



# *AFCEA*

# *Quantico-Potomac*

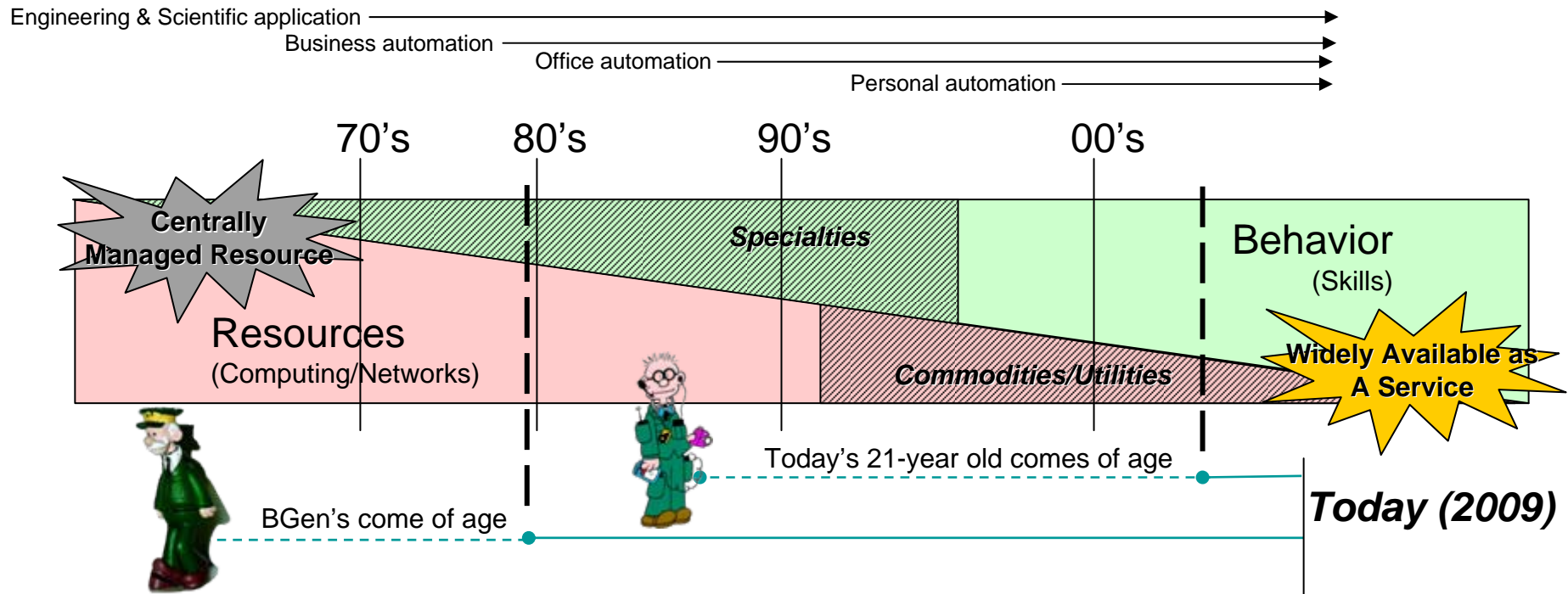
*BGen George J. Allen*  
*Director, C4*

*Headquarters, U.S. Marine Corps*

12 Mar 09

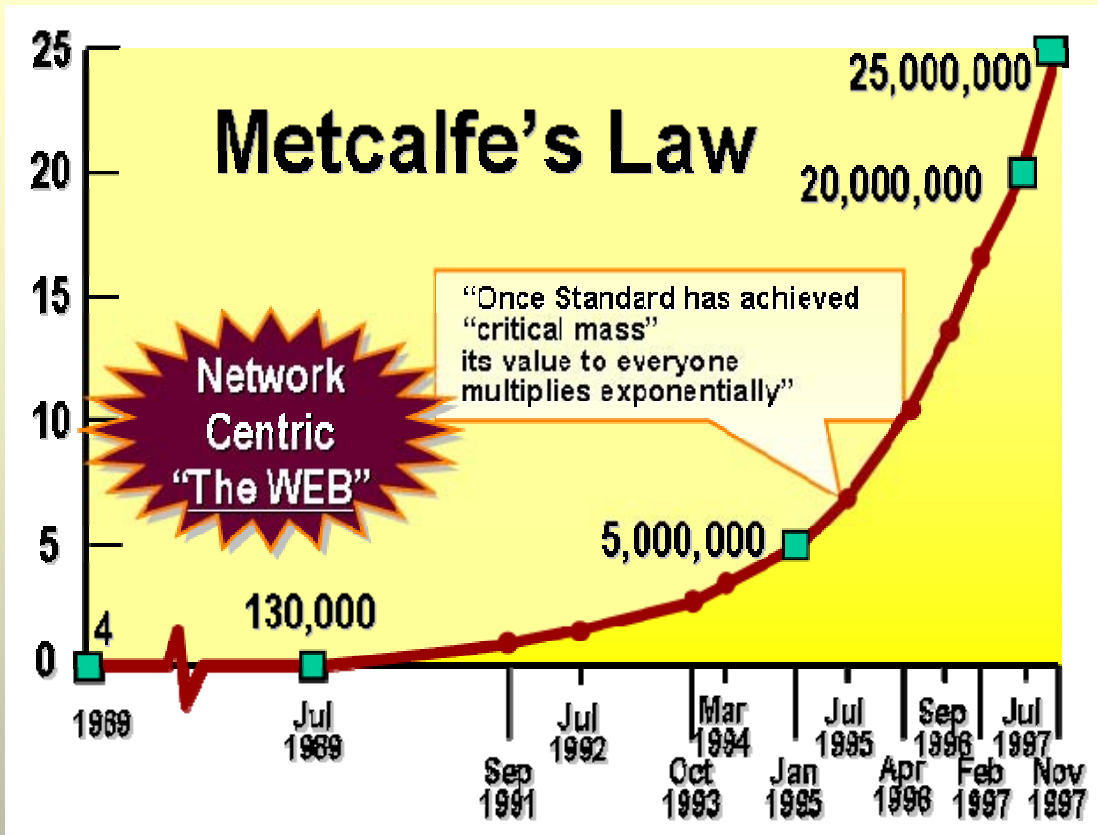


# Evolution of Computing



PC Use (millions)	1970	1980	1985	1990	1995	2000	2002	estimate
United States			19.8	48	86	177	206	260
Worldwide			31.4	98	226	523	663	1,07
US population	203.3	226.5		248.7 19%		281.4 63%		303 80-85%

Only suggests per capita growth; not an economic finding



“The usefulness, or utility, of a network equals the square of the number of users”



Robert Metcalfe

3Com Corporation Founder

....first talked about around 1980

....dubbed a law 1993





# Countering The Cyber Threat

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“The decision cycle of the future is not going to be minutes, the decision cycle of the future is going to be microseconds.”

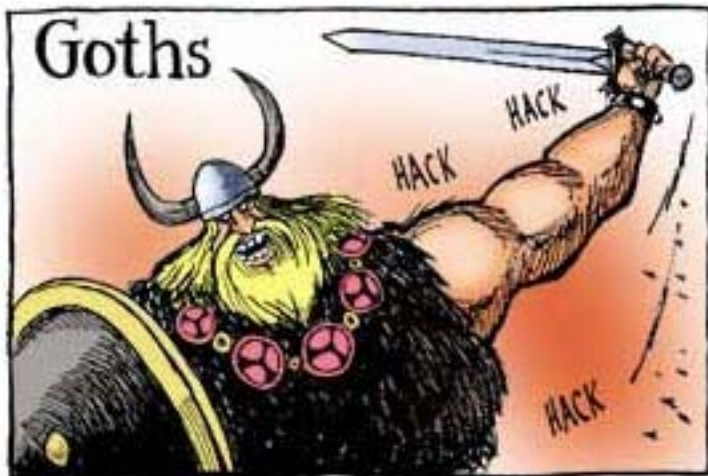
**General James Cartwright**  
**Vice Chairman, Joint Chiefs of Staff**





# Historical Perspective

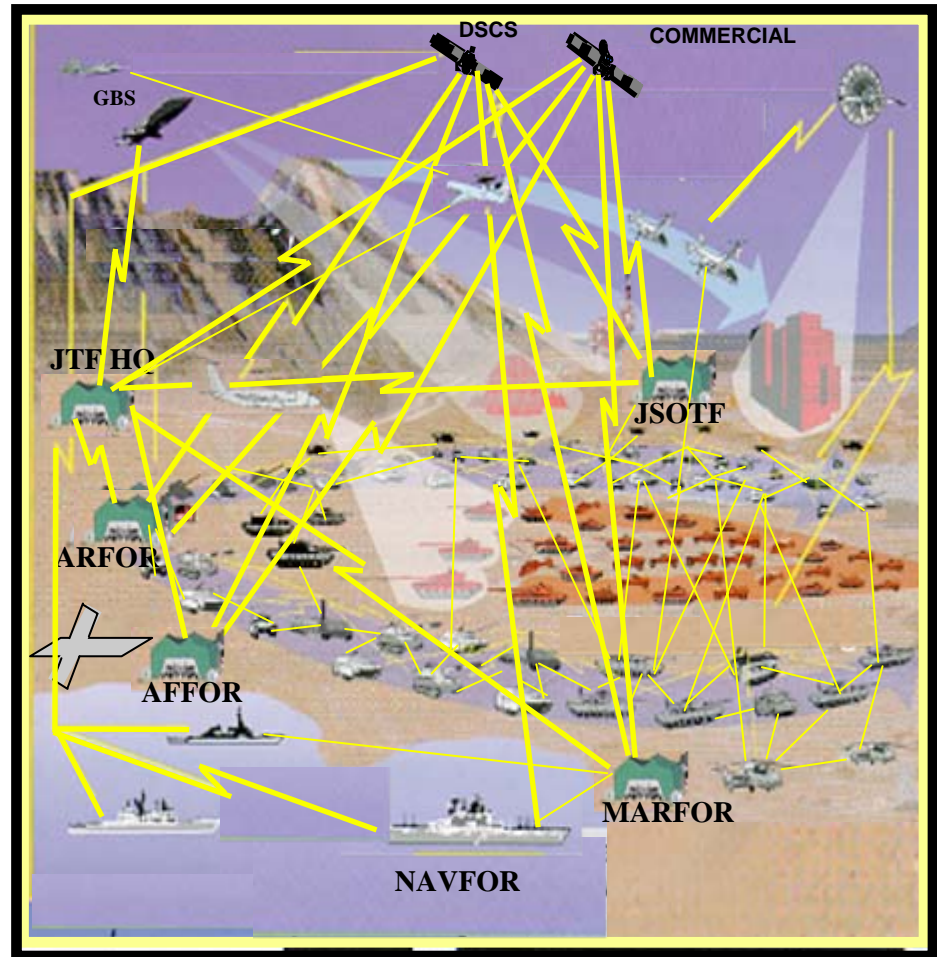
BRINGING CIVILIZATION TO ITS KNEES...





# The Reality of the Situation

- Dependence on systems
  - DoD command and control of complex missions; weapons systems acquisition and use; predict weather; manage, pay, **supply the Warfighter**, and support world-wide activities.
  - Dependence will increase as DoD evolves to seamless structure of systems and networks operating as a *utility* supporting war fighting, intelligence and business functions
  - We're more dependant on information technology, therefore more vulnerable to information technology attacks





# The Cyberspace Domain – What we are Defending

## Working Definition of Cyberspace:

“A domain characterized by the use of electronics and the electromagnetic spectrum to store, modify, and exchange data via networked systems and associated physical infrastructures”

- Cyberspace domain is analogous to air, land, sea, & space domains
- Cyberspace is a place where DoD must be ready and capable to fight
- Cyberspace is global: erases time/space constraints; access straightforward
- Successful operations require: awareness, speed, integration
- Requires similar components--infrastructure, capabilities, resources
  - Science/Technology development and research
  - Industrial Base
  - Inter- and Intra-Governmental Partnerships
  - Doctrine, Training, Education, Skilled Practitioners
  - Operational Concepts, Strategic Thinking, Wargames, Exercises
  - Integrated offensive and defensive capabilities
  - Funding



# Weapon of Choice?



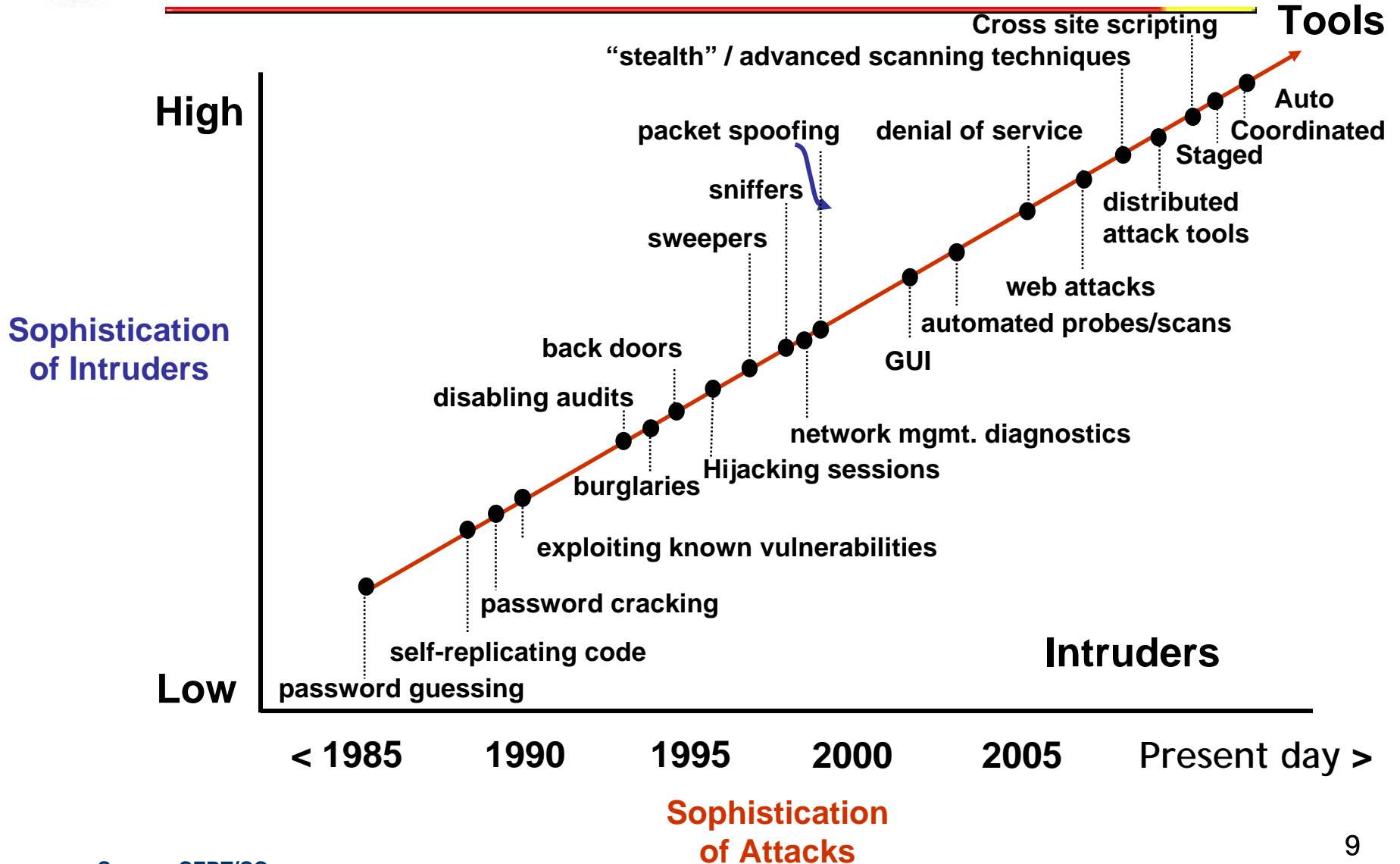
- Platform: F-15E
  - COST = \$50,000,000
- Weapon: GBU-10
  - COST = \$40,000
- Operator: Trained F-15E Pilot
  - COST = \$10,000,000

- Platform: Intel Dual Core processor
  - COST = ~\$1200
- Weapon: Logic Bomb
  - COST = download for free
- Operator: Motivated Hacker
  - COST = recruited student



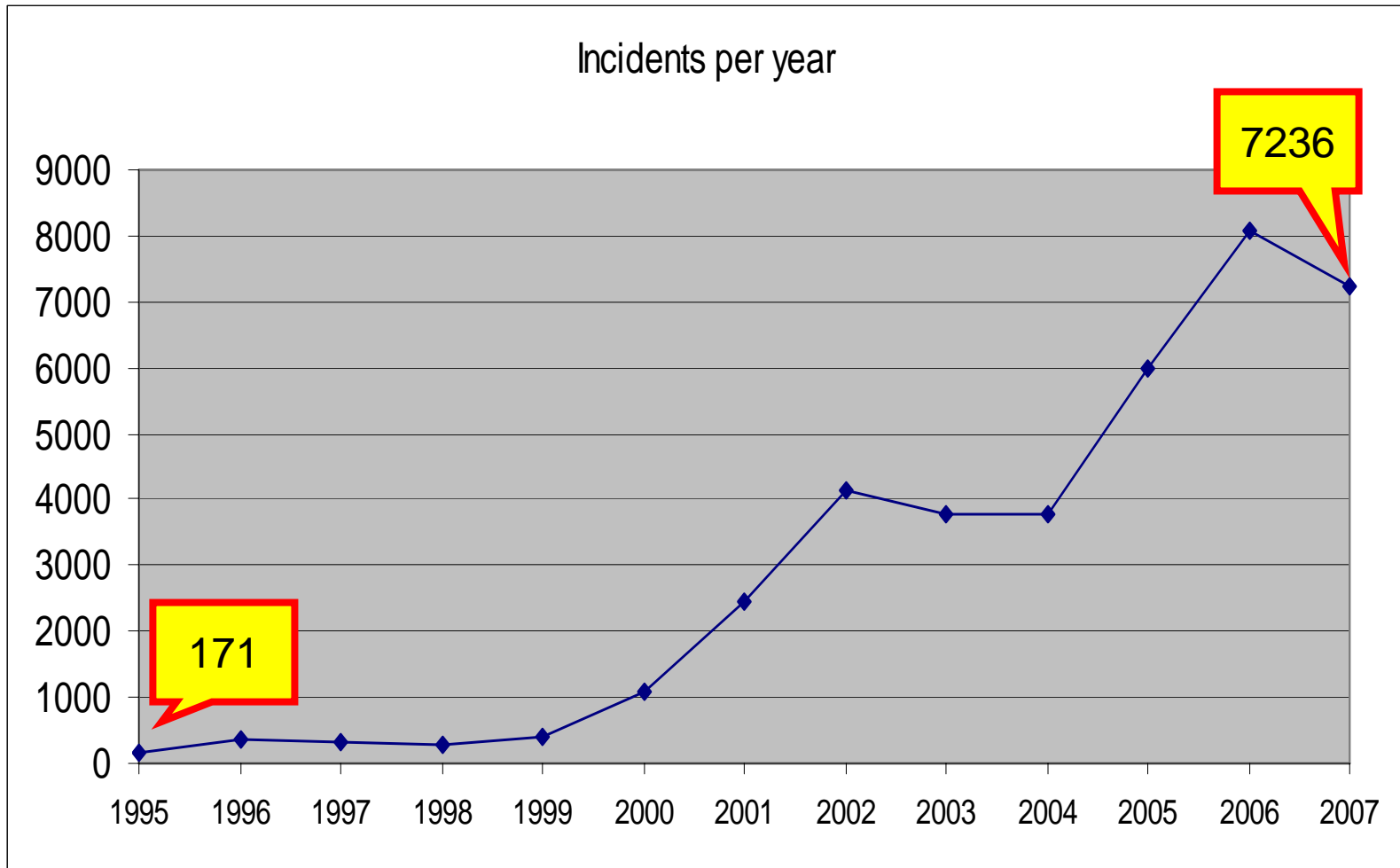


# Growth of Threat Capability





# US Computer Emergency Response Team incidents continue to increase



Over 8000 reported incidents to US CERT in 2006



# Attack tools are easy to get

The image displays several overlapping screenshots from Microsoft Internet Explorer, illustrating the ease of accessing various attack tools and resources. The windows shown include:

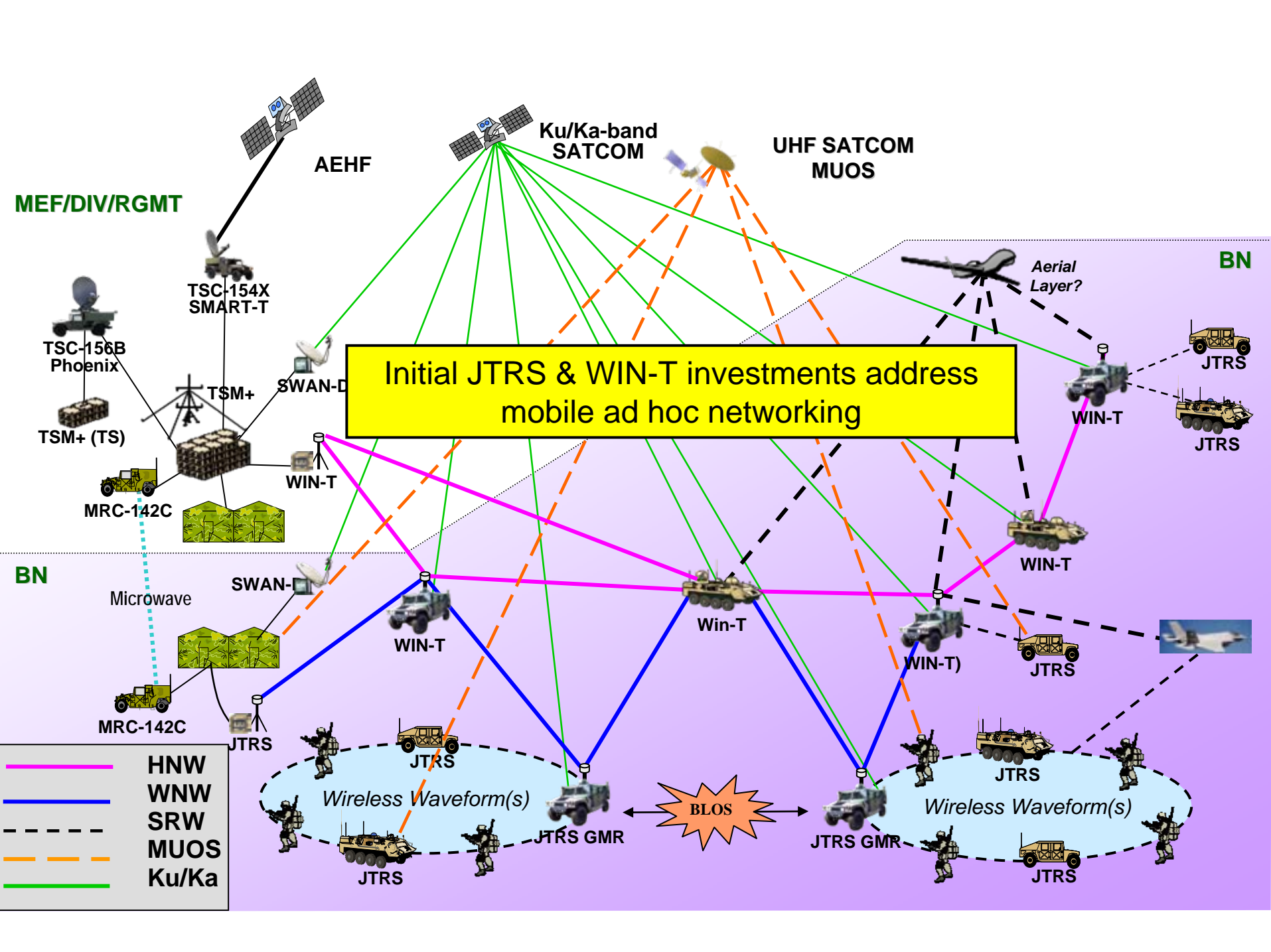
- SamSpade.org - Microsoft Internet Explorer:** A Hostname Lookup tool showing the IP address 10.1.1.156 resolved to JOHNNY-TARGET-H.
- SuperScan 3.00:** A network scanning tool interface.
- NT RootKit - Microsoft Internet Explorer:** A search for "site:gov intitle:index.of 'test.cgi'".
- http://www.rootkit.com/ - Microsoft Internet Explorer:** The main page of the ROOTKIT.COM website, featuring a large "ROOTKIT" graphic and a character holding a gun. The page includes a login form and a message: "Welcome to ROOTKIT.COM. New users need to [Login] and sign up for an account. Note: Current users of rootkit.com have had their accounts ported to the BBS. You should be able to login normally. You may transfer files via the BBS, or use your account to login to the FTP server."
- Hacker Defender - NT RootKit - Microsoft Internet Explorer:** The "Hacker Defender Home" page, which includes a login form with fields for "nick" and "mail", and a "send" button. It also displays a message: "Welcome to ROOTKIT.COM. New users need to [Login] and sign up for an account. Note: Current users of rootkit.com have had their accounts ported to the BBS. You should be able to login normally. You may transfer files via the BBS, or use your account to login to the FTP server."



# Video

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Play Bourne Video Here





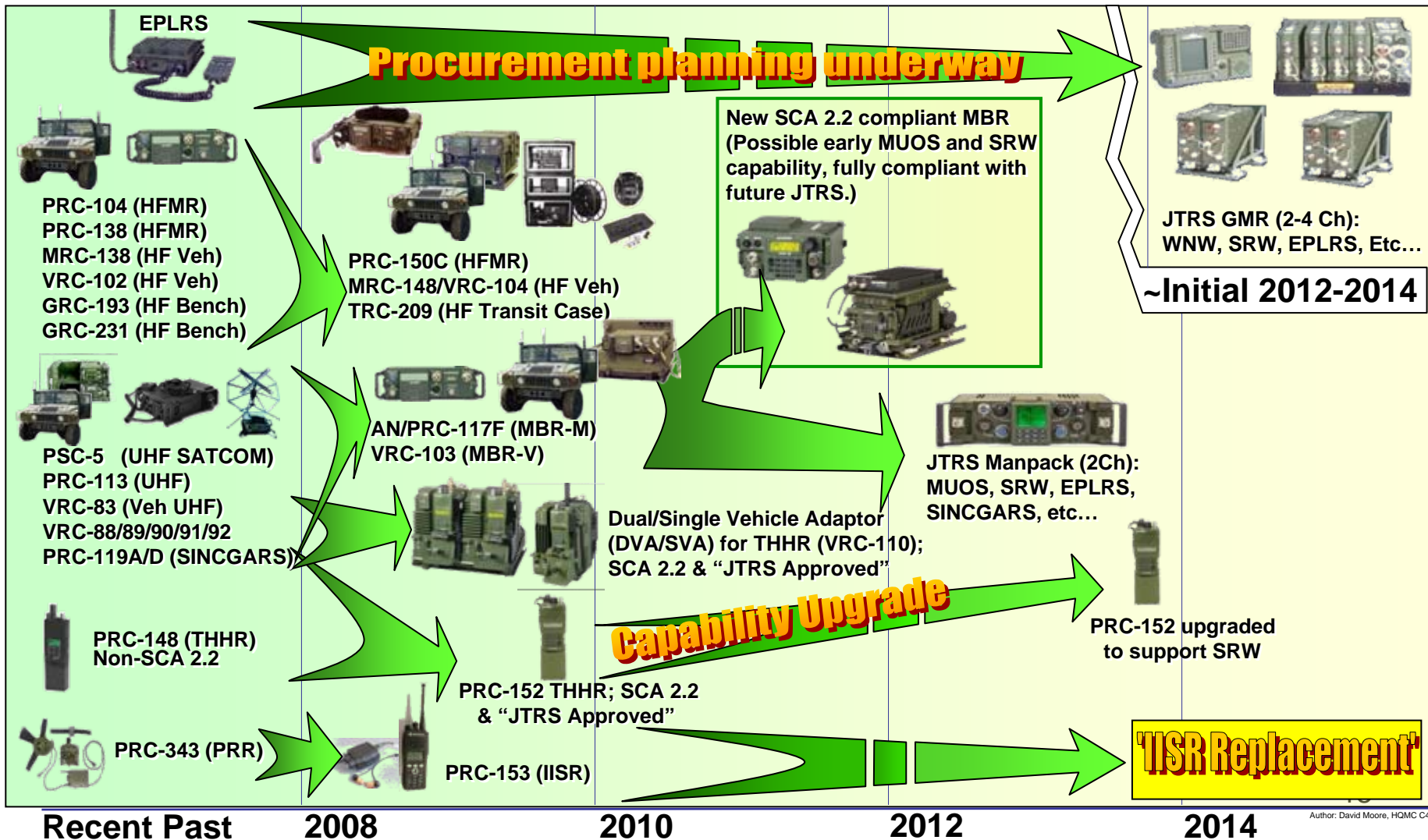
# TCM Purpose & Strategy

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- Replace all legacy radio systems
- Increase capability at small unit level
  - Tactical Handheld Radios & Integrated Intra Squad Radios
- Equip all tactical vehicles with radios
  - This includes tactical vehicles in MAGTF units
- Support 202K increase
- Plan transition to Mobile User Objective System (MUOS) terminals
  - MUOS replaces failing UFO Constellation

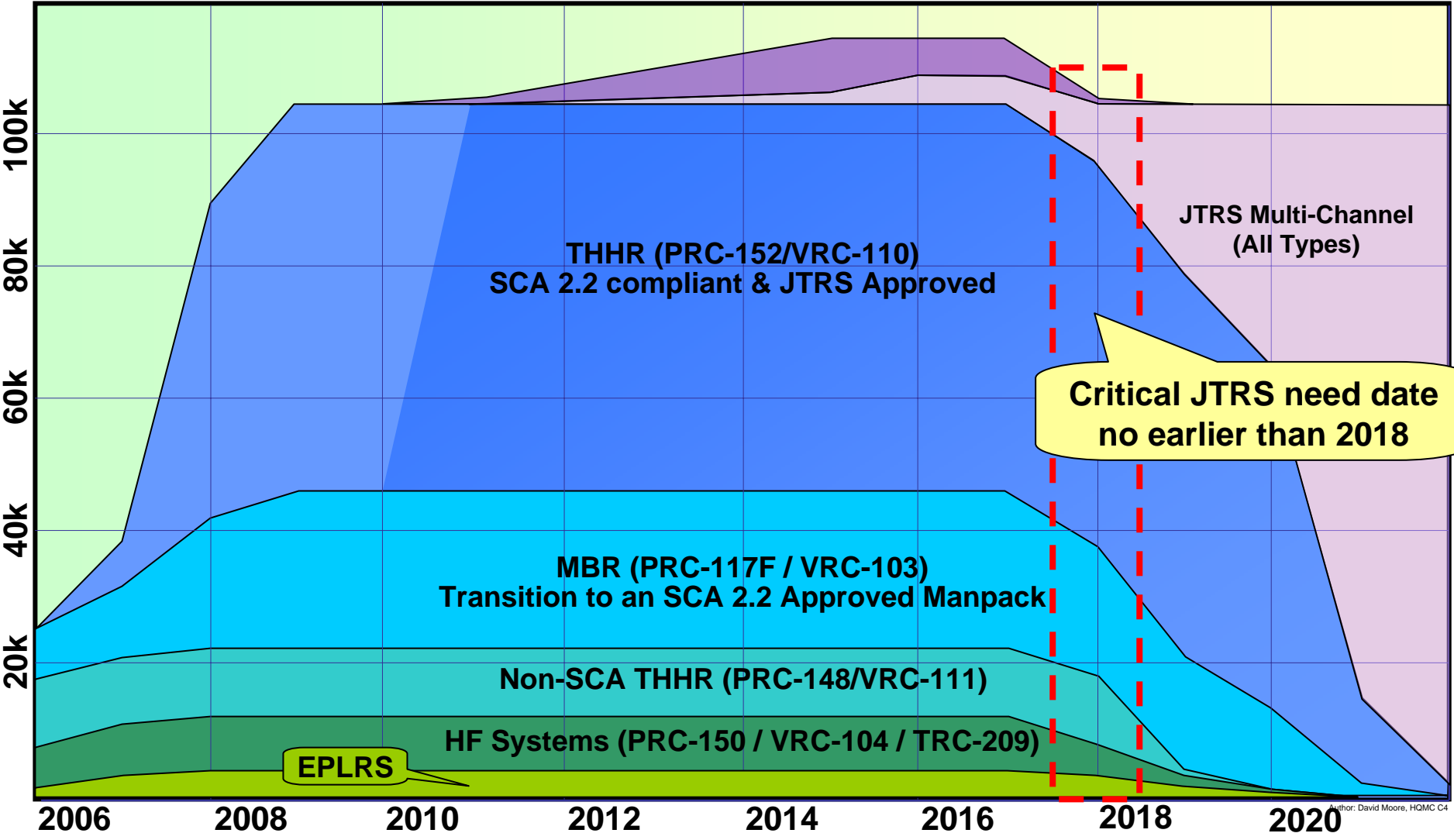


# Tactical Radio Roadmap





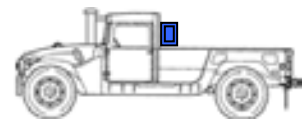
# Tactical Radio Capabilities





# Pre-OIF Rifle CO Radios

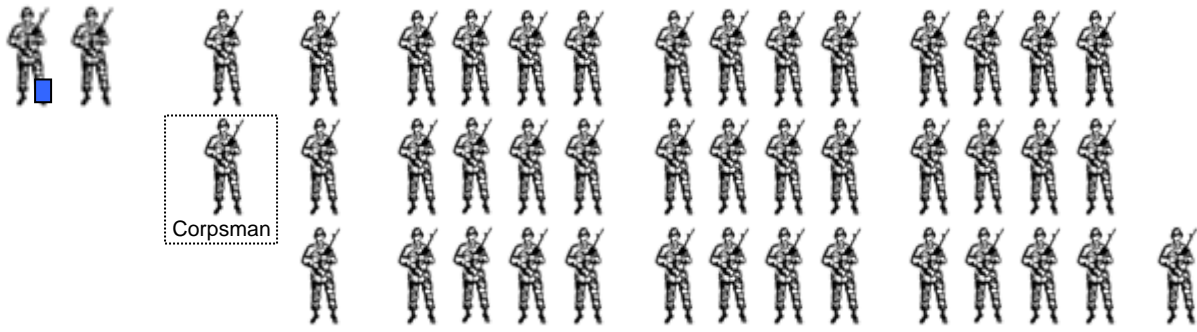
## Co HQ (x3/Bn)



Mounted in M998A1

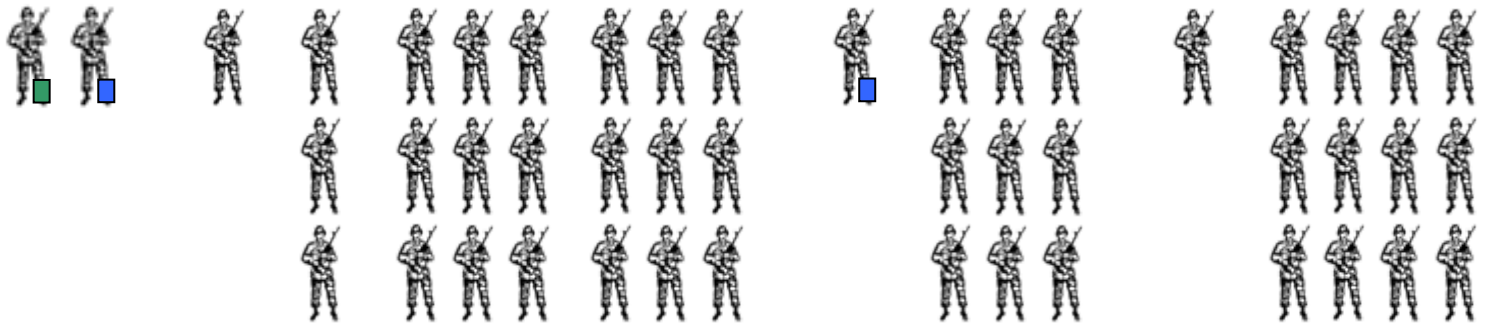
T/O 6 Officer/176 Enlisted	
	VHF-V (VRC-88): 1
	VHF-M (PRC-119): 7
	UHF-M (PRC-113): 1

## RFL Plt (x3/Co x9/Bn)



<u>Radio Weights</u>	
Marine	– N/A
Plt	– 15 lbs
Co	– 192 lbs

## WPNS Plt (x3/Bn)



MG Sect

Mortar Sect

Assault Sect



# TCM Rifle CO Radios

## Co HQ (x3/Bn)

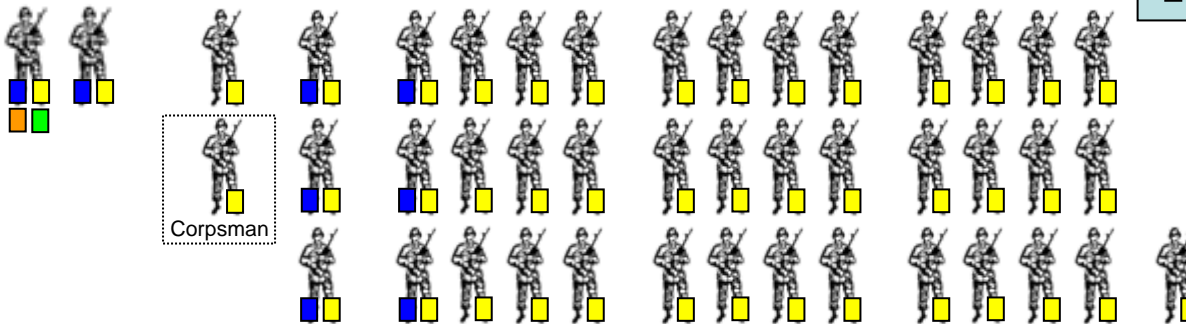


Mounted in M1123A2s

T/O 6 Officer/176 Enlisted

	MBR-V (VRC-103):	1
	MBR-M (PRC-117):	5
	HFMR (PRC-150):	5
	DVA (VRC-110):	2
	THHR (PRC-148/152):	35
	IISR (PRC-153):	176

## RFL Plt (x3/Co x9/Bn)



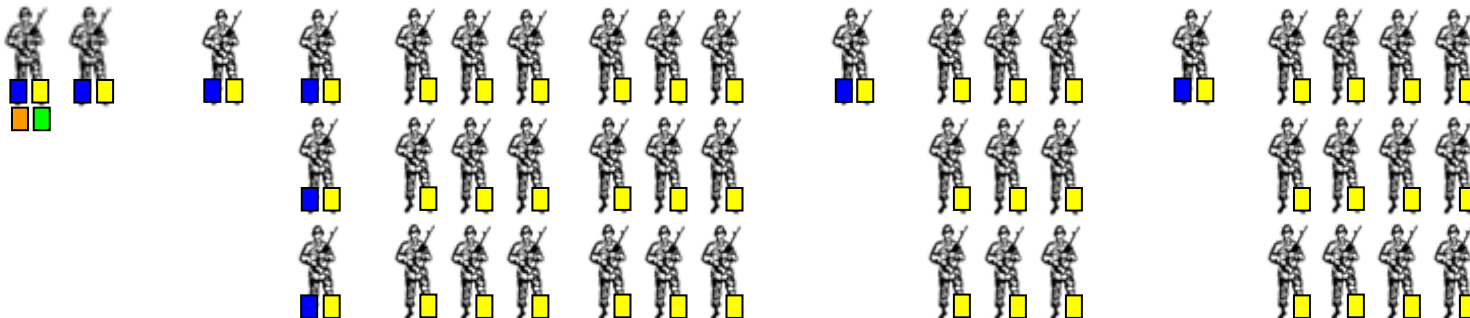
### Radio Weights

Marine – 1-4 lbs

Plt – 78 lbs

Co – 534 lbs

## WPNS Plt (x3/Bn)



MG Sect

Mortar Sect

Assault Sect



# Summary

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- Dramatic increase in tactical radio assets
  - Combat multiplier for the Marine Corps
- Moving closer to network capable radios
  - Will allow further extension of critical network resources to decision makers
- More capable than ever before!

# *“Radio Operators Up!”*



08/01/2008 - U.S. Marines communicate with their command operation center during a raid on a Taliban headquarters in Afghanistan Aug. 1, 2008. The Marines are from Fox Company, 2nd Battalion, 7th Marine Regiment based out of Marine Air Ground Combat Center Twentynine Palms, Calif. DoD photo by Sgt. Freddy G. Cantu, U.S. Marine Corps. (Released)