Redundancy & Spares

This White Paper is only applicable for Prelude and Nemesis series. For Foundation series, please refer to the Quick Start Guide.

hurried and risk-fraught hardware replacement to a minimally invasive process with skilled technicians able to provide oversight along the way.

Designing for availability

ISAAC® Nemesis systems are designed and built to withstand failures and maintain uptime. All hardware has built-in redundancies and installations following best practices have redundant interlinks and infrastructure to support the entire system. That focus on availability means that even in the event of a hardware failure the system continues to operate without manual intervention. In combination with a standard 3-year next business day warranty on hardware components an ISAAC® Nemesis system can undergo and recover from a fault with minimal impact.

Many other products and solutions in the Audiovisual space lend themselves well to a paradigm of keeping spares. Items like video projectors or audio amplifiers are often treated much like appliances: there are some number of spare parts or units available to operators and in the event of a failure they can be rapidly replaced from that stock. This is necessary when items are single points of failure and downtime must be minimized. In ISAAC® Nemesis systems any single failure does not cause downtime so this extreme focus on repair time is not needed.

Battle-tested Hardware and service

Through OEM partnerships with leading IT providers, the ISAAC® platform is built on hardware designed to last.

Moving parts are minimized, allowing for systems to run with little maintenance once installed. Any parts with potential to fail are field replaceable, with most being able to install while the server is running.

These partnerships also extend beyond next business day parts replacement to include worldwide installation services. Users or operators that wish to take advantage of these services have the option of scheduling a certified technician to carry out warranty work. In the event of a failure, time-to-respond and peace of mind are of paramount importance.

The traditional approach of keeping whole spare units means that in those critical hours you must carry out much more invasive and intensive physical changes to an installed system; by opting to instead embrace the ISAAC® approach of in-place service and clustering options you further reduce the time and effort spent recovering from faults. Fully leveraging the ISAAC® warranty and service reduces a

Minimizing risk

The operational flexibility afforded by the ISAAC® platform allows for a new breed of system design in AV. In ISAAC® virtual machines can be moved and distributed throughout the physical hardware on demand. With that ability in mind designing around and ordering a "spare ISAAC®" that is kept offline until multiple failures occur increases cost and operational overhead while providing very little actual benefit to reliability. Consider the following example system, a Nemesis 600 system with an offline spare server.
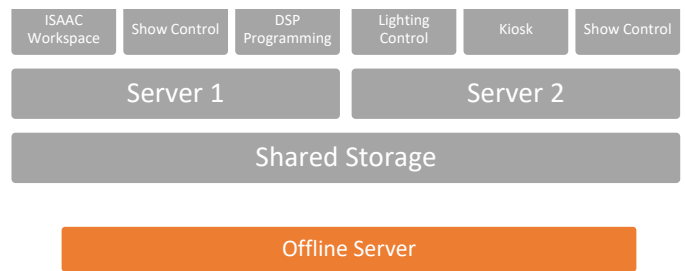
In the event of a total failure on a server ½ of the system virtual machines (VMs) would be impacted. They will automatically restart on the remaining server, but there will be minor downtime during that process. Instead, consider where this 3rd server is designed and installed as an active member of the system:
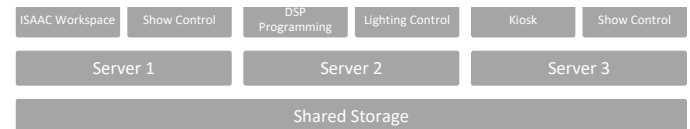
In this system, which has the same hardware and workload, the total failure of a server will only impact 1/3 of the VMs. Additionally, this system will be more able to expand in the future.

The case for spares

There does remain a case for storage where a more limited approach to maintain a stock of parts may apply to an ISAAC® system. All ISAAC® hardware allows for the addition of hot-spare storage devices. With a hot spare the recovery process can begin automatically after the failure of a drive, further minimizing the risk to your data while warranty service is in process. Data is the lifeblood of any modern installed system, so the value proposition of having immediate, automatic recovery of does become much more compelling. The count and variety of spare drives will differ between systems and should be discussed with your ISAAC® sales representative if desired. The shared storage appliance used in ISAAC® Nemesis systems has always-active redundant drive controllers and power supplies as well, but much like with the server hardware there are much more effective ways in design and integration to mitigate risks than stocking spare components.