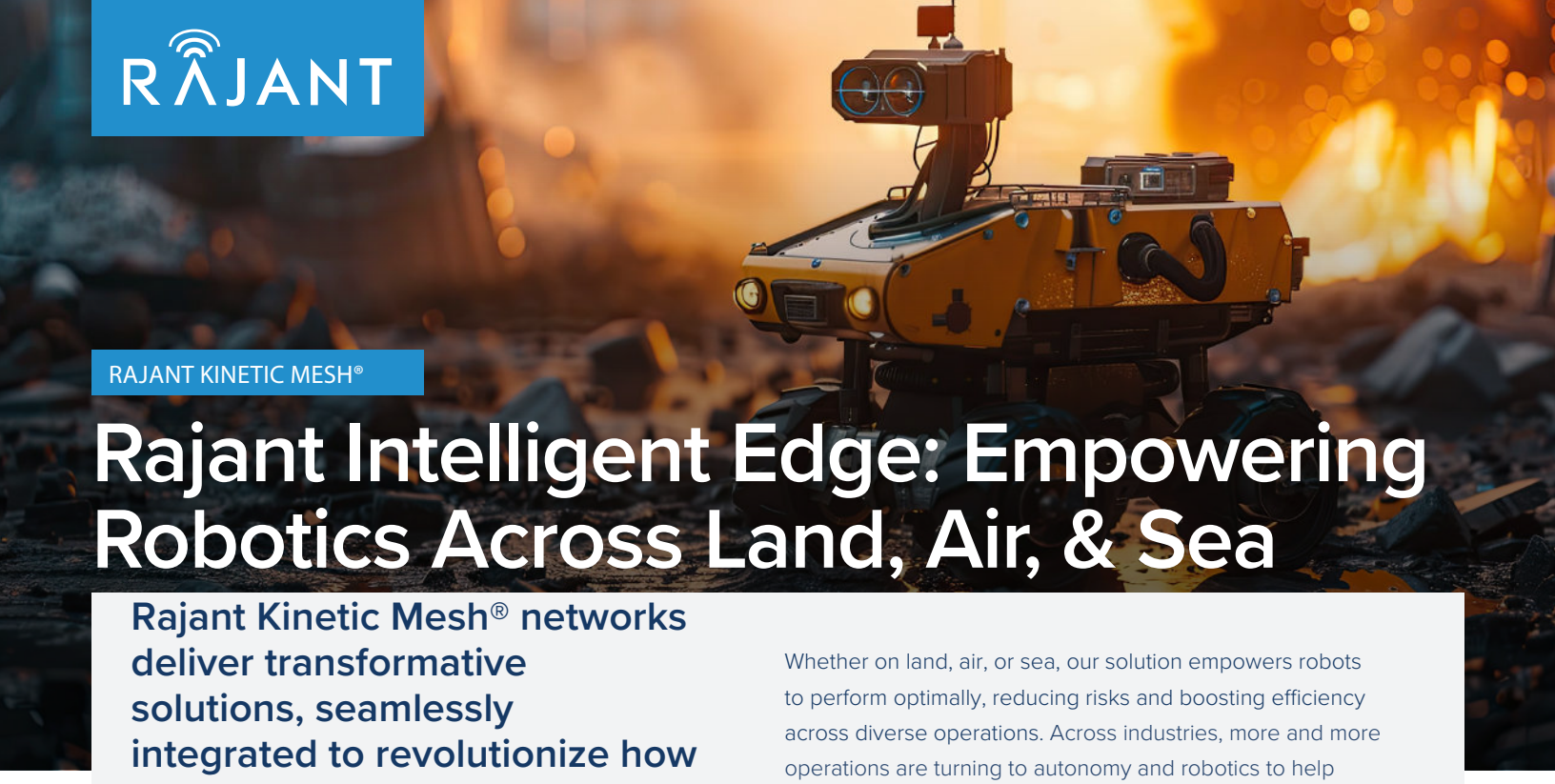


RAJANT KINETIC MESH®

Rajant Intelligent Edge: Empowering Robotics Across Land, Air, & Sea

Rajant Kinetic Mesh® networks deliver transformative solutions, seamlessly integrated to revolutionize how autonomous robots tackle dirty, dull, and dangerous industrial tasks.

Enhancing safety by keeping human personnel out of hazardous zones and streaming live data for real-time situational awareness, robotics platforms of all sizes rely on Rajant's intelligently integrated systems.

Whether on land, air, or sea, our solution empowers robots to perform optimally, reducing risks and boosting efficiency across diverse operations. Across industries, more and more operations are turning to autonomy and robotics to help automate tedious, time-consuming processes and to go where people cannot or should not to reduce risk. These systems are becoming operational necessities, but their ability to move and communicate is network dependent. Intermittent breaks in connectivity, even if they occur only momentarily, can cause autonomous systems to stop running completely. They require a continuous communications link over which to output real-time data and receive real-time input to conduct their assigned missions.

The ability of Rajant Kinetic Mesh® to operate itself autonomously while dynamically self-optimizing to maintain mission-critical reliability as assets within the network move – makes it ideal for connecting ground robotics, long-range aerial drones, and even robotic systems on water.

Seamlessly Integrated Networks: Enabling Robotics Performance

The unique architecture of Rajant Kinetic Mesh provides seamlessly integrated solutions, rapidly deployable with or without existing infrastructure. BreadCrumb® nodes, affixed directly to robotic assets, offer adaptive performance essential for optimal functionality. This intelligently integrated capability uniquely enables machine-to-machine (M2M) communications between drones and bots. Across industries, autonomy and robotics are becoming operational necessities, and Rajant's integrated seamlessly network ensures uninterrupted performance, even as assets move and communicate in challenging environments.

Multi-radio, multi-frequency redundancy to ensure mission-critical reliability.

Rajant BreadCrumbs can hold multiple connections over multiple frequencies simultaneously. These nodes work peer-to-peer to form robust and redundant links, creating hundreds of potential paths over which to direct traffic. All BreadCrumbs are infused with the intelligence of Rajant's InstaMesh® networking software, which dynamically selects the fastest path(s) for delivery from these meshed connections.

If a path becomes unavailable due to signal blockage, interference, outage, or other issue, InstaMesh will instantly route communications via the next-best available path(s) and/or frequency. It does this autonomously and without outside intervention, maintaining the fault-tolerant performance needed to ensure the uptime of robotics platforms.

Compact + lightweight node payload for deployment on robotics of any size.

Rajant has extended the robust capabilities of InstaMesh® to a smaller, lighter series of BreadCrumbs that are ideal for deployment on highly mobile autonomous systems and robots. While compact in size, the BreadCrumb DX2 and BreadCrumb ES1 provide the same reliable and resilient performance in hard-to-network environments as Rajant's other larger and more ruggedized wireless nodes.

Using our BreadCrumbs, you can transform robotics assets into network infrastructure, with nodes affixed directly to the systems so they can take coverage with them wherever they roam. They can also connect with other BreadCrumb-enabled assets in the area, uniquely enabling M2M communications. As a result, drone swarms, robots, and unmanned ground vehicles or sea vessels can communicate peer-to-peer to orchestrate movements, sense locations, and coordinate task execution.

Made for high-speed, long-range mobility enablement outdoors.

From interference-wrought, above-ground settings to underground tunnels and even on water, BreadCrumbs extend and expand the connectivity range of autonomous systems, allowing them to roam large geographic areas often. Kinetic Mesh enables fully mobile coverage without the need for infrastructure and can provide the operational coverage autonomous assets need when they are far away from LTE towers or have no line of sight. The network's ability to continuously self-optimize, even in the face of rapidly changing conditions, ensures performance even when connecting robotics traveling at high speeds – in excess of 100 miles per hours – without jitter or packet loss.

Military-grade security is built-in.

Robotic systems are prime targets for hackers looking to compromise or wreak havoc on industrial operations. Initially developed for military applications, Rajant's technology is the only wireless network to offer multiple cryptographic options inclusive of NSA Suite B algorithms and down to per-hop, per-packet authentication.

An autonomous network means support needs are minimized.

Because of its self-configuring functionality, deployment of a Kinetic Mesh network does not require a team of network engineers. After initial configuration, when new BreadCrumbs are turned on, they automatically begin communicating with other nodes in the area. Set up and maintenance time is minimized, lowering the total cost of ownership while speeding deployment time of wireless communications whenever and wherever your robotics platforms demand it.

Increasing Safety & Security Through Next-Gen Robotics: What's Enabled with Kinetic Mesh

Whether connecting ground robotics, aerial drones, or unmanned vessels at sea, Kinetic Mesh provides the extremely mobile and adaptive connectivity they require for optimal performance.

Optimizing Robotics in Challenging Environments

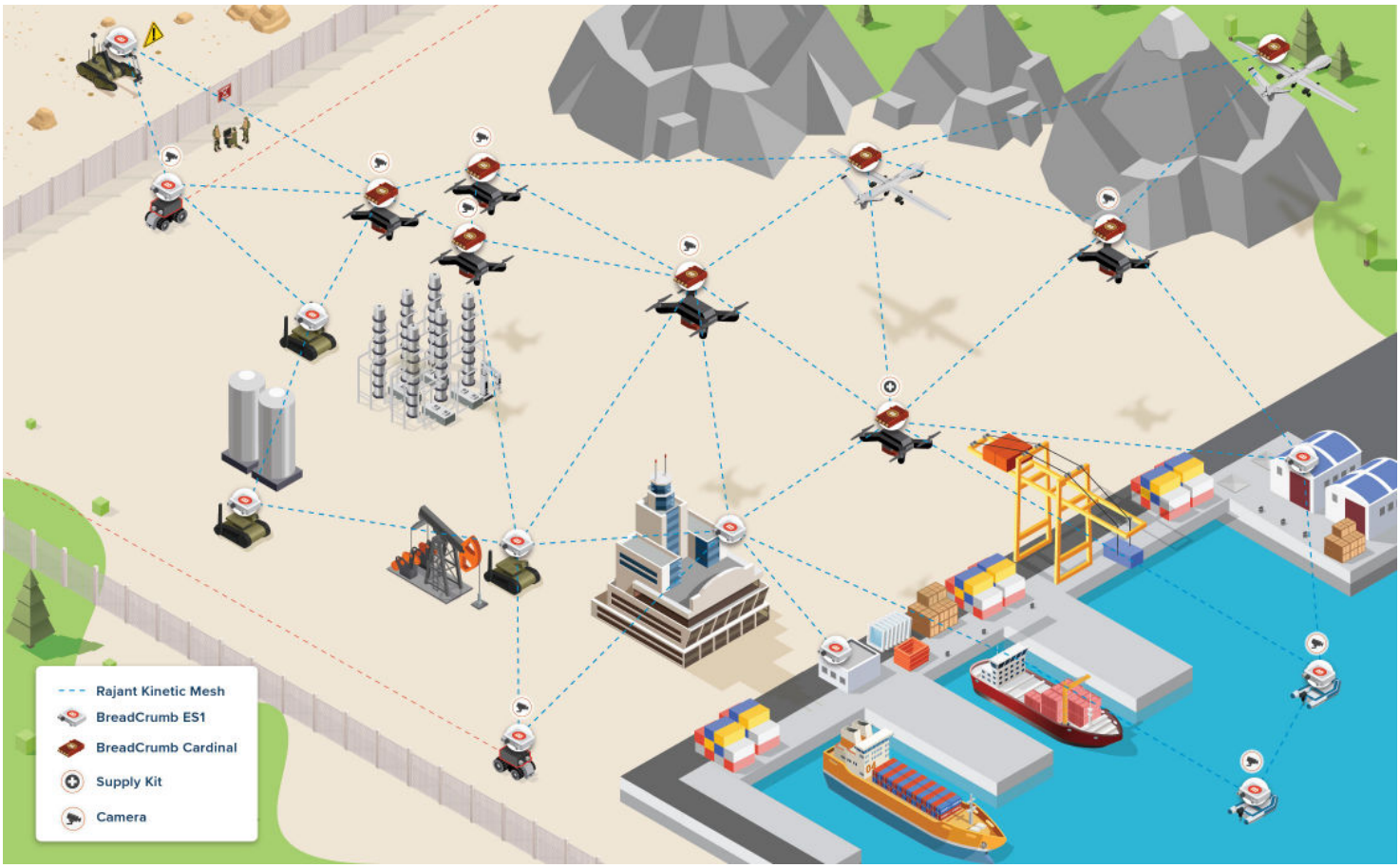
Used to secure mission-critical operations from breaches or in times of emergency response, aerial, ground, and water robots equipped with cameras can provide real-time video streams of every angle needed to identify and react to changing conditions quickly. Rajant's network provides continuous mobile connectivity that enables these systems to broadcast telemetry and live video to offsite command centers. Operators can then assess resource needs and deploy appropriate personnel and assets as situations evolve – mitigating lag times in response when time is of the essence. The high capacity network easily runs bandwidth-intensive video and data streaming applications and moves seamlessly with robotics systems to maintain mission-critical communications as they roam.

IDEAL BREADCRUMBS FOR USE WITH ROBOTICS

The Cardinal is powerful, lightweight, and notably the smallest within Rajant's portfolio of industrial wireless nodes. This dual radio module focuses on robotics and improves Wi-Fi and LTE while enabling connectivity to billions of Wi-Fi IoT devices.

The ES1 comes in a compact, lightweight, IP67 package ideal for use on light-duty autonomous vehicles, operating in challenging network environments that can utilize a less ruggedized solution.

The DX2 is designed for deployment on lightweight autonomous vehicles, and its small footprint and very low payload make it ideal for drone swarms and small robots.



Ensuring Uninterrupted Operations

Autonomous systems will only operate reliably if their network connectivity is also reliable. The ability of Rajant's Kinetic Mesh to leverage multiple paths and frequencies provides resiliency to guarantee the performance of bandwidth-intensive applications. It moves seamlessly with the systems as they traverse even challenging terrain so they can perform their missions without fail.

Enhance Security in Remote Corners

Industrial operations are typically set in sprawling outdoor environments, making it difficult to patrol the entire area effectively by manual means. Unfortunately a gap in the perimeter can translate to great risk to the business if breached. That is why more organizations are turning to robotics to support their security efforts.

With BreadCrumbs deployed on surveillance drones, watchguard ground-based bots, or unmanned surface vessels, Rajant supports any number of security applications they may run. For example, it can support data collection by bots performing eye scans of personnel to confirm authorizations, or those used to identify broken locks and damage to perimeter fencing. It can also connect unmanned rafts performing water-based checks of ports and marinas and for anti-piracy defense. The network's resiliency ensures these systems keep running to maintain 360° security in areas where it is not feasible, efficient, or safe to deploy human personnel.

Automate Inspections and Maintenance Tasks

Oftentimes industrial equipment is operating in remote and/or hazardous locations, and deploying workers to inspect these assets can put their safety at risk. What's more, are mainly limited to visual inspection and could easily miss minor issues that can become big causes of downtime later. Inspection robots can be used instead in these challenging environments, and have discrete sensing capabilities to more accurately identify and target maintenance needs. Rajant's high-capacity network supports reliable, real-time data delivery to and from the plethora of onboard sensors within these robotics systems needed to aid precise diagnosis of equipment problems and correct, efficient fixes.

Handle Hazardous Materials Without Putting People in Harm's Way

Robotics has become a major focus to help keep human teams out of dangerous situations. With Rajant, bomb squads can send in and remotely control robots to disarm suspicious and hazardous packages, and HAZMAT teams can do the same to have the machines handle dangerous materials.

Deliver Payloads Across Long Distances

Rajant's fully mobile nodes keep drones used for supply drops or package deliveries within coverage as they travel many miles. Kinetic Mesh enables M2M communications allowing drone swarms to work together and orchestrate their operations as they fly.

APPLICATIONS ENABLED

Transforming Robotics Safety and Efficiency
Kinetic Mesh enables a range of robotics platforms in hard-to-network environments, including those traveling over long distances and at high speeds. With extreme reliability and robust security, it provides fully mobile communications for:

Drone Applications

- Real-Time Video Surveillance
- Aerial Perimeter Monitoring
- Live Streaming of Incidents & Events
- Supply Drops & Package Delivery
- Beyond Visual Line of Sight (BVLOS) Operations
- Drone Swarms

Ground Robotics

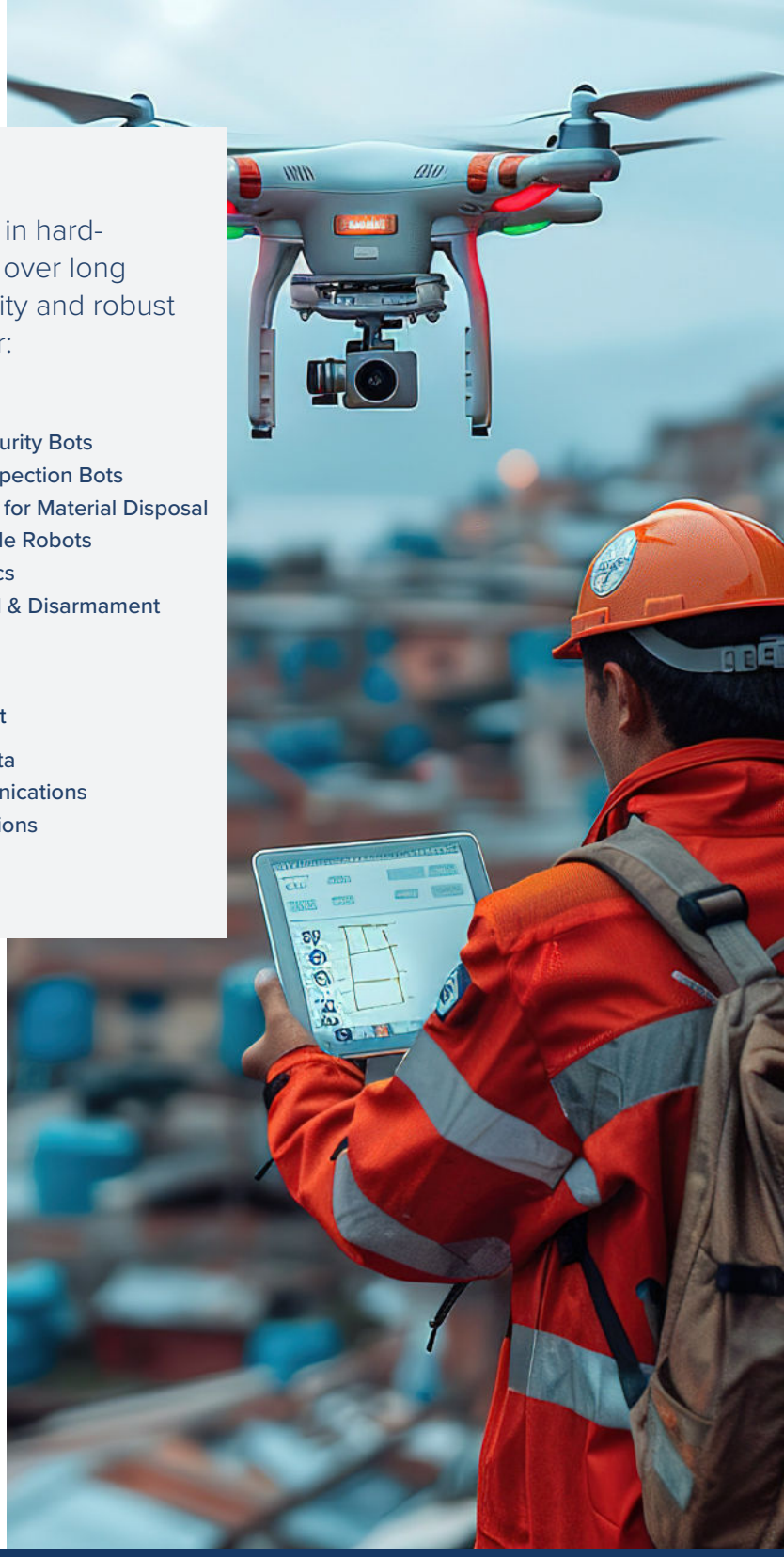
- Watchguard & Security Bots
- Maintenance & Inspection Bots
- HAZMAT Robotics for Material Disposal
- Centennial & Mobile Robots
- Harvesting Robotics
- Explosive Removal & Disarmament
- Payload Delivery

Unmanned Water Vehicles

- Marina Security Sweeps
- Port Perimeter Security
- Anti-Pirating Operations
- Oceanic Research
- Seafloor Mapping

Robotics Enablement

- Live Streaming Data
- Real-Time Communications
- M2M Communications
- Remote Sensing



Rajant Private Wireless Networks: Enabling Robotics to Transform the Safety and Efficiency of Dirty, Dull & Dangerous Operations

Rajant provides the ideal networking solution to rapidly and reliably interconnect diverse robotics systems, so you have real-time control and full situational awareness at all times. The ability of Rajant Kinetic Mesh to transform mobile assets into network infrastructure makes it ideal for connecting autonomous vehicles, vessels, robots, and drones – no matter how large or small.

Seamlessly Integrated Innovation: Leading the Future of Capabilities for Robotics.

Visit rajant.com/robotics to get started.

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