KRATOS
READY FOR WHAT'S NEXT™

Building Resilience Through Multi-Mission Capabilities

Defence in Space 2024

Sep 2024

Kratos Space

Antennas
Fixed and Mobile
Multi-Band
Radar

RF Signal Transport
Network Transport
Network Management
Cybersecurity

Advanced DSP
RF Signal Processing
Satellite Communications
RF Monitoring

Space Domain Awareness
EMI Location/Mitigation
Space Domain Awareness
Data Analytics/I&W
Simulation & Training

Command & Control
TT&C
Mission/Payload Data
Comprehensive Recording
Cross-Domain Solutions

Comprehensive Solutions Provider

21 Facilities

- ISO-9000 OEM USA Production
- 24/7 RF Monitoring NOC

1000+ Personnel

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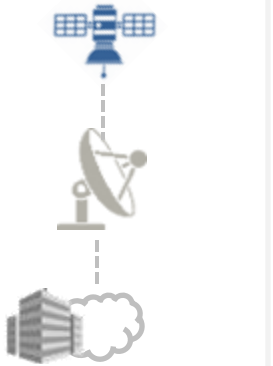
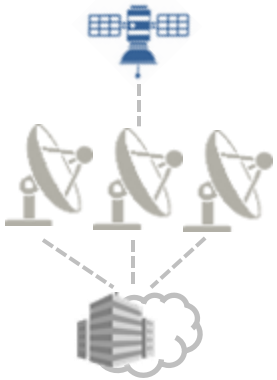
Kratos Space



1 Space to Ground

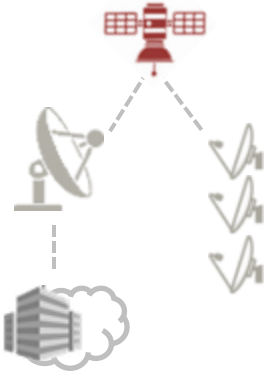
- Satellite C2
- TT&C
- ISR/Direct Downlink



2 Space Domain Awareness / Missile Defense

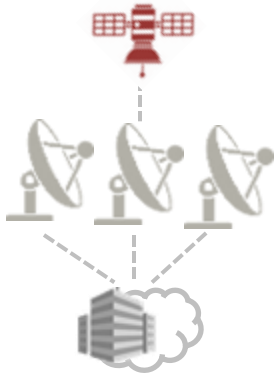
3 SATCOM

- FDMA SCPC / STAR
- Global / Regional Ops
- MEF Carrier Ethernet



4 Space Superiority

- Electronic Warfare
- RF Intercept
- Cyber



5 Intelligence Support

- Pattern-of-life
- Geolocation, characterization
- VSAT applications

Satellite C2 and Space to Ground Solutions

Common Platform Across Multiple Mission Areas

- Mission
- Model
- Platform
- Edge Component

Same Platform Reuse Across C2 and Ground Systems

- **Satellite Constellation C2**: CCS-C, Forge C2, ESS
- **pLEO C2**: SDA T2, Other
- **Antenna-as-a-Service**: **SCAR**, SCN, Other
- **Ground System as a Service**: KSAT, AWS, Microsoft

Deploy Platform as Systems

- Off Prem Public/Private Cloud
- On-Prem Turnkey Sites to Systems

OpenSpace Software Platform for RF Infrastructure Abstraction Combined with Mission Management Layer

- Mission Management
- Common Operation Picture – Ops Center
- Controller
- Software Container and Infrastructure

OpenSpace® The Dynamic Ground System

COTS, OEM Custom Electronics, 3rd Party





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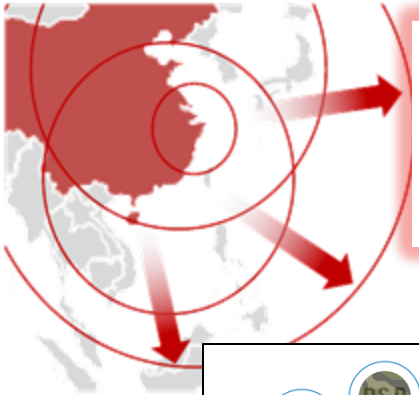
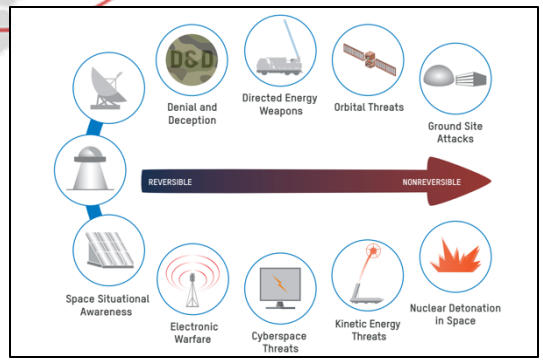
Combating Space Domain Threats

Threats are rapidly changing



Increasing Type, Velocity, & Domains Orchestrated and more Lethal



Resiliency
Through Choice of Operations

Proliferate
- Quantity
- Diversity
- Redundancy

Reconstitute
- Supply Chain
- Agile Industry Base
- Service Definitions

Retaliate
- Flexibility to Degrade
- Non-Kinetic
- Orbit, Terrestrial

Multi-Mission Edge Capabilities, COMMS, EW, Collection, Domain Awareness, Software Containers and General-Purpose Compute

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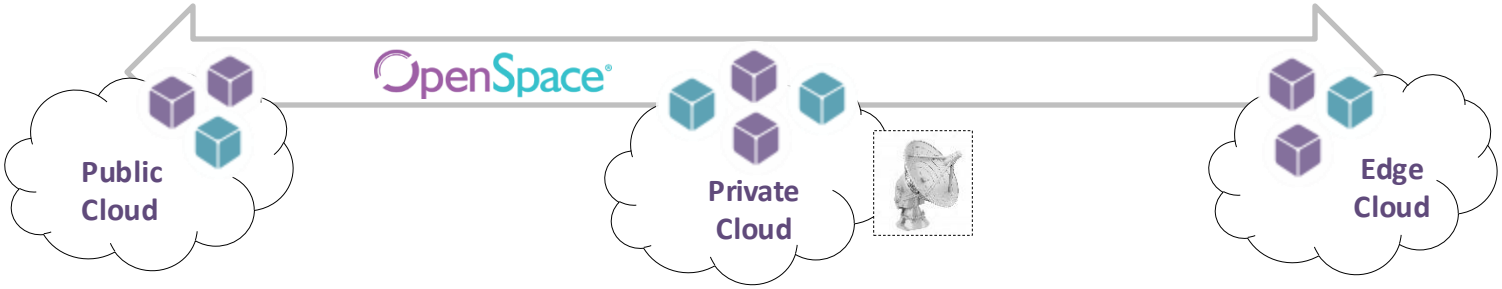
A Fresh Perspective

- Kratos has developed the industry's first fully containerized federated ground solution
  - Multi-cloud ready…enabling best-in-class flexibility, availability & investment protection
  - Elastic operational model…react to changes in supply, demand and threat
  - Business model that scales with adoption



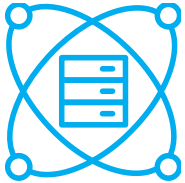
OpenSpace the Dynamic Ground System

OpenSpace Platform

The Dynamic Ground System

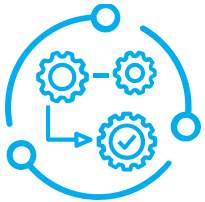
DIGITAL

Converts RF signals to IP packets to enable digital, cloud-enabled architectures



VIRTUAL

Fully virtualized, rapidly deploys and scales elastically using common compute



ORCHESTRATED

Enable automated workflows across the system to deliver services end-to-end much faster

Dynamic Service Delivery

Deploy new services to customers in minutes

Scale on demand to support more services

Reconfigure on the fly as demand changes

Provision new services automatically with zero touch

Kratos' OpenSpace Platform

- OpenSpace brings a new way of thinking about satellite ground systems

Open – integrates ground and space layer and interconnects with terrestrial networks

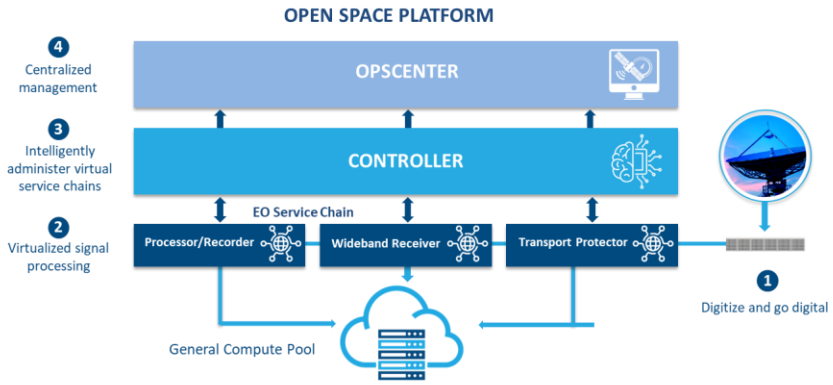
Automated – delivers services end-to-end to support new payloads, orbits and constellations

Services - intelligently spins virtual service chains up and down on demand

Virtualized – uses programmable software functions to support multiple missions

Cloud-native – built for scale, high availability and redundancy

Secure – zero trust architecture



Benefits:

- Modern, Software Defined Architecture
- Lower Total Cost of Ownership (TCO)
- Open Ecosystem

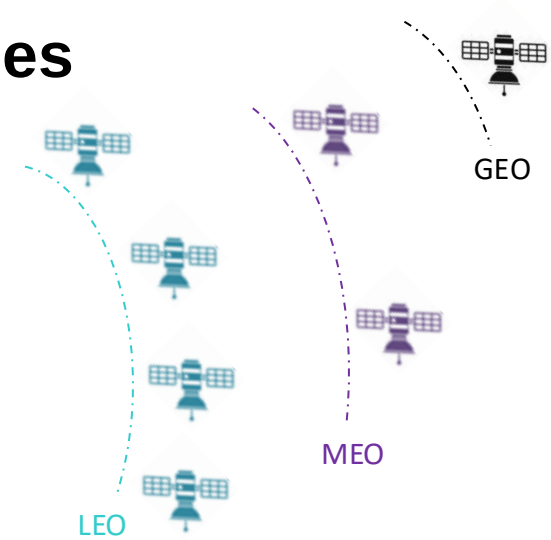
OpenSpace Uses

C2 and S2G
- USG focus on enterprise space control
- Proliferated space (LEO/MEO/GEO)
- Commercial (new imagers, SD payloads)
- Resiliency
- Dynamic Systems
- Mission focused solutions required

SDA
- Reversable effects delivered in and from Space
- Sovereign Nations to monitor/control/manage
- Managing your spectrum and landing rights
- Space architectures driving new sensors
- Near peer threats – everyone has requirements
- Military and IC mission solutions required

Satcom
- Massive increases in BW
- Emergence of software-defined payloads
- Scale overtaking efficiency
- Closer alignment with the telcos (MEF, 3GPP)
- Migration from stove-piped propriety systems

OpenSpace®
The Dynamic Ground System



- Fully virtualized ground system
- SW/HW disaggregation
- Hybrid cloud architecture (public, private, edge)
- Embraced common industry standards
- Common framework for multi-mission
- Dynamically orchestrated

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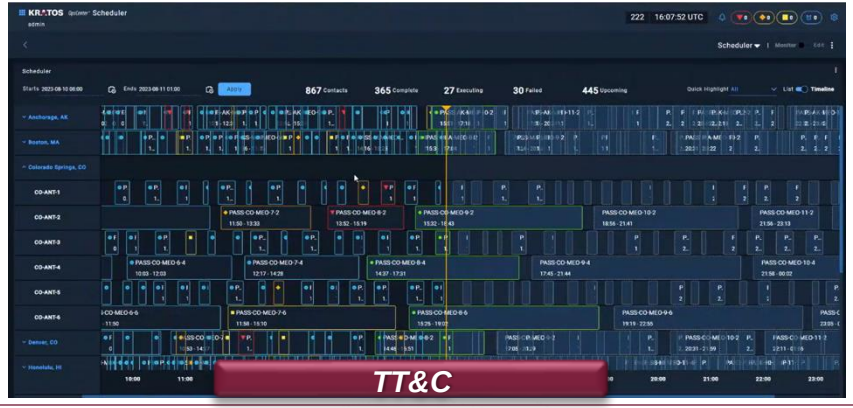
OpenSpace for Multi-Mission

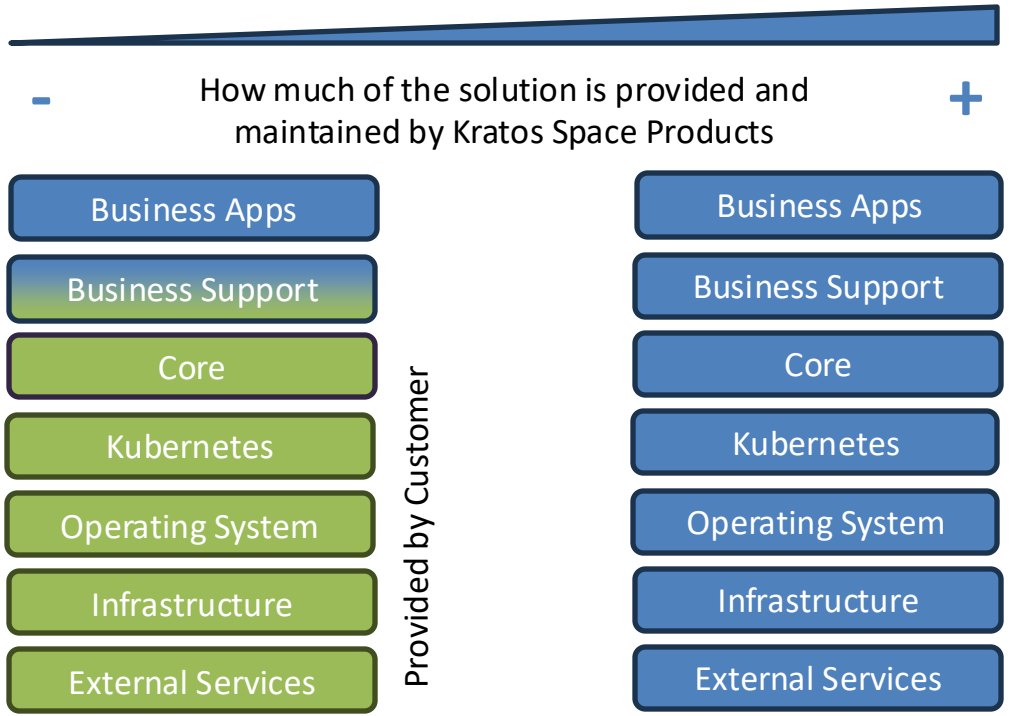


Deployment Flexibility - Scalable Background

Our customers are asking for:

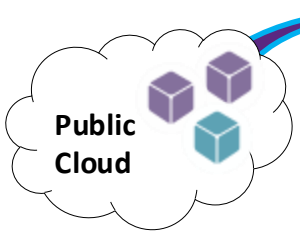
1. Cloud native solutions
   Our offering needs to not just be containerized, but to thrive on Kubernetes-based platforms

2. Varying "depth" to our solution
   Our offering needs to flexible from just Kubernetes business apps all the way to an entire self-contained solution



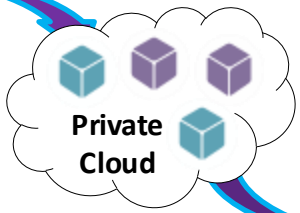
Enables a Right-Sized Progression with Cloud

Rapid deployment of occasional use services



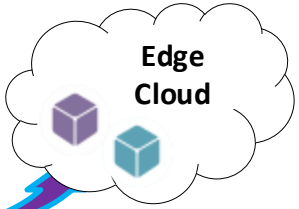
- Spin up vModems/Hubs on Demand
- Consumption-based Biz Model
- Global connectivity and presence
- Massive ecosystem of tools

Migrate persistent services to your gateway



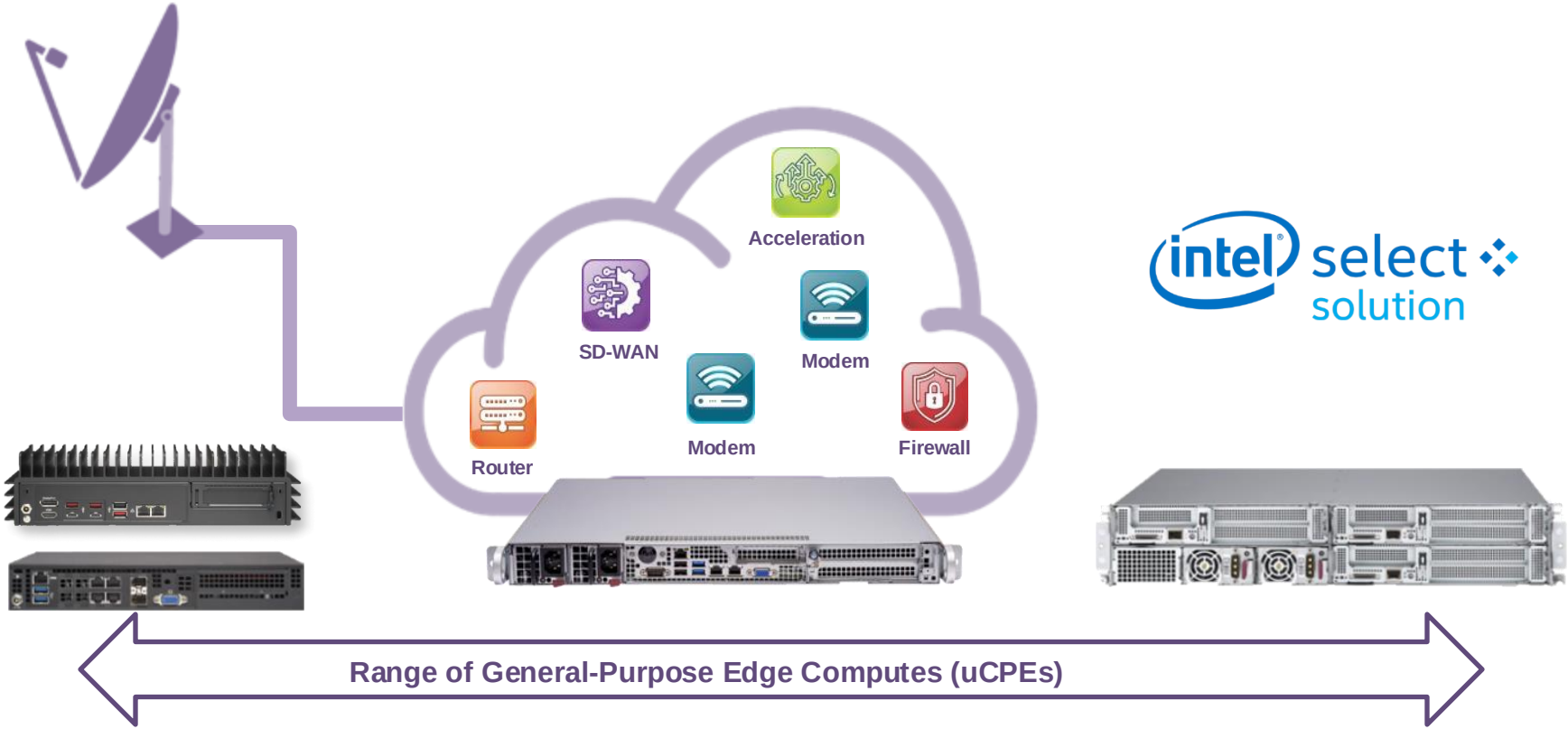
- Migrate to OnPrem over time
- Adopt CapEx business model
- Share infra with other IT workloads
- Maintain cloud ecosystem of tools

Expand unique edge services over time

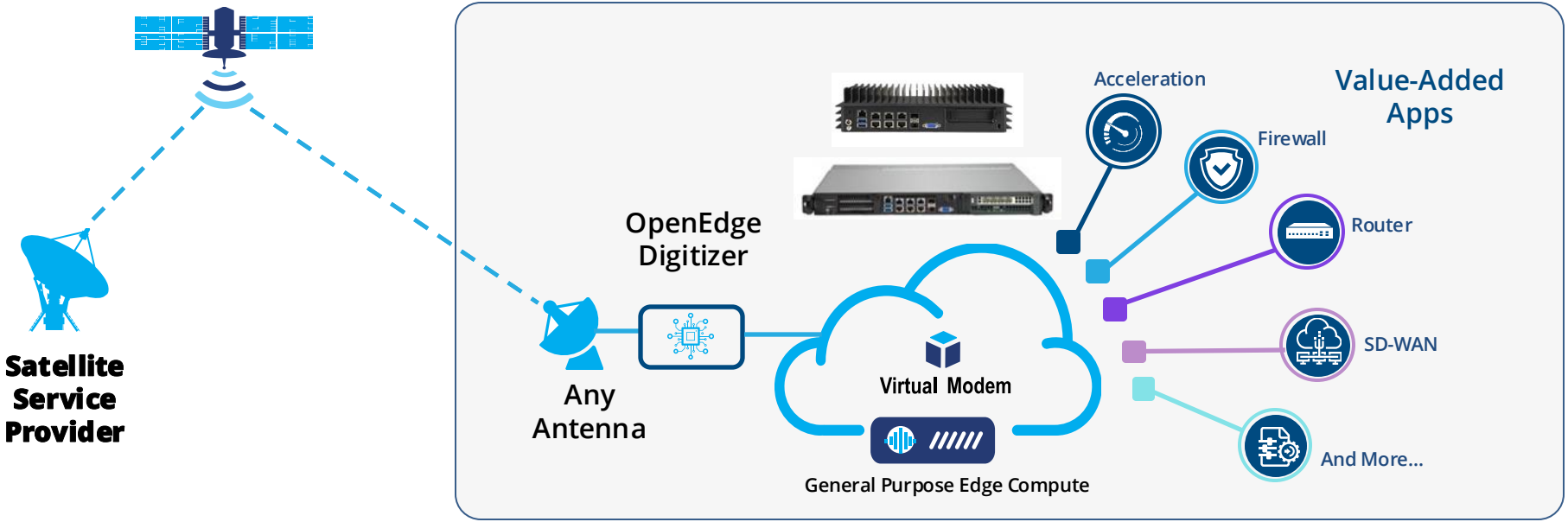


- Maximize terminal lifecycle
- Introduce new services without site visits
- Leverage wealth of usage data
- Maintain cloud ecosystem of tools

Enables a Powerful Ecosystem @ the Edge



The Anatomy of an OpenEdge Terminal



Thank You

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www.KratosDefense.com/OpenSpace