

Accessing Legacy Aircraft Data Sources

Teledyne Aerospace Electronics
Bobby Burkett



Who we are - Teledyne Technologies Incorporated

Everywhere you look™



**Delivering solutions
for over 60 years**



**High Technology
Industrial company**



**Revenue
of \$5.6B**



**U.S. ~ 55%
International ~45%**

Teledyne's Four Business Segments

Instrumentation



Aerospace & Defense Electronics



Digital Imaging



Engineered Systems



Aerospace Electronics

Defense Electronics



Aerospace Electronics
Teledyne Controls

Teledyne Controls

Experience

Specializing in data management technologies since 1964

Stability

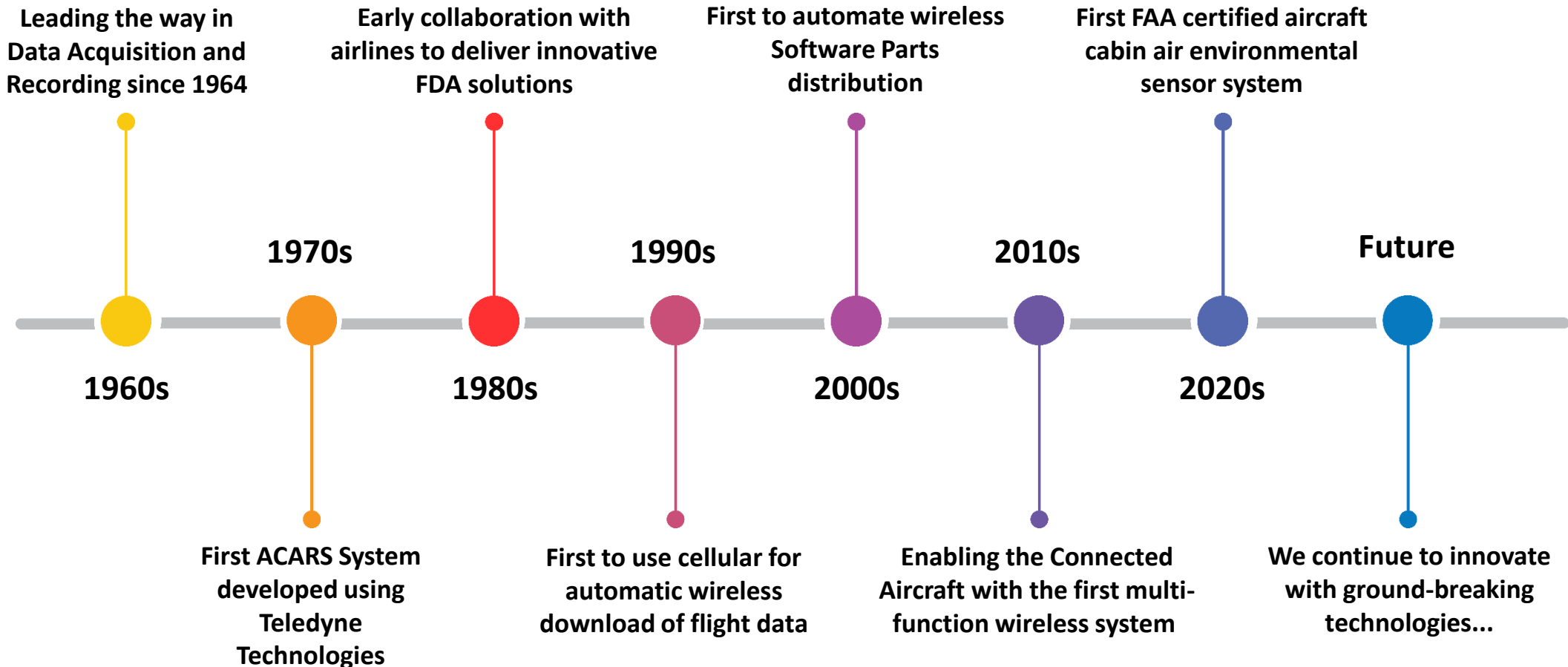
Backed by diversified and stable corporate parent

Breadth

Broad Portfolio of airborne avionics, data loading, distribution, and value-added data analysis solutions



Teledyne Controls History of Innovation



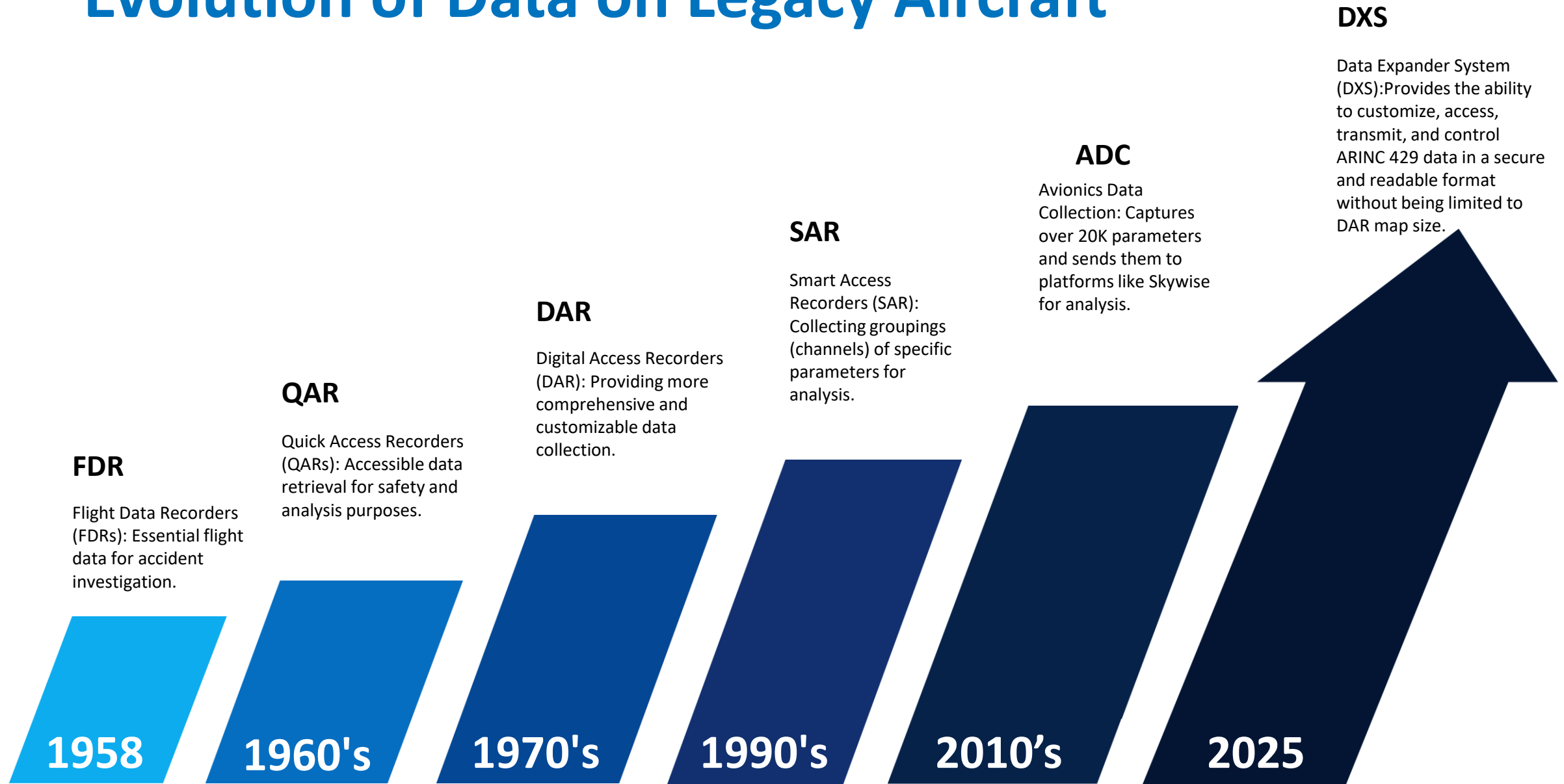
Legacy Data Today

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Teledyne Confidential; Commercially Sensitive Business Data



Evolution of Data on Legacy Aircraft



Roadblocks to accessing additional parameters



Monolithic Aircraft Architecture

- Storage
- PCMCIA
- Internal memory
- Processing

Acquisition processor limitations.

- Expanding to 2048 DAR Map typically runs into processor limitations
- Legacy aircraft typically have older DAU and are limited to 512 or 1024

Decoding

- If data is accessed the decoding this data into a useable format for ingestion into an analytics platform can be difficult.

What have been the typical solutions on legacy aircraft?



Expanding DAU recording storage.

- Some Airlines and DAU manufactures are expanding recording storage of DAR, SAR data
- Limited to DAR and SAR maps

AID with additional ARINC 429 wiring

- Access to parameters outside of DAR maps
- Requires extensive aircraft wiring modification
- Limited AID inputs for ARINC 429 in current market offerings

The Future

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What are solutions now and in the future for legacy aircraft?

Access to the right full flight A429 Data Buses beyond DAR recording capabilities

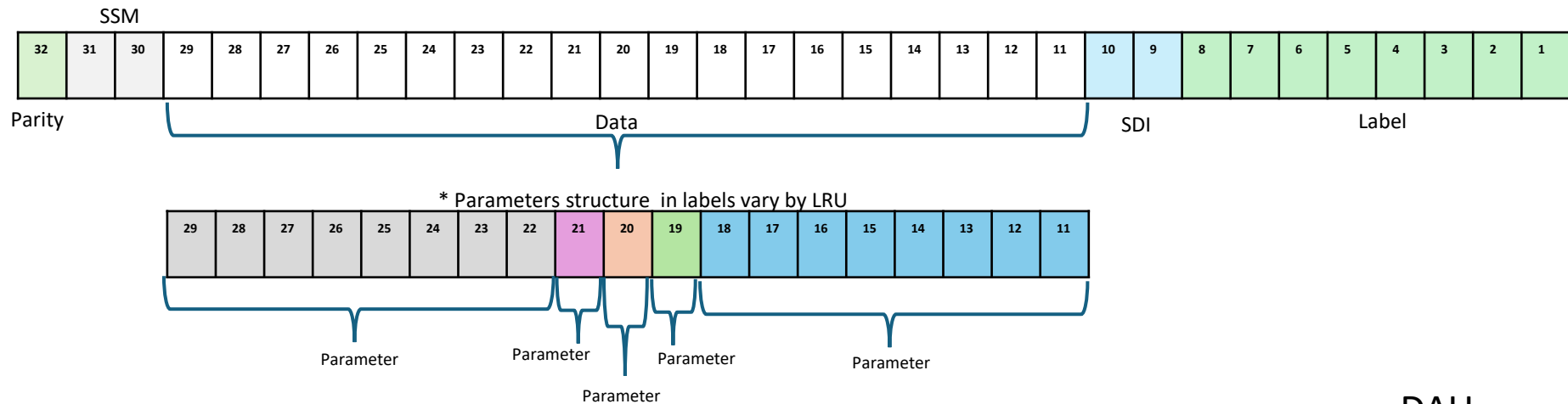
Edge Computing

- Leveraging IoT advancement and infrastructure
- Onboard application hosting for enhanced predictive, flight safety and operational efficiency.

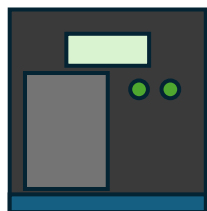


Labels a new way to think about Parameters

The anatomy of a ARINC 429 label



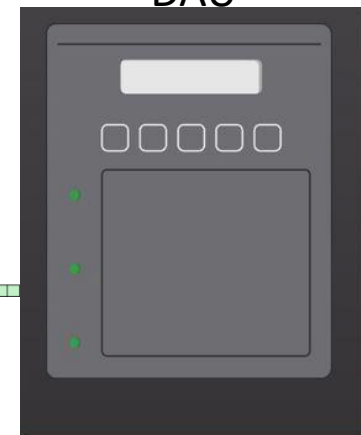
Aircraft LRU



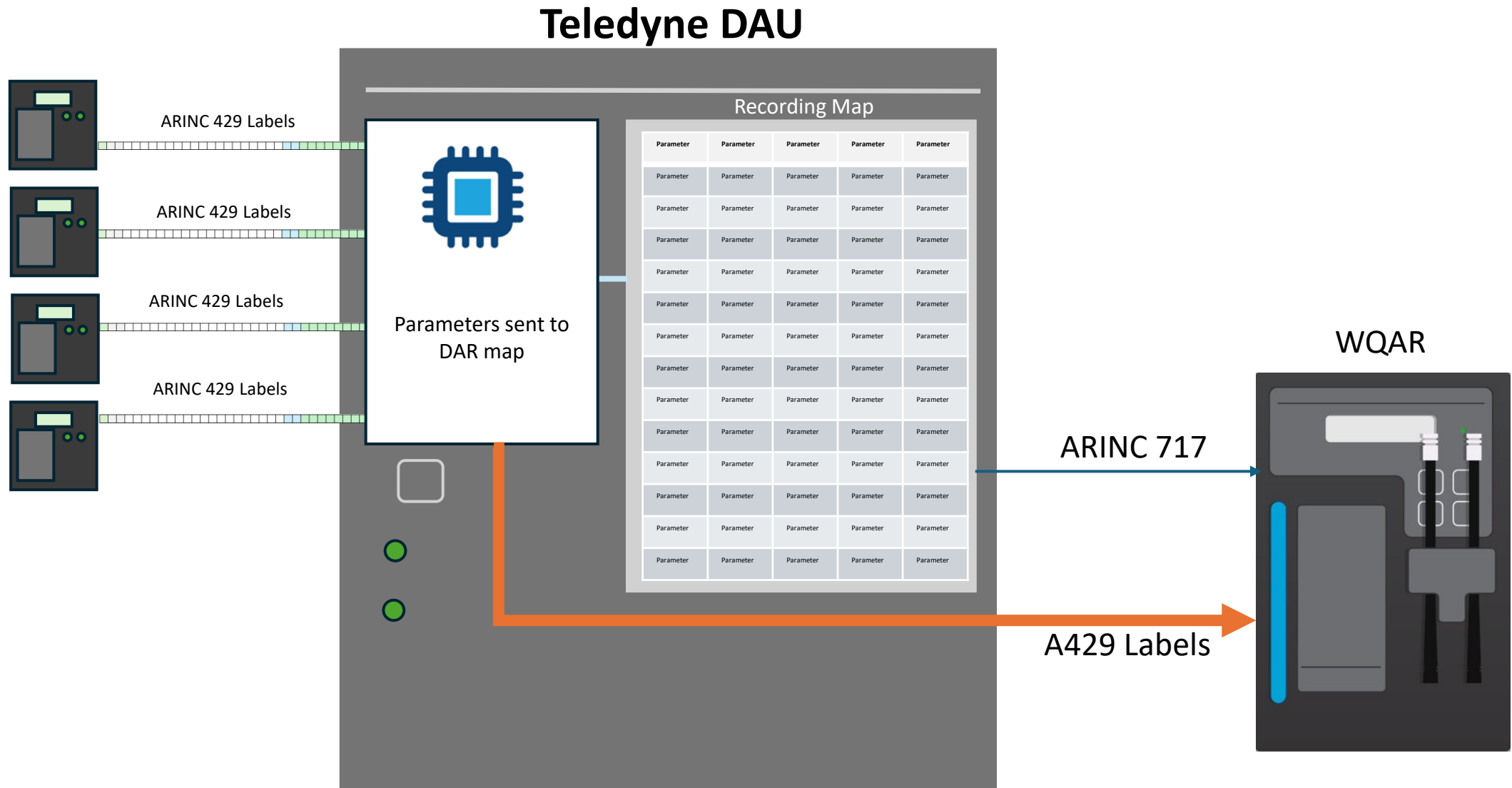
Each LRU can transmit up to 256 labels per second



DAU



Accessing ARINC 429 Data on Legacy Aircraft for transmission

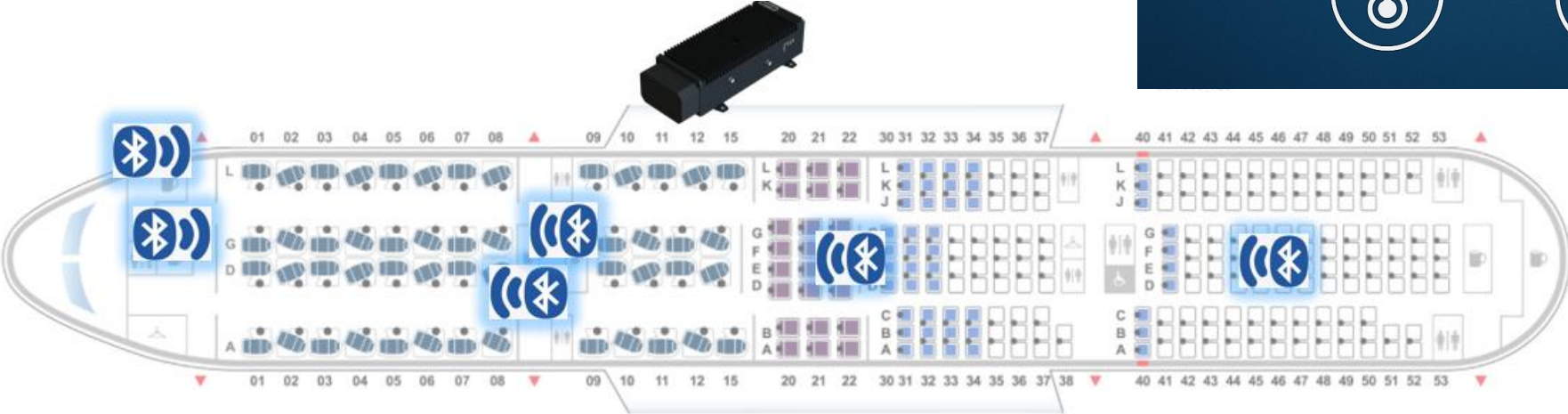


Advancements in IoT Technology

Improved Sensors

Advancements in IoT technology include improved wireless sensors that provide real-time data for aviation maintenance, increasing operational efficiency.

Sensor technology now available for cabin appliance monitoring, premium passenger seat monitoring, and ability to add additional wireless sensors to legacy aircraft systems.



Predictive Maintenance in the future



Operational Impact due to aircraft out of service.



Passengers frustrated



Monday morning Delay and Cancellation Review

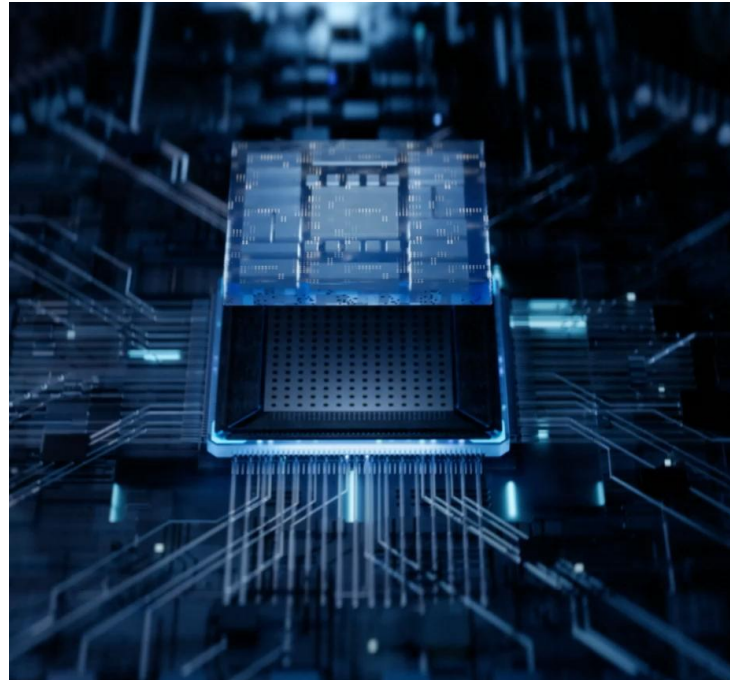
The Next Frontier



The Possibility Ahead



Data Availability



Technology Availability



Culture Shift

