Whale Cloud

Intelligent Video Surveillance: Automating Monitoring for Unparalleled Visibility

What You Will Learn?

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01

Intelligent Video Surveillance Technology Ushers in a New Era of Security and Management

Technology Evolution

Analog Video Surveillance Era: As early as the 1970s, video surveillance systems emerged, primarily based on Closed-Circuit Television (CCTV), to monitor specific scenes. This era's surveillance systems were plagued with numerous limitations, such as low image quality, inconvenient storage, and the inability to view footage remotely, restricted solely to local access.

Digital Video Surveillance Era: With the advancement of digital technologies and computers, digital video surveillance systems gained prominence and dominated the market. By adopting digital image data, these systems significantly enhanced image quality and facilitated efficient storage and management. Nevertheless, they still relied heavily on manual intervention and failed to achieve genuine intelligence.

Intelligent Video Surveillance Era: In recent years, fueled by the rapid development of artificial intelligence and computer vision technologies, intelligent video surveillance technology has emerged. This technology enables surveillance systems to automatically analyze, process, and interpret video signals, pinpointing, recognizing, and tracking changes within the monitored environment. Furthermore, it promptly alerts or provides valuable information in the event of abnormal occurrences.

Driven by Society and Industry Requirement

Security Prevention: With continuous social progress and rapid technological advancements, the demand for security prevention has significantly increased. The safety concerns in public places such as banks, shopping malls, stations, and traffic intersections have garnered much attention, making intelligent video surveillance systems a crucial means to enhance security capabilities.

Industry Application: Additionally, Intelligent video surveillance technology has found extensive applications across industries such as education, healthcare, and entertainment. For instance, in education, it can be used for campus security monitoring and remote teaching; in healthcare, it can be employed for operating room surveillance and patient care.

As video technology continues to develop and become more widespread, video surveillance has become integral to daily life.

From “Video Surveillance Market Research, 2032"
by Allied Market Research:

> the Global Video Surveillance Market was valued at $61.8 billion in 2022, and is projected to reach $204.5 billion by 2032, growing at a CAGR of 12.8% from 2023 to 2032.

There has been a dramatic increase in the demand for video surveillance application.

02

New Market Opportunity Brings to Telecom

Therefore, telecom operators need to seize this market opportunity by providing intelligent video services to meet customers' demands for high-quality and intelligent video surveillance.

Meanwhile, intense market competition compels operators to embrace digital transformation, generating new revenue through technological and service innovation.

Natural Advantages of Telecom Operator

Operators have many natural advantages in Video Intelligence, such as network infrastructure, customer base, technology and innovation ability, platform and ecological advantages. These advantages provide a solid foundation and strong support for the development of operators in the field of video intelligence.

1 Customer Base

- Large Customer Base: Operators have a large customer base, including individual customers and enterprise customers, which provides a broad market space for the promotion and application of video intelligence services.

2 Network Infrastructure

- Extensive Network Coverage: Operators have a huge network infrastructure, including optical fiber networks, wireless networks, etc., which can achieve a wide range of network coverage and provide a solid network foundation for VI service.
- High-speed Transmission: The network of the operator usually has the ability of high-speed transmission, which can meet the high requirements of data transmission speed and bandwidth of the video intelligence service, and ensure the smooth playback and real-time processing of the video.

3 Professional Team

- Marketing & Sales Team: Widely distributed and conveniently located offline business halls to help customers conduct offline consultation and experience. Experienced sales team to provide customers with face-to-face communication and tailor-made solutions.
- Installation Team: Professional installation team, to provide customers with fast and intimate installation services.

4 Technology and Innovation Capability

- Advanced Video Processing and AI Technology: Operators have deep technical accumulation in video transmission, coding, decoding and video AI analysis, and can provide users with high-quality video intelligence services.
- Continuous Technological Innovation: Operators have a strong R&D team and innovation ability to constantly introduce new video intelligence technologies and solutions to meet the changing requirements of customers.

5 Platform and Ecological Advantages

- Open Platform Architecture: Operators usually have an open platform architecture and can deeply cooperate with various partners to jointly develop solutions to enrich platform functions and application scenarios.
- Ecological System: Operators have advantages in building a VI ecosystem and can integrate upstream and downstream resources such as cameras, algorithms, providing customer with more convenient and efficient services.

Best Practice

In fact, there are already a number of operators in the VI field that provide us with a wealth of best practices.

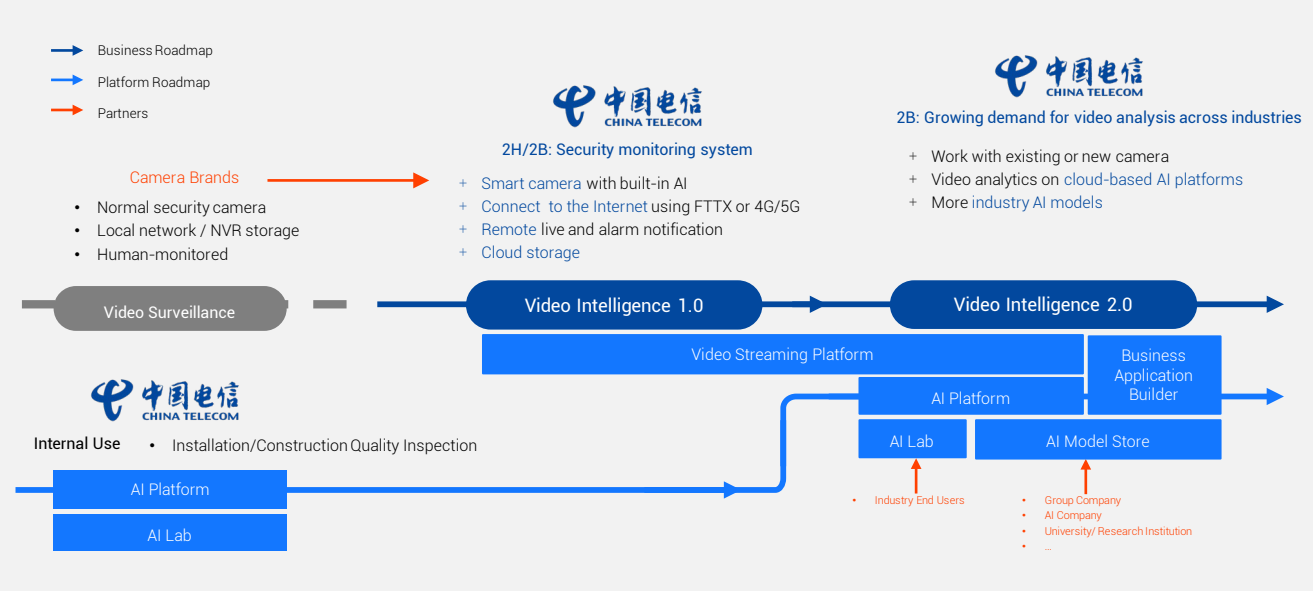
Best Practice of China Telecom

China Telecom's VI development journey consists of 3 stages:

In the first stage, the primary focus was on building AI capabilities into internal systems, such as device installation monitoring and quality inspecting.

During the 2nd stage, China Telecom ventured into offering VI to individual customers. At this stage, they mainly sold smart cameras with built-in AI algorithms to households or sole proprietors, packaging the services into monthly subscription packages. These packages provided customers with a unified App, remote monitoring and alerting, as well as cloud storage.

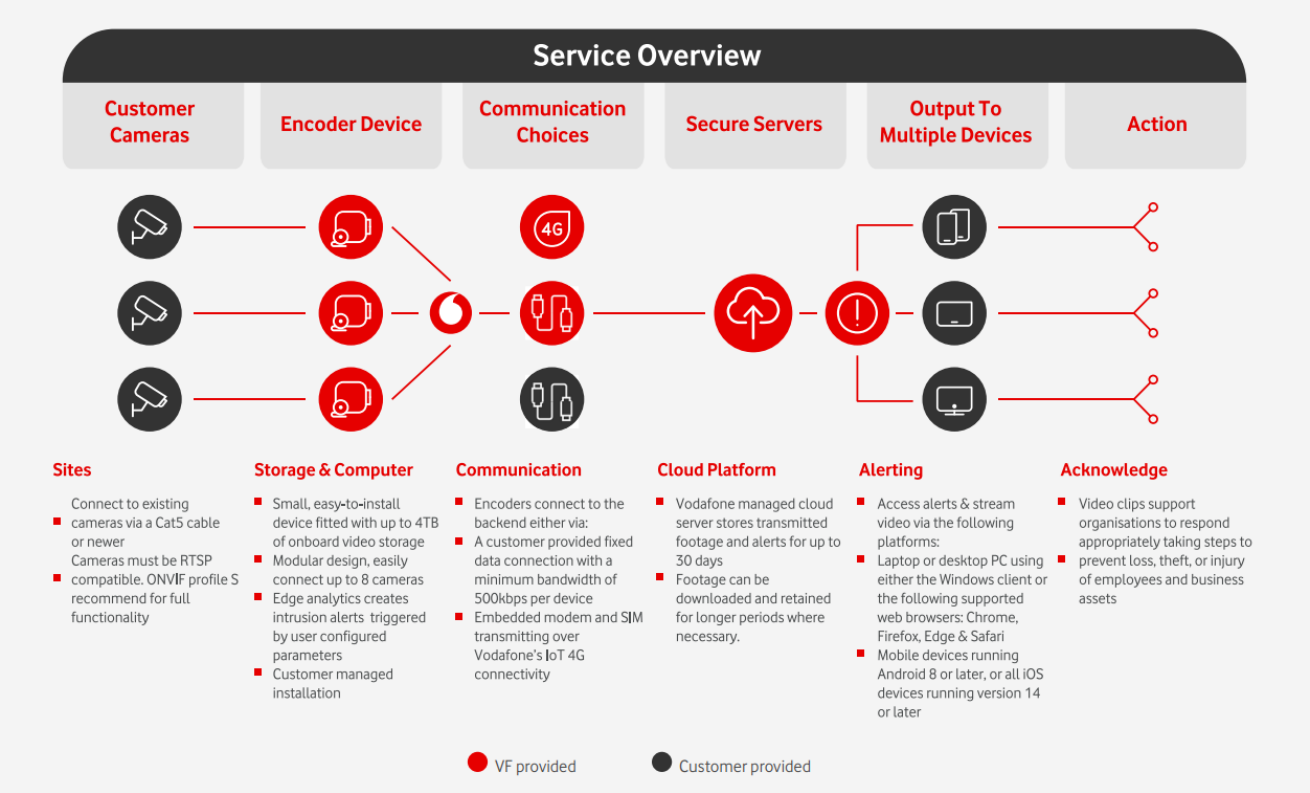
In the 3rd stage, China Telecom expanded its clientele to enterprise customers. It supported the integration of existing IP cameras and provide AI capability through VI platform, aiding users in remote monitoring and video analysis alerting. This stage also featured algorithm expansion and customization, supporting E2E solutions for industrial SMEs, effectively addressing their customized monitoring requirements. For instance, in the farming industry, the VI platform facilitated animal counting, animal statistics, and fire & smoke detection. In gas stations, VI enabled license plate recognition, illegal vehicle parking detection, and smoking violation monitoring.



During the development of VI services, China Telecom, through continuous technical accumulation and market expansion, has successfully achieved comprehensive coverage from internal application to external markets, providing diversified and customized intelligent security solutions for both enterprise and individual customers. This journey highlights China Telecom's strengths in technological innovation and its keen market insights and service advancements.

Best Practice of Vodafone

Global operators are doing something similar, such as Vodafone Connected Spaces Vision. It addresses the challenges related to the mobile-based CCTV market by providing a solution that delivers reliable real-time video over mobile networks for video security and surveillance.

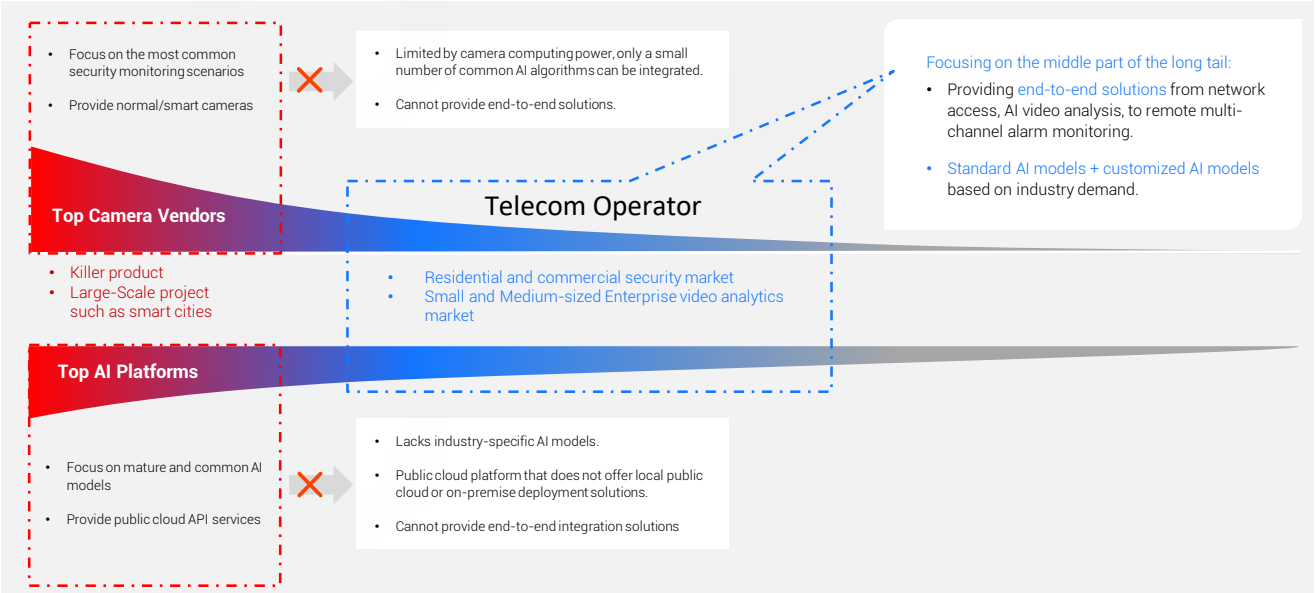


Unlike China Telecom, Vodafone offers encoder devices with storage and video analysis capabilities that can be connected to customers' networks. These devices then upload alerts and related videos to a cloud platform via cellular networks or fixed lines, providing end customers with remote monitoring capabilities.

Operators' case studies in the VI field encompass various aspects and domains. These practices have not only promoted the development and application of video intelligence technology but also brought new business growth points and competitive advantages to operators.

Find Your Market Position

In the field of Video Intelligence, there are various types of vendors competing, each with different technical backgrounds, market positions, and business scopes. When building a VI platform, operators should also find their own market position and engage in differentiated competition.



Vendor Type 1: **Top Camera Vendors**

Specialized security camera manufacturers, who have long focused on the field of video surveillance and security, have accumulated rich industry experience and technological expertise. These manufacturers primarily concentrate on large-scale, most common security monitoring scenarios like smart city, smart transportation. They typically offer solutions ranging from video surveillance equipment to VI platform, providing a solid foundation for the application of AI video technology in the security field.

At the same time, their solutions also have some drawbacks. Firstly, their AI capabilities are mainly integrated on the camera, which is limited by the computing power of the cameras. The number of AI algorithms on the cameras is restricted, and it is not convenient to expand them. Additionally, they mainly serve large-scale projects and charge relatively high fees

Vender Type 2: **Top AI Platforms**

Top industry AI Platforms, which can also provide cloud-based VI services but they primarily focus on the development of common AI algorithms, deploying these algorithms on public clouds, and opening them up to customers through APIs. These service providers typically possess vast computing resources and rich API interfaces, enabling them to provide users with efficient and convenient VI services.

However, they are also lack of specific scenario AI algorithms customization capability. And using public cloud services exposes data to the internet, which can lead to data security issues. Since they only provide algorithm APIs, it is also difficult for them to offer end-to-end solutions for SMEs.

In such a fiercely competitive market environment, how should operators strategize their layout and positioning?

We recommend that operators focus on small and medium-sized enterprises (SMEs) which have urgent requirement for video surveillance, such as those in the retail industry, industrial parks, gas stations, and elderly care centers. Although each project from these enterprises may not be large in scale, the demand is widespread and numerous, collectively forming a vast, untapped market. Currently, industry giants mainly focus on large-scale projects, and their high quotations often deter SMEs, leaving a significant market gap that needs to be filled.

Operators can establish a unified Video Intelligence platform, adopting a multi-tenant mode to flexibly adapt to the requirements of SMEs. Leveraging an advanced AI platform, the VI platform can not only provide refined algorithm customization for specific scenarios of SMEs but also offer comprehensive E2E solutions. Additionally, the platform can continuously accumulate and consolidate algorithms from various industries, laying the foundation for future algorithm reuse. Simultaneously, it continually broadens the customer base, achieving a virtuous cycle and growth for the platform.

03

Build Your Own AI-Powered Video Analytics Platform

Whale Cloud Video Intelligence as a Service (VIaaS) is an integrated video analytics platform built upon Whale Cloud's extensive AI analysis models. It captures real-time video streams from closed-circuit television and surveillance cameras, and offers a wide range of features including instant event alerts, live video streaming, and playback through AI-driven intelligent analysis. This solution is designed to support telcos and local public cloud providers in establishing cloud-based AI analytics platforms, catering to diverse industries such as residential areas, commercial complexes, gas stations, care centers, schools, factories, and farms.

Value Proposition

The computer vision field has formed a relatively mature core technology, spawned a complete industrial chain, and penetrated into all aspects of the economy and residents' lives.

VIaaS provides comprehensive support for operators, Home/SME, and industry users. Let's dive into VIaaS unique value proposition for these 3 types of users.

For Operators:

VIaaS provides an excellent opportunity for operators to improve their service levels and profitability by building an AI video intelligence platform. Our solutions enable operators to:

- Service Portfolio Expansion: VIaaS allows operators to offer a richer portfolio of services (such as 4G/5G, FTTx, cloud storage), thereby consolidating their market position and attracting more customers.
- Rising Revenue: By building cloud-based AI analytics platforms, operators are expected to gain more revenue streams in the emerging intelligent video analytics market, creating opportunities for continued growth.

For Home/SME Users:

VIaaS provides a smarter and safer living environment for home users. The solution value proposition for home users includes:

- Real-time Security Guarantee: VIaaS provides real-time security for home users through intelligent camera alerts and real-time video surveillance, ensuring the safety of family members.
- Remote Monitoring and Cloud Storage: Home users can view their home anytime and anywhere through the remote monitoring function, and play back historical videos conveniently through the cloud storage, providing users with more convenience.

For Industrial Users:

VIaaS offers industry users efficient, tailored solutions that address the distinct needs of various sectors. For industry users, our value proposition includes:

- Industry Customized Modules: VIaaS offers modules designed specifically for various industries to address specific challenges, improving the effectiveness of solutions.
- Existing Camera Infrastructure Leverage: VIaaS delivers advanced visual analytics based on the cloud and seamlessly integrates existing cameras to make devices smarter.
- Remote Monitoring and Automation: Automated AI visual inspection replaces human monitoring, saving time and cost. With centralized remote visiting, users can easily monitor all sites at anytime and anywhere.

Solution Features

The video intelligent monitoring platform, deeply integrated with artificial intelligence technology, constructs an efficient and intelligent monitoring solution. The core highlights of this platform lie in its comprehensive functional system, specifically as follows:

1 Seamless Camera Integration

- The platform is compatible and inclusive, easily connecting with smart cameras and IP cameras from multiple vendors, while also supporting integration with third-party VMS platforms, enabling unified management and efficient access to video resources.

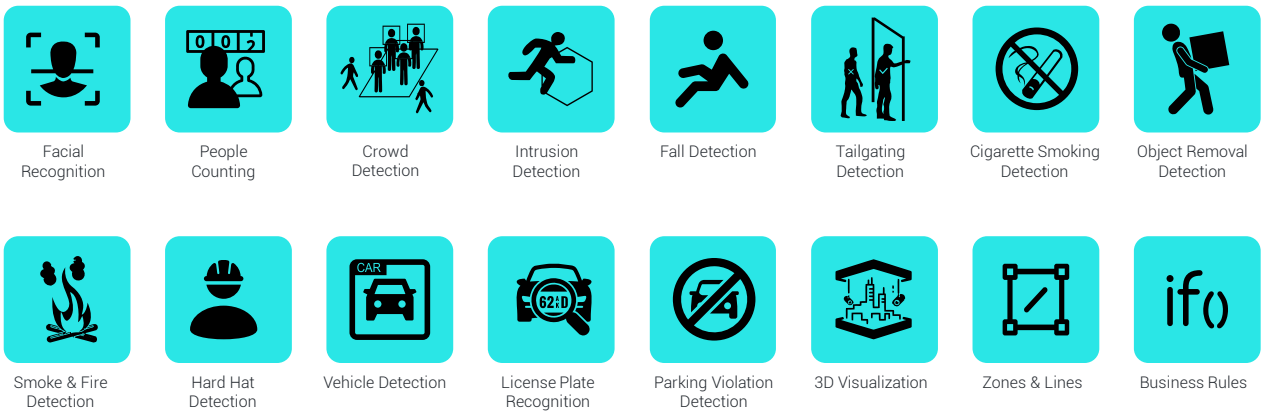
2 High-Definition Real-Time Monitoring

- It provides uninterrupted, high-definition video streams, allowing users to grasp the dynamics of monitored areas in real-time, and supports instant capture and flexible playback of event videos to ensure no critical information is missed.

3 Intelligent Behavior Analysis

- Pre-installed with a rich set of intelligent algorithms, the platform also opens interfaces to support the integration of customized or third-party algorithms. By precisely binding algorithms to cameras, it enables deep analysis of behaviors in videos, such as face recognition, vehicle recognition, and loitering detection, enhancing the intelligence level of monitoring.

Empower Existing Cameras for AI Intelligence Insights



4 Instant Intelligent Alerts

- Upon detecting abnormal behaviors or events, the platform immediately triggers an alert mechanism, quickly notifying relevant personnel through multiple channels such as SMS, email, and app notifications, ensuring a swift response and effective prevention of potential risks.

5 VI Application Orchestration

- Boasting a wealth of components, styles, and large-screen templates, and employing 3D modeling technology to authentically depict scenes, it enables the effortless construction of industry VI applications using a low-code visual approach.

Event Configuration

3D Scenes

Page Layout

Alert Workflow

6 Convenient Remote Access

- Whether through computers or mobile devices, users can easily access the monitoring platform to view real-time surveillance footage and alert details, while also supporting flexible permission management to improve the convenience and efficiency of monitoring tasks.

7 Multi-Tenant Management Platform

- The platform adopts an advanced multi-tenant architecture design, allowing users to create and manage multiple tenant accounts, flexibly sharing intelligent monitoring capabilities with customers across different industries, achieving efficient resource integration and maximizing resource utilization, thereby assisting enterprises in expanding their business boundaries.

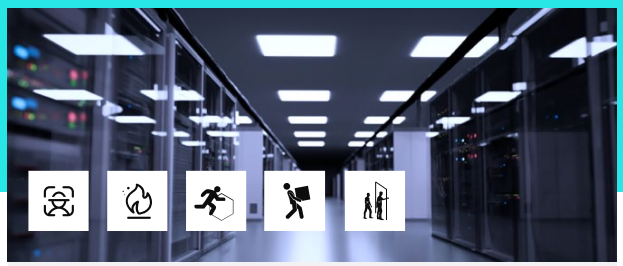
8 Flexible Orchestrator and Algorithm Customization Capability

- Application orchestration and algorithm customization capabilities can provide SMEs with E2E VI solutions that are closely tailored to industry scenarios.

9 Separated Operation and Monitoring Platform

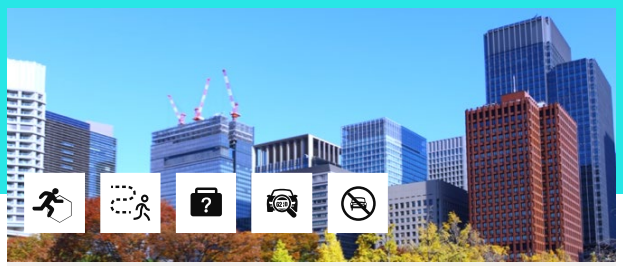
- The portals for operators and end-users are separate. Operators can manage users, applications, camera integrations, and algorithm applications for different enterprise customers on the operation platform. End-users can manage personnel, monitor cameras, handle alerts on the monitoring platform (Web + App). The operations of these 2 types of users would not interfere with each other, and the operational capabilities are isolated, ensuring the security of enterprise data and operational applications.

Applicable Across Various Industry Scenarios



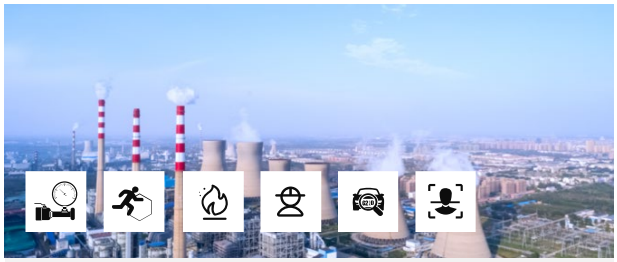
VI for Data Center

Comprehensively safeguarding data centers with integrated personnel authentication, fire & smoke detection, hazardous area intrusion alerts, and large object removal monitoring.



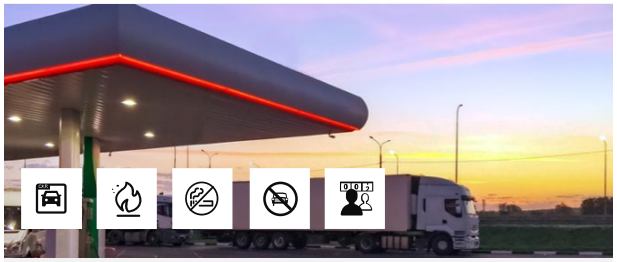
VI for Business Park

Enhancing overall security in business parks through perimeter intrusion detection, loitering monitoring, abandoned object detection, vehicle license plate recognition, and illegal parking management.



VI for Factory

Empower industrial park safety, emergency management, and security with critical features including equipment status recognition, personnel intrusion detection, fire & smoke detection, personal protective equipment (PPE) detection, license plate recognition, and facial recognition.



VI for Gas Station

Securing gas station operations and improving management efficiency with vehicle recognition, fire & smoke recognition, illegal parking detection, and convenience store customer counting.

VI for Care Center

Focusing on senior safety, incorporating fall detection, departure from caregiving area alerts, crowd identification, and fire & smoke recognition to create a warm and secure care environment.

VI for Outdoor Parking

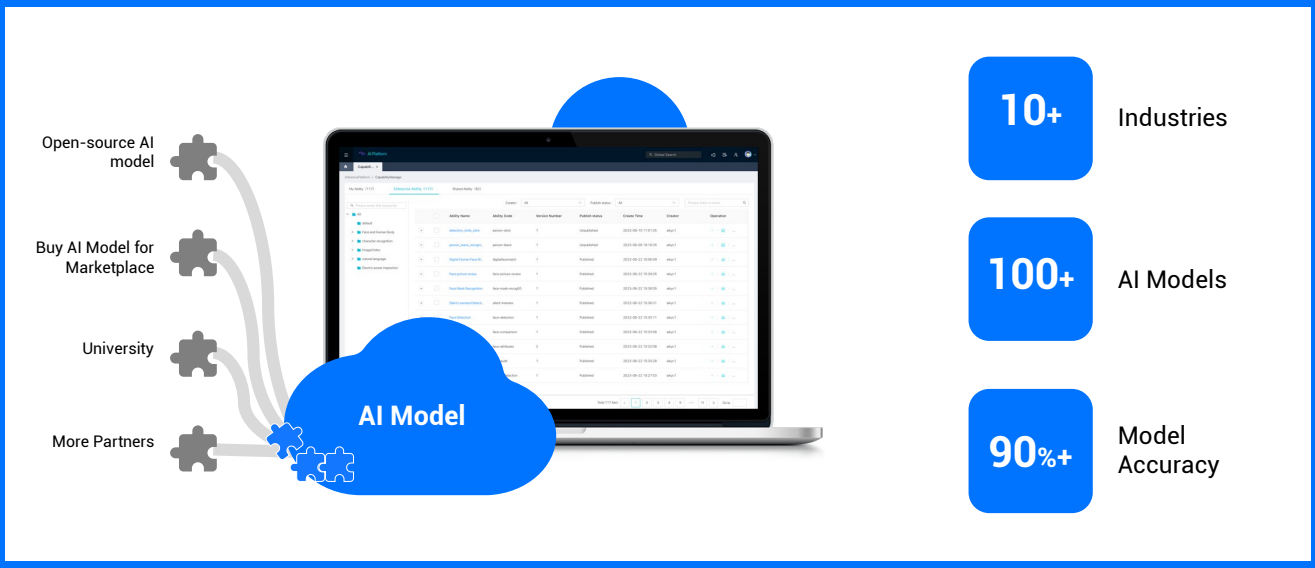
Optimizing parking experiences and enhancing management efficiency with advanced intelligent analysis technologies for outdoor parking facilities, including license plate recognition, parking violation detection, and comprehensive parking lot monitoring.

04

Key Highlights of VIaaS

As a smart, secure and efficient video surveillance and analytics solution, the following are highlights of the VIaaS platform:

- Reuse Existing Infrastructure: For industry customers, it is able to reuse the existing security surveillance camera and intelligentize it through cloud AI, reducing costs.
- Rich AI Algorithms: Whale Cloud's 100+ AI models cover more than 10 industries and have proven their effectiveness in numerous projects, including residential areas, commercial parks, gas stations, care centers, schools, factories, and farms. It also supports third-party algorithm management.



- Catering to Diverse Requirements: The VIaaS offers customized modules for different industries to meet specific requirements. This includes precise support, personalized solutions for Home/SME, Care Center, Business Park and school.
- Scalable Cloud Architecture: The solution is built on a scalable cloud architecture that supports seamless integration with existing infrastructure, keeping flexibility and adaptability. This allows organizations to easily expand monitoring capability and adapt to changes in scale and requirements without sacrificing performance.
- User-friendly Interface: The VIaaS provides an intuitive user interface that makes it easy for both technical and non-technical users. Users can easily grasp real-time monitoring and historical data through an accessible dashboard, and utilize the full potential of the platform without extensive training.
- Rigorous Security and Privacy Protection: With a strong commitment to data security, we employ advanced encryption technologies to comprehensively protect data during transmission and storage, ensuring that user data security and privacy are not compromised by any third party, providing customers with peace of mind.

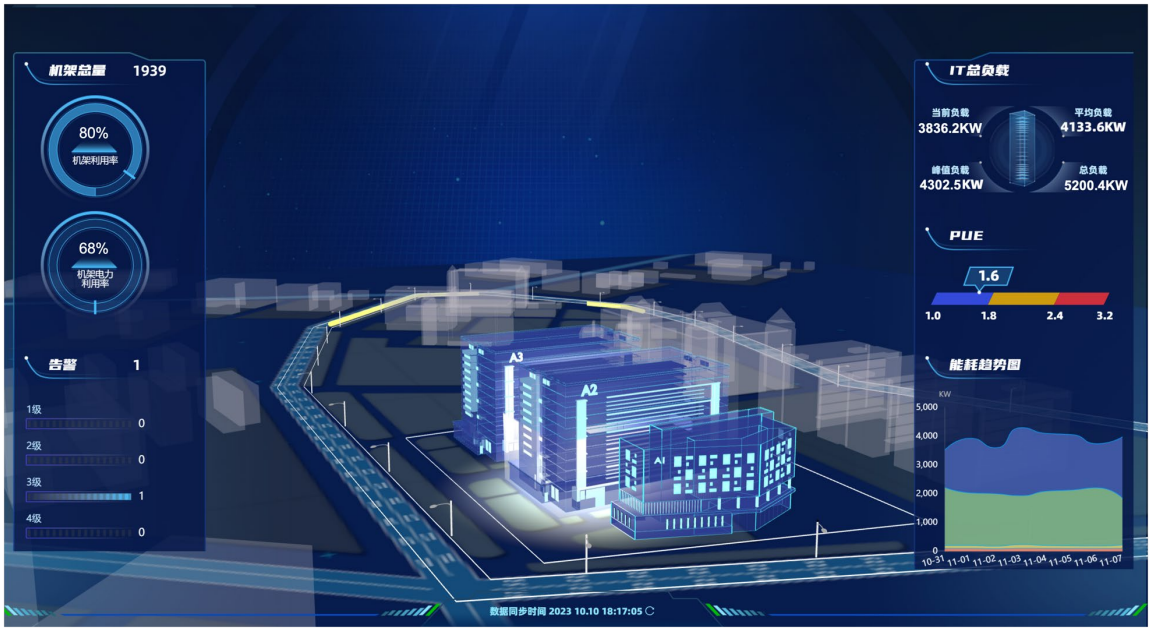
05

Succeed with VIaaS

ZSmart VIaaS for Data Centre, China

Whale Cloud have established intelligent data center monitoring and operations platforms for two major telecom operators in China, successfully integrating 4,500+ data centers. This has led to a 60% reduction in monitoring and operations personnel.

This represents the initial stage of VI technology, where Chinese operators have experimented with applying VI technology to internal operations, yielding remarkable cost reduction and efficiency enhancement results for the operators.



ZSmart VIaaS for Operator, China

Following the triumph of VI applications in data centers, China Telecom has broadened its VI capabilities into various industries, empowering SME customers.

Whale Cloud collaborated with China Telecom to build a VIAAS platform, integrating network, computing, AI, and video technologies. This integration swiftly enabled industry-specific SAAS applications for smart factories, smart transportation, and smart cities, assisting Sichuan Telecom in expanding into new industrial markets.

Number of Users 500 +	Developers 240 +	Algorithm Marker 60 +
Camera 30,000 +	Video on 4700 +	Scenarios 9,000 +
Algorithm 160 +	Algorithm Requests per Month 200 Million +	

Smart Chengdu

Make use of the ability of crowd gathering, mask wearing recognition, to create smart street benchmarking products, with 40,000+ calls per month.

Magic Disk Plan

AI capabilities, such as image classification, old photo coloring, photo restoration, provide users with convenient and rich image processing gadgets to enhance the user's application experience, 20 million+ calls in 2022 .

Luzhou Smart Transportation

The use of illegal parking, personnel intrusion, no-helmets detection, enabling the construction of safe traffic, with 200,000+ calls per month .

Zigong and Meishan Farming

Use AI algorithms such as pig intrusion and personal intrusion to prevent fraud, and assisting the agricultural and rural bureau to carry out intelligent management of farm norms, with 200,000 calls per month.

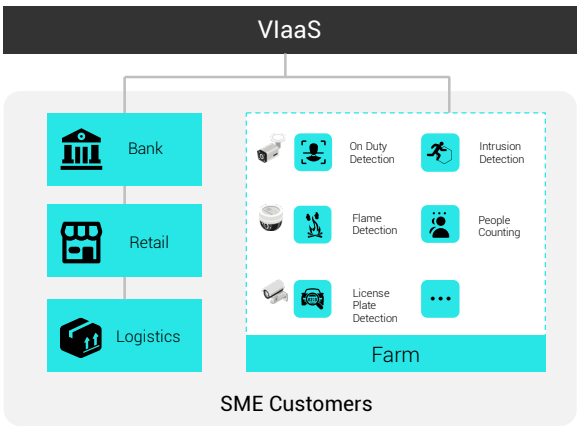
Digital Village

Using AI algorithms such as face recognition, pedestrian intrusion, fall-down detection, license plate recognition, crowd density, water level recognition and bright kitchen to monitor, prevent crimes and build safe villages, with 20,000 calls a month.

In this project, the VI platform has accumulated over 160 AI algorithms, providing services to diverse SMEs. It has interfaced with more than 30,000 cameras, monitoring over 9,000 industry scenarios, and experiencing 200 million algorithm requests per month. Notable projects include the Smart Chengdu, Luzhou Smart Transportation, and the Zigong-Meishan Smart Farming.

ZSmart VIaaS for Operator, Philippines

The client is one of the newest internet service providers in the Philippines, offering unlimited, high-speed internet to homes (which can be bundled with cable TV services through Planet Cable), and businesses across the country.



SaaS Pricing Model	
Hardware (Server/Storage/Bandwidth)	Evaluated by Whale Cloud. Purchased by Client.
Platform Setup Fee	One-time Setup Fee: ✓ 3000 Cameras Integration Capability ✓ 30 AI Algorithms (Can be expanded if business grows.)
Camera Connection	Subscription Fee per Camera (At least 3000 cameras per year)
AI Algorithm	Algorithms out of the OOTB 30 algorithms would be charged by CR.
Professional Service	L3 and L2 Service (Remote)

The operator has a large number of SME customers across various industries, including banking, retail, logistics, farming, and more. With technological advancements, SMEs have also developed a need for video intelligent analysis and monitoring. In this context, Whale Cloud has assisted the operator in building a VIaaS platform, sharing VI capabilities with SMEs across industries through a multi-tenant approach.

The platform will be charged on a revenue-sharing basis with the operator. Initially, it will provide 30 out-of-the-box (OOTB) industry-specific algorithms. In addition to the platform set-up fee, the operator will share a portion of the revenue with Whale Cloud for each camera connected. This enables both parties to collaborate effectively by leveraging their unique expertise and strengths, thereby promoting cost reduction and achieving risk-sharing and mutual benefit.

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Contact Us

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