DISA/DoD TEM Meeting:

Revolutionizing Mobile, Secure, AI-Driven Data Solutions from Edge to Back Office with **BRYCK AI**

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Problem Statement

In mission critical field operations, large amounts of data are captured (images, text, videos, etc.). These need to be processed with speed for the field agent to make an accurate decision. Speed and Accuracy can be critical to survival and success of the mission. Currently in most cases,

- Data on the field is captured using multiple devices that are **limited by low capacity,** and capacity can be a limiting factor (**limfac**) to mission success or duration

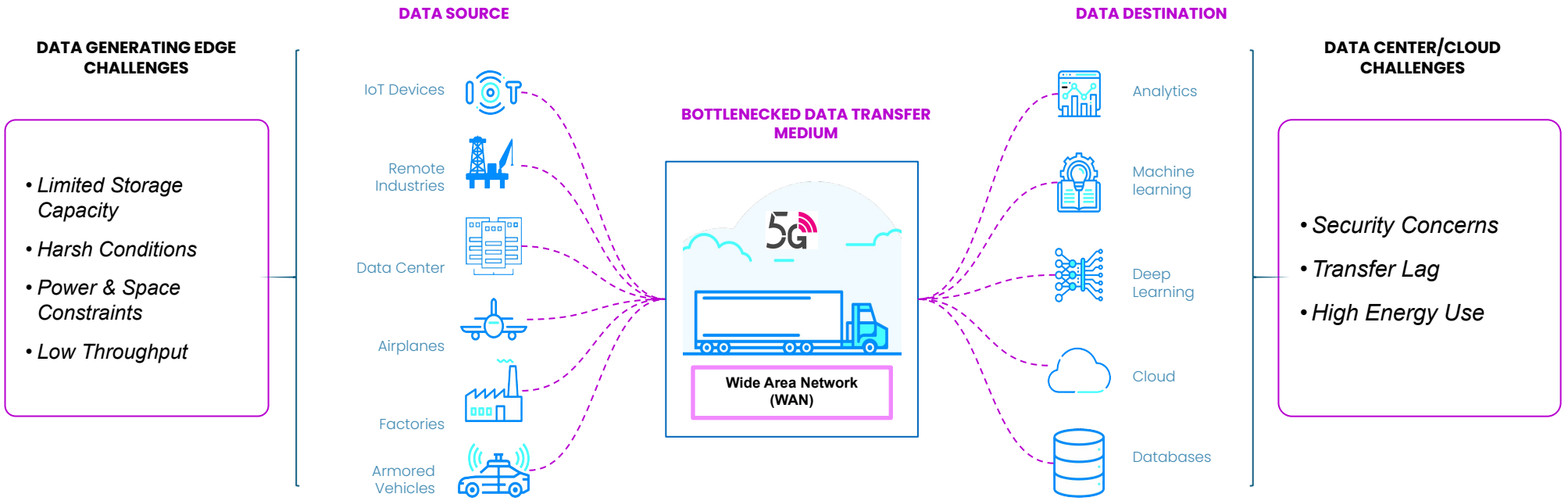
- **Limited real time analytics and lack of AI inferencing** on the edge and in motion can result in loss of an edge or advantage

- The processed or raw data may be moved over the network. The network can be slow, degraded, unreliable or insecure. **Existing systems and networks typically offer low throughput (< 1GB).**

- **Existing storage solutions are bulky**, take up large amounts of space and **consume high power**; All this contributes to **higher operating costs and less mobility**

- Multiple solutions for storage and AI inferencing, increase integration touch points resulting in **higher management, maintenance, logistics and support costs**

Current Landscape for Edge Data Capture, Movement and AI



Inability to capture all data

Slow & Sequential Data Processing

Expensive & Inefficient Data Transfer

Slow data Analytics. No AI-on-the-edge

Vulnerability to Data loss

Solution – Tysons Advisory & BRYCK® provides the ultimate fastest, reliable and secure air-gapped AI-on-the-edge solution and data services.

BRYCK AI is a high-performance AI inferencing platform with integrated storage for edge & Data center use cases. Exceptional AI and Storage performance, scalability, efficiency and security for every edge AI workload.

Hardware	Software
Rugged High-Density Portable **Storage - 64 TB to 1 PB**	Captures, Processes, performs AI inferencing & transfers Data at high speed. Supports quantization of all AI model formats
Highly Secure, Encrypted, air-gapped and Compact **Size - 1lb - 14 lb**	**Data Access - Remote file access: NFS, CIFS, SMB, S3, RDMA, ST2110**
High Speed IO - upto 40GB/s, theoretical scaling up to 200GB/s	Self Healing Storage
Low Power Consumption - 240 - 800 watts	End to end data consistency
Agnostic to Server Architecture	High throughput data encryption
Fault tolerant	Easy management via web, REST APIs, dashboard
Hot Pluggable	**Highly parallel and multithreaded data transfer and AI inferencing**
Cost effective physical data transport and AI inference on the edge	Clustering of multiple BRYCKs, single namespace spanning exabytes

BRYCK – FAMILY OF SOLUTIONS

BRYCK®

BRYCK® Platform

BRYCK® Mini

BRYCK® Block

BRYCK AI®

BRYCK AI®

BRYCK AI® Mini

BRYCK AI® Block

Worldwide partnership with Equinix
Leverage Direct Connect or Fabric Port to migrate data

BRYCK AI Platform Mini

BRYCK AI Mini is a **small form factor, rugged & high-performance AI inferencing platform with integrated compute & storage** for various edge & Data center use cases. It delivers exceptional AI and Storage performance, scalability, efficiency and security for every edge AI workload.

AI Performance (TOPS)	416
AI Processing Memory	64GB
FPS	39,000
Storage Capacity	128TB
Latency	4.7 ms
Precision	INT8
AI Data Processing	10GB/s
Energy Efficiency	10.4 TOPS/W | 1128 FPS/W
AI Frameworks	TensorFlow, TensorFlow Lite, Keras, PyTorch, ONNX ML formats supported
Form Factor	Dimensions: 3” x 6.0” x 13.5” W x H x L Weight: 10 lbs

BRYCK AI Platform Block

BRYCK AI Block is a **tiny form factor, rugged & high-performance AI inferencing platform with integrated compute & storage** for various smaller edge use cases such as drones, robots, Autonomous vehicles, video cameras etc.

AI Performance (TOPS)	104
AI Processing Memory	16GB
FPS	9,750
Storage Capacity	64TB
Latency	4.7 ms
Precision	INT8
AI Data Processing	1GB/s
Energy Efficiency	10.4 TOPS/W | 1128 FPS/W
AI Frameworks	TensorFlow, TensorFlow Lite, Keras, PyTorch, ONNX ML formats supported
Form Factor	Dimensions: 3.5" x 4.5" x 1.5" W x H x T Weight: 1 lbs

BRYCK AI - AI Inference on-the-edge & Data Transfer

Alignment with Strategic Focus Areas

Live: Boeing + Boeing Defense Services + Intel Community + Space + Industry

Pilot: Several Agencies + Large Federal System Integrators

US Patent Granted

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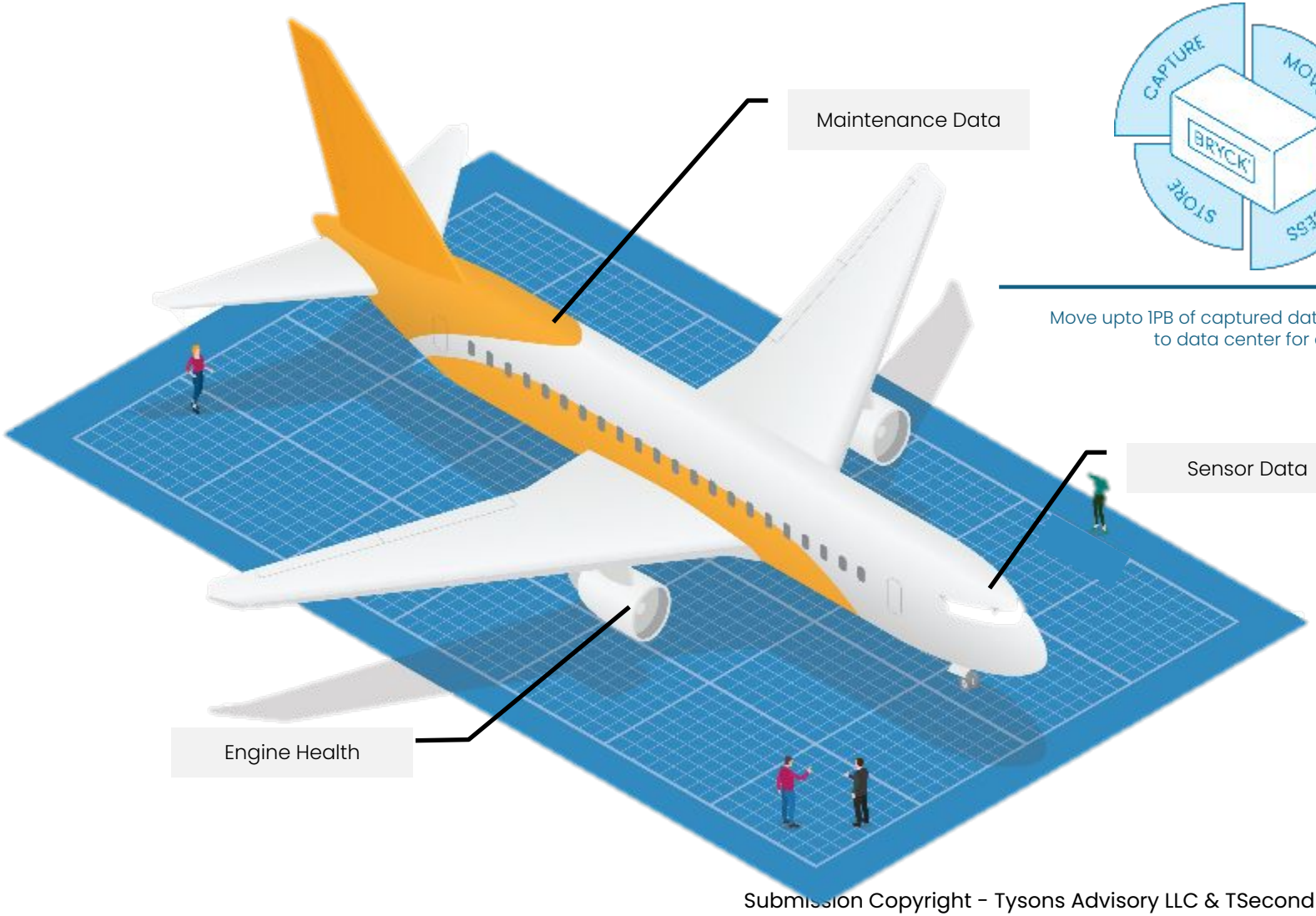
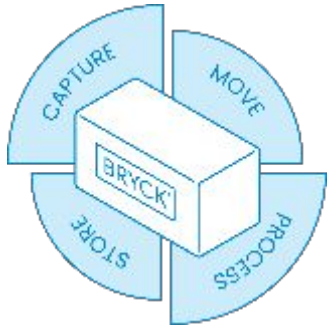
Use Cases	Field Application
Data Capture & Air Gapped Movement for AI on the Edge	• BRYCK® connected to visors in soldier backpacks for live situation analysis using AI-on-the-edge and on the go! • On a missle to augment heat seeking sensors with vision sensors to ensure mission hits target to defeat countermeasures • On a drone in the air, sea or ground to collect and/or process data for distributed decision support operations
Data Capture & Air Gapped Movement from Edge locations to Data Centers	• Use BRYCK® platform to move data from remote bases to central data center for analysis, machine learning and/or AI model training • Move all your data from the Data Center into your govcloud through our Equinix partnership
Large Data Capture, Disadvantaged Edge and Data Movement	• BRYCK® Platform deployment in a Chilean desert for multi-camera recording 24X7 over 3 weeks • BRYCK's integration with RED Connect for streamlined workflows and configurations for high-resolution and high-frame rate multi camera, live-to-tape, volumetric and immersive video projects in all types of environments. • 1PB BRYCK® capacity was used to form real-time playback of 4K uncompressed/lightly compressed frames and for rendering of 16K uncompressed frames
Data Capture & Processing during ISR missions	• BRYCK® Platform captures data at very high speed. ISR missions can now run for much longer (previously 20 min given ~4TB data capture/min and storage device capacity limitations) and perform AI inferencing while in-flight, or captured data can be securely transported to Air base for further analysis and inferences.
Data Capture in Space or Sea	• BRYCK® used in space or out on sea for large data capture and AI inferencing on the edge • Ease of data movement ship-to-shore or drone to ship
Supply & Logistics	• BRYCK® Platform can be used for supply chain and logistics ordering, inventory management and coordination for remote areas or disaster recovery zones
Zero effort Infrastructure Upgrade	• Plug into existing infrastructure to add additional storage and AI inference capabilities

Real Time Threat Assessment Demo:

Highlights AI inferencing on the edge using Bryck Block (1lb device) in a soldier’s backpack while traversing a hostile zone.

Boeing Case Study - Aircraft Data Capture

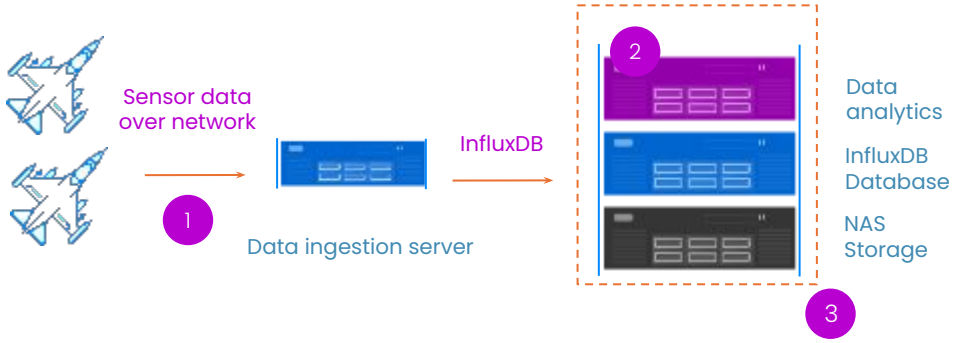




Move upto 1PB of captured data with each BRYCK®
to data center for analysis

Boeing Case Study - Aircraft Data Analytics

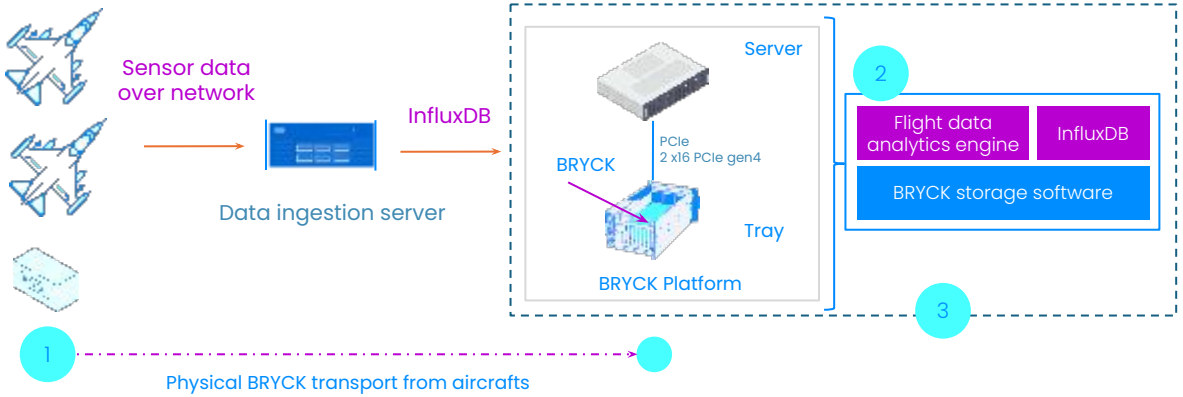
Existing Infrastructure



Aircraft manufacturers want to analyse flight sensor data to improve flight efficiency.

1. Slow upload of log data over the network **also increases idle time for aircrafts by up to 3 hours.**
1. The captured data is moved over the network resulting in a **slow data movement** and making the **data vulnerable to network attacks.**
2. Existing systems offer **low throughput (<1GB)** resulting in prolonged duration for analysis.
2. Data analytic engines take **more than 2 weeks** to produce results.
3. Existing storage solutions are bulky, **take up large real-estate space** and **consume high power**; All this contributes to **higher operating costs.**

BRYCK enabled Infrastructure



The BRYCK enables multiple petabytes data capture, instant data upload, high speed data analytics and military grade security.

1. Instantaneous access to data through hot swappable, portable BRYCK storage. **Reduces idle time to zero.**
1. Military grade data encryption and physical ruggedness ensures **highest level of data security.**
2. With 10+ GBPS of throughput, analytics engines can **perform 10x faster.**
2. **Reduces processing time to 1 day.**
2. **BRYCK consumes 1/3 power and can store 4x data** in same space **reducing operating costs substantially.**
3

Business Model – Services & Pricing

Business Model	Federal Agency	Tysons Advisory + Bryck	Pricing Model
Capex	• Agency buys the device upfront and manages the logistics. *Preferred by federal agencies*	• Tysons Advisory is the preferred distributor	• Pricing available based on Bryck size and configuration of data storage and AI processors; Available through GSA or GWAC's
Rent to Buy	• Agency leases dedicated devices from Tysons Advisory for a term prior to purchase.	• Tysons Advisory will use agency approved data transportation and cleared facilities to provide Bryck-As-A-Service	• List Price available based on term and frequency of service, and Bryck size and configuration and logistics
Strategy, Program Management and Advisory Services	• Agency contracts with Tysons Advisory for data and automation strategy, advisory and program management services • Preferred by federal agencies, federal system integrators and industry	• Tysons Advisory provides data, automation and analytics strategy, advisory and program management services required to support data strategy and execution to move data to/from other servers on/off Bryck platform, as needed.	• Pricing available for both Time & Material, and project-based.

BRYCK® Platform Differentiation

Differentiating factors:

- ✔ Capacity - 64 TB to 1 petabyte available
- ✔ Low SWaP* - 1 lb to 14 lb, 240 - 800 watts
- ✔ Speed of Input Output - Upto 200 gbps
- ✔ Storage and AI Inferencing in a single device
- ✔ Ruggedization; in process of DoD testing
- ✔ Device security; AES Encryption and security built-in

Alternate technical approaches include:

- ✔ Separate infrastructure for storage and AI inference
- ✔ Cloud for data storage with data transfer appliances for data movement
- ✔ Cloud for AI inference. No on-prem or air-gapped option available
- ✔ Multiple disks for storage with clustering that are bulky and slow

Detailed battle cards available explaining platform features and differentiation upon request.

- ✔ BRYCK outperforms all appliance solutions offered by the hyperscalers in terms of weight, capacity and power
- ✔ BRYCK's data processing speeds are orders of magnitudes better than competitors'

Bryck is unique in the industry for security, safety, reliability, speed and AI-on-the-edge.
We welcome an opportunity to pilot.

*low SWaP – low Size, Weight & Power

Real Time Decision Making with Military Grade Security and Speed

Operational Impact: Instead of complete reliance only on satellite imagery and human intelligence to act upon vision data, BRYCK AI can be used:

- by warfighters in their backpacks for live situation analysis and AI-on-the-go
- in armored vehicles and tanks to provide real time navigation and situational awareness
- on a UAS for identifying critical infrastructure targets while in flight or in motion
- on a missle to augment heat seeking sensors with vision sensors to ensure mission hits target to defeat countermeasures

Scale of impact: Massive. With the addition of AI capabilities to mobile assets, the use cases described above would provide decisive offensive and defensive advantages to the US Military

Thank You

Speed big data from the edge to insights with petabyte-capable BRYCK®.

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