November 2001

Open Mobile Architecture

Key Enabler to Stimulate Growth

How will we ensure that new exciting 2.5G and 3G handsets include features which allow seamless and innovative consumer services, and increase revenues, too? The answer lies in software: it has become a key enabler for leveraging the huge opportunities new technologies bring.

The definition and role of the mobile phone is changing. As new, sophisticated hardware with color displays, increased memory, multimedia and high-speed packet communication capabilities are being developed, software has become a key element in these terminals, enabling innovative services and attractive revenues. Correspondingly, mobile operators are increasingly dependent on the state-of-the-art server solutions in their infrastructure. What's more, software is providing a means to steer the development and business models of the whole mobile communications industry.

At the same time, the structure of the mobile communications business is changing. In fact, we have reached the point where the value of the total end-to-end business is growing faster than subscriber growth. Demand for attractive features and services, such as personalized ring tones, games, graphics and multimedia messaging service, MMS, is increasing quickly. According to a recent study from the HPI Research Group, 77 per cent of all mobile phone users surveyed already send messages and showed a strong need for services that offer functional improvements to messaging. This translates into more than 500 million people worldwide, from every age group, already using messaging.

Thirdly, consumers expect to have a choice and receive value for their money. They want unlimited access to the entire mobile Internet and to all service offerings, no matter which mobile device they carry, who is their operator, in which country they happen to be roaming, and which server the website they need is located on. This desire must be met in order to stimulate the overall innovation and growth of the industry.

These are the reasons why Nokia and numerous other industry leaders have decided to join forces and announce their support for the open mobile architecture.

A solid path to success

With new opportunities come some major challenges to the industry's logic and key success factors. This is a game which will have implications not only for mobile phone vendors but for all players in the value chain – from operators to IT companies, and developers to consumers.

In order to prevent the fragmentation of services, control of the mobile internet must not be conceded to any one company. On the contrary, the only way to ensure that the concept of personalized communications works universally for one billion plus users in any network environment and with any type of access, is to have open standards and seamless interoperability in the industry.

In an open ecosystem, all parties will benefit. As all rivals have an equal starting point, there is room for innovation and true state-of-the-art offerings. Differentiation will be based on smart design, a strong brand, enhanced services, and the ability to listen to the consumer's needs. An open environment welcomes true competition, where the best companies will win and the user will get the best possible services and products.

In the field of open technologies, there is already a fantastic success story in place: GSM. The breakthrough of GSM is to a great extent an outcome of competition within a common and openly agreed framework. Today, GSM is present in more than 171 countries and 700 networks. It provides

November 2001

good economies of scale to all players in the industry, but most importantly, brings the best benefit to the customer through the widest selection of handsets and competitive tariffs.

It is of the utmost importance that the industry retains this momentum in the future. The so called middleware software, which enables connectivity in the mobile terminal, will play a crucial role here. A balanced environment will be achieved through an open approach in which this middleware software is licensed as source code, openly and on equal terms to all companies participating in the open mobile architecture effort. At Nokia, the initiative is hosted by the Mobile Software unit, a new entity which Nokia has established to fully leverage the emerging opportunities in the industry.

Benefits for all players

The open mobile architecture is a broad industry movement, bringing together the leaders in telecommunications infrastructure and terminals manufacturing, operators, developers of server software as well as the makers of hardware. It will enable the take-off of non-fragmented mobile services in a balanced business ecosystem, which establishes beneficial positions for all players in the existing and emerging value chains.

For operators, the open mobile architecture enables a uniform and interoperable service environment, allowing them to truly differentiate their service offering, and at the same time enjoy a multiple vendor environment in infrastructure and terminals:

- The open mobile architecture offers the operators the best-of-breed networks and services platforms to support fast and easy introduction of new features and capabilities globally.
- The open mobile architecture enables them to develop new business models and a value added strategy for mobile services
- The open mobile architecture helps them create new revenue streams from services based on proven business models.
- Operators will become the preferred providers for personal identity, preferences, and storage for user created content.
- Through shared open technology components, the operators will not necessarily have to commit to a single technology provider.

Additionally, the open mobile architecture will provide infrastructure suppliers, IT companies, content providers and developers with open API's, tools & community support through developer outreach efforts, for example Forum Nokia. These parties will not need to invest in tailoring solutions for various, unstandardized middleware platforms in order to ensure that the services would function in different devices and different operator networks. For terminal manufacturers, the initiative offers a clear value proposition, helping them to leverage leading middleware solutions and platforms, which accumulate value to the terminal.

Key elements

A lot of components in the middleware area need to be standardized through an open process to prevent services from fragmenting as a result of individual proprietary service platform implementations. Open standards and interfaces allow the whole industry the chance to bring their own strengths to the fore, and thus to the benefit of the consumer. By working together, the industry can offer highly personalized services that are genuinely useful and user-friendly, and ensure the growth of critical mass. In creating the services, the following components will play a strategic role:

- **Open application development environment:** Consistency and openly shared interfaces and development tools; Java, MMS, WAP2.0/XHTML, Bluetooth, Symbian OS.

November 2001

- **Open terminal-network and client-server interfaces:** Open standards based connectivity middleware; MMS, SMS, EMS, DRM, SyncML, etc.
- **Open terminal architecture:** Open APIs for interoperable services; XHTML, Java, MMS, Authentication, etc.
- **Open service platform architecture**: Open modular intelligent service delivery platform allowing multivendor interoperability support; XHTML, Java^{TM} technology.

Today, the mobile phone is the centerpiece of complete personal connectivity between people, services, devices, applications, organizations and locations. Tomorrow, it will also be the main application and service platform, providing an increasingly rich and consistent user experience for the customer. Furthermore, open user interfaces and software platforms create economies of scale for developers and manufacturers, resulting in a large unified application market that in turn will increase the adoption of new mobile services.