Red Hat | GUISE AI
AI AT THE EDGE

Red Hat and Guise AI on edge AI-powered visual inspection

Key areas of impact

- Product assembly
- Defect detection
- Packaging inspection
- Worker safety
- Predictive maintenance

Empowered by AI and ML:

Manufacturers can innovate rigorous inspection processes, ensuring strict adherence to specifications, boosting returns, and leveling up customer satisfaction.

Transforming manufacturing with advanced quality control methods

Manufacturing is a constantly evolving industry, where challenges of efficient asset monitoring, cost optimizations, and scalability persist. Market drivers push organizations to tap into their wealth of data, facilitating rapid, precise decision-making.

Red Hat and Guise AI worked together to unlock the transformative power of machine vision with artificial intelligence and machine learning (AI/ML) techniques that improve product quality through real-time monitoring and analysis of production outputs.

Edge AI-powered machine vision for manufacturing

Integration of machine vision in manufacturing allows data analysis and processing at the edge. The advantages of edge AI-powered machine vision over cloud-centered approaches include:

- Local filtering of sensitive data, which enhances security and privacy.
- Lower latency, supporting real-time AI inferencing for critical machine operations.
- Using cost-effective, high-accuracy solutions without significant expenses.
- Increased reliability mitigates data loss under limited connectivity, allowing for autonomous operations.

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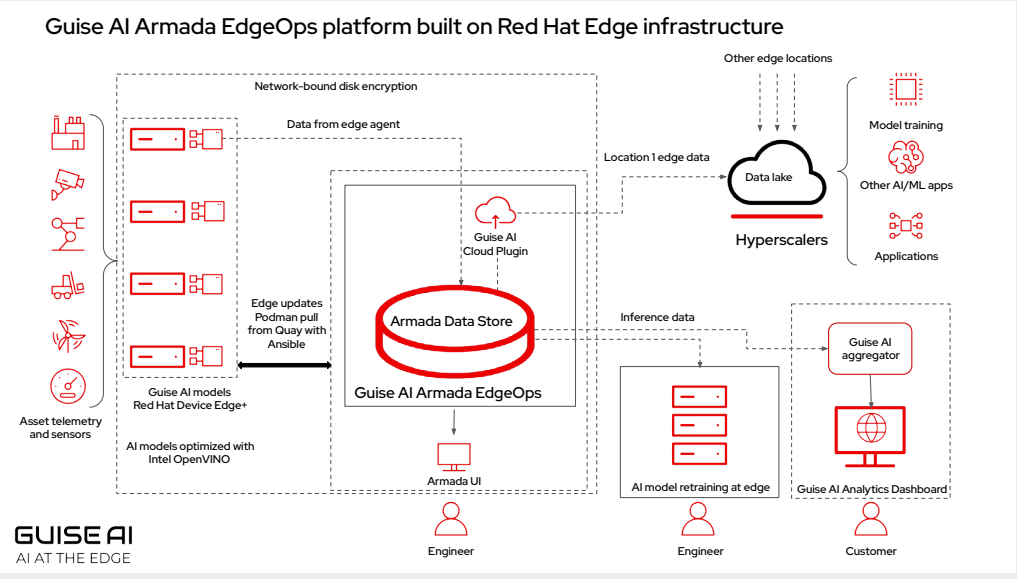

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- Flexibility to meet the business needs and scale with edge AI as needed.
- Achieving a consistent operating model that enhances manufacturing efficiency, simplifying complex processes, and reducing the need for specialized IT skills.

Considerations for an effective edge AI solution:

Cost-effective:
Localized computer power to support decision-making at accelerated response times.

Energy-efficient:
Adopt a strategy that delivers the optimal balance between performance and power consumption.

Flexible and scalable:
Ability to train AI models in the cloud and deploy them at the edge is crucial.

Simplified integration:
Continue using existing systems (hardware-agnostic) with minimal disruption to current operations.

Helps overcome bandwidth challenges:
Data can either be stored locally at the edge server or can be sent to the cloud.

Guise AI and Red Hat Manufacturing Visual Inspection solution

This joint solution offers reduced latency, lower data transfer costs, improved data privacy, and the ability to function in areas with limited connectivity.

Guise AI Visual Inspection for Manufacturing solution is a proprietary technology built from the ground up to address the need to automate quality control on manufacturing and assembly lines at the far edge. The machine vision and anomaly detection model is optimized on **Intel® Distribution of OpenVINO™** toolkit, which reduces the power consumption needed for machine vision use cases.

- **Guise AI Armada EdgeOps platform** encompasses the entire edge (Internet of Things [IoT] devices, sensors, and cameras). Using Red Hat® Ansible® Automation Platform, Red Hat Enterprise Linux®, Podman, Linux Unified Key Setup (LUKS) encryption, and Quay container registry, the Armada EdgeOps platform offers a more security-focused, robust, and intuitive environment.

  Enterprises rely on the Armada EdgeOps platform to centrally monitor, manage, and orchestrate distributed edge, scaling from tens to thousands of heterogeneous devices with few or no on-site IT personnel. Using tools built for the cloud or traditional datacenters to manage the edge workloads results in excess cost, complexity, and insufficient security and also fails to deliver on the promise of the edge. With Armada, you can run applications from the catalog, manage devices, and collect data from the far edge where it is actually generated, facilitating a true hybrid cloud motion.

- **Red Hat Device Edge** offers organizations the support to execute edge AI inferencing models on small, resource-constrained devices at scale. With the power of **Red Hat Enterprise Linux**, it ensures operational consistency across hybrid cloud environments, reinforces stability at the edge, and facilitates zero touch provisioning, along with rapid security remediations throughout the entire life cycle.

Learn more

Experience the revolutionary impact of machine vision in the manufacturing industry and unlock your organization's true potential.

Visit redhat.com/edge to learn more and book a discovery session to talk to an expert about Red Hat Edge portfolio products.

About Red Hat

Red Hat helps customers standardize across environments, develop cloud-native applications, and integrate, automate, secure, and manage complex environments with award-winning support, training, and consulting services.

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