Data Links for the 5th Gen Air Force

SQNLDR Lachlan Melville – SO2 Networks - Air

AIR FORCE

Air Force Strategy 2017-2027

The Royal Australian Air Force will become a fifth-generation Air Force.

A fifth-generation Air Force is **a fully-networked force** *that exploits the combat-multiplier effects of a* **readily available, integrated and shared battlespace picture** *to deliver lethal and non-lethal air power.*

A fifth-generation Air Force will provide the joint and **networked effects** *necessary to prevail against the increasingly complex and lethal threats of warfare in the* **Information Age***.*
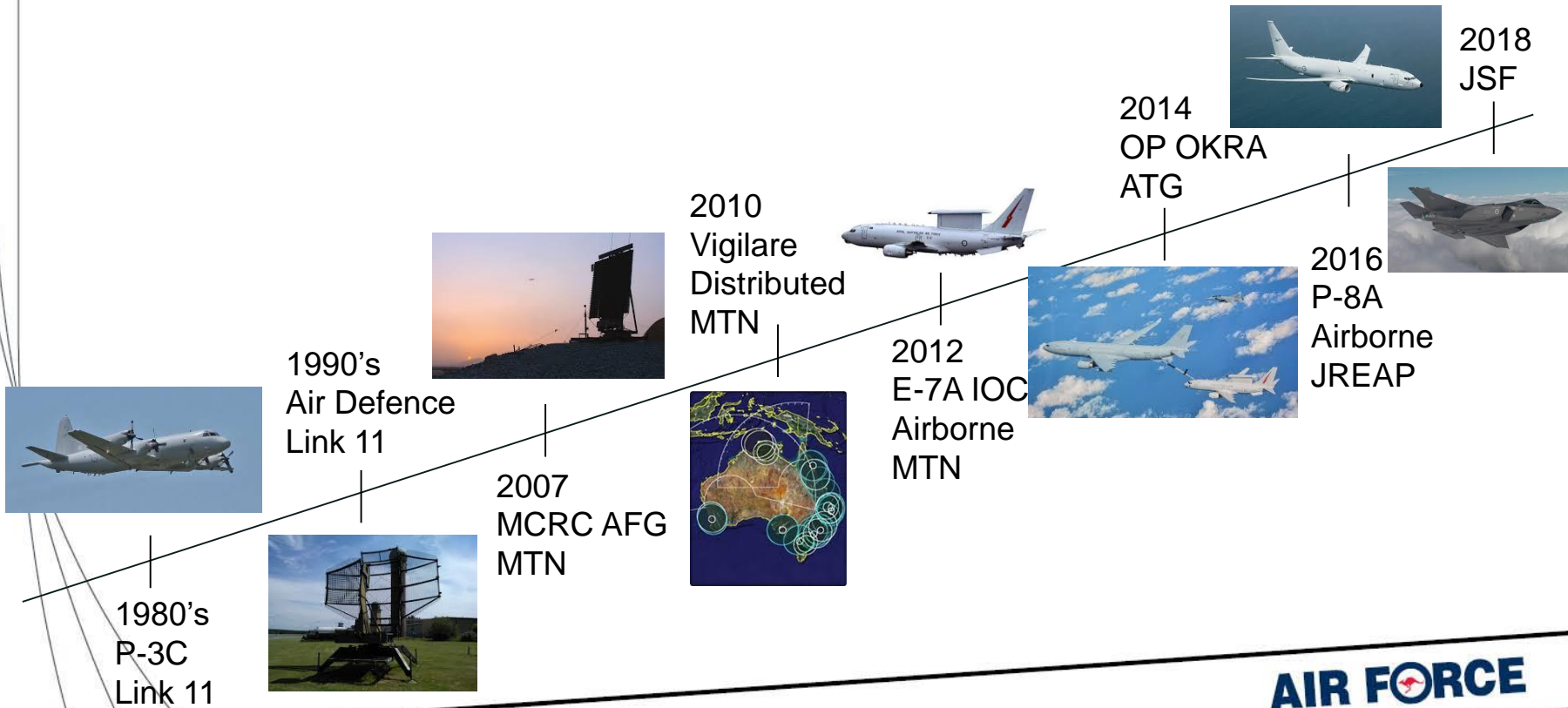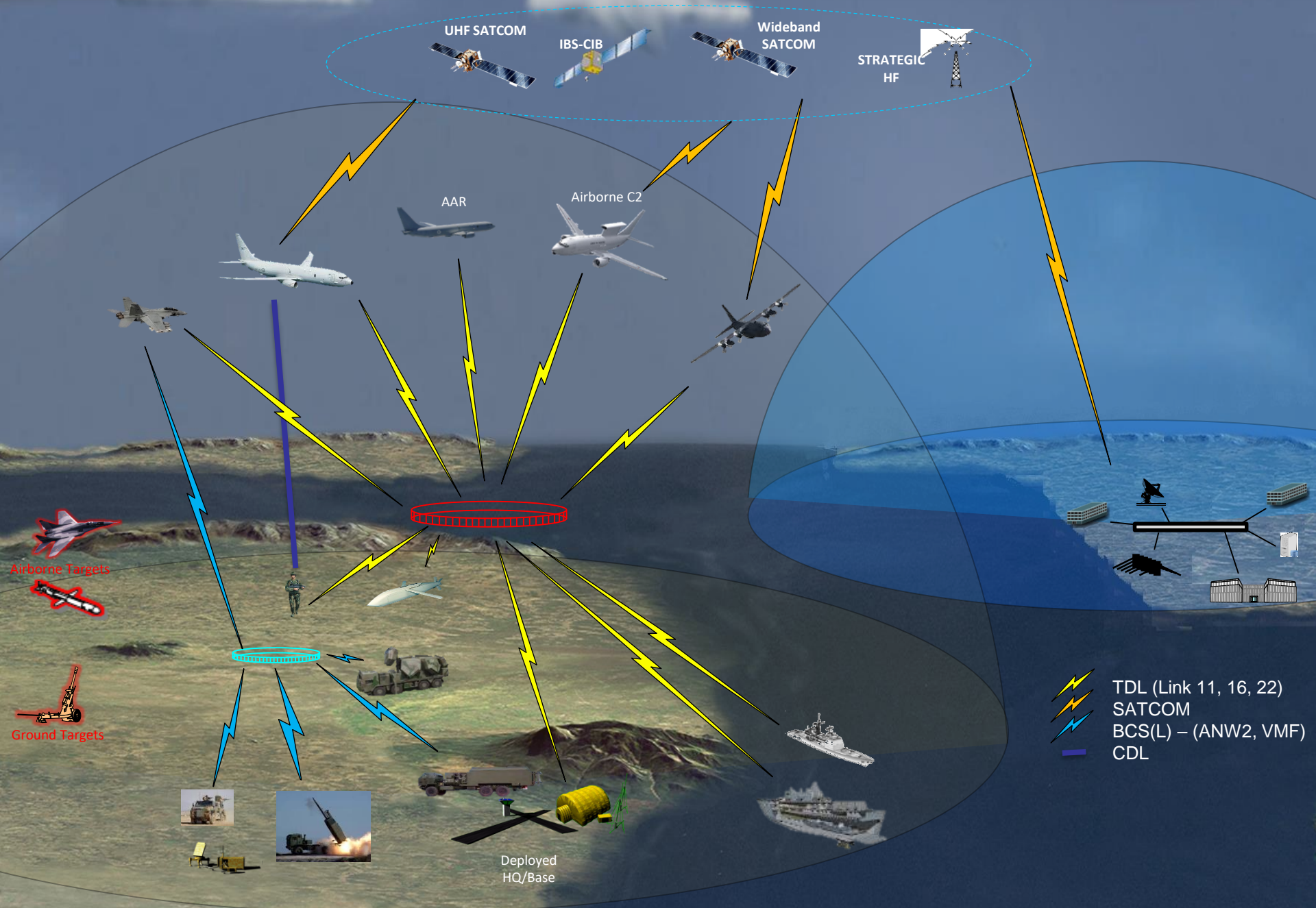
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5th Generation Characteristics

- ➢ 4/5 Generation bridged
- ➢ Networked and integrated
- ➢ Joint with ADF
- ➢ Interoperable with Allies
- ➢ Normalised innovation culture
- ➢ Maximises technological advantage

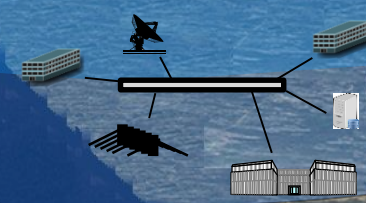AIR FORCE

Air Force Data Links – A brief history

2018
JSF

2014
OP OKRA
ATG

2010
Vigilare
Distributed
MTN

2016
P-8A
Airborne
JREAP

1990's
Air Defence
Link 11

2012
E-7A IOC
Airborne
MTN

2007
MCRC AFG
MTN

1980's
P-3C
Link 11

AIR FORCE

2018

UHF SATCOM

IBS-CIB

Wideband SATCOM

STRATEGIC HF

AAR

Airborne C2

Airborne Targets

Ground Targets

Deployed HQ/Base

TDL (Link 11, 16, 22)
SATCOM
BCS(L) – (ANW2, VMF)
CDL

Air Domain Characteristics

- ➢ Global reach and tasking flexibility - Agility/Adaptability
- ➢ Perspective, Persistence, Precision, Payload
- ➢ High demand low density and multi-role assets
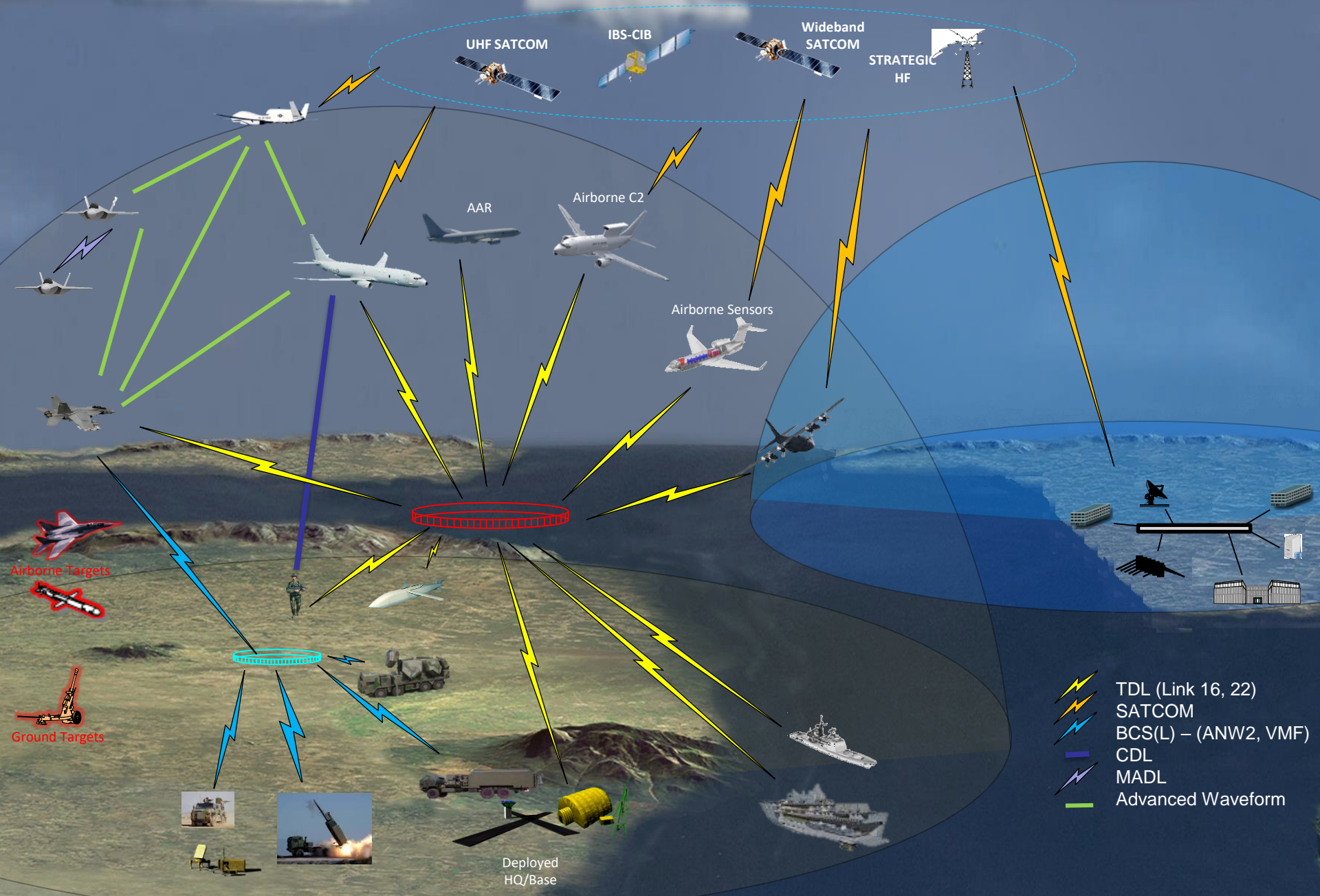- ➢ Information and technology dependent
- ➢ Joint

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Air Force TDL: Drivers

Changing Needs

- ➢ Network complexity - Growing information need
- ➢ Decision tempo - M2M information exchange
- ➢ Data processing at the tactical edge
- ➢ The threat – Survivable/Defendable networks
- ➢ Network/Spectrum congestion
- ➢ Security requirements - Higher than secret
- ➢ Expectations - The iPad Generation

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2025

UHF SATCOM

IBS-CIB

Wideband
SATCOM

STRATEGIC
HF

AAR

Airborne C2

Airborne Sensors

Airborne Targets

Ground Targets

Deployed
HQ/Base

TDL (Link 16, 22)
SATCOM
BCS(L) – (ANW2, VMF)
CDL
MADL
Advanced Waveform

Air Force TDL: Constraints

➢ Scale, breadth and capacity
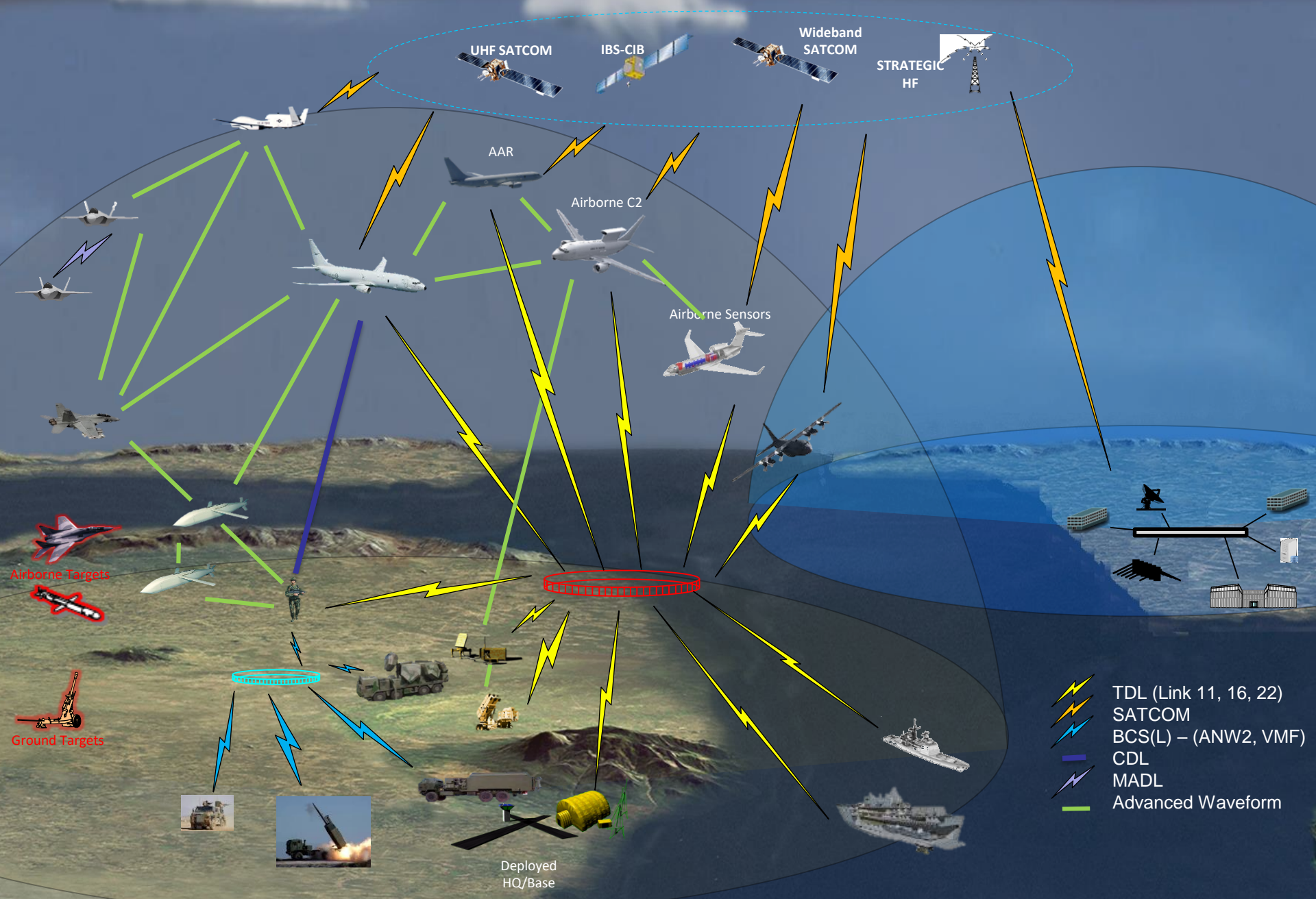
➢ Acquisition and sustainment strategies

➢ Enduring role for communication gateways

➢ $4^{th}/5^{th}$ Generation interoperability

➢ Physical Characteristics

➢ Workforce – Capacity, Skills and Training

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Opportunities

Integration and interoperability

> ➤ Open standards / open systems architecture

> ➤ Leverage emerging technologies – military and commercial

> ➤ Security by design

Evolving

> ➤ Designed for continuous spiral development

> ➤ Investment in step change technologies – risk aware

> ➤ Network Convergence and Edge Computing

AIR FORCE

2030+

UHF SATCOM
IBS-CIB
Wideband SATCOM
STRATEGIC HF

AAR

Airborne C2

Airborne Sensors

Airborne Targets

Ground Targets

Deployed HQ/Base

TDL (Link 11, 16, 22)
SATCOM
BCS(L) – (ANW2, VMF)
CDL
MADL
Advanced Waveform

- ➢ Modernised organisational structure
  - ➢ Manage Networks as a Capability
- ➢ Modernised workforce
- ➢ Jericho activities to model/validate network dependencies
- ➢ Leverage Joint programs
- ➢ Innovation/Integration Capability

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Questions?