

# Next Generation SATCOM Terminals

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 MSR

 MITRE  
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Program

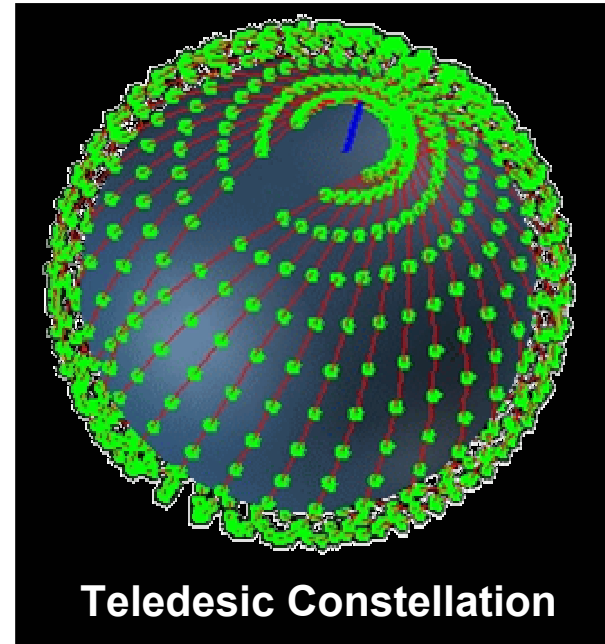
# Problem

- Current MILSATCOM systems are not amenable to integration into a network-centric communications model. The problem is not lack of investment, but limitations inherent in the current terminal and space segment architectures and implementations.

# Background

## Commercial SATCOM may offer promising alternatives...

Voice	Messaging	Broadband data
Inmarsat	Orbcomm	M-Star
Globalstar	Final	Celestri
ICO	Leo One E-	GIPSE
Inmarsat	AprizeStar	Rostelesat
Inmarsat	KITComm	Spaceway
Ellipso	GONETS	Astrolink
Constellatio	LEqO	Cyberstar
ECO-8	Picosat	Euroskyway
Courier	TropNet	GESN
Odyssey	Starsys	WildBlue
		iSky
<b>Radio</b>	<b>Broadban</b>	KaStar
Sirius XM	Teledesic	Aster
	SkyBridge	SWANsat
WorldSpace	Sterling	V-Stream
	Orblink	WEST Voicespan
		Undersea fibre
	Pentriad	
	Virtual Geo	Sky Station
	VIRGO	HALO
	@contact	Platform International
		Skysat



...but a rapidly eroding business base makes their future uncertain

# Objective

- This project will develop, demonstrate, and transition key communications and networking technologies of direct and immediate relevance to a network-centric MILSATCOM. Key design objectives for future terminals must include ease of use, cost effectiveness, ease of upgrade, spectral efficiency, and extensibility to new applications.

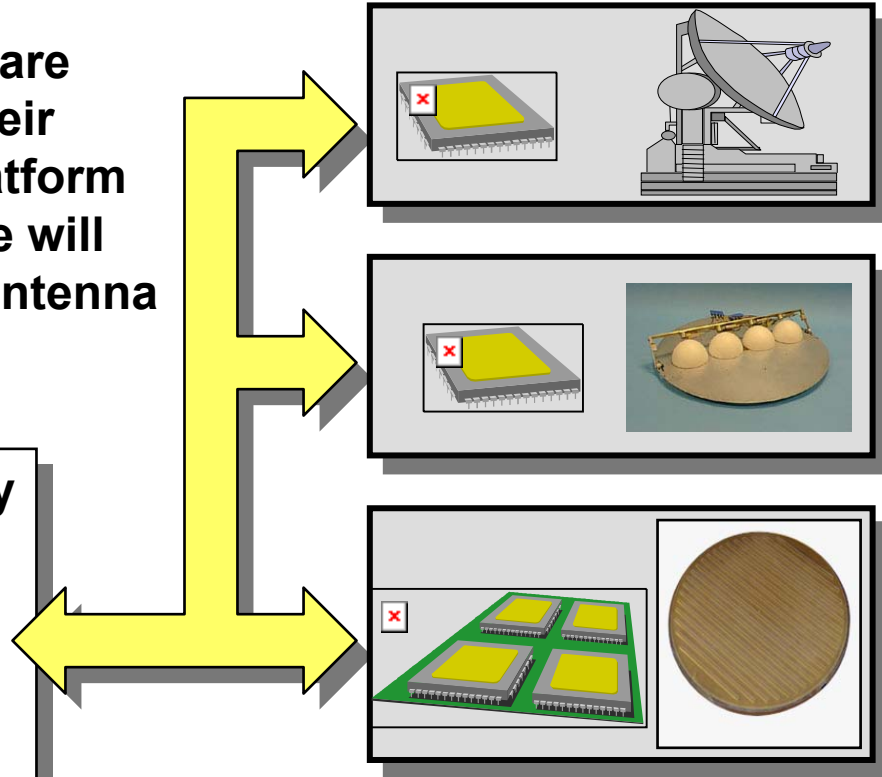
# Activities

- Defining Standard Antenna Interface to
  - Ameliorate platform-specific antenna issues
  - Facilitate rapid insertion of new antenna technologies
- Defining Terminal-Network Interface to
  - Decouple “link” and “network” design
  - Simplify next generation terminal design

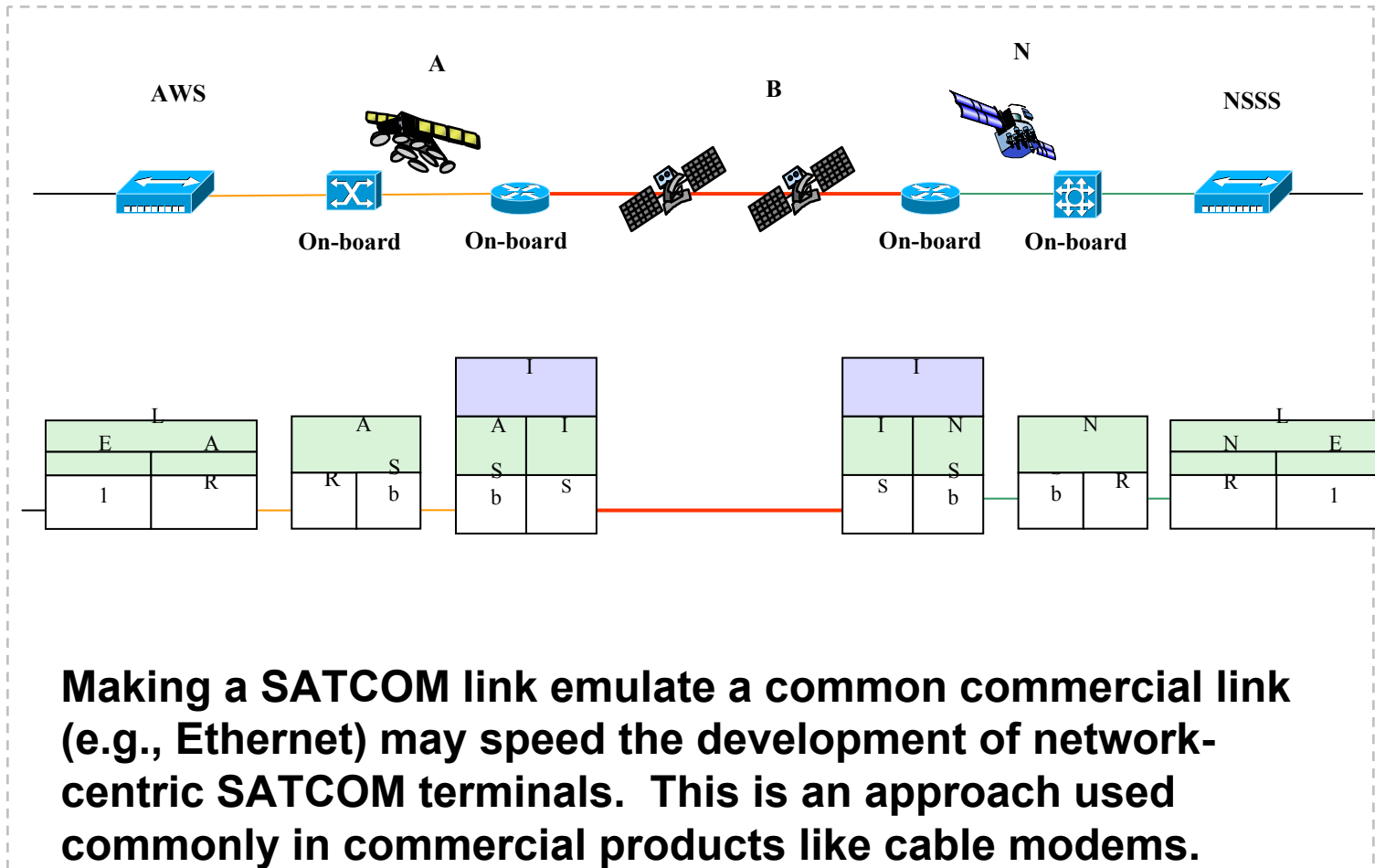
# Highlight

Antenna technologies are evolving rapidly but their applicability will be platform specific. Therefore, we will always have multiple antenna types.

We believe that vastly different antenna implementations can share a common semantic interface (and commands)



# Highlight



**Making a SATCOM link emulate a common commercial link (e.g., Ethernet) may speed the development of network-centric SATCOM terminals. This is an approach used commonly in commercial products like cable modems.**

# Impacts

## ■ This research will:

- Accelerate the incorporation of MILSATCOM into a network-centric Global Grid
- Expose opportunities for technology insertion into MILSATCOM
- Better enable MITRE to influence future MILSATCOM designs.
- Be directly applicable to other, non-SATCOM military communications systems

# Future Plans

- Experimental refinements of transport protocols on heterogeneous networks
- Explore security models that better isolate link and end-to-end security issues
- Dynamic satellite bandwidth allocation

