

ISPACG/FIT 30 Iridium Update

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Iridium Satellite – Efficient and Safe in the Air, Anywhere



Iridium is the only pole-to-pole, cross-link satellite operator.

66 orbiting LEO satellites (485miles orbit) that provide seamless coverage to all aircraft.

Iridium has been offering AMS(R)S services since 2010 and our partners have equipped thousands of aircraft in the global airspace.

Iridium is committed to aviation and to AMS(R)S cockpit safety.



Iridium Report on System Updates



Iridium System Updates

October & November 2022 issue with SBD

- Iridium experienced degraded SBD performance globally due to ground routing issues. In short, a network ground path that shared all services (SBD, Certus, Openport, RUDICS, CSD, etc) experienced “flooding” which caused 1hr+ of service degradation.
- Iridium mitigation plans - Iridium was fortuitously able to capture the November occurrence due to a “wire-shark” in place at the time in support of other testing
 - Iridium suspects that prior SBD degraded performance in past 3 years that was ephemeral could have been caused by this type of event – as reported in NAT TIG on spurious SBD degradations seem to confirm.
 - Iridium identified that this was an oversight of network management/development when Iridium Certus was launched
 - To mitigate, Iridium shall put in redundant fail-over network paths to prevent a future “flooding” event and to “reserve” ground network capacity for AMS(R)S as priority over all other services on these shared network paths.
 - Undergoing testing now and roll out planned in May 2023.
- Operations and Monitoring: Roll out will also include monitoring function and alarms as part of O&M operation going forward.



Iridium Service Evolution



What is Iridium Certus? Status?

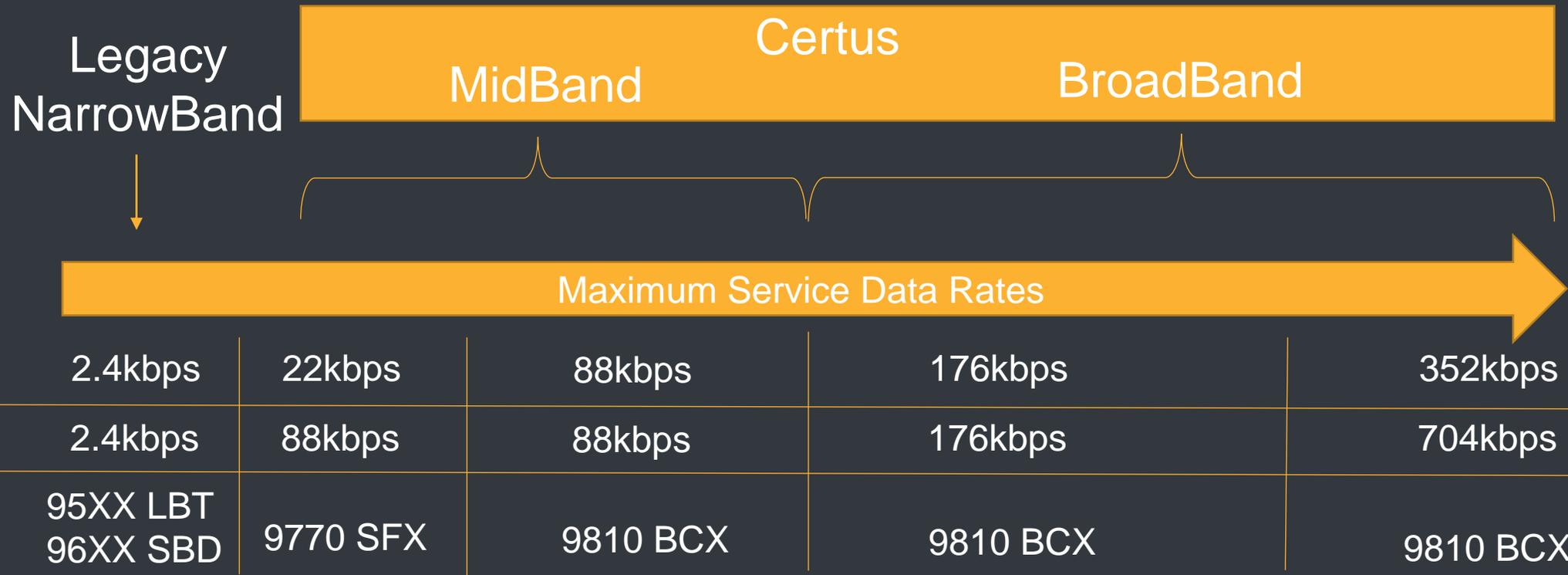


- Iridium Certus is the evolution of Iridium to offer IP Broadband services.
- All Iridium Certus devices are multi-service terminals up to maximum Tx/Rx of the system:
 - Background IP data
 - VLAN Segmented IP data
 - Up to Voice x 3 independent lines
- Iridium partners have launched Certus products to maritime, land mobile, and IOT. Several thousand in operation today.
- Aviation products launch status:
 - SkyTrac DLS-100 and BlueSky SkyLink 7100 - launched
 - Collins, Honeywell, and Thales - launching near future
 - Additional products and AMS(R)S in late 2023



Iridium Service Evolution

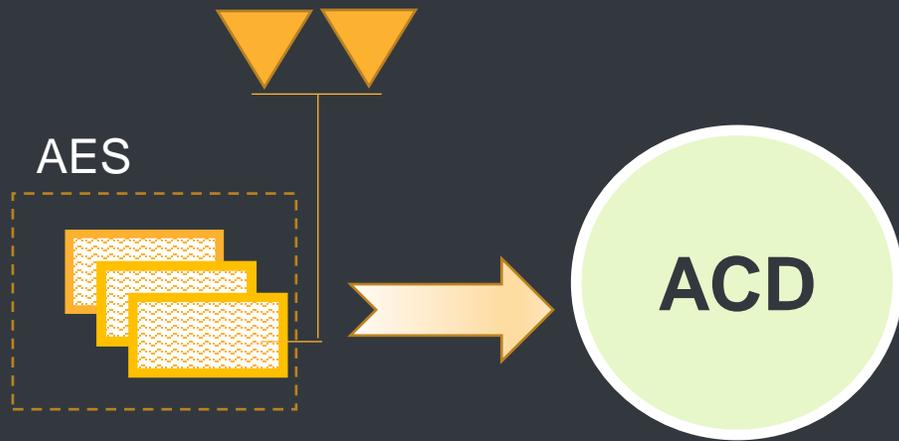
Iridium has developed three categories of service offering categories to help position the Iridium products for the maritime, land and aviation markets. Specific transceivers have been developed which cater to these categories.





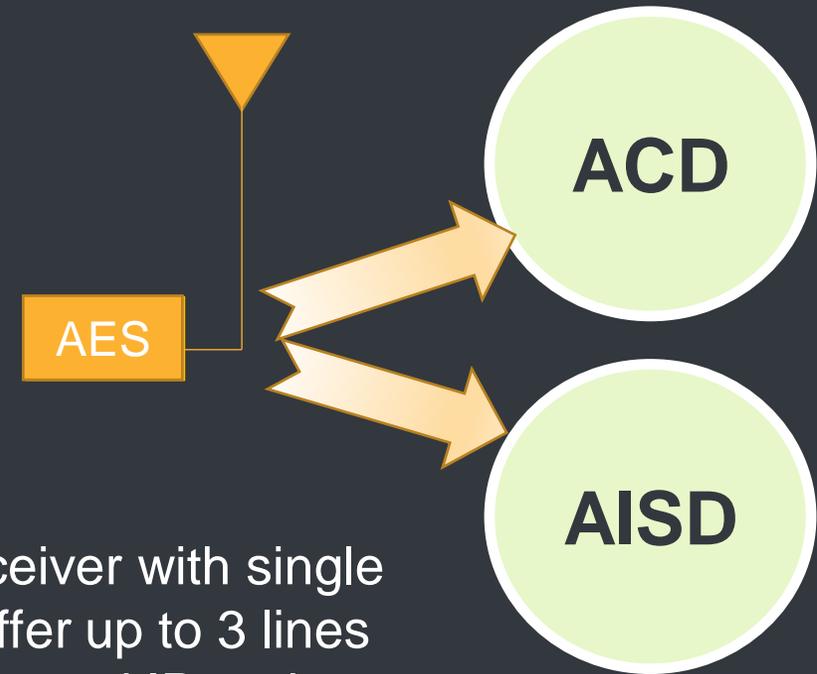
Iridium Evolution – Expanded Capabilities

Iridium Narrowband



Multiple transceivers with multiple patch antenna to offer two voice lines and FANS data.

Iridium Certus Mid/Broadband



Single transceiver with single antenna to offer up to 3 lines voice, background IP and segmented VLAN IP.



Iridium AMS(R)S Planning

While developing the new IP capabilities, all legacy narrowband services (voice and data) are still supported including AMS(R)S cockpit terminals.

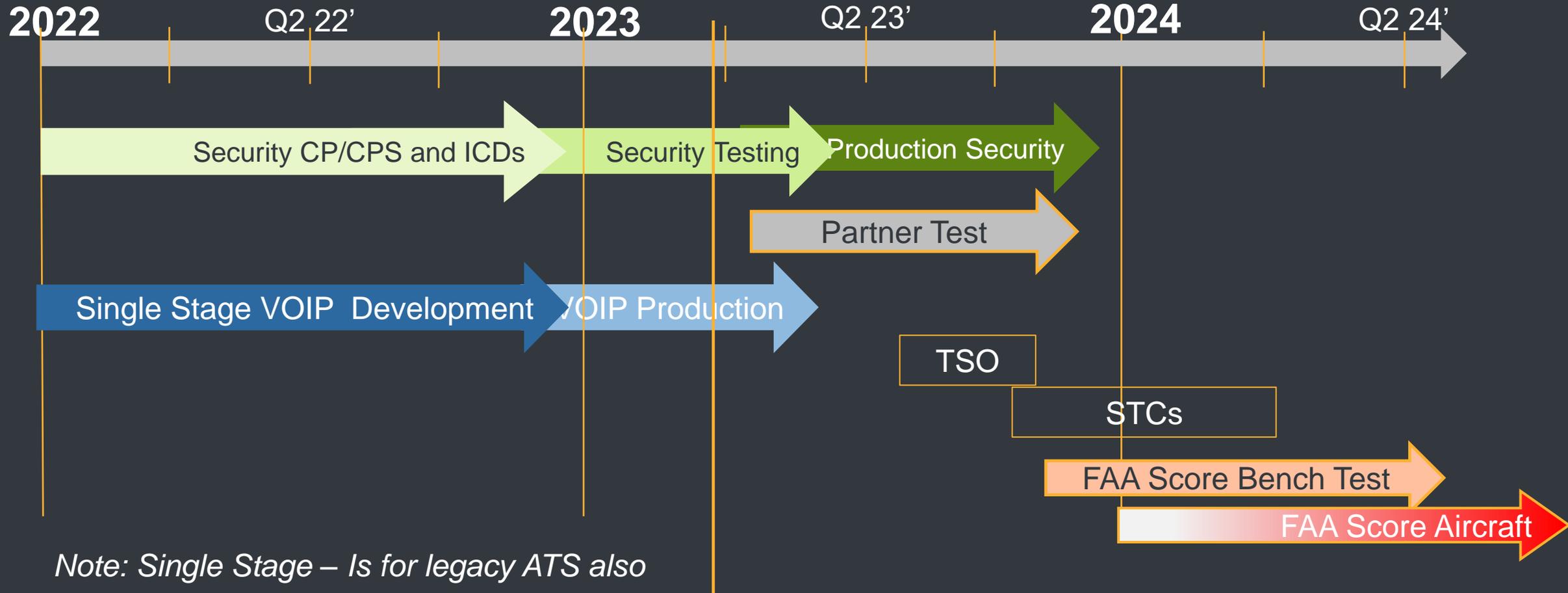
Iridium is in the middle of a multi-phase program to bring Iridium Certus AMS(R)S to the global aviation markets.

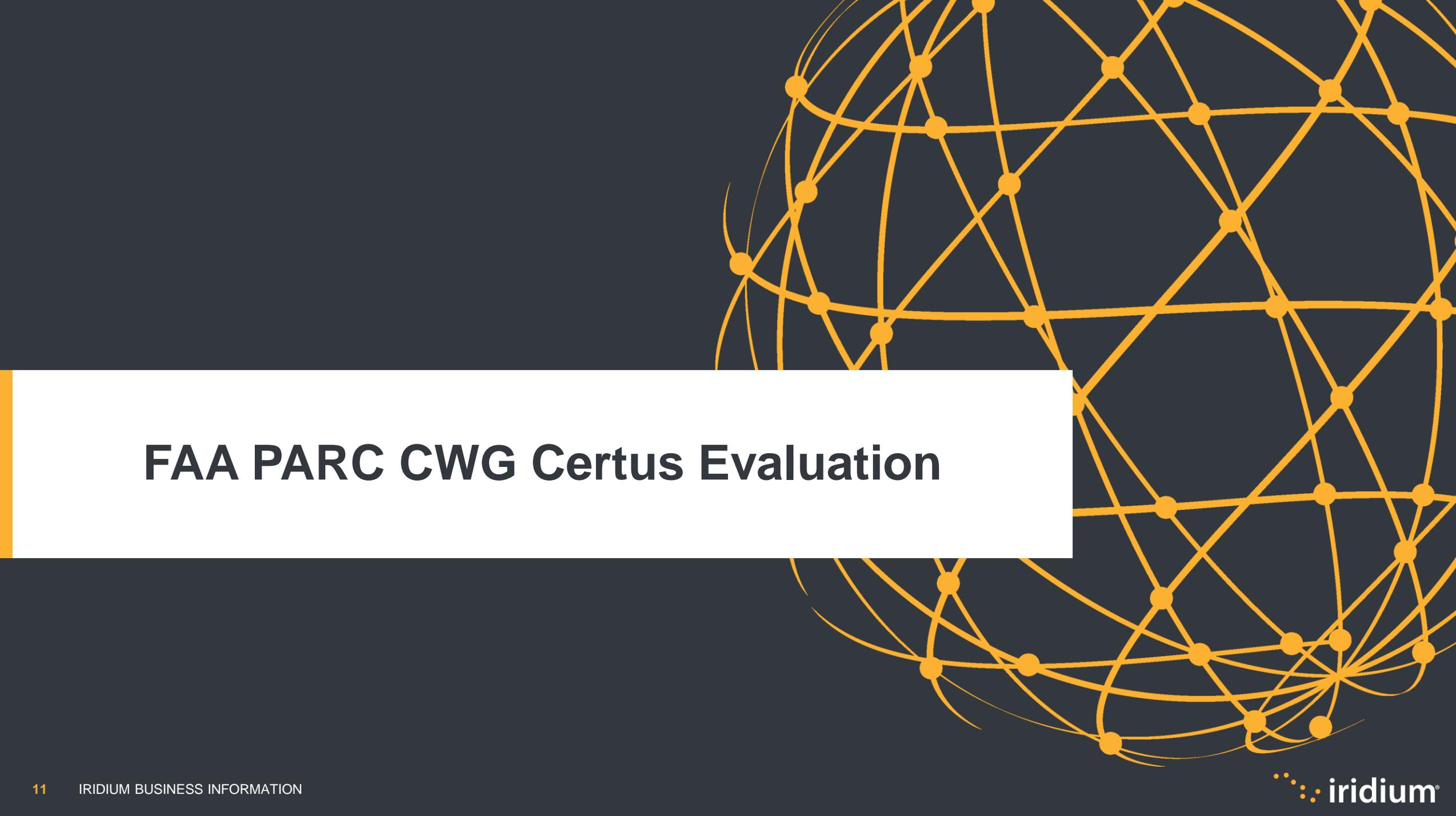
- Certus Phase 1: Initial plans for RCP240/RSP180 services and RCP400V voice
 - Regulatory RTCA/ICAO/AEEC/FAA, VPN PKI Security, and Single Stage Voice, FAA Evaluation
- Certus Phase 2: Future plans for RCP130/RSP160 performance & ATN OSI/IPS
 - Regulatory RTCA/ICAO/AEEC/FAA and Iridium Network Updates, FAA Evaluation



Certus Phase 1 Project Timeline - AMS(R)S

Status Line



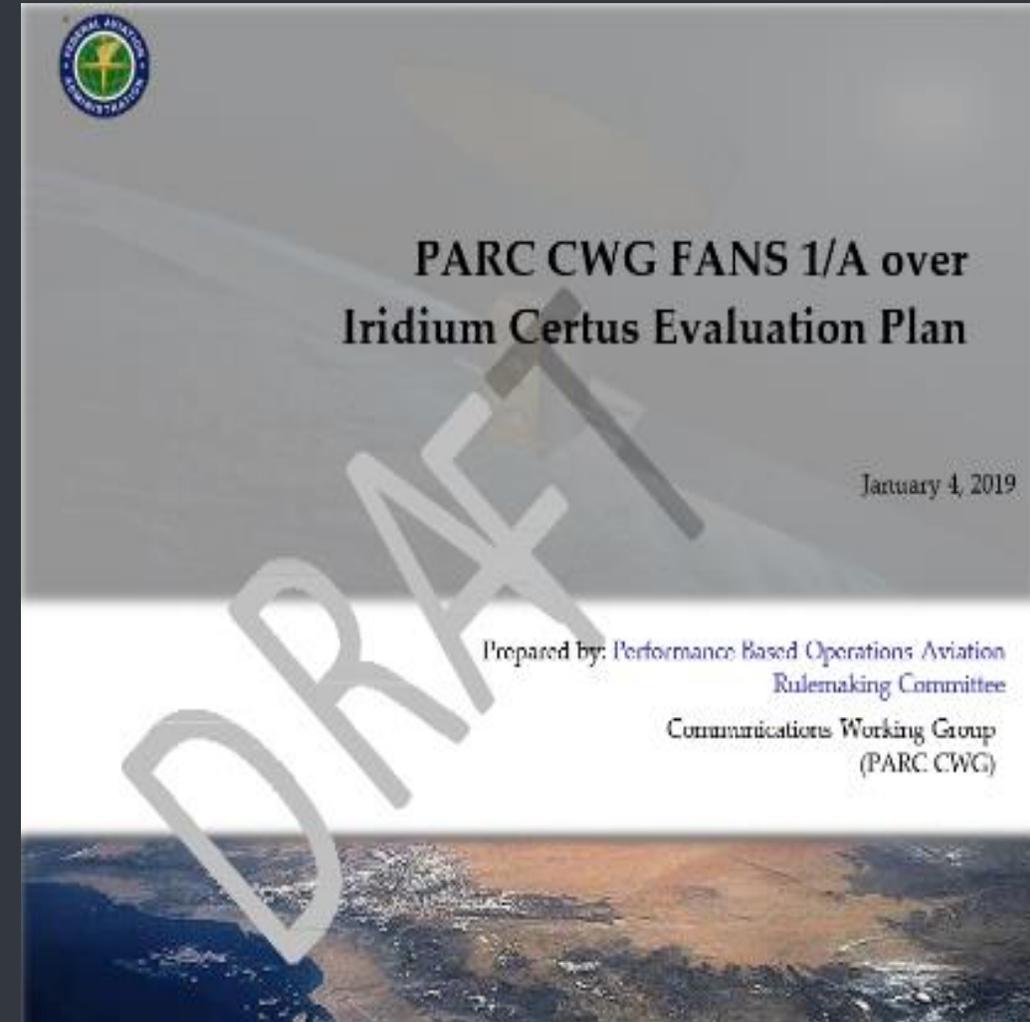


FAA PARC CWG Certus Evaluation



FAA Iridium Certus Evaluation Plan - DRAFT

Iridium will present IP on the Certus Evaluation



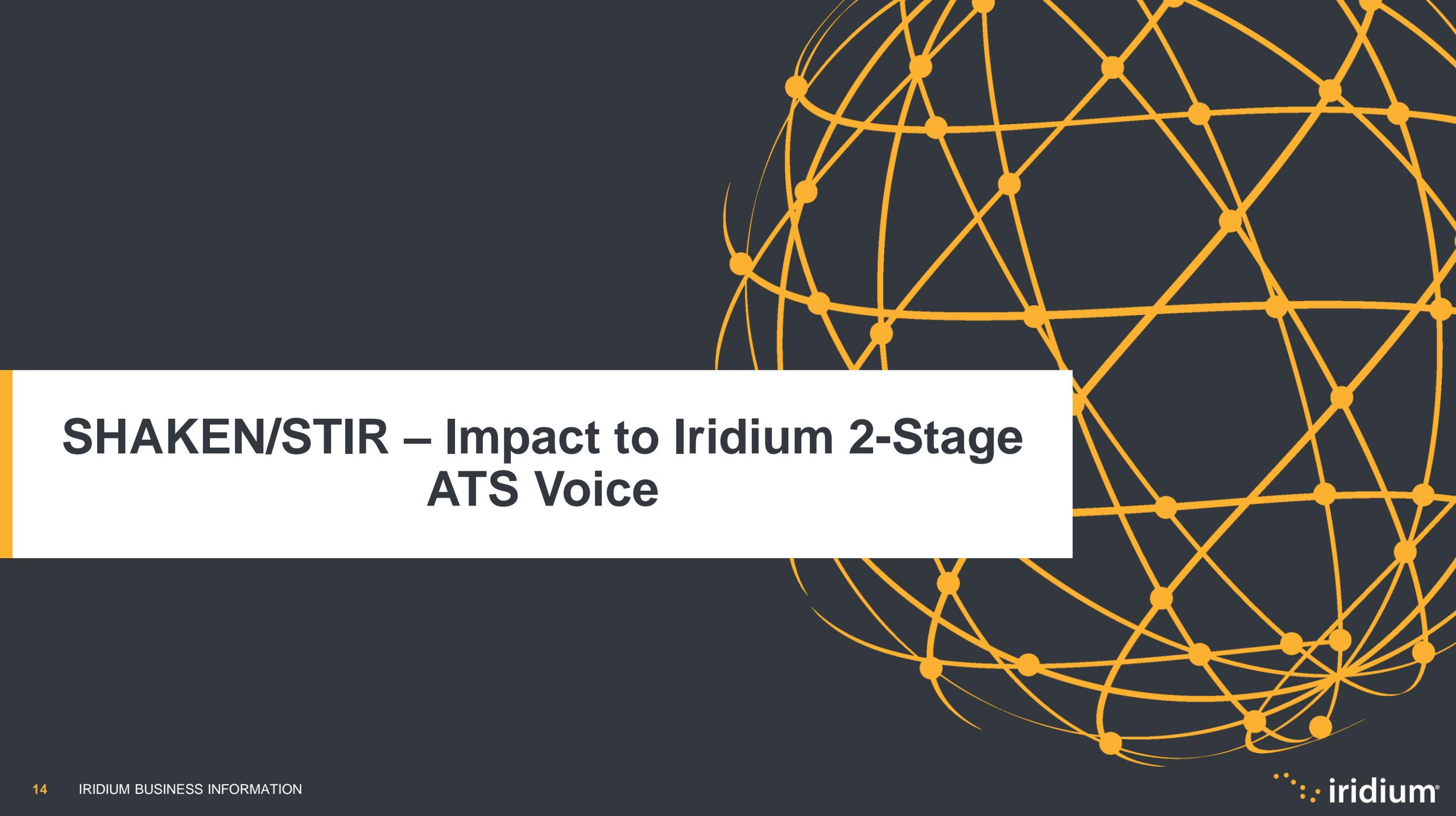


Iridium Certus – Data Collection in support of PARC

Iridium, in conjunction with our partners, have developed capabilities as part of Certus AMS(R)S that will enable detailed reporting in the exchange of FANS data as well as voice communication.

Iridium will capture and analyse:

- 1) Time the CMU/FMS creates the ADS-C or CPDLC message
- 2) Time the Iridium AES receives the FANS message
- 3) Time the Iridium GES receives the message
- 4) Time the Iridium Security Gateway (GSGW) receives the message
- 5) Time when the Iridium Service Provider Gateway (GDGW) receives the message
- 6) RCP/RSP Technical performance of Certus for RCP240 and RSP180
- 7) Layer 2 successful message receipt and transmission records
- 8) Record of all voice call time, duration and # dialed and received



SHAKEN/STIR – Impact to Iridium 2-Stage ATS Voice



Changes to 2-Stage PSTN Dialing ATS - STIR/SHAKEN

Iridium will present IP on the CLI changes needed for Iridium



Closing

- Iridium is committed to aviation and we are building our internal support for aviation.
- Iridium does have a Phase 2 program for AMS(R)S to conform to RCP130/RSP160 (2026 timing). More details will be provided as this program develops.
- The Certus AMS(R)S project has produced a huge benefit across Iridium with exposure of the aviation requirements to our matrixed organization.
- New O&M reporting has been developed in support of aviation to a level that will allow complete monitoring of Certus AMS(R)S operations.
- Additional work on the ISO27001 certification required for AMS(R)S is providing new advancements in our network management function.
- As a result, Iridium is in the position to monitor and support AMS(R)S at a level far advanced from any stage prior.



Contact me with any question.

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