Arm A series
Real Time Linux
Smart TV

Application Requirements: In this report we look at a smart TV DVR and media center device. We will keep the requirements short and somewhat vague as most people are familiar with smart TV devices and the services they expect. Moreover we will focus on the requirements which make the ultimate choice of processor and software architecture more obvious. These are: a full ethernet / networking stack, no hard time requirements, graphics / HDMI drivers and software stack, and a large non volatile memory. The last requirement could be met by simply providing a USB bus or a SD card interface.

Processor: The requirements listed above point us in the direction of a general purpose processor with many IO peripherals general processing systems have such as USB, SD, and HDMI. However we still want a lower power solution as this would allow our device to be powered off the TVs HDMI port or USB port. This is exactly the purpose of the ARM A series. The arm A series architecture is designed to provide a low power embedded platform capable of hosting a full featured OS. This of course leads us to our choice in software architecture.

Software: As pointed to above, we will choose to use a full real time Linux operating system for this application. This application has no hard time requirements. Moreover, we require many services that the Linux operating system will provide for us with very minimal custom development. These are a full blown network stack, a file system, HDMI drivers, block storage device drivers for USB and SD cards, USB drivers, etc. Thus a real time linux OS is clearly the right choice here.