

# White Paper on Universal Mobile Interface

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The evolution of the mobile phone as the foremost multi-media device has long been predicted, but take-up has mostly been quite disappointing. The technology has been in place for years and probably the most important barrier disappeared when the high resolution colour screen was introduced on mass market devices a few years back. The mobile as a distribution platform for non-voice services is, however, quite complex from both a technology and a business structure point of view, in addition to the physical limitations due to its small size. Many attempts have been made to overcome these limitations, and some limited successes have been seen. But for various reasons, it has proven difficult to transfer concepts from market to market as well as from one device to the other.

Why should we then bother about Mobile Internet services when they are not even used as much as expected? The Mobile Internet is, or will be, the primary access to the Internet for most people as mobile phones far outnumber PCs. Today there are about 3.5 billion mobiles, as compared to about 1 billion PCs. This relationship is not expected to change very much but more mobiles are gradually becoming Internet enabled, data speeds are increasing, and services are becoming more affordable. To really reach the full potential of the Internet, also for less developed countries, it is of great importance that Mobile Internet achieves mass adoption.

This paper will focus on a new type of software to overcome critical barriers to the use of Internet over the mobile, the concept is denoted Universal Mobile Interface, UMI. The UMI has some unique characteristics which enable a potential to become truly viral, especially as it is applied independently of operator and device. The UMI acts as a personal mobile Internet browser, but also includes features such as messaging and contacts.

## Limitations and barriers to usage of Mobile Internet services

In many aspects Mobile Internet has not met its high expectations. For most mobile phone users, only messaging is used besides basic voice services. However, the need to get information services when on the move is undoubtedly there. It is also known that usage of different services is quite dependent on device type and model. The reason for limited usage is, however, more complex than that. Compared to the PC, the mobile has a number of advantages and disadvantages. It is crucial to acknowledge these differences to understand why successful Internet services do not gain significant penetration within the mobile arena. The main advantages of the mobile compared to the PC are that it is a much more personal device, is always accompanying the user and it is always on. These three characteristics alone make the mobile extremely valuable to the end user and the mobile also thereby holds the potential to become the primary personal window to the Internet. Compared to the PC there are unfortunately also some disadvantages or barriers to overcome or manage. There are physical limitations that will remain: the mobile screen will always be small and the mobile does not have a full size keyboard, if any. In addition, there are other limitations that may not be as obvious but still limit Mobile Internet usage and value. As opposed to the PC environment, there are a number of different operating systems, different versions of enabling software such as Java etc., which makes it extremely complex to distribute content and applications across countries, devices and operators. Since the mobile is slower and more complex to handle, it is also harder to switch between different applications. Limited memory and bandwidth reduce the capacity to run many applications in parallel.

Business strategies of operators may also create barriers to increased usage and take up. The price of data traffic has been a major barrier, but more and more flat rate offers are being introduced. Expensive or complex roaming data pricing is still a major issue for travellers. This issue is currently in focus for various regulatory bodies, and will hopefully be addressed proactively by the operators before regulated pricing is needed. Aside from pricing constraints, operators often run so called “walled garden” approaches for value added mobile services, as premium services represent a significant revenue potential for the operators. This restricts the end user from freely exploring the Mobile Internet. Another barrier has been that phone settings are often not correct, and have not been possible to monitor and manage remotely. Today, more and more settings are preinstalled and Mobile Device Management solutions are being introduced to give operators the possibility to control and install correct settings “over the air”.

Content providers have mainly been limited to two approaches for mobile distribution due to the content strategies of mobile operators. Firstly, gaining visibility through operator portals at a significant cost for the premium services, or secondly they can run off-portal (off-deck) services where they have to market the services independently. In both cases, the services are most often in WAP format and have to be produced in many versions to fit all phones and operators. In the latter option, the end user usually needs to type in a URL manually. End users very seldom have the patience or knowledge to type in a URL, and bookmarks are typically lost when they change phones. One alternative is to browse the ordinary Internet web sites. This typically provides a very poor user experience, and is really just an option for very high-end terminals. Ordinary Internet sites are very heavy in data and it may become quite costly for the end user to browse over the mobile network.

### **Strategies to overcome barriers**

The above limitations are well known to the industry and two types of approaches have emerged to safeguard a good user experience:

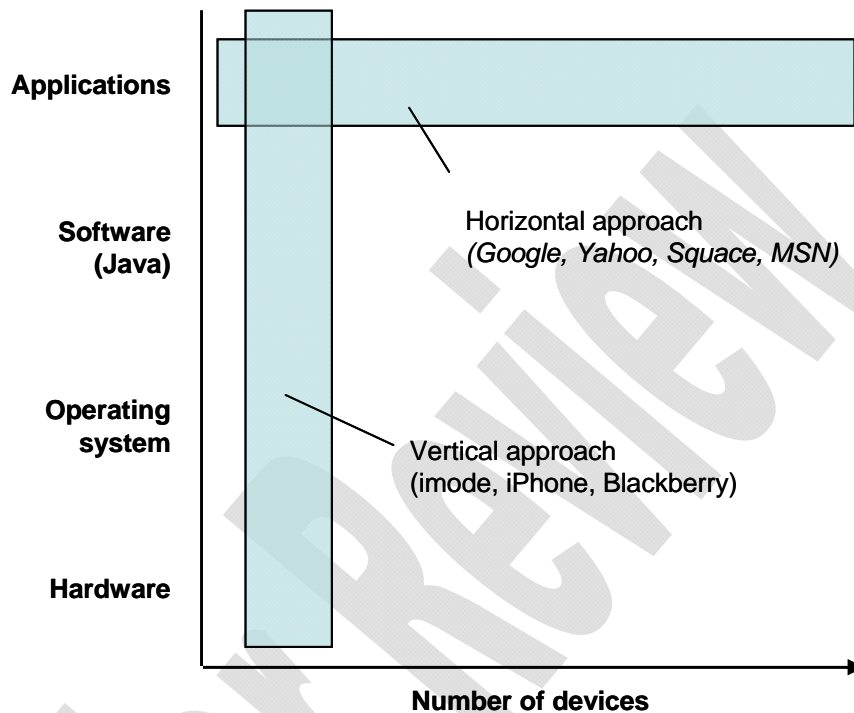
*i) Take full control of hardware, OS and applications – vertical approach*

The user experience and quality is safeguarded by building and optimising the services for one OS/hardware and by applying strict rules on application/content formats. In this way one player ensures that all components are compatible. Special solutions can be implemented to guarantee quality, speed and graphics. This approach has been utilised by both operators and device manufacturers. Three examples are imode (NTT DoCoMo), Blackberry (RIM) and iPhone (Apple). Critical success factors for managing this strategy are: having appealing hardware; being a strong and sufficiently large player; overcoming barriers for content providers by guaranteeing volume; and building a simple working partner ecosystem. NTT DoCoMo achieved very early success with imode but mainly limited to Japan. RIM focused on the need for e-mail services for enterprises, and the Apple iPhone has recently shown the power of this strategy.

*ii) Service/browser independent of hardware, OS and operators – horizontal approach*

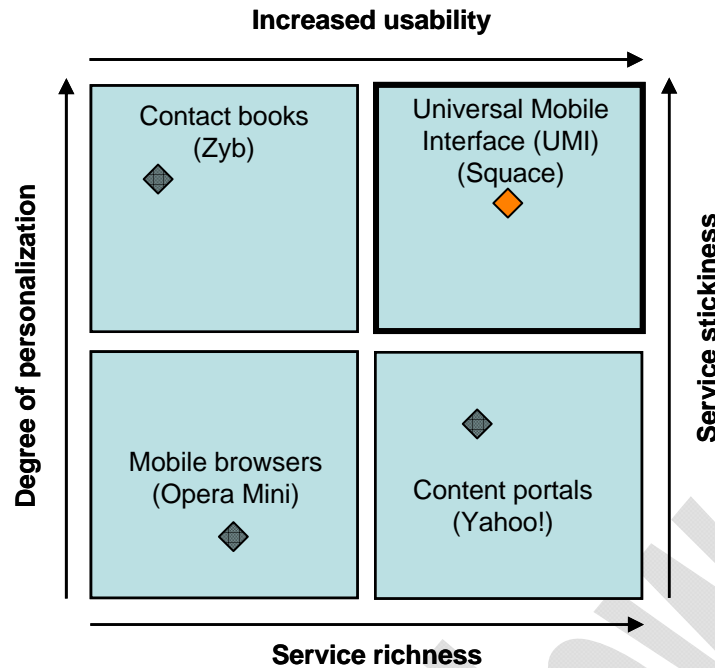
Another alternative is a customer-centric “over the top” approach. This approach cannot, in the short run, give the same ease-of-use and user experience as the vertical approach but has other advantages that may result in more universal success. In this case, the barriers are overcome by adding a server-based

application on top of existing phone systems utilising the mobile as a remote window (light client) to server-based mobile-optimised services. The approach thereby becomes customer-centric, giving the same user experience when moving from one handset to the other and also when changing operator. In this category we have services such as Opera Mini, Plusmo, Widsets, and Squace. Critical success factors for this approach are that the client has to be working on most OS and phones; services have to be appealing and easy to use; barriers to get started have to be eliminated or minimized; strong incentives for content providers to join/support are available; and viral distribution should be possible.



*Vertical versus horizontal approach*

Both strategies work and will co-exist. The first will be limited to hardware penetration and/or operator footprint. The second approach has no real limitations and will eventually reach much higher penetration. Different categories of horizontal approaches are graphically illustrated below, and can be compared by their degree of personalisation and service richness. In the upper right hand position we find the UMI which combines a very personal set of data (your contacts etc.) with a rich service portfolio (browsing, messaging etc.). The stickiness of the services increases with personalisation, and usability with the richness of services aligned and included. The UMI approach thereby holds a much higher potential to create substantial end user value compared to other horizontal concepts.



*Categorisation of horizontal approaches*

Existing walled garden operator strategies will decrease in importance. The Mobile Internet portals of operators have been very important to demonstrate the potential of the Mobile Internet but have, in many cases, been executed poorly. Operators primarily aim to maximise the short-term profits from premium services and their own services, and use these services to lock customers in. They thereby limit the freedom of, and value for, the mobile subscriber and will see decreased usage as soon as good alternatives are made available.

### **The UMI Concept**

The end user does not wish to have services and content linked to a specific operator or hardware, but may accept this as long as there are no alternatives. There is a need for operator and device-independent alternatives that allow end users to access their personal data, such as contacts and messages.

The core of the UMI concept is based on overcoming key barriers to unleash the true potential of Mobile Internet services. By running server-based services “over the top”, the end user always has access to personal content and data irrespective of operator or device. Their willingness to create a personalised web interface, store contacts, etc will thereby increase significantly. In addition, operator and device-independent services also make it possible to share the UMI software itself, as along with the services, further increasing the value for all users exponentially. By having many services interlinked through the same user interface, the problem of utilising data across applications and running parallel programmes is overcome. For instance, sharing data, a link or a contact becomes quite simple as all the data needed is available through the server and without any need to jump in between programmes on the mobile. As all Internet links are available through the server, there is no need to type in URLs - the specific link (represented graphically in the UI) can be clicked on directly. Any link is easily saved and shared.

The UMI concept will become a very important distribution channel for content providers big and small. As there is no need to bother about device models and/or operators, the content can reach a very wide audience. As it becomes very easy and cost efficient to distribute content, even small content providers and individual users will now be able to display content to tiny audiences. The capability to share everything provides potential for truly viral distribution. Peer-to-peer interaction is critical to mass market appeal, and has not been prevalent in the mobile space. The importance of the viral effect to the success of the Mobile Internet cannot be emphasised enough. The UMI concept will catalyze the creation of long-tail mobile content and usage.

Just imaging what the Internet would look if content providers needed to make deals with each Internet service provider, and needed to adjust their service for every model of PC. This is, however, the existing situation for Mobile Internet services and is clearly not sustainable. Should we then wait for the device manufacturers to agree on a common OS? No, this is not likely to happen as most of them think they have more to lose than win with such a set up. But should we then not just ensure that mobile phones have good Internet browsers? Since mobiles do not have a good keyboard, more than an ordinary browser is needed. It has to be a browser with no typing needed and with functionality such as “click-to-call” enabled. A combination of pages specifically made for the mobile along with slightly altered ordinary web pages is needed.

To become a trustworthy UMI platform provider there cannot be any hidden agendas, such as additional sales of hardware or operator lock-in. The present actors, such as operators, device manufacturers or OS providers and Internet application providers, all have strategic challenges to fit this space. It can be expected that UMI providers initially are new actors on the market.

<input type="checkbox"/> Operator independent	<input type="checkbox"/> Graphically adjusted to a small screen
<input type="checkbox"/> Devices independent	<input type="checkbox"/> No typing of URL needed
<input type="checkbox"/> Full personalization of internet link collection	<input type="checkbox"/> Can act as the main Internet services interface
<input type="checkbox"/> All Internet available	<input type="checkbox"/> Viral distribution capabilities
<input type="checkbox"/> Including and integrated to Contact Book	<input type="checkbox"/> Simple down loading
<input type="checkbox"/> Including and integrated to messaging	<input type="checkbox"/> Freeware
<input type="checkbox"/> Possibility to import contacts and mail from other applications	<input type="checkbox"/> Very easy to create and distribute content
<input type="checkbox"/> Universal payment solution	<input type="checkbox"/> Support content provider business models

*Checklist for UMI concepts*

With the increase in UMI penetration, end users are taking control over the Mobile Internet and will become less dependent on mobile operators and device manufacturers. A truly viral version of a UMI has the potential to spread quickly. Being universal in nature, it can probably become the general interface for the Internet over the mobile phone for quite some time.

The UMI has the potential to be the primary window towards the Internet “owned” by the end user. When this is the case, the UMI will hold a very strong position and churn from the UMI will be quite low. As the UMI is operator and device-independent, the addressable market is huge and is equivalent to the installed base of Internet-enabled mobile phones (today estimated to be about 2 billion and growing). Since this also allows services run over the UMI, as well as the UMI itself, to be virally distributed, there is potential to quickly gain significant global penetration. This, however, demands that the UMI software is distributed as a freeware. General mobile Internet browsers do not hold the same potential as they lack personal content such as contacts. A truly viral UMI will be able to grow as fast as some Internet-based services distributed over the PC such as Youtube and Facebook, reaching millions of end users in 12-24 months.

When significant penetration is reached, the UMI will act as a very important tool for general distribution of content over the mobile Internet. As a strong content and mobile services platform it will provide opportunities for significant advertising-driven revenue streams attached to it.