

Breaking the Malthusian Paradigm, Modernizing the SCN



2 March 2023

Shawn Sawyer, Director SSC/BCS
Tane Yingling, Portfolio Manager
Eric Koppisch, Systems Engineer

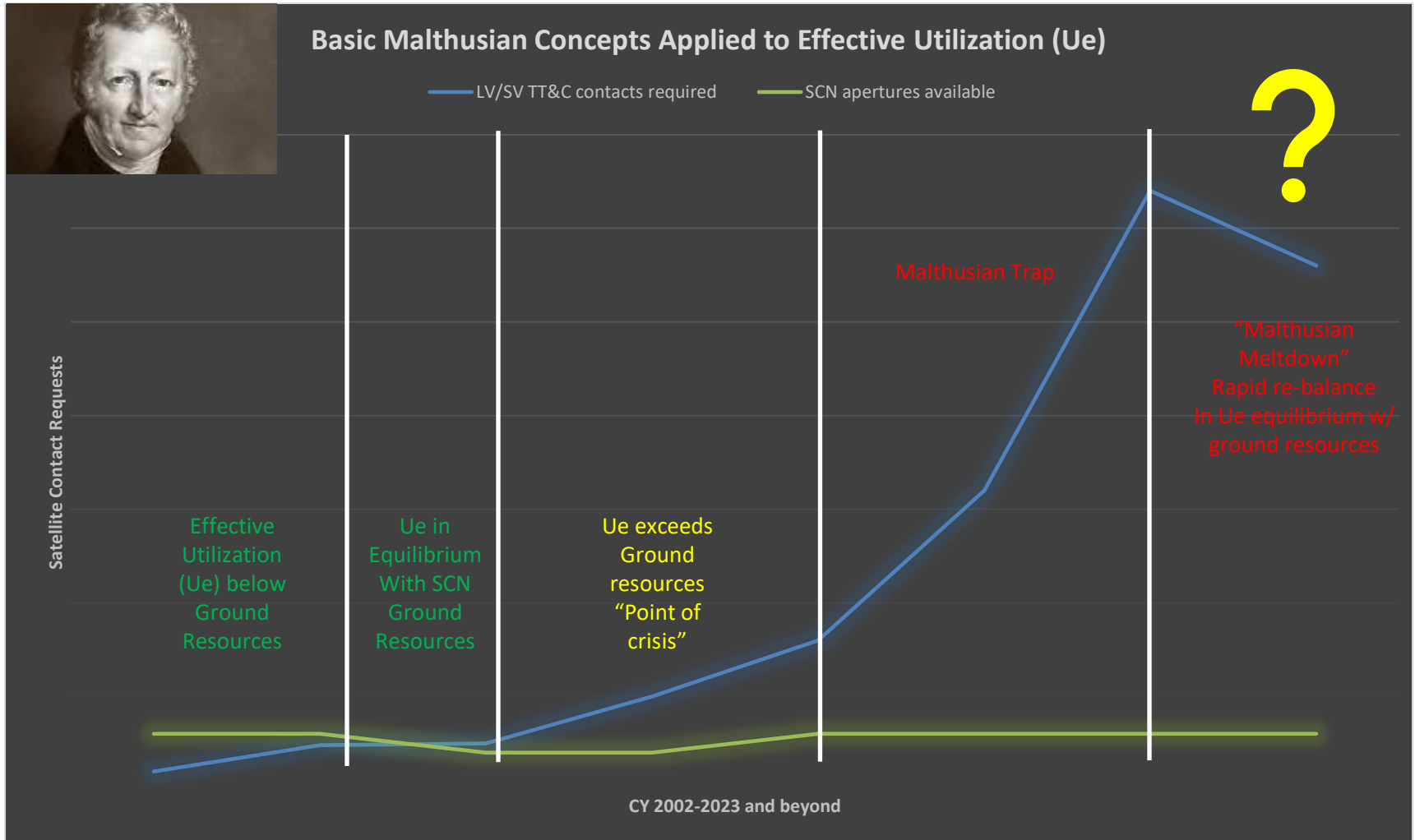


- 1) The Population to Resource Relationship...A Malthusian Contrast
- 2) Ground Site Comparison
- 3) Breaking the Malthusian Paradigm: Evolve the SCN
- 4) SSC/BCS Tactical and Strategic Goals
- 5) SCN Phase I: Stability & Capacity
- 6) Benefits of Modernization



Malthusian's Relationship Between Population & Resources

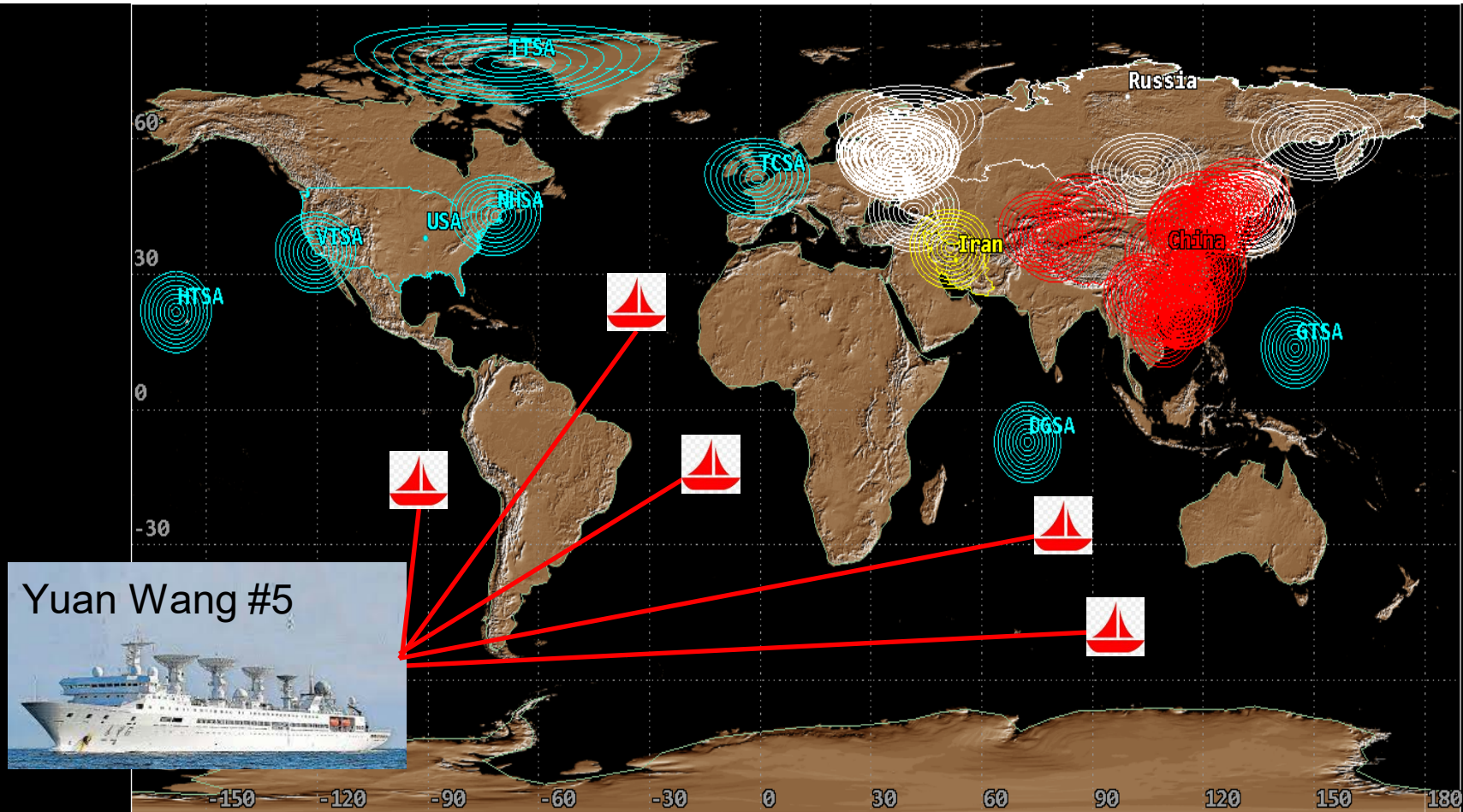
SV population to ground TT&C



Federal, Commercial, and SCN all needed to avoid the Malthusian Meltdown



Satellite Ground Sites by Comparison



58 operational ground sites across 3 of our primary adversaries

Breaking the Malthusian Paradigm: SCN Evolution



Fixed Sites

Today

2 Fixed antenna, 2 Cores per site, not scalable

Fixed antenna

Fixed antenna

1 satellite contact running 1 core only capability

3 18 wheel trailer system requires deployment only to existing SCN site due to SWAP

2023-2030

Many antennas running on one electronics core

Full IP to legacy antennas

SDR Electronic Core

Manual & remote ops, X contacts, X antennae to one core (MTR) capability

X simultaneous contacts running on 1 MTR core capability

"SCN Anywhere" Rapidly deployable, survivable TT&C

2030 & beyond

SpRCO/SCAR

Mobile

FAS/CAS

XX simultaneous satellite contacts running in the cloud, zero cores @ site

Traditional SCN sites

Automated/lights out contact, X antennas, 0 cores @ site, virtualized signal processing in the cloud



SSC/BCS Tactical & Strategic Goals

Tactical Goals: Present to 2023

- ✓ Pivot from an outdated procurement strategy to deliver a highly reliable, modern & scalable capability to replace the ailing REEF-D system operationally accepted at DGS 20 mo. from Contract Award (CA).
 - ✓ Ensure zero coverage gaps in Systems Engineering and Integration support (SEI follow on)
 - ✓ Renewed focus on improving logistics Performance Indicators (PI) to ensure SCN systems are supportable to 2030
 - ✓ “Do no harm” to current operations, simultaneously adding new capability to LION meeting 2002 ORD
5. Develop an approved ARTS sun-setting strategy by 2022, the goal of completion by 2026 (vice 2030)

ECPN Strategic Goals: 2023-2026

1. Reduce sustainment costs by 10% while simultaneously enabling 20% extra capacity in existing network
2. Introduce remote operations capabilities
3. Execute ARTS sun setting plan by 2023
4. Commoditize/Virtualize subsystems in order to achieve resiliency, and enable scalability
5. Employ agile contract mechanisms for operations, sustainment, maintenance and modernization
6. MTR-D System Transition to DGS
7. Provide a scalable, affordable and standardized Factory Compatibility Test (FCT) capability w/ a minimum 50% redux in Size Weight and Power (SWAP).

Legend		
Complete	In work	Not started

Reduce obsolescence, enable capacity and lower risk for future technologies



Modular Transitional Remote Tracking (MTR) & MTR-D (Deployable)

Overview of System

- 7.3M transportable 3 axis antenna
- Ruggedized, shock resistant mobile core in self contained env. shelter
 - State of the art Software Defined Digital Signal Processing
 - Reduces logistics footprint by approximately 60% from RBC

Purpose

- Stabilize primary and secondary systems across SCN
- Address critical obsolescence issues within RBC
- Pathfinder for simultaneous multi-contact system

Enhancement Possibilities

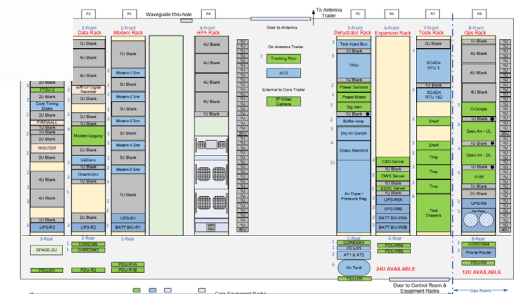
- Remote operations capable
- Multiple aperture (antenna) capable
- Simultaneous contact capability (Many to one)
- Survivable, non attributable

Affordable

- System electronics VERY affordable w/3 simultaneous antenna capability “out of the box.”



MTR-Deployable (MTR-D) Antenna



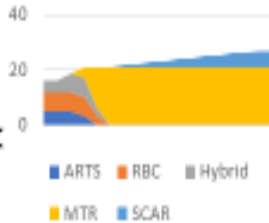
2X MTRs deployed into SCN ops enabling resiliency/capacity for the 2026 fight



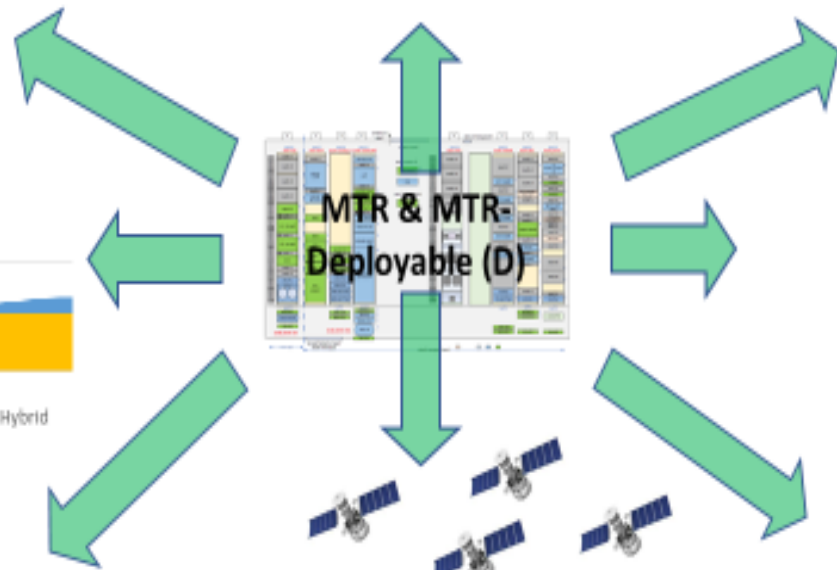
Benefits of SCN Modernization



~80% reduction in HW. One common baseline vice 4 in < 4 years



Critical Portfolio Regrets:
High Power Amplifiers, ARTS projects, Depot Mx, repairs, obsolescence



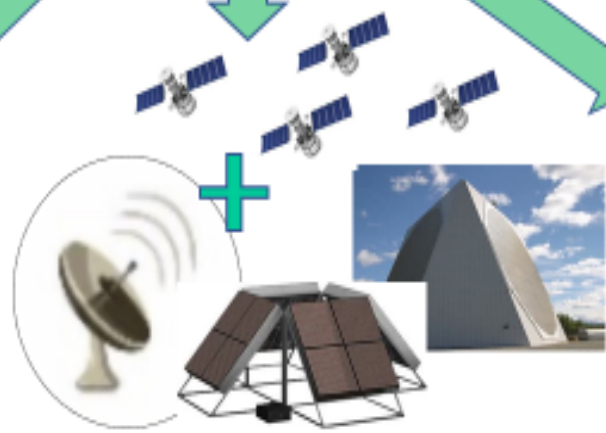
Risk Reduc for nascent technologies



Commoditized HW w/ "On Prem" virtualized FEPs



Free SCN from vendor lock



Operational Multi-aperture agnostic & capacity ready



Op/Digital Workforce ready²⁵



Questions?