



## Kratos Introduces the Satellite Industry's First Open Edge Terminal for Satellite Communications and Other Applications

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### Virtualized software apps bring more power and flexibility to the edge by replacing dedicated hardware

SAN DIEGO, Feb. 22, 2023 (GLOBE NEWSWIRE) -- Kratos Defense & Security Solutions, Inc. (Nasdaq: KTOS), a leading National Security Solutions provider, released the first of its new OpenEdge™ products, the industry's first open standards-based and software-enabled satellite terminals. Part of Kratos' OpenSpace® Platform, OpenEdge is the first generally available family of satellite network edge devices employing a modern, software-defined approach for a range of communications, observation, sensing and TT&C uses. OpenEdge is the next step in Kratos' ongoing effort to support the mainstreaming of satellite services by enabling satellite ground systems to operate seamlessly with today's wireless and terrestrial networks.

Until OpenEdge, satellite terminals—the devices that end users employ at the far edge of a satellite ground network to transmit and receive data—have been purpose-built hardware devices that seriously restrict functionality and flexibility at the network's edge. OpenEdge disrupts these limitations by:

- employing virtualized software modems that can run on general purpose, off-the-shelf compute, and
- adding far more power and versatility by enabling additional apps to run at the network's edge, fully orchestrated across service delivery

### Bringing Flexibility to the Network's Edge

Today's satellite terminals consist of purpose-built hardware components that are limited to performing a dedicated function, for example a satellite modem performing modulation/demodulation functions. OpenEdge uses a different model for operating at the edge, one that employs standards already widely adopted across the larger global telecommunications industry to expand terminal functions and make them more flexible. These standards are what enable mobile devices such as smartphones to support roaming, use cloud-based functions, interoperate with other networks and do much more. While satellites present a more complex technology challenge, the goal of OpenSpace and OpenEdge is to help satellite operators make their services as mainstream as cellular communications and to capitalize on new services such as 5G.

"OpenEdge satellite terminals extend the dynamic operations of the OpenSpace Platform beyond the core and gateway out to the network's far edge," said Greg Quiggle, Senior Vice President of Space Product Management at Kratos, "As a result, signal processing and other value-added network functions happen closer to the end user. This enables satellite service providers to deploy new services in minutes while dramatically reducing the overall lifecycle cost of their network.

Intelsat, one of the world's largest commercial satellite operators, will be among the first to supplant traditional satellite terminals with OpenEdge capabilities.

"OpenEdge technology powers Intelsat's family of smart edge satellite terminals providing a highly dynamic and application-optimized customer experience. Through this open and virtualized platform, we are able to deliver new services and features to the customer edge on-demand," commented Blane Boynton, VP Product Development at Intelsat. "We expect this technology to benefit customers across multiple industries and applications, from fixed cellular backhaul and enterprise connectivity, to inflight and maritime applications. In the near future, we'll rely on OpenEdge technology to help us be the first to transition to 5G, standards based, service delivery for non-terrestrial applications."

### Adding Power at the Edge

The OpenEdge advantage starts with Kratos' virtual modem, replacing the traditional hardware box with software that can run on off-the-shelf x86 compute devices, such as a generic server, a laptop or in the cloud. It can interface directly with a digitally-enabled antenna or be configured with a built-in digitizer that converts the satellite's analog RF signals into standard Internet Protocol (IP) packets that can be operated upon digitally.

Because OpenEdge effectively turns the traditional, purpose-built terminal into a generic, off-the-shelf computer—sometimes referred to as universal customer premises equipment (uCPE)—it can incorporate any x86 applications into operations at the edge. For example, a spectrum monitoring app can be loaded so that end users in the field can quickly find alternate routes for avoiding interference or intentional jamming of satellite signals. In fact, operators or mission controllers can actually turn the terminal into a remote hub in minutes simply by remotely enabling additional software directly into the terminal.

### The Value of Orchestration

At a time when satcom equipment vendors are still struggling to virtualize even basic network functions, Kratos has done that and more by delivering *orchestrated* virtual network functions today. Orchestration is the ability to specify and automate how network functions will interoperate with each other to support specific services, missions, customer requirements and satellite payloads, and to intelligently configure and reconfigure themselves in real time as needs and demands change. While common across the global communications infrastructure, orchestration has not been employed to great degree in satellite networks, in part due to the challenge of virtualizing unique satcom functions. However, traditional hardware-based ground systems and terminals simply can no longer keep up with the increasingly dynamic advances in both the space layer, such as software-defined satellites and constellations of smallsats, nor in the world's global communications networks, such as automated provisioning and mobility. In contrast, OpenSpace can ably support these necessary dynamic operations.

### Additional OpenEdge Advantages

The dynamic advances in OpenEdge support additional benefits to network operators and their customers with more power and flexibility at the edge, including:

- **Support for Multiple Missions and Markets.** OpenEdge terminals simultaneously support a variety of fixed and mobile satellite use cases, including two-way Satellite Communication (satcom), Earth Observation and Remote Sensing (EO/RS), and Telemetry, Tracking & Command (TT&C). Additionally, they can deliver complementary end-user services in the same way that a terrestrial network does, such as enterprise network extension, cellular backhaul, telecom trunking and defense and government applications.
- **Lower Hardware Cost, Smaller Footprint.** OpenEdge terminals reduce the overall hardware footprint to a single box. As a generic x86 device, it both costs less than proprietary units while enabling more power simply by adding complementary software apps. Because the digitizer can be built in, OpenEdge terminals can work with virtually any mission-suitable antenna.
- **Enhanced Security at the Edge.** Any x86-based app can be loaded on the OpenEdge terminal, including firewalls, encrypters and more advanced or custom security applications for highly sensitive uses.
- **Eliminate Vendor Lock-In.** Today's purpose-built terminals all employ proprietary architectures which lock customers into their equipment for given services, especially in satcom. In contrast, OpenEdge, and the entire OpenSpace Platform, embrace commonly accepted industry interoperability standards, enabling OpenEdge terminals to work side-by-side with standards compliant devices from other companies. In addition, network operators will find much greater success integrating their space-based offerings into the global communications mainstream, expanding their reach, services and revenue.

For more information about OpenEdge visit: <https://www.KratosDefense.com/OpenEdge>

For more about OpenSpace dynamic ground visit: <https://www.KratosDefense.com/OSP>

#### **About Kratos OpenSpace**

Kratos' OpenSpace family of solutions enables the digital transformation of satellite ground systems to become a more dynamic and powerful part of the space network. The family consists of three product lines: OpenSpace SpectralNet for converting satellite RF signals to be used in digital environments; OpenSpace quantum products, which are virtual versions of traditional hardware components; and the OpenSpace Platform, the first commercially available, fully orchestrated, software-defined ground system. These three OpenSpace lines enable satellite operators and other service providers to implement digital operations at their own pace and in ways that meet their unique mission goals and business models. For more information about the OpenSpace family visit <http://KratosDefense.com/OpenSpace>.

#### **About Kratos Defense & Security Solutions**

Kratos Defense & Security Solutions, Inc. (NASDAQ:KTOS) develops and fields transformative, affordable technology, platforms and systems for United States National Security related customers, allies and commercial enterprises. Kratos is changing the way breakthrough technology for these industries are rapidly brought to market through proven commercial and venture capital backed approaches, including proactive research, and streamlined development processes. At Kratos, affordability is a technology, and we specialize in unmanned systems, satellite communications, cyber security/warfare, microwave electronics, missile defense, hypersonic systems, training, combat systems and next generation turbo jet and turbo fan engine development. For more information go to [www.KratosDefense.com](http://www.KratosDefense.com).

#### **Notice Regarding Forward-Looking Statements**

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