Shixinda AI
SXD-AI.CN

Video Analytics Deployment Architecture

Edge real-time analysis plus centralized management, reusing existing CCTV

Layered architecture

1 Capture — reuse

- **Existing IP cameras**
  2MP / 4MP, no replacement
- **NVR / DVR**
  GB/T 28181, RTSP streaming
- **Access control / IoT**
  Door sensors, temperature, smoke

RTSP
GB/T 28181 →

2 Edge analytics — local

- **SXD-N430 edge station**
  8 / 16 / 32 TOPS, bypass deployment, works offline
- **Edge appliance**
  16–48 TOPS, 1U rack mount
- **Local pipeline**
  sample → decode → infer → report

alarms/status
HTTPS · MQTT →

3 Central platform — manage

- **SXD-NH analytics server**
  48 / 96 / 192 TOPS, 2U rack, centralized inference
- **Algorithm orchestration**
  model rollout, compute allocation, health monitoring
- **Alarm & storage**
  de-duplication, snapshots, retrieval and playback

API / push
HTTP · MQTT →

4 Applications — open

- **Web console / video wall**
  live view, alarm handling, reports
- **Mobile push**
  App / SMS / WeCom / DingTalk
- **Third-party systems**
  HTTP / MQTT / GB 28181 to regulators

Deployment models

Standalone — ≤ 64 channels

Cameras / NVR → **SXD-N430 appliance** analytics + management → Web / wall

One box handles both analytics and alarm management. Suited to a single campus, plant or station; install and run.

Cluster — < 100 channels

Camera group → **Compute nodes × N** parallel inference → **Management node** scheduling

Multiple compute nodes share inference while the platform schedules them. Fits multi-building sites and campuses, scale as needed.

Large cluster — > 100 channels

Edge nodes local pre-processing → **SXD-NH cluster** central inference → Regulator platform

Edge nodes pre-process locally, the center manages everything with role-based access. Suited to district platforms and multi-site groups.

Note: actual channel count depends on camera resolution, sampling interval and algorithms per channel. Figures above assume 1080P, one algorithm per channel and 2-second sampling.