Metro AI Suite Guide for Hardware Partners

Version 1.5 - May 2025 Update

Metro AI Suite for Hardware Partners

This guide is intended to help Intel Hardware partners leverage Metro AI Suite to accelerate their business

Contents

Metro AI Suite: An Ecosystem Framework to Enable Hardware Partners to Qualify and Maximize AI Performance on Intel Platforms

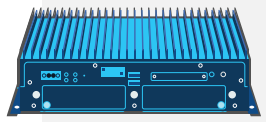
Hardware Catalog: AI-ready hardware systems recommendations

Metro AI Suite

Benchmarked performance across Intel® platforms

AI System qualification

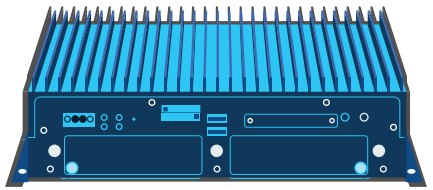
- Ready to use Demos of Smart City & Transportation Sample Apps
- Benchmarking tools for evaluating Vision AI workloads
- Device qualification to ensure systems are “AI ready”



Realize AI potential for your systems

Use Metro AI Suite to qualify, understand, and promote system AI capabilities

Bring Your AI-Ready Intel®-Based Systems



Qualify and Promote

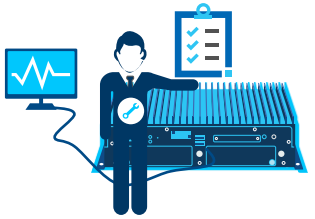
Run Vision + AI Qualification Package

ESDQ Qualification Tool

List qualified systems in Intel AI-Ready Hardware Catalog

Measure AI performance

Use VIPPET tool to easily measure AI performance (GUI tool)



Demo AI capability

Install Visual & Gen AI Sample Applications

Demo (no-code) AI demos to customers

Qualify and Promote AI Systems

Intel® Edge Software Device Qualification (Intel® ESDQ) for Metro AI Suite

ESDQ is a self-service qualification process for partners to test and validate their products and devices, *ensuring compatibility and quality* for Edge Software Packages on their devices.

Tests & Measures:

- OpenVINO™ neural network model benchmarks
- Media Performance (Encode, Decode, Compose)
- Memory
- GPU AI Frequency (via OpenVINO™)
- Also provides Telemetry Data

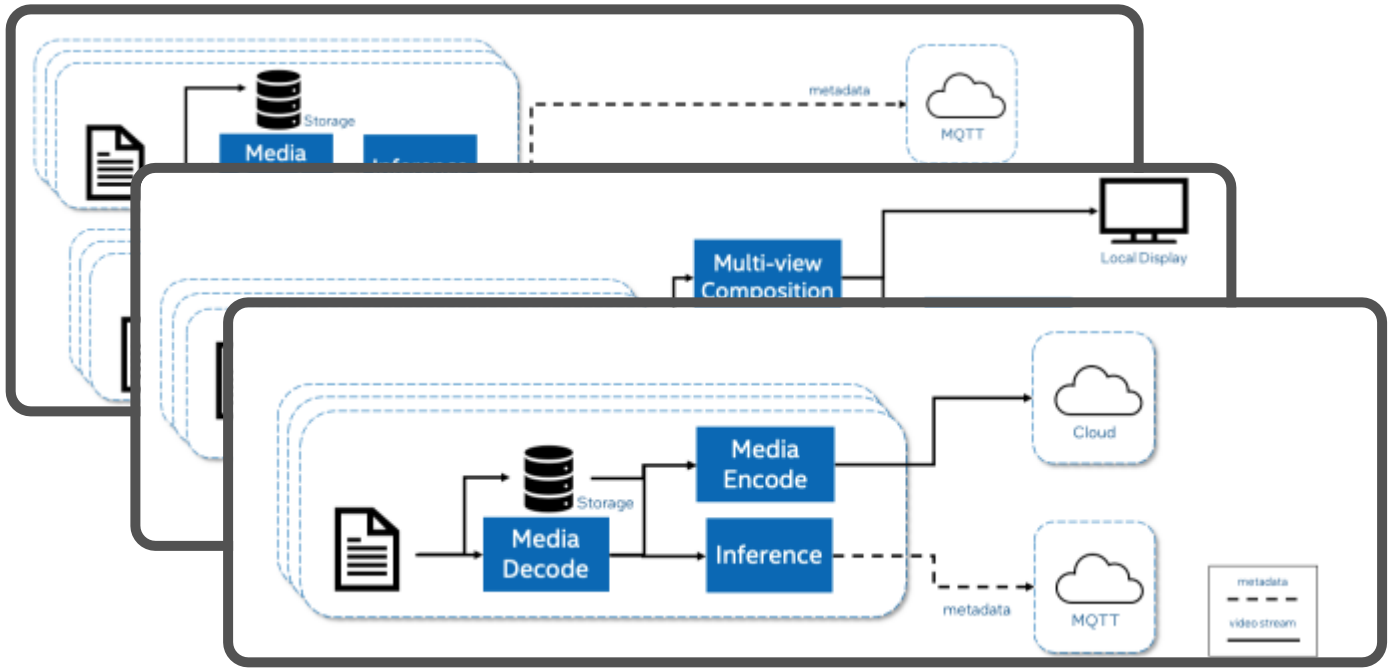
Video Pipeline Benchmarks:

- Smart NVR
- Headed Visual AI Pipeline
- VSaaS Gateway with Storage and AI

Qualify your Intel AI Systems with ESDQ

Use Metro AI Suite Device Qualification Tool

- **Intel® Edge Software Device Qualification (Intel® ESDQ) for Metro AI Suite** allows customers to run an Intel-provided test suite on the target system, enabling partners to qualify their platform as an Edge AI ready device
- See link for instructions, supported system requirements, & other prerequisites



Why Qualify Systems?

- Ensure AI-ready systems for ISV customers
- Qualified systems are eligible for Hardware Catalog
- Get Benchmark data:
  - OpenVINO™ based neural network models
  - Media performance benchmark
  - Video pipeline benchmark
  - Memory benchmarks
  - GPU AI frequency measurement

Eligible Intel platforms

- Intel® Core™ Ultra Processors
- Intel® Core™ 11th, 12th, or 13th Generation Embedded processors
  - 12th, or 13th Generation Desktop processors with Intel® Arc™ A380 GPU
- Intel Atom®: X7000 Series and N-series processors
- Intel® Xeon® 4th or 5th Generation Scalable Processors
  - Optional Pairing: Intel® Arc™ A380, Intel® Arc™ A550, Intel® Arc™ A770 GPU

Partner Self-Qualification using Intel® ESDQ

Four Easy steps for Partner Self Qualification

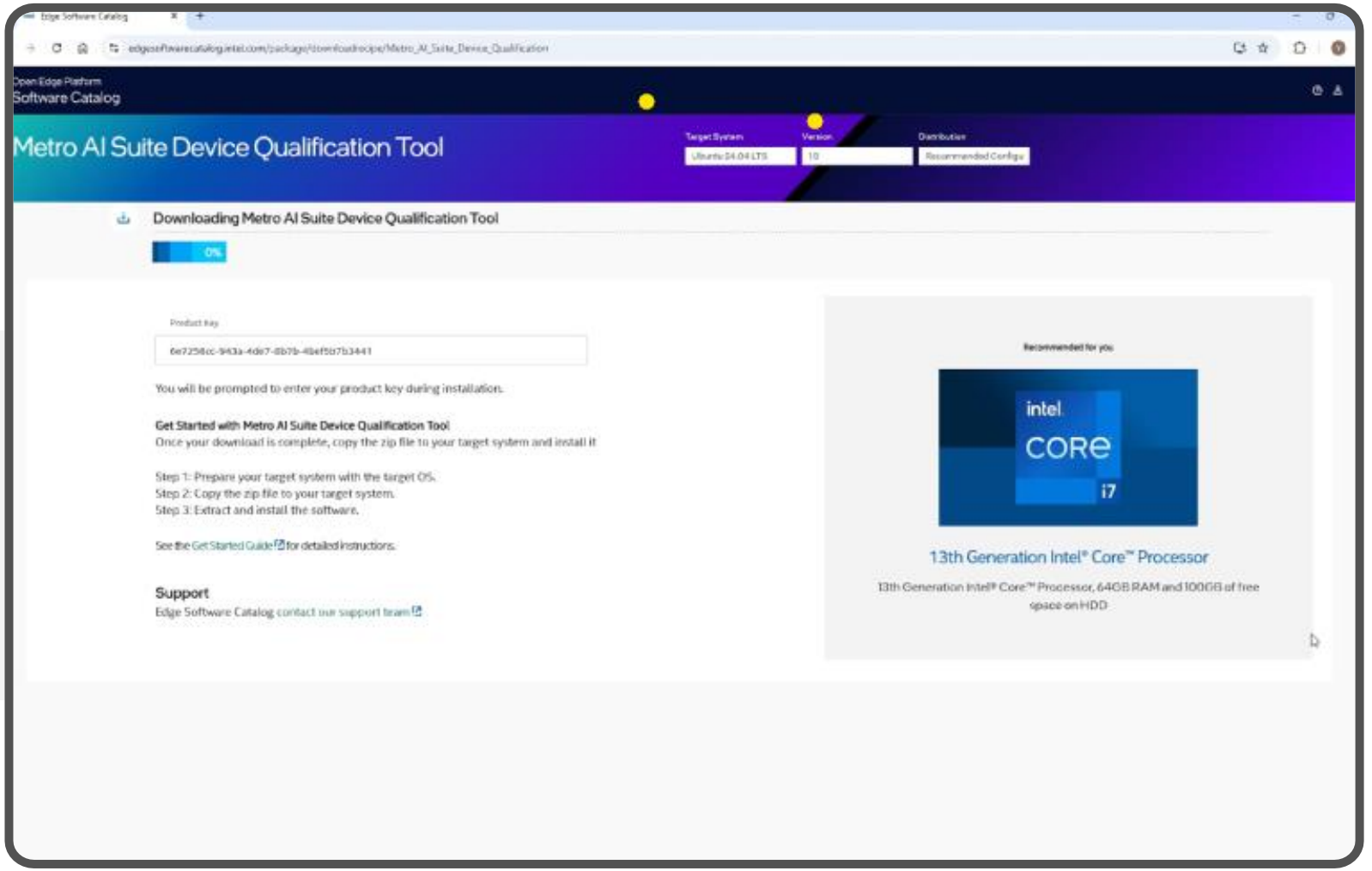
Download & Install Intel AI Edge System ESQ profile	Run ESQ Profile (Test Modules)	Submit Results Summary for Self-Qual	Approved and Listed
1  Download & Install Qualification Tool	2  Run ESQ Test Module	3  Submit Application	4  Approval and Listed
OXM			Intel

intel ai Eligible for Partner Endorsement Badge & additional partner benefits.

The Recommended Hardware Catalog helps SW partners find qualified edge systems

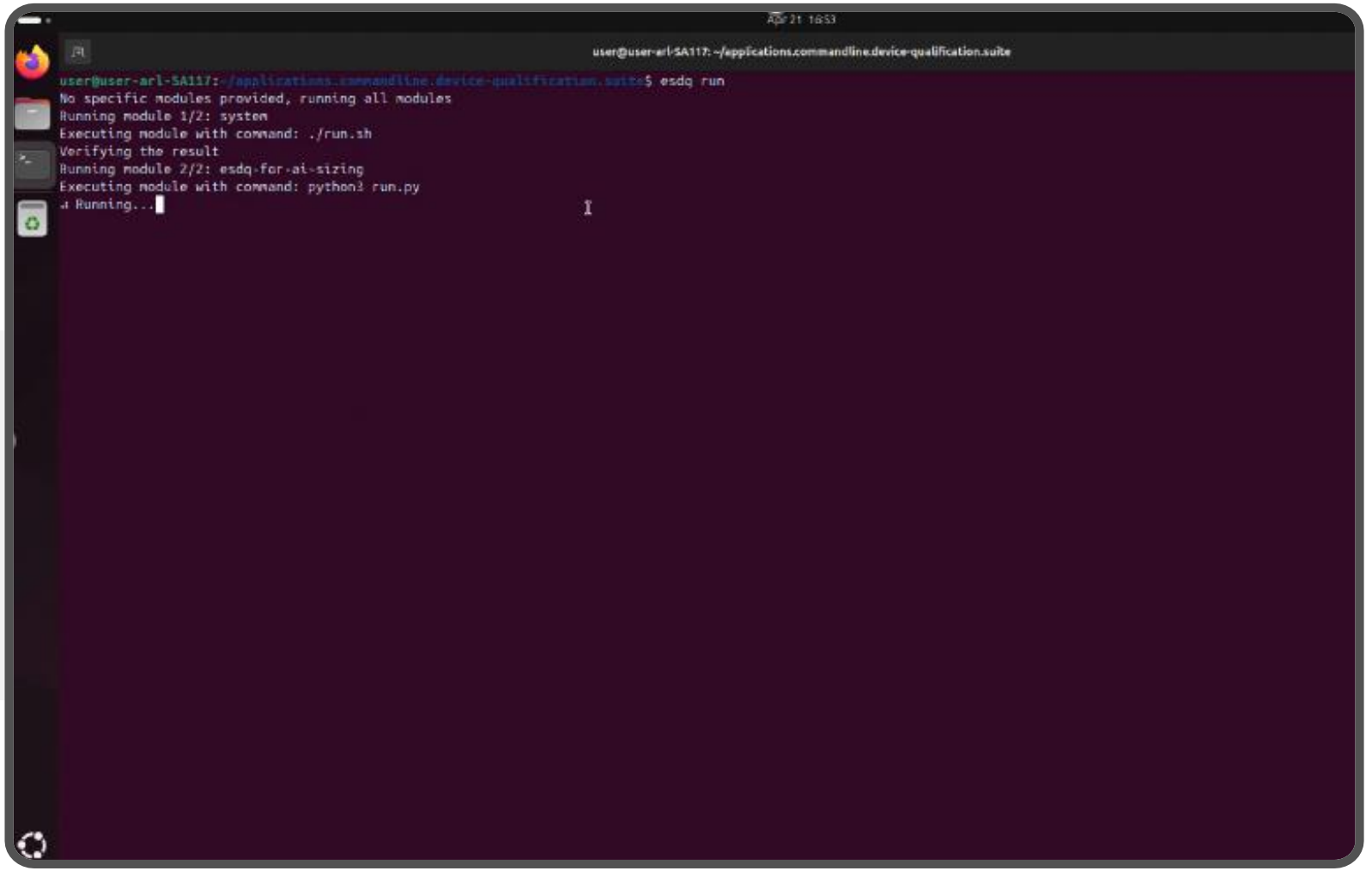
Edge System Qualification

Step 1: Download & install tool



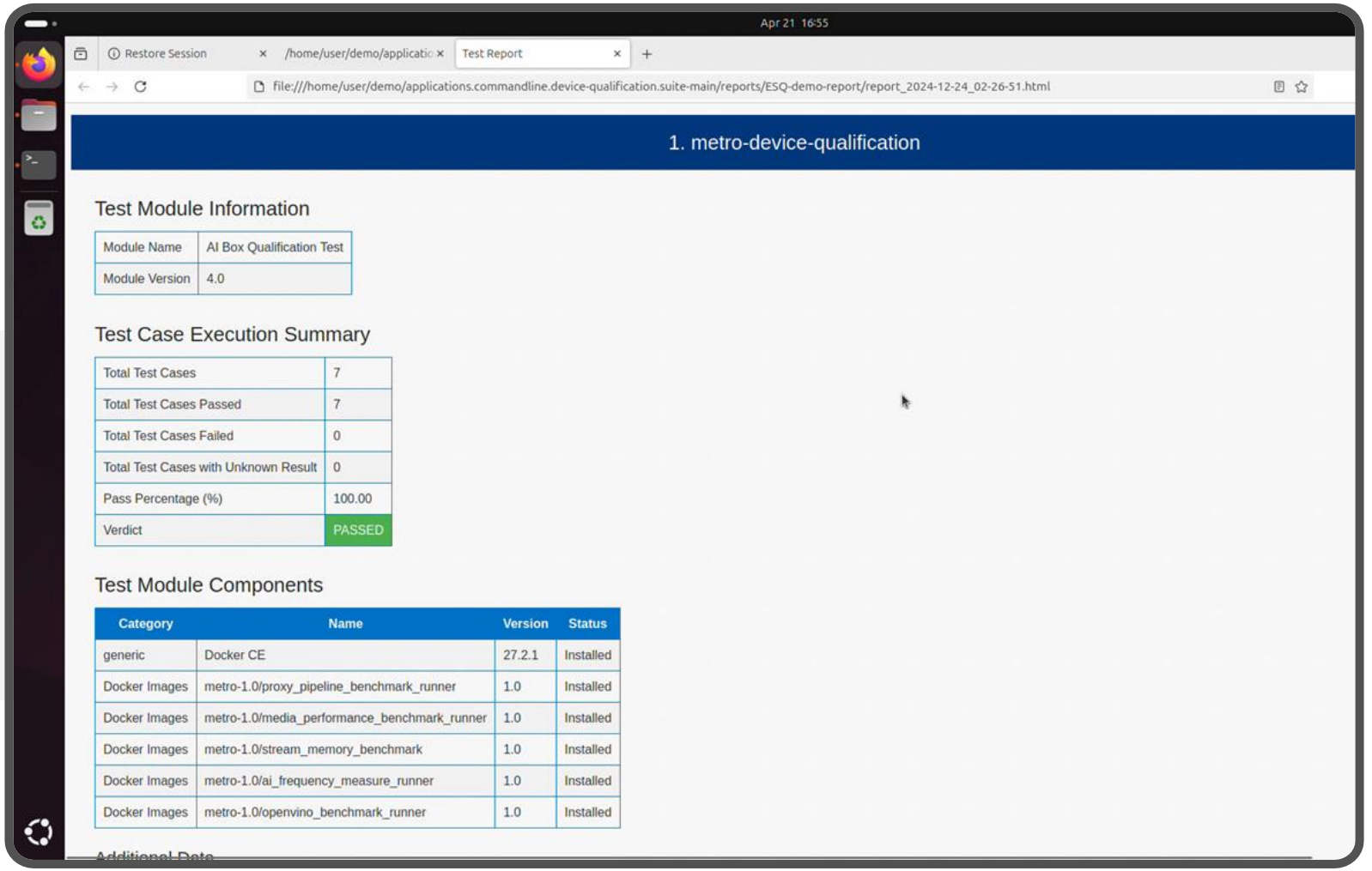
Edge System Qualification

Step 2: Run the tool



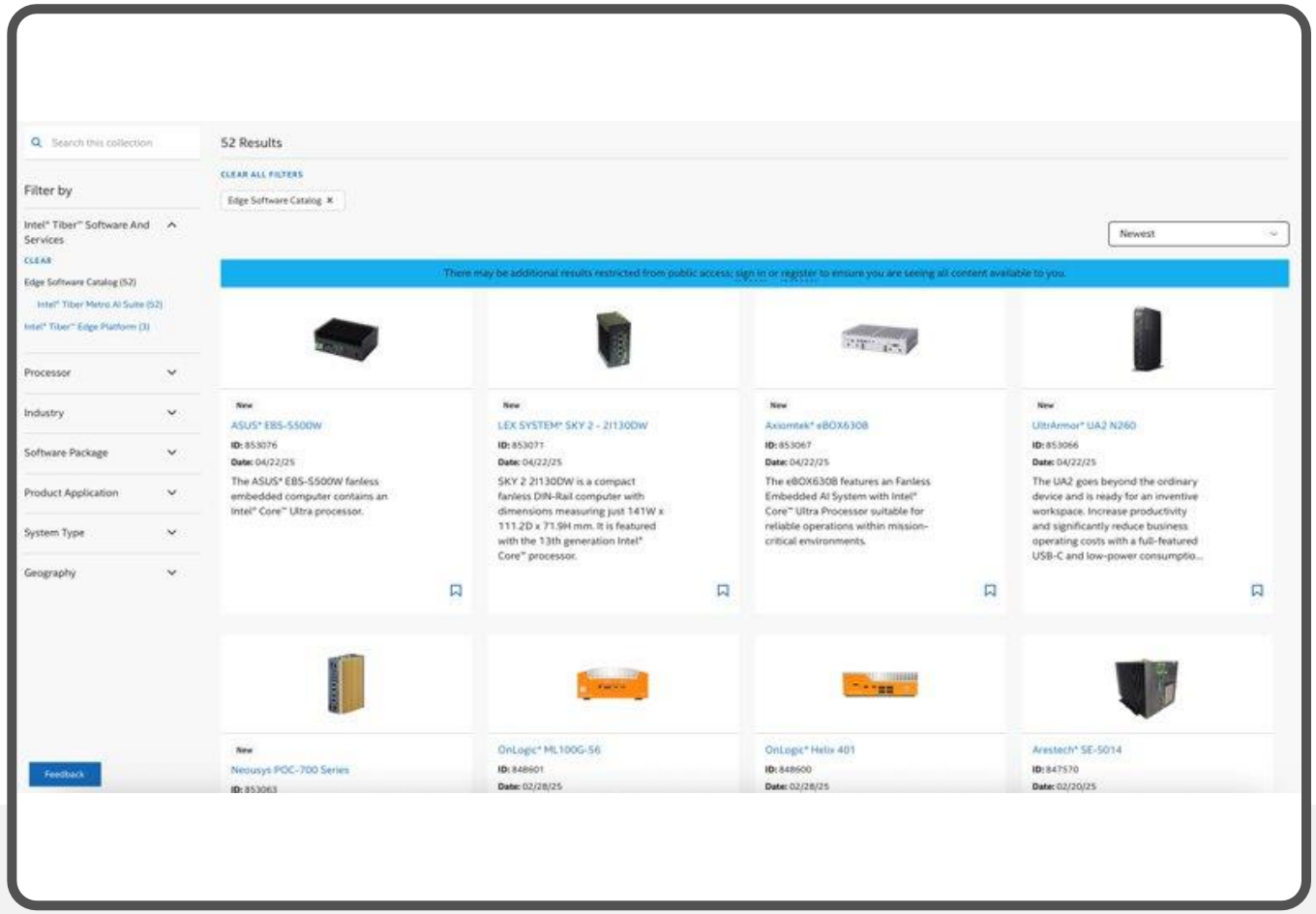
Edge System Qualification

Step 3: Inspect the report



Submit Qualified Systems to Hardware Catalog

Metro AI Suite – Recommended Hardware Catalog



Why add your systems to the Catalog?

- Build awareness of your AI system portfolio
  - Available to ISVs, SIs, and End Users looking for AI systems
- Users can filter systems by processor type, industry, product application, geography, and more
- Only Metro AI Suite-qualified hardware listed

To upload, follow instructions after submitting ESDQ results

System Benchmarking with Real-world Workloads

Easy End-to-End Visual AI Benchmarking with ViPPET

Visual Pipeline and Platform Evaluation Tool (ViPPET)

About ViPPET

- Simple, no code GUI tool to demo Hardware & Silicon platform performance
- Answer 'What-if' permutations for model, pipeline, & system performance
- End to End (Video + AI) workload is much closer to real world than TOPS or Inference-only

Recommended Usage

- Run to understand system capacity for Visual AI workloads
  - Get detailed E2E performance for video & common AI models
- Perform real-time demos
  - Upload realistic video file
  - Select AI model(s) & run benchmark

Showcase AI Capabilities

Run Visual AI and Gen AI sample applications for demo purposes

Reference Visual and Gen AI Sample Apps and Blueprints

Smart Search (Image Search by Text)

Smart Intersection

Smart Parking

Loitering Detection

Reidentification (Image Based Video Search)

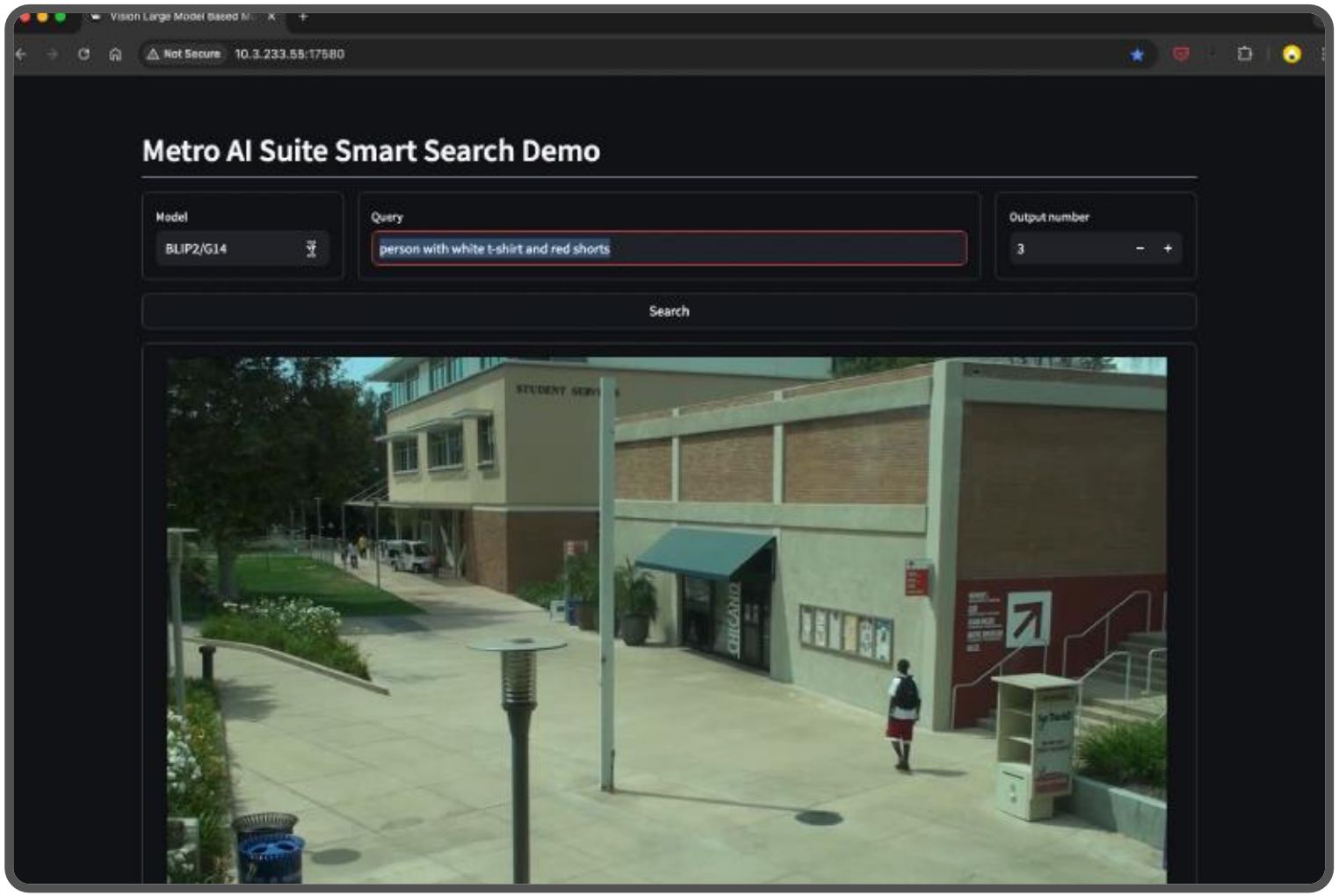
Video Search and Summarization

Visual Q&A

Platform Blueprints

Why Demo AI Sample Apps?

- Showcase system capability for leading Computer Vision & GenAI use cases
- Helps developers streamline code or jumpstart development
- Install & run demos on your qualified AI system for prospective customers



Gen AI Based Smart Search

This application uses multi-modal large models to do image retrieval with text query ("Image Search by Text"), enabling Gen AI "Smart Search" functionality in NVR or VMS systems.

Key Features:

- **Reduce manual search time**: speed up investigations
- **Augment capabilities**: Expand the possibilities of what can be searched for
- **Integrations include multi-modal LLMs CLIP and BLIP2, with results displayed in Web UI**

Supported Intel Platforms:

- Intel® Core™, Intel® Core™ Ultra, Intel® Arc™ A-series Graphics, such as A770 GPU

Download

Smart Intersection

Advanced traffic management via Edge AI, scene-based analytics.

Key Features:

- **Multi-sensor integration, including cameras, lidar, and radar** help serve use cases like pedestrian safety and traffic analytics
- **Scene-based / Unified analytics:** Define regions of interest via an independent map view, simplifying multi-object tracking, motion vector analysis, and business logic across sensors
- **Integration with MQTT, InfluxDB, Node-Red, and Grafana:** Facilitates efficient message handling, near real-time monitoring, and insightful data visualization.
- **Modular, microservice-based architecture** (including Metro AI Suite DLStreamer) enables composability and reconfiguration

Supported Intel Platforms:

- Intel® Core™, Intel® Core™ Ultra, Intel® Xeon® platforms

Download

Smart Parking

Effortlessly manage parking spaces with AI-driven video analytics for real-time insights and enhanced efficiency.

Key Features:

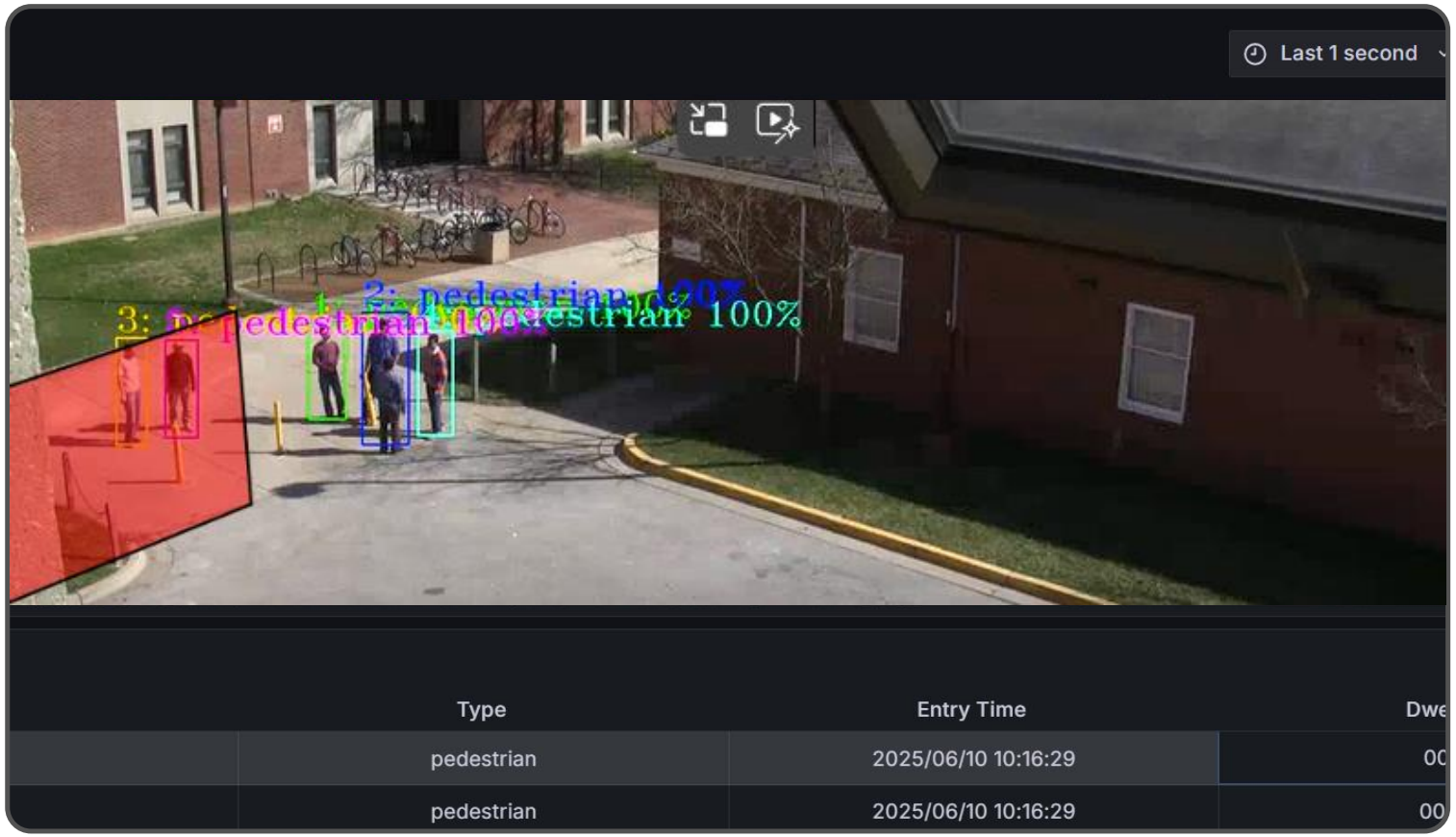
- **Modular, microservice-based architecture** (including Intel® DL Streamer)
- **Vision Analytics Pipeline:** Detect and classify objects using pre-configured AI models. Customize parameters (thresholds and object types) without requiring additional coding.
- **Integration with MQTT, Node-RED, and Grafana:** Facilitates efficient message handling, real-time monitoring, and insightful data visualization.
- **User-Friendly:** Simplifies configuration and operation through prebuilt scripts and configuration files.
- **Made with Rapid RI** low-code app framework

Supported Intel Platforms:

- Intel® Core™, Intel® Core™ Ultra, Intel® Xeon® platforms

Download

Loitering Detection



Loitering Detection leverages advanced AI algorithms to monitor and analyze real-time video feeds, identifying individuals lingering in designated areas.

Key Features:

- **Vision Analytics Pipeline: Detect and classify objects using pre-configured AI models.** Customize parameters such as thresholds and object types without requiring additional coding.
- **Integration with WebRTC Server, MQTT, Node-RED, and Grafana**: Facilitates efficient message handling, real-time monitoring, and insightful data visualization.
- **User-Friendly**: Simplifies configuration and operation through prebuilt scripts and configuration files.
- **Made with Rapid RI** low-code app framework

Supported Intel Platforms:

- Intel® Core™, Intel® Core™ Ultra, Intel® Xeon® platforms

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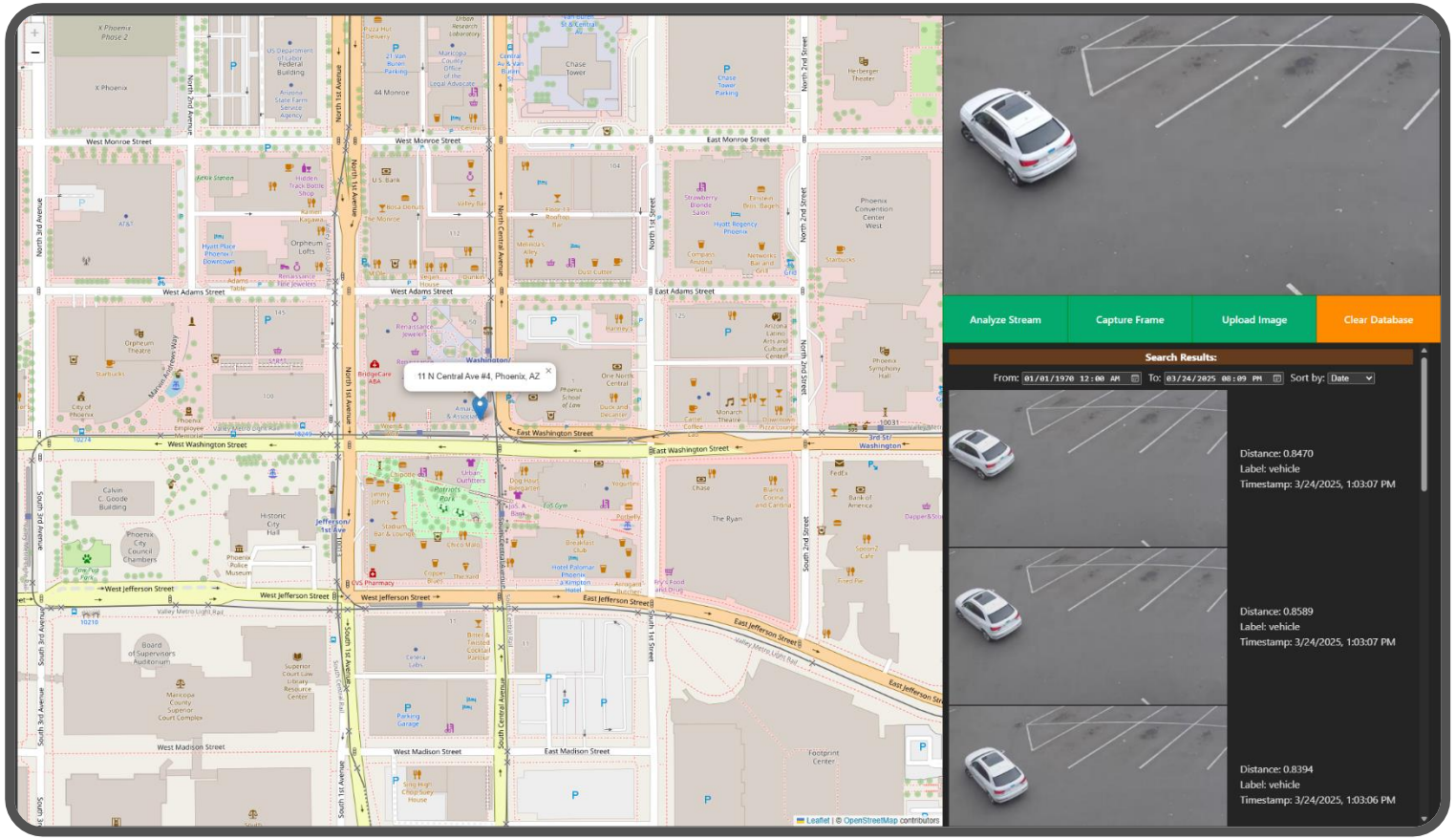

Reidentification (Image based Video Search)

The "Image-Based Video Search" sample application lets users search live or recorded camera feeds by providing an image and view matching objects with location, timestamp, and confidence score details

Key Features:

- **Enables cross-camera tracking / re-identification** – useful in both real-time and forensic investigations
- **Shows how to combine edge AI microservices** for video ingestion, object detection, feature extraction, and vector-based search.
- **Integration with DLStreamer Pipeline Server, MediaMTX, MQTT, MilvusDB, ImageIngestor**

Supported Intel Platforms:

- Intel® Core™ and Intel® Core™ Ultra platforms

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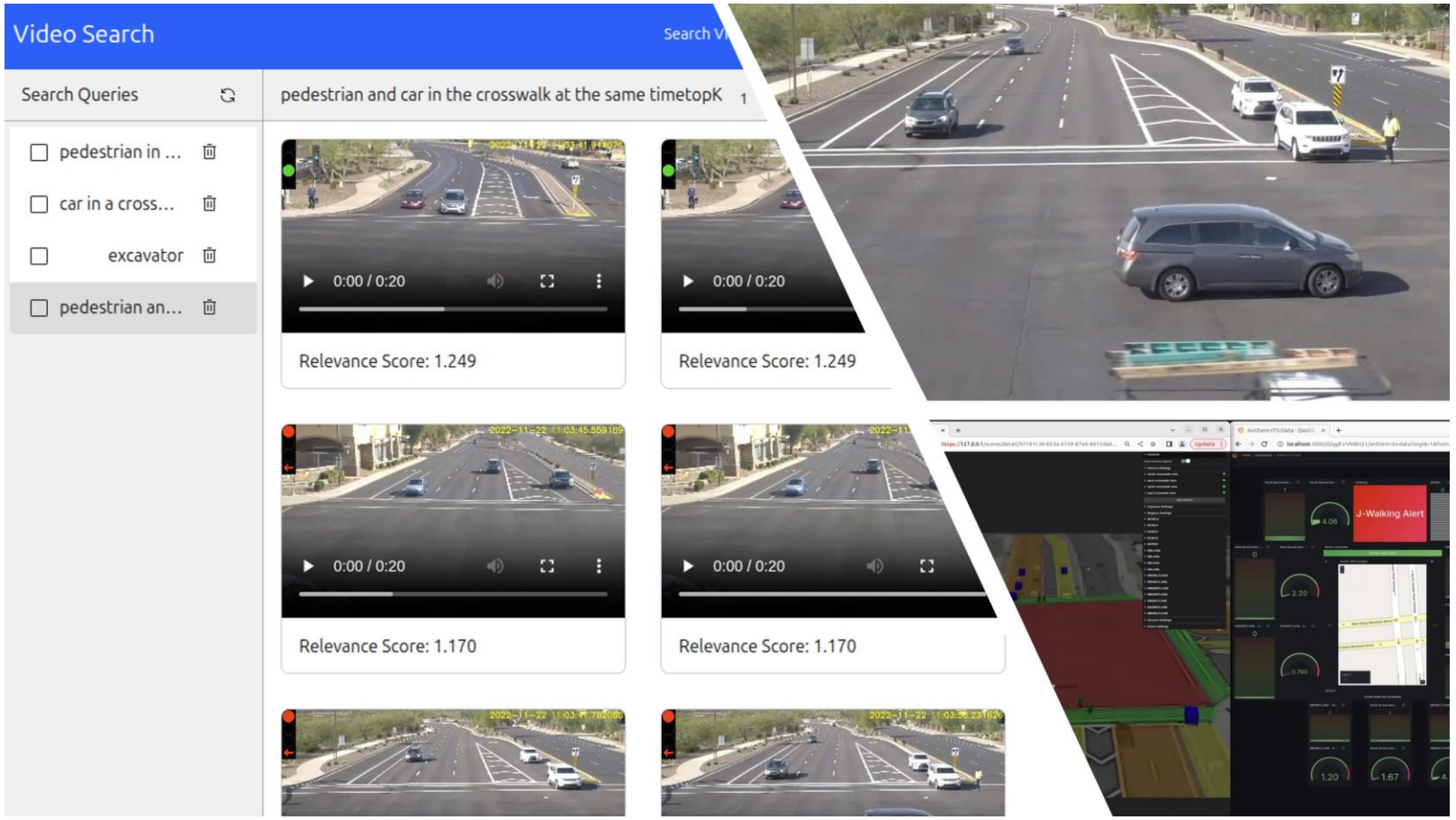

Video Search and Summarization

Video Search application leverages Generative AI tools to conduct comprehensive searches across vast video datasets, ensuring the extraction of key data points and making essential insights readily accessible. This technology excels at identifying and highlighting sought-after information within the immense volume of video data in today's digital era.

Key Features:

- **Video Search**: This functionality leverages LangChain, multimodal embedding models, and agentic reasoning to enable efficient and intelligent search over video content directly at the edge.

Supported Intel Platforms:

- Intel® Core™, Intel® Core™ Ultra, Intel® Xeon® platforms, Intel® Arc™ Graphics

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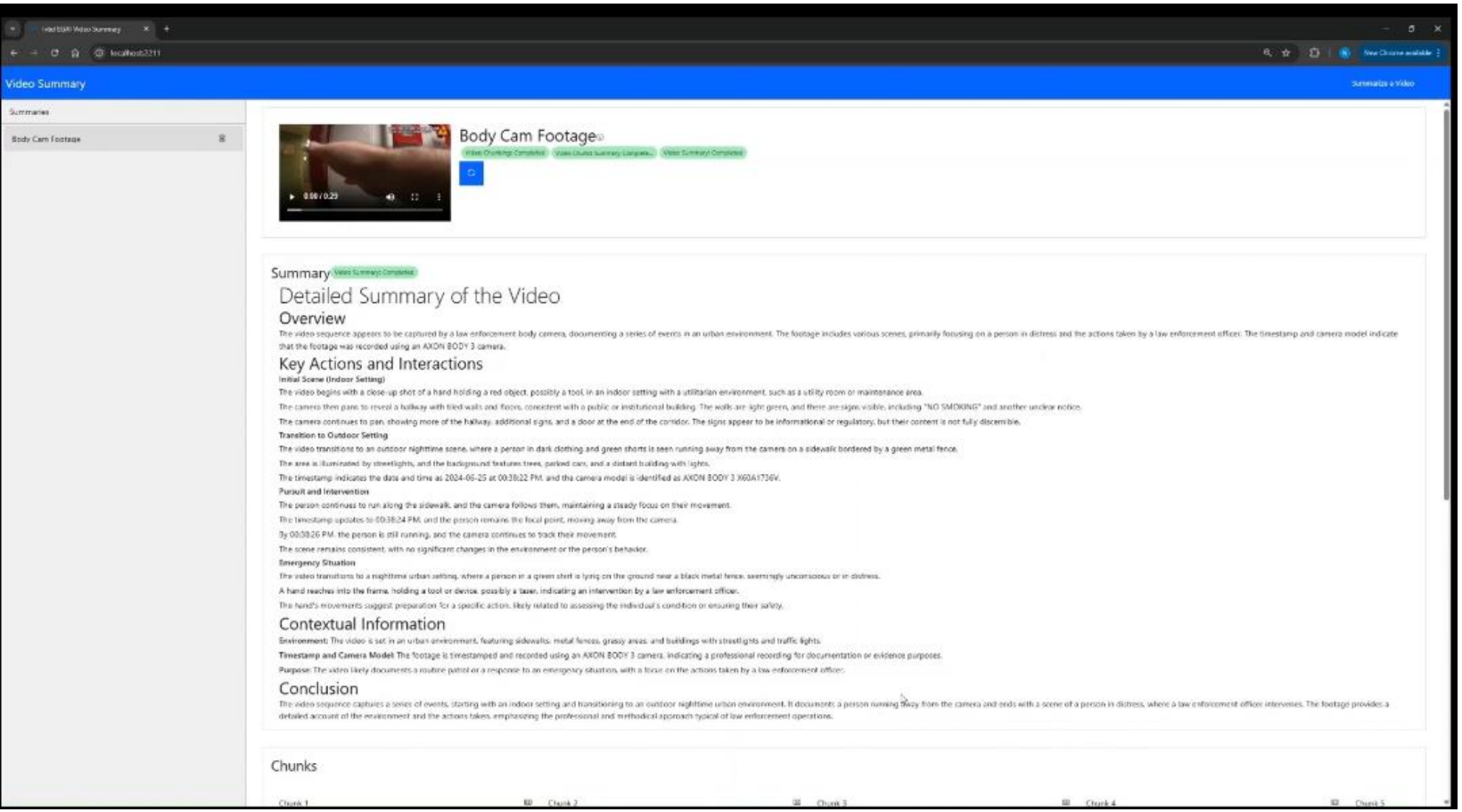

Video Search and Summarization (Continued)

A developmental sample application that demonstrates summarization of video streams.

Key Features:

- **Video Summarization**: Using Vision Language Models (VLMs), Computer Vision, and Audio Analysis, the application distills key information into brief synopses from large volumes of data within long-form videos.

Supported Intel Platforms:

- Intel® Core™, Intel® Core™ Ultra, Intel® Xeon® platforms, Intel® Arc™ Graphics

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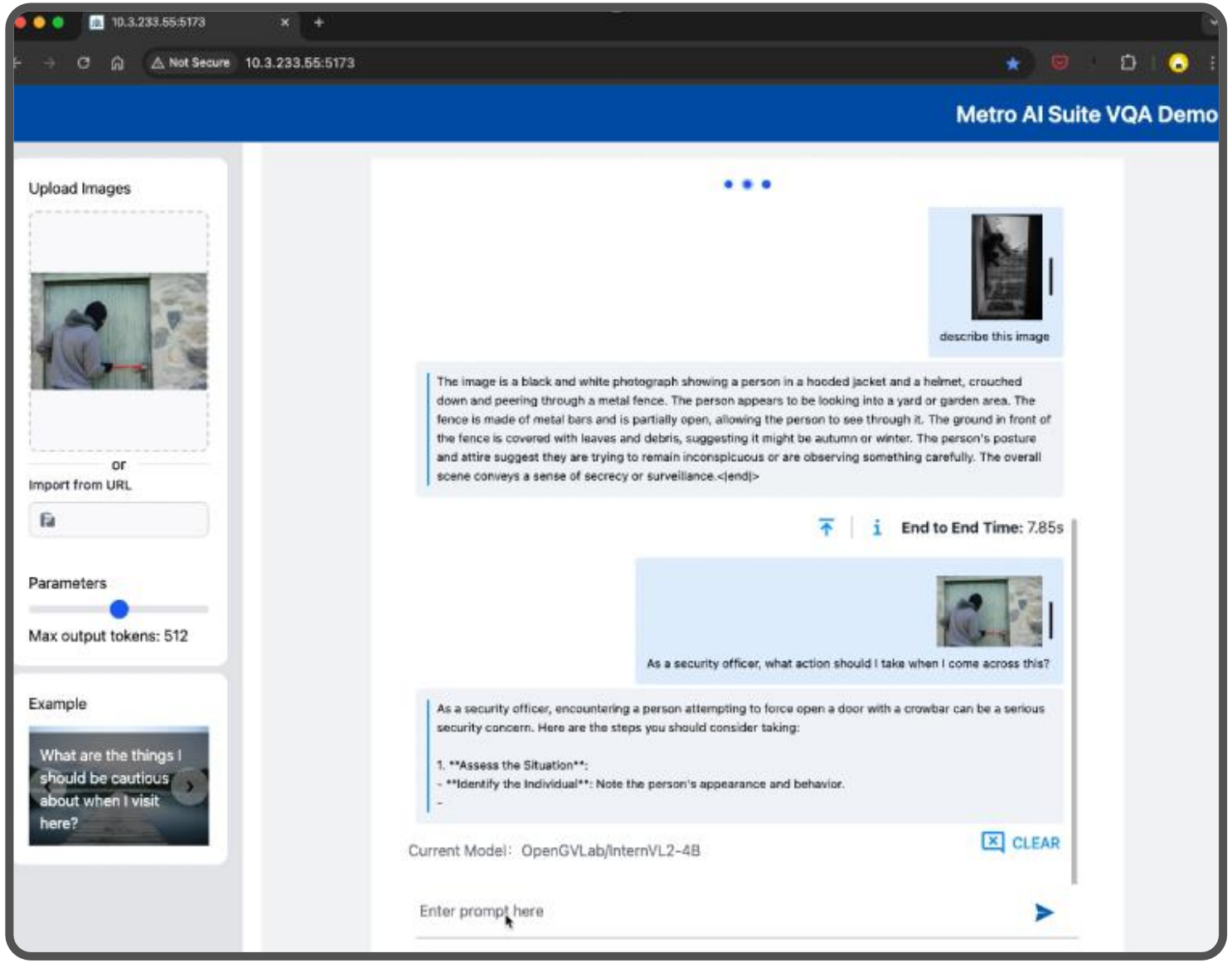

Gen AI Based Video Q&A (VQA)

VQA (Video Question Answering) is the task of answering open-ended questions based on images. The input to models supporting this task is typically a combination of an image and a question, and the output is an answer expressed in natural language.

Key Features:

- **VLM and LLM GenAI**, including video summarization
- **Integrates LVM Server, IPEX-LLM Server, & Web UI with chat**
- Supported Models: **Llava-1.5-7b, Qwen2-VL-7B-Instruct, InternVL2-4B**

Supported Intel Platforms:

- Intel® Core™ and Intel® Arc™ A-series Graphics, such as A770 GPU

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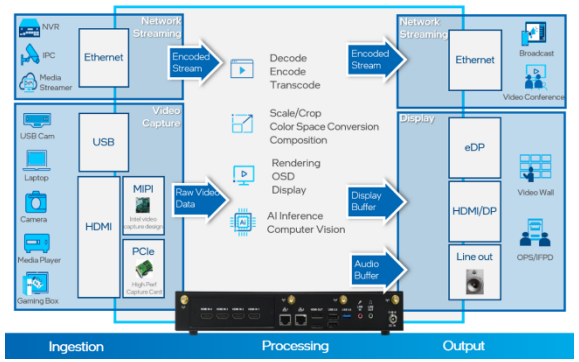
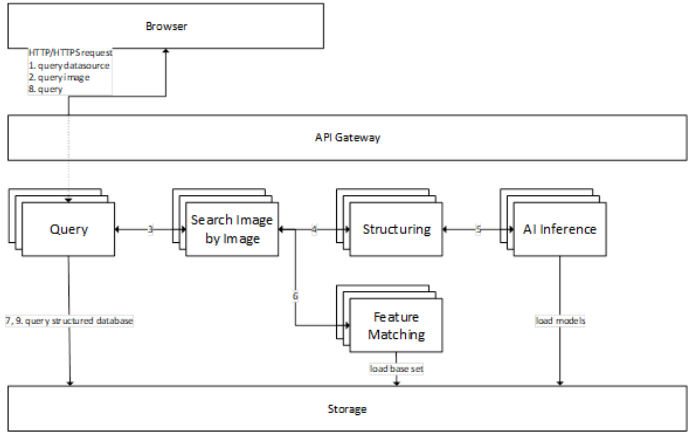
Platform Blueprints





Platform Blueprints:

System software, middleware, and applications bundled to provide a starting point for building complete appliances / solutions:

- Video Processing Platform (VPP)
- Video Analytics Server
- Sensor Fusion for Traffic Management

Enable ISV Customers

Metro AI Suite also gives Developers an easy, Optimized Path for Intel-based Edge AI

Metro AI Suite also includes materials for Software Developers

- SDK & documentation
- Sample apps & blueprints
- Tools to evaluate & measure performance on qualified systems

Intel offers support programs for ISVs and SIs, including:

- Metro AI Suite adoption
- AI architecture conversion
- Performance optimization

Open Source licensing

- Available for partners to use and market（Apache license）

Download Developer Guide

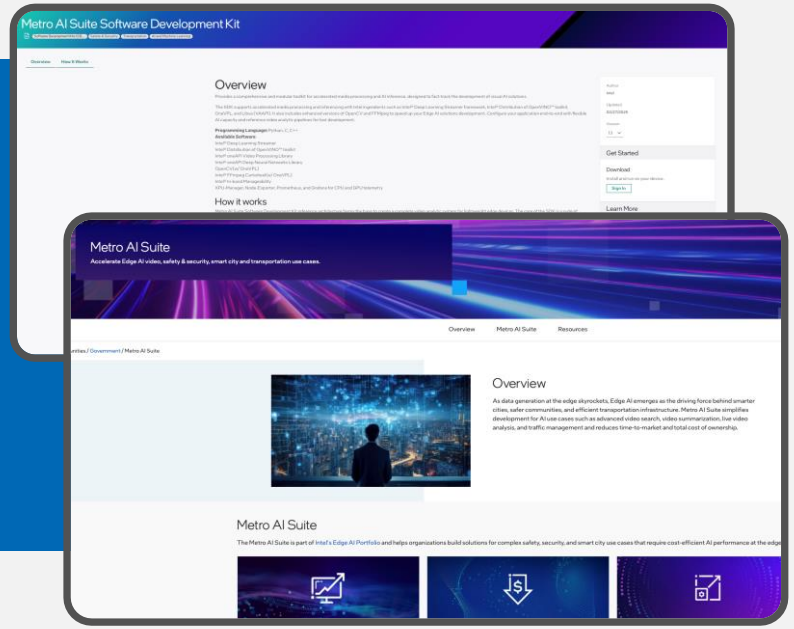
Next Steps

Metro AI Suite Validates, Qualifies, and Promotes System AI Capabilities

- Helps you quickly and easily **qualify your systems as AI ready**
- Enables your Software Developer customers to **quickly add Visual & GenAI to existing solutions**
- Demonstrate **maximized performance** of market leading edge AI silicon

Metro AI Suite Site

- intel.com/metroai
- Github link



Next Steps:

- **Qualify your systems** with ESDQ, then **Upload to Hardware Catalog**
- **Use Sample Apps & Rapid RI** to demonstrate AI system capabilities
- **Use ViPPET** to show Metro-enabled AI & media performance
- **Introduce your customers to Metro** SDK & programs