iSentry Milestone Architecture

iSentry Integration to Milestone XProtect

Version 5.0 (20210609)

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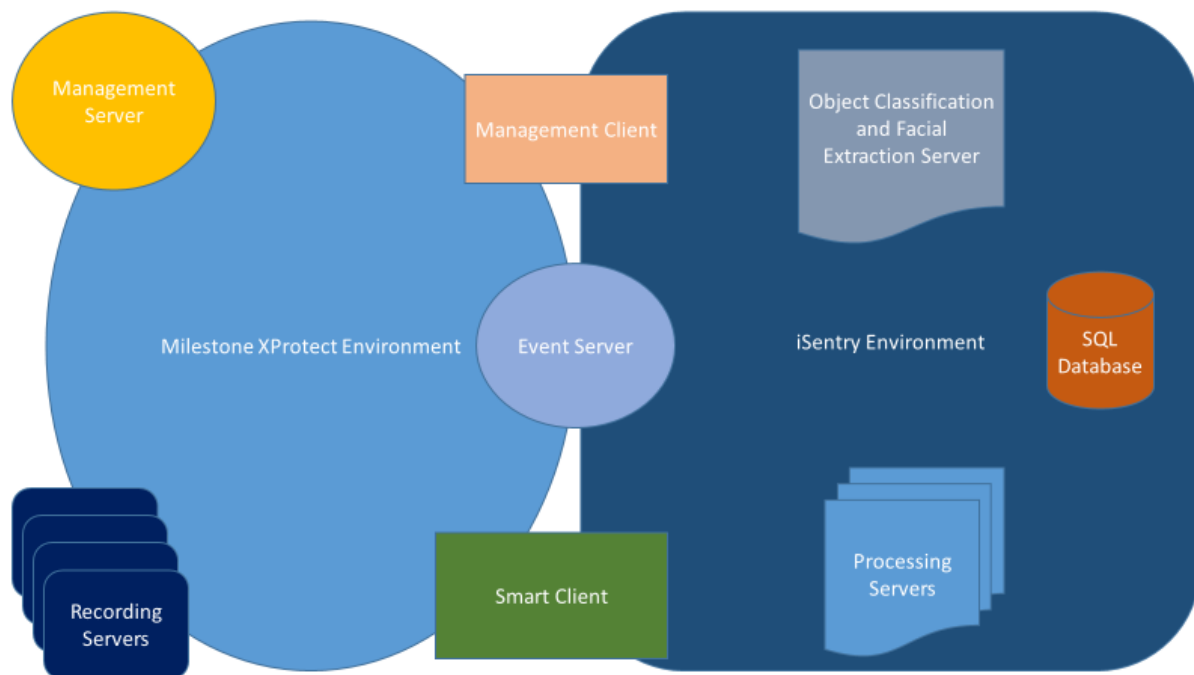# 1. Integration Architecture

Component Overview

Fig. 1 Component Overview

The above system component overview shows the various Milestone XProtect components as well as the iSentry system components. The Management and Smart Clients, as well as the Event server, provide integration through plugins that are provided for the iSentry system.
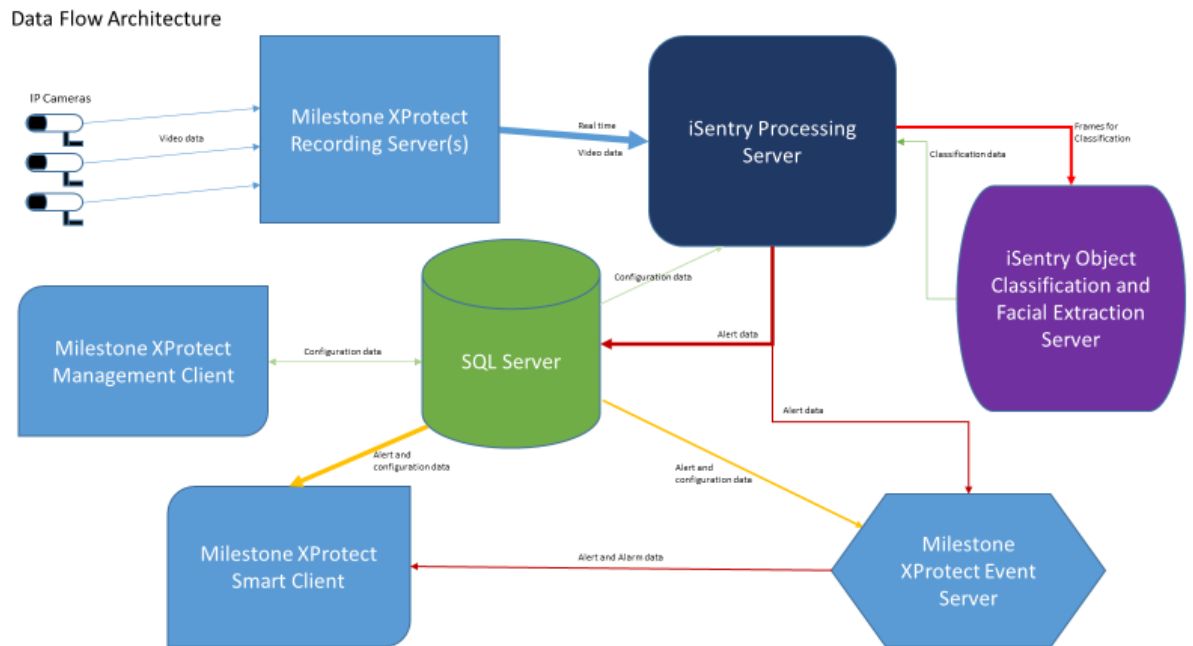
2. Data Flow Architecture

Fig 2 Data Flow architecture

The standard process flow as depicted in the above schematic:

- All data for the system originates at the camera.

- Video data is captured by one or more recording servers, from where data is directed towards the iSentry Processing Server(s).

- The Processing Server produces alerts which are further enriched by the iSentry Object Classification and Facial Extraction (Deep Learning) Server.

- Alerts are stored in a SQL Server Database, and simultaneously communicated to the Milestone XProtect Event server from where alerts are distributed to all connected Milestone XProtect Smart Clients.

- Smart Clients are also able to query past alerts directly from the SQL Database.

- The XProtect Management Client is primarily responsible for Configuration management which is also stored in the SQL Database.
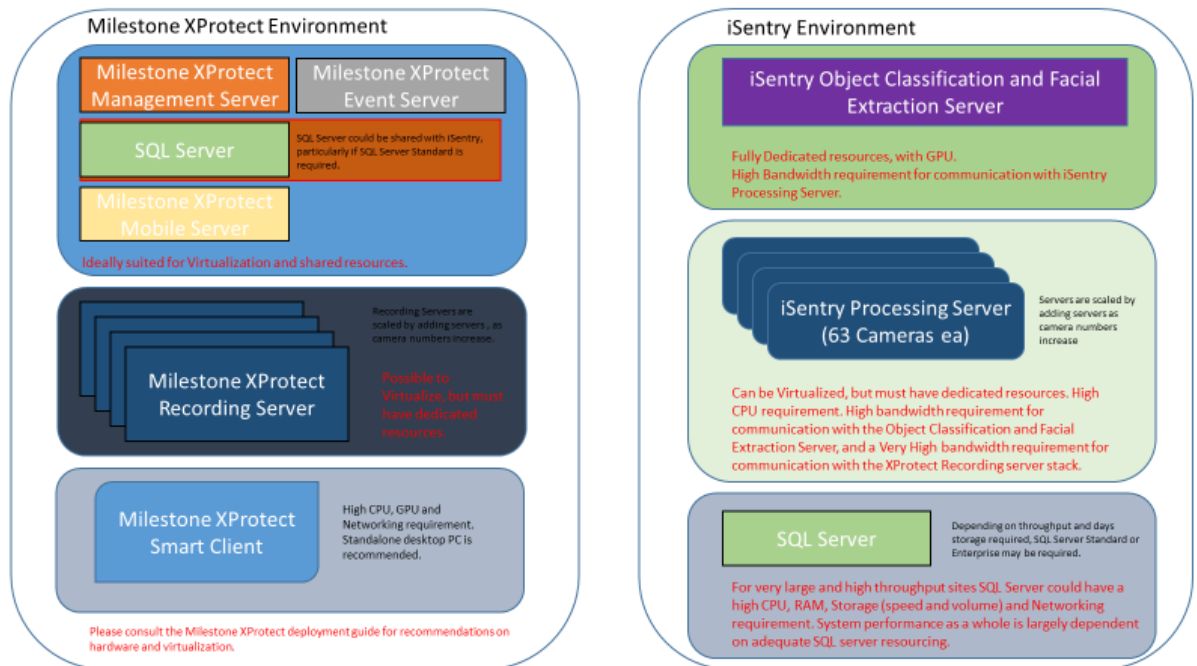
3. Typical Hardware Architecture

Fig 3 Hardware specifications

From a Hardware perspective the iSentry system can be split into three areas

1) iSentry Object Classification and Facial Extraction (Deep Learning) Server

It is recommended to use physical hardware for this server, with an nVidia GPU. For high volume sites, bandwidth from the Processing Servers will be high.

2) iSentry Processing

Servers Dedicated resources are important for these servers, particularly from a CPU perspective. Video data for all processed cameras will be transferred from Milestone Recording servers to iSentry Processing Servers, resulting in a very high bandwidth requirement.

3) SQL Server

SQL Server 2016 Express is part of the default installation of the system. This is a free version and is limited in terms of performance and size. The physical data file is limited to 10GB in size, RAM is limited to 1410 MB and CPU is limited to one physical CPU or four cores. For a higher storage and performance requirement, SQL Server Standard or Enterprise should be used.

**Contact your Intelex Vision representative to specify your hardware requirements.
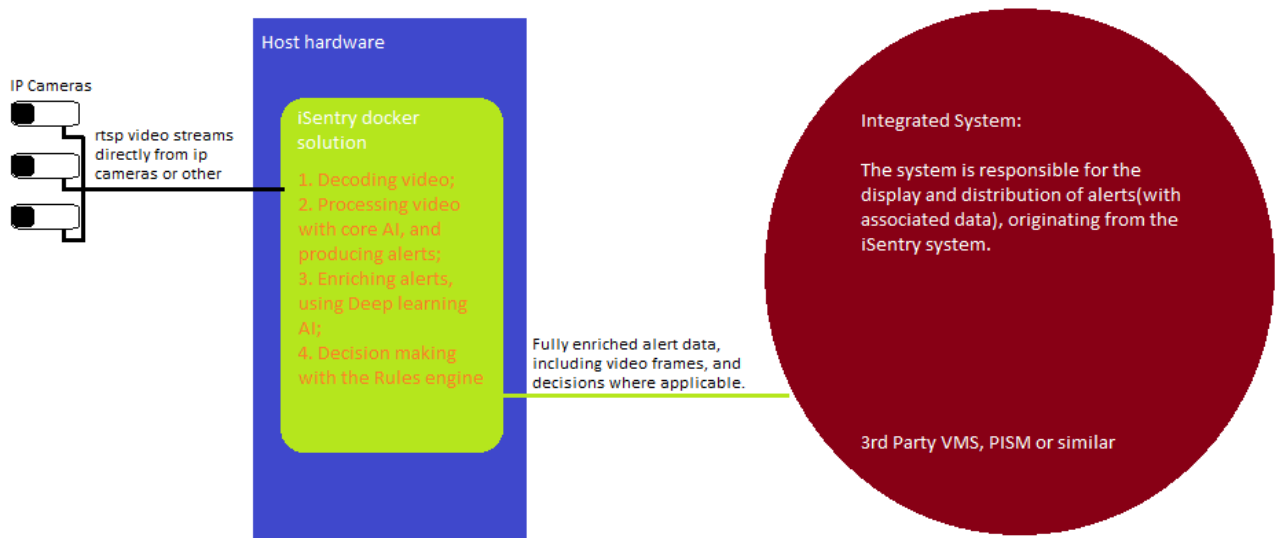
4. Docker Solution Architecture

Figure 4: iSentry docker solution

The iSentry docker solution encapsulates the iSentry environment in a docker container, allowing for the system to be largely hardware agnostic, and portable.

5. Distribution Architecture

1) Central & Distributed Architecture
- This solution is used in larger Enterprise environments with multiple branch offices.

- Alerts can be managed per site or in a centrally controlled environment depending on customer requirements.

- Required infrastructure will be scoped per customer requirement.

- A combination of Centralized and Distributed Architecture as well as the Edge solution can be combined for the smaller environments.
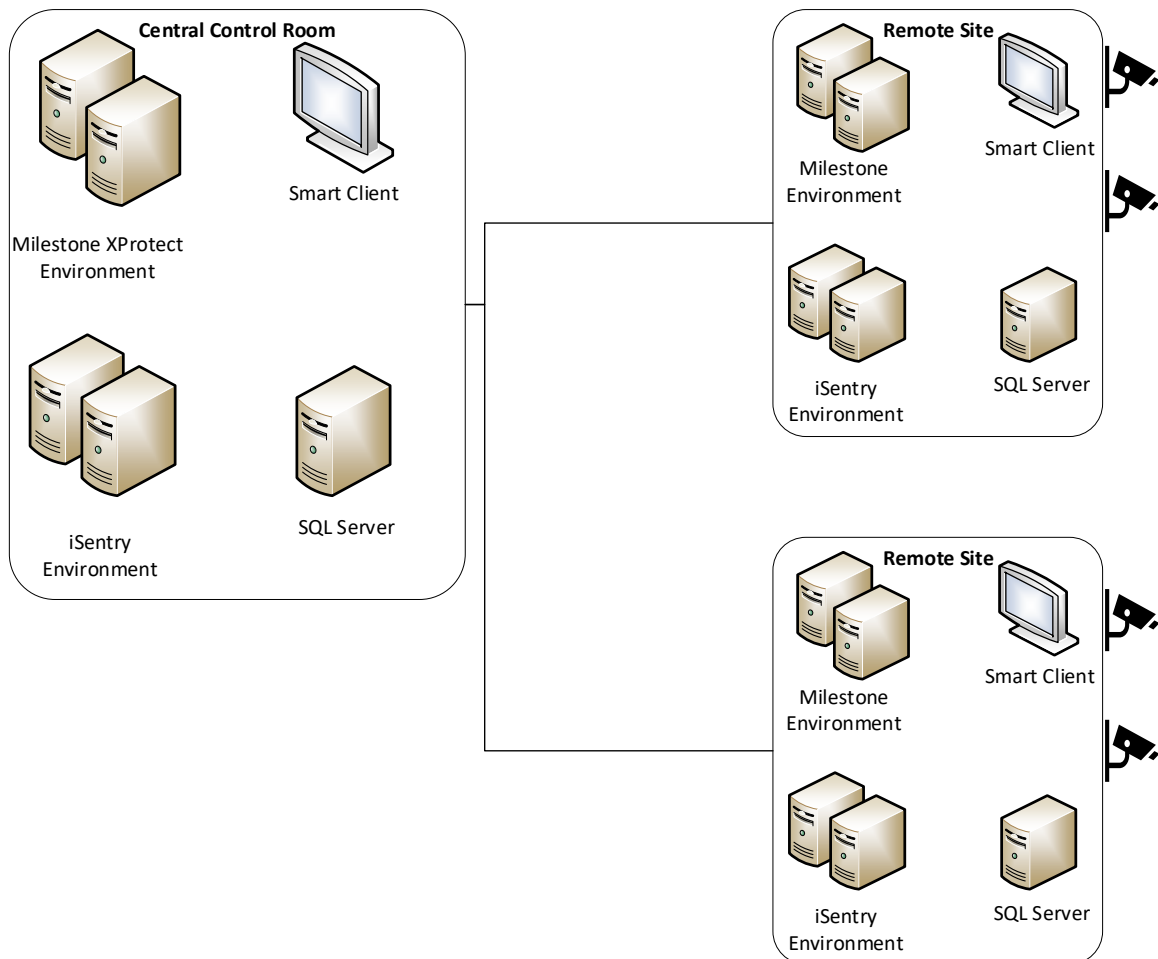

Fig. 5 Central & Distributed Architecture

2) iSentry Edge Solution

- The iSentry edge solution will be used for smaller unmanned environments with a small number of cameras (e.g. Communication Towers, remote environments).

- The cameras in this solution must be able to employ edge recording, compatible with the Milestone XProtect system.

- iSentry processing is done on the edge device, utilizing RTSP streams directly from the monitored cameras.

- All Alerts will be recorded, managed and escalated in a centrally controlled Milestone XProtect Professional Plus, Expert or Corporate environment.

- Video will be retrieved by the Milestone XProtect system, when an alert is received from the iSentry edge solution.
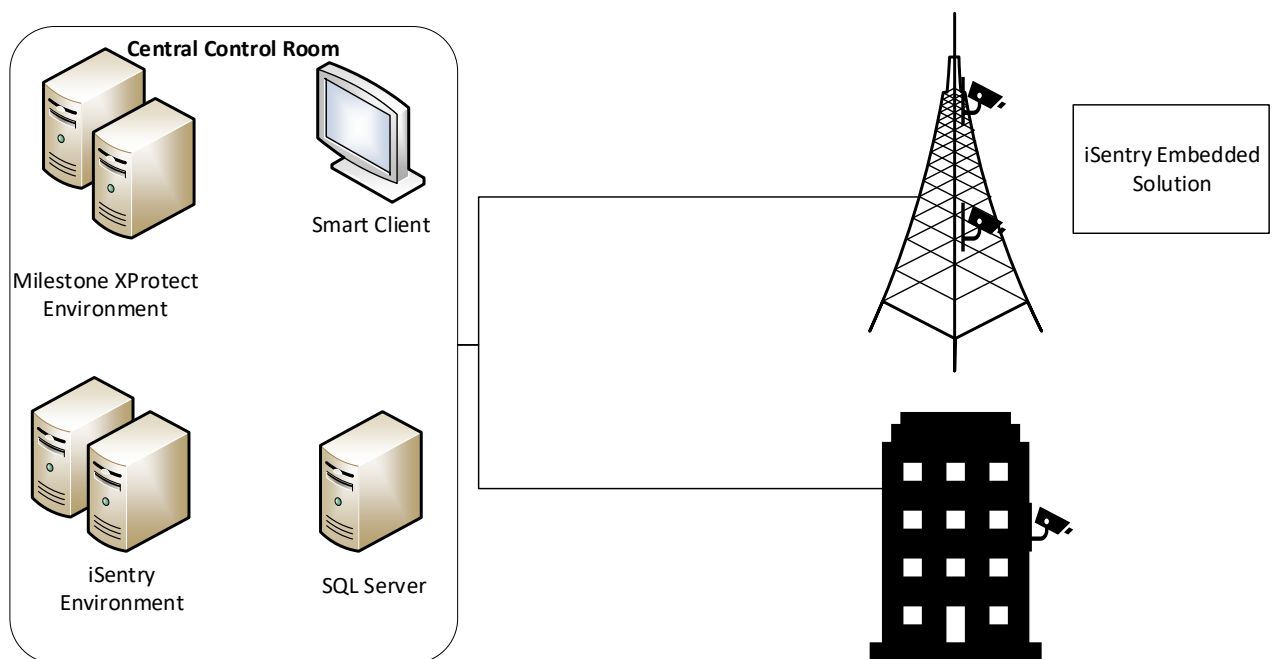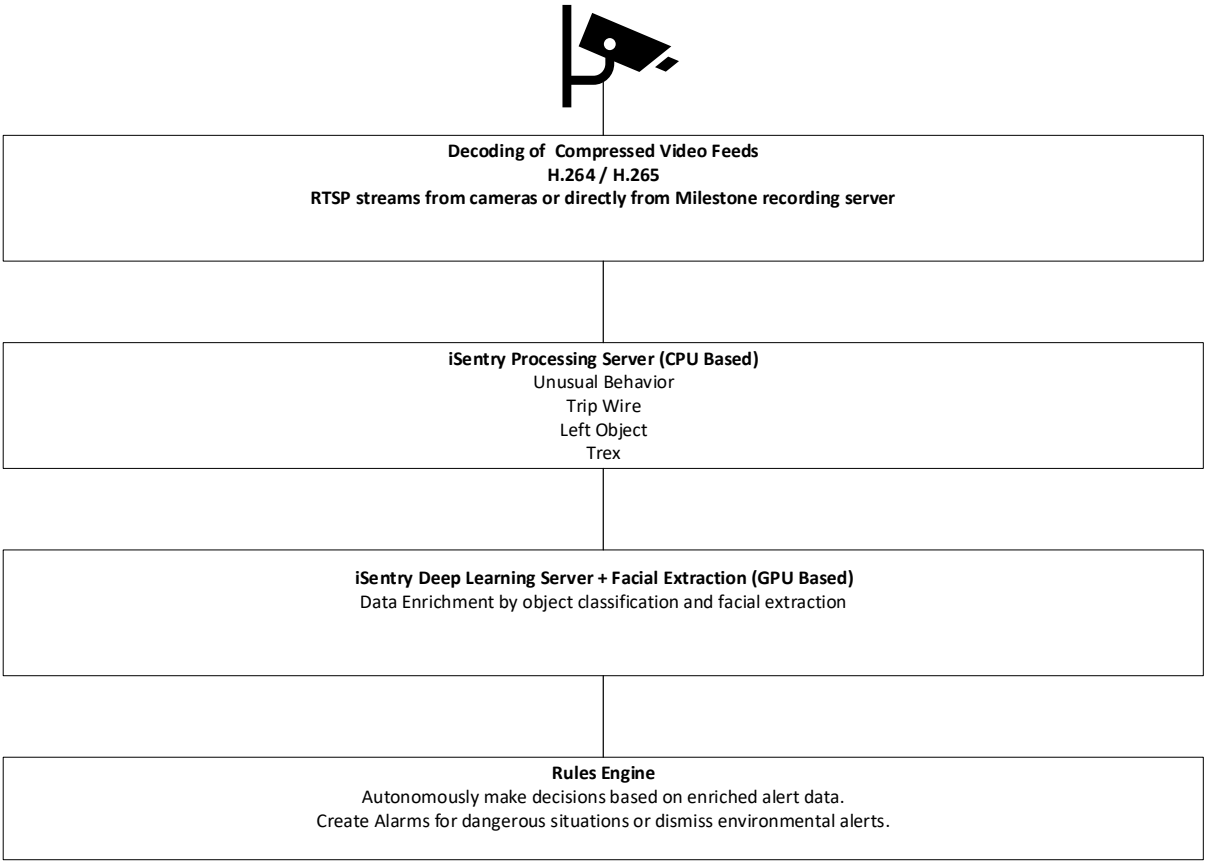

Fig. 6 iSentry Edge Solution

6. Logical Architecture Diagram

Below is a logical diagram representation

Decoding of Compressed Video Feeds **H.264 / H.265** **RTSP streams from cameras or directly from Milestone recording server**

iSentry Processing Server (CPU Based) Unusual Behavior Trip Wire Left Object Trex

iSentry Deep Learning Server + Facial Extraction (GPU Based) Data Enrichment by object classification and facial extraction

Rules Engine Autonomously make decisions based on enriched alert data. Create Alarms for dangerous situations or dismiss environmental alerts.

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