

## Embedding Paragon NTFS for Linux into NAS

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### *Success Stories*

#### **Overview**

This document describes the procedure for embedding Paragon NTFS for Linux technology into a NAS device, which involves porting and advanced customization of our source code to optimize our driver for a particular hardware & kernel environment according to the manufacturer's requirements.

#### **Situation**

One of the world's largest embedded system builders was ready to bring to market their new Linux-based NAS server. To increase their market share, the decision was made to offer fast and transparent support for connecting an external NTFS-formatted HDD or Windows PC via USB/FireWire, as well as internal NTFS HDDs.

Since high read/write performance, short mount/un-mount times, and fast file/folder browsing were very important, the system build contacted Paragon Software Group for the cross-platform solution: NTFS for Linux.

#### **Requirements**

Several parameters critical for any network storage device would need to be optimized, including:

- Reduce the time and amount of memory (cache, buffer) required for mounting NTFS
- Boost performance of file/folder browsing through Samba and NTFS
- Lower CPU utilization when processing data hyper-thread (multi-thread)
- Minimize the footprint (file size) of our module due to lack of RAM

#### **Solution**

Using their development environment (Linux kernel, GCC) and a hardware sample, Paragon's R&D team successfully ported to their platform and delivered a compiled file system kernel module to our customer.

To optimize our driver to the customer's hardware environment, we thoroughly analyzed the CPU architecture, available RAM, the Linux kernel and its compiler options –paying special attention to the NAS kernel configurations (regparms, kernel stack, cache, VFS functions, etc).

Within two weeks, we customized our source code to meet our customer's requirements, and delivered a fully tested and optimized driver for imbedding into this system builder's NAS device.

#### **Result**

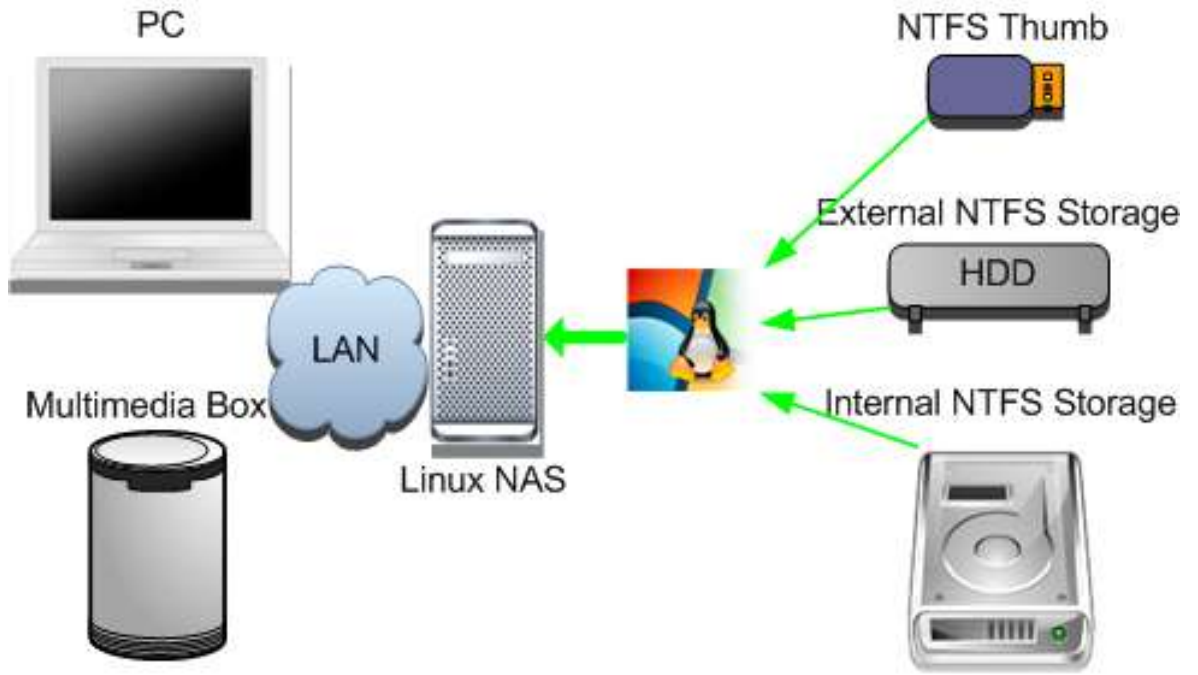
This system builder was able to bring to market a Linux-based NAS device featuring full read/write access to NTFS volumes –with the very highest performance possible for their platform.

# Success Stories: Embedding Paragon NTFS for Linux into NAS

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## Integrating to Linux NAS



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