



Taking IoT Further

INVESTOR
PRESENTATION

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Today's presenters



Fabien
JORDAN
CEO/FOUNDER

15-year experience in nanosatellite business, key engineer of the SwissCube project, worked on ESA ExoMars mission



Kjell
KARLSEN
CFO

Former President of Sea Launch AG. Led its restructuring in 2010. Participated in 39 launches with a total payload value in excess of \$7 billion



Jose
ACHACHE
CHAIRMAN

Former Director of Earth Observation Programs at ESA and Deputy Director General at CNES

Introduction to Astrocast (click title for video)



Global, cost-effective satellite constellation optimized for IoT

INVESTMENT HIGHLIGHTS

Strong IoT market growth with **expanding use cases**

Addresses significant untapped market through **global satellite connectivity**

Vertically integrated with **in-house proprietary nanosatellite manufacturing, key technology differentiators** and **advantageous spectrum position**

Scalable business model with **high recurring service revenue potential**

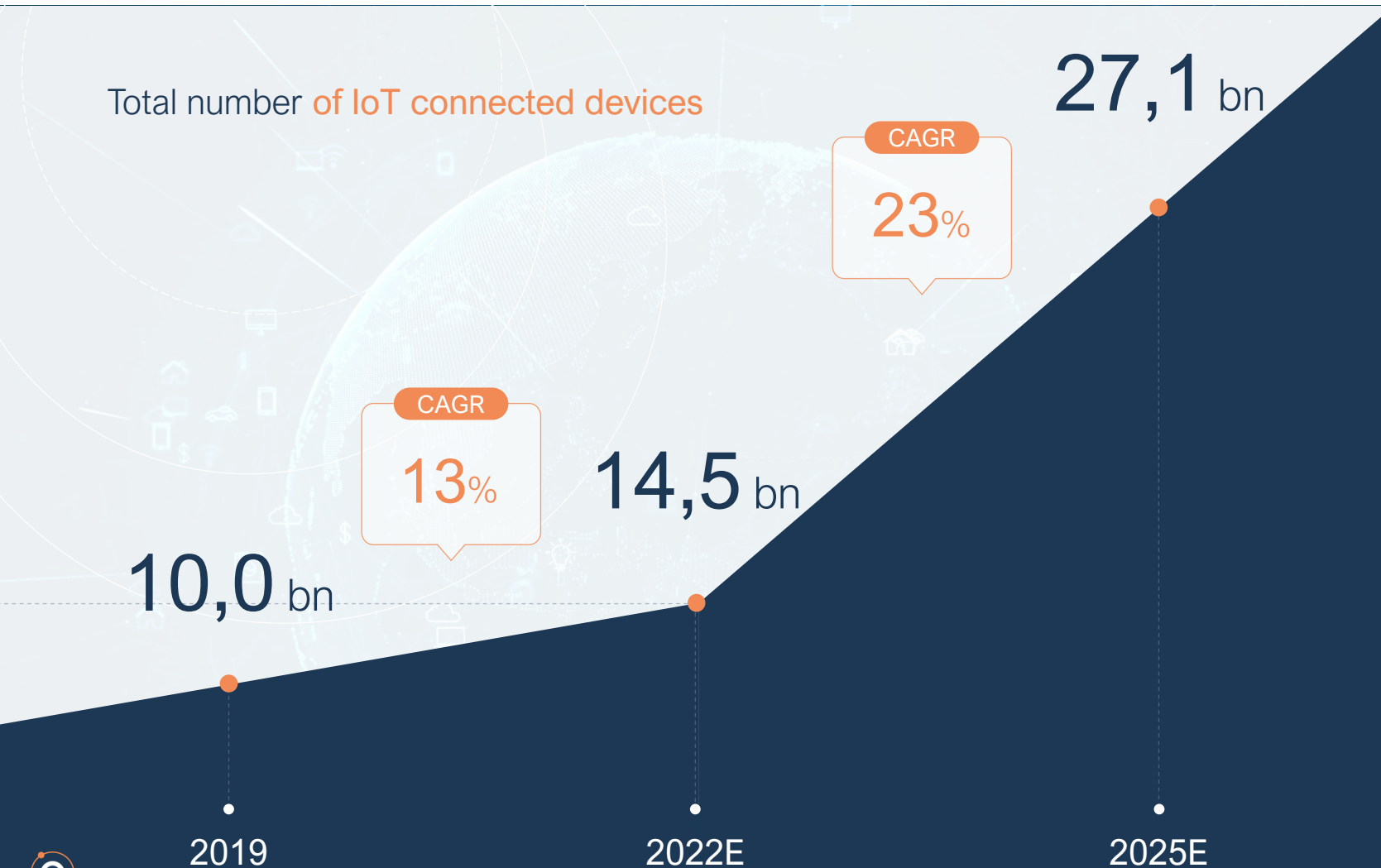
Robust **sales pipeline**, driving revenue **growth** and improving **margins**

Seasoned management team with strong track-record in **Space and IoT innovation**

astrOcast

The overall IoT market is poised for growth

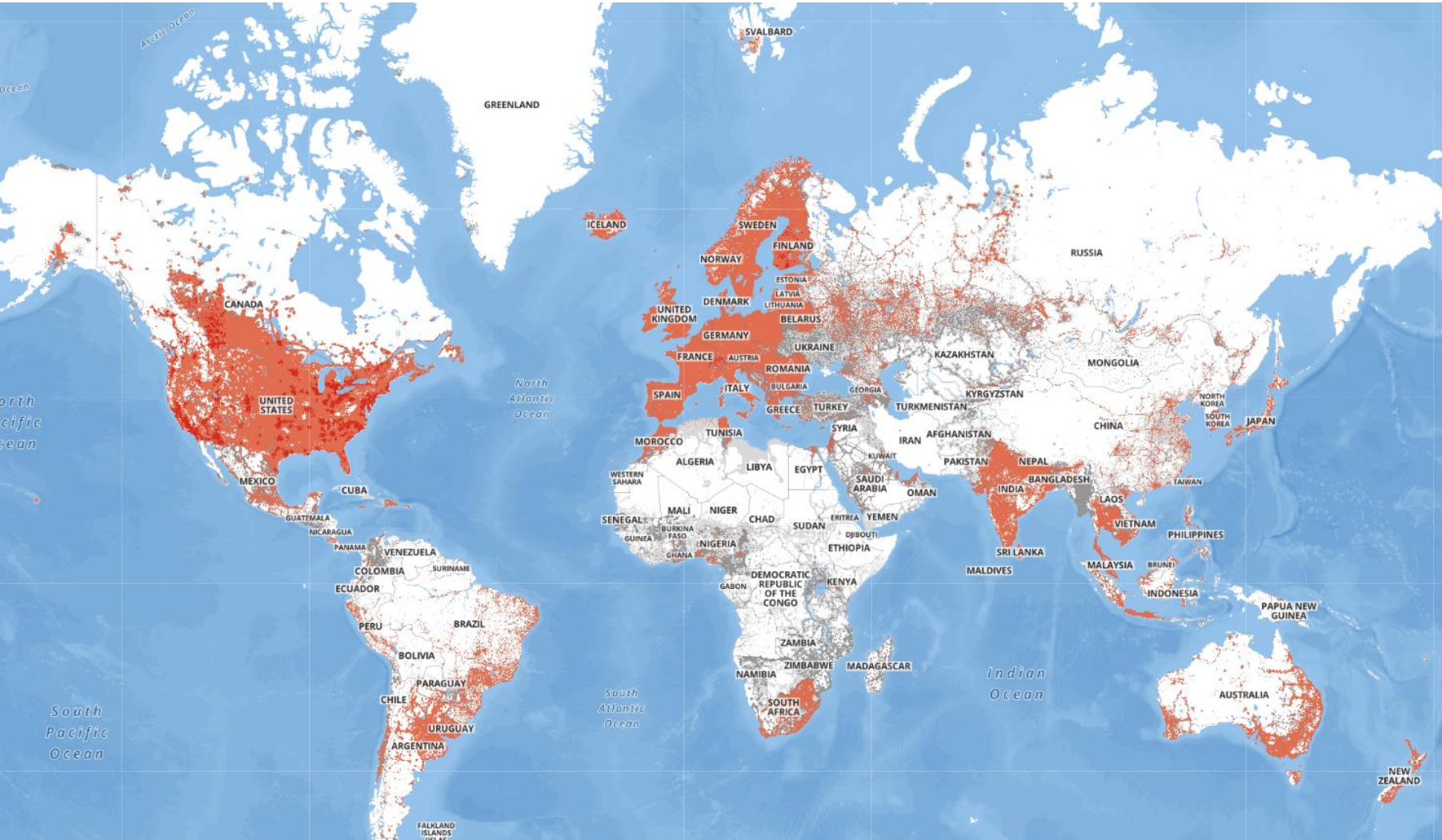
IOT MARKET GREW SIGNIFICANTLY IN THE PAST FEW YEARS AND THE GROWTH IS EXPECTED TO ACCELERATE



Decreasing connectivity and device costs unlock **untapped markets and use cases to connect “anything”**, beyond objects that were traditionally the focus of IoT, further driving demand



Significant “white space” lacking IoT coverage



- 5G Data, Voice / Messaging
- 4G LTE Data, Voice / Messaging
- 3G Data, Voice / Messaging
- 2G Data, Voice / Messaging

Terrestrial systems only cover **10-20%** of the world's surface area

IoT devices connected by satellite are expected to exceed 30m...

SATELLITE IOT IS COMPLEMENTARY TO AND EXTENDS THE REACH AND COVERAGE OF EXISTING TERRESTRIAL NETWORKS

Strong IoT market growth is contributing
to acceleration in Satellite IoT connectivity



...driven by a vast number of use cases

MULTIPLE SECTORS TO BENEFIT FROM LOW-COST SATELLITE IOT CONNECTIVITY

ENVIRONMENT & UTILITIES

Water infrastructure, environmental sensors, smart metering

AGRICULTURE & LIVESTOCK

Agriculture sensors, livestock and species tracking

ASSET MONITORING

Industrial equipment tracking
Panic buttons

CONNECTED VEHICLES

Vehicle telematics, commercial fleet and rental vehicle tracking, mobile tank tracking, fuel-chemical food tank monitoring

MARITIME

Fishing buoys, navigation and environmental buoys

OIL, GAS & MINING

Heavy equipment, tracking and monitoring, well head monitoring, cathodic protection, environmental sensors, security

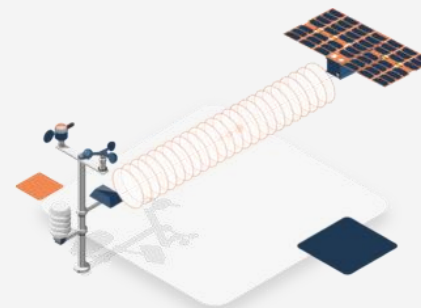


Astrocast at a glance

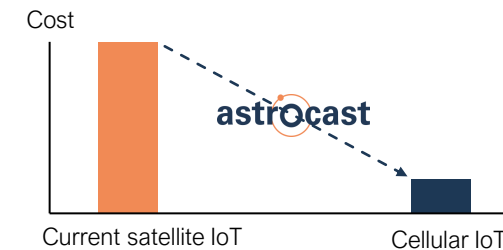
ASTROCAST
IS DISRUPTING
THE IOT MARKET



Astrocast has a rapidly growing network and satellite constellation, expected to be fully deployed and operational by 2023



L-Band based network, one of the most reliable and efficient spectrums for Satellite IoT applications



Proprietary, internally developed technology enables low-cost Satellite IoT communication services, driving down service cost and increasing penetration rates



70

Countries with activated commercial licenses across four continents and growing



85

Employees



Robust sales pipeline

Advanced discussions and dev kits shipments with 70+ partners, integrators, engagements and international TELCOS



Products overview

ASTRONODE S

Price: USD \$49

Bidirectional satellite communication module with a serial interface and a compact, surface mount form factor

Sends messages, gets them acknowledged and receives commands



ASTRONODE PATCH ANTENNA

Price: USD \$3.90

Compact ceramic patch antenna optimized for operation on the Astrocast network

Bidirectional communication in the L-Band and GNSS reception for tracking purposes



ASTRONODE S+

Price: USD \$79

Certified industrial satellite communication device, ready to install and connect

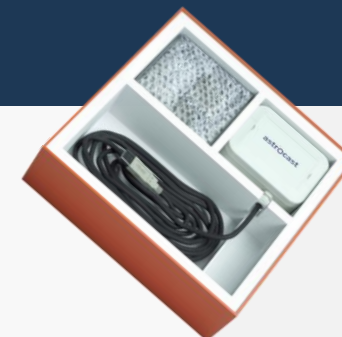
Does not require resources in electronic and RF design, enabling short time to market



ASTRONODE DEVKIT

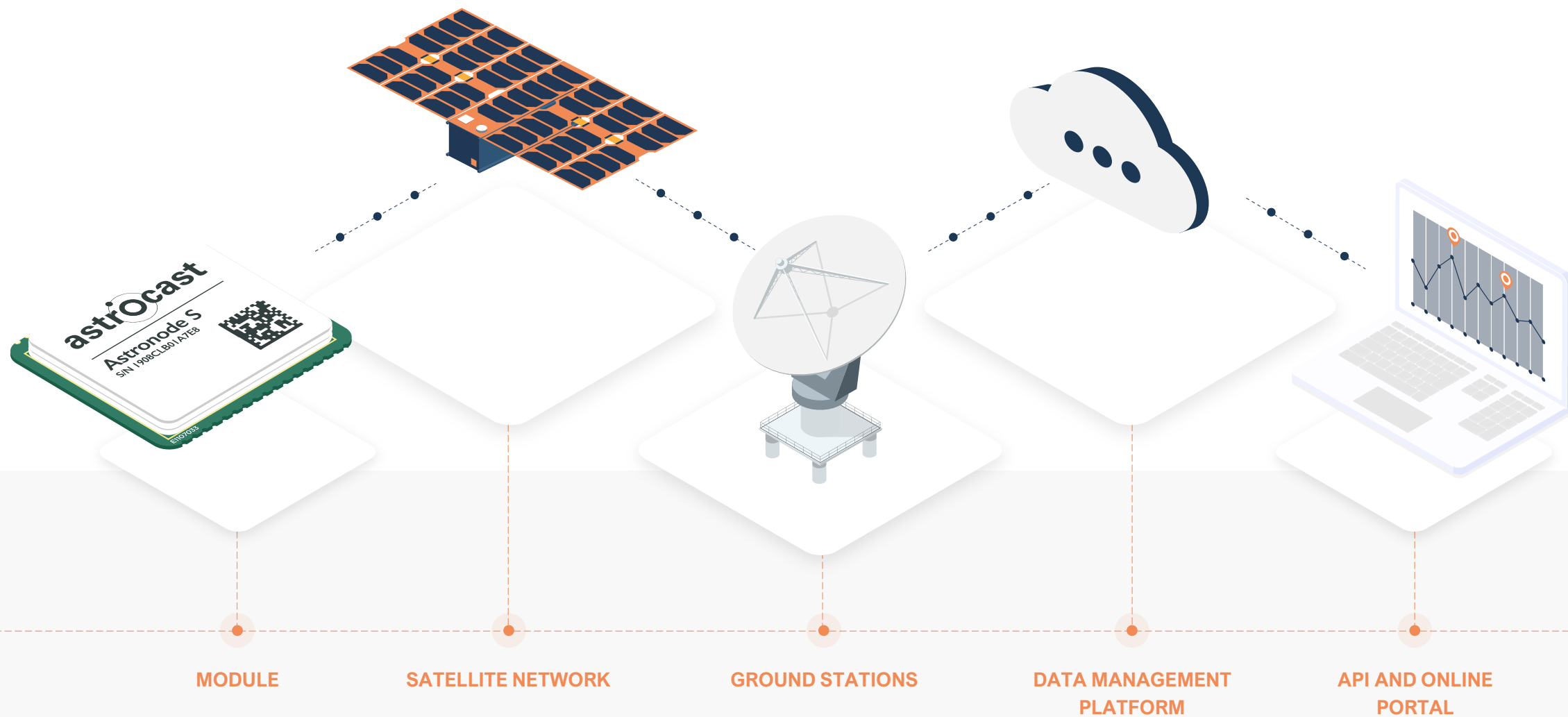
Contains items needed to connect assets to the Astrocast nanosatellite IoT network

Provides end-to-end connectivity with the Astrocast network in under 20 minutes

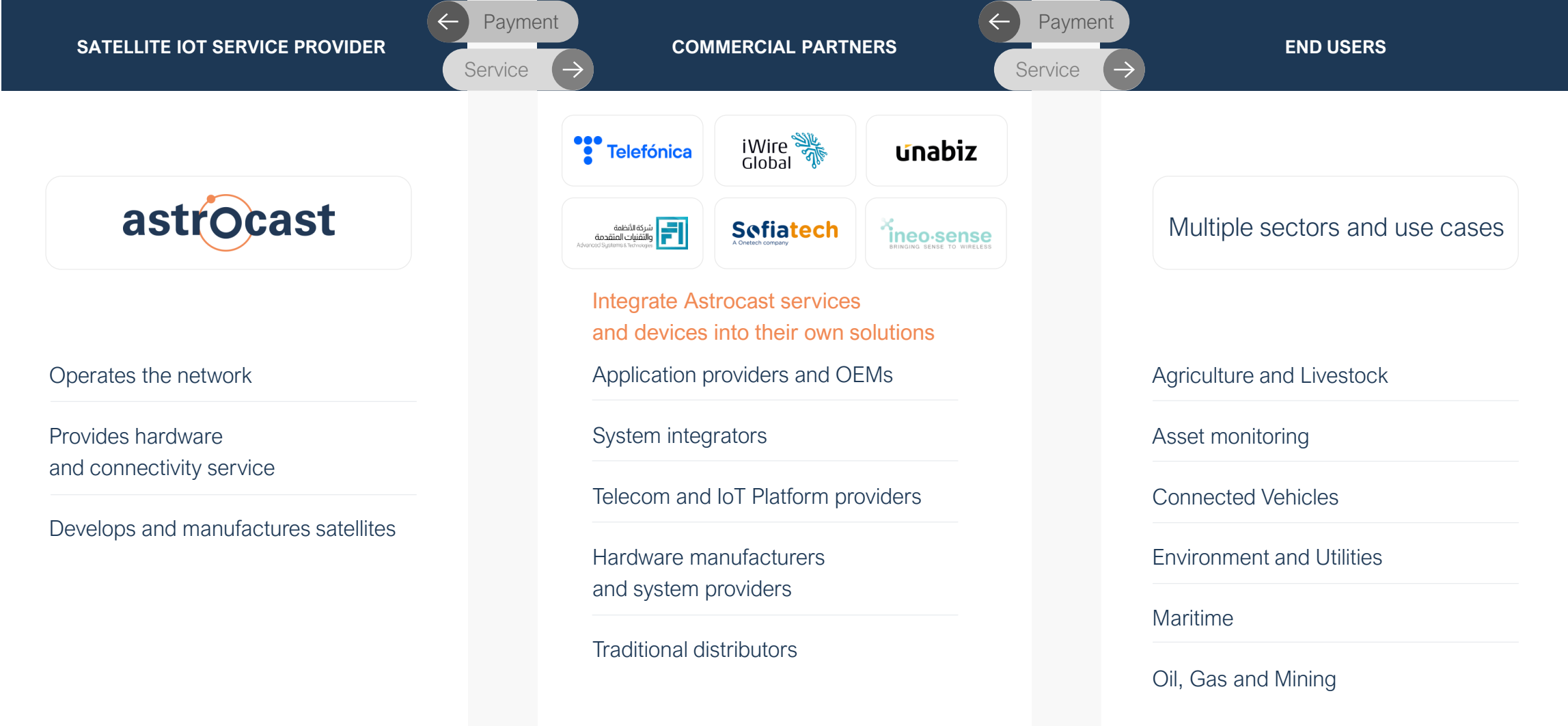


How Astrocast works

ADVANCED DATA PROTOCOL AND SECURE DATA MANAGEMENT



Business model aimed at reducing risk and increasing speed to market



Case study: Telefónica taps Astrocast to provide global asset tracking

DELIVERED PROOF OF CONCEPT AND DEVELOPING PRODUCT PROTOTYPE

SOLUTION DESCRIPTION

Customer challenge:

Customers require global network availability in order to track and monitor the location and condition of their goods in areas that are not covered by cellular networks (80-90% of the world is not currently covered)

Why Astrocast:

Astrocast's network allows customers to track, measure, communicate and control their IoT assets in the most remote regions

Solution:

Container tracking and monitoring solution

Benefit to Telefónica:

Combining Telefónica's cellular network with Astrocast's satellite solution into one IoT connection will allow Telefónica to track customer resources globally

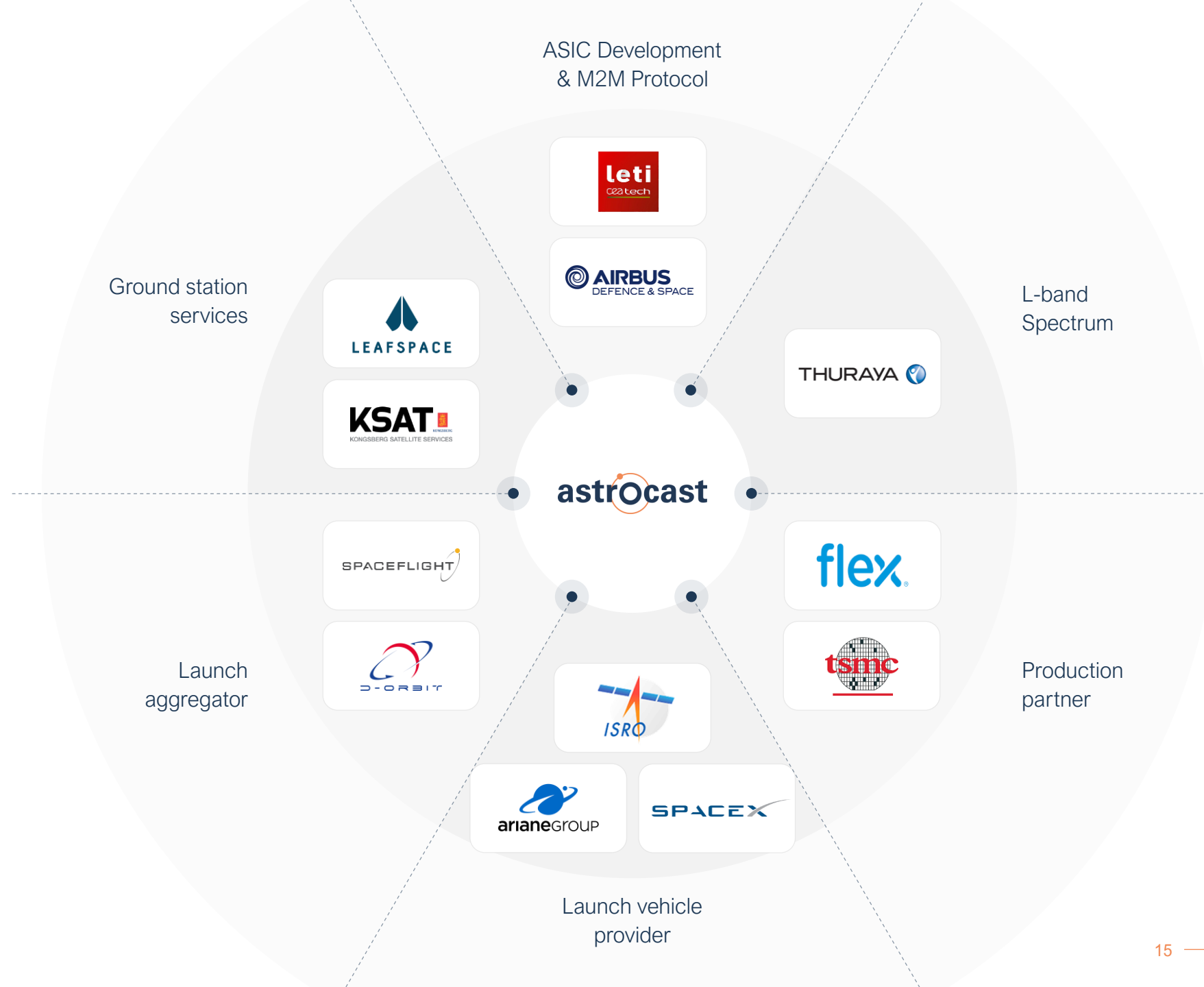
Potential units per year:

2022: <10k / 2023: 100k / 2024: 1M+

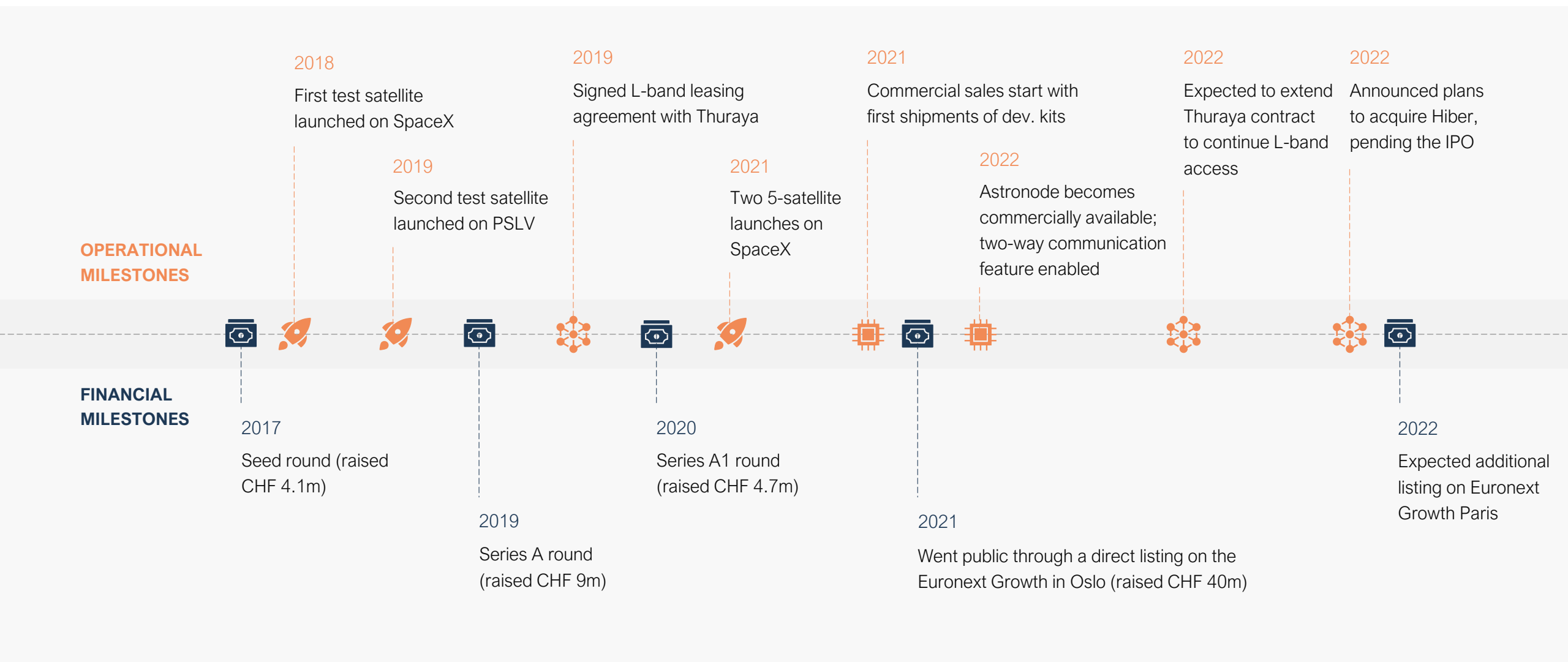
PROOF OF CONCEPT OVERVIEW



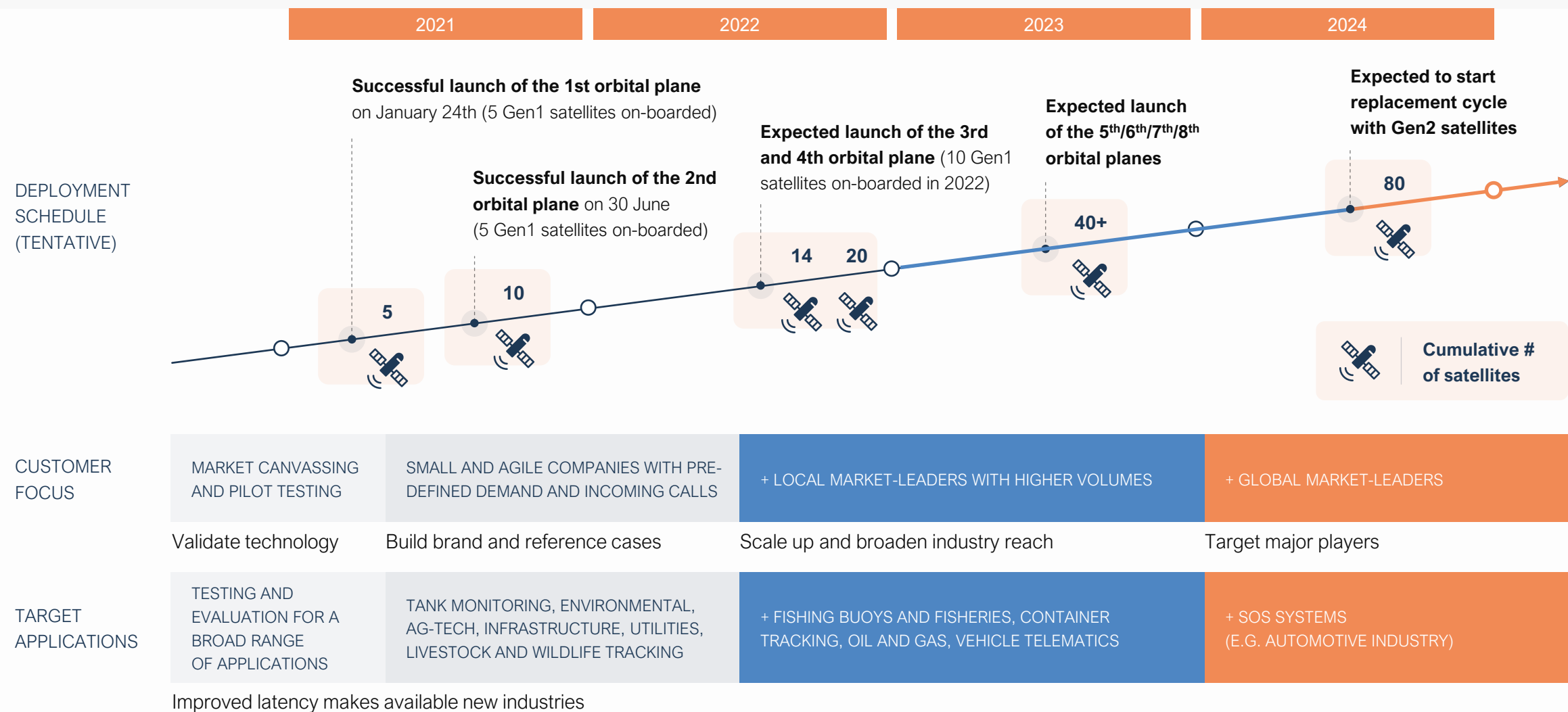
Well-established,
high-quality
partner ecosystem
allows Astrocast
to focus on its core
competencies

























Focused execution further de-risks the business model



Scaling the constellation to address increasing customer demand



Astrocast in pole position to capture key IoT segments



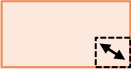






















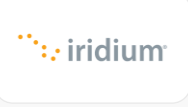




	Low bandwidth, high latency			Low bandwidth, moderate/low latency		High bandwidth, ultra-low latency			
	1	2	3	4	5	6	7	8	9
Use cases	ASSET TRACKING	TELEMETRY	TELEMATICS & ANALYTICS	FIXED SAFETY, SECURITY & EMERGENCY	MOBILE SAFETY, SECURITY & EMERGENCY	COMMAND & CONTROL	MOBILE TELEPHONY	VIDEO	INTERNET BROADBAND
Selected applications	<ul style="list-style-type: none"> Cargo logistics Long-range tracking Location tracking Animal tracking Asset & equipment monitoring 	<ul style="list-style-type: none"> Meter reading Tanker tracking Vehicle diagnostics Fishery management Flow monitoring Systems monitoring Weather data 	<ul style="list-style-type: none"> Fuel management Dispatch optimisation Route optimisation Maintenance optimization 	<ul style="list-style-type: none"> Authentication systems Anti-theft systems Panic alerts Theft prevention Security management 	<ul style="list-style-type: none"> Emergency response Emergency assistance Accident or incident First responders Security alert systems 	<ul style="list-style-type: none"> Automation Door/gate locking & unlocking Alarm management Asset/station control 	<ul style="list-style-type: none"> Communication Border patrols Coast guard 	<ul style="list-style-type: none"> CCTV cameras Video monitoring 	<ul style="list-style-type: none"> Broadband internet access
Selected players ¹	<div>  <div>     </div> <div>     </div> </div> <div>              </div>								

¹ non-exhaustive list of players

Source: London Economics (2017): "Nanosatellite Telecommunications: A Market Study for IoT/M2M applications"

Astrocast's approach to IoT connectivity is superior on key metrics such as cost, power consumption and size

Competitive positioning

		ANTENNA SIZE	FREQUENCY	PEAK POWER	COST PER MODULE	SERVICE COST	IN-HOUSE MANUFACTURING
			L-Band		<\$50	\$1 / month	
			UHF/VHF		<\$50	-	
			UHF/VHF		-	-	
			UHF/VHF		<\$89	\$5 / month	
			UHF/VHF		-	-	
			L-Band		<\$120	\$10 / month	

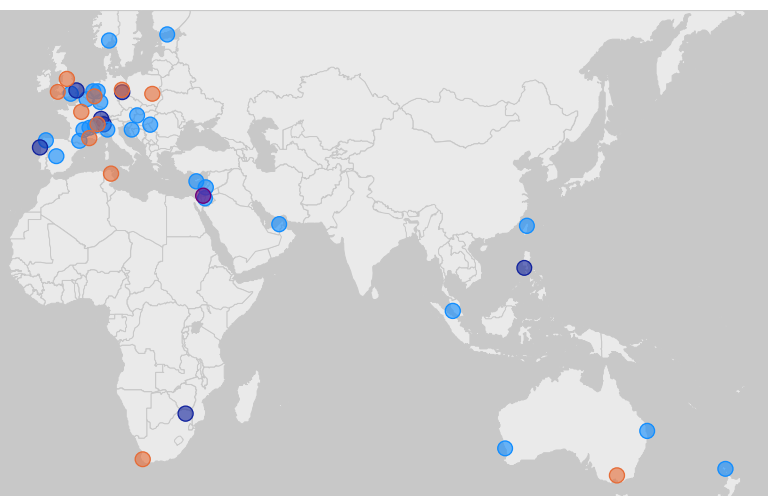
Astrocast's small form-factor antenna enables new use cases

ANTENNA SIZE COMPARISON



Commercial activity on track

SIGNIFICANT PIPELINE: KEY MOU'S SIGNED AND 50+ ACTIVE PROGRAMS UNDERWAY



TOTAL LEADS

525

ACTIVE QUALIFIED LEADS CURRENTLY IN-PLAY

132

ACTIVE "HOT" OR "WARM" OPPORTUNITIES IN-PLAY

67

ACTIVE PROGRAMS UNDERWAY

52

Key MoU's signed



Other potential key projects with Telcos & MVNOs



Other potential key projects with OEM's



Client and partner testimonials

HIGHLY EXPERIENCED AND COMPETENT

Peer
LODBROK

DIRECTOR MNC TELEFÓNICA
GLOBAL SOLUTIONS



By collaborating with Astrocast, Telefonica can offer its customers a multi-connectivity IoT solution and take them further on their IoT journey. The key IoT-use case is to never lose track of your assets.

Ahmed Fasih
AKHTAR

FOUNDER, CEO



There is a unique opportunity to deliver immense value in the communities we serve using innovative technologies and sustainable solutions and we are excited to partner with Astrocast to enhance our offer.

Henri
BONG

CO-FOUNDER & CO-CEO



The Satellite-IoT market is growing rapidly. UnaBiz is pleased to partner with Astrocast and leverage its cost-effective, low-power, bidirectional direct-to-satellite services to complement existing LPWAN projects that we are currently driving in the market.

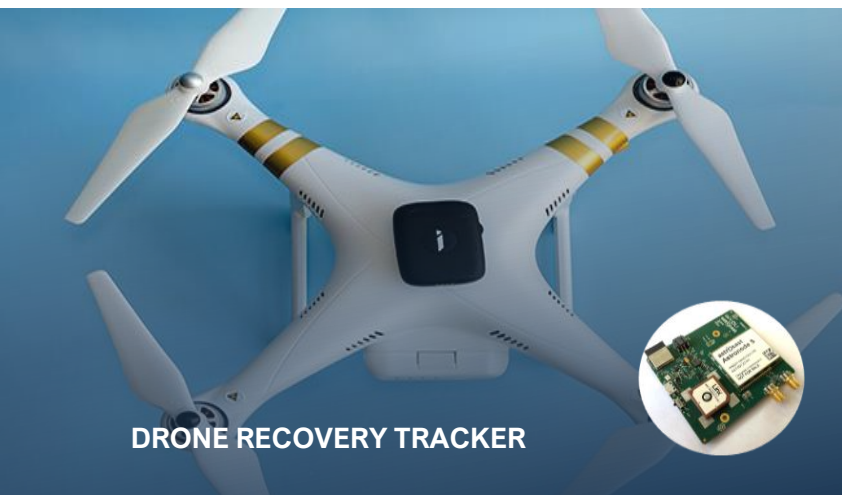
Dr. Mike
PRIOR-JONES

RESEARCH ASSOCIATE



I'm pleased to see that Astrocast have gone public with their satellite service pricing. It's incredible value for a low-bandwidth message-based service is ideal for instrument monitoring.

End-user product integrations



Strong ESG profile

ACTIVELY SUPPORTING ENVIRONMENTAL PROTECTION AND SUSTAINABLE DEVELOPMENT

ENVIRONMENTAL PROTECTION AND SUSTAINABLE DEVELOPMENT



Wildfire detection, animal tracking, water monitoring & vehicle monitoring

WILDLIFE TRACKING



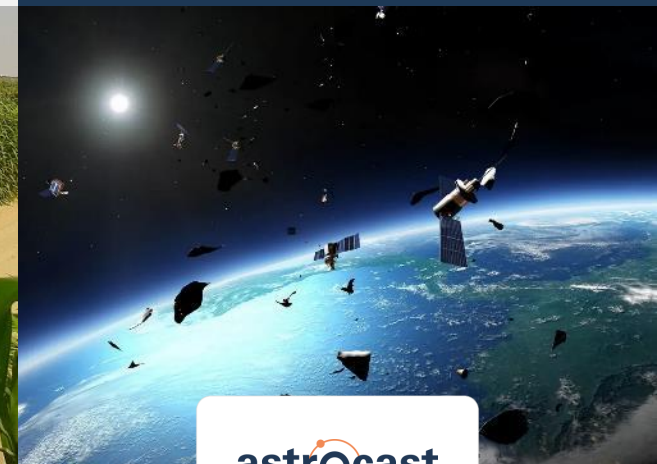
Wildlife tracking, supporting biodiversity

SOIL MONITORING



Data-logger for field monitoring

SPACE DEBRIS



Not contributing to space debris through state-of-the-art propulsion system enabling collision avoidance satellite manoeuvres

Astrocast signed acquisition agreement with Hiber

HIBER OVERVIEW

Founded in 2016, headquartered in the Netherlands









B2B business model, focused on IoT-as-a-Service, in rural and remote areas

100% multi-year subscription-based model covering sensors, network hardware, satellite connectivity and dashboard

Attractive financial profile at full ramp: ~50% gross margin, cash-flow positive in month 13 in case of 4-year sample contract

Uniquely positioned within the industrial IoT market

PORTFOLIO OF SOLUTIONS ACROSS KEY VERTICALS

Verticals	Solutions	Sample clients
Agriculture Asset Management Forestry Logistics Mining	 Asset tracking IoT for off grid worksites €15/month Installation time: 10 min	  GEMFIELDS
Oil & Gas ¹	 Wellhead monitoring €350/month Installation time: 1 hour	   



¹ through a joint venture with WTS Energy

Transaction Rationale



EXPANDS END MARKETS

Accelerates Astrocast's OEM strategy and **gains** access to new industry verticals



ADDS A TEAM OF 50+ HIGHLY SKILLED, EXPERIENCED IOT SPECIALISTS

Hiber workforce has **unique technical capabilities** and **understanding** of customer IoT needs across multiple verticals



COVERAGE OF THE AMERICAS REGION

Leveraging Hiber's L-Band **spectrum access**



EXPANDS PORTFOLIO OF PRODUCTS AND SERVICES

Provide **end-to-end customer solutions** complementary to Astrocast's product and service offerings: HiberHilo and HiberEasypulse solutions



BROADENS INVESTOR BASE

Provides **exposure** to new investors

Key financials

As more satellites are deployed and latency is reduced, additional market segments become available, increasing the total addressable market

Astrocast expects strong revenue growth driven by ramp-up in sales activity and deployment of additional satellites

Estimated capacity utilization 2025 (KB) of less than 25%

Financial guidance		
	Medium-term	Long-term
Data Plan Revenue	~25-40%	~80%
Hardware Revenue	~60-75%	~20%
Annual Revenue	CHF 80m – 150m+	CHF 150m – 350m+
Gross Margin	~20 – 40%	~50 – 80%
EBITDA Margin	~20 – 30%	~50 – 75%
Average Annual Capital Expenditures	CHF 20m – 25m	



Appendix

INVESTOR PRESENTATION

astroOcast

astrocast



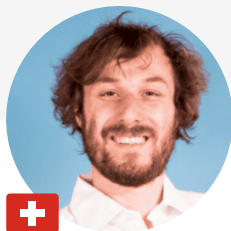
Seasoned management with strong track-record in Space and IoT

HIGHLY EXPERIENCED AND COMPETENT



Fabien
JORDAN
CEO/FOUNDER

15-year experience in nanosatellite business, key engineer of the SwissCube project, worked on ESA ExoMars mission



Federico
BELLONI
CTO/FOUNDER

12-year experience in satellite and telecom technologies having worked at Swiss Space Center on CHEOPS, CubETH, CleanSpaceOne, MicroThrust and SpaceCam projects



Kjell
KARLSEN
CFO

Former President of Sea Launch AG. Led its restructuring in 2010. Participated in 39 launches with a total payload value in excess of \$7 billion



Antonio
WALLER
VP OF GLOBAL SALES

15+ years of general sales, management and business development experience with a focus on B2B technological sectors, IoT, Fleet Telematics, M2M and Telecoms (Orbcomm in particular)



Laurent
VIEIRA DEMELLO
COO

18-year experience in international program management and business development for satellite telecommunications and solution providers within SITA and ESA



Marcel **BARAT**
VP CUSTOMER
SERVICE AND
NETWORK OPERATION

30 years of senior management and customer service experience for Telecom service providers and premium vendors building strong worldwide organizations



Senior and competent Board of Directors

STRONG INDUSTRY EXPERTISE



Jose
ACHACHE

CHAIRMAN

Former Director of Earth Observation Programs at ESA and Deputy Director General at CNES



Jan Eyvin
WANG

BOARD MEMBER

Joined Wilhelmsen in 1981 and currently holds the position as Executive Vice President New Energy. Has held several senior positions in Norway and abroad. Recently led the Edda Wind listing in Norway



Jon
CHOLAK

BOARD MEMBER

Seasoned venture investor and software professional with over 15 years of industry experience. Currently serving as Managing Director of Adit Ventures



Fabien
JORDAN

CEO/FOUNDER
& BOARD MEMBER

15-year experience in nanosatellite business, key engineer of the SwissCube project, worked on ESA ExoMars mission



Federico
BELLONI

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& BOARD MEMBER

12-year experience in satellite and telecom technologies having worked at Swiss Space Center on CHEOPS, CubETH, CleanSpaceOne, MicroThrust and SpaceCam projects



Roland
LOOS

BOARD MEMBER

Extensive experience in satellite and telecom technologies having worked as COO and EVP of ITC Global, founder of NewSat Communications as well as Director at Verestar






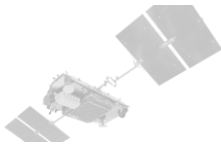
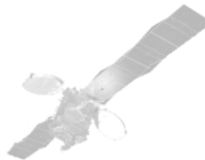









Yves
PILLONEL

BOARD MEMBER

More than 25 years of experience as Portfolio Manager and focusing on client acquisition at leading banks and private institutions including UBS and Pictet. Currently Senior VP Private Banking at Suntrust Investment

Astrocast's constellation is optimized for M2M/IoT

CLEAR DIFFERENTIATION FOR NANOSATELLITES AGAINST INCUMBENTS AND BROADBAND PROVIDERS

	Nano	Micro	Mini	Small	Medium-Intermediate	Large	Heavy/Extra heavy
Mass (KG)	(1 – 10)	(10 – 200)	(200 – 600)	(600 – 1,200)	(1,200 – 4,200)	(4,200 – 5,400)	(5,400 – +7,000)
Example	Astrocast 0.2 (CubeSat1 3U) 4 kg 	Orbcomm OG2 172 kg 	Starlink Block v1.0 260 kg 	Iridium NEXT 860 kg 	Thor 5 1,960 kg 	Hotbird 10 4,900 kg 	Inmarsat 5-F2 6,100 kg 
Typical receiver							
Orbit since	2019 (in LEO)	2012 (in LEO)	2019 (in LEO)	2017 (in LEO)	2008 (in GEO)	2009 (in GEO)	2013 (in GEO)
Cost per satellite ²	~250,000 USD	~6,500,000 USD	~1,000,000 USD	~40,000,000 USD	~150,000,000 USD	200,000,000 USD	~250,000,000 USD
Target user(s)	Communication M2M ³ /IoT	Communication M2M/IoT traffic monitoring	Broadband internet access	Global mobile satellite network	Fixed telecommunications and direct-to-home television broadcasting	Direct broadcasting	Telephone and data services
Lifetime	3-5 years	+5 years	1-5 years	15 years	15 years	15 years	+15 years