Embedding Paragon NTFS for Linux into Multimedia Box

Success Stories

Doc Highlights

This document touches upon the problem of embedding Paragon NTFS for Linux into NAS, involving actual porting, and advanced customization of the driver's source code to particular hardware environment to meet the needs of the customer.

Problem

Contacted by a well-known embedded system builder, we were requested to port our NTFS for Linux solution into their latest multimedia box based on Linux. The company was after several goals:

- Increase the market share by opening up Windows users the option to directly work with the device via USB/FireWire;
- Use NTFS internally, widely accepted as the best file system for storing multimedia data;
- And throw off the rivals being at their heels.

We found that offer pretty interesting and provided detailed information on our solution. After examining the data and negotiating on service requirements, expected shipping volumes, time frame, etc., the system builder decided to co-operate with us and as a first step, we signed a term sheet.

Solution

The system builder (our customer from this time on) provided our R&D team with development environment (Linux Kernel, GCC) and a test board (hardware), thus we could initiate the porting process.

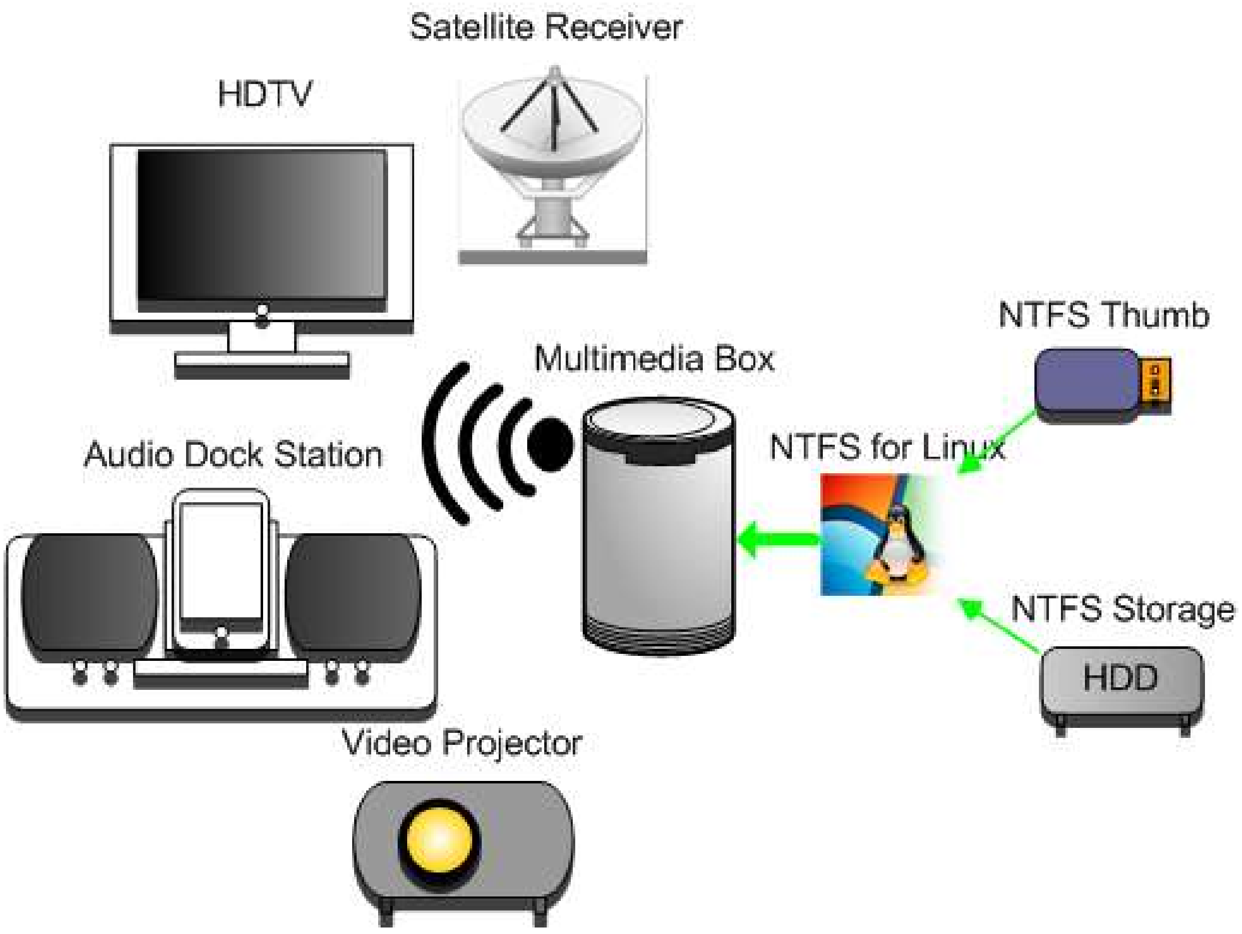
After about a week, we were ready to hand over a compiled file system kernel module to our customer. In general its performance on the multimedia box was estimated as really nice, though we were requested to improve a number of parameters, critical for a device of this kind, actually:

- Boost read/write performance to smoothly play HD video;
- Reduce the time of the file/folder indexing and scanning to quickly initialize media;
- Add the “Direct I/O” access support to reduce memory copy overheads;
- Add the “Time Shifting” feature for increasing ease of use of the device.

That's how we started optimizing our driver to the customer's hardware environment. First we initiated a thorough analysis of the CPU architecture, amount of RAM, Linux kernel, and its compiler options paying special attention to the kernel configurations (regparms, kernel stack, cache, VFS functions, etc.), used on the multimedia box. Taking into account the obtained results, we started customizing our source code to meet the needs of our customer to the full. After two weeks of hard work, we got our driver optimized and thoroughly tested.

Our customer found the resulted performance indisputable and soon we signed the final agreement.

Integrating to Linux Multimedia Box



Related Products: Paragon NTFS for Mac and Paragon ExtFS for Mac