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WGR Presents:

Mobile Entertainment analyst

In-depth coverage of the wireless entertainment business

The History of Debacle

By Ben Calica

Read this, show it to your boss and his/her boss, and then read this again.

Forgive the dramatics, but I'm worried. A conversation I had at a recent trade show with a senior executive at a major industry player highlighted a serious problem in the wireless gaming business. I asked whether he knew about a particular failed product from more than 10 years ago that was similar to a project his company was currently working on. First, he said he'd never heard of it (even though it was a well-known story in videogame circles). Then he said that his company's clean-room approach to development blocked him from looking at any artifacts, regardless of how relevant they might be. This was chilling news. It may be that the executives involved were too young or had joined the industry too recently to know its history. Regardless, it explained a great number of the multimillion-dollar decisions that seemed to completely ignore some very serious, career- and company-ending mistakes others in the videogame industry had made over the past 30 years. So, for the health of our newborn industry, I've crafted this inoculation against past missteps.

CD-I: The Debacle of Debacles or How Not to Blow a Quarter Billion Dollars...

In many ways, the CD-I mess is one of my favorite lessons in pride going before the cleaning out of your office. This happened in the early 1990s, during the heady heyday of the videogame industry's second coming and the mainstreaming of PCs. It was also during the birth of the "CD-ROM industry" when everyone still thought they were the key to whole new types of content and products (before we realized they were just big disks).

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Wireless Local Number Portability

by Dylan Brooks

On November 24, 2003, at the beginning of the holiday shopping season, each US wireless carrier is supposed to allow customers to keep their same mobile phone numbers when switching to a competitor's service. While this shift is a source of anxiety for carriers, who will all experience increased churn, number portability may actually increase opportunities for mobile entertainment application and hardware providers.

WLNP Is User-Friendly, But Change Is About Preserving 10-Digit Numbers

Wireless local number portability (WLNP) is desirable from the consumer's perspective, but it is not as crucial for competition as it is in local wireline telephony. According to the FCC, more than 90% of mobile phone users still have a landline phone, which primarily receives calls and serve as a home lifeline. The portability of mobile phone numbers is not critical to the industry or the wireless consumer, but it is more of a convenience. Consumers currently expect to change phone numbers when changing carriers, just as they expect to lose their email account if they switch ISPs. Market concerns, not consumers' needs, are driving number portability. The implementation of WLNP is being pushed through not so much for consumer benefit, but to help the FCC solve the problem of a dwindling supply of 10-digit phone numbers, a problem that threatens to strain the wireless industry within 10 years without this regulatory change.

The area code crunch will hit the most populous areas of the US first, so it should come as no surprise that initially only customers in the top 100 metropolitan statistical areas will qualify for number portability. Furthermore, wireless customers can only keep their phone numbers when remaining in the same geographic location – not when moving from region to region.

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Short Messages

by Elizabeth Biddlecombe

State of the Nation: Mobile Gaming in the UK

Mobile usage is much more obvious in the UK than it is in the US. But it is hard to tell from being there how much mobile gaming has infiltrated the nation. I did see a few camera phones in effect on my recent trip to London, but I rarely spotted other people gripping their phone in the throes of a game as I was constantly doing on every train journey.

> Vodafone, O2 and T-Mobile have more advanced games programs than the other three UK operators, Orange, Virgin and 3.

Of course, text messaging is pervasive: TV and radio presenters exhort their audiences to get in contact, and you can even text to enter crisp-packet competitions.

And due to efforts such as Vodafone's Arcade UK tour –10 regional contests will culminate in the London finale – mobile gaming as a full, color, Java-enriched experience will no doubt be increasingly planted alongside the text message in the common consciousness.

Vodafone, O2 and T-Mobile have more advanced games programs than the other three UK operators, Orange, Virgin and 3. Orange doesn't seem to be pushing its games offering, according to Nitesh Patel, senior industry analyst at Strategy Analytics. As for 3, not only does its gaming experience seem slower than Vodafone's, but Patel remains unconvinced by the quality of the games available. "They don't seem to be refreshed that often," he says.

Virgin has just a handful of quizzes on its roster, some using SMS, others using interactive voice response. According to a spokesperson, a relaunch of Virgin Xtras is imminent, but unfortunately its press handlers didn't inform MEA of how this might enrich its games offering.

Despite the thinness of the experience when compared to Java, text games are still the most widely played in the UK, due to the average functionality of the installed base of handsets.

Text games are hardly state of the art. Tim Raby at O2 is loath to even call them games, even though "They always do really well," he says, and "We get pretty good volumes." But they are an integral part of interactive TV in the UK. For instance, O2 sponsors and supports all of the text content and quizzes that accompany the Big Brother TV program. In addition, Channel 4 runs games across the bottom of the screen in which viewers match pairs of pictures using mobile texting as the return channel.

Needless to say, WAP games are not much of a starter in the UK. Less than 10% of the 500 million WAP page impressions O2 gets per month are games. This contrasts with other parts of Europe, according to Tim Harrison, business development and content manager at Vodafone Global Content Services, who says that there is quite strong demand for WAP games in Ireland and further afield in Greece.

UK Mobile Gaming

Users per Application (in Millions)	2003	2008
Games	1.53	7.94
Total Annual Revenues (Millions $)	**2003**	**2008**
Games	46.98	287.94
Total Annual Revenues By Platform (Millions $)	**2003**	**2008**
Message Gaming	5.1	4.5
Thin-Client Gaming	16.9	35.6
Thick-Client Gaming	25.0	247.8

Message gaming: games played over SMS, EMS and MMS

Thin-client: browser games

Thick-client: Java games

Source: Strategy Analytics

So, what about the real deal – the downloadable Java games?

O2 offers around 60 to 70 Java games on its roster. T-Mobile has more than 100 games available and is looking to increase its offering. Vodafone has 80 to 100 games, depending on which handset, on its UK service.

Not surprisingly, getting usage figures out of the operators proved to be a fruitless task.

"It would be nice if I could give you numbers because it tells a very good story," says Tim Raby at O2. The numbers of downloads are "many, many hundreds of thousands," which are "big numbers considering the amount of time it's been running."

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O2 has more than 20 Java-enabled devices in its portfolio, though few games are available on more than half of the full range. The adoption of Java handsets is still fairly small, but, according to Raby, "We're very happy with the number of people with Java handsets who go to the games arcade, and the percentage of people who use the games arcade regularly is good."

O2 certainly leads the way in terms of presentation with its flashy new games arcade (http://www.o2.co.uk/games/landing.html). This is only one place that the customer can access O2 games – they are also available through O2 Active.

Raby said that the company has had more than 300,000 unique visitors to the games arcade since it was launched last October.

Nitesh Patel said that 25% of O2 customers with Java handsets have downloaded games.

Figures from Vodafone and T-Mobile were also hard to come by, though T-Mobile did say that it has more than a million Java handsets in use in the UK.

So which games are UK mobile users actually enthusiastic about? T-Mobile's Lena Vik, proposition manager – mobile games, says platform and action games are most in demand. Popular titles include Rayman 3, Splinter Cell, New Skool Skater, Star Trek Nemesis and Prince of Persia.

O2's Raby says that sports and action games are always popular, and "puzzles are more popular than people think."

Both O2 and Vodafone support their games and other content offerings across their various territories through a shared platform. Content is locally selected, and, at O2 at least, pricing models vary from market to market.

This is essential because, as you'd expect, tastes do vary from country to country. Germany's mobile users are exposed to much more pornographic content, Tim Raby says, "which wouldn't be allowed in Ireland," for instance.

Buying patterns are different too, Raby says. "In the UK, people appear to want to pay more for big branded games. The Germans don't go for that so much – there we tend to sell more of the lower-priced games."

However, Vodafone's Tim Harrison says he's been quite surprised at how universal the games people like are, such as arcade and sports games.

Noting that the customer who downloads games has a different profile than one who accesses a role-playing game via WAP, Harrison said that Vodafone is planning to launch new titles that will appeal to a broader audience. For instance, the company recently launched Cluedo, which has mind share with a much wider age range than the typical teen to-thirty-year-old that plays games on his (more likely than 'her') phone.

"It would be nice if I could give you numbers because it tells a very good story," says Tim Raby at O2. The numbers of downloads are "many, many hundreds of thousands," which are "big numbers considering the amount of time it's been running."

Also likely to attract a wider age range are the crosswords the company is soon to launch on its Vodafone Live service. And Harrison is confident that as the range of handsets in its Live collection expands more female users will play games.

Whether girl gamers, or any gamers, are going to be buying Nokia's N-Gage device is a big question on

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Stat!

Global Wireless Gaming Users by Game Platform 2002–2007 (millions)

	2002	2003	2004	2005	2006	2007
mBrowser gamers	23.1	29.5	44.7	56.3	54.4	51.3
SMS/MMS gamers	41.7	55.4	64.8	70.1	73.3	76.1
Java/BREW gamers	3.8	20.6	43.3	76.8	110.8	146.8
Gaming deck gamers	0	0.2	2.8	6.2	17.6	32.8

Global Wireless Gaming Revenue 2002–2007 (US$ billions)

	2002	2003	2004	2005	2006	2007
Revenue - game purchase	$0.1	$0.4	$1.8	$4.5	$9.8	$16.6
Revenue - traffic	$0.5	$1.2	$2.9	$5.5	$12.1	$24.7
Total gaming revenue	$0.6	$1.5	$4.7	$10.1	$21.9	$41.3

Source: The Research Room, 2003

Local Number

Continued from page 1

Verizon Wireless Is the Harbinger – WLNP Will Happen This Time

The FCC has delayed implementation of its mandate to wireless carriers for WLNP three times already, in 1998, 2000, and 2002, so a further delay is still anticipated by most in the wireless industry. However, in a surprising reversal, Verizon Wireless embraced WLNP in June 2003, which may mean that the November 2003 deadline will become at least a starting point. Verizon's turnaround is striking: CEO Denny Strigl announced the policy change in plain words: "Let's – as an industry – stop moaning and groaning about it. Our government has spoken; our customers tell us they want it." The 180-degree turn is striking for a company that had previously led the opposition to WLNP, and it likely comes because Verizon understood that the FCC was not inclined to extend the deadline this time around. Not only is the wireless lobby in Washington missing its most important opponent of WLNP, but Verizon Wireless also is creating standard implementation procedures it hopes other carriers will follow. Cingular is rumored to be the next carrier to accept WLNP, which may begin the bandwagoning in earnest. Although the CTIA lobby may win one last reprieve for some of its laggard carriers, full portability should be in place early in 2004

> "Let's – as an industry – stop moaning and groaning about it. Our government has spoken; our customers tell us they want it."

The Real Cost of WLNP Is Churn, not Infrastructure

Carriers have claimed that WLNP will cost them too much to implement and is unnecessary for competition, but they actually have fought WLNP because it will increase churn. Across the industry, churn will increase by 20 to 50 basis points in the first year of WLNP, varying depending on how well carriers simultaneously execute massive customer retention and acquisition campaigns. For carriers that already are winning the most subscribers, like Verizon Wireless, T-Mobile, Nextel and AT&T Wireless, the increased rate of attrition may be more than offset by higher gross subscriber additions. However, even those carriers that gain more subscribers than they lose during the initial WLNP-created surge in churn will lose financially.

Independence Research estimates that higher churn of, on average, 0.35% per month due to WLNP will reduce the average customer lifetime value of a US wireless subscriber by 13%, from $2,237 to $1,949. The US wireless industry has seen reduced churn by eleven basis points in the last several quarters, from 2.73% in the 12 months ending March 31, 2002 to 2.62% in the 12 months ending March 31, 2003 (see chart). Carriers will not willingly surrender their hard-won gains on churn but will redouble efforts to control churn and increase loyalty, looking in part to data services and unique entertainment offerings, and relying heavily on long-term contracts in exchange for handset subsidies.

Higher Handset Replacement Rates Will Be a Boon for Mobile Entertainment

Each US carrier does extensive customization and months of testing on a new handset to ensure that it works across its network. For this reason, carriers like Verizon Wireless that have greater than average network complexity are often slower to market with the latest phones. These customized handsets will not be portable across carriers anytime soon, even if phone numbers are. WLNP can, therefore, be expected to boost handset replacement rates industrywide. By the same token, downloaded applications on those phones will continue to be effectively lost when consumers change carriers. For mobile entertainment companies, the implications of a surge in handset replacements are mostly positive:

Greater penetration of download-capable phones. Independence Research projects that if WLNP is implemented, 6 million more handsets will be sold in the US in 2004 than would otherwise ship. This equates to nearly 9% more replacement handsets sold, and increases the total base of download-capable handsets at a rate 6% higher than without

Quarterly Churn Rates for US Carriers

Company	Q2 01	Q3 01	Q4 01	Q1 02	Q2 02	Q3 02	Q4 02	Q1 03
Verizon Wireless	2.3%	2.2%	2.5%	2.6%	2.3%	2.3%	2.1%	2.1%
Cingular	N/A	N/A	N/A	2.9%	2.7%	3.0%	2.7%	2.6%
AT&T Wireless	2.9%	3.1%	2.7%	2.6%	2.4%	2.9%	2.4%	2.3%
Sprint PCS	2.2%	2.6%	3.0%	3.0%	2.9%	3.8%	3.8%	3.1%
Nextel	2.3%	2.1%	2.2%	2.3%	2.1%	2.0%	2.1%	1.9%
AllTel	2.2%	2.4%	2.4%	2.3%	2.2%	2.2%	2.8%	2.7%
TMobile	5.0%	5.1%	4.8%	4.4%	4.1%	4.2%	3.5%	3.0%
US Cellular	1.6%	1.8%	1.8%	1.9%	1.7%	2.0%	1.6%	1.6%
Western Wireless	2.5%	2.5%	2.3%	2.6%	2.4%	2.5%	2.2%	2.0%
Industry Average *(unweighted)*	**2.6%**	**2.7%**	**2.7%**	**2.7%**	**2.5%**	**2.8%**	**2.6%**	**2.4%**

Source: Independence Research

WLNP. A larger installed base is not assured, however, because carriers will be hard-pressed to win over data-skeptics who are switching carriers for more practical concerns, like lower prices or better customer service.

As number portability increases the competitiveness of the US market, carriers will look for downloaded applications to engender loyalty.

Increased emphasis on data penetration to reduce churn. Carriers are looking to get more customers hooked on mobile entertainment offerings to combat churn and increase ARPU. As number portability increases the competitiveness of the US market, carriers will look for downloaded applications to engender loyalty. Application providers should stress one-time unlimited use sales to maximize the loyalty effect because those purchased applications become amenities that encourage consumers to remain with the current carrier. While subscription pricing usually provides more financial visibility, revenue uncertainty may arise when more customers who pay monthly subscriptions switch carriers and chose not to renew those subscriptions with their new carrier or cannot receive the same applications.

Loyal users could demand the same handset functionality from new carriers. Consumers are most likely to switch carriers for better prices, network coverage, or customer service, not for data services. Yet once these millions of customers switch carriers, they may clamor for similar phones, applications, or services once they realize that not all carriers support the same features.

Wild Card: Networked Games Become a Retention Tool for Carriers

Character development in an RPG like Everquest: Hero's Call on a mobile phone already can consume tens, if not hundreds, of hours. At present, even if a consumer decides to remain with her carrier, replacing a phone currently means losing both the games and the characters developed. By not allowing users to store their characters or game levels in the network, carriers are letting a possible customer retention tool go unused. Additionally, applications that consumers have purchased for download should be available to consumers for the cost of airtime if they get a new handset. For instance, I have bought more than $100 worth of BREW applications for my Motorola T720. If I lost that handset, I would have no way of recouping those purchases even if I replaced the device out of my own pocket. The situation becomes even more acute in the case of business applications, where reinstating applications can incur high labor costs as well as subscription fees. Application portability within a single-carrier environment will be an important customer-retention tool as carriers move into a more competitive wireless market in 2004, and it will likely become a cross-carrier portability issue within three years.■

Handset Highlights

Siemens ST55

Modes: GSM 900/1800/1900
Target Market: mid-range
Screen: 120 x 160 pixels, 65k colors;
Apps: Java MIDP
Available: Q3 2003
Siemens plays catch up by introducing its first mainstream phones with integrated cameras. The MC60 offers only a small screen with 4096 colors, while the ST55 sports a now-common 120 x 160 pixel, 65k color screen.

Motorola V700 / Chi Mei Beethoven

Modes: GSM 900/1800/1900
Target Market: high-end
Screen: 176 x 220 pixels, color
Apps: Windows Smartphone native
Available: ?
Microsoft may finally have cracked the big time for its Windows Smartphone platform, with details leaking out about this phone. Manufactured in China by Chi Mei, rumors indicate it will be sold by Motorola.

Hanspring Treo 600

Modes: GSM 900/1800/1900 or CDMA 800/1900
Target Market: high-end
Screen: 160 x 160 pixels, 65k colors
Apps: Palm OS 5 native
Available: Q4 2003
Handspring, which is being acquired by Palm, has announced a much improved version of its Palm OS smartphone, the Treo 600. Available in both GSM and CDMA versions, this Treo offers almost everything you could want in a very pocket-friendly package. It looks like the smart phone to beat for this holiday season.

Samsung SPH-A600 with Game Pad

Modes: CDMA 1xRTT 800/1900, AMPS
Target Market: mid-range
Screen: 128 x 160 pixels, 16 bit color, TFT
Apps: Java MIDP
Available: now from Sprint PCS
Announced a few months ago, the product of Samsung and Sprint's collaboration is now available. Just flip the screen around and slot it into the game pad, and you've got a full two-handed controller available.■

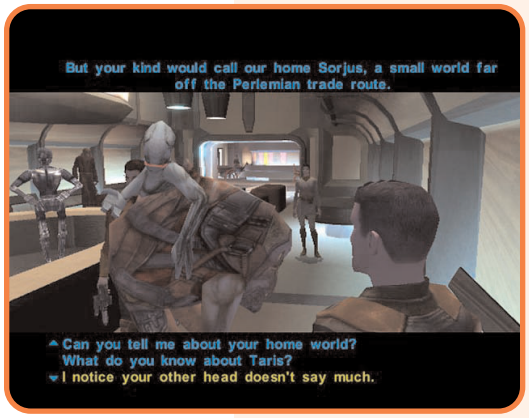
Games We Like

By Avery Score

Star Wars: The Knights of the Old Republic

I know few people who would suggest that the last two Star Wars movies were anything but a disappointment. With special effects having taken the place of good writing, the Star Wars prequels left most with a sour taste in their mouths.

Now, the release of *Knights of the Old Republic*, for the Xbox, should either thrill or embarrass George Lucas because the brilliant minds of Bioware (Canadians, no less!) have crafted an RPG more true to the Star Wars universe than anything since *The Empire Strikes Back*. (Yeah, *Return of the Jedi* doesn't count. Those highly merchandizable, yet incredibly annoying, Ewoks pissed me off.) *Knights* is a brilliantly written game that features dozens of hours of the best voice-acting I've ever heard, and provides an altogether more immersive experience than any RPG in recent memory.



Knights of the Old Republic starts off looking like any Bioware RPG. Like *Baldur's Gate* or *Neverwinter Nights* (other popular Bioware titles), it seems to use a variant of the AD&D rule set. The battle engine rolls a set of virtual dice to determine the damage of an attack, whether a character made a "saving throw" (a roll that allows the character to avoid a blow) against an attack, and so on. The game employs the third-person perspective of adventure games, instead of an RPG's traditional isometric view, but that doesn't constitute a major difference. Even *Knights'* setting in the Star Wars universe isn't the thing that sets it apart from Bioware's earlier works, although it doesn't hurt. It's really the player's interaction with NPCs (non-player characters), and the mini-quests that result, that is the most intriguing and rewarding aspect of play and makes *Knights* a cut above similar RPG titles.

The game features hundreds upon hundreds of characters with whom you can interact. Some want your assistance. Some want to sell you something. A few even want to join your party. How you interact with these characters has a great effect on your fate as well as theirs. *Knights* affords you the opportunity to be as good or as evil as you choose. Leading a life of virtue and helping strangers resolve disputes wins you "Light Side" points. Heartlessness and undue cruelty to others gets you the Dark Side equivalent. A character's force affiliation determines how easily he can perform certain force powers. Depending on the power, there is a sort of force-energy discount for having a particular affiliation. In addition, a Light- or Dark-Side status affects how a character interacts with others. The ability to shape your character's personality in this way is immensely rewarding.

How you interact with these characters has a great effect on your fate as well as theirs. *Knights* affords you the opportunity to be as good or as evil as you choose.

Knights of the Old Republic takes place millenia before the events of the Star Wars movie prequels. It chronicles the Republic and the Jedi Order's battle against the rising Sith Empire, an all-conquering force of the Dark Side ruled by fallen Jedi Revan and Malak, two former heroes of the Mandalorian Wars who were drawn to the Dark Side. Although Reven dies before the game begins, the two Dark Jedi managed to amass an army of unsurpassed strength and numbers in a mere two years, a fact as puzzling as it is frightening. Your character is a new recruit to the Republic forces, chosen for his mastery of Alien languages. The force works in mysterious ways, however, and he is soon dragged into the center of the conflict, his fate apparently inextricably tied to that of Bastila, a young, shapely, female Jedi whose Battle Meditation has allowed the Republic to win a few key confrontations.

The story begins in the midst of a battle against the Sith, on an exploding ship. You narrowly avoid the blast by boarding an emergency escape pod and crash landing on the planet Taris, a world wholly comprised of one large municipality. With the help of Carth Onasi, a legendary Republic soldier, you are nursed back to health. On Taris, you contend with gang warfare, Rakghoul disease (a zombie-like infection plaguing the

planet), and Sith occupying forces. Before you can steal a ship to leave the hellish, but beautiful cityscape, just before it is completely destroyed by the Sith, you have to save Bastila from the clutches of malevolent gang leader Brejik. Once accomplished, Bastila and the rest of your party, including a Twi'lek, a Wookie and a droid, depart on the Ebon Hawk (compare to Millenium Falcon) for Dantooine, the current home of the Jedi council.

On Dantooine, your force-attuned character is trained as a Jedi Knight, lightsaber and all. Thanks to your new-found Jedi powers, you have a vision of Reven and Malak on Dantooine, finding an ancient ruin. After locating the ruin, you investigate it and learn about the Star Forge, a weapon older than the Republic itself that may have allowed the Sith forces to become so powerful so quickly. From there, you retrace the Dark Jedi's travels through the galaxy, hoping to solve the mystery of the Star Forge and, in the process, explore planets from the Star Wars universe, such as Luke Skywalker's homeworld, Tatooine, and Chewbacca's old haunt, Kashyyykk.

In fact, the story almost seems like a retelling of the Skywalker odyssey, set in ancient times. There are numerous parallels, within the game, to its cinematic predecessors, a fact which will be much appreciated by Star Wars fans. Bioware has faithfully reproduced the atmosphere and flavor of the series. The Jedi council spouts the familiar, fear-the-Dark-Side rhetoric it always has. The Sith Lord Malak oozes evil as gloriously as Vader or the Emperor ever did. Oh, and there's no Jar Jar Binks, which is pretty awesome.

Battling the Dark Side is no joke, though. You've got to have the right moves. Fortunately, *Knight's* combat system is a brilliant mix of old-school, turn-based play and action-adventure-type combat. So, you can seamlessly throw in force powers and "feats" (earnable skills) with a regular melée of tactics, but the underlying system is turn-based, not real time. Bioware has elegantly achieved a balance between a solid, AD&D battle engine and a sleek, real-time UI. Before a battle begins, the game automatically pauses itself, à la *Iceland Dale*, so you can tell your characters how to attack. When you command one of the three members of your battle party to do something, the order appears in his action queue. When he finishes executing your previous commands, or those issued by his AI, he'll perform the action. This can be anything from using the force to put a baddie in "Stasis," freezing him, to tossing a frag grenade at a cluster of enemies.

Your non-combat skills are equally important. Some characters, particularly the sneaky Mission Vao, are talented at bypassing locks and security systems. Others, such as Zaalbar, your Wookie, are great with explosives. Some are so stealthy as to almost be invisible to baddies. Every time a character levels up, you can choose how to advance his skills. My main character's specialty is hacking into computer systems, allowing him to activate booby traps and kill enemies remotely from a security terminal.

Knight's visuals, while not on par with some Xbox games of other genres, certainly best those of any RPG this side of *Morrowind*. The character models are simply great. You can choose your character class and appearance from a Benetton-like array of various races and creeds. I even got to choose a Jewish-looking character, which had me pretty stoked. And as you add weapons, armor and nanotech implants to your characters, their clothing and accessories are altered to represent these changes in apparel.

As deftly designed as these features are, though, it's the sheer size of the game that will probably wow you the most. Forget moving from town to town like in most RPGs. We're talking intergalactic; and, believe it or not, the game's various worlds actually feel almost as large as planets should. Every now and then, as you move across the vast expanses of the plains or weave through the throngs of humanoid beings populating a sprawling metropolis, you just may remark to yourself, "Damn, this game is horking huge!" In fact, it's so large and, consequently, took so long to get through, that my editor started to doubt my strength with the force. Whatever. I have way more "metacloriants," or carbohydrates, or whatnot, than that stupid, blonde mini-Vader, Anakin. I just happen to channel my powers into gaming rather than into awesome swordplay or choking people with my mind. My choice.

I hate games that live off their licenses, catering only to die-hard fans of a particular franchise already primed to buy any of its branded content. *Knights of the Old Republic* is the opposite. It bolsters the Star Wars franchise, injecting welcome freshness and innovation to a series in decline. Honestly, I'd be able to sleep better at night if Bioware were working on Episode III. With Bioware and *Knights of the Old Republic*, the Canadians finally have something better to offer than maple syrup or Pamela Anderson Lee. Although, if those two products could somehow be combined, it might be a close match.■

Technology Explained

Can you take it with you?

The Hows, Whys and Whats of Number Portability

by Cashman Andrus

If you're like most people, your mobile phone number is a random string of digits that, however irrational it may seem, you've grown very attached to. Sure, you may have struggled to memorize it at first, but over time, that little group of digits became more than just a number. It became your address (well, one of them) in the virtual world.

At this point, the need to reprint your business cards and inform everyone you know is enough to make you think twice about changing it.

The World of WLNP

If you're living in the right part of the world, you've had the ability to take your number with you when you switch mobile providers for a few years now. Wireless Number Portability (WLNP) has become routine in the UK, Australia, the Netherlands and Hong Kong, and the option is available in limited form in Singapore and New Zealand. Many other countries' telco regulators have been talking about it, but few have taken concrete steps to make it happen. But now, after years of delay, the FCC is moving quickly to put WLNP in place this fall for the 100 million US mobile subscribers.

It was simple, easy and efficient,... [but] making a change meant sending a technician to manually reconfigure one of the electromechanical switches that ran the network.

WLNP was introduced to the US as part of the Telecom Act of 1996, and carriers have been fighting against it ever since. Threats of high implementation costs and skyrocketing churn provoked fear in the carriers, who did their best to derail the process through lawyers, lobbyists and PR flacks. After much argument and frequent delays, WLNP now looks set to become a reality in the US at last, with the FCC holding firm to its deadline of November 24, 2003. Verizon Wireless, the biggest US mobile operator, dropped its opposition in late June, and even the CTIA seems to have retreated somewhat, asking the FCC to clarify WLNP rules instead of delaying them.

Not Enough Numbers

The technical argument against providing number portability lies in the underpinnings of the number allocation system. True to its wireline roots, the phone system ties individual phone numbers to particular geographic areas or "rate centers." Typically, a rate center will be about the size of a town, meaning that calls within a rate center, or perhaps to an adjoining one, are "local," while other calls are "long distance." For decades, telephone companies have gotten numbers for each rate center in blocks of 10,000, regardless of how many customers they actually have there.

This system worked fine in the old days; all phones were wired, and there were only one or two phone companies in each town. When someone dialed a phone number, routing was a simple process of looking up each part of the number and routing to the right part of the network to handle it. Any number in the +1-617-576-xxxx range was sent to New England Telephone's switch in Cambridge, Massachusetts, while a +1-415-553-xxxx would go straight to Pacific Bell's San Francisco switch. It was simple, easy and efficient, and it made assigning phone numbers the responsibility of the local phone company – which was critical when making a change meant sending a technician to manually reconfigure one of the electromechanical switches that ran the network.

Since then, three factors have undermined this system. First, the rise of alternative carriers, both wireline and wireless, means instead of one or two companies in each rate center, there are now as many ten or fifteen, each of whom needs a block of numbers. Second, the ability of wireless phones to transcend local geography, and the tendency of carriers to use that in their marketing and pricing, has weakened the geographic basis of the rate-center concept. Third, the sheer explosion in the number of phone lines has stressed the available inventory of numbers – instead of one line per household, in many places three or four has become the norm.

All this adds up to a shortage of phone numbers in the system, and the carriers and regulators responded by adding more. In some countries, this has taken the form of adding more digits to the number (e.g., France, Malaysia, Romania). In the North American Numbering Plan (NANP, which includes the US, Canada, and parts of the Caribbean), this was accomplished by adding new area codes, either by dividing existing areas into two, or by overlaying new area codes on top of old ones. But these are expensive and unpopular changes to make, and they aren't perfect solutions to the underlying problem.

Databases to the Rescue

A better approach is made possible by the cheap storage and processing power of modern computer

databases. Instead of dividing numbers hierarchically (country ➔ area code ➔ rate center ➔ carrier ➔ subscriber), a database lookup can make the process much smarter by storing the routing information for each number individually. Thus, it becomes possible to assign numbers to carriers only as they are needed (a process known as "number pooling") and to swap individual numbers among them.

To make this possible, all of the carriers involved need to agree on common procedures, and each needs to spend a fair chunk of money to buy the right equipment. Estimates vary, and much of the functionality is included in routine upgrades, but there are certainly tens or hundreds of millions of dollars at stake to switch over a large country's phone system. Still, the advantages are clear, and regulators have pushed hard to enact number pooling and number portability legislation for wireline networks.

Why Not Wireless?

For US wireless networks, much of the reluctance to enable number portability stems from fear of increased subscriber churn. An In-Stat/MDR study published in August 2002 predicted that 22.2 million subscribers more than normal will change wireless providers in the first full year after WLNP is available. This inference is drawn largely from Hong Kong's experience with introducing WLNP, where porting grew steadily for the first three years after introduction, to a full one third of all mobile subscribers there in 2001!

Indeed, many users in the US are unhappy with their mobile service and would switch if they could. Allowing portability will certainly increase the level of competition in an already fierce market and put pressure on carriers to find new ways to retain customers. Number portability is good news for the mobile consumer, and it could be even better news for the mobile entertainment industry.

After all, consider the possible ways carriers can compete to hold on to their customers and to lure new ones. Most obviously, there's price, but no carrier ever wants to decrease ARPU. US per-minute prices are already much lower than in most of Europe. There's quality of the network – important (and much in need of improvement in the US) but also very expensive for companies already loaded with billions in debt. Advertising? Aren't they already doing that? So how can the operators affordably attract and retain the right customers? There are two ways.

First, smart marketing. Loyalty programs like family calling plans and Cingular's "Rollover Minutes" are examples, as well as bundling wireless with other services and niche marketing through MVNOs and sub-brands. Content can play a big role in niche marketing, if done properly. With appropriate customer relationship management tools, carriers can recognize the best ways to please their most valuable customers and build stronger relationships with the ones they really want to be pursuing.

Second, innovative services. If you can get your customers hooked on a unique product, you've got them for the long term. Think of how i-mode or Vodafone live! can offer a unified experience unlike any other. The potential draw of a customized device or of a strong catalog of exclusive content is huge.

> ...a database lookup can make the process much smarter by storing the routing information for each number individually.

User experience is critical, of course, but getting it right is priceless.

No matter how they do reconcile themselves, it's time for wireless

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Stat!

EMEA mobile device market
Operating system market shares Q1 2003, Q1 2002

Operating System	Q1 2003 Shipments	Q1 2003 % Share	Q1 2002 Shipments	Q1 2002 % Share	Growth
All devices	**1,524,630**	**100%**	**678,580**	**100%**	**20.9%**
Symbian	807,270	53%	89,750	13%	-1.4%
Windows CE	370,530	24%	228,810	34%	33.6%
Palm OS	284,840	19%	295,170	43%	5.7%
others	61,990	4%	64,850	10%	-10.3%
Data-centric	**638,650**	**100%**	**579,650**	**100%**	**10%**
Windows CE	308,360	48%	228,810	39%	35%
Palm OS	270,740	42%	284,200	49%	-5%
Others	59,550	9%	66,640	11%	-11%
Voice-centric	**885,980**	**100%**	**98,930**	**100%**	**796%**
Symbian	807,270	91%	77,810	79%	937%
Windows CE	62,170	7%	–	0%	NA
Palm OS	14,000	2%	10,970	11%	29%
Others	2,440	**	10,150	10%	-76%

**less than 1%

Data-centric = handhelds and wireless handhelds
Voice-centric = feature phone and smart phones

Debacle

Continued from page 1

Philips, one of the biggest, deepest-pocketed companies on the planet, began to follow up on its tremendously successful co-creation of the audio CD. The next evolution was Compact Disc Interactive (CD-I), and Philips began securing other manufacturers' help to push forward its new standard. CD-I seemed to bring the promise of CD-ROM learning and entertainment to the living room. The two killer apps were encyclopedias and Kodak's PhotoCD. Philips was the big dog, and its future seemed assured. Everyone was going to buy a CD-I, even though when you cornered an exec and asked if they knew anyone specifically in their life who would really buy it, they were hard pressed to come up with names. **LESSON: You don't have to build things you would like yourself, but if you can't name specific people that would buy the thing in a heartbeat, that's a red flag.**

First, he said he'd never heard of it (even though it was a well-known story in videogame circles). Then he said that his company's clean-room approach to development blocked him from looking...

Philips spent about four years trying to construct deals that would persuade other manufacturers to help create a new standard. While the company waited, it spent a lot of money having third parties build content for the new boxes. From the developer's point of view, this was great. After failing to get anyone else to buy in to CD-I as a standard, Philips decided to muscle the thing through itself. There were, however, two great flaws in the plan.

First, Philips didn't understand that software is hard. The company thought software was an extension of what it knew and that software people were like recording engineers, people to be brought in at the end of the content process. This misunderstanding made almost everything Philips scheduled six months to two years late. Second, the company had a big vision, but it needed someone else to finish the thought. Yes, video, sound and interactivity could be mixed; the problem is that interactive video is cool in theory but dull as hell in practice. **LESSON: You can't make a revolution in the way people play just by willing it to be so.**

Philips was stuck, but like a bad poker player, the company kept reaching in its pockets and putting more money on the table because it was convinced it had a winning hand. At the end of the quarter billion-dollar spending spree, the electronics giant was reduced to hour-long infomercials on every station in seemingly every open time slot. Someone once figured out that if Philips had gone to people that bought a CD-I player and given them a check for $5,000, it would have been cheaper than what the company actually did. In the end, Philips went back to making light bulbs. **LESSON: If it ain't there, you can't spend your way out of the hole.**

3DO: A Failure Ahead of its Time

It was a formula that couldn't lose. Trip Hawkins, the charismatic founder and then-CEO of Electronic Arts (the single most powerful and successful independent game maker) was going to build and market the game designer's dream machine. It would be cool, so cool it would be a no-brainer, and he would cut off the chicken-and-egg problem at the knees with great software by bringing the power of EA in the beginning. This machine, 3DO, wouldn't even present a risk because all the hardware would be built by partners such as Panasonic. 3DO pulled a Wall Street trick way before its time by going public with neither profit nor product on shelves. Armed with its new war chest, the company set off to take on the world.

Playing against a few friends is fun. Competing for positioning among even a thousand people is just depressing.

So what went awry? To no one's surprise, the other consoles of the time didn't take EA's challenge lying down. Prices were cut to the bone, leaving 3DO's pricing high and dry. When EA tried to respond, its hardware partners weren't so eager to take one for the team. With so many players in the space, there was no economy of scale for either parts or manufacturing, and the project began to emit the smell of failure in the gaming community. (The gaming community has witnessed a lot of platforms die, and they have good noses.) **LESSON: Experienced console companies don't set razorblade pricing for fun. No one in the console business has succeeded any other way, and many have died trying.**

Interactive Networks: Multiplayer player versus, well, fun

Before we get to the biggest debacle of the gaming business, let's have a quick story to clear the palate. Once upon a time, there was a company that built a little wireless box that would sit in your hands and let you play along while you watched TV game shows. You could play Jeopardy and then use a phone line to upload your

scores. However, a few problems landed this toy in the basement collection of gadgets that almost were. First was the obvious flaw in the system, time. One of the reasons you can't bet on Wheel of Fortune in Vegas is the program doesn't broadcast live. If you called an east coast pal from the west coast, you could get the necessary information to bet smart. So much for live competition. But another aspect of the system is the basis for our lesson today. Playing against a few friends is fun. Competing for positioning among even a thousand people is just depressing. After feeling like you really rocked in a game, you'd connect only to discover that you were No. 346. **LESSON: It is never fun to be No. 346. Massive competition ladders are just frustrating unless you are near the top, and, by the nature of things, most people are not.**

Atari: The Proto-Debacle

Unless you were there, it is impossible to describe how important, powerful and influential Atari was at the dawn of the videogame industry.The company changed the way we played games and shifted the entire power structure inside Toys'R'Us. Atari was the darling of Wall Street, on an amazing ride and producing millionaires aplenty. It is said, by those who were there, that making a cartridge was like printing money. And just like today, brand licenses were plentiful and very valuable. In fact, one of those licenses is credited with being the straw that broke the back of this giant.

ET, Go Home: I have a buddy who was a big-time Atari programmer, and he was there when the ET license came around. It needed to be done fast, and my friend turned it down, convinced that he couldn't make anything good in the time allotted. But, of course, with enough money around, someone was willing to go for it. What was created stands, to this day, as one of the most perplexing and painful games of all time. Now, how could one bad license lead to the crash of an entire industry and the bankruptcy of its most powerful member? Imagine you are Mom. You've been shelling out a lot of money for games and fun, and the games have just been getting worse and worse. Suddenly, a game that your child must have because she or he loved the movie turns out to be a complete waste of money and a vast disappointment to your child. Enough, Mom says. I'm not buying any more!

A year or so later, after the bad taste faded, Nintendo came on the scene with strict quality controls for everything on the platform. Nintendo won and the industry was brought back from the ashes. **VERY IMPORTANT LESSONS: 1) No matter how good the license, producing rushed, inferior-quality product will hurt you in the long term. If you don't have enough time, pass and do the next one! 2) Bad software can wear at your audience, and before you know it, you've killed the whole business.**

It's easy to dismiss these as mistakes you'd never make, and if you pay enough attention to the wreckage on the rocks, you can navigate pretty well. But ignore these lessons at your peril. These seas have been all sailed before, and the wise will bring home more from the past than just wireless versions of Ms. Pac Man. You have been warned! Don't become source material for the History of Debacle, Volume II.■

Stat!

Upcoming Mobile Entertainment Tradeshows

October 2003

- Mobile Entertainment Summit: 10/20, Las Vegas, Nevada, USA
  http://www.mobiletechforum.com/mes2003-Oct20.htm
- CTIA: 10/21 - 10/23, Las Vegas, Nevada, USA
  http://www.wirelessit.com/general/
- Mobile Games 2003: 10/23 - 10/24, Madrid, Spain
  http://www.eftelecoms.co.uk/at_contentframes.cfm?ID=2220&page =Telecoms

November 2003

- World Telemedia: 11/3 - 11/5, Prague, Czech Republic
  http://www.noconline.org/NOCworld/prague2003/generalinfo.htm
- Mobile Internet Expo: 11/20 - 11/21, Paris, France
  http://www.ibcglobal.com/cod/oinfo_lower.asp?pid=UKCC01029&pname=abstract

If you've got other shows in mind or in production, please post them on this discussion thread:

http://www.wgamer.com/forum/showthread.php?&threadid=1267

Stat!

Games and Phones by Carrier

	Carrier	Country	#Phones	#Games	#Game/Phone Pairs
1	Sprint PCS	US	9	163	965
2	Nextel	US	10	105	628
3	AT&T Wireless	US	9	219	337
4	Cingular	US	14	123	318
5	Verizon Wireless	US	11	114	321
6	O2	UK	14	67	216
7	Orange	UK	7	45	166
8	Vodafone	UK	8	79	164
9	Alltel	US	4	106	160
10	T-Mobile	UK	7	59	91

Notes: "Phones" includes only devices for which the operator is selling games; because many games are available on only certain phones, "Game/Phone Pairs" indicate the total size of the carrier's catalog.

Source: WGR's Wireless Content Tracking Service, August 4, 2003

To learn more about this service, contact Matthew Bellows at matthew@wirelessgamingreview.com.

Can You Take It

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carriers to realize that WLNP in the US is inevitable. It may be difficult, but there's little they can do to prevent it at this point. The news isn't all bad, though. While, at first, most of the ported numbers are likely to come from other wireless carriers, WLNP also opens up the opportunity to port numbers from wireline operators. Already, a growing percentage of customers are going wireless-only, and the move to WLNP will only accelerate the trend. With networks, services and marketing honed by years of fierce competition, mobile operators have a chance to becomes wolves in the telco pasture – as soon as they stop trying to be ostriches.■

Short Messages

Continued from page 3

everyone's lips. Despite the cynicism of people like Patel at Strategy Analytics – who thinks it's a product for a market that doesn't exist – T-Mobile UK says it is definitely working on launching the product, while Raby at O2 told MEA that the company is evaluating the device but has no public announcements to make as yet.

As to its future direction, O2 is looking at bringing in over-the-air multiplayer games. T-Mobile says that its future focus will be on more branded games, multiplayer games and location-based games.

Over at Vodafone, Harrison says that, "We are deepening our relationships with the console publishers – there are lots of interesting tie-ins with the product on the console and the mobile."

Indeed, the company has done a tie-in with Acclaim to launch a teaser version of Urban Freestyle Soccer, which comes out in October. "It's the first time a mobile game has been released as a console game," Harrison explains. "It has cheat codes so that you can unlock new levels on the console game." This game is launching imminently.

Vodafone hopes simultaneously to attract a wider section of the UK populace to mobile gaming as well as attract experienced gamers: covering all bases while also seeding the market.

For, as Harrison says, once trialists get a color-screen Java phone in their hand, the scales fall from their eyes and the cries of "But Snake is boring" are silenced.

It could very well be true. A trial Vodafone Live Sharp GX10 in the hands of this writer meant she read not one book during her month in London.■

Contributors:

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Elizabeth Biddlecombe (ebiddlecombe@apexmail.com) has been writing about the telecom industry since 1997, contributing to a range of trade titles on diverse subjects. She moved to San Francisco from her native London in spring 2001 to cover the Americas for Emap's comms titles. She has a BA Hons. degree from Manchester University in English and Philosophy.

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.

Anne McLellan (annemclellan@attbi.com) has varied experience in graphic design and production, with a specialty in publications. Anne has worked as a consultant in corporate training and development, and in marketing, for education and arts clients. She has a BA in Fine Art from Brandeis University, a Graphic Design Certificate from Mass College of Art and studied design and illustration at the Art Institute of Boston and Rhode Island School of Design.

Amy Monaghan Before joining WGR, Amy was an editor with Forrester Research Inc. (NASDAQ: FORR). She has also edited publications for Harvard Business School Publishing, Boston Common Press, Rockefeller University Press, and Cell Press. Amy holds an MA in English literature from the University of Chicago and a BA in English literature from Wellesley College. She is not as boring as her résumé might suggest, and she rides a black Schwinn Classic cruiser.

Avery Score is a self-proclaimed otaku who constantly partakes in such involved, athletic endeavors as playing old-school RPGs. Avery has the looks of Camui Gackt and the mind of Yu Suzuki, and has been likened to several deities. When not providing content of truly extraordinary quality for WGR, Avery is an honor-roll student at Milton Academy.