

NSS North Houston Space Society

April 4, 2020

Space-related news - OneWeb

(Satellite-based internet, competing with SpaceX Starlink, Telesat –June 2019 meeting)



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OneWeb filed for bankruptcy, like so many previously ... Iridium, Orbcomm, Globalstar, Teledesic, Skybridge (March 27th)

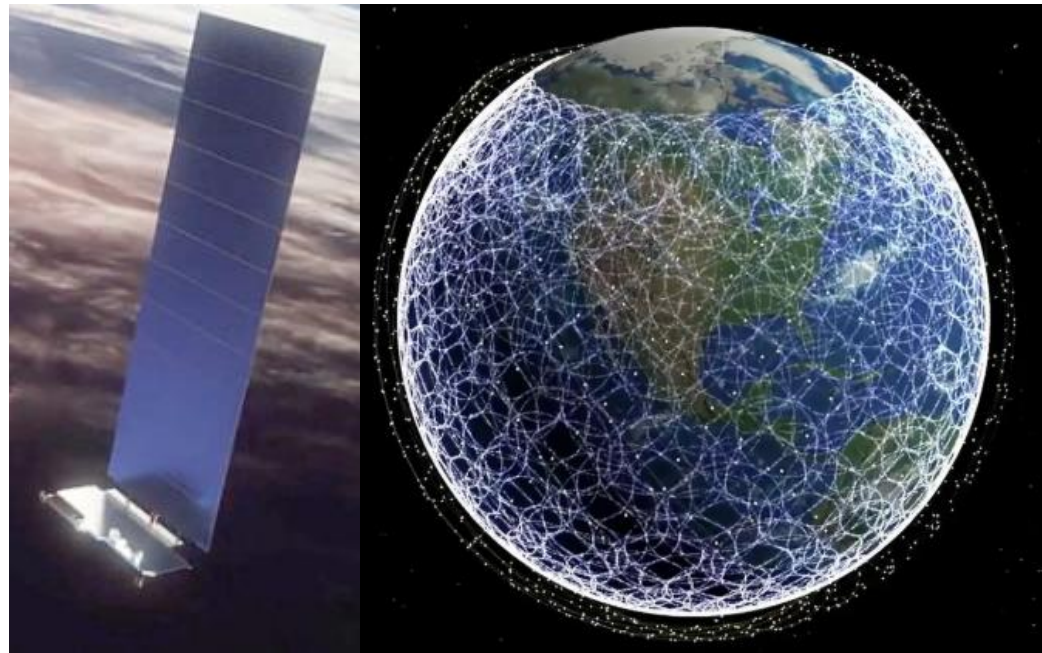
- Blaming COVID-19 for delays in financing (need another \$7.5 Billion)
... and you thought you could avoid virus talk here!
- Probably doomed anyway
 - Higher cost launch & groundstation cost vs. Starlink, no deep pockets like Amazon's Project Kuiper, no ongoing operations like Iridium, Orbcomm and Globalstar
 - Major backer Softbank has other cash flow problems



But, like Iridium, Orbcomm, & Globalstar, may re-emerge, or at least assets will probably get bought and used

Elon Musk: "Guess how many constellations didn't go bankrupt? ... Zero. It'd be a big step to have more than zero in the not-bankrupt category."

Space-related news – SpaceX/Starlink



- Received FCC license for up to 1 million (customer) data terminals



They're not pizza-box shaped, they're a
..."*THIN FLAT ROUND UFO ON A STICK*"*

- Motors self-adjust for optimal angle
- Instructions*
 - *Plug in socket*
 - *Point at sky**Works in either order. No training required.*

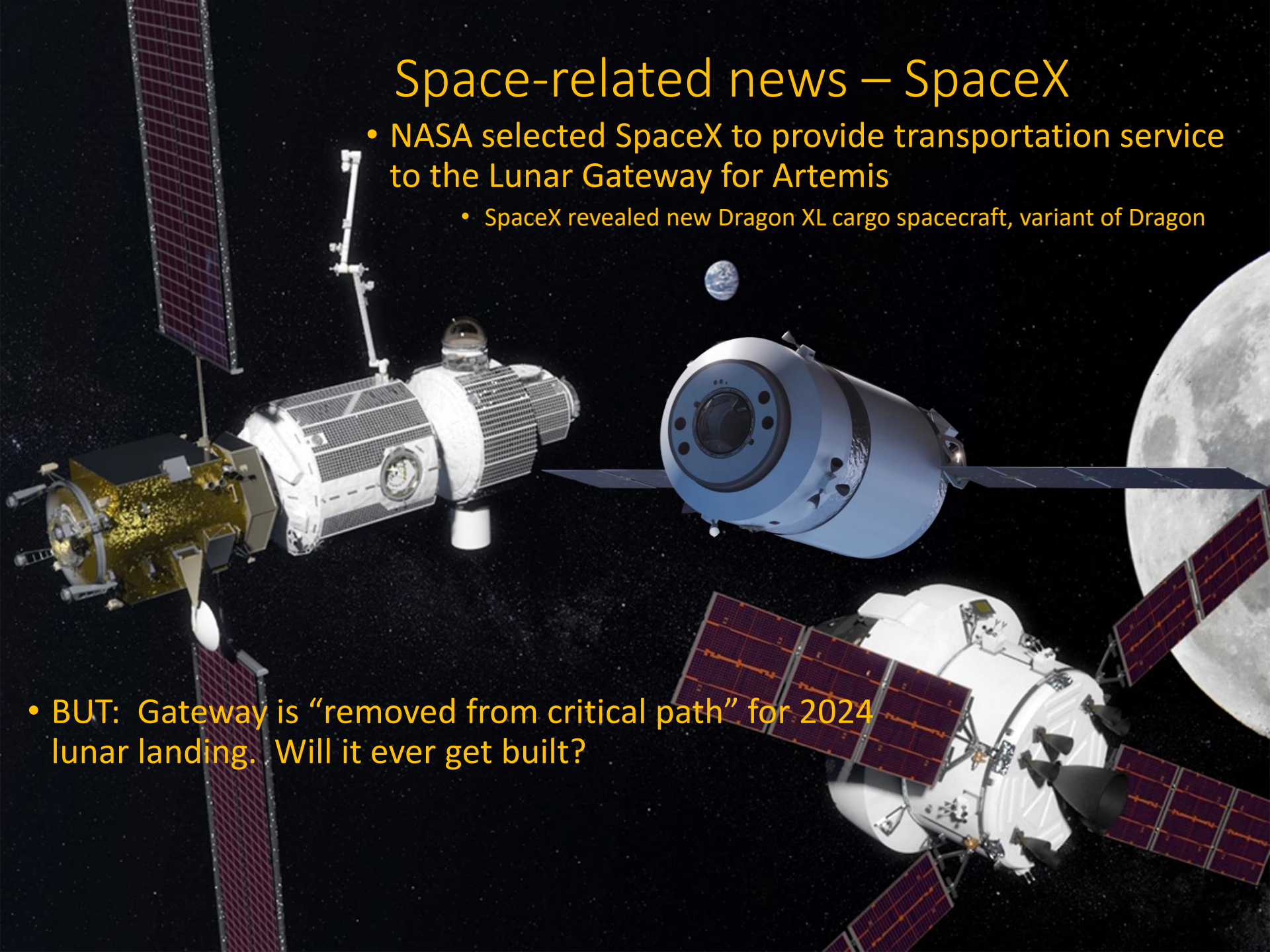
* *Direct quotes from Elon Musk*



Space-related news – SpaceX

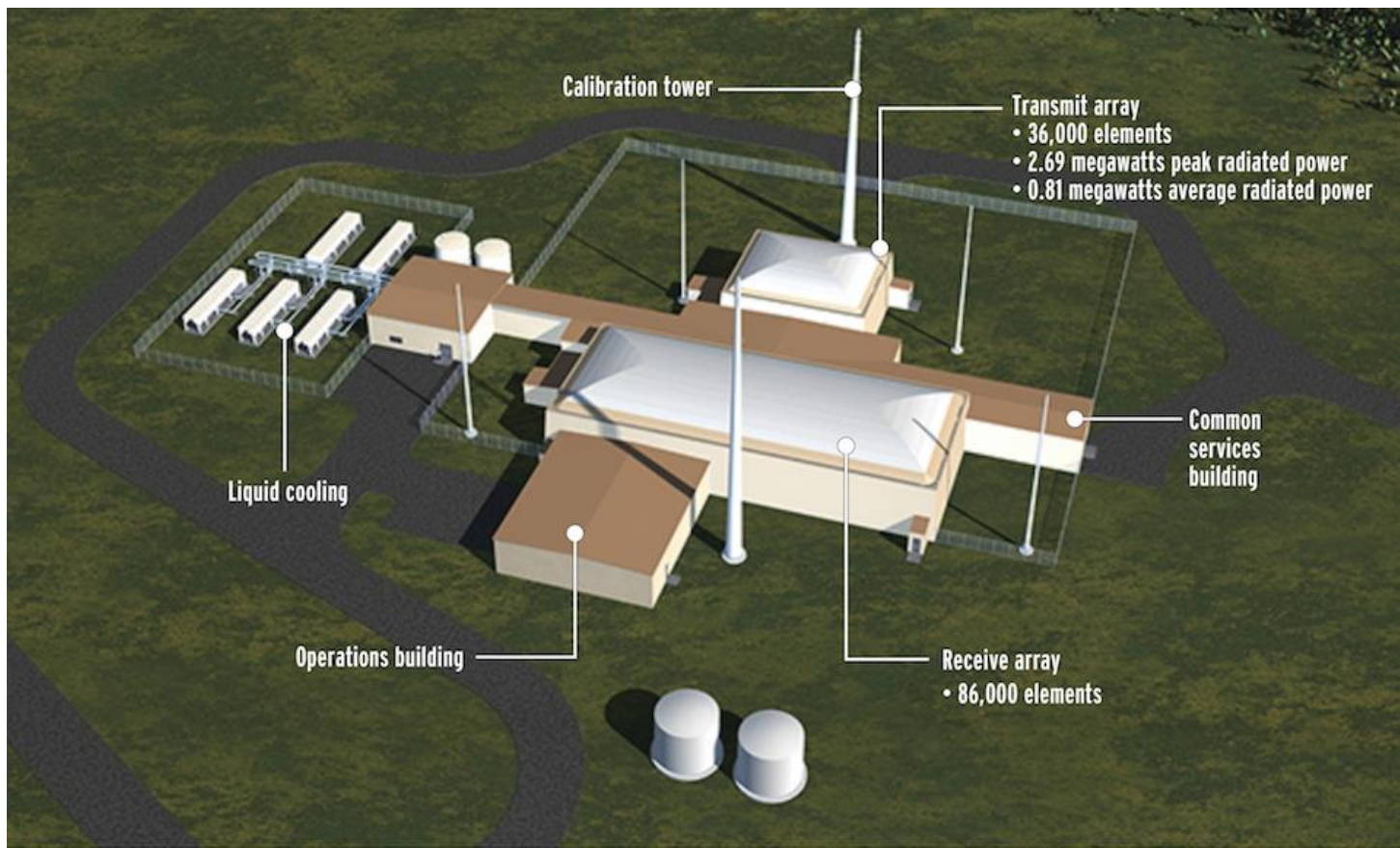
- NASA selected SpaceX to provide transportation service to the Lunar Gateway for Artemis
 - SpaceX revealed new Dragon XL cargo spacecraft, variant of Dragon

- BUT: Gateway is “removed from critical path” for 2024 lunar landing. Will it ever get built?

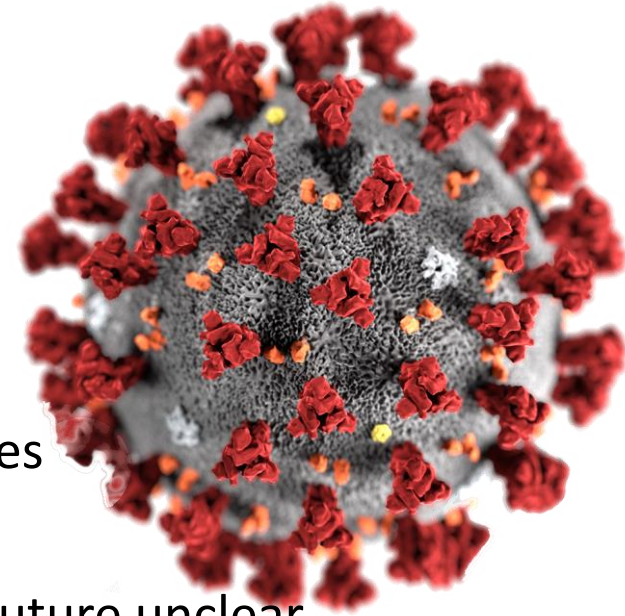


Space-related news – “Space Fence”

- \$1.5 Billion “Space Fence” U.S. radar in Marshall Islands completed
 - For tracking satellites and space debris
 - Can detect a marble in low Earth orbit



Space-related news - COVID-19 impact



- OneWeb bankruptcy
- ESA (European Space Agency) delaying 4 launches
- Rocket Lab (New Zealand) postpones launch
- Bigelow Aerospace laid off ALL its employees. Future unclear.
- Investors pulling back on small companies is a concern
 - Example: Leo Aerospace (balloon-borne small launch vehicles) “going into hibernation”
- Delays in SLS testing, James Webb Space Telescope, ...
- Conference cancellations, almost everyone working at home, etc.
- We started videoconference meetings!

How many launches since the last meeting?



Launches Since Last Meeting (Mar. 7, 2020)

<https://spaceflightnow.com/launch-log/>

-  Mar. 26, 2020 - Atlas 5 - U.S. Military communications satellite
-  Mar. 23/24, 2020 – Long March 2C – 3 Chinese military surveillance satellites
-  Mar. 21, 2020 – Soyuz – 34 OneWeb satellites
-  Mar. 18, 2020 - Falcon 9 – 60 SpaceX Starlink satellites
-  Mar. 16, 2020 – Soyuz – Russian navigation satellite
-  Mar. 16, 2020 – Long March 7A (Failed) – Chinese classified satellite
-  Mar. 9, 2020 – Long March 3B – Chinese navigation satellite
-  Mar. 6/7, 2020 – Falcon 9 – SpaceX cargo to ISS

Featured Speaker: Vickie Kloeris

- 34 years as NASA manager of space food systems for ISS (International Space Station) and Shuttle (recently retired)
- Author or coauthor of numerous publications
- Awards
 - NASA Distinguished Service Medal (NASA's highest award) (2019)
 - NASA Exceptional Service Medal (twice)
 - Johnson Space Center Director's Commendation Award
 - Outstanding Alumni Award, College of Agriculture & Life Sciences, Texas A&M (2017)
- Institute of Food Technologists (IFT) – Certified Food Scientist
 - In 3rd year of 3-year term on IFT Board of Directors
 - President Elect, 3 year term as President starting Sept, 2020
- Education
 - B.S. Microbiology; minor in Chemistry from Texas A&M
 - M.S. in Food Science and Technology from Texas A&M

