



Airbus Defense and Space Enabling Large LEO Constellations

AIRBUS DEFENSE AND SPACE, Inc.

Tim Deaver

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AIRBUS

Global Leader in Space Systems and Services



Telecommunication Satellites



Earth Observation Satellites



Space Equipment



Human Spaceflight



Space Exploration & Science



Navigation Satellites



On-Orbit Services



Ground Segments



Launchers

... and a complete range of **Space-based Services** in our “Communications, Intelligence and Security (CIS)” business line.

Enabling Low Earth Orbit Mega Constellations

In 2018 Airbus delivered

- 24 satellites
- European Service Module

This is our last year for double digit satellite deliveries. With the mass production of small, lower-cost satellites for OneWeb starting in 2019, *satellite deliveries will be in the triple digits.*

Tom Enders

**AIRBUS DEFENCE AND SPACE STARTS
A NEW ERA IN SPACE
WITH ONEWEB CONSTELLATION...**

TOTAL COVERAGE
Internet to everyone,
everywhere on Earth

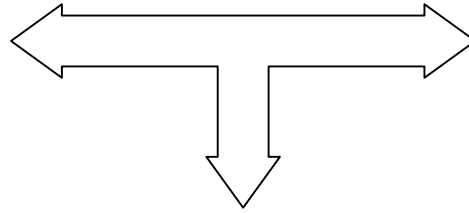
**A REVOLUTION
IN SATELLITE
MANUFACTURING**
No one has ever built a
satellite in one day... we will
build several every day!

**COMPLEX GROUND
INFRASTRUCTURE**
LTE based space to ground network

**GLOBAL LOW EARTH
ORBIT CONSTELLATION**
Providing high-speed internet
connectivity equivalent to
terrestrial fiber-optic networks

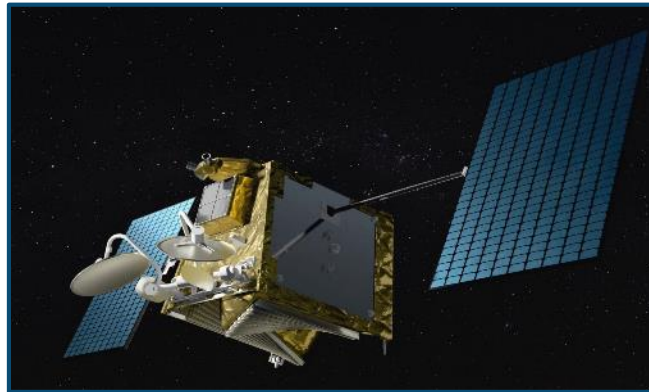
Airbus OneWeb Satellites Joint Venture

AIRBUS



OneWeb
Closing the Digital Divide

OneWeb  **Satellites**



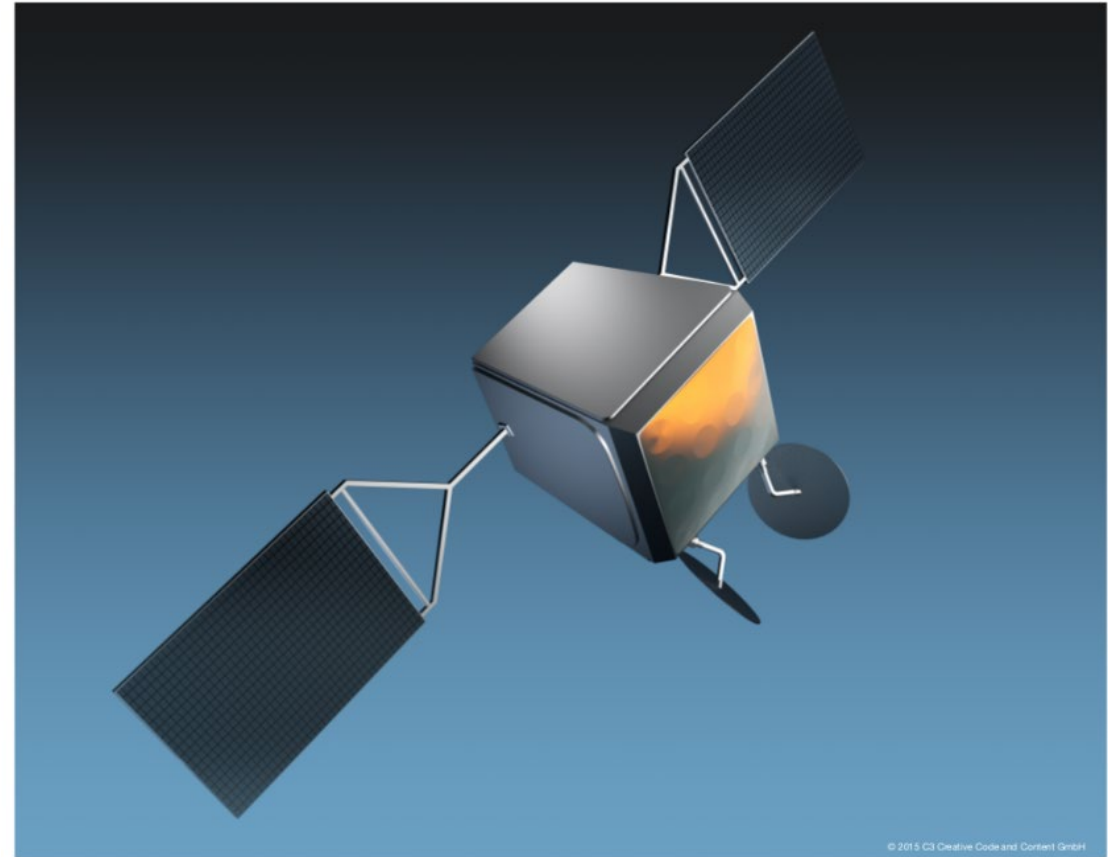
OneWeb satellite



Manufacturing facility in Florida

Revolutionizing Satellite Manufacturing

- Design for manufacturability
- Design for test
- Design for cost
- Supply chain management
- Flexible manufacturing facility to build other satellites



Facts & Figures



size



less than **150 kg**



up to **4**
built every day

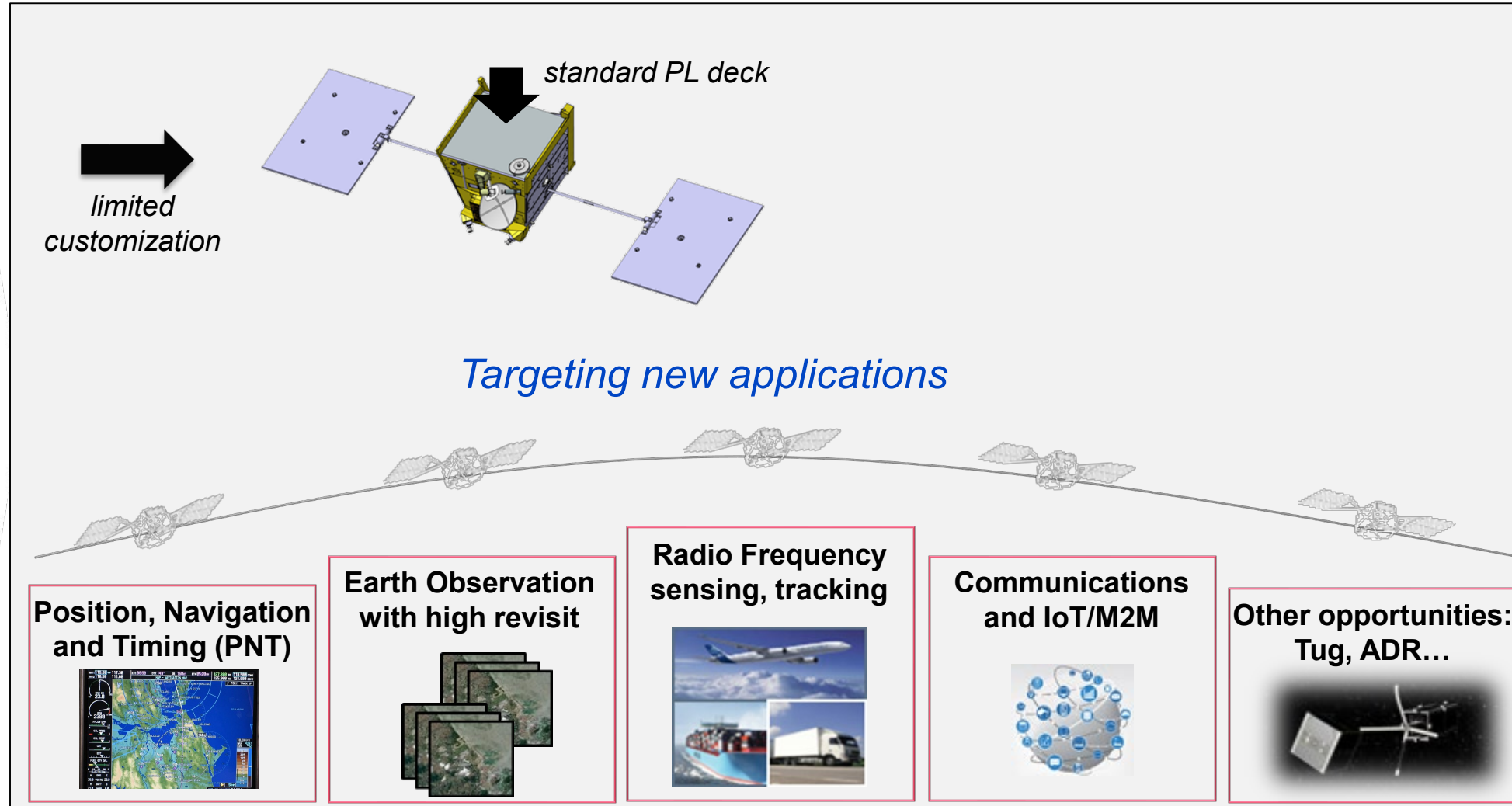
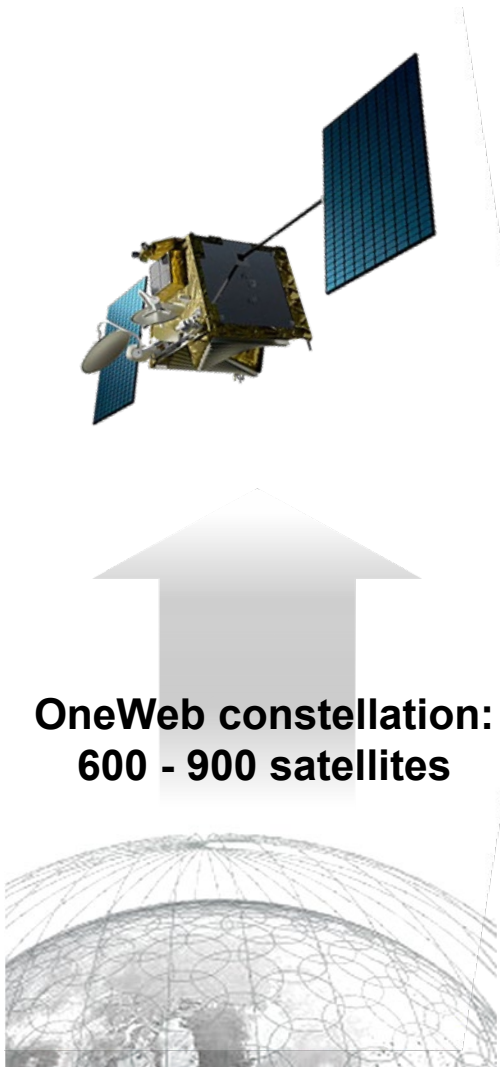
Florida Manufacturing Facility – Open for business

- Located near Kennedy Space Center
- Adds two manufacturing lines to the current line in Toulouse
- Ready for production in early 2019



The machine that makes the machine

Enabling New Applications



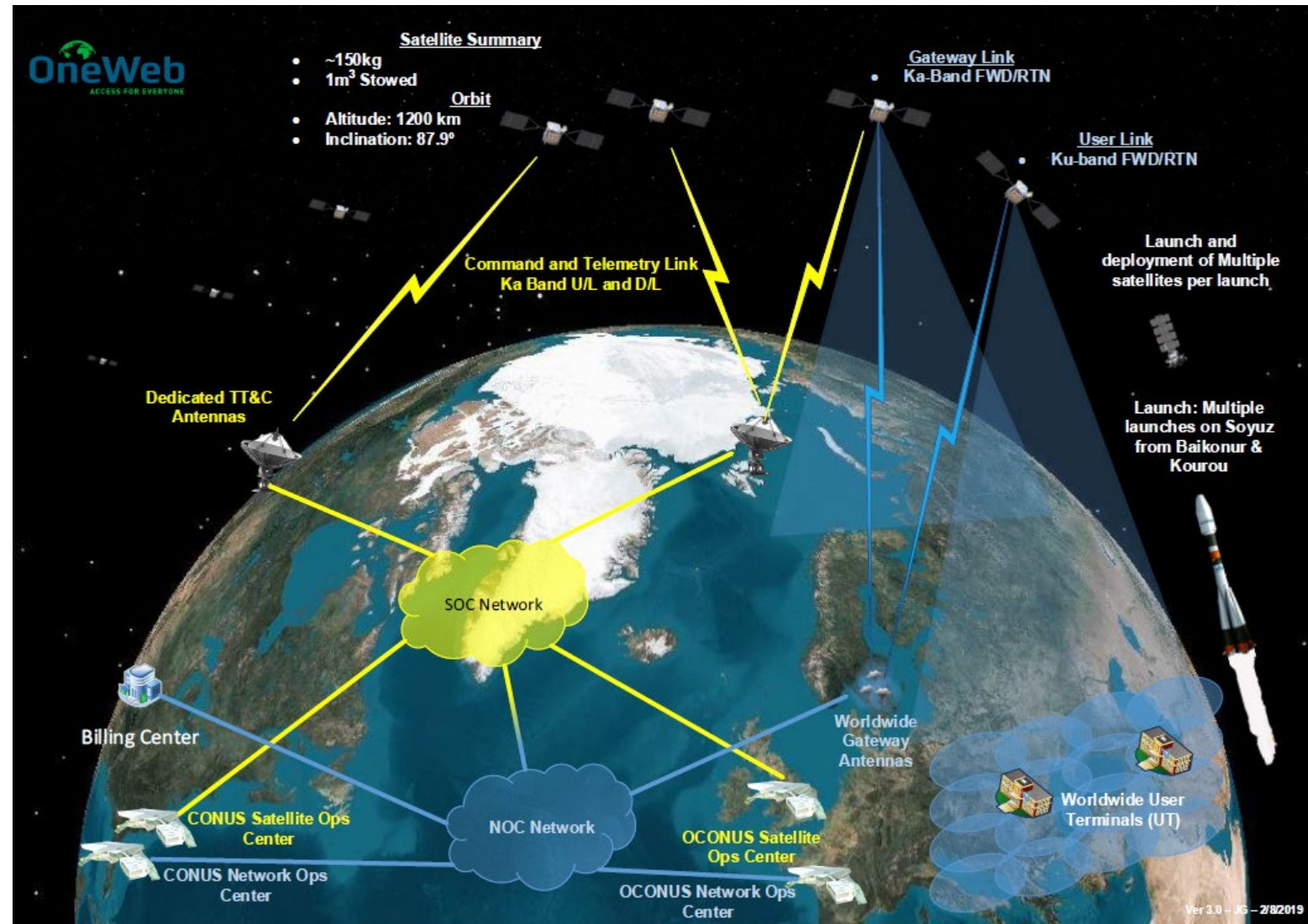
PNT (Position, Navigation, and Timing) – GPS / Galileo augmentation or alternatives
Active Debris Removal (ADR)

Internet of Things (IoT)
Machine to Machine (M2M)

OneWeb Ground Segment

- 600+ Satellites
 - Ka Gateway and TT&C links
 - Ku User Links
- Worldwide Gateway Antennas
- Worldwide User Terminals
- Dedicated TT&C Antennas
- Wide Area Networks connect facilities
- Network Operations Centers (NOC)
- Satellite Operations Centers (SOC)

Designed and built by OneWeb and its contractors



Summary

- Airbus brings a large portfolio of satellites, space hardware and services to the global market place
- Airbus is developing a unique and proven satellite manufacturing capability for large low-Earth constellations in the US and is committed to additional growth in the US

Thank you

Tim Deaver
Director US Space Programs
Airbus Defense and Space, Inc.