Content for Internet and Mobile Communication

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Our last speaker in this session is Mrs. Andrea Hoffmann from the French company EGIS. She is a co-author of a book titled "i-mode Developer's Guide". She has been working in Japan and she has an extensive knowledge of the broadband market there. Mrs. Hoffmann will introduce us to a variety of broadband applications and contents, which have already been commercialized and are very popular in Japan. Those contents should be interesting to know, because some of those contents could be killer contents for the acceleration of broadband networks all over the world. So Mrs. Hoffmann please:

Mrs. Andrea Hoffmann

Thank you very much for the introduction and hello to everybody. First of all I like to give you an overview of what my presentation is going to include. I will first will give you a definition of both fixed and mobile broadband and also some numbers on the size of the broadband market, especially in Japan as a good example for an advanced market. Then I will talk about a very important trend in markets like Japan and Korea, that is convergence. The different services like TV, radio, phone and internet are all coming together. Then I will mention some new devices to use these services. Finally, I will give you a practical demonstration with my mobile phone of what kind of content is popular right now.

Broadband Introduction

Broadband Definition
- Highspeed transmission of voice, video & data simultaneously
- "Always on" Internet service with > 56 kbps download speed
  - PC Internet: DSL, FTTH (Fiber), WLAN
  - Mobile Phone: 3G/UMTS
  - TV: Cable Internet, Satellite TV Internet

Advanced Broadband Internet market in Japan
- 16 million PC broadband users (DSL, Fiber, Cable)
- 70 million mobile data users, incl. 20 million 3G users
- Competition → world's lowest prices + highest speeds

What is broadband? It is the transmission of voice, video and data simultaneously with very high speed over one cable or one network to the user. Practically this means that broadband is always on internet services with a speed higher than 56 kbit/s. You can use broadband on 3 different access methods. On the PC internet broadband means DSL services and FTTH fiber services and wireless LAN. On the mobile phone broadband means 3G or UMTS services. On the TV it means cable internet or satellite TV internet high speed data services that you can use via your TV reception.

One of the examples for an advanced broadband internet market is Japan. As Mr. Shinohara explained, there has been a very high competition in the market, which has lead to the world's lowest prices for broadband with the highest speed in the world today. Japan is a market with a lot of users who are looking for high speed connections to use applications.

PC Internet Broadband

Type	Max Speed	Main User devices	Available Content
DSL	50 Mbps	**Internet** Computer, Laptop, Palm pilot etc.	**Internet:** Web browsing, video streaming and -download, games,
FTTH (Fiber)	100 Mbps		
Cable TV Internet	100 Mbps	**TV reception** TV set	**Broadcasting:** TV, music/radio, VOD
WLAN	11 Mbps		
		IP Phone Phone device	**Communication:** IP Phone, videochat, teleconference, e-learning

This slide gives you a quick overview of the types of connection you can have on the fixed broadband internet. You have a maximum speed of 100 Mbit/s in the case of fiber-to-the-home and you have about 50 Mbit/s in the case of DSL connections.

The carriers are now going to combine those services more and more. They are not just offering high speed internet but also TV reception as well as IP telephony, additionally coming in one package with the high speed internet. The users of these services have basically 3 main devices to access them. If you use the internet you have a computer or laptop. For TV over broadband reception today in Japan, you still use your TV set. For the IP phone connection you use your normal telephone device, which you used for POTS. The content you can have on these kind of broadband connections is basically to browse the web, as you could before but at a much higher speed. But you could also have more and more video streaming and downloading services. We see an increase of online multi-player games, which are connected over the internet all the time playing against each other. On the broadcasting side you can receive TV, music and radio as well as have video-on-demand (VOD). On the communication side you can have the IP phone service, but you also have applications like videochat, teleconference or e-learning over your broadband connection.

Broadcasting over PC Internet

TV over ADSL
- TV IP broadcasting over ADSL
- Real-time TV multicasting & VOD, with STB & TV set.
- 17 basic TV channels, 3 premium channels
- Mostly US content (FOX, CNN, MTV, Disney)
- Copyright and control issues for broadcasting industry

Service image ADSL TV

TV over FTTH
- Other carriers offer TV over FTTH
- Via 3G phone: watch promo clips, check TV program, order videos
- Internet Karaoke

TV   *Movie*

I would like to go into more detail on one example: TV broadcasting received over broadband internet, which is one of the conversion trends. One example is TV over ADSL. This has been offered for instance in Japan since last year. It is IP broadcasting over the ADSL connection. You have a contract with an ADSL provider. As you can see in the image on the top right hand side, you would have your access and then split towards your TV set to receive your TV signal and on the other side towards your computer to receive your data internet service.

One of the services offered in Japan today is real-time TV multicasting and VOD. It comes with a set-top-box (STB) and the TV signal goes to the TV set. You have 17 basic TV channels and 3 premium channels with mostly foreign content.

Some of the issues in the Japanese market today with TV over IP are copyrights, license and control issues, especially for the broadcasting side. These issues still have to be worked out. They are one of the reasons why you still do not receive the TV reception on your PC but you receive on your TV. So you have somewhat more control over the copyright.

The second example is TV broadcasting over FTTH in Japan. The offering itself is quite similar, also in terms that it goes to the TV set. This carrier offers additionally, if you use their 3G phone, to watch promotion clips for the TV program on your 3G phone. You can check the TV program and order videos as well as conduct internet karaoke on that phone.

Broadcasting over Mobile Phone

TV over mobile phone

- 2G phones with analog TV since 12/2003
- Mobile Broadcasting: satellite mobile TV & Radio
- Mainstream digital mobile TV in 2005
- Market survey: majority want to receive TV via mobile phones
- Mobile TV impacts TV programming, usage peaks and -scenarios

Mobile Radio

- KDDI 3G phone with FM radio tuner (FM Keitai)
- Instant access to playlists & artist info on the radio website
- Download segment of songs as MP3 ring tone (chaku-uta)

Broadcasting does not only go over the fixed broadband internet, it is also broadcasted now over the mobile phone. This is a trend discussed a lot in Japan. So far it is analog TV that is broadcasted on the mobile phone. It has been offered in Japan since December 2003. But the main trend is going to be digital TV being broadcasted onto the mobile phone, which is expected for Japan in 2005 to be commercially available. Market surveys have shown that there is a very big demand of users to receive TV via their mobile phone. This TV will be different from the TV we are used to on the TV sets in our living room. The mobile TV will impact the TV programming. The usage peak for example will be different. With the TV in your living room it is around 8 pm, with the mobile phone it is expected to be at lunch time, when people have a break. The scenarios will be different too. It might be shorter content and may be a combination of TV and data.

Besides TV you might also have mobile radio, which is commercially available in different markets. With it you will have instant access to the playlists and the artist 's information on the radio website, which you can access with one click on your phone. In Japan you can download segments of songs in CD quality as an MP3 ring tone, which is one of the very popular content services available in Japan. In the newest version it is not only the music but actually the video clip, which you can watch while your phone is ringing.

New PC Broadband Terminals

Convergence of Digital TV with Internet → competition between TV and PC
New broadband terminals: game consoles, Internet TV and home gateway servers.

IT television "Airboard"   Cocoon home gateway   Playstation Portable (PSP)

- **TV Airboard**: television, DVD player & Internet into portable tablet.
- **Cocoon HDD video recorder**, 500 GB disk, always-on network
- **PlayStation Portable**: handheld game device for movies, music, games

You will see a change in what people are going to use as their main device in the future. There is very strong competition going on between the TV set and the PC. Will people watch TV on the PC and use internet at the same time or will it be the other way around?

Here you see three examples of new devices being launched and tested in Japan right now. On the left you see the IT television "Airboard" which can be carried around your house. It is a TV set which comes with a DVD player and always onboard internet connection. You are totally mobile within your house.

The second one is called a cocoon, which is a series of home entertainment devices. In this case, it is a video recorder with a 500 Gbyte disk which is always on the network, so the video recorder basically comes with a screen.

On the right is a playstation portable announced by Sony. It is not only like a game boy but can also be used to watch video and listen to music.

Mobile Phone Broadband

Type	Max speed	Internet Services
W-CDMA	384 kbps	**Communication:** Voice, Mail & MMS, video phone, MP3 movies
		Web/Multimedia: megapixel camera, video content, LBS/GPS, Java/Brew, Flash, Mobile TV and Radio, web portal
CDMA 2000 1x WIN	2.4 Mbps ("Mobile ADSL")	
		Interfaces/Accessories: IR, USB, bluetooth, bar code reader, mobile wallet/Felica, memory cards

This is information on fixed broadband internet. On the mobile phone broadband internet I have one slide here which gives you an overview of the networks and the speed and the kind of services you can have. The maximum speed in the case of the Japanese market for mobile 3G speed is 2.4 Mbit/s. They actually call it "mobile ADSL", because it goes into that speed range. On the wideband CDMA you have 384 kbit/s right now, which is also expected to become faster.

On the services side you can see a combination of all three kinds of broadband technologies available.

On the accessories side, you can see that the phone is becoming increasingly open to other devices, with built-in infrared (IR) for data exchange or USB interfaces. If you have a bar code enabled phone, you take a picture of that bar code and the information that is in it, which could be a URL or email address, is with one click integrated into your phone. This is one method to overcome the limitations of input into the mobile phone. Many of the phones have memory cards built into them, so you can store all this information, the music and the games which require much larger space in the phone.

Characteristics of Mobile Content

Deliver the right content to the right person at the right time and place

Navitime Remote Mail Stock Trading Weather News Lady Temperature Tool

Windsurf Guide Video Channel Manga SimCity VideoPhone

- Mobile content vs fixed Internet content
- Restraints: small display, difficult input, still limited speed & power
- Popular: entertainment, navigation, games, messaging, surveillance
- Price range: 70 cent – 3 Euro/month, plus traffic 0.2 cent/128 Byte
- Average data traffic revenue per user: 14 Euro /month

I am now going into the more interactive part of my presentation, in order to give you some examples of the content. This will not just be 3G content, which requires very high speed. But the content, I am going to demonstrate on my phone, has often been used on 2G networks and is now gradually moving into the 3G network.

Mobile content is somehow different from the fixed internet content, because you have a small screen and difficulties of inputting with the small keypad. On the other hand, everyone has their mobile phone always with them. So you can provide very personalized services, because each mobile phone belongs usually to one person. You have the advantage of providing services based on the location of the person, because they carry their phone always with them. This also enables you to receive time critical services. You receive the information immediately and can react to it at once.

Popular content on the mobile phone includes entertainment, navigation messaging or surveillance, where you can use the internet connection and your camera to watch how your children are doing at home.

In the Japanese market right now the price for subscription of these services ranges from 70 cent to €3 per month plus the traffic.

The average data traffic revenue per user is about €14 per month. This is only on the traffic and not on the subscription.

You can see various kinds of services on this slide. For instance the Lady Temperature Tool, which is a very interesting service especially catering to the female mobile user. With it you can track your temperature every day, to use it for birth control.

Mobile Games

- Main mobile content traffic goes to entertainment and games
- Types: (network and stand alone)
  - Role Playing/Adventure, Simulations, Action/shooting, puzzle/board games
- 9 million mobile phone game users in Japan in 2003 (CESA May 2004)
- Games at the top of menu have >250,000 subscribers, down the menu 20,000 users
- Cybird > 3 million subscribers overall (2003)
- G-Mode 63 million game downloads since 2001 and 600,000 i-mode subscribers (2003)

i-Menu Sites Access by Category (FY2003/1Q)
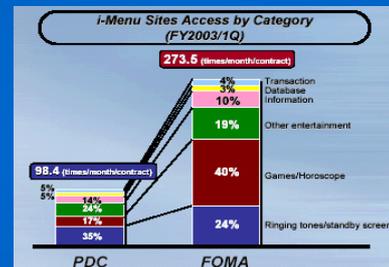
Source: NTT DoCoMo

Among the services I have shown you, mobile games are very popular. The main traffic for mobile content on the carriers in Japan is for entertainment and games. This is especially true with 3G being launched as compared to 2G.

The types of games you can have are divided in two categories: Network and stand alone.

Games at the top of the menu attract about 250,000 subscribers per game and the less popular still have 20,000 users. They pay monthly subscription fees for each game. One example is Cybird, which is a major mobile content provider in Japan.

Now I would like to go into the really interactive part of my presentation.
This is SimCity, a popular PC simulation game.
Now I will turn on the visualizer. You go to the Java section of the phone.
The second option is SimCity. Then I continue the game I have been
playing.

Navitime Train Schedule

- Monthly subscription fee: max 2 Euro
- Personal navigator with maps, train/bus/plane schedules
- Search for nearest station, first train, last train, connections etc.
- Routes and travel time based on vehicle (taxi, train) or walking speed.
- Select route based on traffic conditions (traffic jam), price and time.
- Search for spots by address, telephone, ZIP code etc.
- Route by car with description and price (taxi)
- Includes electronic GPS compass and detection of location
- Send maps by email to other users by email or IR

Another application I would like to show you is the Navitime Train Schedule. The newest version of this application even has Naviwalking, which means that when you walk with your GPS phone in your hand, it gives you directions to your destination by voice.

E-Mail: Remote Mail

- Java and Brew e-mail i-appli
- Access any email account -- corporate or ISP-based
- Avoid carrier's mail limitations (i.e. no attachments).
- "Automatic mail-checking function", always on stand-by screen
- Corporate version with secure access to Intranet email
- Stand-by screen → default application on the phone, one click start
- > 400,000 paying subscribers; monthly fee: 1.50 Euro

This is remote email. You can use it to access your email account with your phone.

Stock Trading

- Java i-appli, subscription free
- Provides stock and market information for Japanese stocks
- Trading account:
  - buy & sell stock, currencies and funds
  - check account balance
- Automatic stock index updates, real time for traders
- Alert function to send email when price hits set high or low
- Ticker function with market news
- Set as default desktop appli → always on
- Service fee: free of charge. Nr.1 trading service on i-mode

This is the stock trading service, where you can track your stocks and trade them on the phone.

Weather Clock

- Clock Java appli combined with weather information
- Each hour of the clock shows the local weather forecast for that time
    - Weather, temperature, rain, wind speed etc.
- Alarm function, many background images, show weather at present location
- Set as default desktop appli → always on
- Monthly service fee: 70 Cent

This is the weather clock, where you can see the different times and the weather to expect.

PIM and i-Lady

- Personal Information Manager and Calendar Portal
- Information rich calendar service to subscribers
- Localized weather, baseball results, fortune telling, and other bits of information on the personal calendar display
- Schedules can be shared amongst users such as specific interested groups and husbands/wives.
- i-Lady: weight watcher and temperature tracking
- Monthly service fee: 1.50 Euro

This is the service for the ladies which I mentioned before.

Surfing Guide

- One of the earliest content services on mobile Internet
- Several times daily updated weather and water wave guide for surfers
- Updated information on surf spots in and outside of Japan
- Plus instructional information, local information, surf shop and tour information
- Good wave prediction tool "Wave Hunter"
- Pictures and movie clips from surfing spots
- Monthly service fee: 2 Euro

The surfing guide also includes built-in games, which can be played on the way to go surfing.

Video Channel

- TV & magazine service with integration of text and video
- Register max 3 programs, download during off-times, play anytime
- Average monthly fees: 1.50 - 2.00 Euro
- Channels: Womanlife, TV/Variety, Hobbies/Sports, Movie/Music, E-book,
- Limitations of content replay (time length, number of replays etc)

Pro Baseball Program   Music Magazine   Manga Books

The video channel is a kind of TV and magazine service which integrates text and video in a very sophisticated way.

PC Music Download

- iTunes Music Store: 5 million songs within first 2 months, 100 million in 1 year
- 50% of tracks purchased as albums, > 80% of catalogue songs purchased at least once
- Apple: "customers are hungry for a legal way to acquire their music online"
- Single download costs about 99 Euro cents
- Local versions in US, UK, France and Germany
- Downloads can be burned onto CD or transferred to iPod music player
- iTunes mobile music player planned for Motorola music phones in 2005

Finally I want to mention the broadband content which can be accessed on the PC. Mr. Persson has just mentioned Kazaa, which is an illegal music file sharing platform. The basic principle however, which is peer-to-peer file sharing clearly is an absolute broadband killer application and it is important to note that Apple has taken this success as a basis and has developed a legal and successful service: iTunes.

Thank you very much for your attention.