

HarperDB Edge Accelerating Tactical Edge with HarperDB

Solution

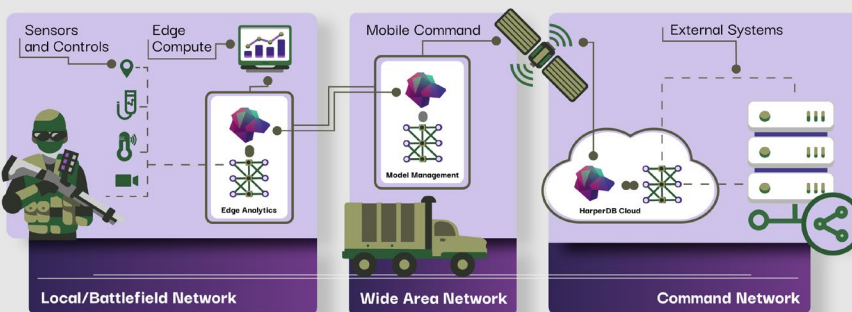


Innovation for tactical edge"

HarperDB has partnered with Command Cyber Solutions to provide the Army with an innovative solution that will enhance the Army's tactical edge and data orchestration capabilities. Command Cyber will leverage HarperDB to develop an edge-based analytics platform that can capture facial recognition data and distribute it to other HarperDB nodes for real-time alerting and detection.

HarperDB will be deployed on the extreme edge, a mobile command center, and a server to not only collect and orchestrate data throughout the nodes, but also propagate rules engines and AI models from the command center to the edge to update logic and thresholds on the fly. This will allow the Army to adjust the priority level of the faces detected from the command center in case a high threat (person of interest) is found. In addition, priority levels of faces detected will be automatically upgraded when they are captured in high sensitivity areas.

Project Background - Extreme Edge AI



The Army is looking for a system to increase situational awareness through computing and decision support on the extreme edge. HarperDB enables this by providing a single holistic solution that makes data sync and management easy. HarperDB's bidirectional data movement enables the collection and movement of data and logic in real time, shifting decision making throughout the network as needed.

In addition, HarperDB's Custom Functions allow for user-authored code to run within HarperDB, with direct access to core HarperDB methods. Comparable to AWS Lambdas, or old-school stored procedures, Custom Functions are simple to create, easy to maintain, and can be deployed across the entire network with a single click.



Why the Army Chose HarperDB

- Bi-Directional Movement of AI Models & Rules Engines
- Custom Functions Deployed from Edge to Cloud
- Edge Data Filtering
- Collapsed Data Stack
- Single User Interface to Manage All Instances
- Enhanced Security
- Cloud Agnostic

3-Tier Approach

Tier 1 - Jetson Nano (Extreme Edge)

Jetson Nano with IMX219 Camera. OpenCV/GPU-based deep-learning script collects facial recognition data and inserts it into HarperDB, which replicates that data to the mobile command and desktop in real time. Simultaneously, a rules engine allows for editing and applying logic to collected data, adding context or value. These rules are down-propagated from the upper tiers, and can be hot loaded without restarting the unit. Faces found are displayed with a color-coded priority system based on logic applied by the rules engine.

Tier 2 - Laptop (Mobile command)

Provides real-time view into data synchronized by HarperDB. Details can be added to, or modified for, individual "faces" that may be of interest. Those updates are sent to the edge to be applied on future detection events.

Tier 3 - Desktop/Server (Base Level)

Has all capabilities of the Mobile Command tier, along with processing power to double check the results or run further models against shared images. HarperDB Studio can easily run historical analysis on the data to improve operational efficiency.

Meet HarperDB and Command Cyber

HarperDB is a database focused on distributed data management while delivering easy-to-use tools that help reduce global data latency for customers in Defense, Gaming, and Media.

Command Cyber Solutions is an IT
consulting company specializing in Cyber Security
Services and IT Support.