



Open middleware for Java language apps

The digital television decoder issue

Digital television revolution brings a decoder (set top box, STB) in all the household living room. This is an opportunity to promote new services, better graphics and some fun on the same user interface.



The traditional STB user interfaces are clumsy, static, sometime too technical and quite closed. So people get back a not so easy usability and can't complaint. There's no choice. Let's add to this harsh scenario that interactive tv is badly living to its expectations. The specs are so bloated that developers are getting hard time to make stuff working and users don't buy the concept.

an open middleware will make new services flourish, bottom up

Our proposal to free the middleware

Avalpa has a disruptive proposal for the set top box heart.

Let's give away a fully functional, complete, free middleware for interactive television and see what's going to happen when user and other parties can interact, modify, adjust and tweak the graphical user interface, the inner mechanisms and the on board libraries.

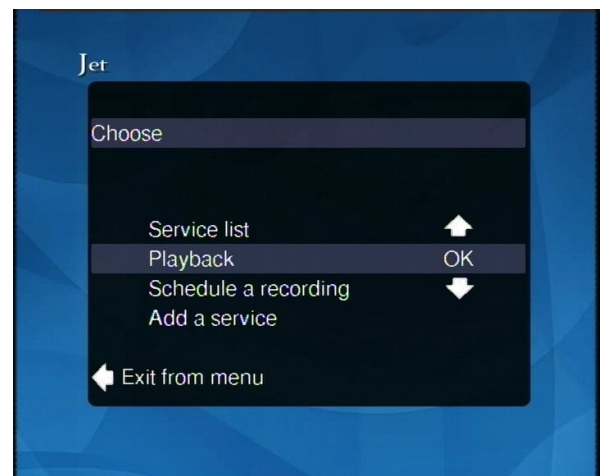
Jet is our project, living inside a proven hardware, **DGStation Cubecafe** 250 and 350 (DVB-S and DVB-T available) and on top of many renowned packages (kernel linux, phoneme virtual machine and many utilities).

We'd like to thank **Sun Microsystems** for having released freely the **Phoneme Advanced Virtual Machine**.

Jet contains these main parts:

- a complete graphical application, remote controlled, with which you can use all the features of the decoder (browse programs, viewing events, recording events (on , execute external applications like games and other services, share multimedia on the network)
- a DSMCC carousel decoder to download files and dirs from broadcast transmission
- a basic set of API than can execute applications from the air or from the IP network and give them access to the available resources in the STB

This software is completely open and can be customized in graphic and navigation tree, or adding more libraries covering other useful features upon request.





Technical introduction to Jet

Jet is a free middleware for digital television decoder. It's a modular design and grows on top of many other free software available. For better comprehension, let see an overall schema in the figure on the right.

At the bottom, there's a linux kernel running on a PowerPc system on chip (grey boxes) managing all the hardware resources.

Then, there are some basic utilities (green) and a Virtual Machine Phoneme Advanced (orange).

The core of the Jet middleware are:

- **Jet JNI libraries** (Java adaptation layer for underlying HW)
- **Jet libs**, the set of libraries exposing higher level API to navigator and xlets
- **Jet navigator**, the graphical user interface of the decoder.

These are the strict components of a Jet middleware set top box.

In the figure we show on top of all this stuff, as example, some different configurations:

- on the left in orange, some native Jet xlets (this is our standard way to get interactive tv),
- on the right, in red, as a long term development project, some adaptation layers to be compatible with more complex middlewares like GEM, tru2way and blu-ray java.

For more info, please browse www.avalpa.com or write to info@avalpa.com

Bullet points about Jet the free middleware

JET: a Java language middleware

- running on [DGStation Cubecafe](http://www.dgstation.com) box
- Power Pc Linux kernel
- Sun Phoneme Advanced Java VM
- double buffering 32bpp graphic
- hard disk for local storage
- ethernet and usb interfaces
- support xlets from DVB broadcast, local disk and IP network

