

Enterprise Mobile Solutions

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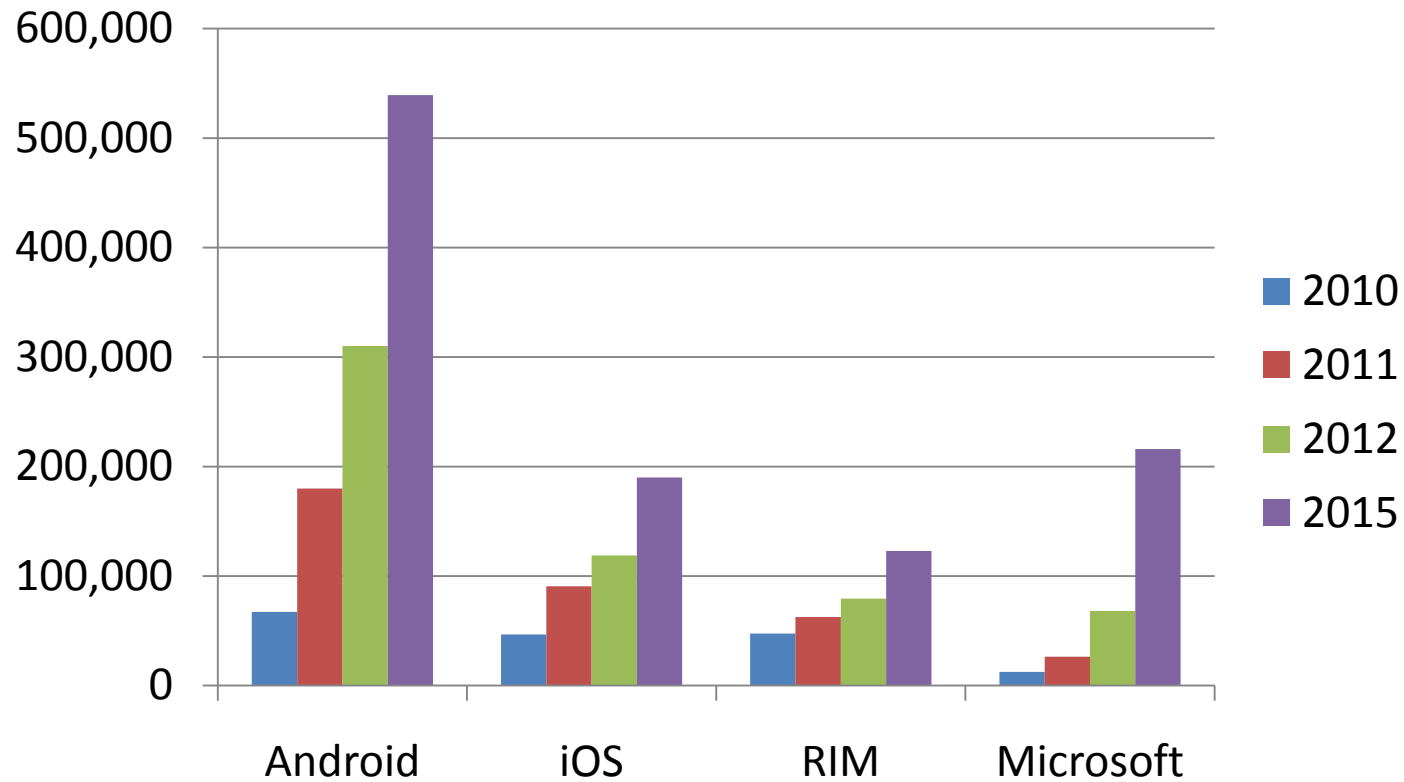
Mobile Solutions enable organizations to

- Deliver valuable enterprise data to various devices
- Mobilize its workforce
- Increase productivity
- Increase sales
- Improve Customer service
- Integrate diverse systems so that valuable data can be viewed on a common platform

Mobile Solutions

- Native Apps
- Mobile optimized solutions
- SMS integration

Market Share

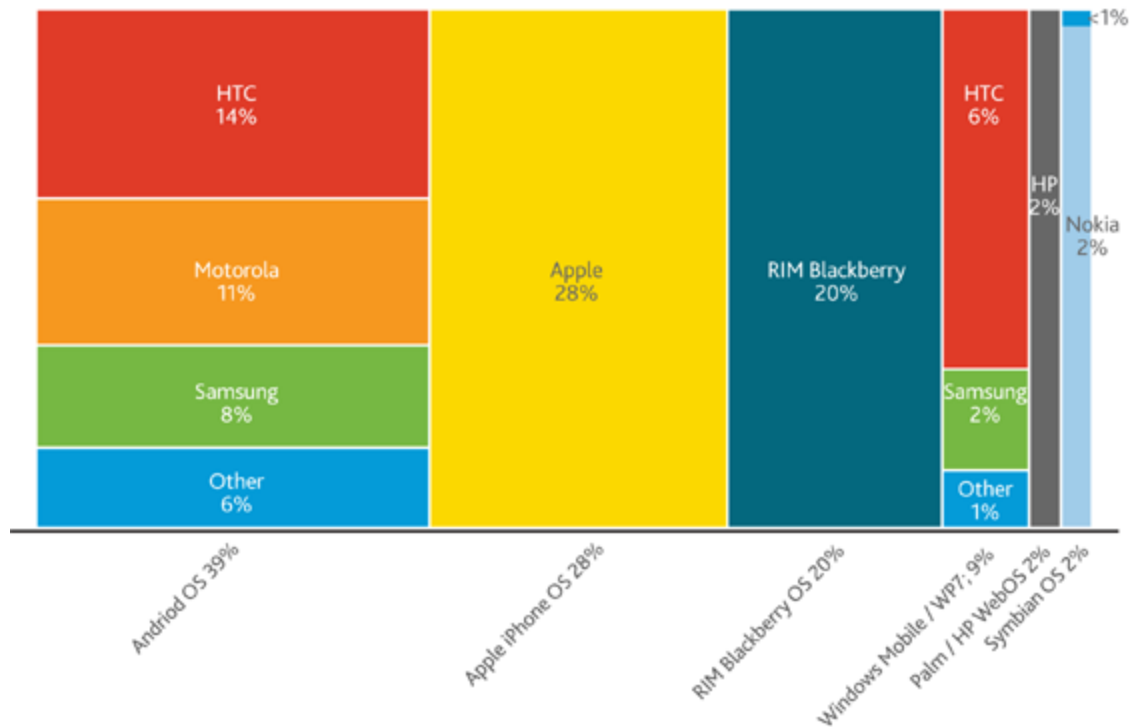


GARTNER: Sales to end users (X Thousands of units)

Market Share

Manufacturer operating system share-smartphones

Q2 '11; postpaid mobile subscribers, n=20,202



Source: Nielsen



Is your Organization ready for Mobile Solutions?

- How much is your organization willing to spend to enable mobile solutions?
- Who are your users?
- What is your security strategy?
- What kind of enterprise applications are deployed in your organization?
 - CRM, ERP,SFA, Accounting Systems, etc

Other Factors:

- Availability of mobile carrier plan in your area – 3G, edge or Wi-Fi?
- Type of devices owned by your organization
- Coverage area for your mobile user base
- Bandwidth
- Memory and CPU Availability
- Storage Capacity
- Connectivity Options and Issues
- Security
- User Interaction and Display

Mobile Solutions powered by Web Service

- Easy and efficient integration with Enterprise architecture, extensible to other software.
- Easy but secure authentication and authorization for both the consumer and application.
- Platform independent, scalable and can be updated easily.
- Additional Mobile Platforms and applications can be integrated easily due to Web Services.

Advantages

- Allows for single consolidated call from mobile devices, which means better performance.
- Platform Development becomes easier, independent, standardized and scalable.
- Allows extension of Enterprise Applications to Mobile Devices easy.
- Ability to blend results from Multiple API Sources.
- Can cater Native apps and mobile optimized web applications.

XML or JSON

Network Transmission time, number of bytes transferred should be low, meta data should be saved on local and server latency should be kept low.

JSON (Javascript Object Notation)

- Key: Value pair concept , A data-interchange format, Lower overhead
- A means to encode JavaScript objects as strings.
- More economical than XML in terms of data size, at the expense of readability.
 - Example : Twitter API

```
[{"firstname":"Steve","lastname":"Jobs","age":"56"},  
{"firstname":"Larry","lastname":"Page","age":"32"}]
```

XML

- Self describing, more work to Parse
- XML is heavier then JSON when managing data
- Parsers
 - SAX(Sequential Access Parser) – notification while the XML tree is being parsed, have to keep track of state and construct objects on the fly
 - DOM (Document Object Model) – reads entire document, can query for different elements in memory

Key Considerations

- Thorough review and documentation of back end enterprise architecture.
- Decide on the type of mobile app platforms before designing the web service.
- Decide if the same functionality can be provided over mobile optimized web.
- Consider network bandwidth - 3G,Edge,Wifi, etc (Offline?)
- Segment functionality / calls to prevent issues
- Polling
 - Identify and Create subset calls / functionality when on slower bandwidth
 - Use notifications wherever possible
 - Modify polling interval based on need
- Recover from intermittent or lost connections
- Identify and Decrease returns for XML with large data sets and repetitive XML sections especially with mobile devices given:
 - Communication challenges
 - Memory and processing limitations
- Minimize large data sets:
 - Request for only those elements that are required
 - Request for only those items that are required
 - Store locally instead of requesting the same data wherever possible

Other Solutions

- Plan and strategize if you can provide the same features (as the native enterprise app) on Mobile optimized sites as well.
 - Latest design tools (HTML5 and CSS3 in Dreamweaver CS5.5) create HTML/CSS version for Mobile websites as well
- Use SMS features wherever possible in your Mobile Solutions strategy.
- Use Analytics solutions to track user behavior, the data gathered can be used for better strategy.
- For consumer facing enterprise apps, integrate with social media to review user behavior, market right products based on user behavior.
- Plan and have a data analytics solution for the data gathered by your enterprise applications and enterprise mobile apps.
- Use QR codes / MS Tags wherever possible in your marketing strategy. QR codes are more popular and are successfully used for marketing campaigns.
 - Create and Personalize unique QR codes, gather and track users data
- Plan and design solutions for Tablet's as well.
- Mobile Cloud Computing – Are we there yet?

Security

- Local Authentication
 - Does your application work offline mode?
 - User/Password Authentication
 - Use of Device ID or custom identification methodology.
- Server Side Authentication
 - Validation of request from the source
 - Check if the credentials are valid
- Using SSL
 - Encrypting and Transmission of confidential data over secure channel
- Offline Vs Online
 - What type of data can be saved
 - Delete local data when its not useful
 - Ensure mobile strategy operates under the guidelines of corporate security policy.

Our Services

- Mobile Solutions
- Data Analytics
- Custom Web Development
- ERP/CRM
- Campaign Management
- Print On Demand Systems
- Consulting
- Corporate Training
- Logistic Services

Thank You

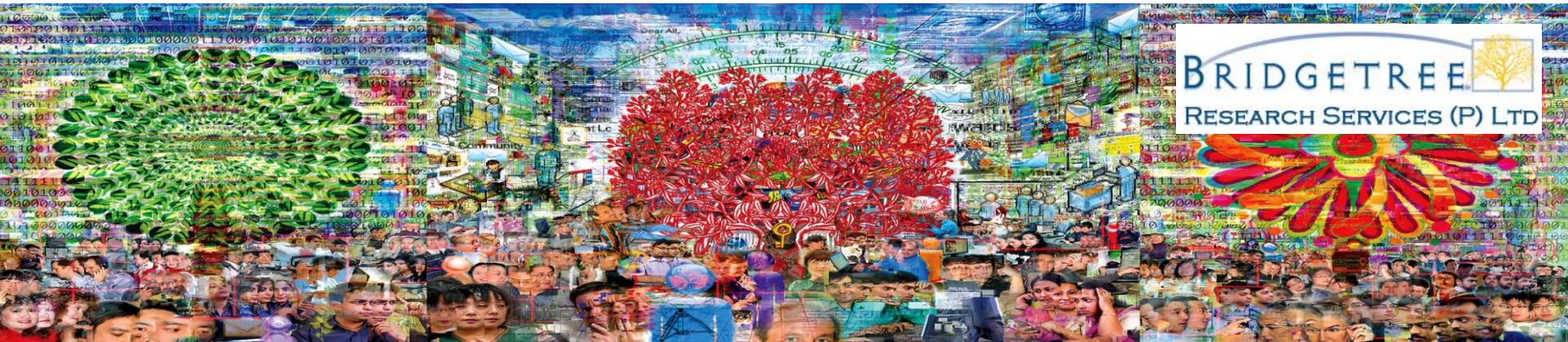
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