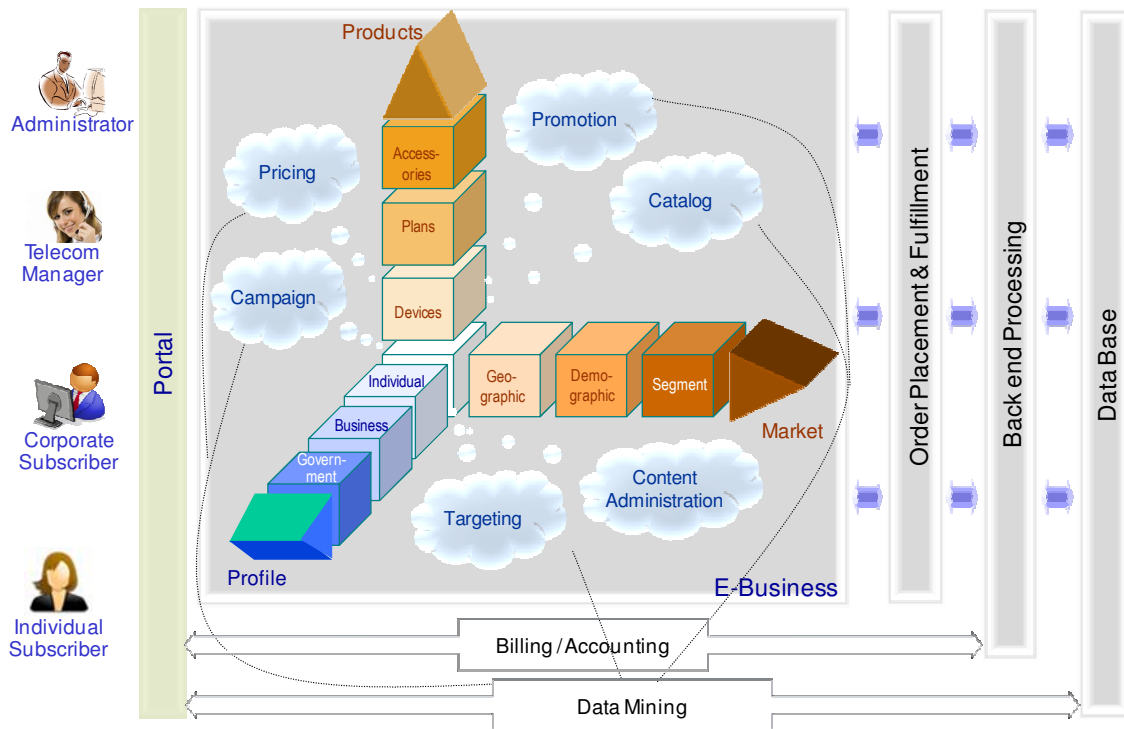


White Paper on the Wireless Market

The Wireless Service Provider industry is an avid user of ecommerce. The power of e-commerce is leveraged for increasingly innovative ways to market, cross-sell, up-sell, targeted campaigns, promotions and pricing based on sliced and diced market segments. The quality of user experience and personalization options provided gives one the competitive edge. The wireless service scenario is captured succinctly in the diagram below:



The ecommerce depiction is shown in three dimensions, for purposes of simplicity, though additional dimensions may be required to more accurately depict the current scenario. But basically the market realities are reflected in the multiplicity of products, complex market segmentation, and varying customer profiles. In this scenario, we have to provide for a highly flexible marketing capability that allows quick adjustment to market parameters and nimbleness in responding to changing market realities.

The orders captured in the commerce space are sent for fulfillment and for initiating ongoing services like usage assessment and billing. Fulfillment again will be complex as it has to address the complex pricing and promotion rules, based on which orders have been accepted.

Industry Trends

Mobile Commerce. The growth of smart phones has spurred the demand for consumption of media, entertainment, video, messaging, and music. There have been significant developments in digital content with particular emphasis on downloadable games, ring-tones, music, video and

TV services. Mobile Commerce includes Mobile Apps, Creative Content, Location-Based Services and Mobile Ads. For all such commerce transactions carried out through the mobile phone, there would be issues relating to licensing, copyright, distribution fulfillment logistics and settlement that have to be addressed.

Mobile Apps - The app platform, an offering by major cell phone makers today, is experiencing an exponential growth. This platform has created a billion dollar business for Apple Inc. through its App Store. The app platform is now closely tied to the cell phone manufacturers and is tethered to installable desktop application. In the case of Android alone, the mobile app store is owned by Google, who supplies the operating system and not the device itself. The market for application is exploding and in the foreseeable future, mobile apps could be offered by third party merchants instead of being tightly tied to device manufacturers, as is the case today.

Location-Based Services – These include GPS Services and location-based notification services. These services are mostly subscription based.

Mobile Ads – Mobile Ads is a fast growing business trend and includes geo-targeting and targeting based on profile preferences. Mobile campaign is becoming increasingly popular for certain market segments, related to entertainment.

Mobile Networking - Much like web based social networking, mobile social networking occurs in virtual communities. Many popular Internet social networking websites such as MySpace and Facebook have turned mobile. Interactions within mobile social networks are not limited to exchanging simple one-on-one text messages (SMS) but are evolving towards sophisticated interactions of Internet virtual communities.

Micropayment – Mobile commerce calls for one-time payments, or continued subscriptions. The one-time payments could be done through credit card, ACH, stored value card, pre-paid card etc., using a payment gateway or the amount could be consolidated with the monthly usage bill, which calls for integrating the transaction with the user profile. Each such transaction will lead to one or more back-end transactions calling for complex fulfillment logistics, settlement issues and disclosure compliance, thereby touching all ends of the business spectrum.

Special Service Bundles – An example of such a bundle could be netbooks bundled with wireless internet plans. Here the netbook, typically valued at \$300 to \$400 is offered at a subsidized price of say \$90 to \$100, on subscribing for a two-year wireless-internet plan. This brings in a fresh customer, who started the buy initiative with focus on netbook purchase and not on availing wireless services.

Critical Success Factors

Some of the critical success factors of a wireless service provider are discussed below:

Time to Market - In such a dynamic market environment, initiatives must necessarily have a short time-to-market span, since obsolescence is quick.

User Experience – User experience has to be personalized based on feedback and preferences, which have been gleaned from customer behavior data. Personalization provides immense opportunities for cross-sell and up-sell.

Dynamic Cataloging & Pricing – With Mobile Commerce being a significant part of the mobile experience, cataloging becomes a major issue. Some critical success factors are the ability to cater to multiple content sources and formats, quick turnaround of changes and adoption of flexible pricing models.

Promotions and Campaigns – The market place dynamics calls for the ability to create complex promotions and multi-channel targeted campaigns on the fly.

Robust Fulfillment Systems – With all the commerce complexities of multiple sourcing, digital rights management (licensing issues), distribution, logistics, subscription billing etc., the need for a robust fulfillment platform cannot be overstressed.

Exception Handling – Oftentimes, corruptions could take place in digital delivery due to a variety of reasons, including network failure. Such exceptions could result in refund processes, repeat delivery and dispute management. Exceptions should be handled with care, to ensure that customers do not experience dissatisfaction.

Co-Branding – Besides corporate customers, who require co-branding, there are agents, principals and partners, who may all require this feature. The capability to provide this feature on demand will be essential

Cross Channel Consistency – The mobile channel should provide seamless continuance to user experience, irrespective of the genesis of the transaction. E.g. A reader could bookmark a page in Kindle, and would like to find the bookmark, when he accesses the book on his mobile device.

Technology – All the above industry trends and critical success factors cry out for a robust technology platform and architecture that provides the foundation for dynamism, flexibility and extreme agility. The technology platform should enable seamless integration of the mobile platform with back-end systems, third party service providers, partners or vendors.

Measuring Success

Some of the popular metrics that could help measure success are discussed below:

Average Revenue Per User (ARPU) – This is a standard metrics for wireless. Besides the revenues from billable air time, this metrics could also include revenues from other avenues like Mobile Commerce.

Reduce Aborted Order – Aborted orders are both a metric to indicate web site efficacy as well as a potential marketing target, which could offer better mileage than a pure cold prospect.

Business Empowerment– This could be the most significant critical success factor, which allows business to respond with agility to market changes, demands and trends.

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Customer Churn – This indicator provides the net change in customer count, i.e. customers inducted less customers exited.

Order Fulfillment Turnaround – This metrics clarifies the average cycle time of fulfillment is a measure of efficiency of our fulfillment platform. The metrics could provide causal inputs for customer dissatisfaction and is hence, an important metric

Technology as Enabler

The fundamental requirement is an effective and robust sell-side commerce platform, which can provide the essential commerce foundation, on which complex user-centric services can be built. The commerce platform should provide for flexibility, capability for envisioning scenarios, personalization, generating targeted campaigns, promotions, audio-visual content administration, and order capturing and fulfillment. There are a number of platforms in the marketplace today, such as IBM WebSphere Commerce, BroadVision, ATG, Microsoft ElasticPath etc. Gartner's magic quadrant for the wireless space is provided below for reference.

In our assessment, ATG is a highly competent platform. It has a powerful scenario builder, which is accompanied by a friendly graphic interface. The platform itself can be configured quickly to meet the requirements of any retail marketing situation. ATG also has a robust order fulfillment engine and offers its own data access services. ATG provides a business control center, which is simple to operate and can be used to change most of the important commerce parameters with ease.

ATG typically offers multiple options to address different situations and the real implementation skill lies in the ability to choose the right options. Though the platform is flexible, a Telco implementation has to accommodate the special nuances and eccentricities of this market place. So in the interest of speedy time-to-market, we recommend use of a wireless-centric solution, built on top of ATG. The solution should embed the wireless concepts, business rules, creation of industry-pertinent groupings etc.

Object Edge Wireless Enablement Solution

Object Edge has built a number of business components over the ATG platform for the wireless industry. These components provide out-of-the-box functionality on a number of business issues, such as pricing, promotion, campaign, catalog etc. The platform provides the following main advantages:

- Time-to-market – In a typical scenario, we assess that the time-to-market can be reduced anywhere by as much as 60% to 70%
- Best-of-breed Practices – Object Edge wireless solution embeds best-of-breed practices that are proven to deliver business value
- Architectural Robustness – Object Edge wireless solution is built over a well-architected foundation and has been acclaimed by both ATG and customers as an excellent ATG implementation for the wireless space

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- Professional Services – Object Edge provides professional services to support wireless implementation. Object Edge has excellent domain understanding and can work with you to speedily implement its solution, while leveraging it to maximum advantage.

The business component architecture of Object Edge wireless solution is provided in the diagram below;

