

Applications Running on Mobile Devices

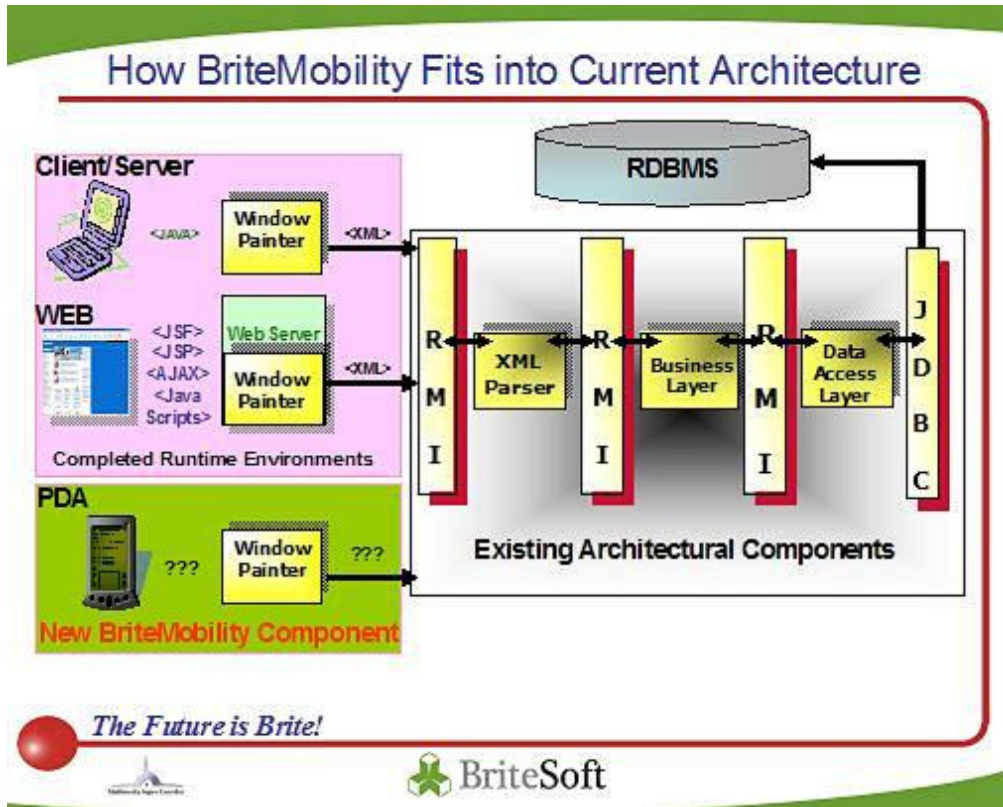
Applications developed using BriteWorks™ used to only be deployable on the desktop (client/server) and a browser (web based). With BriteMobility, users will be able to deploy their applications on PDAs and other mobile devices without having to write additional code or do anything further with the application. This is imperative as today's businesses almost invariably have to rely on such mobility.



Although it is currently possible to run web based applications on mobile devices with browsers such as opera, application pages would not be suitable for small display areas. As such, users would have to perpetually scroll down and across in order to see an entire page properly. Furthermore, the controls (components) used for client server and web applications are not typically suitable for mobile devices as they are both heavy duty and assume abundant space is available. Lastly, these applications would not be available offline when connectivity is limited or unavailable.

With BriteMobility, applications designed in BriteWorks™ Studio would automatically be adjusted to the appropriate display of the mobile device. Just like with Web and Client Server implementations, as soon as an application is designed in the Studio, it would immediately be executable on a mobile device in the appropriate format. There are two modes in which applications work in BriteMobility – online and offline. Online requires a connection to the server, either through wireless or GPRS. Offline is required at the present time as constant connectivity through GPRS is fairly expensive, so users will likely want to work offline and be able to synchronize data between the mobile device and the main server or database once connected. A clear application of this is when a stock check is being done in a warehouse and where connectivity is limited, the user can simply enter details into the mobile device and upon

connection, upload all the new entries to the master database. The following diagram depicts how BriteMobility fits into the BriteWorks™ architecture.



As can be seen, the core of the product remains unchanged, but the rendering aspects, or the portions that deliver the data and interfaces to the client device make up the new BriteMobility components. BriteSoft™ has already gone through one such iteration when the product moved from Client Server only to also support Web applications.

Needless to say, there has been a great deal of R&D involved in ensuring an application can run on various mobile devices with different operating environments such as Windows Mobile, Symbian, J2ME, Midlets etc. Others include extensive studies on working in off-line mode, synchronization of data between devices and servers, performance optimization, caching etc.

Here's a **brief excerpt** of how the development process works using BriteWorks™:

1. Using a drag & drop and fill-in-the-blanks paradigm, application components are developed in the usual way in BriteWorks™. Please refer to www.britesoftcorp.com for further details.
2. As usual, these application elements work immediately in Web and Client / Server mode, but now also on Mobile Devices. The environments are as follows:
 - a. **Web** – JSF and AJAX (Web 2.0 / RIA – Rich Internet Application)
 - b. **Client Server**
 - Server runs on Windows, Linux, Unix, Solaris, AIS etc. - any JVM environment.
 - These modules are written or run under Java, JDBC, JRE, J2SE, J2EE.
 - c. **Mobile – J2ME / Midlets**
3. Decide whether applications should be run **online** or **offline**
 - a. **Online** – simply connect to the server using the appropriate IP address and connection string. No further work is required. Your application will simply run on the mobile device and all screens will be adjusted accordingly. The assumption is that the BriteWorks™ Mobile Runner has been installed once, along with a Midlet Manager / J2ME etc. and thereafter, only connection parameters are required to connect to any application.
 - b. **Offline** – a translation and installation process is required. Since the application will run under the Mobile Framework, it has to be translated from the Studio and installed onto the mobile device. The result is that it will look and behave in a similar manner to the desktop and web frameworks but running on a mobile device with the corresponding limitations. The Mobile Framework would have to be installed once on the device and thereafter, only the application is installed. It should be noted that offline applications again have two modes, with or without synchronization:

- i. **With Synchronization** – in this mode, application require some sort of synchronization with a server database. The updates to and from the server can be as frequent as the application requires it to be. Some applications such as Exchange Rates and Weather updates may require daily updates, whilst other application may only require periodic updates. Some, on the other hand, require updates upon connection or manual prompting. Application parameters facilitate the type of data, frequency and triggering of data synchronization as we what should happen to the data already on the mobile device.
 - ii. **Without Synchronization** – in this mode, applications can simply sit on the mobile device performing a constant task that does not required data updates to a server. The data is persistent on the mobile device and no linkage is provided to any server for synchronization. Examples of such applications are Image Galleries, Personal Information etc.
4. Changes to the application can be made in the usual manner; BriteWorks™ Studio is used to change application elements using drag and drop. For online, no further action is required – applications will automatically detect the changes on the mobile. For offline, another translation and installation would be required, however, only changed elements need to be translated and installed.
5. Runtime Parameters such as security, auditing, synchronization etc. can be set by the developer.

As stated above, this is only an excerpt of the development process. The entire process includes requirements gathering, data and process modeling, User Interface Design, Business Rules Definition etc.

BriteMobility continues the tradition of BriteWorks™ which eliminates the need to do any coding and allows customers to develop applications better, cheaper, faster.