DIGITAL CONTENT DISTRIBUTION MANAGEMENT SYSTEM

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DiMaS Media BoX (Forthcoming)

In the size of a car radio, DiMaS Media BoX (MX) is a consumer platform prototype to combine two major digital content channels: the broadband Internet (e.g., peer-to-peer networks, RSS syndication, and IPTV) and digital television, i.e., DVB broadcasting. Being a full-blown PC, a DTV set-top box, a car media station, and a Wi-Fi hotspot, MX is the prime user interface to access the novel DiMaS Network that offers socially filtered content retrieval and tag-based navigation using Semantic Web compatible ontology and license terms. MX is designed for a TV remote control unit use in mind and to be accessed over the Net.

Weighting only 1kg, DiMaS MX is mobile. Pulling the sturdy handle you can take it from a docking station to your car and boat and again having music, movies, photos, and your other digital content with you. The system changes the UI and adopts to the vehicle's AV system and other possible interfaces, e.g., television/radio antenna, Internet connectivity (e.g., 2G/3G or WiMaX), GPS navigation, camera for rear view and taking photos, and performance monitoring and diagnostic system. All devices are managed through a single touch screen. Recorded and stored content, e.g., photos, travel paths, and the car's monitor data, is easy to carry back home in MX to be watched on a TV screen.

DiMaS MX is a media hub of the home network. Using Wi-Fi it connects wireless devices, e.g, PDAs and other PCs, to access, manage, and share its resources including Internet connection and processing power. MX's PVR is based on the MythTV (www.mythtv.org) featuring, e.g., multiple simultaneous recordings, hardware MPEG-2 decoder, automatic commercial skipping, basic video editing, EPG, photo viewer, and DivX/DVD player/ripper. A user can remotely (e.g., by a cellular phone) schedule DTV and IPTV stream recordings, and search for and download new content on the P2P network using MX. In a car, MX acts as a part of any wireless Mesh Network looking for the best Internet connection and retrieving location-aware information. Having two MXs, one at home and the other in a car, the devices sync wirelessly as the vehicle approaches home.

Two or more MXs connected with gigabit ethernet cables form a system used as a single computing resource, i.e., a cluster or a grid. The small form factor, low power consumption, and fanless operation of MX reduce the physical size of housing, cooling system, and the amount of noise generated by the cluster. Built-in dual VIA PadLock security chips with on-die real-time AES decryption and RND number generators help protecting (commercial) information stored and exchanged between loosely coupled MX nodes on the network. The distributed power calculates semantic, social, and network optimization.

Digital Content Distribution Management System DiMaS addresses media publication, distribution, and consumption from the perspective of consumers, amateur producers, and professional publishing; the consumers in easily finding and using the media they want, the amateur producers in making their creations available for large audiences, and the professional publishers in supporting their copyright and charging models. DiMaS extends content to services and sensor data to content, resulting to a novel service-oriented distribution architecture, the DiMaS Network, that describes semantically and makes available net resources, i.e., content files and services, and sensor data, whether produced by amateurs or professionals, whether free or commercial, in equal standing.

DiMaS Media Box

MythTV User Interface for TV Screen

FrodoPlayer Car UI with Touch Screen

DiMaS Media BoX Hardware
Mainboard: VIA EPIA VT-310DP Dual 1GHz Processor Fanless Mini-ITX (1xGigabit and 2x100MBps Ethernet, AGP8X, MPEG-2 decoder, VIA PadLock with AES/SHA encoder/decoder, Serial-ATA, USB 2.0, TV out, and 5.1 Audio)
Case: Travla C134 Black (Custom)
Wi-Fi 802.11n: N/A
Bluetooth 2.0: Toshiba USB Adapter
Remote Control Unit: N/A (Bluetooth)
DTV Tuner: TerraTec Cinergy T² (DVB-T)
GSM/EDGE Modem: N/A
Security Dongle: HASP HL USB Key
GPS: Pretec Bluetooth GPS Mini
Touch Screen: Alpine IVA-D310RB

DiMaS Media BoX Software
Operating System: Linux Fedora Core
DiMaS Network: DiMaS Peer Software
DiMaS MX: DiMaS MX Software
P2P File Sharing: BitTorrent 2
User Interface: MythTV / FrodoPlayer
Cluster/Grid: N/A