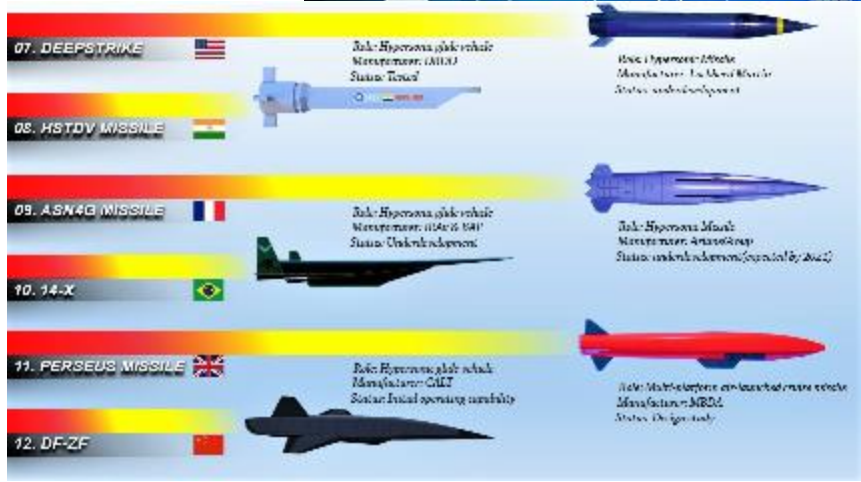
- Air Defense Commander(s)
  - Area Air Defense
  - Sector Air Defense
  - Tactical-Level C2
- Centralized and Decentralized
- OPTASK Air Defense
- CID Matrix
- Rules of Engagement





Developments in IAMD

- Jamming, Stealth, UAS Employment
- Hypersonics
- Autonomous vs. Person-In-The-Loop
  - Shooting is easier than deciding whether or not to shoot
  - Artificial Intelligence (AI)
- Positive Friendly Identification (PFID)



Questions

IFF and TDL Integration in "Modern" C2 Systems

Sept 18, 2023

CDR Matt "Judy" Cady

Outline

1. Legacy vs Modern Systems
2. Legacy System Issues
    - Combat Systems Integration
    - TDL Issues
3. IFF and TDL Integration
4. More information is better./!/?

Before We Begin

CID: Mode 5≠PPLI

1. Time-Isolated

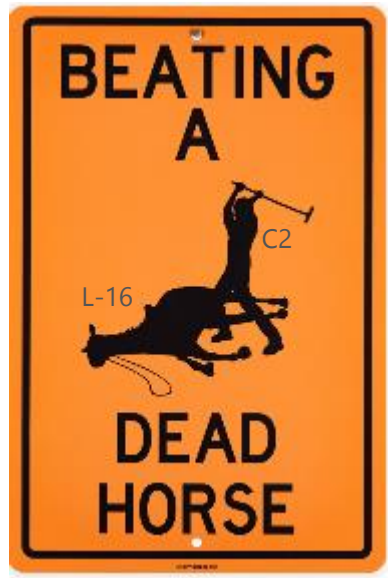
   (Often Multiple Simultaneous Networks)

2. Accuracy/Update Rates

3. Cryptographic Modernization

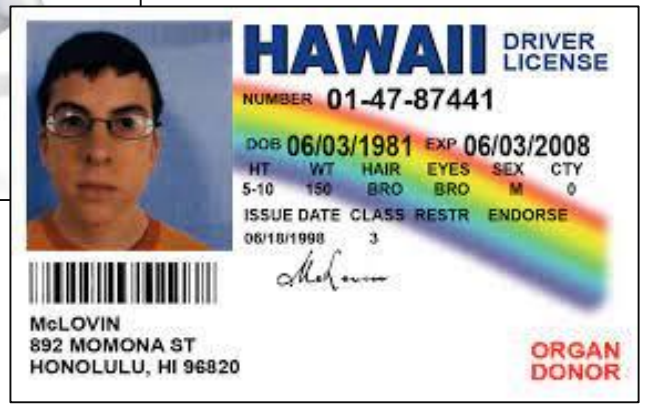
4. SME Involvement

5. Saturated = Latency



PPLI is Positive Friendly ID?

1. More than one network?
2. Pulled from one network to another?
3. Track integrity?
4. Who owns a track?
5. Who owns a PPLI?

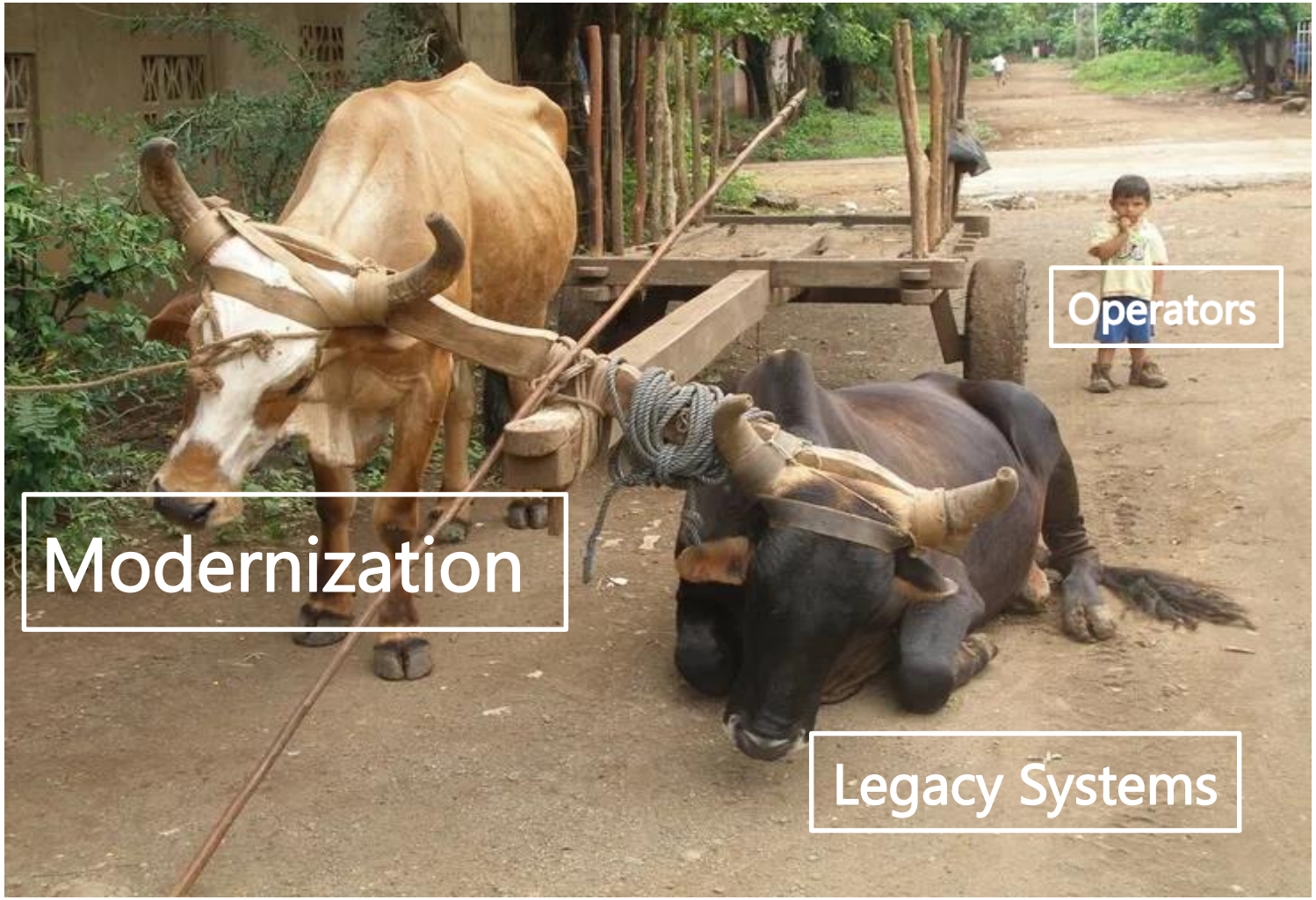


Same Network. Hopefully.

Outline

1. **Legacy vs Modern Systems**
2. Legacy System Issues
   - Combat Systems Integration
   - TDL Issues
3. IFF and TDL Integration
4. More information is better./!/?

Endless Effort, Bottomless Blame



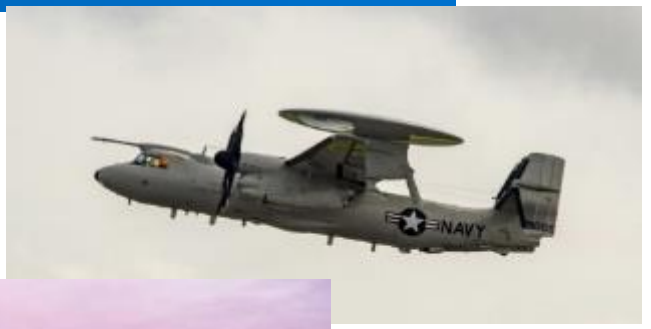
Legacy Systems

1. Centered on a Primary Sensor
2. Line-of-sight, Isolated
3. Datalink sharing of “tracks”
    - No “raw” data
    - Operator-controlled
    - Multiple formats for data
4. RF communication




What is a "Modern" C2 System?

1. Multiple "sensors" and types.
2. Standardized formatting of all sensor data.
3. No accuracy/update-rate/latency mismatches.
4. Perfectly integrates/merges data for the operator.
5. Not a partial upgrade of an older system.

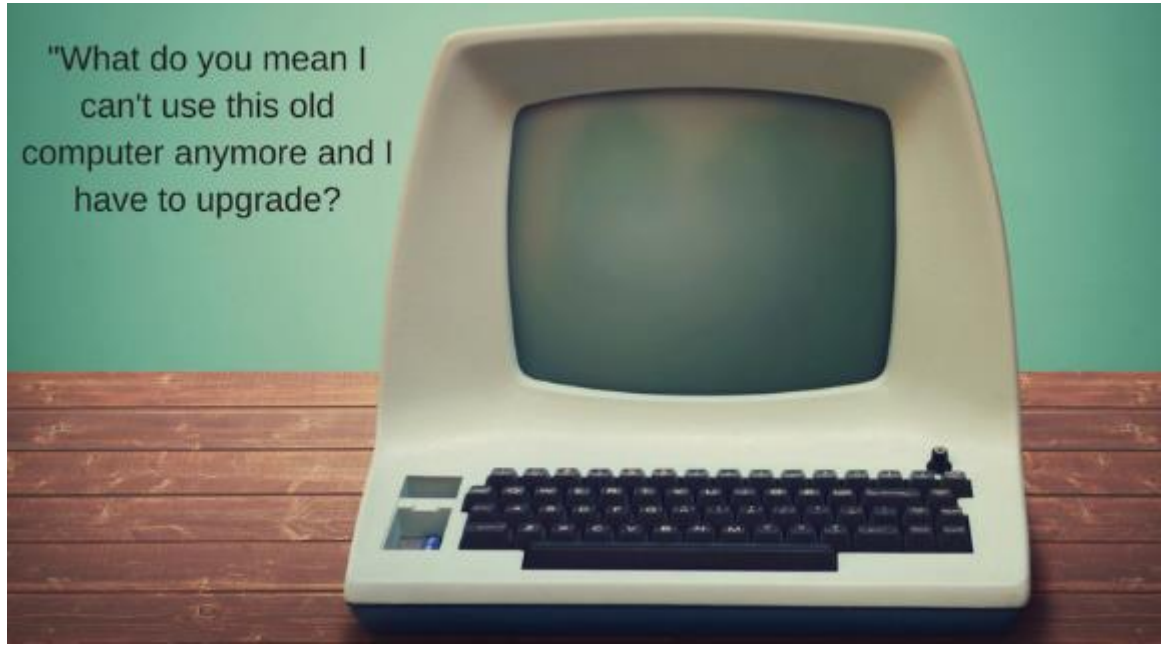


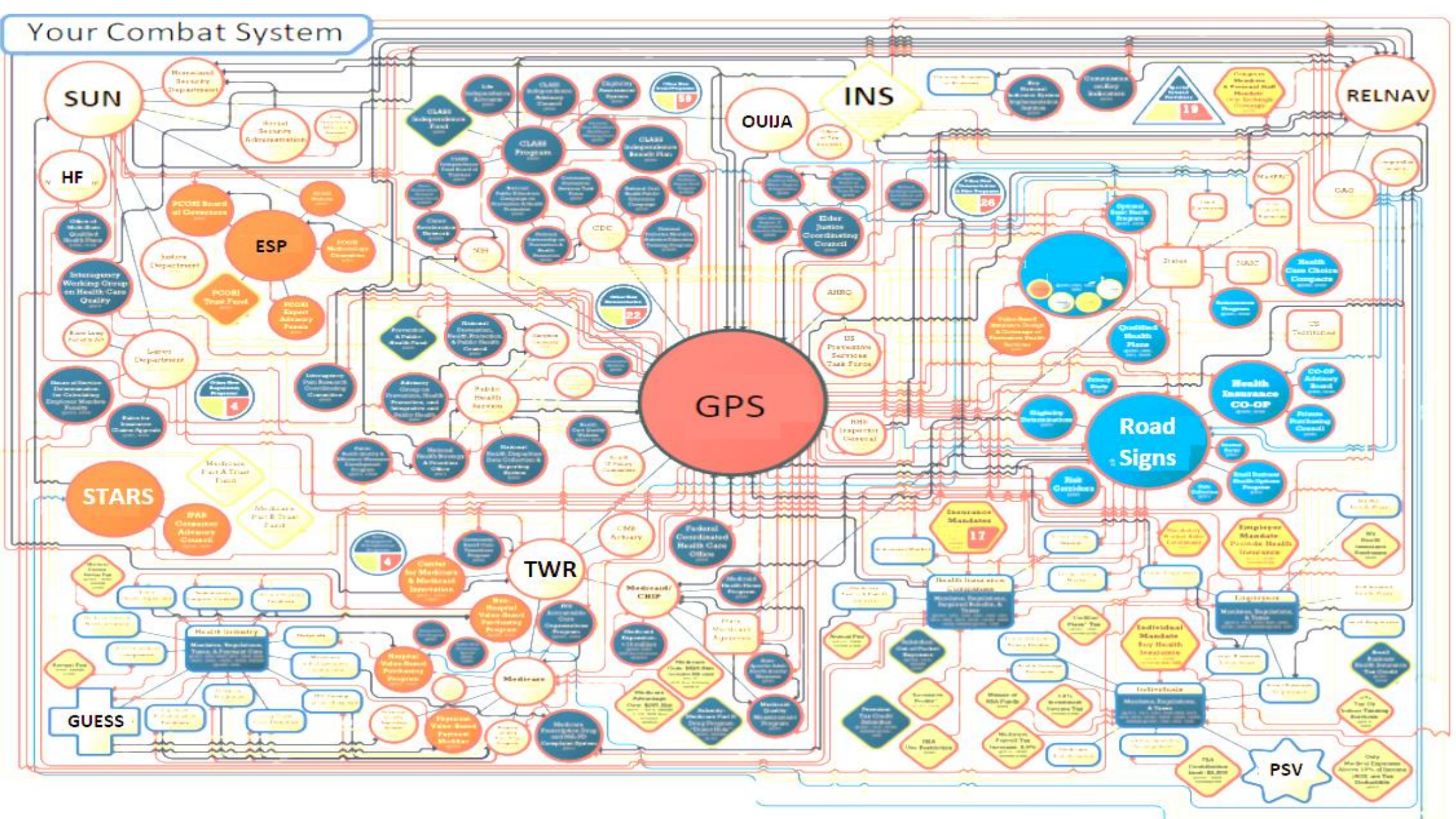
Outline

1. Legacy vs Modern Systems
2. **Legacy System Issues**
   - Combat Systems Integration
   - TDL Issues
3. IFF and TDL Integration
4. More information is better./!/?

Legacy System Issues

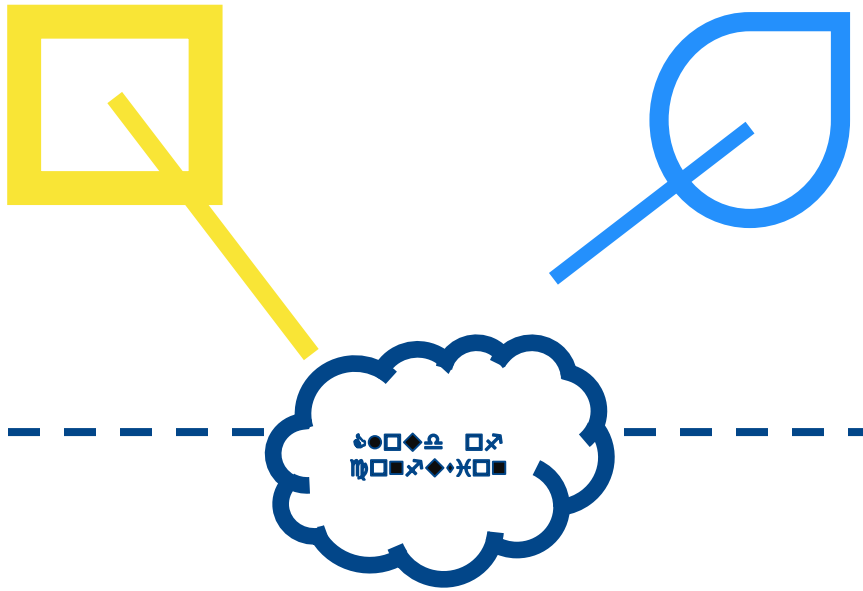
1. Displays
   - Resolution
   - Integration
   - Target Quality tracks
2. Trackers
   - If you know, you know
3. Latency/Update rate




Your Combat System
SUN
HF
ESP
STARS
GUESS
GPS
TWR
OUIJA
INS
RELNAV
Road Signs
PSV

Local Data Swaps

Mode 1:
Mode 2:
Mode 3: 2345
Mode 4: NR



Mode 1: 0012
Mode 2: 1234
Mode 3: 1234
Mode 4: Friend

Local Data Swaps

Mode 1:
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Mode 2: 1234
Mode 3: 1234
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Mode 1: 1234
Mode 2: 1234
Mode 3: 2345
Mode 4: Friend

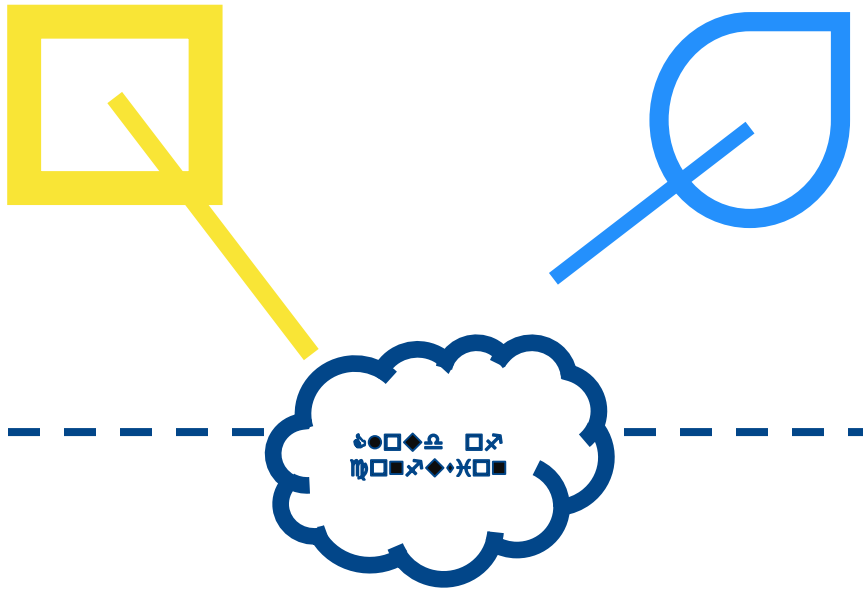
TDL Known Issues

- Track/information swaps common
  (Each platform causes them and **corrects** them differently)
- PPLI's don't "own" their information/location
- Tracks dual-reported or high-jacked by other JUs with higher TQ
- Information not controlled by system (JICO-Intensive)

- **Concerns for Mode 5**:
  - **Likely** swaps of data: Mode 5 NO/PIN tagged to other tracks
  - **Very likely** operators will not properly differentiate between "first-hand" Mode 5 NO/PIN and second-hand Link-16 reported Mode 5 NO/PIN

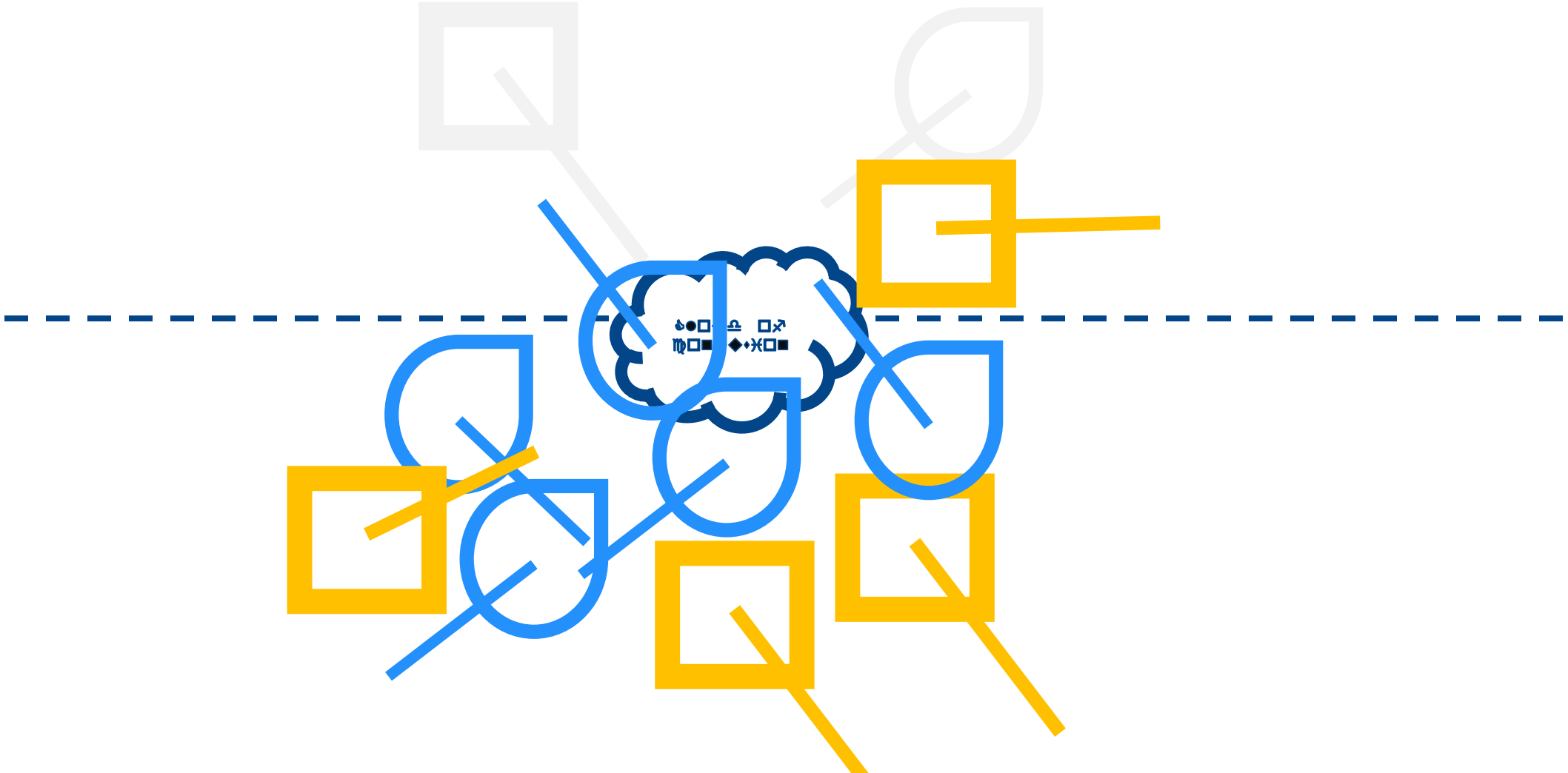
L-16 Track Sharing at the Merge

Mode 1:
Mode 2:
Mode 3: 2345
Mode 4: NR

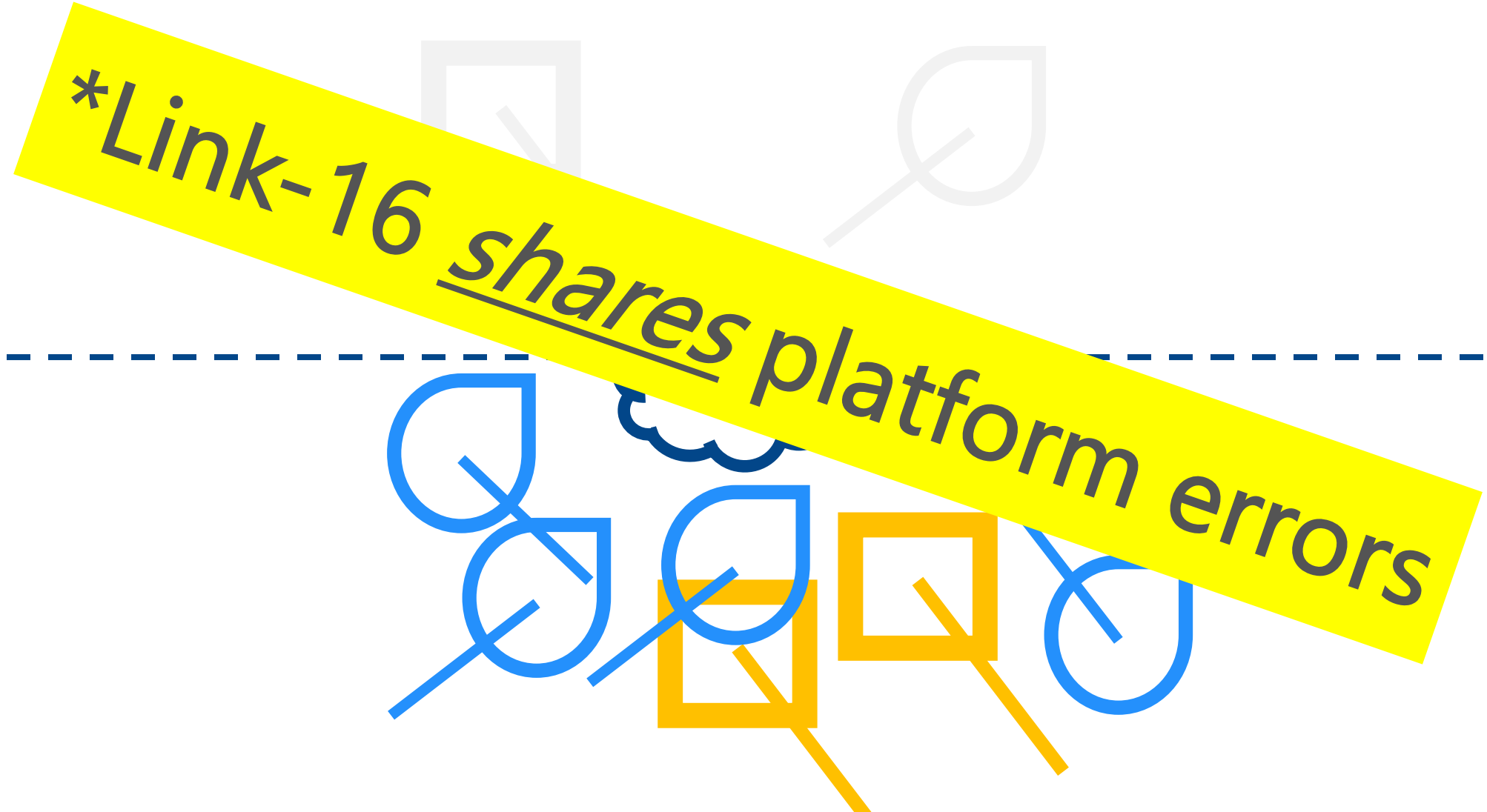


Mode 1: 0012
Mode 2: 1234
Mode 3: 1234
Mode 4: Friend

L-16 Track Sharing at the Merge



Legacy IFF Data Swaps

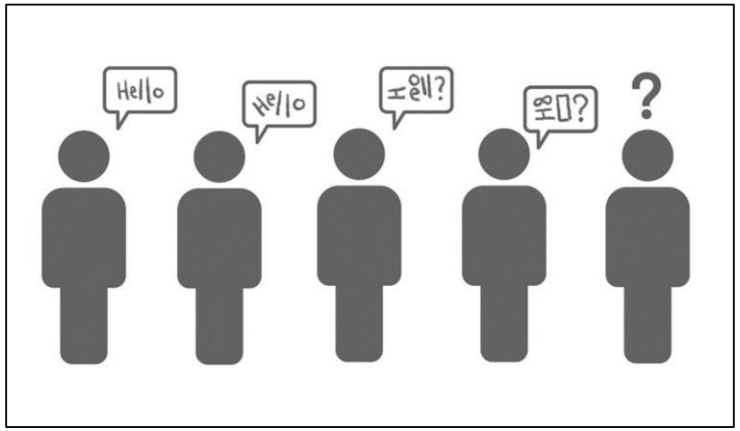


Outline

1. Legacy vs Modern Systems
2. Legacy System Issues
   - Combat Systems Integration
   - TDL Issues
3. **IFF and TDL Integration**
4. More information is better./!/?

Mode 5 and Link-16

1. Mode 5 was added to Link-16 <u>before</u> Mode 5 was understood
2. Mode 5 *demanded* to be added to Link-16
3. NO/PIN treated like Legacy Mode 1 & 2 (manual entry?)
4. Shares Mode 5 data with non-Mode 5 capable platforms



Outline

1. Legacy vs Modern Systems
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Why keep NO/PIN in the Link-16?

What "NEW" functionality does Mode 5 NO/PIN information on Link-16 provide?

Answer: Nothing

NO/PIN does not do what they think it does

Mode 5

1. No database for Mode 5 platforms (and no plan)
2. No control on how to treat M5 data
3. No control of platforms changing PINs

Link-16

4. Data fields already give the information
5. Inclusion WILL cause more dual tracks (degrading tactical picture)
6. More information across Link-16 does not make the tactical picture better/cleaner

Recommendations to Preserve Mode 5

1. No manual entry of Mode 5 Data under any circumstances (fixed?)
2. Link-16 continues to include Legacy IFF
3. PPLI could be changed to include NO and PIN (J2.X) (Not planned)
4. If NO-PIN are "required," M5 must demand restrictions
5. M5 community must be involved in future tactical/strategic-level sharing systems

NO and PIN Restrictions in Link-16

Only useful with an accurate international database of NO and PIN Codes

Allied Standards

- Restrict to Certain Messages

  (J3.X, J7.5 and J12.6. PPLI not planned)

- Require M5 Interrogator

  (direct interrogation or M5L2B)

Policy

- Advise platforms not to process Mode 5 NO/PIN from Link-16 as "unchangeable"

Platform-level Programming

- Time-stamped

  (displayed and affecting auto-ID systems)

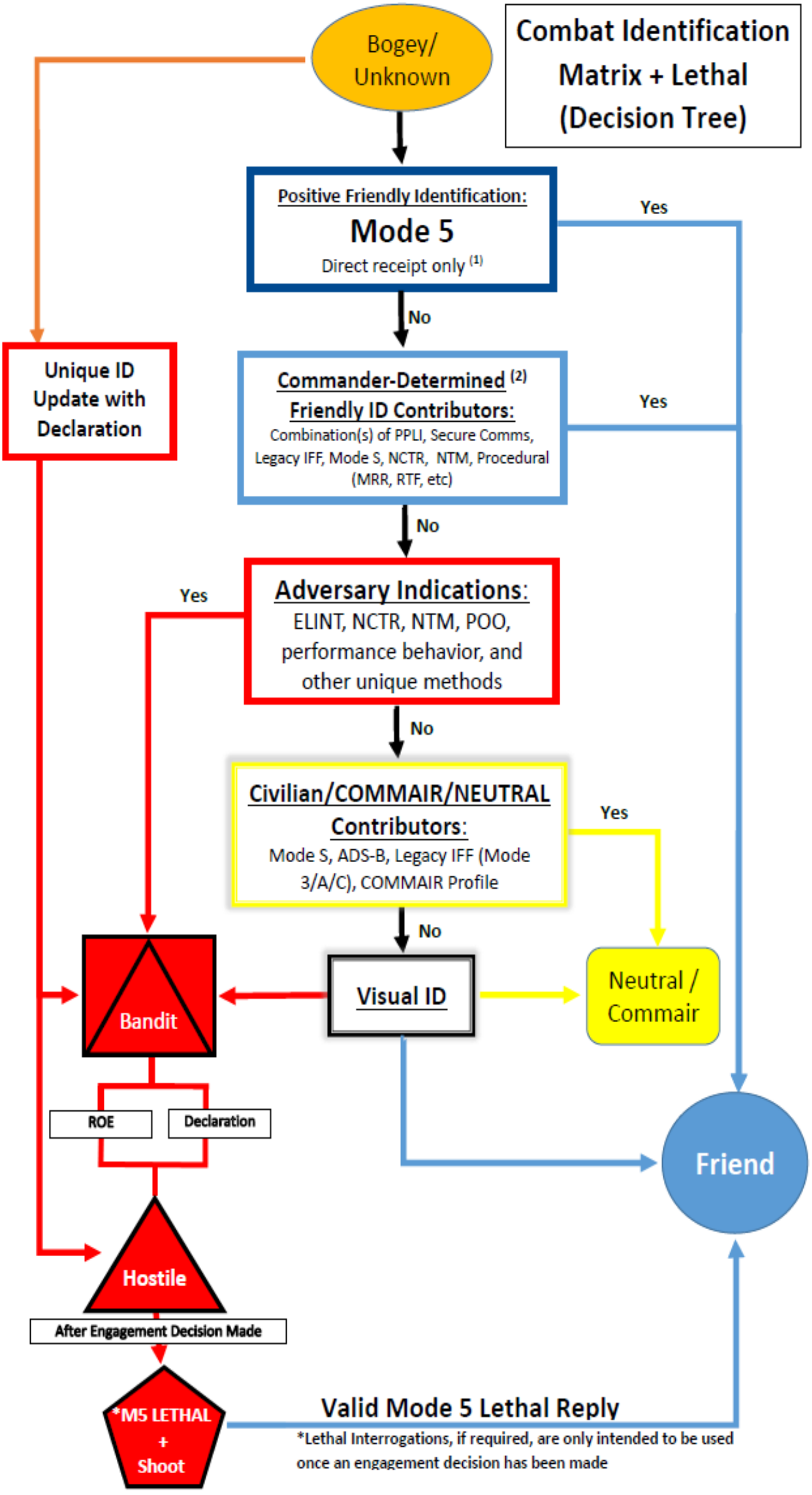
- "Age-out" require Re-interrogation

- Automatically deleted when accurate tracking lost

Questions

Comments

Concerns


Combat Identification Matrix + Lethal (Decision Tree)
Bogey/ Unknown
Positive Friendly Identification:
Mode 5
Direct receipt only (1)
Yes
No
Unique ID Update with Declaration
Commander-Determined (2) Friendly ID Contributors:
Combination(s) of PPLI, Secure Comms, Legacy IFF, Mode S, NCTR, NTM, Procedural (MRR, RTF, etc)
Yes
No
Adversary Indications:
ELINT, NCTR, NTM, POO, performance behavior, and other unique methods
Yes
No
Civilian/COMMAIR/NEUTRAL Contributors:
Mode S, ADS-B, Legacy IFF (Mode 3/A/C), COMMAIR Profile
Yes
No
Bandit
Visual ID
Neutral / Commair
ROE
Declaration
Friend
Hostile
After Engagement Decision Made
*M5 LETHAL + Shoot
Valid Mode 5 Lethal Reply
*Lethal Interrogations, if required, are only intended to be used once an engagement decision has been made

Notes

1. Direct receipt of Mode 5 Levels 1/2 or Level 2B. Mode 5 data received through TDLs is considered a contributor, not a stand-alone single-source positive friendly identification.

2. The Commander determines contributor viability based on environment and intelligence. Specific guidance must be provided to determine what will be accepted as friend indications.

Acronyms and Glossary

Mode S	Mode Select: Civilian IFF System
ADS-B	Automatic Dependent Surveillance – Broadcast: Civilian IFF "self-reporting" system
POO	Point of Origin
PPLI	Precise Position Location and Identification: Self-reported Link-16 track
IFF	Identification Friend or Foe
NCTR	Non-Cooperative Target Recognition
NTM	National Technical Means
MRR	Minimum Risk Route
RTF	Return to Force procedures
ELINT	Electronic Intelligence, including passive detection and identification systems
ROE	Rules of Engagement
COMMAIR	Commercial/Civilian aircraft
M5	Mode 5: NATO/Allied military Positive Friendly Identification system
Legacy IFF	Identification Friend or Foe modes, which may include Modes 1, 2, 3/A, C. Sometimes Legacy IFF is referred to as SIF (Selective Identification Feature)
Mode 5 Level 1	M5L1: Mode 5 interrogation and reply term for traditional "Challenge and Reply" IFF. M5L1 replies contain identification data, but does not include geographic coordinates in reply the data fields. Location of transponder platform is determined by calculations done on the Interrogator platform
Mode 5 Level 2	M5L2: Mode 5 interrogation and reply term, which can be either "Challenge and Reply" or "Squittered" IFF, which contains identification data and geographic coordinates of the transponder platform within the reply data fields.
Mode 5 Level 2-B	M5L2-B: Mode 5 interrogation and reply term, where the transponder platform "squitters" (self-reports), referred to as M5L2-B-Out. M5L2-B-In is the term for receiving squittered reports. M5L2-B has additional information/formats that are not available in M5L2.
Squitter	Term used to describe a system that automatically emits identification and location information (currently IFF based) within the transmission formats. ADS-B (Civilian) and M5L2/M5L2-B (Military) are capable of emitting squittered information.