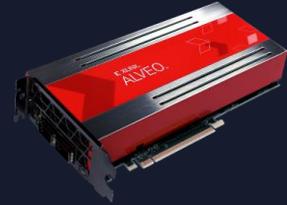


Inventory Loss Prevention in Retail Supply Chain

SOLUTION BRIEF



- Heterogenous CPU+FPGA platform delivers >5x performance at >2x lower TCO
- Complete Real Time Analytics Pipeline implemented in the FPGA
- No code changes to CPU SW implementation using plug-in libraries

INTRODUCTION

The demand for real-time stream processing is increasing rapidly with the explosion of streaming data from IoT sensors, web, and other sources. Enterprises want to extract business value by processing this data as it is in motion using real-time analytics.

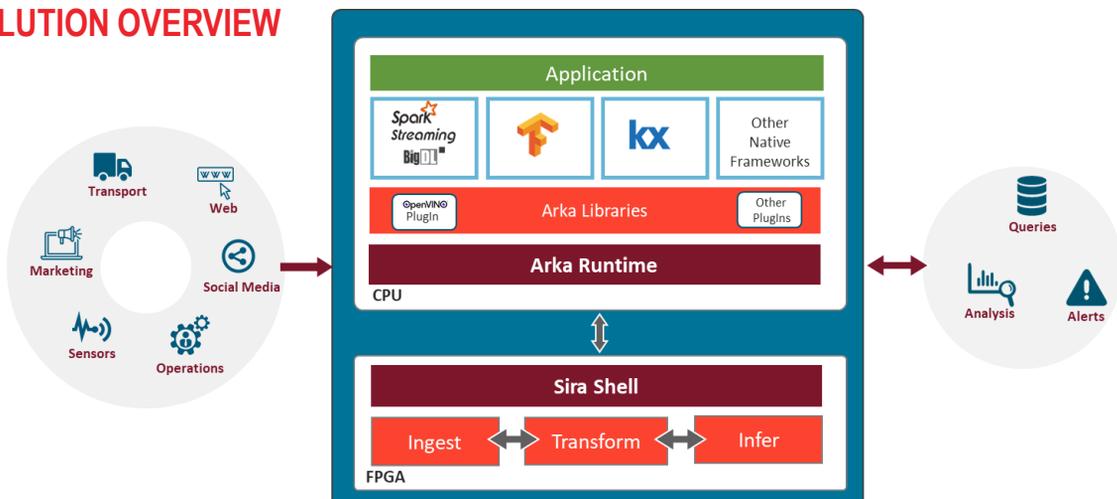
One such area of application is fraud prevention and inventory management in the retail supply chain using real-time video analytics. Retail inventory loss (or “shrinkage”) is an extremely serious problem, totaling more than \$100 billion annually—nearly 1.8% of sales—worldwide. Not surprisingly, retailers are seeking innovative solutions that are low cost and yield an immediate return on investment (ROI).

Fortunately, there are effective technological solutions that satisfy these criteria. External shrinkage, for example, can be detected and prevented using inexpensive cameras and deep learning video analytics. Based on its advanced real-time analytics platform, Megh Computing’s Video Analytics Solution addresses fraud prevention and inventory management throughout the retail supply chain, including inventory loss at self-checkout counters, inventory management at distribution centers / manufacturing locations, and for enhanced video surveillance.

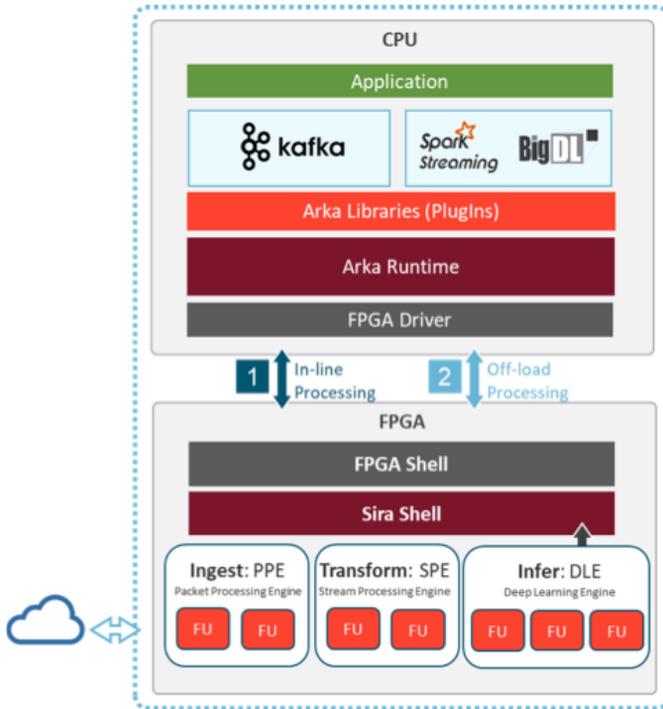
PRODUCT OVERVIEW

- Ingestion : 10 channels or more of 1080p 30 fps video
- Transformation: H.264 decoding and image resizing for all channels
- Inference: Object detection and classification on each channel using Deep Learning Engine
- Framework Integration: Seamless integration into standard frameworks like Spark, FFmpeg and C/Java application using Arka framework plug-in libraries

SOLUTION OVERVIEW



FEATURES



Application:

- Supports Optimized SPARK Streaming + BigDL DL Library framework
- Or TensorFlow or other / custom Application frameworks
- With both In-Line and Off-Load processing

Arka Runtime:

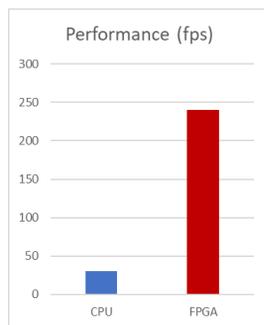
- Re-maps DAG and configures Sira Accelerator Function Units
- Manages Multi-FPGA resources
- Exposes Accelerator Function-as-a-Service using Standard or Custom APIs
- Supports Custom Kafka Connectors

Sira Accelerators:

- AFUs consists of one or more Function Units (FUs)
- Routing and functions configured by Arka SW
- Library of AFUs provided
- SDK to build custom FUs

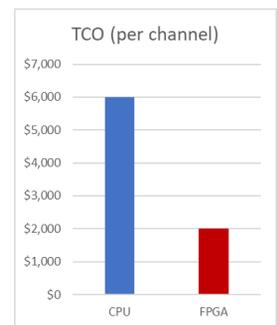
PERFORMANCE (CPU Comparison)*

Throughput: > 8X



COST SAVING (TCO Benchmark*)

Cost: <3x



CPU: Dual socket server with Intel Bronze E5 3106 processors or equivalent with 48G of memory.
 FPGA: Xilinx Alveo U200 accelerator card in dual socket server

TAKE THE NEXT STEP

Learn more about [Xilinx Alveo accelerator cards](#)

Learn more about Megh Computing: www.megh.com

Reach out to the team at sales@meghcomputing.com to learn more.