

MatriVideo NVR Feature - Failover

A Contingency Plan for Server Failure

Failover Features

- ◆ Automatic NVR Failover
- ◆ Automatic Failback
- ◆ N + S Architecture
- ◆ Average switchover takes less than 30 seconds
- ◆ Unlimited standby servers possible
- ◆ Unlimited Failover: Standby servers have the capability to act as failovers for other standby servers and even failover servers
- ◆ No need for a central server eliminating the possibility of Single Point of Failure

H₃ Hybrid

High Availability.

Maintain uptime with standard failover features and a distributed architecture

High Resolution.

Support multiple IP video compressions such as H.264, MPEG-4, and MJPEG and image resolutions from CIF/ D1 to multiple megapixels

High Intelligence.

Apply proven real-time video analytic scenarios to live and recorded IP video



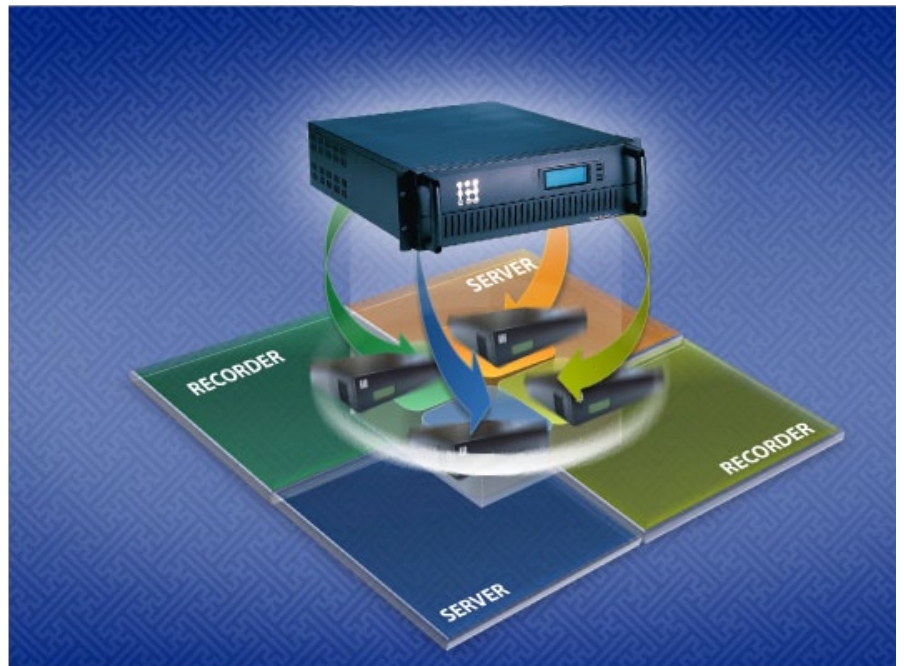
For organizations maintaining a surveillance system downtime means lost business intelligence data gathering opportunities, wasted resources, and exposed liability and security threats. Servers are bound to fail due to hard drive, power supply or a chipset malfunction which means that security systems need a contingency plan.

A Tale of Two Architectures

Traditional analog cameras are physically connected to a Digital Video Recorder (DVR) through individual coaxial cables. When a DVR server fails, an administrator has to physically disconnect the analog channels, remove the failed unit, and reconnect the cameras to the new unit resulting in extended downtime. This outdated model doesn't support failover.

In contrast, IP cameras, as well as Network Video Recorders (NVRs), are virtually connected to the ethernet. In the event of an NVR malfunction, the IP video continues to be accessible on the system. In other words, NVRs do not act as a single point of entry to the architecture for camera feeds.

Instek Digital's MatriVideo NVRs are specially designed to support failover. A MatriVideo NVR can be placed on standby to monitor operational NVR and archive servers' status and configuration settings. When server failure becomes apparent, the spare NVR will take over the responsibilities of the failed server – failover. By using MatriVideo NVRs and implementing failover architecture, administrators can maximize their surveillance system's uptime.



Eliminating Single Point of Failure

To further maximize uptime Instek Digital's architecture has been designed to remove single point of failure. The adoptive distributed architecture allows any standby server to take over responsibilities for any malfunctioning server, even those of a malfunctioning standby server. A central server is unnecessary under this design - eliminating single point of failure. Instek Digital's distributed architecture accommodates NVR failover to ensure maximum uptime and peace of mind.

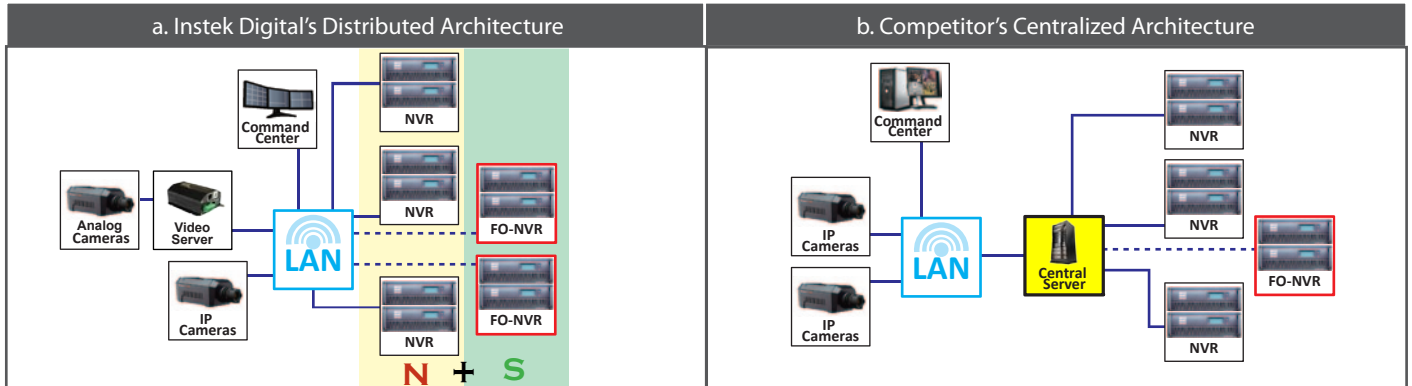


Figure 1.1 Distributed vs. Centralized Architecture (a) Instek Digital's distributed architecture has multiple servers connected directly to the LAN, so if one fails the Failover Network Video Recorder (FO-NVR) can take over the functions and the system will retain uptime. 'N' stands for the active servers and 'S' for the servers on standby. (b) A centralized architecture features a central server acting as a conduit between the NVRs and the LAN. If the central server malfunctions, the entire system will fail – single point of failure.

Ensure Uptime

Instek Digital's failover servers can monitor an unlimited number of NVRs and archive servers to give network administrators and security managers peace of mind. Adding servers to a failover monitoring list is as easy as adding a camera channel to an NVR on Command Center. Access the failover NVR's setup menu from Command Center's camera tree (see Figure 1.2). The setup menu displays a list of all available NVRs on the network (see Figure 1.3). Simply check the boxes of the NVRs for which you want the failover server to monitor. Using a heartbeat monitoring like technique, each failover server will then watch the active recorders' status. When NVR failure becomes apparent because of disconnection, power supply or HDD failure, or for any other reason, the failover NVR will take over recording and alarm responsibilities of the down server. The failover server's statuses are displayed using text and a unique icon on Command Center's camera tree so managers and administrators are informed in a clear and concise manner. Once the original server is repaired or reconnected, the failover server will return recorder responsibilities to the NVR, the statuses and icons will revert automatically and the failover server will resume monitoring the active NVRs, always ready in case of downtime, to ensure uptime.

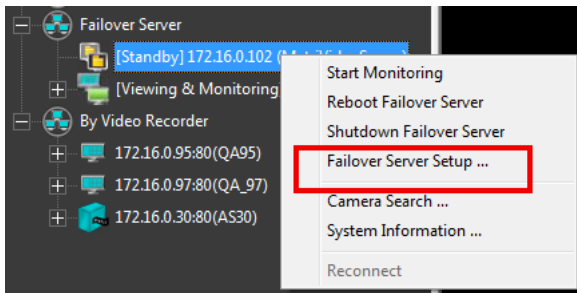


Figure 1.2 (TOP) Accessing the Failover NVR Setup Menu from Command Center's Camera Tree - Simply right click on the failover server, and select Failover Server Setup.

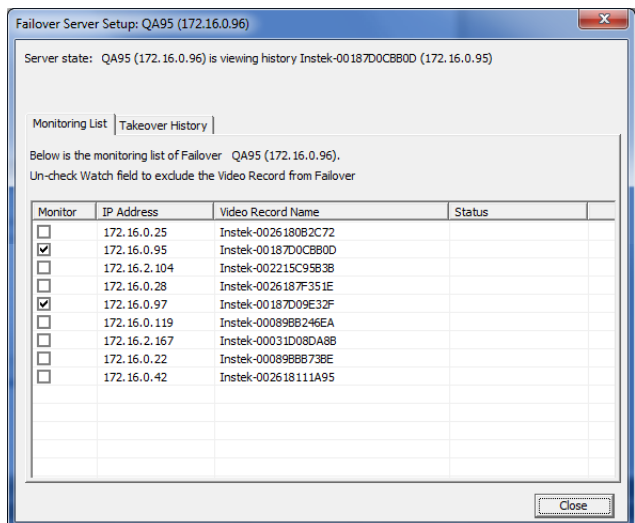


Figure 1.3 (RIGHT) Failover NVR Setup Menu - Monitoring List - Use this menu to select the NVRs to monitor. A failover server can monitor an unlimited number of NVRs.



Failover Recordings

A failover server begins recording immediately after taking over for a down NVR or archive server. While the primary server is being reconnected or repaired, the failover NVR will resume all the recording and alarm functions and operate like a normal server and the video can be viewed live and replayed on Command Center just as a standard NVR.

Each failover server's hard drive contains three partitions providing up to three failover recording sessions. Upon initialization of the fourth recording, the failover server will recycle the first partition. The failover recordings can be accessed anytime by going to the takeover history tab on the failover sever setup menu and selecting the appropriate checkbox (see Figure 1.4).

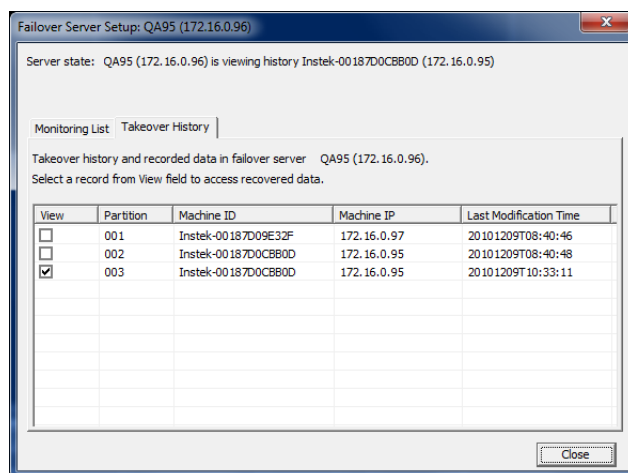


Figure 1.4 Failover NVR Setup Menu - Takeover History - This menu displays the three recording sessions from server failovers. To view the video from those time periods, simply select the view checkbox.

Maximum Uptime, Minimum Maintenance

Instek Digital's latest range of MatriVideo NVRs support automatic failover in the event of power supply or chipset failures. A failover NVR will kick in automatically when a live NVR dies and inherit the recording responsibilities through instantaneous automated switching. Once the dead NVR has been repaired, the failover NVR will recognize the repaired NVR's unique ID, return all camera responsibilities, and resume its role as a standby server, thereby continuing to give your security system true 24/7 coverage with minimum human administrative action.

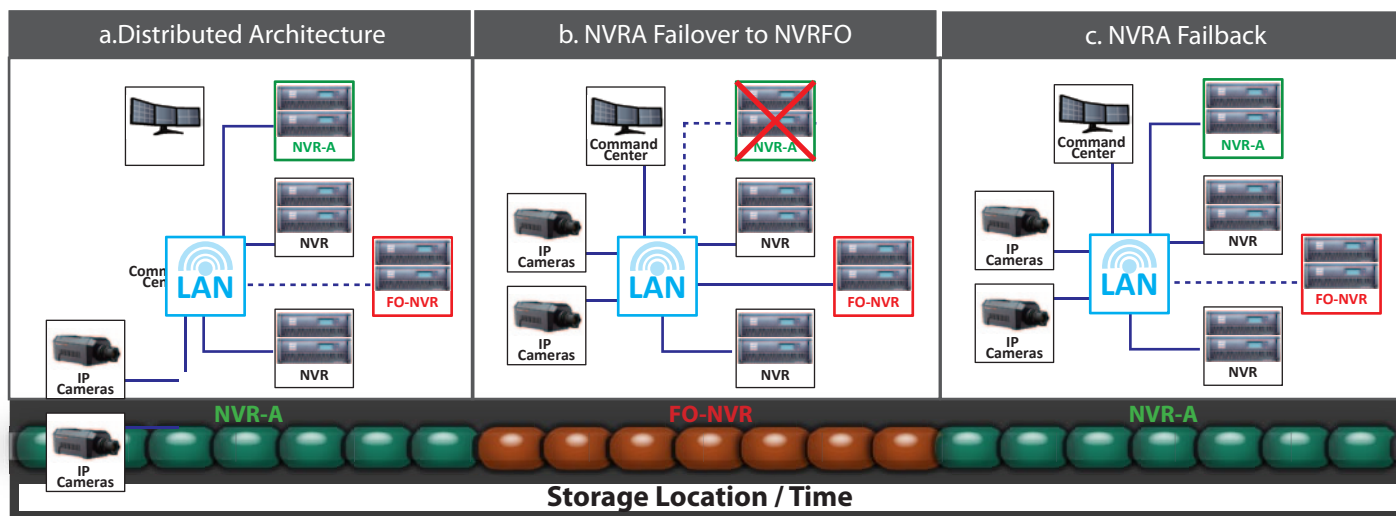


Figure 1.5 Failover and Fail Back Over Time and Location of Data Storage (a) Instek Digital's distributed architecture featuring a Failover Network Video Recorder (FO-NVR) acting as a watchdog. (b) NVR-A fails over to FO-NVR. (c) NVR-A is repaired and the FO-NVR fails back.



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