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WGR Presents:

Mobile Entertainment analyst

In-depth coverage of the wireless entertainment business

Mobile Entertainment Pricing Schemes:

A Trot Around the Globe

by Adam Guy

Mobile entertainment applications represent a unique pricing puzzle for wireless carriers and content developers. Entertainment applications are discretionary by nature, yet the most compelling services can be absorbing, even addictive. As a result, carriers tend to price simple entertainment applications conservatively — sometimes offering them for free — so that the mass market will sample them. Then carriers charge premium fees for the more sophisticated applications to capitalize on the few hardcore entertainment addicts. This trade-off makes developing pricing schemes akin to trolling for minnows and simultaneously spearing a sperm whale.

Mobile Entertainment Pricing Schemes

Recently the team at Mobile Entertainment Analyst (MEA) took a virtual trot around the mobile globe (North America, Asia and Western Europe) to explore the manner in which consumers are paying for mobile entertainment services. Our explorations of a sample of carrier Web sites uncovered the following types of pricing schemes that have been applied specifically to entertainment but can be applied to other advanced mobile applications as well.

Minute-based pricing: This is the classic pricing mechanism used by carriers around the world, where each minute that a subscriber is engaged in a browser or messaging session, the subscriber pays or debits a minute from an allotted bucket of minutes. The accumulation of charges is a function of the aggregate number of minutes that the user is engaged in transmissions.

Bit-based or packet-based pricing: Carriers charge users according to the amount of data that they transmit. These pricing plans often include a quantity of bits for which the end user pays a flat fee, with additional charges incurred when the user transmits data in excess of the prescribed bucket.

Event-based pricing: For certain services, subscribers pay every

Continued on page 12 ►

Tokyo Tama Part Two:

Insights on the Japanese Mobile Market

by David "DC" Collier

Last month, I reported on some of the interesting, important or simply odd things I've seen through my work with the mobile entertainment community in Japan. What follows is still more observations on the leading market for mobile entertainment — starting with some thoughts on Japanese handsets.

Handset Differences

As you can see when you click on the link to the Web page below, performance is all over the map on the latest DoCoMo 504 phones. The Fujitsu is rumored to have an application co-processor. The Sony and NEC both have very little storage memory. The NEC is terrible on just about all the benchmarks you'll see here, and yet it's the No. 1 seller. Why?

http://www.seckey.net/iappli/KVMMark-en.html

One of the reasons is simply that people are upgrading, and NEC has always been a very popular device. But this time they invested primarily in a super high-resolution screen that is actually 160 pixels across, more than most of the other phones, which weigh in at around 128 pixels. On first impression, the screen looks exponentially more impressive than the other phones. Hopefully, color will provide an equally compelling reason to upgrade when it hits the West with Java this year.

Even with a carrier as powerful as DoCoMo setting the rules about handset technology and design, different functionality is creeping in. The DoJa 2.0 spec included a number of optional APIs, such as alpha channel transparency and sprite rotation, which is more good news for gamers.

Continued on page 6 ►

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Contents

Short message

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Java Will Be the Dominant Handset Platform by Zelos Group

A recent report by Zelos Group provides projections for regional and global shipments of mobile handsets that support wireless Java. Zelos Group contends that Java will be the dominant terminal platform in the wireless sector. Support for the technology will be found in more than 450 million handsets sold in 2007, corresponding to 74% of all wireless phones that ship that year.

Interest in the potential for Java to serve as a platform for downloadable games and other content on mobile handsets has grown substantially in the past year. Developer interest has been piqued by the rollout of services based on Java 2 Micro Edition (J2ME) by several carriers in the US and Asia. OEM and carrier interest is also evident in Europe, where several carrier provisioning services should begin commercial operation within the next 12 months.

Carriers and OEMs are drawn to Java because it is considered an open platform that guards against vendor lock-in. The openness of the Java platform may have a downside, however, for many developers. Game developers, in particular, will be forced to optimize applications for individual handset OEM and carrier implementations of J2ME that may be substantially different. The standards-setting process will not alleviate these developer headaches anytime soon. Indeed, the developer challenges may be accentuated as J2ME is extended to support new functionality.

The figure below summarizes Zelos Group forecasts for shipments of wireless Java handsets. Java has already secured substantial adoption in the wireless sector, and about 11% of handsets that ship in 2002 will incorporate some iteration of J2ME. Based on relatively conservative assumptions regarding carrier and OEM commitments to the platform, it is expected that about one third of handsets that ship in 2004 will incorporate support for Java, a fraction that will grow to almost three-quarters of all handsets in 2007. The forecasting model is based on a variety of assumptions:

• Adoption will be most pronounced in the Japanese and Korean markets. Java will be supported in almost two-thirds of handsets that ship in Japan in 2003, as all carriers are committed to the platform. Korea's largest carrier, SK Telecom, which had relied on technology from Sinjisoft called GVM, is migrating to support J2ME technology.

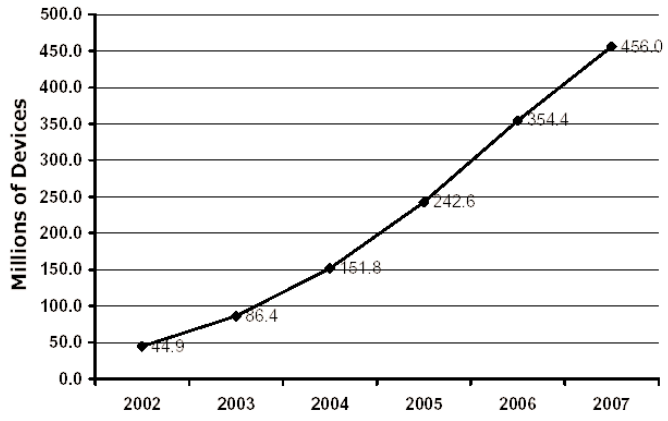
• Nokia is strategically committed to Java. About one-quarter of Nokia handsets that ship in Europe in 2003 will support J2ME, a figure that will rise to about 80% in 2006. The proportion of Nokia handsets that support Java will be lower in markets like North America, as introduction of new handset designs for CDMA and TDMA networks will lag.

• Second-tier OEMs will adopt Java at a varied pace. For example, Motorola has committed to Java and the majority of iDEN handsets will support the platform. However, Motorola will initially lag Nokia in incorporating J2ME support on GSM handsets. Siemens is fully committed to the platform and will support Java in the majority of its handsets in 2004. Samsung will hedge its bets and wil support a variety of platforms over the next few years.

Continued on page 13 ►

Wireless Java Market Projections

Global Shipments Java Handsets (2002 – 2007)



	2002	2003	2004	2005	2006	2007
Total Handsets (Mil.)	401.8	450.8	509.1	550.4	584.7	613.7
Java Handsets (Mil.)	44.9	86.4	151.8	242.6	354.4	456.0
Java Handset Percent	11%	19%	30%	44%	61%	74%

Source: Zelos Group

Location, Location, Location

by Joel Strauch

Leaving your house, you walk down the street and pull out your mobile phone to check your messages. Suddenly it hits you that you forgot to feed your MobiMushi, a digital pet that lives in your phone. The MobiMushi knows that you left home without checking on it, and it clamors loudly that it's hungry. You calm it down, playing a game of ping-pong to quell its anger, and it responds with a digital gift.

Dubbed a "location-sensitive Tamagotchi," MobiMushi (from wireless game developer Gameloft) is the latest game in a burgeoning genre called location-based wireless gaming or geolocation gaming. Geolocation gaming first gained some notice with the Swedish company It's Alive and its BotFighters game, in which gamers track one another down and use armed robots to take out their enemies. For most geolocation games, all you need is a WAP-, SMS-, or imode-capable cell phone.

Geolocation games are definitely changing the way that cell phones are used. "People actually start thinking about their phones in different ways," says Charlene Li, a wireless analyst at Forrester Research. "With location-based games, it's a way for people to connect and interact with other people. And not just the ones you know. You can play in locations with complete strangers."

Place based

The location-based genre has grown beyond simply finding and playing with other people — in many geolocation games, the location plays an integral part. "It's a great technical innovation allowed by the progress of wireless technologies," says Anthonin Lhuillier, project manager of MobiMushi at Gameloft. "The coordinates of the player are communicated to the game — after authorization in accordance with local laws — and then integrated into the gameplay."

MobiMushi uses eight distinct locations — home, office, school, and so on — to influence its behavior and change the game itself. "The MobiMushi automatically recognizes a location if it has been there previously," says Lhuillier. "And upon arrival in a new location, in most cases the player wins a bonus and discovers completely new content."

Gameloft's first foray into geolocation gaming was its GeoQuest experiment, carried out in the summer of 2000 in Marseilles, France. Players had to scurry about the ancient city, picking up clues that would help them solve the aptly named "Big Final Enigma." Gameloft followed GeoQuest with MobiMushi this past July and has had tens of thousands of players register with the game.

Who's Playing?

What kind of players are signing up? Gameloft targets teenagers and young adults with MobiMushi, but Lhuillier believes it can be enjoyed by any age. "We have made great efforts to create a very easy-to-play and fun game, with high interactivity and lots of surprises, in order to seduce a great number of persons," he says.

According to Thomas Bagge Olesen, sales and marketing director at Unwiredfactory, just as with any gaming genre, the type of player in geolocation gaming naturally depends on the type of game.

"Most players are what you would call casual gamers, but there are even some hard-core gamers," Olesen says. "In general, the audience is young at heart, competitive, and fun-loving. It sounds like a commercial, but it's true!"

Copenhagen-based Unwiredfactory is responsible for several geolocation games, including the virtual treasure hunt TreasureMachine and the geolocation strategy game BattleMachine. The gameplay of TreasureMachine nicely fits Olesen's own definition of geolocation games: "Games where the experience changes as you move around opposed to games where the experience is the same whether you're moving or standing still." In TreasureMachine, players must piece together clues to unearth a treasure "buried" in a predetermined location. The first ones to use their cell phone to "dig" in that location win the game.

Unwiredfactory's BattleMachine is a classic "battle for land" game, but the game's land maps to the real world utilizing the users location. BattleMachine launched on E-Plus' imode service — the first German carrier to offer a geolocation game.

What Does It Cost?

When geolocation games first started cropping up, the fee for playing them often ended up being more than the average user was willing to pay. Some extreme players of Botfighter, for example, ran up monthly bills in the thousands of dollars.

Many European carriers have begun offering unlimited WAP-usage subscriptions, and these pricing approaches are making these games cheaper to play. Orange France, which carries MobiMushi, offers such a plan for €6 per month (roughly US$6). "It's a great incentive for people to discover everything that WAP has to offer," says Lhuillier.

Even playing games that charge based on usage instead of subscription usually doesn't run the average gamer more than €5 or €6 each month, says Olesen.

Continued on page 11 ►

MobiMushi uses eight distinct locations – home, office, school, and so on – to influence its behavior and change the game itself.

Technology Explained

ARM Inside

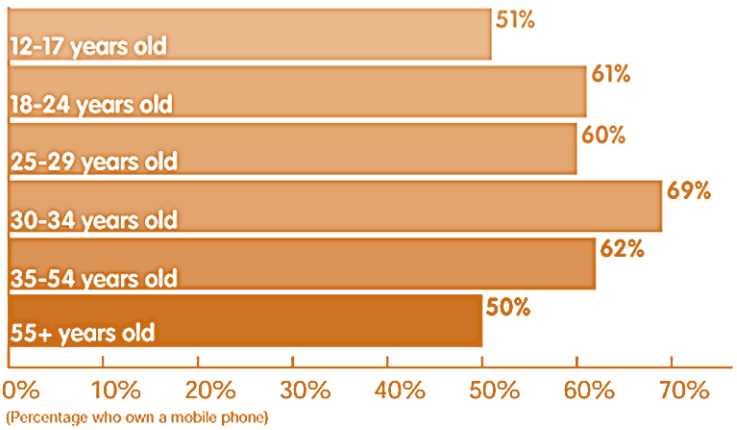
by Cashman Andrus

Most people know exactly what processor is in their personal computer, but hardly anyone knows what is in their mobile phone. The PC industry has been driven by specs — when the megahertz on their desktops start to fall too far behind what they see in the shops, consumers think about upgrading. Few know or care what hardware is inside their phones, as long as it has a long battery life, lots of features and a slick exterior.

Stat!

Mobile Market Segments

In the U.S. All Key Segments Have Surpassed 50% in Penetration of Mobile Phones



Source: UPOC and Frank N. Magid & Associates

But those features and battery life don't come from thin air, and the guts of any cell phone eventually come down to chips and code. And increasingly, the chips come down to ARM — ARM Holdings, Inc., that is. ARM processors are currently used in around 80% of digital mobile phones shipped worldwide.

ARM doesn't produce any chips itself. Instead, it sells intellectual property (IP), in particular the designs for "cores," which can be incorporated into chip designs. (ARM also provides development tools, software for optimizing hardware performance and design consultation.) These cores contain the key elements of a microprocessor in a well-tested and well-documented form, enabling the chip designer to focus on the things that are new and different about its own design.

When a chip designer licenses a core from ARM, it receives a chunk of data: the description of the core ready to be loaded into standard chip design software. The designer can add whatever peripheral functions he wants to the chip, whether it's more memory, special interfaces to outside equipment or proprietary logic circuitry. The resulting design is commonly called a system-on-chip (SoC) or application-specific integrated circuit (ASIC), especially when many pieces in addition to the core have been added. When the design is ready, it is sent off to a semiconductor fab to be manufactured. Thus, the designer gets the benefits of a highly integrated design (lower power consumption, smaller size, and so on) without having to either own a fab or spend time recreating others' work.

Because ARM designs aren't tied to a particular manufacturer, they turn up in a startling variety of places, from disk drives to anti-lock brakes, DVD players to subway turnstiles. There is an excellent chance that you have used an ARM processor in the past hour. More than 400 million ARM processors shipped in 2001, and those numbers are expected to increase as the devices that use them become smarter and more numerous.

History

ARM was founded in 1990 as Advanced RISC Machines, a joint venture between Apple Computer, Acorn Computer Group and VLSI Technology, with the mandate to standardize and advance RISC technology. RISC (Reduced Instruction Set Computing) was a major advance in microprocessor design at the time, and Acorn had been successful in producing low-cost RISC machines for the home computing market. Other successful RISC architectures, including Silicon Graphics' MIPS, Sun's SPARC, and Motorola and IBM's PowerPC, had focused mainly on high-cost, high-performance workstation and server-class processors.

> There is an excellent chance that you have used an ARM processor in the past hour.

From the start, ARM concentrated on low power drain while maintaining acceptable performance. For embedded devices, after all, battery life and heat dissipation are often much more important than pure speed. ARM advertised its designs as having the highest "mips per watt," indicating how many millions of instructions the chips could accomplish per unit of electricity.

Happy Families

After more than ten years of working with RISC designs, ARM now has a range of different product fam-

ilies targeted at different markets. The venerable ARM7 family is the most widely deployed in phones and similar devices. These include the phones that support Qualcomm's BREW platform (BREW apps are compiled into ARM-executable code), as well as Nokia's Series 30 Java phones (6510i, 3410, 3490) and Innostream's I-1000 WGE phone. Apple's Newton PDAs also used the ARM7 for years, although later models switched to StrongARM once it became available. More recently, Nintendo's Game Boy Advance has added custom graphics logic to an ARM7 core with excellent results.

> This means that Moore's Law works for handsets.

On the PDA side, the StrongARM family has found great success. Found in all of the current Pocket PCs and the latest Symbian devices, the StrongARM was originally designed in cooperation with Digital Equipment Corporation, but the project was sold off to Intel in 1998 during the turmoil of Compaq's acquisition of Digital. When it first came out, the StrongARM was a wonder — 106 MHz at 100 milliwatts, at a time when power-hungry desktop Pentiums topped out at 200 MHz. Intel had some problems keeping up the momentum, but it eventually pushed forward with a second-generation design called XScale. XScale chips clocked at 400 MHz are now starting to show up the newest Pocket PCs, and it shouldn't be long before they appear in smartphones.

Each family offers a variety of designs, with various additional features, potentially including integrated DSP functionality and Java optimization. ARM also offers the more powerful ARM9, ARM10 and ARM11 families, although these don't seem to have caught on widely in portable devices as yet. Chip designers choose which core to use based on feature set, size and cost constraints, and other factors, then work with ARM's tools and staff to integrate the core into whatever else is on the chip.

Smarter Phones

As with the processors in PCs, embedded processors like ARM's are constantly being improved. Especially due to new manufacturing methods that shrink the transistors on the chip, ARM designs show increasing performance every year, while maintaining backward compatibility. As a result, today's phones support many more features and yet have much longer battery life than they did five years ago. Even without a major redesign of a handset architecture, just by going to current version cores and manufacturing processes, the design gets better: faster processing and lower power consumption, plus potentially fewer chips and a smaller battery.

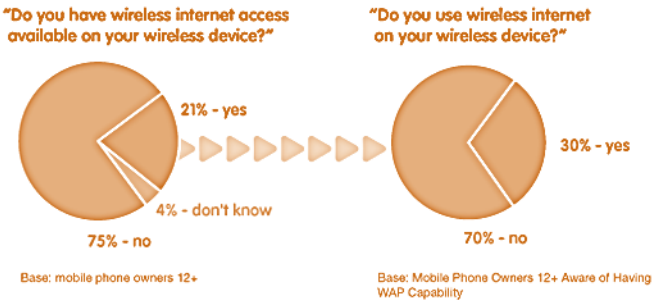
This means that Moore's Law works for handsets. It isn't as obvious, because the specs are not advertised, but phone processors are getting faster. The newest phones demonstrate that ARM7 chips are fast enough to run some very good games, and it won't be long before the processors are much faster still. As with PCs, that processing power will go unused unless manufacturers can provide and encourage applications that take advantage of it.

Therefore, the key is software. Handset software thus far has not been designed to use the increased processing power, or even to make it available to outside applications that could use it properly. Even BREW phones, for example, throttle down the processor into power-save mode if a key hasn't been pressed recently. This can really muck up a game, and it makes video playback basically impossible.

To adapt to this new world, handset software needs to become more of a platform and less of an application itself. Only then will people begin to care about the speed of their phone, and thereby think about upgrading their phones whenever a faster one comes out.■

Stat!

Almost a Third of People Who Have WAP Use WAP



Source: UPOC and Frank N. Magid & Associates

Tokyo Tama

Continued from page 1

Handset Maker Dedicated Sites

In the race to differentiate their product offerings, each of the handset makers offer destinations that go with their handsets, like Panasonic's P-Square. NEC has actually built a popular stand-alone ringtone business on the back of being the No. 1 handset seller for i-mode. Sony bundles Seaman and SimCity with its SO504, one of the better game offerings. Nokia Japan has built a successful Nokia Pics service and has actually sold more phones than Sanyo, which manufactured the device Nokia was branding and selling. The Nokia name carries consumer weight even here.

Handset Prices

The latest 504 phones are now selling for about $200.

DoCoMo
http://k-tai.impress.co.jp/cda/article/price/0,,10449,00.html

au/KDDI prices
http://k-tai.impress.co.jp/cda/article/price/0,,10451,00.html

J-Phone
http://k-tai.impress.co.jp/cda/article/price/0,,10553,00.html

Games Menu Categories

Let's look at DoCoMo's games listings in more detail. There are two main game sections, creatively titled Games 1 and Games 2. Games 1 features the mainstream game packs, RPGs and simulations. The Games 2 menu contains stuff like "Variety," "Play by Mail," "Nurturing"-type games and so on. Games 2 is where some of the more unusual applications, which use messaging or other unique properties of wireless, can be found.

http://www.nttdocomo.co.jp/p_s/imode/corp/pdf/iappli.pdf

DoCoMo Regional Companies

Just as there is actually no single "Europe," DoCoMo is in fact still acting as different regional companies within Japan. The reason? The process of having your mobile entertainment service approved involves first selling to one of the regional groups, and then having it approved for national rollout. This process usually requires two separate meetings at least one month apart. Sometimes applications only get picked up in one region.

The DoCoMo Kyushu site actually has an easier-to-see listing of the contents.

http://www.docomokyusyu.co.jp/seihin/imode/isaito/10game.html

Mobile Dating Services

DoCoMo actually prohibits any direct connection between users who don't know each other already. In the 1980s, a kidnapping occurred as a result of someone meeting up on one of the party chat telephone lines, and ever since then the carrier (which still has government ties) has banned any such functions.

> Even with a carrier as powerful as DoCoMo setting the rules about handset technology and design, different functionality is creeping in.

The other carriers, J-Phone and KDDI, which don't have the government legacy, are quite happy to offer these type of services. This variation in functionality also leads many content providers to develop carrier -specific versions of their games. One title like this is "Baby Cupid" from Spike Media. In the DoCoMo version of this game, players who register tell the game a little about themselves, and the game matches two "parents" to raise a little baby character. The players then communicate through this character.

http://www.spike-online.net/babycupid/howto.html

On the J-Phone version you meet with real people and can choose to have an "omiai kekkon" — an arranged marriage. This is a little like a dating site, where you can also have a shared private photo album — one of the reasons that J-Phone rocks is its "ShaMail" photo-mail.

Another matchmaking service is Excite Friends, Excite.com's Japanese dating service, which is rumored to be doing $3M per month on mobile alone.

http://friends.excite.co.jp/friends/

Dating sites are the biggest traffic drivers in Japan, even if they are mostly unofficial. DoCoMo won't grant them official site status, forcing the sites to choose other ways to make money. One common approach is to force users to buy points with a credit card. It is estimated that 50% of the unofficial i-mode traffic, or about 25% of the total, is "deai-kei" or dating sites.

Pricing Strategies and Point Systems

DoCoMo's limited billing system, which doesn't allow event or per download billing, just subscriptions, has led to some interesting sub-techniques. Some sites have a built-in point system. For your 300 yen per month, you get 20 points. Some "latest hits" downloadable melodies may cost three points to get, whereas older songs only cost one point.There are also daily limits on usage for some of the "free" sites, such as those created by the keitai manufacturers to go with

their devices. Panasonic runs P-Square, which provides downloadable games such as P-Soccer as well as free ringtones, new icons and downloadable "skins" to completely customize your new toy. Some of the larger games for the 504i series, which allow 30K appli's, cost three points, as do licensed games like "Space invaders."

http://www.mci.panasonic.co.jp/pcd/p_square/i_action.html

Just as there is actually no single "Europe," DoCoMo is in fact still acting as different regional companies within Japan.

Toei's game site, which sells 150- and 300-yen subscriptions, takes a simpler pricing approach. Depending on which program you choose, you can download either two or five games monthly.

J-Phone billing allows for a per-event model — both a blessing and a curse. Its billing is more flexible, so for sites like ringtone sites, where there is a huge library of discrete elements, unit pricing is ideal. A ringtone provider told me that its service on J-Phone was far more profitable than on DoCoMo, mostly because people end up spending more when they can buy individual songs. He described the following scenario: if a site runs a subscription program at 150 yen per month for up to 10 tunes, the per-song cost is 15 yen each. When the same 15-yen-per-unit pricing was used on J-Phone, most people ended up buying many more than the 10 units. The natural response would be to add a bigger package of songs on the DoCoMo system, but my friend believed that giving customers the option of paying for songs individually increased their willingness to purchase. Because the J-Phone service is relatively new, this purchase effect may occur for the first couple of months. As the per-song novelty wears off, the long-term subscriber may prove more valuable.

Cross-linking

Interestingly enough, Japanese carriers don't like publishers promoting their products. It's taboo to contact your registered members by email. Even cross-linking between sites owned by the same publisher is often denied.

In the early days, a few publishers got out ahead with their own portals, such as Bandai Network, and these sites are still entry points to multiple — possibly unrelated — services such as ringtones and games. Some cross-linking is allowed; for example, between two games sites from the same company.

Publishers are fighting back with CRM efforts, and Cybird recently introduced "Cybird Style," a club where point systems are in place to motivate consumers to subscribe to multiple apps. By joining any Cybird app you are automatically ingested into Cybird Style.

Anti-Spam Codes

In response to the terrible problems caused by spam (imagine paying for it!) DoCoMo created a special code feature that allows you to only receive mail from friends who know your code. However, this messed up many of the applications that used messaging to communicate with players. . . .The messages from the game server would bounce. The laws have now been changed in Japan to prevent mobile spam, and a huge difference is noticeable.

Location-based Fishing

KDDI is going gangbusters with its GPS-enabled phones here. Given that CDMA base stations already have GPS assist, CDMA operators, including Verizon in the US, will soon be rolling out GPS-enabled phones worldwide. So, apart from the much-cited Starbucks coupon, what are the applications?

One game that's a neat idea is "fishing anywhere", developed by Starfish as a Brew application and bundled with the remarkable Panasonic phone nicknamed "C3P0" — the first phone worldwide to ship with a compass installed. This neat phone has a K-Lab-developed Brew mapping app pre-installed that rotates the map as you turn (even though the compass is allegedly only accurate to 45 degrees, it works pretty well).

http://www.mci.panasonic.co.jp/pcd/c3003p/prdct/pdf/C3003P.pdf

The "Fishing Anywhere" game actually uses the compass and GPS to track against flocks of fish in the game.

Japanese carriers don't like publishers promoting their products.

Dwango's famous "Tsuri Baka Kibun" fishing game had features where people who had selected spots near each other on the games virtual map would get notified by email when a neighbor caught a fish — that was a game ahead of it's time!

Statistics

Some random new stats from J-Phone:

82% of Java apps were games.

56% of the people using these apps were male.

See also this new report on game usage in Japan

http://www.cesa.or.jp/english/research/index.html

Continued on page 11 ►

Keeping Score

Toward a Holistic Content Strategy

by Dan Scherlis

When we focus on the essential business of making money from our mobile games, it is human nature — or at least a business-executive's nature — to coolly analyze and separate a product's elements.

Creative, technical, and business decisions are owned by their respective specialists.

However, for successful product development in an interactive medium, decisions on any one element must influence the others. Through examples, I examine below how these elements react with and catalyze each other, with implications for mobile games.

Any game project, whether developing for a videogame console or for a WAP browser, requires these three product attributes be determined pre-production:

Technical: The device, network, and operator infrastructure constrain the possible billing methods and player experiences. Conversely, the technology within a game is dictated by the designer's creative direction, and shifts in revenue models regularly redefine the goals for technical competition.

Business model: This includes both consumer revenue model and business-to-business deal terms. Clearly, these must be supported by the technologies of the game and of the network operator. Different revenue models also demand that designers of profitable games encourage different behaviors, such as long-term addiction, frequent messaging, or the purchase of sequels and add-ons.

Creative: Game designers specify the player's experience, and thus also the requirements for the technical team. The game design, in turn, is constrained by available technology, and also by the business model. Inspired game designers can also enable or inspire new revenue-model possibilities.

Operationally focused business strategists prefer to delegate and resolve the above issues independently, quickly locking down each one, so that production can begin. By contrast, an experienced game developer will not commit on any element until the others are understood. Changes in any one element can have major repercussions for the other two.

Technical Implications

I have worked with seasoned game designers, the epitome of the "creative type," who will not deliver even a treatment-level summary game design without first seeking to understand the game-platform's technical details. This approach frustrates the business executive, who's stance is: "All I'm asking for is a game concept. Why are you asking me about network performance and device pixels?"

The answer, of course, is that such technical details can dictate — or at least shape — the game concept. The "3D shooter" is a popular (if socially disrespected) game genre whose existence depends on fast 3D graphics. The existence of successful multiplayer 3D shooters depends on fast online connections, where "fast" is measured not in kilobits-per-second of bandwidth — a common misconception — but in milliseconds of latency (Internet-packet travel time).

Mobile networks are too slow for such shooters and other highly interactive "twitch games." But even within the normal (i.e., slow) range of mobile-network speeds, games can be designed and optimized for a given network. Network response near one second can support certain real-time action experiences. A real-life tennis match runs to roughly a one-second rhythm; such a turn-based sport or context makes sense for the platform, because it structures and slows player response. If we had quarter-second (250ms) response, as on the wired Internet, we could create faster-paced contests, such as racing or combat. But if we chose the combat game, the combatants must be separated and

Stat!

July 2002 Toys Best-Sellers

Trsts® Top 10 Best Selling Toys

Ranked On Dollars, July, 2002

Rank	Item Description	Manufacturer	Intro Date
1	Yu-Gi-Oh Metal Raiders	Upper Deck	Jun'02
2	Star Wars Episode II Asst 1	Hasbro	Mar'02
3	Hot Wheels Basic Cars	Mattel	<1986
4	Bratz	Mga Entertainment	Jun'01
5	Leappad Books	Leapfrog	Jul'01
6	Leappad	Leapfrog	Sep'99
7	Star Wars Episode II Asst 2	Hasbro	Mar'02
8	Yu-Gi-Oh Starter	Upper Deck	Apr'02
9	Star Wars Epd II Dlx Figures	Hasbro	Mar'02
10	Crayola Crayon 24ct	Binney & Smith	<1986

Source: NPDFunworldSM TRSTS® Service, Reyne Rice 516-625-2365

use projectiles — the hand-to-hand combat associated with Mortal Kombat or Street Fighter requires speeds not yet available on an online network.

At the other end of the mobile-speed scale, an operator with three-second network response would be looking for a slower, more strategic experience. Instead of firing weapons in this game, players might deploy subordinates. The slower-paced decisions and choices of attack, defense, and maneuver become the primary experience. This explains a surplus of glorified rock-paper-scissors games, which now are being followed by deeper, more thoughtful, experiences.

...an experienced game developer will not commit on any element until the others are understood.

Business Model Implications

Revenue-model changes do, and I would argue probably should always, change creative direction. In 1995 it became clear that premium online games would no longer be played on a dollars-per-hour basis, as they were on Prodigy or early AOL. Instead, online games would follow online access to a monthly-subscription model. At that time I was managing the development of a massively-multiplayer online game (MMOG), later published by Microsoft. This per-hour to per-month business-model shift had a dramatic and nearly devastating effect on our design and technology teams. Suddenly, game servers had to support thousands of players, rather than mere hundreds. Our designers had to create new, in-game social structures, so that players still could feel important in a higher-population world.

None of the first MMOGs sufficiently addressed this business-model transition. We continued to take pride in creating addictive experiences, despite the fact that, by 1997, games that rewarded 20 hours of weekly play discouraged the increasingly important casual player, while incurring huge expenses in network operations. In the expensive hourly-priced world, a few hundred fanatical players were all you could hope for; you were wise to entice every extra hour of play. With today's cheaper monthly subscriptions, success comes from attracting hundreds of thousands of players. There is cost, but no reward, for added hours of play. Games must be easy to learn, widely understood, and consistent with short, less frequent play sessions.

These issues will again arise whenever a mobile operator switches from per-minute or per-message pricing to flat-subscription or big-bundle pricing. After that switch, high per-player usage will shift from "great feature" to "bad bug." An addictive game's high concept, and its low-level incentives, must change dramatically to keep up.

Traditional packaged-game developers understand the impact of the device (or "platform") on the game experience. It is conventional wisdom that a videogame-console hit seldom enjoys similar success on a PC. Even porting to a different console entails risk, and the resulting game will "feel" subtly different.

By contrast, in the mobile game business one hears careless talk of "adapting" a game from PC, say, to WAP or SMS. There might be great value in the game's brand, and the setting and player motivations

Continued on page 10 ►

Handset Highlights

Motorola Paragon II

Modes: ?
Price: ?
Screen: 208 x 320 ?, color
Apps: Symbian 7.0, J2ME, Personal Java
Available: Q4 2003

A recent leak on Motorola's 2003 handset roadmap revealed this Symbian smartphone. It sports a complete set of features that entails camera, polyphonic ringtones, speakerphone, SD/MMC expansion slot, Bluetooth, lots of memory, a fast processor and a sophisticated software bundle. Most interesting, it should offer application compatibility with Sony Ericsson's forthcoming P800 smartphone.

Panasonic GD67

Modes: GSM/GPRS 900/1800
Price: ?
Screen: 256 colors
Apps: ExEn 2.0 (with J2ME support)
Available: Fall 2002 in Italy, Germany and France

This color consumer phone will be the first to feature In-Fusio's ExEn 2.0 game engine. ExEn 2.0 offers full J2ME support along with powerful game APIs. Operators could choose to disable ExEn, but it looks like they'll give it a shot because enthusiasm is high for the potential game revenue it could generate.

Siemens S55

Modes: GSM/GPRS 900/1900
Price: ?
Screen: color
Apps: J2ME
Available: late 2002/early 2003

Siemens catches up to Nokia and SonyEricsson with the S55 – MMS, Java and color are all becoming must-haves, and Siemens is staying in the race. While this phone is listed as the "S55," the pictures clearly show the label "L55." Is this the sign of a last-minute name change, or are they actually names for two separate models – to distinguish the American and European, perhaps?

Toshiba T21i

Modes: GSM/GPRS 900/1800
Price: €99
Screen: color
Apps: I-mode

This will be the second European I-mode phone available once it launches this fall, most likely starting in Belgium. The jury is still out on how well I-mode will catch on in the European marketplace.

Games We Like

by Matthew Bellows

What? You haven't gotten your GameBoy Advance yet? When you do, add Advance Wars to your game list. This title is certain to be an inspiration for the next generation of mobile phone games.

Advance Wars for the GameBoy Advance

A turn-based strategy game of the highest order, Advance Wars by Nintendo and Intelligent Systems shows off everything a portable, small screen platform can be. There are three modes, "Field Training," "Vs. Mode" and "Link Mode."

Field Training is an extensive tutorial led by the alluring Nell. In this mode, Nell takes you through the 18 types of land, sea and air troops you control. The battles against Olaf of the Blue Star army get progressively more difficult. Although at times Field Training gets bogged down by Nell's suggestions, it's a very effective method of teaching complex tactics to the younger age group that makes up most of the GBA audience.

Vs. Mode is where Advance Wars starts to shine. In over four-dozen maps, you take on the computer in build and battle challenges that range from simple to impossible. As you progress through the levels additional maps are unlocked, giving you the feeling of a campaign, even though there is no meta-storyline tying the levels together. Link Mode, where you connect with cables to other GBA devices, truly has to be played to be appreciated. My strongest recommendation is this: If you are involved with mobile games in any way, buy a GBA now.

How to Get Started: Start with Field Training for as long as you can stand — no more than 30 minutes max. Then plunge into the Vs. Mode maps. Choose a pre-deployed level at first, moving on later to building and deploying your troops. A nice feature in the Vs. Mode is your ability to select the number of turns to play. The battle can end after each player has taken five turns, or after a single victor has emerged.

> If you are involved with mobile games in any way, buy a GBA now.

What to Look For: The dynamics of turn based strategies are laid out clearly. Pacing is important here, and play balance is crucial. The developers have added a tremendous level of detail to the game, from terrain effects and weather to re-supply requirements and troop strength details. For mobile game developers, it's especially interesting to notice what the Advance Wars team chose to animate and what they chose not to. Another advanced game feature gives the player the option to choose various animation events.

What to Ignore: Your growing love, respect and carnal desire for Nell. It must be the uniform. ■

Holistic Content Strategy

Continued from page 9

might migrate, but such a migration demands a redesign and a new game-development project.

It is a gross simplification, in fact, to speak of "mobile games" as if they were a single medium, given the dramatic differences between WAP, SMS, and "downloadable" technologies (J2ME, BREW, MS-Smartphone). Business models differ, in terms of both subscriber revenues and the operator/content-provider partnership. Technology and tools might support cross-platform publishing, so that one game runs over both WAP and SMS, but the best WAP game will be a horrible SMS experience. For example, if you take advantage of WAP's multi-card decks, one WAP download will correspond to several slow, expensive, SMS interactions; your SMS player will be quickly alienated.

Creative Implications

In every case, dramatic differences between business or technical environments will demand a dramatically different game. Conversely, a game's design can enable different business models or drive different technologies.

For instance, deciding to create a simulation, such as an auto-racing game, involves a commitment to create a sophisticated physics engine. If the designer chooses instead (perhaps for competitive reasons, or to address a slow network) to create a strategic resource-driven game — call it Grand Prix Manager — engineers might develop object-oriented databases and heuristic strategies. The PC title "Myst" was famous for driving the consumer adoption of CD-ROM drives. If not for game designs and market demand for simulations and 3D shooters, we probably wouldn't see 3D-accelerated graphics chips embedded in every PC and game console today.

Game designers can also provoke business-model advances. In online games, designers have succeeded in creating player passion around virtual objects, such as a game's weapons or fashionable clothing. Even where the "item of clothing" appears only as a line of text, players have proved willing to pay real-world money for these imaginary accessories. Future MMOGs might exploit this by selling those items, or at least by removing the player-to-player transactions from eBay.

In mobile games, game-design decisions can enable business-model flexibility. A multiplayer game for Java devices might integrate player-to-player communities, with active messaging and alerts. Such a design requires SMS messaging. Even if the SMS messages do not interact with the Java software, that game can now tap the revenue-sharing models associated with SMS-based content.

Conclusion

In the complex process of game building, the most effective approach is a holistic one. Design, technology, and business elements each must address and consider the other two. This is not meant as an argument for slow or vague decision-making, but for constant interaction between the designer, the engineer and the marketer. ■

Tokyo Tama

Continued from page 7

Infra-red

The latest DoCoMo phones have an infra-red receiver and Java API, permitting peer-to-peer gaming. So far most of the infra-red applications are mCommerce related, but there are a few entertainment apps, such as Othello and Index's Love Compatibility Tester. Aquazone, an aquarium simulation that was a huge hit when I first lived in Japan in the 1980s, is now on mobile phones. I remember the company 9003 taking phone calls, building custom fish, and mailing floppy discs out to customers. This time around, you can build and rear a fish on your keitai and use the infra-red to send it to someone else! Of course, this means you lose the fish yourself.

Signing Off For Now

That's the latest from the amazing world of Japanese mobile entertainment. I'll be dropping back into MEA occasionally, so keep an eye out for more Tokyo Tama. ■

Location, Location, Location

Continued from page 3

Not for the US — Not Yet

As with other wireless games, geolocation games are much more prevalent in Europe and Japan than they are here in the States. It's partly due to our cell phones, partly due to our networks, but it's also because of differences in our entertainment culture.

"PC and console games are much more established in the US," says Mike Goodman, a gaming analyst with the Yankee Group. "What we do on the PC, in Europe they do on cell phones."

In the US, users think of their cell phone as a phone only, says Charlene Li. "They don't look at it. They don't play with it. One of the biggest barriers is for people to see it as a data device and actually start taking advantage of what it can do," she says.

As more advanced phones with built-in GPS chips become available and less costly in the US wireless gaming — including geolocation gaming — will become more mainstream in the US.

Still Young

Despite the popularity of individual games, geolocation gaming is a small market even in locations where the games can be played extensively. "It is still a niche compared to the total entertainment market size," says Olesen. Geolocation gaming is held back by the upload and download speeds, location accuracy, and the screen capabilities of the handset, he says.

Unwiredfactory sees location not as a main selling point for games but as an enhancement to the gameplay, according to Olesen. "The superior gameplay attracts the user, not just the location per se. Therefore, I foresee that location-based will become an integrated part of the best and most serious games," he says.

Everyone agrees that geolocation gaming is growing. There are already more than 16,000 people registered with MobiMushi just two and a half months after the game launched, says Lhuillier.

"For now, it is very innovative, but it will become more and more of a key feature fully integrated into wireless games, especially within the development of massively multiplayer online wireless gaming," he says. "Just imagine how exciting it could be to let your MobiMushi meet the MobiMushi of another player who connected in your same area!"

If nothing else, at least the critter would have someone else to play ping-pong with. ■

Pricing Schemes

Continued from page 1

time they execute particular actions such as sending messages or playing games online. The accumulation of charges varies according to the quantity of actions.

Content-based pricing: Subscribers pay for specific content such as ringtones, images, digital music and video clips.

Subscription-based pricing: Subscribers are charged a fixed amount of money every month for the ability to access certain hosted or downloadable content.

Postpaid pricing: With postpaid platforms, subscribers use services and then pay for those services on a monthly basis.

Prepaid pricing: With prepaid platforms, subscribers pay in advance of using a service and then draw against a stored value account. Carriers and content owners can implement each of the above pricing systems in a prepaid, postpaid or hybrid environment.

This trade-off makes developing pricing schemes akin to trolling for minnows and simultaneously spearing a sperm whale.

Hybrid pricing: The carrier bills the user a number of different ways for use of an entertainment channel that may contain multiple applications. For many applications, carriers charge for both network access and content access. In these cases, they often charge subscribers by the minute, by the bit for access to the network, or by the event, content or subscription for the content.

The major challenge in developing a structure for pricing entertainment applications is finding the right balance between simplicity and differentiation. While simple pricing makes the mass market more likely to sample the service, complicated systems enable carriers to collect large sums of money from hardcore users of entertainment services.

Mobile Entertainment Pricing around the World

In general, MEA found that carriers' fees for entertainment applications cover a combination of network access and service-specific charges. Network access charges are usually some function of buckets of data transmission per airtime minute. For less sophisticated, text-based content, carriers tend to price it on a per-usage or event basis. For premium content, carriers tend to price it on a subscription or content basis. There are several instances in which carriers in direct competition with one other implement different pricing schemes to differentiate themselves. The following regional examples illustrate these findings.

North America

In the United States, Verizon Wireless (VZW) employs a hybrid approach to charging for its latest mobile entertainment applications. For its downloadable BREW games, it charges subscription fees that vary according to the quality of the game and subscription tenure. For example, new games such as " FIFA World Cup" and "Tiger Woods Golf" include a free demo period of one day but a monthly subscription costs $1.99 and an unlimited subscription is $4.99. VZW's most expensive game is YAHTZEE®, which costs $6.99 for unlimited play. MEA views this as a hybrid pricing structure because it employs both content- and subscription-based pricing schemes. VZW's jokes, comedy snippets, horoscopes, Pictavision (photo downloading) and other entertainment applications are available for similar subscription fees ranging from $1 to $5 per month plus associated airtime charges — which for most consumer-based calling and data plans are a function of the number of minutes accrued in the transmission. Here, hybrid pricing includes minute-based pricing in the form of airtime charges as well as subscription-based pricing. VZW also offers ringtones for between $0.99 and $1.49 per ringtone, depending on the type and quantity.

Sprint's Vision services offer a simpler pricing scheme. Game prices range from free to $3.99 for download or online vault storage. Games stored in the Vision Vault expire after 90 days, so gamers must store their favorite titles on their phone to avoid having to purchase them again. Sprint's selection of 115 Ringers (ringtones) are available for $1.00 each.

AT&T Wireless's mMode services are priced like Verizon's except that the airtime component is based on the number of bits transmitted rather than the minutes of airtime use in transmission. mMode subscribers choose from three data pricing plans according to the amount of data they use. Similar to Verizon, AT&T Wireless charges subscription-, event- and content-based fees for premium content. Ringtones for example, are either free, $0.99 or $1.99, depending on popularity or uniqueness.

Cingular is the "dollar store" of mobile entertainment, where all ringtones, games and graphics cost $0.99. This is a dual function of Cingular's focus on enabling micropayments from the subscribers' mobile wallets and the relatively low sophistication of its entertainment applications, which currently consist of unsophisticated graphics and parlor and trivia games.

Canadian operators price entertainment services in a similarly divergent fashion. Bell Mobility, for example, charges for access to data by

the bit, with some entertainment services (i.e., ringtones and screensavers) priced per download. Paid premium games are priced per subscription at $1 to $5 CAD (~ $0.65 to $3.20 USD) per month. Telus Mobility also prices data in buckets of bits but sells games on a pay-per-usage basis, with prices ranging from free to $0.25 CAD (~$0.16 USD).

Asia-Pacific

In Asia, carriers have tried to make it easier for subscribers to use the next generation of services. Leading Japanese and Korean carriers have lowered the per-packet fee for their 3G packet data systems as compared with their 2G systems. Carriers hope to make it more cost-effective for subscribers to upgrade to the next level of service and also hope that subscribers will then feel inclined to use that service on a more frequent basis.

Japan's NTT DoCoMo, for instance, lowered its per-packet fees in September 2002 for its 3G FOMA service, which includes a "packet pack" of data. Subscribers pay incremental amounts for various packs — the price per packet declines as the size of the packs increase. DoCoMo also charges a monthly subscription fee for various branded entertainment channels, such as ringtones, games, horoscopes and chat forums that range from 100 to 300 yen (~$0.82 to $2.47 USD) per month. DoCoMo offers Multimedia messaging (MMS) with embedding pictures for about 20 yen (~$0.16 USD).[1]

In Singapore, Singtel subscribers pay between $0.50 and $4.00 SGD (~$0.28 to $2.24 USD) per download for logos, ringtones, EMS icons, animations and melodies. Each charge appears on the user's monthly bill. The availability of the specific downloads and the pricing varies according to the subscriber's handset model.

China Unicom and China Mobile plan to introduce advanced wireless services, including entertainment applications and multimedia messaging, in the -Q4 of 2002.

Western Europe

In the U.K., Vodafone recently rolled out its m-pay system with reverse pricing (where the charge appears on the wireless bill). This pricing scheme represents a convenient way for customers to pay for multimedia services.

> As mobile entertainment applications develop, MEA expects the pricing schemes to continue to diversify...

Vodafone offers text-based games such as Trivial Pursuit™ for 12p (~$0.19 USD) per message; sports updates for 24p (~$0.38 USD) per message; celebrity voicemail greetings for the price of the air time required to set up the greeting — approximately 80p to 250p (~$1.23 to $3.87 USD); and ringtones and logos for 1.50 GBP (~ $3.00 USD).

T-Mobile in the U.K. plans to charge 26p (~$0.40) per 30 Kb MMS, which could contain audio, or 66p (~$1.02) for a 100 Kb message, which might contain video.[2] Other entertainment applications, such as ringtones, graphics and icons, cost ~1.50 GPD (~$2.33 USD), which is a function of the airtime required to download the application.

Italy's TIM sells ringtones and logos for 0.68 Euro (~$0.67 USD) plus the cost of airtime. WAP GSM browsing airtime costs approximately 0.12 Euro per minute. TIM charges 0.04 Euro for each kilobyte exchanged over its GPRS network. In Germany, Ireland and the Netherlands, carrier O2 will begin in October to offer classic Atari games such as Asteroids, Breakout and Pong for 2.5 Euro (~$2.46 USD). The fee enables the subscriber to play unlimited games for one month.

Conclusion

The wide variety of pricing schemes points both to the global fragmentation of the market and the early stage of data revenue development. No "best practices" model has emerged, and no single player has been able to dominate the industry. Moreover, intense price competition will continue to complicate global pricing models. As mobile entertainment applications develop, MEA expects the pricing schemes to continue to diversify as carriers attempt to cast a wide net to capture the attention of the mass market minnows and, at the same time, exploit the big fish of the mobile entertainment junkies.

1 "Bangkok Post" © 2002, Wednesday, September 18, 2002 *Analysis / Japan's Mobile Internet.*

2 "Revolution" © 2002, July 10, 2002 Haymarket Publishing Services Ltd. *Co-operation Is The Key to 3G Success,* by Richard Vincent, managing director of mobile messaging company Smartfusion

Short Messages

Continued from page 2

• Nextel and Sprint will drive initial adoption in the North American market. Shipments of Java handsets by these carriers, which collectively account for about 19% of cellular subscribers in the US, will account for about 50% of the North American market in 2003.

• Neither Microsoft nor Qualcomm will succeed in undermining the market momentum of wireless Java. Handsets from many vendors that support Windows CE or BREW will also support Java. Several VM solutions are already available for each platform, and carriers will want to ensure support for Java on most high-end and mid-range handsets.■

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