



The playbook for success in a new age of hybrid satellite-cellular IoT

Exploring how customer demand and satellite innovation are driving ubiquitous IoT connectivity

1 How hybrid IoT is reshaping customer expectations

Satellite IoT technology has evolved significantly in recent years, and with it, customer expectations. More businesses want uninterrupted, global connectivity to track and manage their assets anywhere in the world.

While true global coverage isn't here yet, it's closer than ever. Advancements in satellite technology are making devices smaller, more powerful and more energy-efficient—unlocking new opportunities and reducing the cost of adding satellite to traditional cellular IoT deployments.

Hybrid satellite-cellular connectivity now delivers value on both sides. Solution providers can expand into new markets and unlock more applications, while customers benefit from connectivity that works in areas with limited cellular coverage.

The convergence opportunity for cellular IoT solution providers

With satellite connectivity becoming more accessible and affordable, cellular IoT solution providers have the opportunity to deliver always-on connectivity to their customers. This can help address longstanding industry challenges, unlock new verticals and deliver even greater value.



CUSTOMER USE CASE:

ORBCOMM hybrid connectivity drives results for Kuchera mining customers

Mining company Kuchera's teamUp platform helps customers improve utilization, boost revenue, reduce CO2 emissions and cut fuel consumption. However, in some countries, poor connectivity at mining sites gets in-between customers and their data.

Kuchera fixed their connectivity challenges with ORBCOMM's hybrid technology. This kept their customers connected to their assets, enabling them to get the following results:

- **Improved** revenue **by 40%** during one billing cycle
- **Increased** uptime **from 8.5 hours** per shift **to 10** within the first week
- **Enhanced** load accuracy **from 80% to 95%** in the first month
Drove operator output **from 6 to 8** loads per hour
- **Decreased** idling **from ~3 hours** per shift **to** less than **30** minutes on average
- **Reduced** fuel consumption **from 1,300 litres to** less than **900** litres across a fleet of 10 dump trucks

2 Six industries driving the future of satellite IoT adoption

Satellite connectivity is fueling innovation in wide range of different industries. Early adopters have an opportunity to lead and meet fast-growing customer demand with powerful IoT solutions.

1. Agriculture

Smart agriculture is being transformed by advances in satellite technology. Farms in remote locations can now access localized weather, field-by-field crop data and pest alerts to help maximize crop yields with fewer resources. Before, limited cellular coverage made it difficult to receive real-time data from the field.

CUSTOMER USE CASE:

Deploying satellite-powered smart agriculture in Brazil

Zeus Agrotech, serving the Brazilian agriculture market, uses IoT-enabled weather stations powered by ORBCOMM satellite connectivity to provide farmers with microclimatic field data—enabling better planning of planting and harvesting. This technology lets growers add an additional crop rotation per season and reach areas outside cellular coverage, covering 75 million hectares of Brazilian farmland and Productivity at the Queensland Mining Awards, and plan on expanding into leak detection solutions in the future.

2. Transportation

Satellite IoT is enabling real-time asset visibility in transportation, eliminating supply chain blind spots and boosting transparency and security. This can help in areas where there's limited cellular coverage due to remoteness, congestion or infrastructure damage.



3. Maritime

Maritime telematics is within reach for small vessels thanks to lower-cost satellite hardware. This can be used to protect ocean resources, monitor fishing conditions, while also supporting the fight against illegal and unreported fishing. On larger ships, satellite connectivity can even be used to enable email and imaging data, which can help improve crew welfare and quicken disaster response time.



4. Oil and gas

Satellite IoT delivers vital benefits for oil and gas operations. Remote site imaging supports supervisory control and data acquisition applications by enabling operators to verify asset safety 24/7 without spending time and money sending personnel to locations. Stayed connected in the oil and gas industry is especially important for pipeline monitoring, where delayed information can have catastrophic results.



5. Mining, construction and heavy equipment

One thing that these three industries have in common is expensive equipment. Satellite IoT can be used to remotely monitor and control water pumps and track engine hours, fuel consumption, idle ratio and more, improving efficiency and reducing costs. Plus, satellite connectivity can support remote site imaging, device firmware updates and log file retrieval, all without needing to send personnel. Thanks to the reduced cost of satellite connectivity, hybrid solutions make more economic sense for even inexpensive equipment, creating a fully-connected ecosystem that helps protect people and assets.



6. Utilities

Satellite IoT solutions can strengthen grid resiliency and reduce service interruptions by connecting businesses to key data from their reclosers and transformers. Having the ability to correctly react when issues occur using an IoT-enabled smart grid system can help improve damage control and disaster recovery.



3 Four things to consider when choosing a satellite IoT connectivity provider

The benefits of satellite connectivity are clear—but selecting the right partner is crucial. Consider these four factors:

1. Regulations

Satellite connectivity is subject to stricter and more complex regulations than cellular. Understand where your satellite IoT connectivity provider is authorized to operate and if they have any regional limitations as these affect your operational footprint.

2. Financial stability

Launching and maintaining a satellite network requires deep financial resources and proven reliability. Avoid the risk of working with new, unproven startups and instead partner with connectivity providers who have the experience and capital to sustain long-term operations.





CUSTOMER USE CASE:

Boosting mine visibility in Australia

AAMG is fixing operational inefficiencies for their customers across Australia by using ORBCOMM's satellite and hybrid satellite-cellular terminals to help their customers stay connected to their mining equipment and personnel, no matter how remote. With their in-house technical expertise and cutting-edge ORBCOMM technology, AAMG was named a finalist in Innovation and Productivity at the Queensland Mining Awards, and plan on expanding into leak detection solutions in the future.

3. Technical support

Having access to comprehensive technical support through your connectivity provider can ensure you fix problems before customers get angry. They can help you avoid technical pitfalls and can play a vital role in getting your satellite solution up and running faster. Finding an experienced team of engineers who have seen a wide range of different IoT applications can pay dividends by reducing unnecessary downtime during solution ideation, creation and deployment. Some may offer development kits that enable experimenting with new ideas, or terminal applications that can act as the building block for your solution.

4. Innovation and technology

Industries continue to change as satellite technology evolves, making it crucial that you choose a satellite connectivity provider that will continue to innovate its offering. Whether its lower message latency, improved hardware battery life or larger data loads, being able to build something with the latest satellite technology is vital to staying competitive.



4 Introducing OGx: the future of satellite IoT

OGx—our next-generation satellite service—is ushering in a new era of IoT innovation, empowering solution developers to evolve their business and expand to new markets.

With OGx, we've combined our pioneering technology with almost three decades of satellite industry experience to help IoT solution developers build better.

Power-efficient hardware

OGx's unique network design reduces the power consumption of terminals compared to those on our previous satellite networks. This helps reduce hardware costs by enabling solution providers to use smaller batteries, solar panels, power supplies and enclosures. Plus, they can increase message frequencies and reduce latency using the same hardware.

Superior satellite network

Deploy in some of the most remote parts of the globe with powerful OGx satellite connectivity featuring extensive regulatory coverage. OGx will be supported until 2035 at minimum, adding an extra level of assurance that your solutions will have the connectivity it needs for the long run.

Flexible data pricing

Reduce overage charges with OGx by only using as much data as you need. Build innovative IoT applications that use varying levels of data at more predictable—and competitive—price points.



Build better satellite IoT solutions with ORBCOMM

We help integrators and IoT solution providers build winning satellite IoT solutions that address some of today's biggest challenges, from optimizing crop yield and reducing over-the-road emissions to monitoring mining equipment and tracking shipping container cargo across global supply chains.

Our mission is to help our customers expand their IoT applications, grow their businesses, improve the economics of their solutions and give them a competitive edge with world-class satellite IoT technology.

We offer a full suite of satellite, cellular and hybrid hardware and connectivity options so system integrators and IoT solution providers can build with the latest technology at their disposal.

Our multi-language technical support team is ready to help you from ideation to deployment to troubleshooting. Accelerate innovation with development kits designed to help you experiment with new ideas. Use our terminal apps as building blocks for your IoT solution or fully customize them to meet your needs.

Facing some complex technical challenges? Our team of field application engineers can help with detailing customer requirements, system and application consultation, custom software development and more.

Start simplifying your satellite IoT solution development—**send us an email** today.

Visit our website **www.ORBCOMM.com**



ORBCOMM is a global leader in industrial IoT, delivering visibility, intelligence and efficiency to the world's most critical operations. With 30 years of innovation and more than 2.4 million connected devices, we transform data into actionable insights, driving greater efficiency, safety, resilience and sustainability. Serving customers that include the world's largest shipping lines, over-the-road trucking fleets, cold-chain transportation fleets and a global network of IoT solution provider partners, ORBCOMM is where IoT powers asset intelligence.