
Surveon NVR2100 Dynamic Storage Solution

Application Notes

Version <1.0>



Technical Support Team

When the surveillance industry paradigm shift from analog-based to the IP based, system integrator not only need to learn the network in advance, but also the storage design is a tough topic.

In general, when you want to choose a good storage solution, you need to consider following points:

- Throughput
- Capacity
- RAID protection level
- Reliability
- Connectivity
- Disk Stability

So this article will introduce Surveon NVR2100 storage solution to system integrator and show how this solution can satisfy above key factors.

1. Throughput

When we talk about the throughput, most of people will relay this concept to how much data can be read/write from storage in a second. That is the most obvious definition. But the throughput has two different measures, one is sequential and another is random. For the surveillance recording, the throughput is clinging to random read/write. In fact, the behavior will like 95% random write and 5% random read. So when system integrators want to choose storage they need to pay attention on the random read/write capacity. The Surveon NVR2100 storage solution can provide over 1000Mbps random read/write IO throughput. If we use 6Mbps to be a single channels bitrate, it can support more than 160 channels for a single storage.

2. Capacity

When system integrators get a project, they can easily use a tool to calculate the how much capacity they need to provide. Most of vendor can provide a one-time solution. But when time goes by, the project owner might want to expand the capacity for example from 90 days to 360 days. It will be a tough task. The Surveon NVR2100 storage solution can support scale from 1TB to 448Tb with online expansion. It means that you don't need to turn off the NVR server and you just can simply add on a new RAID storage to the existed storage subsystem. The NVR server can dynamic recognize the storage and start to record the video to the new storage. All of the processes are on the fly.

3. RAID protection level

The storage can provide different protection level for the existed data. The RAID 0 doesn't have any protection but has the fastest RAID performance. The RAID 1 can provide highest protection which can allow up to half amount of disks failed but the cost is also higher than RAID 0/5/6. The RAID 5 is the cost/effective solution which can provide the middle to high performance and allow one disk failed. The RAID 6 is similar to RAID 5 but it can allow two disks failed in the same time. In overall, the most ideal RAID level for surveillance will be RAID 5.

The Surveon NVR2100 can support RAID 0/1/3/5/6 and special RAID type such as 10/30/50/60 which means it can do multiple storage striping to enhance the performance.

4. Reliability

The RAID levels provide the software/firmware level protection. But a good RAID solution should be able to provide the hardware protection to deliver a high reliability solution to customer. The NVR2100 storage solution provide different hardware protection such as redundant power supply, redundant fans, the internal battery to protect cache data when encounter the power outage and Surveon also can deliver a redundant controller model when system integrator require the no-downtime solution.

5. Connectivity

Different scenarios require different connectivity. The Surveon NVR2100 storage support SAS and iSCSI solution. If the project allows the NVR server and storage can resident in the same location it can use SAS storage. But if the project requires the NVR server and storage should be resident in different location and the storage must be accessed by different NVR server. Partner can select iSCSI storage.

6. Disk Stability

A good storage hardware and software are necessary conditions for stable storage solution. But the sufficient condition will be the disk quality. For surveillance recording behavior, the disk is under read/write for 24 hours a day and 7 days a week. So if partner choose a consumer grade disk to save the cost at beginning, it will increase the maintenance costs such as disk unstable problem or disk failed problem after several months. In this case, the Enterprise grade disk is an ideal solution for medium to a big project. And NVR2100 quality the most popular Enterprise grade disk vendor such as Hitachi, Seagate and WD. Our partner don't need to worry about the disk compatibility and can easily purchase those disk from each region markets.

Let take a final review, the Surveon NVR2100 storage solution can satisfy above six most important factors. So the partner can base on this solution to deliver different scales, usage aspects, performance and reliable system to the end user.