

Why Multi-MO?...UNDERSTANDING THE SOLUTION & BENEFITS OF PARTNERING WITH MOAEC®

Having pioneered button based touch compatible applications and the management of large digital media libraries, MOAEC has unrivalled expertise in delivering integrated solutions that help wireless operators, handset manufacturers and content providers meet the unique challenges presented by the rapidly evolving smartphone market and the convergence trends between mobile and fixed platforms.

Due to an innovative combination of IP protected features, Multi-Mo software is uniquely positioned to support both the consumer user experience and the mobile data revenue needs of business partners by providing seamless solutions that work across all their devices and broadband environments. Years before platform convergence and the mobile Internet began to shape the current market; the device agnostic design of the Multi-Mo GUI was enabling the technology to be deployed across a wide variety of applications including (but not limited to) PC, TV, and embedded automotive systems.

The Multi-Mo software solutions today are built on a design concept and that was originally developed from a deep understanding of the user behavior and host media player devices. Conversely, computer companies who gained a first mover advantage in the digital entertainment market did so through their software, which featured traditional GUI's they adopted from their office automation technology and effectively ignored basic user needs. The GUI's and functionality of these solutions simply don't work effectively beyond the desktop as entertainment applications.

As the market focus shifts to mobile, home theater and automotive applications and massive industry wide content libraries begin to emerge, the relevance of the Multi-Mo technology and IP increases exponentially. Today there are numerous examples of the industry evolving towards the Multi Mo solution with market leaders adopting different elements of MOAEC technology in step with the restructuring of the digital entertainment market and mobile ecosystem. From the use of buttons on smartphone touch screen interfaces, to the attribute driven discovery systems on back-end media servers, it is becoming increasingly clear what direction the market needs to move in to create the best user experience.

The true value of Multi-Mo solution however does not lay in the use of any one individual piece, but in the combination and integrated use of many key innovative features as described below. MOAEC offers software and IP licensing opportunities on the most powerful and comprehensive solution currently available that will position your company for the next wave in digital entertainment, all backed by our strong portfolio of patents, trademarks and copyrights.

The following information provides more detailed answers to the question Why Multi-Mo?...here you will find an explanation of the rationale and strategy behind the application development and a breakdown of some key features and functions underlying the Multi-Mo solution.

[V5.0 - Desktop Application: PC-Mo](#)

R&D: *Understanding Users* - In order to understand the MOAEC solution and how it functions it is important to start with the R&D efforts from which the systems original "entertainment automation"

design criteria evolved. The founder/inventor based it on two key elements intimate to his professional entertainment background: (1) 16 years of “hands on” user experience as a professional DJ managing a large library of music in conjunction with the operation of a variety of media player device technology from turn tables, to cassette and compact disc players; (2) 8 years of user research on how consumers use and relate to music and, the organization and management of music files around those needs as the owner of an entertainment services company.

The original application design and patent also took into consideration and covered numerous platforms including home, auto, mobile and commercial use, plus multiple forms of media/data. The following represents the core features and functions of the technology that work in combination to deliver the only true “entertainment automation” engine on which our new family of Multi-Mo applications have been built.

1. **Content Organization: *Category/Sub-Category Schema*** – The Multi-Mo solution differentiates itself in this regard from other media management software applications by incorporating a patented process for organizing multimedia in a unique category/sub-category schema that enables a *hierarchical database structure*. This is critical to speed and usability of an entertainment center application. The leading PC based jukebox applications (i.e. Windows Media Player, iTunes, Real Player) use menu-driven file based systems which utilize folders to organize music and other multimedia content. This limits their ability to search, manipulate and control content as compared to Multi-Mo applications.

Example: As more content gets aggregated both on and off the media playing devices the need to properly organize this content becomes critical to the user experience. Music Stores and Music Service Provider sites have now become more accessible to users through advancements in wireless technology and a variety of new business models (e.g. subscription services). Leading content providers and media management software developers have begun to default to the category, sub-category schema in order to create a better user experience for users browsing these sites.

The number one rated music service, Rhapsody from Real Networks (i.e. offered on Verizon mobile phones) allows customers to search the 4million plus songs by genre (category) and sub-genre (sub-category) and download unlimited files through “all you can eat” subscriptions. Smartphone devices (e.g. AT&T Tilt - HTC) are now shipping with storage capacities up to 32GB of memory, that are capable of storing thousands of songs from a user’s PC based collection, along with other multimedia content (i.e. movies, photos ect.) This amount of content on mobile devices needs to be organized by categories and sub-categories on the device to facilitate the easy- fast search, discovery and playback. Content discovery both on and off the device is critical to enabling and driving ARPU from multiple sources including OTA (over-the-air) downloads, multimedia subscriptions, mobile ads, and MMS (multimedia message services) data services.

When the MOAEC system was originally developed and its patents filed, technology focused upon basic challenges involving the moving and storing of music files efficiently. At that time, the focus was on the management of a single musical file or discrete groups of music files. The industry did not focus on

organizing thousands of music files that would become available to a typical consumer of digital music. In recent years, product developers have come to understand consumer's needs to be able to organize and get access to huge libraries of downloadable and streaming multimedia in a seamless and efficient manner.

As a result, we now see systems based upon category creation driven by unique attributes of a song or a consumer's desires or predisposition. Thus, we see companies allowing for the dynamic creation of playlists based upon characteristics of a song that are unique to that consumer's tastes. MOAEC's software and IP focus on and teach such a system. It also enabled the combination of various key features in an integrated system that was years ahead of its time. MOAEC allows consumers to organize multimedia into various categories through user friendly buttons and dynamically creates playlists. MOAEC allows consumers to refine categories based upon an unlimited number of attributes and allows users to create their own playlists based upon categories unique to that user. The MOAEC technology was a precursor to the "seed" systems that are now proliferating throughout the internet and the country.

2. **Graphical User Interface (GUI):** The understanding of how media player technology had evolved was behind the design of the simplified GUI and the use of *search commands in the form of buttons*. Quite simply, buttons represents the simplest and most familiar component of the user interface when it comes to media player technology. The use of buttons allows for direct commands to be tied to specific instructions in the Multi Mo program which can be quickly and easily initiated through input devices such as a mouse or via a touch screen or voice input mechanism. Within seconds, a media category and sub-category can be selected, searched and customized for play back using the Multi Mo applications. The Multi Mo GUI design is all encompassing, taking into consideration a myriad of needs as the front-end device software. The Multi Mo application interface is flexible and powerful enough to offer the following capabilities:

Multi-modal – The MOAEC GUI is universal and works on all device screens including TV, PC, smartphone, home theater and automotive in-dash systems.

Multi-functional – MOAEC allows the user configure GUI to an off device setting, enabling MOAEC to function as a music service provider like XM or Sirius satellite radio, by simply clicking on a genre button and hitting play. MOAEC can function like a CD player, allowing certain albums/tracks to be selected and played. MOAEC can function as a music discovery system by combining artist and song searches with a MORE LIKE button in the search mechanism which generates automatic playlists to match. MOAEC can function like a DJ by allowing an entire evening of music to be programmed in a matter of a few seconds by combining unlimited search criteria (i.e. TIME, GENRE, MOOD, and MIX-FADE)/buttons resulting in the generation of instant playlist that match the request.

Multi-media – The MOAEC GUI allows user to organize, manage and play multiple forms of entertainment media including music, movie, videos, games and photos.

Multi-cultural – The MOAEC GUI can be configured to operate in most any language to support service provider’s global business operations that often demand localized solutions.

Multi-dimensional –The MOAEC GUI can be a multi-dimensional interface to all business models that can simultaneously support all related revenue models a service provider may contemplate offering. Multi Mo can support purchase downloads like online store by enabling off-device searches and buy options tied to shopping cart interfaces; Multi Mo can enable seamless connections for streaming multimedia and/or manage unlimited lease downloads locally on any platform to support “all you can eat” subscriptions like a music service provider; Multi Mo can support a streaming only ad supported models like internet radio and/or music discovery sites by providing a radio interface that could be used in digital dash boards (e.g. XM, Sirius) and/ or an attribute driven search mechanism as the front end of a music discovery system.

Example: History illustrates menu driven file systems and their traditional GUI’s were originally developed to organize and manage media/data for office automation and not entertainment automation. These solutions do not present a “clean and simple” interface and are more accurately described as “busy and confusing”. They force the user to click thru multiple menus, menu options, files, folders, icons and tabs which limit the systems functionality, making content discovery unnecessarily difficult. Such system GUI’s render these programs impractical in emerging mobile and automotive applications due in large part to the dramatic changes in information density associated with smaller touch screens. The desktop application GUI is one of the most important design elements. If created properly, a seamless solution and universally applicable interface can be built that scales to support multiple screens and facilitates a cross platform user experience.

Apple iTunes Desktop UI



MOAEC PC-Mo Desktop UI



3. **High Speed Parametric Searches:** The Multi Mo system enables users to perform *high speed "button based" media searches and "drill-downs"* that combines categories (e.g. genre - rock) with unlimited sub-categories (e.g. favorites –upbeat–30 minutes, etc.) to automatically and instantaneously narrow searches, generate search results lists. The Multi Mo system also offers an enhanced "Keyword" search capability featuring "curser based" keyboard text input option and predictive texting with an integrated dictionary and spell correction. This technology can be combined with advanced search options for media categories, sub-categories and range of years to facilitate the industry's fastest search and discovery mechanism.

Example: MOAEC returns on device search results in milliseconds and off device search results in seconds. MOAEC technology can be integrated with off-device content databases and returns search results within 2-3 clicks vs the average of 16-20 clicks as has been the case with off device searches at carrier portals or content provider Web sites using other mobile solutions.

4. **Automatic/ Mood Generated Playlists:** Understanding user behavior through years of research was critical to this element of the Multi-Mo solution. The insight and original need to implement this feature came through a combination of spontaneous "on demand" requests and pre-determined plans which continually pressured the founder to instantly search and play music and to alter the moods of professionally managed events. This user behavior reflects the way the average "time constrained" consumer wants to experience music on a day-to-day basis. At any given moment, the vast majority of user's want the ability to combine their preferred genres with their favorite selections and match it to their mood (i.e. rock, favorites, high energy) and have the system automatically put in a playlist that is delivered instantly to their screen. From the search screen the user can then elect to hit play or quickly customize the list further. The unique architecture of the Multi Mo system combine to offer instant responses in seconds

through user inputs as opposed to the prevailing menu driven systems that are incapable of functioning in this manner. Giving the user a simple, fast system that organizes the music files by mood and generates playlists automatically, creates an exceptional user experience.

Example: It can take 45 minutes to create playlists and moods using the standard desktop application interface from a large music library. A mobile user on the go faces challenges an order of magnitude greater when trying to connect to and manipulate the expanding libraries both on and off their devices due to the smaller screen size and the lack of effective entertainment center software resident on the device. Mobile users currently have two undesirable choices depending on their particular device and/or service provider:

(a.) Using PC based system to search for music and generate playlists. Customizing an average size music playlist on a PC and “sideloading” to their mobile device typically ranges from 5-10 minutes for a savvy user over 45 minutes for novices. In addition to the inconvenience and time involved, the user is then stuck with that particular playlist until they take the time and energy to sit down in front of their PC again and create a new one. Mobile users want the ability to instantly create new playlists that match their mood, on or off-device and/ or through a content provider to discover new music and artists in their favorite genres.

(b.) Using current media player solutions on their devices to perform searches and create playlists. The best solution currently available is the “on the go” playlist generator on the The Apple iPhone takes between 13-15 clicks/touches to create a custom playlist on the device. The Mobile Mo software is a universal application that can create a playlist 2-3 clicks/touches . The vast majorities of mobile users don’t have the time or desire to peck through multiple menus, files and folders to search content and/or create a playlist. These application limitations detract from the user experience and hurt the development; growth and acceptance of true mobile based libraries and all-you-can eat music services.

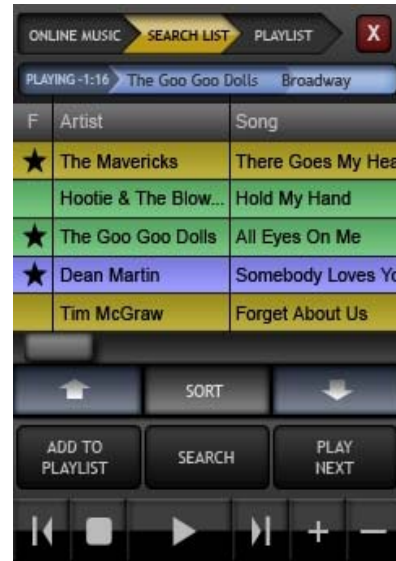
V1.0 Phonetop Application: Mobile- Mo

R&D: *Understanding the mobile user experience.* There is strong market demand for mobile applications for smartphones which are increasingly viewed as the key devices to unlocking the mobile Web and making entertainment content more universally accessible. Developing a useful and compelling smartphone application requires that the user experience rival that of the desktop in order to make it attractive to the consumer and potential OEM business partners. In researching and developing the Mobile-Mo application it was necessary to first identify and understand the limitations and challenges involved in creating the best possible mobile user experience. After extensive research on the issues surrounding the launch of a mobile application, the company development plans became focused on building off of the core “legacy” functions from the original/parent desktop application. This is a proven technology that has continually been updated over 8 years of commercial deployments and embedded mobile applications in automobiles. This was married to specific application layers for the mobile smartphone platform to formulate the final design criteria. The company's mobile development and optimization strategy by each of those levels are as follows.

1. **Application Usability:** The first and most obvious consideration was identifying the most essential features and functional elements of the desktop version (listed above) and re-creating them in a mobile application. It was possible to bring all the essential pieces (database /schema, GUI, high speed search and automated playlists features) of the parent desktop version over to the mobile application because of the way they were originally architected. It was determined these functions were critical to maintaining the usefulness of the application and were highly integrated into the application and user experience. Voice activation was added to compliment touch screen compatibility and further support the need for simplified user inputs in mobile devices and automotive applications. The buttons on the mobile application are designed for easy use with finger gestures, where a stylus is not required. Mobile-Mo is the first fully functional mobile entertainment center software for next generation smartphone devices.
2. **Screen Density:** Adjusting for the density changes associated with the smaller screen sizes demands clean and simple design layouts to accommodate the reduced amount of information that can be displayed. MOAEC was able to clear this major hurdle due in large part to the original design concepts which broke the desktop GUI into functional partitions that could be applied individually on mobile screens.



3. **Application Consistency:** MOAEC captured the same look and feel of the application across all device screens and within the function type by maintaining consistency in patterns and designs. As a result, a content search for example, has the same look and feel whether performed on the desktop or a mobile phone. If content is to be easily accessible across all devices, the consistency of application GUI's and functionality has to support the cross platform user experience.



4. Device/Platform Interoperability & Connectivity: As the market matures, the devices, products and modes of use become more integrated and content is licensed for use across multiple platforms. Due to the device agnostic interface and true database design elements underlying the Multi-Mo technology, a completely independent P2P network can be established between devices to deliver unparalleled interoperability. This can be achieved by installing both Multi Mo application software and media server software on any Internet enabled device with storage, allowing users to access their digital content through network independent connections over private home Wi-Fi networks, intranet, or Internet. Competing solutions based on menu driven file systems are unable to replicate this capability. Unlike the traditional syncing between PC based libraries which simply enables media files to be copied from one system to the other, Multi Mo™ allows all the user's devices to share a central multimedia repository. Multi Mo™ users can connect their devices and content sources seamlessly allowing unlimited digital media files (i.e. music, videos, movies, TV shows, podcasts, photos, games, etc) to be backed up, merged, restored or streamed to any or all devices that can each act as a media server.

5. **Localization:** The mobile Web is more fragmented due to the influence of carrier portals and a lack of standards. The Mobile-Mo applications are optimized for OS based smartphone devices, where developers and carriers are concentrating on a select group of open platforms (i.e Windows Mobile, Symbian, Linux, Android) that will likely become dominant and help alleviate this problem. In addition, the application is developed in Unicode to support carriers and their international partners across multiple devices, languages, countries and cultures, creating localized open environment solutions.
6. **Customization-Personalization:** Mobile devices have become more personal than the PC and mobile applications need to allow for a much higher level of customization that calls this out.

The Mobile-Mo application allows the user to easily customize the GUI by enabling the reorganization of their media center categories by personal preferences and the unlimited creation of custom category and sub-category buttons. Music as a media form is experienced in a more personal way than any other and it requires the application provide the ability to personalize and instantly generate custom playlists based on the creation of categories driven by unique attributes of a song or a consumer's desires or predisposition, the most common being the mood of the user. The Mobile Mo application accommodates this by providing mood buttons which allow the user to match the genre and mood and automatically generate a custom playlist on the fly based on songs stored locally on the mobile device. When used to access on online music store, subscription service or social network the same application search mechanism and personal user input in combination with the category and sub-category buttons (e.g. HITS) on the search screen can instantly narrow searches by initiating a seamless connection between the application and media server. Search-discovery requests can ask that the most popular tracks (e.g. top twenty listened to and/or purchased) that match that HITS search be streamed/downloaded from the 4 million song service provider library to the smartphone. The user could then discover what everyone else is buying/listening to and select certain tracks that most appeal to them *personally*. A recent report from ecommerce consultancy Avail Intelligence asserts 8 out of 10 consumers look past professional critics and increasingly rely on the opinions friends, family, and the collective wisdom of music and social network destinations when making new music selections.

The user can then choose to *personalize* it even further by entering those selections (i.e. artist name, song title) into the key word search box and hit the MORE LIKE discovery button on the search screen and have a list streamed to them that matches the specific attributes of that song or artist. Music discovery sites already perform attribute matching, the major difference being they are interpreting user activity on their web site over time and then matching the profile to certain song/ artists attributes and making a recommendation back to the user about what they think they might like, usually in the form of an auto-generated playlist. The back-end system under this discovery process is really making an educated guess about what the user might like. Multi Mo flips the personalization equation, driving it off of user inputs from the front-end that says to the back-end... "This is what I want/like, find it and send it to me". Most back-end databases are already broken down by a variety of attributes, the Multi Mo front-end GUI enables a streamlined/seamless process to take advantage of that. The MOAEC IP protects this personalized discovery process which includes user generated inputs, buttons, category sub-category, leading to the automatic generation of a playlist.

7. **Seamless Content Discovery:** In mobile applications, implementation of an effective content search and discovery mechanism is critical to enhancing the user experience and increasing average revenue per user (ARPU) for OEM partners (i.e. wireless carriers). This encompasses local, portal and mobile Web searches. With mobile device storage capacities now ranging from 2GB- 32GB, thousands of songs along with large amounts user generated content (i.e. photos and videos) are being stored locally on mobile devices and this trend will only increase. This

makes efficient local search on the device a requirement for users looking to do things such as locate specific music tracks to build a playlist; automatically generate a playlist on the fly based on attribute driven searches ; or to find a photo for upload to a social network or share with family and friends.

Off the device, the ability to control the online activities of the mobile consumer is critical to monetizing the infrastructure and content investments of wireless operators. Through user input, an online attribute driven search request via the Mobile-Mo application can be initiated between the smartphone and the carrier's portal (or designated content aggregator partner) directly from the application GUI in a seamless, secure and transparent fashion. This creates an integrated content discovery capability between the client and "cloud based" server that is highly efficient and greatly enhances the user experience.

This is made possible by the unique Multi-Mo solution that offers interoperable device application software and media server software as part of an OEM license. Deployment by a service provider of both the device and server side applications will allow subscribers direct connections across the carrier's network to the carrier's default media service site, allowing subscribers the best mobile Web experience and the freedom to access industry wide content. By focusing the integration and mobile application's GUI search mechanism on the most basic functions of the backend web site interface, the user's attention becomes fixed on only the relevant information and content without distraction.

This in turn enables the creation of more accurate user profiles from content search-discovery usage patterns and preferences based on direct user inputs from the application vs indirect backend calculations based on menu driven content discovery and "attribute matching". Wireless operators are then better positioned to deliver a more personalized user experience and to monetize the unique subscriber relationship. Demographic and historical usage pattern data can be married to real time location data and even the current mood of the user to drive targeted advertising solutions, content and services, allowing operators to generate new revenues within their network and service scope.

Content discovery based on menus is the major "bottleneck" afflicting mobile applications today. Users ultimately want to find what they want instantly without needing to know exactly where it is on their smartphone, their carrier's portal, or the mobile Web. The Mobile-Mo application solves this challenge and removes the major obstacle inhibiting greater multimedia content consumption through wireless carriers and the subsequent management of that content locally on the device. In summary, in order for the process to become a fast and easy, it is critical that content search and discovery mechanisms on smartphones be based on (but not limited to) the following 3 elements: (1.) User input vs menus(2.) Execution directly from the application GUI (3.) A combination of category and sub-category search parameters that are integrated and aligned with the back-end database.



Smart
phone
(Own)

Local Search “On Device”
(User’s PC based Library Extended to Smartphone)

Store
(Buy)

Portal Search “Off Device”
(User Discovers, Buys & Downloads)

Service
(Rent/Buy)

Mobile Web Search “Off Device”
(User Pays Mo. Fee - Discovers, Streams, Downloads)