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WGR Presents:

Mobile Entertainment analyst

In-depth coverage of the wireless entertainment business

Thoughts on the Fourth Games Platform

The prospects and challenges of N-Gage

by Matthew Bellows

Whether or not you believe it will succeed, the launch of the N-Gage mobile games device should be considered the single most important event in the short history of wireless gaming. The games initiatives to date from operators have either followed up on an unforeseen discovery (SMS, MMS) or addressed gaming as a subset of data (DoCoMo and the recent US/EU followers). The handset efforts to date (Sagem's my G-5, SonyEricsson's T300) that have focused on games have been isolated activities, without Nokia's partners or its marketing budget.

But can N-Gage succeed? Based on its announced partners and its history, it's likely but not certain. We should give Nokia the benefit of the doubt when we're wondering about the company's ability to get distribution deals, or get strong content, or manufacture these devices in volume. If you are reading this, then you have to believe that consumers have a basic desire for playing videogames on mobile, networked devices. But the most significant factors for N-Gage's success remain unresolved. Whether or not the N-Gage becomes a gaming platform depends on the way Nokia addresses three key business issues:

- How will Nokia manage its content suppliers?
- Will carriers worldwide view N-Gage as an opportunity or a threat?
- How will Nokia price the N-Gage device and content given the competitive market for videogame entertainment?

Nokia started as a logging company, and its gift for self-transformation is well documented. If the company can negotiate these three

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GDC '03 Essentials: An Introduction and Guide to the Game Developers Conference

by Dan Scherlis

According to legend, hundreds of swallows return to Mission San Juan Capistrano in southernmost California on precisely St. Joseph's Day, March 19. Two weeks earlier, with less precision but more uproar, thousands of game developers swarm toward northern California for the Game Developers Conference (GDC).

GDC is legendary within the game industry for the intensity of its conference program, parties and game-developer community. First held in 1987, with 26 game designers crammed into founder Chris Crawford's living room, GDC now brings more than 10,000 souls to the San Jose Convention Center. Old-timers annually mourn the loss of intimacy and collegiality, but GDC continues to provide the only week, each year, that the "game development community" becomes a physical reality.

GDC Classic: *Too Much Conference, Too Little Time*

The heart of GDC is the "GDC Classic" conference itself, with more than 320 lectures and roundtable discussions jammed into three days, starting March 6. Like an academic conference, GDC has its speaker submissions peer-reviewed by leading developers. The seven "tracks" range from programming, through game design, to business and legal.

These tracks compete with a 200-exhibitor expo floor, the Independent Games Festival, and keynote addresses, which in previous years have included the first announcements of the PlayStation and PS2 by Sony, and of Microsoft's X-Box by Bill Gates. This year, keynote speakers include Frederick Brooks, author of the

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Mobile Marketing at the Super Bowl

by Elizabeth Biddlecombe

"Huge" is about the only word that adequately describes the Super Bowl. Nearly half of the U.S. population caught at least six minutes of the January 26th game on TV, according to Nielsen//NetRatings. The only way the rest of the population could have failed to notice it was happening was if it was under a total media blackout and in isolation.

But like most American entertainment, the big game was thoroughly exported worldwide – it is said that the game was watched by a further 800 million people in other countries. Of course, the day's proceedings are about so much more than football, involving eyefuls of cheerleaders and, this year, earfuls of Celine Dion. And the advertisements interspersing the programming garner almost as much attention as the game itself.

As a recent *Business Week* article made clear, the National Football League (NFL) is a smooth operator when it comes to manipulating marketing and media. The article points out that the NFL is streets ahead of other American sports leagues: it had some US$4.8 billion in revenues in 2002 compared to $3.5 billion for Major League Baseball and a "paltry" $2 billion for the National Hockey League. Of that, $2.5 billion comes from lucrative network and cable TV contracts.

Business Week mentions a recent Brand Keys (New York) study that finds NFL fans more loyal to the league than fans are to the American basketball, baseball or hockey leagues. The NFL is doing much to leverage this into demand for football information and entertainment. It is reportedly planning a 24-hour digital cable channel, a video-on-demand service, a magazine and two new films. All that comes on top of its web activities. Much has been made of the fact that 1.4 million unique visitors logged on to the SuperBowl.com site on the day of the game – the highest-ever traffic on a Super Bowl Sunday. Of these visitors, 27% voted for the MVP (Most Valuable Player), according to Nielsen//NetRatings, which provided these figures.

The number of visitors to the web site represents growth over the previous year's figures. Greg Bloom, senior analyst at Nielsen//NetRatings, praises the NFL's web activities, describing the way it feeds traffic between the team sites and its own as "exceptionally smart," and says that it has been "very clever with its relationship with Sportsline." (CBS Sportsline and the NFL have collaborated on web activities since 2001). Nevertheless, the comparison between the 1.4 million SuperBowl.com visitors and the 137.5 million TV viewers prompts Greg Bloom to add, "As an Internet analyst, I don't feel it's our great day."

> Most of the younger people go to Super Bowl parties...The way to reach them is via their mobiles.

If anything, then, the Super Bowl is another assertion of the TV as the dominant multimedia vehicle. But when it comes to interactive entertainment, the mobile device comes into its own – traditional interactive TV not being an option in the US and the contention between the sit-back TV and the lean-forward PC making them unlikely for simultaneous use. As numerous commentators point out, you can look at your mobile phone or PDA without having to leave the sofa. A quick glance at that smaller screen is less of an issue than perusing content on a computer monitor, and a number of people can access mobile content at the same time in the same room.

In addition, as Greg Bloom at Nielsen//NetRatings points out, the number of 18- to 31-year-olds logging on to the NFL's SuperBowl .com micro-site was fewer than would typically access the NFL online on a normal Sunday. "Most of the younger people go to Super Bowl parties.... The way to reach them is via their mobiles."

Several US carriers made something of this opportunity. Verizon Wireless's Get It Now service furnished the interested consumer with the ESPN 2Minute Drill trivia game and the Fox Sports Mobile service that provides a real-time graphical representation of the game. Verizon Wireless already has two football games on offer. It pushed this Super Bowl–related content via print advertising.

AT&T Wireless and long-time "iTV" partner Mobliss (Seattle, Washington) offered a trivia challenge that ran between January 15 and February 4, posing 500 questions about previous Super Bowl games. There was also a live televised poll called "U B the Coach," in which fans watching ABC at 4 p.m. on Super Bowl Sunday could try and second-guess a coach's next move in footage taken from previous Super Bowl games. While refusing to give figures, Brian E. Levin, president of Mobliss, rather predictably said, "There was a very good response, exceeding our expectations for sure."

SprintPCS has a partnership with FoxSports that includes advertising as well as content, like the "Virtual Coach" game that ran throughout the NFL season this year. On the day itself, it took a different tack by focusing on the Super Bowl Sunday TV commercials, for as Jenny Stevens, spokesperson for SprintPCS, said, "So many people watch the Super Bowl for the game, but a

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N-Gage

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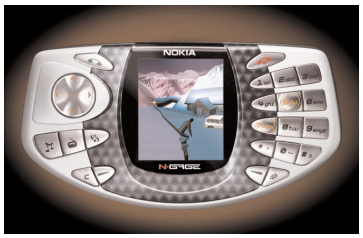
issues, it will set into motion a further transformation – Nokia as videogame giant.

Managing Content Suppliers

Of all the major handset manufacturers, Nokia has arguably been the most proactive in providing tools and support to the 900,000 application developers who have reportedly registered at forum.nokia.com. Comments from independent and corporate development groups working on Nokia projects are almost uniformly good. But with the N-Gage launch, there is some potential for discontent.

With the launch of this new game "deck," Nokia mobile content developers are, for the first time, officially split into classes. Authorized N-Gage Developers have the option of developing games sold on MultiMedia Card (MMC) flash modules. Only approved third parties (SEGA, Eidos, Activision, THQ and Taito, so far) and Nokia-authorized developers (Kuju, Springtoys and MonkeyStone so far) have this option. By developing for MMC cards, authorized developers gain access to larger development footprints, built-in copy protection and access to (as-yet unannounced) retail channels.



Developers who don't earn this classification can still create games for the N-Gage, but they will effectively be undifferentiated Series 60 developers. They will use the existing games distribution channels including Nokia's Trade-point portal, operators' J2ME services, web portals like Handango, direct sales from developer sites, and a range of alternative channels like digital TV and retail scratch cards. There is no word from Nokia on how many Authorized N-Gage Developers will be supported, or how all the content from these various sources will be managed.

> ... the single most important event in the short history of wireless gaming.

The N-Gage content management problems really come about if N-Gage is successful. Unless Nokia is very skilled at quality control for the platform, there's a very real possibility that N-Gage games on MMC cards will flood the market. We've seen this before with the Atari and Amiga consoles. To a lesser extent it's happening now with the Game Boy Advance. Too many titles overwhelm the consumer and drives down per-project profitability.

Nokia hasn't said anything about its content management strategy to reassure the market that this won't happen on N-Gage. At the launch, Jonathan Sharp, who is responsible for the N-Gage games catalog, said "We'll run our publishing business in a way that videogame developers are very familiar with. Nokia will charge them cost-of-goods for the MMC card plus a royalty fee."

Unless the implementation of this model is closely managed, it won't produce much incentive to modulate content volumes. At the launch, Mike McGarvey, CEO of Eidos, indicated that compared to developing for the GBA, N-Gage offers a more profitable business

model. If N-Gage does prove very profitable for the Authorized Developers, and there's nothing else to stop them, 3rd party publishers will port all their old console titles to N-Gage, and gamers will be buried.

Plus, N-Gage owners will have access to all games developed for Series 60. All those games will be cheaper and available for over-the-air downloading. Some of those games will be quite entertaining. If games pour in indiscriminately from both authorized and non-authorized developers, individual titles will be lost, consumers will be overwhelmed, profits will sink, production cycles will speed up, and N-Gage content will move toward commoditization.

> Too many titles overwhelm the consumer and drives down per-project profitability.

To avoid this fate, Nokia needs to put a lot of effort into their publishing business. We haven't yet heard who will run that business, but that person should come from the games publishing industry, not from within Nokia. That person needs to have a plan for maintaining high quality within the authorized developer group while

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Technology Explained

Faking the Float

by Cashman Andrus

Computer graphics are all about squares. Square pixels joined in square grids that create square (err, rectangular) screens. The real world, on the other hand, is about angles and circles – real objects almost never move in straight lines; instead, the forces of gravity, inertia and friction bend them along curves.

To make a computer game that mimics the physics of the real world, those curves need to be converted into squares. Most early video games didn't bother trying for physical realism and instead had everything move only on a square grid: Pac-Man didn't skid when he took a corner too fast, he just instantly changed direction. (An abortive attempt at taking this idea in the other direction can be found in the 1983 TV series "Automan," where the hologram hero's car turned in precise right angles – squashing his human passenger against the side window at every corner.)

These days, most console and PC games sport sophisticated models of the physical world. The math involved in running these models is based on classical mechanics, similar to the way it's taught in high schools and colleges around the world. The equations for collisions, falling bodies, slopes, explosions and all the rest are well understood and, with a few tricks, easy to model on a high-powered computer. Many of these equations are based on the sine function, which describes how a circle maps onto a line (as you may recall from trigonometry class).

Most of the time when you're doing physics math, and certainly any time you're using a sine function, you are working with floating point numbers. The "floating point" approach is just a fancy way of thinking about numbers with a decimal point in them, only with some extra conceptual tools that make the math easier and more powerful.

The first trick is to break each floating point number ("float") into two pieces, the "mantissa" and the "exponent". Essentially, the mantissa is the front part of the number, while the exponent describes how many zeros follow it. For example, the number 325,000,000 could be broken into a mantissa of 3.25 and an exponent of 8 (assuming decimal operation). This representation is useful for a couple of reasons: one, it makes it very easy to represent really large or really small numbers without losing much accuracy and, two, it simplifies multiplication and division of large numbers, transforming one large operation into two small ones (a multiplication of the mantissa and an addition of the exponent).

> Pac-Man didn't skid when he took a corner too fast, he just instantly changed direction.

What makes this trick work especially well is that modern PCs and game consoles have special circuitry for performing floating point math. This Floating Point Unit (FPU) handles float arithmetic in hardware, significantly speeding it up and making highly realistic games possible.

However, an FPU is a large and power-hungry chunk of silicon, and so, at present, mobile processors almost always leave it out. When there is no FPU, floating point math must be performed using only integer operations. That means using software to fake the process of multiplying and adding floats using only integer (whole number, no decimal point) numbers. Because each float operation requires several integer operations, the whole process of handling floats is drastically slower.

To top it off, many mobile programming environments don't even offer built-in float types. The J2ME standard, for instance, does not,

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Q4 Mobile Software Sales

Source: Handango (http://www.handango.com/pdf/HandangoYardstick4_2002.pdf)

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IN-FUSIO's downloadable games service key statistics

registered players	1,540,000
rate of change (month on month)	17%
new player registrations (per day)	8,000
active players	595,000
paid downloads	3.5 million
Additional ARPU per year for each registered player	> €30

(as of 13 Feb 2003) Source: In-Fusio

though there are moves underway that may make it standard by early 2004. More sophisticated environments, like Symbian, Windows CE or Palm OS, do provide software support, but with limitations and the warning that float operations will be very slow, and so are best avoided whenever possible.

> When there is no FPU, floating point math must be performed using only integer operations.

Getting around these limitations means rethinking the way the application does its computation and coming up with techniques to represent the necessary math in pure integer terms. The standard approach uses a technique known as "fixed point": representing each float as a single integer. This allows the programmer to trade off some of the extreme flexibility of the true float type in favor of better performance over a limited, but useful, range of numbers.

The simplest fixed-point technique is simply to multiply all the numbers by a fixed offset. For example, by using a base offset of 10,000, you can represent the float 0.997 as 9970. Or if you're dealing exclusively with large floats, you can use a base of 0.000 000 to represent 80 billion as 80,000. (For increased accuracy, use a binary rather than a decimal offset – 2^8 or 256 for 16-bit integers; 2^16 or 65,536 for 32-bit integers, perhaps. Besides avoiding wasted bits, this method lets you use bitwise shift operations to speed up multiplication and division.) Essentially, the offset is a fixed exponent, and the only number being stored is the mantissa. You'll need to be careful to choose an appropriate offset for the math you're doing, but with a simple game on a small screen, you can afford to lose some precision.

In this fixed-point format, addition and subtraction use the regular integer operation, while multiplication and division require an additional step of removing the extra offset – divide by the offset when multiplying two fixed points, and vice versa. Before being exposed to the real world as graphics or sound, these fixed points need to be converted into regular integers or floats by removing the offset. As with all integer math, you'll need to watch out for overflows and underflows, which can cause your math to go very screwy indeed.

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Handset Highlights

Motorola V600

Modes: GSM/GPRS 850/900/1800/1900
Price: unknown (probably ~ $400)
Screen: 120 x 160 pixels, 65k colors
Apps: Java MIDP
Available: second half of 2003, worldwide

Of the 2003 handset portfolio announced by Motorola last month, the V600 stands out as the top of the line phone for mainstream users by packaging nearly all state-of-the-art features into a slim and attractive form. By late-2004, the majority of users will have phones like this.

Nokia 3520 and 3560

Modes: TDMA 800/1900, AMPS 800
Price: $0-100 with contract
Screen: 96 x 64 pixels, 4096 colors
Apps: Java MIDP
Available: early 2003

Proving that TDMA is not dead yet, but black and white is, Nokia revealed two new models for the Americas. Most TDMA operators are converting to GSM, GPRS and EDGE, so these handsets are stopgaps for the year or two that process will take.

Sony Ericsson T306

Modes: GSM/GPRS 850/1800/1900
Price: $0-200, depending on subsidy
Screen: 128 x 160 pixels, 256 colors
Apps: Mophun
Available: early 2003

This follow-up to the Sony Ericsson T300 swaps out GSM 900 for GSM 850, to enable wider coverage across the Americas. This will put the powerful Mophun gaming engine into the hands of millions more users, in a sleek and inexpensive phone that also support MMS, polyphonic ringtones, wallpaper, etc.

Samsung SCH-i600

Modes: CDMA 1xRTT 800/1900, AMPS 800
Price: ?
Screen: large, color
Apps: Microsoft Smartphone 2002
Available: mid 2003

This folder from Samsung will be the first CDMA MS Smartphone, and only the second handset to ship. Microsoft's Smartphone initiative has suffered setbacks, with the loss of early licensee Sendo and ensuing legal actions, and slow rollout of devices, but they are emphatically not out of the game yet.

The Content Provisioning Conundrum

by Gal Nachum, Cash-U

The mobile phone has evolved enormously since its inception, when its sole purpose was to enable communication while "on the move." As handsets have become more convenient to carry and cheaper to use, they have become an inherent part of our daily lives – indeed many households no longer use landlines but rely solely on their mobile phones.

However, it is not just the growth in mobile penetration and mobile voice calls that has surpassed expectations. In addition, the growth in data applications (such as SMS) and entertainment services (such as games) that extend mobile phones from their traditional functionality has been phenomenal. The mobile phone is now a ubiquitous part of society, and it plays a key role in providing individuals with a sense of security, connectedness and entertainment.

> ...charging for the initial game download represents only the start of the interaction.

Similarly, while years ago mobile phone users would have to carry unpractical and unfashionable battery backpacks, the sleek design of mobile handsets today has become another accessory for the image-conscious consumer. Ringtones, icons and fascias have further enabled consumers to personalize their handsets in line with current trends, providing the mobile industry with additional revenue streams.

Current Market View

Operators and content providers in Europe and Asia have benefited enormously from the somewhat unexpected explosion in revenues and significantly raised ARPU (average revenue per user) stemming from the growth in SMS and other data services. Over the New Year's holiday, operators across Europe reported record levels of SMS traffic (Portugal had an astonishing 37 million SMS over New Year, Switzerland had 30.8 million and Austria recorded 20 million, to cite a few). According to analysts, this is just the tip of the iceberg compared with what is to come.

Ovum has predicted that by 2007, annual consumer revenues from services based on MMS – including revenues from associated paid-for content – will be approximately US$72 billion worldwide. Predictions for the mobile gaming industry are equally bullish – Datamonitor predicts that by 2006 there will 440 million mobile users playing online games. In terms of global revenue, Datamonitor estimates the market will explode to $17.5 billion in 2006.

Emerging Data Applications

Gaming on mobile handsets is far from a new concept, as the estimated 130 million people who have played Snake since 1997 can testify. Until recently, games have always been embedded, i.e., the program is actually built into the phone at the manufacturing stage, so no use of the network was made. However, the balance is shifting: Embedded games currently count for 62% of the mobile market, but research by ARC predicts this figure will fall to 24% by 2006, opening the door for operators to charge for downloads and interactive wireless gaming.

In contrast with embedded content, games downloaded from the network enable subscribers to tailor entertainment options on their mobile as they wish; charging for the initial game download represents only the start of the interaction. Developers are able to enhance games to contain features (such as incremental game content downloads, high score uploads), enabling wireless operators to increase ARPU and provide repeat revenue.

> "Spiderman" icons are available before the film is released and new ringtones are ready to download as the pop song hits the charts.

Exploiting Fads and Trends

In the mobile sector of the entertainment world brands are all-important. The success of Snake proved simplicity can be a winner, but the consumer brands are lurking around the corner. Conglomerates are in talks with content developers and mobile operators all over the world to devise ways of generating revenues via data applications such as ringtones, icons and games. Wireless is used to extend the brand, while the brand is used to sell the mobile services. In the same way merchandising extends the moneymaking possibilities of movies far beyond the cinema, the various add-ons push the brand to generate further income. The challenge is for operators to bring to market branded services in time with the current fashion, so "Spiderman" icons are available before the film is released and new ringtones are ready to download as the pop song hits the charts.

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Handsets are Selling but Net Additions are Crawling

by Adam Guy

What the Mixed 4Q Results Mean for the Mobile Entertainment Industry

With blah-beige clouds of economic uncertainty and market saturation hanging over the wireless industry, carriers, device vendors and software and application developers look to entertainment services for a potential silver lining.

The Federal Reserve's Beige Book – the regional survey of economic activity – reports that as of January 6, 2003, consumer spending is puny because of "disappointing" holiday sales and a year-end unemployment rate of 6%. Although there is hope of mid-term recovery, the US wireless sector was not exempt from this Q4 economic limpness.

BellSouth kicked off the reporting season with Cingular's announcement of a net loss of 121,000 customers. Although industry experts had the other major US carriers either meeting or falling below subscriber addition expectations, Verizon, AT&T Wireless and T-Mobile all came in ahead of previous expectations.

For years, net additions – the granddaddy of wireless metrics – has measured the wireless industry by its ability to attract new customers. However, with the exception of developing countries, such as China and India, the trend of slowing growth of subscriber additions is emerging around the world. Lehman Brothers estimates that the US wireless industry added 12 million customers in 2002, 35% fewer new customers than in the previous year. It expects even fewer customers to be added in 2003.

A recent report by FastTrack Wireless Inc. notes that, globally, carriers added 6% fewer customer in the Q4 2002 than in the same period one year earlier.[1] The report states that global wireless penetration sits at 19% as of YE 2002.

On a seemingly brighter note, handset vendors reported better than expected shipments of devices, particularly those with color screens, digital cameras and the ability to download digital content. Specifically, Motorola and Nokia have reported higher shipments of mobile phones for Q4, citing surprising adoption of feature-rich phones, color screens and other enhancements. Siemens also reported better than expected results, and in late January announced its launch of XELIBRI, a new line of weird-looking, I mean fashionable, phones.

> Falling component and device prices create broader mass-market access to new tricked-out phones.

The downside to the positive news about handset shipments is that these and other vendors are enjoying an ever-shrinking premium for new enhanced features as competition from new manufacturers and the weak economy continues to drive prices downward.

The carriers and retailers further squeezed profitability out of devices by engaging in wild holiday promotions. A year-end report from Deutsche Bank Securities[2] highlights some of these wacky deals, including huge mail-in rebates, free service, free phones and even other electronics devices. Perhaps the most striking example was British retailer Carphone Warehouse's offer of a free Motorola V50 and a DVD player in exchange for a one-year T-Mobile U.K. contract.

With these types of promotions, it should come as no surprise that Carphone now reports that during the 2002 holiday season, the retailer moved better than expected volumes of MMS-capable handsets compatible with Vodafone's Live! entertainment service.

The Promise of Mobile Entertainment Services

On the services side of the equation, the diminishing supply of new subscribers is forcing carriers in developed markets to find new ways to generate revenue. Although industry pundits have been predicting this for some time, now that Q4 2002 has come and gone carriers are forced to look beyond subscriber growth for new revenue. From a research perspective, it looks like it's time for carriers to ask themselves, "what do we need to do to get customers to start paying for new services?"

For example, in Israel, where the wireless market is almost completely saturated, carrier Pelephone recently launched a new service brand called Esc (short for escape). Esc lures customers to wireless entertainment with invitations to liberate themselves from "the demon (negative feelings such as boredom and loneliness) within" and escape to another, "rich world of possibilities."

While this language may sound extreme or overly personal, it represents an aggressive push to get people to think differently about wireless phones and ultimately fork over money for new services. Not only will Pelephone market this brand through traditional channels, it will also dispatch convoys of buses and fancy cars to gatherings of young people. I've never been to Israel, but if this works there, more power to Pelephone.

With similar marketing gusto, Vodafone and Virgin Mobile have led the U.K. market's charge toward

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> Siemens... announced its launch of XELIBRI, a new line of weird-looking, I mean fashionable, phones.

GDC '03

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legendary "Mythical Man-Month" and NCsoft CEO Tack Jin Kim, examining "Lessons Learned from Korea and (his mega-hit online game) Lineage."

The juried speaker selection, and the audience's expectations, distinguish GDC from most telecom conferences. Sponsors cannot command keynotes or regular lecture sessions; their paid-for "sponsored sessions" are clearly segregated in the program. Lectures seldom include more than one slide about the speaker's company, and blatant advertising or company promotion is not merely frowned-upon, it is openly jeered.

...the only week, each year, that the "game development community" becomes a physical reality.

GDC Classic '03 will include about a dozen mobile-specific sessions, including a roundtable ("Could Retro Arcade Classics Kill Wireless Gaming?" led by IOMO's Glenn Broadway), two panels ("Three Great Mobile Games" and "How to Take Your Mobile Game to Market," both led by MEA's own Matthew Bellows), and lectures on technology and business issues (including my own, on "Doing Business with Telecom").

You may find that some of the most useful content might not be mobile-specific. Notable sessions that apply to mobile-game issues include "Working with Movie Licenses," "The Puzzlemaker's Survival Kit" (by puzzle-design wizard Scott Kim), a "Casual Games Panel" (with respected designers Meretzky, Vechey, and Rohrl) and sessions on online-world design and management (by Sony Online's design guru Ralph Koster and producer Rich Vogel).

GDCmobile: Two Days for Our Kind of People

The two days before each GDC feature intensive tutorials on all topics. Last year, a two-day Academic Summit premiered, examining both the study of games and the teaching of game development. This year, GDC is also preceded by a two-day conference devoted to mobile entertainment. GDCmobile will include "Operator Spotlight Presentations," sessions on mobile-game design, publishing and technology; case studies of China, Finland and the United States; and keynote speakers Takeshi Natsuno (NTT DoCoMo's EVP of i-mode) and Ilkka Raiskinen (Nokia's SVP, Media and Entertainment).The high profile given GDCmobile by CMP, the conference organizers, reflects both the advance of mobile games, and the high interest developers have in the new medium.The GDCmobile program looks like the best mobile-games event yet, and I swear that my judgment is not biased by my giving a lecture (on mobile community) and leading a panel (on future technologies).

One year, new conference management capriciously prohibited T-shirt handouts, unaware that hundreds of developers were counting on those giveaways for clean clothing.

GDC People: The Real Reason to Go

For me, living on what the game industry considers the Wrong Coast of the US, GDC is a rare chance to see colleagues and industry friends. Some of the most interesting talks – and most valued advice – I have heard at GDC happened during chance encounters in hallways or at the Fairmont Hotel's bar.

Game developers are a unique breed, and GDC is their show – after all, the "suits" have their

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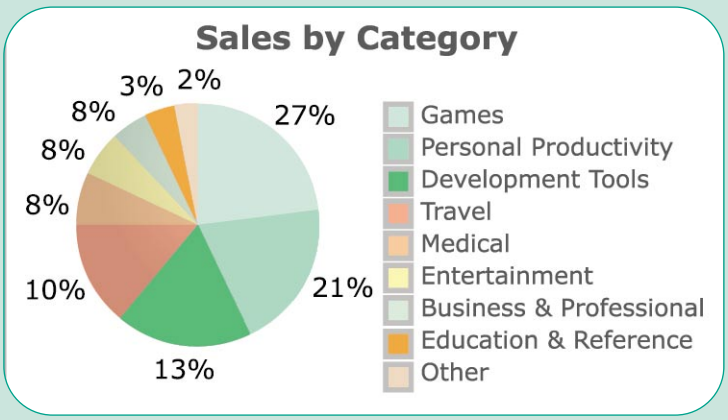

Source: Handango (http://www.handango.com/pdf/HandangoYardstick4_2002.pdf)

E3expo (which is as definitive a game-industry marketplace as GDC is the ultimate developer conference). One year, new conference management capriciously prohibited T-shirt handouts, unaware that hundreds of developers were counting on those giveaways for clean clothing. The crowded sessions were unusually pungent that year.

The GDC crowd is a highly interactive one. The best part of many sessions is the audience Q&A. Debate or rebuttal from attendees is as likely as questions.

GDC Planning: Advice, If You Go

If you go to GDC, or if you are considering it, study the www.GDConf.com website thoroughly. Use the search feature for your favorite topics, and scan each track, because the track assignments are often approximate. Give consideration to speaker biographies as well as session abstracts.

While there, do check out some roundtables. Their quality varies widely, but the good ones are memorable. Show up early, to evaluate the moderator and group, and also to avoid getting locked-out of a popular discussion.

Evenings at GDC are filled with awards banquets, parties and hanging out. I favor the Fairmont's bar, but the Hilton and Crown Plaza are also popular, and the Game Room might be worth a visit. For the big parties, try to get invitations early at the sponsors' booths. Thursday's Awards Ceremony can be a good show, but Friday's "Suite Night" gets more crowded and less interesting each year.

For a telecom executive, or anyone else new to the game-development industry, GDC offers full immersion in industry culture, and one-stop shopping for industry lore, assumptions and expectations. And it might be the only time you can see the halls and lobbies of a 5-star hotel overrun into the late hours of the night by game developers running about with glow-in-the-dark underwear on their heads. ■

Stat!

Top UK Java Game Downloads

1. Fruit Machine *Second Month at Number One*
2. Iceblade Penguin
3. Super Golf
4. Zapper Racing
5. New Skool Skater
6. City Racer
7. Combat Tank Attack
8. Global Grand Prix
9. Oilrig *Highest New Entry*
10. Com2Us Tennis

(for January, 2003) Source: Telecom 1, http://www.telecom1.com /newsroom_telecomonelatest_FruitremainsTOP.asp

Handsets

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innovative service provisioning. With the 2002 launch of its Live! service, Vodafone has used splashy advertising to lure customer into upgrading their phones and services. Likewise, Virgin has used an edgy marketing drive to yield impressive subscriber growth (more than 300,000 Q4 net adds) and industry-leading prepaid ARPU.

> ..."what do we need to do to get customers to start paying for new services?"

In the US, Cingular introduced downloadable Java applications in December, leaving T-Mobile as the last of the big 6 to take the value-added step. Every week seems to generate announcements from carriers of new entertainment applications creating a smorgasbord of activity available on the wireless deck. During the Super Bowl, SprintPCS enabled its subscribers to vote on their favorite ads via the wireless web. This followed a string of event-driven applications, including those based on the Final Four, the World Cup, and the Academy Awards.

Cheap Handsets Creating Entertainment Markets

The impact of the developments in the handset market on mobile entertainment is promising as well. Falling component and device prices create broader mass-market access to new tricked-out phones. This creates an opportunity to reach the huge developing markets, such as China and India, where there is a budding demand for mobile entertainment services but few disposable dollars to procure them.

For example, even as the GPRS, CDMA 1X networks are being rolled out in China, wireless gaming developer Sorrent has signed up Houston Rockets star Yao Ming to endorse an interactive basketball video game. The apparent handset price war will remove the hurdle keeping mass-market consumers from upgrading to snazzier phones. Other gaming publishers, including Chasma, which recently closed its first round of funding to develop Java gaming applications for carriers including China Unicom, are targeting the population giant with entertainment content.

The Power of the Point of Sale

Unlike Asia and Europe where there is a cultural affinity for experimenting with consumer electronics, the US market will require more than free phones and great applications to drive mass-market adoption of mobile entertainment. One often-missed opportunity to drive adoption is at the wireless point of sale.

InfoTek Research (where the author of this article works) is conducting a study of the wireless retail environment that measures the behavior of wireless sales associates as well as consumer demand for emerging wireless products and services such as mobile entertainment. InfoTek interviewed 266

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N-Gage

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allowing the most promising unauthorized developers to earn their way to authorized status.

Nokia should also consider charging their publishing fee on retail units sold instead of MMC cards shipped. This approach might not discourage publishers from porting games en masse, but it would certainly encourage Nokia to manage the content marketplace closely.

> If any company in the world knows how to work with carriers, it's Nokia.

Working with Carriers

If any company in the world knows how to work with carriers, it's Nokia. But any tensions between the No. 1 handset manufacturer and its carrier customers will be exacerbated by N-Gage. The new gaming deck will necessitate more direct-consumer marketing than ever, and it will increase carriers' perception that Nokia wants to be the primary consumer brand.

To combat this perception, and to give carriers a revenue incentive to carry N-Gage, Nokia has proposed several game service offerings that carriers can deploy to capitalize on N-Gage. These offerings include high-scores hosting, game content distribution, hints and cheats services and community programs. Nokia has also promised to let carriers sell MMC content in their stores.

That proposal doesn't seem to be enough to have immediately captured carriers' support. At the time of the launch, only T-Mobile had signed on to distribute N-Gage. Whether that's a sign of T-Mobile seizing first-mover advantage or of desperation-for-differentiation, is impossible to tell. In the US, at least, N-Gage will certainly give T-Mobile, which distantly trails other carriers in game content, something to market about.

To bring on new carriers more quickly, Nokia should bundle its games services software into the next carrier platform upgrade and distribute it free to current customers. Nokia could also offer free or discounted integration assistance to get multiplayer services running quickly. By making adoption and deployment of N-Gage services as easy as possible, Nokia will speed carrier acceptance of the device and consumer access to multiplayer features.

N-Gage Pricing

The US launch of the Sega Saturn platform and Sprint's Vision service both show clearly that for games and for mobile, overpricing means failure. When the Saturn was announced at $399, consumers gasped and quickly turned to the PlayStation, which cost $100 less. After an August 2002 launch of its Vision services, Sprint had to cut its prices twice to encourage customers to adopt the service.

When N-Gage launches toward the end of 2003, it will face competition in two separate camps. It must meet price and feature expectations for both. Dedicated gamers will compare N-Gage to the new GBA SP. At an expected launch price of $100 (without phone contract) the GBA SP boasts a huge content library and multiplayer gaming available via its Link Cable. Mobile phone people who like videogames are going to compare N-Gage to the other color handsets, which sold between $50 and $200 in the US last Christmas.

In markets like the US, where consumers expect handset subsidies, N-Gage should be priced between $50 and $199. At more than $200, broad market interest will quickly drop off. Even in countries unaccustomed to subsidies, Nokia should make buying N-Gage not a matter of price. If Nokia can combine carrier handset subsidies (which it claims to dislike) with an internal hardware subsidy to spur adoption and software sales, N-Gage could very well sweep the market.

> When N-Gage launches toward the end of 2003, it will face competition in two separate camps.

Conclusion

Nokia basically invented mobile games when it had the foresight and the playfulness to put Snake on the 6100 series phones. With N-Gage, the company continues its leadership in this market. If Nokia can successfully negotiate the upcoming content, carrier and pricing challenges presented above, N-Gage should be very successful. The vast majority of the mobile entertainment industry is rooting for them. ■

Games We Like

By Cashman Andrus

Worms World Party

Worms World Party is that rare breed, a turn-based arcade game. You command a squad of worm soldiers wielding an impressive array of weaponry, all the better to blast an opposing squad to smithereens (usually along with quite a bit of the scenery). With each turn, you control a single worm as it walks, jumps, aims and fires; then watch as the bullet/bomb/exploding sheep streaks toward the target and detonates in a hail of debris. The results of each shot are based on the physics of the actual world and can be quite complex – wind, gravity and exploding obstacles all effect the aim and power of your fire.

The worms themselves are very expressive and add a lot of charm to the game. They taunt each other with quips and war cries and perform little victory dances and dramatic death scenes. When one of your shots goes astray, you'll get a shout of "traitor!" from your fellow worms. And you can customize your team's voices by selecting from a wide variety of languages and cute accents – everything from Angry Scots to Norwegian to Thespian.

Worms World Party is the latest in a series that started with Worms back in 1994. U.K. developer Team 17 has released versions for all major game platforms from Amiga to PS2, and it recently selected Hexacto to develop WWP for Palm OS, Pocket PC and MS Smartphone.

WWP is a lot of fun when played alone against the computer, but it really starts to shine in multiplayer mode, whether taking turns at a single machine, over a LAN or via the Internet. Playing against other people gives you a style of gameplay you just don't get otherwise, and WWP is simple enough to pick up that it makes a great party game.

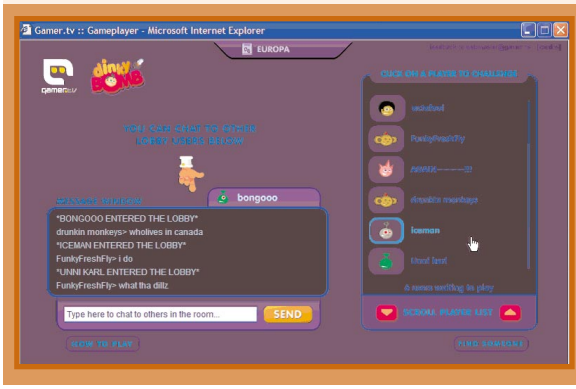
In fact, there is another game that hones these social aspects of Worms to an even finer point. Dinky Bomb is a browser-based two-player game with identical, if simplified, gameplay. In Dinky Bomb, you've only got three different weapons (rather than WWP's dozens), but you can chat with your opponent during the game, as well as in the lobby between sessions. This gives you something to do while the other guy is lining up his shot, a welcome addition. It's done with Flash, so anyone with a modern browser can easily join a game without delay.

What makes the Worms games of special interest here is that its strengths play almost perfectly to the limitations of the current mobile environment. The graphics are relatively simple (no 3-D needed), the levels are small, and the play is easy to learn. And, most important, you can enjoy multiplayer mode without worrying about latency – this game could be played over SMS or GPRS with little difficulty because the shot animations don't need to be synced between players. Combined with some simple chat and viral distribution, Worms or something like it could become a breakout hit for wireless gaming.

Worms World Party

You can download a trial copy of WWP for PC from **http://wwp.team17.com/.**

You can play Dinky Bomb online at **http://www.gamer.tv/page/game_launch/3123769.htm.**■



Dinky Bomb

Mobile Marketing

Continued from page 2

larger percentage of people watch for the ads." The mobile operator, together with Openwave, Proteus and hosting company FastCow, collaborated with McKee Wallwork Henderson Advertising to allow viewers to rate the ads. The Adbowl event (www.adbowl.com) saw just 167,000 votes cast. Craig Dalton, director of business development at Proteus (which has offices in Washington D.C. and San Francisco), wasn't prepared to break that down in terms of wireless versus online users but said that "the vast majority came from wireless users."

> So many people watch the Super Bowl for the game, but a larger percentage of people watch for the ads.

Again, we're not talking earth-shattering figures, leading Greg Bloom at Nielsen//NetRatings to comment that neither the SuperBowl.com nor Adbowl voting was promoted enough. Jenny Stevens of SprintPCS explained that this effort was not about revenue generation but rather "all about educating the customers that they can do more on their phone than talk, and with the trivia contests (and so on) we're inviting them to do more than watch."

A January 31 poll on SMS.AC, a provider of international SMS-based services, found that a third of people who viewed the SuperBowl did something related to the game on their phones. Of 46,626 people responded to the poll (out of the 10 million active users SMS.AC claims to have), 25.4% sent text messages to their friends; 8.2% got information, voted or played a football-related game. (SMS.AC itself pushed one Super Bowl–related item – an ad from Levis pointing users to its web site, where the final stages of a special interactive Super Bowl promotion were taking place and a US$150,000 pair of jeans was waiting to be won.)

Of course, subscribers to SMS.AC are already educated in the ways of mobile data, but the poll seems to suggest that the Super Bowl contagion did spread onto the mobile channel, and, what's more, to mobile users abroad. Of the respondents, 19.7% came from the US; 10% of SMS.AC's user base is U.S.-based.

With its aptitude for media activities, the NFL hasn't been slow to embrace the mobile phone and PDA. Phone users can get NFL news, scores, fantasy scoring and information, while Palm users can get news, information and live game scores. Unfortunately, neither the NFL nor its content partner CBS Sportsline made themselves available to talk in time for this article. Calls to the finalist teams – the Tampa Bay Buccaneers (who, by the way, won by 48 to 21) and favorites, the Oakland Raiders – failed to yield any response.

In the absence of their comments we can only go on what we see, and that is that neither has yet exploited the full value of the mobile terminal for interactive engagement. The NFL and its Super Bowl climax is valuable content. The door is wide open for the mobile world to exploit it. ■

Faking the Float

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Fixed-point programming isn't easy – there are many design decisions to be made, and an appropriate choice for one application may be completely wrong for another. But a well-done fixed-point implementation can yield impressive results, from realistic graphics and animation to powerful sound and video processing. Eventually, mobile processors will incorporate FPUs, and such tricks won't be as useful. But for now, fake floats are the only way to fly. ■

Stat!

Consumer Interest in Mobile Device Functions

Consumers who own either a wireless phone or a PDA rated the following functions in terms of their importance for a handheld device.

E-mail	42%
Internet access	40%
Calendar	34%
Voice calls	31%
Instant messaging	27%
Playback of music files	24%
Playback of video files	22%
Built in digital camera	19%
Video games	15%

Source: the Yankee Group Digital Home Entertainment Survey 2002

Handsets

Continued from page 9

wireless retail associates and found that while there is interest in entertainment services emerging at the point of sale, the store associates are neither equipped nor given incentives to actually teach consumers how to utilize mobile entertainment. For many US reps, their livelihood is all about activations and keeping customers churning through the stores. This is in contrast to DoCoMo, which pays its retail franchises every time a customer comes into the store, and Vodafone, which is experimenting with paying reps a percentage of the lifetime ARPU of subscribers.

What is promising is that in InfoTek's survey, small but meaningful percentages of US store patrons asked about picture messaging, mobile gaming, polyphonic ringtones and even streaming audio and video. With a little work on the marketing and consumer outreach at the point of sale, everyone in the wireless value chain can climb back in the black – and out of the beige. ■

1 Reported by RCR Wireless News, 1/24/03
2 Deutsche Bank Securities, U.S. Wireless Communications Equipment, Volume 57, 1/23/02

Conundrum

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Bundling Services for Cross-Selling

Through monitoring consumers – which games they download, which information sites they subscribe to – marketers are able to build a detailed picture of customers, allowing for concentrated, targeted marketing initiatives, such as product bundles. So, for example, anyone that wins a football game gets a football club icon of his choice, or anyone that downloads the latest Kylie ringtone gets free Kylie Minogue news. Ringtones, logos, graphics, news services and games can all be developed and marketed together to provide the user with an enhanced mobile experience and the operator with increased profitability.

The Content Provisioning Condundrum

The implications of bringing these services to market are not all positive. Currently, the content life cycle consists of a number of informal and separate processes. Developers and content providers email their content to the operator, who will dump it into its repository. From there, the processes of preproduction (such as upload, classification, and testing) are carried out to judge the usability of content. All of these processes are then repeated and applied on the production side of the content life cycle. This inherently inefficient duplication of processes is made worse by the complex sequences required and the different resources involved in each of the processes.

Additionally, providing an easy-to-use interface with rapid accessibility for mobile customers is of paramount importance. As more content services become available and are promoted in a wide variety of product bundles, the organization of content becomes more and more of a challenge. To provide a seamless and simple service to the consumer, operators need to organize each different service and each different item of content in a highly logical structure.

Centralized Provisioning is Key

In the past, each of these content services had to be provisioned in a piecemeal fashion as to how and when they came to market. Many of the services are based on legacy systems, and much of the content and its delivery are outsourced to third parties. If the growth in mobile data services meets any of the analysts' predictions, operators are inevitably going to have to rethink their approach to provisioning their services.

Centralizing the management of content from its existing fragmented structure offers a number of advantages. As well as dramatically simplifying the content life cycle and eliminating existing inefficiencies and unnecessary costs in content management, the centralized provisioning approach enables operators to bring together all services (games, rich content, polyphonic ringtones, chat/news) and organize content items according themes. This allows operators to very simply link items of content to promote specific bundles or designate prizes for community competitions, and so forth.

It is also a more logical approach to presenting services to the consumer. By providing greater access to services, the operator can ensure that customers rapidly get what they want so that the era of mobile data services does not die the same death as WAP. Certainly, from the research we have done with our customers at Cash-U, it is clear that there is a need for operators to make these value-added services as simple for the mobile user as possible. Furthermore, operators can use a centralized provisioning system to enable consumers to actually create their own icons, compose their own ringtones and convert their pictures to a particular media type. Not only would a service like this drive additional revenues, but it would also provide much-needed product differentiation for the network operator.

Operators should consider the benefits to be achieved from centralizing their content provisioning. This approach would eliminate inefficiencies and reduce time to market, provide greater flexibility for the marketing of services and provide a more logical and easier to use interface for the consumer. With the boom in mobile data services anxiously anticipated by the industry, now is the time to make these changes. ■

Contributor Bios:

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Cashman Andrus left a career of slinging code and herding cats to co-found Wireless Gaming Review. Before WGR, Cashman was Director of Development at Yesmail and an award-winning application developer for the Palm platform. He earned a Bachelor of Science degree in Brain and Cognitive Science, with a concentration in Computer Science and Linguistics, from the Massachusetts Institute of Technology.

Matthew Bellows has worked in telecom and the Internet since 1995. Before co-founding Wireless Gaming Review, Matthew was Director of Business Development for Engage (NASDAQ:ENGA). At Engage, Matthew managed the team responsible for 4,000 advertising contracts that drove $30 million in annual revenue. He received his MBA with high honors from the Olin School of Management at Babson College. Matthew's first job in the game industry was as a tester at Infocom, where he spent the bloom of his youth playing Leather Goddesses of Phobos.

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Amy Monaghan (cinetrixie@yahoo.com) Amy has edited research on infrastructure and applications, as well as telecom and media, for Forrester Research Inc. (NASDAQ: FORR). Her background is in science and technology publishing: she has edited publications of the Massachusetts Medical Society, Rockefeller University Press, and Cell Press. Amy holds a Masters degree in English literature from the University of Chicago and a Bachelor of Arts in English literature from Wellesley College. She is not as boring as her career path might suggest, and she rides a black Schwinn Classic cruiser. ■