Finding the Right NAS System for Small Business Storage Needs

See why network attached storage (NAS) systems powered by the Intel® Celeron® processor N3000 family are optimal for affordable, high-performing storage.

The Small Business Owner’s Storage Challenge

All small businesses have big aspirations. Whether the business is a sole proprietorship providing financial services or a retail store that employs five or six people, the valuable data generated and maintained by the business can help achieve those ambitions.

So what’s the most cost-efficient, secure, and simple storage solution that provides small businesses access to data on any device? Entry-level network attached storage (NAS) systems offer small businesses excellent storage and backup capabilities which are affordable and easy to use. NAS systems powered by the Intel® Celeron® processor N3000 family can provide features and high levels of performance only before available in higher end systems.

What Functionality to Look for in a Storage Solution

Storage is about more than just housing data. For a small business to grow, it must be able to use the data. And as the business grows, data continues to accrue, making it more difficult to manage.

Small businesses have options when it comes to managing valuable data. Many begin by storing files on a server, but when security, backup, capacity, and disaster recovery issues arise, the server is quickly rendered inadequate as a central storage solution. Cloud storage may be a good solution but raises concerns about speed of data access, control of the data, and security.

Beyond securely storing data, small business storage solutions need to provide these functions:

- **File sharing across any device running any operating system.** Access files from multiple device types with a solution that is compatible with multiple operating systems (Windows®, Linux®, Mac OS®, iOS®, and Android®).
- **Network backups and restore.** Easily install the system on a network, set up backup capabilities, and onboard a new device or restore a failed device.
- **Data continuity and recovery.** Protect data in the event of a natural disaster or system breakdown.
- **Immediate access to files.** Save and retrieve files instantly without relying on Internet service.

A flexible storage system with this level of functionality provides more value to a growing small business.

“[My NAS device] gives me more time to do my job... instead of worrying about logistical headaches like backing up and moving files around.”

Dave Helfrey, Freelance Art Director and Illustrator
Why NAS Emerges as an Excellent Storage Option for Small Businesses

Small business storage solutions must be able to store and provide immediate access to multiple file types such as documents, email, images, videos, website content, and more. Additionally, all of these files need to be backed up, secure, and accessible at different levels of authorization to multiple employees using multiple devices.

In addition to features, capabilities and levels of security, other considerations of the small business include the cost of the solution, as well as ease of use to ensure maintenance and administration costs are low. Another concern is the ability for business continuity in the case of a drive failure.

The most common storage options for small businesses include public cloud subscriptions, direct attached storage (DAS) to a server, and NAS. Table 1 compares these three types of storage and shows that NAS seems to most meet these needs and concerns for small businesses.

For a small business, using a DAS solution can be a quick and affordable solution, but implementing capabilities such as encryption for greater security, or drive redundancy (i.e., RAID) for failure recovery, can be challenging and costly to administer. Entry-level NAS systems typically include and are optimized to perform these functions. Public cloud subscriptions can address many of the needs of small businesses, but may raise concerns about loss of control of the data and possibility of security breaches. Also, public cloud storage performance is at the mercy of the Internet connection; if the Internet is down or slow, storage access is impaired.

Entry-level NAS systems powered by the Intel Celeron® processor N3000 family, available for less than USD 1,000, can be simple to set up and use. NAS systems also offer built-in encryption, data redundancy and recovery features, and make data available to multiple users at varying authorization levels on multiple devices. In addition, they are flexible—small businesses can use NAS solutions for purposes other than storage. Many businesses use NAS to run video surveillance or as a media server to stream audio and video files in addition to serving as a central storage solution.

Also, NAS systems typically do offer scalability options, which are usually extensions of disk arrays from the manufacturer of the NAS. Many NAS system manufacturers also now offer a hybrid of NAS and cloud solutions, providing the advantages of an on-premise NAS system, with the scalability benefits of cloud storage.

For the small business looking at a long-term solution while the business grows, entry-level NAS emerges as an excellent option.

How the Intel Celeron Processor N3000 Family Makes NAS Even Better

The Intel Celeron processor N3000 family enables features for entry-level NAS systems that are also available in high-end NAS systems. These include processing capabilities for NAS functions of RAID (redundant array of independent disks), security and encryption, network aggregation, compression and decompression, and video transcoding.

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<th>ENTRY-LEVEL NAS</th>
<th>PUBLIC CLOUD</th>
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Table 1. Comparison of Common Storage Options for Small Businesses
Software RAID. RAID functions replicate data so a drive failure does not result in lost data or a system crash. Software RAID does not have the cost of adding a separate processor for hardware RAID but historically can degrade system performance. The Intel Celeron® processor N3000 family enables optimizations to execute RAID functions without compromising performance.

Security and encryption. NAS systems allow businesses to keep data onsite and protected behind firewalls. The Intel Celeron processor N3000 family offers hardware acceleration for Intel® AES-NI (Intel® Advanced Encryption Standard-New Instructions), which accelerates the encryption of data without significant impact to overall system performance.

Network aggregation. Adding multiple network connections to a NAS system can potentially boost performance. Increasing the number of data connections also increases throughput. However, the processor in a NAS system still needs to route the data between the network and the system storage. The bandwidth of the processor determines the throughput speeds of the reads and writes to and from the network. Intel provides specialized software drivers that engage multiple cores on the Intel Celeron processor N3000 family to more effectively process the data from multiple network ports, substantially increasing throughput with two or more network connections.

Compression and decompression. Compression and decompression maximize storage space by compressing files before storage and then decompressing them during retrieval. The Intel Celeron processor N3000 family optimizes NAS systems to increase capacity by 46 percent without adding the expense of discrete hardware to perform this function, and only minimally impacts read/write performance.

Video transcoding. Use and storage of video data is exploding, with businesses more regularly using video for training, internal communications, marketing, and product promotion. The Intel Celeron processor N3000 family contains special hardware engines for processing video, enabling rapid translation of video formats and resolutions. This enables NAS systems to improve productivity through translating, or “transcoding” high resolution videos, either in real-time as they are accessed, or in the background for later streaming to client systems. Your high-definition video can be quickly converted to universal formats for smooth playback on varying displays, from a HD television, to a PC, to a mobile device, and all this can be done with minimal performance impact to other NAS functions.

These NAS functions powered by the Intel Celeron processor N3000 family can help businesses save time and increase productivity at an affordable price.

Five Indicators that it’s Time for NAS

Businesses may discover that an entry-level NAS system is their best option if any or all of the following indicators can be identified:

- **Limited IT budget or services.** NAS systems are easy to use and require no specialized skillset to maintain. Technical support may be available with the purchase of a system.

- **Affordability is important, but so is performance.** Entry-level NAS systems powered by the Intel® Celeron® processor N3000 family are available for less than USD 1,000. The processor enables features that are also available in high-end NAS systems.

- **Compliance is necessary.** Industries such as finance and healthcare require businesses to comply with regulations for data security and privacy, which may not be possible with a public cloud solution.

- **Other solutions are not a good fit.** Sensitive data continues to grow and must be protected in the event of a drive failure, which can be complicated to implement with DAS. Sending sensitive data over the Internet to a public cloud solution raises security concerns, and then there is also the possibility of slower performance if required throughput is high or Internet service is slow.

- **Enterprise-level storage is excessive.** Implementing a data center sounds expensive, can be very technical, and may exceed what the business needs.
Affordability and Performance for Long-Term Growth

Using an entry-level NAS system powered by the Intel Celeron® processor N3000 family gives small businesses affordable, more secure, and easy-to-use storage. NAS provides immediate storage and data accessibility to multiple devices, enabling collaboration and continuity for small businesses, which is more challenging to implement with DAS, and with greater control and piece-of-mind than exclusively utilizing public cloud solutions.

Get more information about small business storage solutions powered by Intel, visit www.intel.com/storage

Intel® Intelligent Storage Acceleration Library (Intel® ISA-L)

Intel provides an advantage for NAS manufacturers to implement functions such as software RAID, encryption, and compression, through utilization of the Intel ISA-L. Intel ISA-L is an algorithmic library specifically to address key storage system functionality. These are highly optimized libraries for Intel® Architecture, which enhances performance for data integrity, security/encryption, data protection, and compression. For example, internal studies have shown the Intel Celeron processor N3000 family can achieve compression of up to 46 percent while maintaining a greater than 133 Megabytes per second data throughput. Entry-level NAS systems using the Intel Celeron processor N3000 family with the Intel ISA-L can offer affordable NAS system with capabilities and performance of higher end systems.

Intel is a world leader in computing innovation. The company designs and builds the essential technologies that serve as the foundation for the world’s computing devices. With Intel Inside® and intuitive software installed, powerful NAS systems deliver energy-efficient performance, reliability, and easy-to-use features that let small businesses organize, share, manage, and protect data like never before.

Get more information about small business storage solutions powered by Intel, visit www.intel.com/storage