# Open Communications Solutions – Open RAN / Open Source

## Resilient and Open Commercial Solutions (ROCS)

The **Open Centralized Unit Distributed Unit (OCUDU) project focuses on three areas** intended to deliver DoD-unique capabilities on a commercially sustainable platform, ultimately saving acquisition costs and driving rapid capability changes to the field

- **Hardware** – Virtualization of high-performance hardware
- **Software** – Commercial open-source software base for CU and DU; platform for DoD-unique capabilities
- **Management** – DoD implementation architecture with spectrum and intelligent network features

### Motivation

- Whether in the marketplace or on the battlefield, success depends on the ability to rapidly change tactics
- Existing government acquisition processes are challenged to meet this demand
- Building secure systems around commercially available wireless capabilities brings the asymmetric advantage necessary to win


SECURE


RESILIENT


AI-DRIVEN


UBIQUITOUS


TRANSPARENT


INTEROPERABLE


COST-EFFECTIVE


CUSTOMIZABLE

**DOD INVESTS IN OPEN SOURCE FOR SUSTAINABILITY AND RAPID INNOVATION**

# Open RAN

## Why

- New technology often:
  - Requires vertical integration
  - Disaggregate as they mature
- Examples
  - Telecommunications and Computing
  - In each case, innovation externalities far exceeding the incurred costs
- RAN technology
  - Seems to be following the same trajectory
  - Open RAN is the disaggregation framework

## Encouragement & Incentives

- Focus on building platforms
  - Enables a variety of uses (business models) for a collection of hardware and software components
  - Innovation on both sides of the platform
- Allow for adaptability and evolution of the platform system
  - Optionality vs. complete definition
  - Focus/invest in on interoperation
- Facilitate entry from innovators
  - Enriches the ecosystem through new applications
  - Alters trades between cost, architecture and functions
- Develop information problem solving mechanisms
  - Testing and certification
  - Testbeds to develop and highlight capabilities
  - Capability demonstrations (at scale)
- Targeted support to overcome “valley of death”
  - Open source software (reduced cost, trained personnel)
  - Government investments targeted at areas that do not support immediate priorities of operators

## Conclusions

- Open RAN will be successful if the innovation externalities exceed
  - Reduced efficiency of modular systems
  - System integration costs
  - Open RAN will likely replace vendors of integrated systems with system integrators
- To be successful, Open RAN may require targeted interventions
  - Resolve key information problems to support adoption
  - Investments in long term technologies that do not have short term payoffs
  - Early stage demonstration projects
- The role of Open Source software
  - Reduce cost and increase efficiency of Open RAN
  - Lowering barriers to market entry
  - Accelerating the innovation premium of Open RAN

# OCUDU Software Project

OCUDU Hardware

OCUDU Software

OCUDU Management

- CU/DU 5G open-source software ecosystem
  - Build developer community
  - Leverage the benefits of open source software development
  - Does not include RU or RIC
- Goals for software
  - Performant
  - Scalable
  - Carrier-grade
- For use by DoD, USG, academia, industry, and others
  - Platform for industry to build product on and around
  - Resource to support workforce development
  - Capability for government agencies to build requirement-specific solutions to meet mission requirements