



In-Game Advertising Requirements

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Contents

1. SCOPE (INFORMATIVE)	6
2. REFERENCES	7
2.1 NORMATIVE REFERENCES	7
2.2 INFORMATIVE REFERENCES	7
3. TERMINOLOGY AND CONVENTIONS	8
3.1 CONVENTIONS	8
3.2 DEFINITIONS	8
3.3 ABBREVIATIONS	8
4. INTRODUCTION (INFORMATIVE)	9
4.1 VERSION 1.0	9
5. IGA RELEASE DESCRIPTION (INFORMATIVE)	10
6. REQUIREMENTS (NORMATIVE)	11
6.1 HIGH-LEVEL FUNCTIONAL REQUIREMENTS	11
6.1.1 Interaction between IGA Client and IGA Server	11
6.1.2 Functionality of IGA Client	11
6.1.3 Functionality of IGA Server	12
6.1.4 Interaction between IGA Server and Game Server	12
6.1.5 Interaction between IGA Client and Game Client	12
6.1.6 Interaction with OMA MobAd enabler	13
6.1.7 Security	14
6.1.8 Charging	14
6.1.9 Administration and Configuration	14
6.1.10 Usability	14
6.1.11 Interoperability	15
6.1.12 Privacy	15
6.2 OVERALL SYSTEM REQUIREMENTS	15
APPENDIX A. CHANGE HISTORY (INFORMATIVE)	16
A.1 APPROVED VERSION HISTORY	16
APPENDIX B. USE CASES (INFORMATIVE)	17
B.1 BACKGROUND AD IMAGE USECASE	17
B.1.1 Short Description	17
B.1.2 Market benefits	17
B.2 STAGE AD SHAPE USECASE	18
B.2.1 Short Description	18
B.2.2 Market benefits	19
B.3 AD SIGN USECASE	19
B.3.1 Short Description	19
B.3.2 Market benefits	20
B.4 AD SPLASH USECASE	20
B.4.1 Short Description	20
B.4.2 Market benefits	21
B.5 CLICK AND PLAY AD USECASE	21
B.5.1 Short Description	21
B.5.2 Market benefits	22
B.6 AD ITEM USECASE	22
B.6.1 Short Description	22
B.6.2 Market benefits	23
B.7 AD CHARACTER USECASE	23
B.7.1 Short Description	23

- B.7.2 Market benefits 24
- B.8 INTER-STAGE AD USECASE..... 24**
- B.8.1 Short Description 24
- B.8.2 Market benefits 25
- B.9 EXTRA AD GAME USECASE..... 25**
- B.9.1 Short Description 25
- B.9.2 Market benefits 26
- B.10 PRODUCT PLACEMENT USECASE..... 27**
- B.10.1 Short Description 27
- B.10.2 Market benefits 27
- B.11 PROGRESS BAR USECASE..... 28**
- B.11.1 Short Description 28
- B.11.2 Market benefits 28
- B.12 AD SOUND EFFECT USECASE..... 29**
- B.12.1 Short Description 29
- B.12.2 Market benefits 29
- B.13 AD BGM USECASE..... 30**
- B.13.1 Short Description 30
- B.13.2 Market benefits 30
- B.14 USER SELECTS AD SPONSOR USECASE..... 31**
- B.14.1 Short Description 31
- B.14.2 Market benefits 31
- B.15 USER SELECTS SPONSOR FOR AD ITEM USECASE..... 32**
- B.15.1 Short Description 32
- B.15.2 Market benefits 32
- B.16 GAME INTERACTIONS TO AD METRICS USECASE 33**
- B.16.1 Short Description 33
- B.16.2 Market benefits 34
- B.17 POINT-TO-POINT AD TRANSFER USECASE..... 34**
- B.17.1 Short Description 34
- B.17.2 Market benefits 35
- B.18 CHARGING IN IGA USECASE..... 35**
- B.18.1 Short Description 35
- B.18.2 Market benefits 36

Tables

- Table 1: Interaction between IGA Client and IGA Server Requirements..... 11**
- Table 2: Functionality of IGA Client Requirements 12**
- Table 3: Functionality of IGA Server Requirements..... 12**
- Table 4: Interaction between IGA Server and Game Server Requirements 12**
- Table 5: Interaction between IGA Client and Game Client Requirements..... 13**
- Table 6: Interaction with OMA MobAd enabler Requirements 13**
- Table 7: High-Level Functional Requirements – Security Items 14**
- Table 8: High-Level Functional Requirements – Authentication Items 14**
- Table 9: High-Level Functional Requirements – Authorization Items..... 14**
- Table 10: High-Level Functional Requirements – Data Integrity Items 14**
- Table 11: High-Level Functional Requirements – Confidentiality Items 14**

Table 12: Charging Requirements 14

Table 13: Usability Requirements 15

Table 14: Privacy Requirements 15

1. Scope

(Informative)

This Requirement Document (RD) contains use cases and defines the requirements for the IGA (In-Game Advertising) Enabler. The following areas will be covered in this RD:

- In-game advertising models
- Gamer Interactivity of Advertisements
- Game advertising Metrics

The IGA Enabler will reuse as much as possible existing technologies. Some requirements may be covered by other OMA Enablers.

2. References

2.1 Normative References

- [RFC2119] “Key words for use in RFCs to Indicate Requirement Levels”, S. Bradner, March 1997,
URL: <http://www.ietf.org/rfc/rfc2119.txt>

2.2 Informative References

- [OMADICT] “Dictionary for OMA Specifications”, Version 2.8, Open Mobile Alliance™,
OMA-ORG-Dictionary-V2_8, URL: <http://www.openmobilealliance.org/>
- [OMA-GS] "Mobile Game Services", Open Mobile Alliance™, OMA-RD_Game-Services-V1_0,
URL: <http://www.openmobilealliance.org/>
- [OMA-MobAd-RD] “OMA-RD-Mobile-Advertising”, Open Mobile Alliance™, OMA-RD-Mobile_Advertising-
V1_0,
URL: <http://www.openmobilealliance.org/>

3. Terminology and Conventions

3.1 Conventions

The key words “MUST”, “MUST NOT”, “REQUIRED”, “SHALL”, “SHALL NOT”, “SHOULD”, “SHOULD NOT”, “RECOMMENDED”, “MAY”, and “OPTIONAL” in this document are to be interpreted as described in [RFC2119].

All sections and appendixes, except “Scope” and “Introduction”, are normative, unless they are explicitly indicated to be informative.

3.2 Definitions

IGA-Client	In-game advertising client-side entity which might be part of game client. It interacts with game client and IGA Server, performs functions such as: obtaining appropriate ads from IGA Server and Ad engine, and delivering them to game client, collecting of user’s response from game client, providing metrics related feedback to IGA Server and Ad engine.
IGA-Server	In-game advertising server-side entity which might be part of game server. It provides Ads to the IGA-Client and provides Ads meta data to game server. It collects and processes Ad Metrics data related to impressions during a game, and delivers those Ad Metrics data to Ad server.
Game-Server	See definition in [OMA-GS]
Game-Client	See definition in [OMA- GS]
Ad engine	See definition in [OMA-MobAD-RD]
Ad server	see definition in [OMA-MobAD-RD]

3.3 Abbreviations

OMA	Open Mobile Alliance
IGA	In-Game Advertising
IGA-C	IGA Client
IGA-S	IGA Server
BGM	Background Music

4. Introduction (Informative)

The rapid growing of online media actually established all aspects of people's life which reflected by the real world and more and more virtual media patterns are being created. All kinds of media are seeking creative forms to achieve better advertisement effect.

IGA is advertising placing into on-line game; it allows gamers to interact with your brand as part of the game play. IGA aims to explore more vivid, experiential environments for brands to reach an accurate and specific target audience. It is in and of itself a creativity advertisement form. As the traditional media's effective supplement, IGA transmits advertising info through game, which is one way in the online game media world.

IGA has its advantages in online media accordingly to the following:

- **Feasibility of interactive marketing:** The real interaction between gamers and brand message, in-game channels offer a unique way to change gamer's behavior by inserting tailor-made contents or tasks. In-Game Ad abandoned the coldly blunt way of feeding Ad info. It takes game as a media, lets the audiences experience the brand information in the game, through interaction links such as props and scenes, etc., and successfully involves the audience in a deep emotion exchange with the brand.
- **Possibility of tracking:** Since the online game born with database tracking system, so the advertising reach and frequency rates can be measured in real time by game publishers itself. It's possible for a third party tracking report for advertisers
- **Higher effectiveness:** The brand message can be distributed or displaced at any scene by anytime.

4.1 Version 1.0

IGA 1.0 release considers the following functionality:

- **In-game advertising models :**
 - Ad inventory models, e.g. background Ad-image, Ad-shape stage, Ad-BGM (Background Music), etc.
 - Metadata for the inventory models
 - Interface between IGA Client and IGA Server
- **Ads handling in game :**
 - Ad-metrics, separate from game-metrics
 - Related metadata
 - Interface between IGA and other related enablers
- **Best-practice and cases for in-game advertising:** to stimulate the market adaptation, it should research the current technology, market status, best-practice and case. In addition, OMA provides well-documented guidance to potential users of IGA such as operators, solution vendors and game developers.

5. IGA release description (Informative)

The IGA can provide abstraction for game developer from advertisement-related consideration. Another objective of IGA is defining related functionalities which enable the models and focus on game-Ad specific use cases and functionalities which could not be covered by other OMA enablers.

IGA release 1.0 covers **In-game advertising models, Ads handling in game, Best-practice and cases for in-game advertising.**

5.1 End-to-end Service Description

In-Game Advertising (IGA) aims to integrate the technologies of game and advertisement. This enabler will allow service providers to provide games that are enriched with targeted advertising, integrating the user experience (thanks to the interworking between Game Client and IGA Client on the device, and Game Server and IGA Server on the network side). The integration of game and advertising will allow avoiding bothering users or interrupting game with the Ads.

From the developers' point of view, IGA will allow to develop games that can easily interwork with IGA enabler and then enable those games to be "means" to deliver advertising information to final users.

6. Requirements (Normative)

6.1 High-Level Functional Requirements

6.1.1 Interaction between IGA Client and IGA Server

Label	Description	Release
IGA-ICS-001	IGA Enabler SHOULD provide interface between IGA Server and IGA Client.	IGA 1.0
IGA-ICS-002	IGA Server SHOULD provide a means to deliver AD contents to the IGA Client such as: - background Ad image	IGA 1.0
IGA-ICS-003	IGA Client SHOULD provide means to receive Ad content data from IGA Server such as: - Ad character - Ad item with extra Ad game - extra Ad game - Ad image of a product and info on the placement of this image	IGA 1.0
IGA-ICS-004	IGA Server SHOULD provide a means to indicate to IGA Client that Ad contents are not available based on the preparation policy.	IGA 1.0
IGA-ICS-005	IGA Client SHOULD provide means to receive Ad content data from IGA Server such as: - inter-stage Ad	IGA 1.0
IGA-ICS-006	IGA Client SHOULD provide means to receive Ad content data from IGA Server such as: - progress bar	IGA 1.0
IGA-ICS-007	IGA Client SHOULD provide means to receive Ad content data from IGA Server such as: - Ad sound effect	IGA 1.0
IGA-ICS-008	IGA Client SHOULD provide means to receive Ad content data from IGA Server such as: - Ad BGM (background music)	IGA 1.0
IGA-ICS-009	IGA Server MAY provide a means to prepare default Ad contents.	IGA 1.0
IGA-ICS-010	IGA Client SHOULD provide means to send Ad metrics data to IGA Server.	IGA 1.0
IGA-ICS-011	IGA Client SHOULD provide means to send information to IGA Server which is related to specific advertising model such as: - Ad character - game score of extra Ad game	IGA 1.0

Table 1: Interaction between IGA Client and IGA Server Requirements

6.1.2 Functionality of IGA Client

Label	Description	Release
IGA-CLI-001	IGA Client SHOULD provide means to separate Ad metrics from all the user interaction within game playing which include: - selected Ad item - selected Ad character	IGA 1.0

IGA-CLI-002	IGA Client SHOULD provide means to separate Ad metrics from all the user interaction within game playing which include: - time of Ad BGM played	IGA 1.0
IGA-CLI-003	IGA Client MAY provide means to record Ad metrics data, for example, time of progress bar display.	IGA 1.0

Table 2: Functionality of IGA Client Requirements

6.1.3 Functionality of IGA Server

Label	Description	Release
IGA-SRV-001	IGA Server SHOULD provide means to maintain stage information which is related to specific advertising model such as: - inter-stage Ad	IGA 1.0
IGA-SRV-002	IGA Server SHOULD provide means to maintain stage information which is related to specific advertising model such as: - Ad item	IGA 1.0

Table 3: Functionality of IGA Server Requirements

6.1.4 Interaction between IGA Server and Game Server

Label	Description	Release
IGA-IGS-001	IGA Enabler SHOULD provide interface between IGA Server and Game Server.	IGA 1.0
IGA-IGS-002	IGA Server SHOULD provide a means to receive data from Game Server such as: - game stage information (information on the stage the Gamer is a playing)	IGA 1.0
IGA-IGS-003	IGA Server SHOULD provide a means to deliver Ad contents to the Game Server such as: - Ad shape stage (a particular game stage that contains Ad data and for this reason it is named “Ad shape” stage)	IGA 1.0
IGA-IGS-004	IGA Server SHOULD provide a mechanism to deliver Ad contents-related meta-data to Game Server for further use, e.g. collecting Ad metrics data such as: - position and function for Ad item	IGA 1.0

Table 4: Interaction between IGA Server and Game Server Requirements

6.1.5 Interaction between IGA Client and Game Client

Label	Description	Release
IGA-IGC-001	IGA Enabler SHOULD provide interface between IGA Client and Game Client.	IGA 1.0

IGA-IGC-002	IGA Client SHOULD provide a means to deliver Ad contents to the Game Client. The delivered data SHOULD be one of the follows: - background Ad image - Ad sign - Ad item - Ad character - extra Ad game - Ad image of a product and info on the placement of this image	IGA 1.0
IGA-IGC-003	IGA Client SHOULD provide means to deliver Ad contents to the Game Client such as: - inter-stage Ad	IGA 1.0
IGA-IGC-004	IGA Client SHOULD provide means to deliver Ad contents to the Game Client such as: - progress bar	IGA 1.0
IGA-IGC-005	IGA Client SHOULD provide means to deliver Ad contents to the Game Client such as: - Ad sound effect	IGA 1.0
IGA-IGC-006	IGA Client SHOULD provide means to deliver Ad contents to the Game Client such as: - Ad BGM (background music)	IGA 1.0
IGA-IGC-007	IGA Client SHOULD provide a means to get game information from Game Client such as: - in-game position of the user - user taken item - user taken character - user position within game.	IGA 1.0
IGA-IGC-008	IGA Client SHOULD provide a means to indicate to Game Client that Ad contents are not available.	IGA 1.0
IGA-IGC-009	IGA Client MAY provide a means to prepare for default Ad contents.	IGA 1.0
IGA-IGC-010	The IGA Client SHALL be able to obtain metrics data from Game Client, such as: a.Context it was presented in b.Customer interactions with the Ads	IGA 1.0
IGA-IGC-011	IGA Client SHOULD provide means to receive meta-data for an Ad item from the Game Client.	IGA 1.0

Table 5: Interaction between IGA Client and Game Client Requirements

6.1.6 Interaction with OMA MobAd enabler

Label	Description	Release
IGA-MAD-001	IGA Enabler SHOULD provide interface between IGA Client and Ad Engine of OMA MobAd enabler.	IGA 1.0
IGA-MAD-002	IGA Client SHOULD provide a means to receive Ad contents from Ad Engine based on subscription or request. The AD contents MAY include Ad sign.	IGA 1.0

Table 6: Interaction with OMA MobAd enabler Requirements

6.1.7 Security

Label	Description	Release
IGA-SEC-001	The IGA Enabler SHALL support means to identify fraudulent Ad metrics.	IGA 1.0

Table 7: High-Level Functional Requirements – Security Items

6.1.7.1 Authentication

Label	Description	Release
IGA-AUT-001	The IGA Enabler SHALL support mechanisms to authenticate Principals attempting to request Ads and report Ad metrics.	IGA 1.0

Table 8: High-Level Functional Requirements – Authentication Items

6.1.7.2 Authorization

Label	Description	Release
IGA-ATZ-001	The IGA Enabler SHALL support mechanisms to authorize Principals attempting to request Ads and report Ad metrics.	IGA 1.0

Table 9: High-Level Functional Requirements – Authorization Items

6.1.7.3 Data Integrity

Label	Description	Release
IGA-DIN-001	The IGA Enabler SHOULD support data integrity protection of the Ad metrics.	IGA 1.0

Table 10: High-Level Functional Requirements – Data Integrity Items

6.1.7.4 Confidentiality

Label	Description	Release
IGA-CON-001	The IGA Enabler SHOULD support confidentiality protection for data collected from the user for the purpose of Advertisement.	IGA 1.0

Table 11: High-Level Functional Requirements – Confidentiality Items

6.1.8 Charging

Label	Description	Release
IGA-CHG-001	IGA Enabler SHALL support the Game Provider to charge advertisers based on the collected metrics data.	IGA 1.0
IGA-CHG-002	IGA Client SHOULD be able to analyse and refine collected metrics data based on the charging policy and report them to IGA Server (e.g., with the scope of metrics validation, in order to filter some fake metrics).	IGA 1.0

Table 12: Charging Requirements

6.1.9 Administration and Configuration

No requirements identified.

6.1.10 Usability

Label	Description	Release
IGA-USA-001	IGA Enabler MAY provide means to skip Ad shape stage such as skip button, skip icon and skip item.	IGA 1.0

IGA-USA-002	IGA Enabler MAY provide means to stop playing Ad content such as stop button, stop icon and stop item.	IGA 1.0
IGA-USA-003	The IGA Enabler SHOULD support the collecting of user's response, such as selecting Ad sign, Ad item, clicking and viewing to a received Ad.	IGA 1.0

Table 13: Usability Requirements

6.1.11 Interoperability

No requirements identified.

6.1.12 Privacy

Label	Description	Release
IGA-PRI-001	IGA Server SHOULD provide means to restrict the integrated Ads with game regarding of the players age.	IGA 1.0

Table 14: Privacy Requirements

6.2 Overall System Requirements

No requirements identified.

Appendix A. Change History

(Informative)

A.1 Approved Version History

Reference	Date	Description
Approved Version: OMA-RD-IGA-V1_0	21 Dec 2010	Status changed to Approved by TP: OMA-TP-2010-0509-INP_IGA_V1_0_for_Final_Approval

Appendix B. Use Cases (Informative)

B.1 Background AD image usecase

B.1.1 Short Description

During Game Client displays game screen, the client requests IGA Client to deliver background image.

B.1.1.1 Actors

- User: A user with a mobile device, who is to be shown an advertisement.
- Game Server: A game server is running a game and has game information.
- Game Client: A game client has interaction with user and has the interaction information.
- IGA Server: An IGA Server communicates with game server and has IGA information.
- IGA Client: An IGA Client interfaces with game client and handles interaction information from game client.

B.1.1.2 Actor Specific Issues

N/A

B.1.1.3 Pre-conditions

- Game Client and Game Server are already installed and configured.
- Game Client has some relevant game context information (e.g. level of game stage) and sends related information to Game Server.

B.1.1.4 Post-conditions

N/A

B.1.1.5 Normal Flow

1. User starts the game.
2. During the game playing, when the game stage changes, Game Client requests next stage information to Game Server.
3. Game Server relays the stage information to IGA Server. IGA Server indicates the next stage has a background AD image.
4. IGA Server delivers the background AD image to IGA Client.
5. Game Server delivers the stage information to Game Client.
6. Game Client uses background image from IGA Client when presents the game stage.
7. During User plays game, User indicates the background image is a new product of his/her favourite drink.
8. The User ends the stage.

B.1.1.6 Alternative Flow 1

In case the background AD image is not prepared, IGA Server delivers default image for the game. There will be no step 4), 5), 6) and 7).

B.1.2 Market benefits

- User: Can be shown relevant, fresh advertisements when playing game.

- Game Server: No need to managing advertisement material and related actions.
- Game Client: Would be simple to develop even though it has complex type of AD method.
- IGA Server: Can successfully manage Ads regardless of game type.
- IGA Client: get User interactions without combining game logic.

B.2 Stage AD shape usecase

B.2.1 Short Description

The game server indicates ad stage when game goes to next stage and (pre)downloads stage shape to game client.

B.2.1.1 Actors

- User: A user with a mobile device, who is to be shown an advertisement.
- Game Server: A game server is running a game and has game information.
- Game Client: A game client has interaction with user and has the interaction information.
- IGA Server: An IGA Server communicates with game server and has IGA information.
- IGA Client: An IGA Client interfaces with game client and handles interaction information from game client.

B.2.1.2 Actor Specific Issues

N/A

B.2.1.3 Pre-conditions

- Game Client and Game Server are already installed and configured.
- Game Client has some relevant game context information (e.g. level of game stage) and sends related information to Game Server.

B.2.1.4 Post-conditions

Game Client collects game playing information (e.g. playtime of the stage, the items which have taken by user during game) and sends to IGA Client.

B.2.1.5 Normal Flow

1. User starts the game.
2. During the game playing, when the game stage changes, Game Client requests Game Servers to deliver next stage information.
3. Game Server relays the stage information to IGA Server.
4. IGA Server indicates the next stage is a AD shape stage.
5. IGA Server delivers the AD shape stage to Game Server.
6. Game Server delivers the AD shape stage to Game Client.
7. Game Client presents the AD shape stage.
8. During User plays game, User indicates the shape of this stage is look like his /her favourite drink.
9. The User ends the stage.

B.2.1.6 Alternative Flow 1

In case AD shape stage is not prepared, Game Server delivers default stage or move to the next stage of the AD shape stage. There will be no step 5), 6), 7), and 8).

B.2.1.7 Alternative Flow 2

In case User doesn't want to play AD shape stage, there may be a method to skip the stage such as skip button or skip icon. There will be no step 8).

B.2.2 Market benefits

- User: Can be shown relevant, fresh advertisements when playing game.
- Game Server: No need to managing advertisement material and related actions.
- Game Client: Would be simple to develop even though it has complex type of AD method.
- IGA Server: Can successfully manage Ads regardless of game type.
- IGA Client: get User interactions without combining game logic.

B.3 AD sign usecase

B.3.1 Short Description

During game playing, Game Client requests IGA Client to deliver AD sign image.

B.3.1.1 Actors

- User: A user with a mobile device, who is to be shown an advertisement.
- Game Server: A game server is running a game and has game information.
- Game Client: A game client has interaction with user and has the interaction information.
- IGA Server: An IGA Server communicates with game server and has IGA information.
- IGA Client: An IGA Client interfaces with game client and handles interaction information from game client.

B.3.1.2 Actor Specific Issues

N/A

B.3.1.3 Pre-conditions

- Game Client and Game Server are already installed and configured.
- Game Client has some relevant game context information (e.g. level of game stage) and sends related information to Game Server.
- IGA Client prepares AD sign contents before make request it by Game Client.

B.3.1.4 Post-conditions

N/A.

B.3.1.5 Normal Flow

1. User starts the game.
2. During the game playing, when the AD sign would be displayed, Game Client sends the request for AD contents to IGA Client.

3. IGA Client send the AD contents to Game Client..
4. Game Client displays the AD contents on the AD sign.
5. During User plays game, User indicates the AD sign talks about a new product of his/her favourite drink.
6. Game Client sends User position to IGA Client.
7. IGA Client indicates the User is passed the sign or not by handling the position.

B.3.1.6 Alternative Flow 1

In case the AD sign image is not prepared, IGA Client delivers default image for the sign. There will be no step 5).

B.3.2 Market benefits

- User: Can be shown relevant, fresh advertisements when playing game.
- Game Server: No need to managing advertisement material and related actions.
- Game Client: Would be simple to develop even though it has complex type of AD method.
- IGA Server: Can successfully manage Ads regardless of game type.
- IGA Client: get User interactions without combining game logic.

B.4 AD splash usecase

B.4.1 Short Description

While a user open a game, put a certain ad as a welcome sign. While a user close a game, put a certain ad as a goodbye sign.

B.4.1.1 Actors

- User: A user with a mobile device, who is to be shown an advertisement.
- Game Server: A game server is running a game and has game information.
- Game Client: A game client has interaction with user and has the interaction information.
- IGA Server: An IGA Server communicates with game server and has IGA information.
- IGA Client: An IGA Client interfaces with game client and handles interaction information from game client.

B.4.1.2 Actor Specific Issues

N/A

B.4.1.3 Pre-conditions

Game Client and Game Server are already installed and configured.

B.4.1.4 Post-conditions

N/A.

B.4.1.5 Normal Flow

1. User opens a game
2. IGA Client requests IGA Server to push certain title ad, like motor manufacturer, computer producer, etc, to acting as a welcome sign while game starting.

3. User presses any button.
4. User joins in the mobile game.
5. User closes the game client.
6. IGA Client requests IGA Server to push certain title ad as a goodbye sign.
7. IGA Client displays the goodbye sign.
8. IGA Server records this as a reference to discount or metrics.
9. User presses any button, ends game and stops IGA interchanging.

B.4.2 Market benefits

- User: Feels a more effective game.
- Game Server: No need to managing advertisement material and related actions.
- Game Client: Would be simple to develop even though it has complex type of AD method.
- IGA Server: Can successfully manage Ads regardless of game type.
- IGA Client: get User interactions without combining game logic.

B.5 Click and Play AD usecase

B.5.1 Short Description

While user playing a game, put an ad button on a certain area in user's screen, only user click (or press down) ad play button, IGA Client requests IGA Server pushes certain ad to user's screen.

B.5.1.1 Actors

- User: A user with a mobile device, who is to be shown an advertisement.
- Game Server: A game server is running a game and has game information.
- Game Client: A game client has interaction with user and has the interaction information.
- IGA Server: An IGA Server communicates with game server and has IGA information.
- IGA Client: An IGA Client interfaces with game client and handles interaction information from game client.

B.5.1.2 Actor Specific Issues

N/A

B.5.1.3 Pre-conditions

Game Client and Game Server are already installed and configured.

B.5.1.4 Post-conditions

N/A.

B.5.1.5 Normal Flow

1. When a user is playing a game, IGA only place an ad button at certain area in the end user's screen..
2. The user clicks (or press down) the ad play button.
3. IGA Client request the IGA Server to push certain ads to the end user.

4. The certain ad is played on the end user's screen.
5. To resume game, IGA Client sends back a message to IGA Server to confirm the end of ad playing.
6. Record this clicking, as a reference for discount or metrics, etc.

B.5.2 Market benefits

- User: Can be shown relevant, fresh advertisements when playing game.
- Game Server: No need to managing advertisement material and related actions.
- Game Client: Would be simple to develop even though it has complex type of AD method.
- IGA Server: Can successfully manage Ads regardless of game type.
- IGA Client: get User interactions without combining game logic.

B.6 AD item usecase

B.6.1 Short Description

The game server indicates ad items when game goes to next stage and (pre)downloads to game client. The game client displays the ad items when user plays the game and if user made some interactions with the item, captures the interactions as ad metrics data.

B.6.1.1 Actors

- User: A user with a mobile device, who is to be shown an advertisement.
- Game Server: A game server is running a game and has game information.
- Game Client: A game client has interaction with user and has the interaction information.
- IGA Server: An IGA Server communicates with game server and has IGA information.
- IGA Client: An IGA Client interfaces with game client and handles interaction information from game client.

B.6.1.2 Actor Specific Issues

N/A

B.6.1.3 Pre-conditions

- Game Client and Game Server are already installed and configured.
- Game Client has some relevant game context information (e.g. level of game stage) and sends related information to Game Server.

B.6.1.4 Post-conditions

Game Client categories the item and performs proper actions (e.g. increase game points, revitalize game character, boost speed of game)

B.6.1.5 Normal Flow

1. User starts the game.
2. During the game playing, when the game stage changes, Game Client requests Game Servers to deliver next stage information.
3. Game Server relays the stage information to IGA Server.
4. IGA Server indicates the next stage has some AD items.

5. IGA Server delivers the AD item meta data (position, function, etc.) to Game Server.
6. IGA Server downloads AD item data (e.g. image) to IGA Client
7. Game Server delivers the stage with AD item to Game Client.
8. Game Client presents the stage.
9. During User plays game, User makes a choice an item between three game items because it is his/her favourite drink.
10. Game Client collects the interactions from User.
11. Game Client gives the user interaction to IGA Client.
12. IGA Client separates AD item metrics from all the user interaction and records the metrics.
13. The User ends the stage.
14. IGA Client sends the metrics to IGA Server.

B.6.1.6 Alternative Flow 1

In case AD item is not prepared, IGA Server delivers default data. There will be no step 5), 6), 7), 9), 10), 11), 12) and 14).

B.6.2 Market benefits

- User: Can be shown relevant, fresh advertisements when playing game.
- Game Server: No need to managing advertisement material and related actions.
- Game Client: Would be simple to develop even though it has complex type of AD method.
- IGA Server: Can successfully manage Ads regardless of game type.
- IGA Client: get User interactions without combining game logic.

B.7 AD Character usecase

B.7.1 Short Description

The game client displays AD characters in the middle of game characters list when the user chooses game character.

B.7.1.1 Actors

- User: A user with a mobile device, who is to be shown an advertisement.
- Game Server: A game server is running a game and has game information.
- Game Client: A game client has interaction with user and has the interaction information.
- IGA Server: An IGA Server communicates with game server and has IGA information.
- IGA Client: An IGA Client interfaces with game client and handles interaction information from game client.

B.7.1.2 Actor Specific Issues

N/A

B.7.1.3 Pre-conditions

- Game Client and Game Server are already installed and configured.

- AD character data have been downloaded before the user starts game.

B.7.1.4 Post-conditions

Game Client collects game playing information (e.g. playtime of the stage, the character which has taken by user during game) and sends to IGA Client.

B.7.1.5 Normal Flow

1. User starts the game.
2. It is the first time for the user, Game Client lists game characters. In the characters list, there are AD characters are listed as well. They are Super-gum-man, Bat-drink-man and Wonder-chocolate-woman.
3. The user chooses Super-gum-man because it looks good.
4. Game Client captures the user interactions (choice) and sends them to IGA Client.
5. During the game play, Game Client displays the AD character as a game character for the user. If the AD character is a kind of helpers, Game Client displays the AD character as well during the user plays game.
6. The User ends the stage.
7. IGA Client sends the user interactions to IGA Server as AD metrics.

B.7.1.6 Alternative Flow 1

In case AD character is not prepared, Game Client displays normal game character only. There will be no step 3), 4), 5), and 7).

B.7.1.7 Alternative Flow 2

In case the user chooses normal game character, there will be no step 3), 5).

B.7.2 Market benefits

- User: Can be shown relevant, fresh advertisements when playing game.
- Game Server: No need to managing advertisement material and related actions.
- Game Client: Would be simple to develop even though it has complex type of AD method.
- IGA Server: Can successfully manage Ads regardless of game type.
- IGA Client: get User interactions without combining game logic.

B.8 Inter-stage AD usecase

B.8.1 Short Description

When the user moves a stage to another, Ad content is displayed.

B.8.1.1 Actors

- User: A user with a mobile device, who is to be shown an advertisement.
- Game Server: A game server is running a game and has game information.
- Game Client: A game client has interaction with user and has the interaction information.
- IGA Server: An IGA Server communicates with game server and has IGA information.
- IGA Client: An IGA Client interfaces with game client and handles interaction information from game client.

B.8.1.2 Actor Specific Issues

N/A

B.8.1.3 Pre-conditions

- Game Client and Game Server are already installed and configured.
- Game Client has some relevant game context information (e.g. level of game stage) and sends related information to Game Server.

B.8.1.4 Post-conditions

N/A

B.8.1.5 Normal Flow

1. User starts the game.
2. The user completes the mission and ends the stage.
3. Game Client relays the stage information to IGA Client.
4. IGA Client indicates inter-stage ad before the next stage.
5. IGA Client delivers the inter-stage ad to Game Client.
6. Game Client displays the inter-stage ad before the next stage begins.
7. User sees the inter-stage ad during his/her moving to next stage.
8. User starts to play the next stage.

B.8.1.6 Alternative Flow 1

In case the inter stage ad is not prepared, IGA Client delivers default data to Game Client. There will be no step 5), 6), and 7).

B.8.2 Market benefits

- User: Can be shown relevant, fresh advertisements when playing game.
- Game Server: No need to managing advertisement material and related actions.
- Game Client: Would be simple to develop even though it has complex type of AD method.
- IGA Server: Can successfully manage Ads regardless of game type.
- IGA Client: get User interactions without combining game logic.

B.9 Extra AD game usecase

B.9.1 Short Description

During the game, there will be provided extra AD game if some condition is satisfied.

B.9.1.1 Actors

- User: A user with a mobile device, who is to be shown an advertisement.
- Game Server: A game server is running a game and has game information.
- Game Client: A game client has interaction with user and has the interaction information.

- IGA Server: An IGA Server communicates with game server and has IGA information.
- IGA Client: An IGA Client interfaces with game client and handles interaction information from game client.

B.9.1.2 Actor Specific Issues

N/A

B.9.1.3 Pre-conditions

- Game Client and Game Server are already installed and configured.
- Game Client has some relevant game context information (e.g. level of game stage) and sends related information to Game Server.

B.9.1.4 Post-conditions

Game Client collects game playing information (e.g. playtime of the stage, the items which have taken by user during game) and sends to IGA Client.

B.9.1.5 Normal Flow

1. User starts the game.
2. During the game playing, User gets AD item.
3. Game Client relays the interaction to IGA Client.
4. IGA Client indicates the AD item is attached to extra AD game.
5. IGA Client delivers the extra AD game to Game Client.
6. Game Client begins the extra AD game.
7. User plays extra AD game and ends it.
8. Game Client resumes the game.
9. User returns to the game and plays the game.

B.9.1.6 Alternative Flow 1

In case the extra AD game stage is not prepared, Game Client continues the game. There will be no step 5), 6), and 7).

B.9.1.7 Alternative Flow 2

In the step 2), there will be many different conditions to provide extra AD game. For example, user earns special points or ranks, user completes special mission and so on.

B.9.1.8 Alternative Flow 3

In the step 6), the extra AD game is played in different way. For example, it is started between the stage and next stage. Otherwise, the extra AD game is stored in special area of the game and started when the user wants to play.

B.9.2 Market benefits

- User: Can be shown relevant, fresh advertisements when playing game.
- Game Server: No need to managing advertisement material and related actions.
- Game Client: Would be simple to develop even though it has complex type of AD method.
- IGA Server: Can successfully manage Ads regardless of game type.
- IGA Client: get User interactions without combining game logic.

B.10 Product placement usecase

B.10.1 Short Description

In the game background, there are some product images which are not any effects on game playing.

B.10.1.1 Actors

- User: A user with a mobile device, who is to be shown an advertisement.
- Game Server: A game server is running a game and has game information.
- Game Client: A game client has interaction with user and has the interaction information.
- IGA Server: An IGA Server communicates with game server and has IGA information.
- IGA Client: An IGA Client interfaces with game client and handles interaction information from game client.

B.10.1.2 Actor Specific Issues

N/A

B.10.1.3 Pre-conditions

- Game Client and Game Server are already installed and configured.
- Game Client has some relevant game context information (e.g. level of game stage) and sends related information to Game Server.

B.10.1.4 Post-conditions

N/A

B.10.1.5 Normal Flow

1. User starts the game.
2. During the game playing, Game Client relays User interactions to IGA Client.
3. IGA Client indicates there are some AD products to display in the game background.
4. IGA Client delivers the product images to Game Client.
5. Game Client presents the products in some part of background image.
6. During User plays game, User notices good cars in the game street (which is actually game background.)
7. The User continues playing the game.

B.10.1.6 Alternative Flow 1

In case the AD product is not prepared, IGA Client delivers default image. There will be no step 5) and 6).

B.10.2 Market benefits

- User: Can be shown relevant, fresh advertisements when playing game.
- Game Server: No need to managing advertisement material and related actions.
- Game Client: Would be simple to develop even though it has complex type of AD method.
- IGA Server: Can successfully manage Ads regardless of game type.

- IGA Client: get User interactions without combining game logic.

B.11 Progress bar usecase

B.11.1 Short Description

When the next stage is loading or something is happened which takes long time. The game client displays ad attached progress bar during the action is taken.

B.11.1.1 Actors

- User: A user with a mobile device, who is to be shown an advertisement.
- Game Server: A game server is running a game and has game information.
- Game Client: A game client has interaction with user and has the interaction information.
- IGA Server: An IGA Server communicates with game server and has IGA information.
- IGA Client: An IGA Client interfaces with game client and handles interaction information from game client.

B.11.1.2 Actor Specific Issues

N/A

B.11.1.3 Pre-conditions

Game Client and Game Server are already installed and configured.

B.11.1.4 Post-conditions

N/A

B.11.1.5 Normal Flow

1. User starts the game.
2. During the game playing, when the next game stage is loaded or some actions which take long time, Game Client requests progress bar ad to IGA Client.
3. IGA Client delivers the AD progress bar to Game Client.
4. Game Client presents the progress bar during the action is taken.
5. User enjoys the ad progress bar during his waiting.
6. Game Client resumes game.
7. The User continues the game.

B.11.1.6 Alternative Flow 1

In case the AD progress bar is not prepared, IGA delivers default progress bar. There will be no step 5).

B.11.1.7 Alternative Flow 2

In the step 5), the progress bar may be made with many types of shape and media. It can be some video clip to introduce some product.

B.11.2 Market benefits

- User: Can be shown relevant, fresh advertisements when playing game.

- Game Server: No need to managing advertisement material and related actions.
- Game Client: Would be simple to develop even though it has complex type of AD method.
- IGA Server: Can successfully manage Ads regardless of game type.
- IGA Client: get User interactions without combining game logic.

B.12 AD sound effect usecase

B.12.1 Short Description

During the game is playing, the AD sound is played as a game sound effect such as shooting, crushing and getting the item.

B.12.1.1 Actors

- User: A user with a mobile device, who is to be shown an advertisement.
- Game Server: A game server is running a game and has game information.
- Game Client: A game client has interaction with user and has the interaction information.
- IGA Server: An IGA Server communicates with game server and has IGA information.
- IGA Client: An IGA Client interfaces with game client and handles interaction information from game client.

B.12.1.2 Actor Specific Issues

N/A

B.12.1.3 Pre-conditions

Game Client and Game Server are already installed and configured.

B.12.1.4 Post-conditions

N/A

B.12.1.5 Normal Flow

1. User starts the game.
2. Game Client requests IGA Client to deliver AD sound effect.
3. IGA Client delivers AD sound effect.
4. During the game playing, when the user makes special action, Game Client plays AD sound effect as a game sound effect such as shooting.
5. The User plays game.

B.12.1.6 Alternative Flow 1

In case AD sound effect is not prepared, IGA Client delivers default data. There will be no step 3) and 4).

B.12.2 Market benefits

- User: Can be shown relevant, fresh advertisements when playing game.
- Game Server: No need to managing advertisement material and related actions.
- Game Client: Would be simple to develop even though it has complex type of AD method.

- IGA Server: Can successfully manage Ads regardless of game type.
- IGA Client: get User interactions without combining game logic.

B.13 AD BGM usecase

B.13.1 Short Description

During the game is playing, the AD music is played as a game BGM (Background Music.)

B.13.1.1 Actors

- User: A user with a mobile device, who is to be shown an advertisement.
- Game Server: A game server is running a game and has game information.
- Game Client: A game client has interaction with user and has the interaction information.
- IGA Server: An IGA Server communicates with game server and has IGA information.
- IGA Client: An IGA Client interfaces with game client and handles interaction information from game client.

B.13.1.2 Actor Specific Issues

N/A

B.13.1.3 Pre-conditions

Game Client and Game Server are already installed and configured.

B.13.1.4 Post-conditions

N/A

B.13.1.5 Normal Flow

1. User starts the game.
2. Game Client requests IGA Client to deliver AD music.
3. IGA deliver AD music.
4. During the game playing, Game Client plays AD music as a game BGM.
5. The User plays game.

B.13.1.6 Alternative Flow 1

In case AD music is not prepared, IGA Client delivers default music. There will be no step 3) and 4).

B.13.2 Market benefits

- User: Can be shown relevant, fresh advertisements when playing game.
- Game Server: No need to managing advertisement material and related actions.
- Game Client: Would be simple to develop even though it has complex type of AD method.
- IGA Server: Can successfully manage Ads regardless of game type.
- IGA Client: get User interactions without combining game logic.

B.14 User selects AD Sponsor usecase

B.14.1 Short Description

When the sponsor of the special item is changed, IGA Client and IGA Server are dynamically applied to the special item.

B.14.1.1 Actors

- User: A user with a mobile device, who is to be shown an advertisement.
- Game Server: A game server is running a game and has game information.
- Game Client: A game client has interaction with user and has the interaction information.
- IGA Server: An IGA Server communicates with game server and has IGA information.
- IGA Client: An IGA Client interfaces with game client and handles interaction information from game client.

B.14.1.2 Actor Specific Issues

N/A

B.14.1.3 Pre-conditions

- Game Client and Game Server are already installed and configured.
- Sets of items should be prepared and assigned to specific sponsors.

B.14.1.4 Post-conditions

- User has the items in own inventory.
- When user uses the items, more effect than normal items applies to user or mobile characters (enemy, monster and so on).

B.14.1.5 Normal Flow

1. User starts a game.
2. User opens the sponsor list.
3. IGA Client requests the sponsor information of the items or item groups to IGA Server.
4. IGA Server sends the sponsor information to IGA Client.
5. IGA Client delivers the sponsor information to Game Client.
6. Game Client displays the sponsor information.
7. User selects the sponsor.
8. All game items are fitted to sponsor's name or logo.
9. User plays the game with game items sponsored.

B.14.1.6 Alternative Flow 1(No sponsor)

In case there is no sponsor information from IGA Server, the step 3, 4, 5, 6, 7 and 8 should be omitted.

B.14.2 Market benefits

- User: Can be shown relevant, fresh advertisements when playing game.
- Game Server: No need to managing advertisement material and related actions.

- Game Client: Would be simple to develop even though it has complex type of AD method.
- IGA Server: Can successfully manage Ads regardless of game type.
- IGA Client: get User interactions without combining game logic.

B.15 User selects sponsor for AD item usecase

B.15.1 Short Description

User can assign the sponsor to the specific items or item groups.

B.15.1.1 Actors

- User: A user with a mobile device, who is to be shown an advertisement.
- Game Server: A game server is running a game and has game information.
- Game Client: A game client has interaction with user and has the interaction information.
- IGA Server: An IGA Server communicates with game server and has IGA information.
- IGA Client: An IGA Client interfaces with game client and handles interaction information from game client.

B.15.1.2 Actor Specific Issues

N/A

B.15.1.3 Pre-conditions

Game Client and Game Server are already installed and configured.

B.15.1.4 Post-conditions

- User owns the item.
- When user uses the items, more effect than normal items applies to user or mobile characters (enemy, monster and so on).

B.15.1.5 Normal Flow

1. User starts a game.
2. User enters the item shop and opens the sponsor list.
3. IGA Client gets the sponsor information from IGA Server
4. User selects the sponsor.
5. Game Client shows the item list from the selected sponsor.
6. User selects or buys the item which user like. (e.g.: when user uses this item, it rewards more points, powerful skills and beautiful shape.)
7. User plays the game with the selected item.

B.15.1.6 Alternative Flow 1(No sponsor)

In case there is no sponsor information from IGA Server, the step 4, 5, 6 and 7 should be omitted.

B.15.2 Market benefits

- User: Can be shown relevant, fresh advertisements when playing game.

- Game Server: No need to managing advertisement material and related actions.
- Game Client: Would be simple to develop even though it has complex type of AD method.
- IGA Server: Can successfully manage Ads regardless of game type.
- IGA Client: get User interactions without combining game logic.

B.16 Game interactions to AD metrics usecase

B.16.1 Short Description

While game user playing a game, there is a certain area in user's screen for advertisement, user clicks (or press down) this area, game client pushes certain ad to user's screen, allowing game users to interact with advertisers' brand as part of the game play. Game Client captures the interactions as ad metrics, and delivers to IGA Client.

Game Service Provider would also like to obtain information about which goods or brands that game user likes most so that the right numbers of adverts targeted for the game user can be sent to user's device.

B.16.1.1 Actors

- User: A user with a mobile device, who receives advertisements for products and services that interest him.
- Game Client: A game client has interaction with user and has the interaction information.
- IGA Server: An IGA Server communicates with game server and has IGA information, and receives metrics from IGA-C and analyses it.
- IGA Client: An IGA Client interfaces with game client and handles interaction information from game client, collect and process metrics related information from game client.
- Advertiser: Merchants who would like to advertise their products and promote them for potential targeted users.

B.16.1.2 Actor Specific Issues

N/A

B.16.1.3 Pre-conditions

- Game Client and Game Server are already installed and configured.
- Game user agrees to receive advertising in exchange for lower service subscription rates.
- Game user agrees to allow the device to report advertising metric and application usage information to the game Service Provider, and the game Service Provider agrees to keep this information private.

B.16.1.4 Post-conditions

Game Service Provider receives data on game user's Ad viewing, Ad responses, and uses this information for advertiser billing and better targeting of the Ad campaigns.

B.16.1.5 Normal Flow

1. When a user is playing a game, there is certain area in the end user's screen for advertisement.
2. The user clicks the certain area for advertisement.
3. IGA Client requests the IGA Server to push certain ads of advertisers to the game user.
4. The certain ad is played on the end user's screen.
5. The user may press some buttons to express his option about the certain ad.

6. Game user's button actions is caught by the game client, then deliver to IGA Server by or through IGA Client.
7. From these Ad metrics data, game Service Provider determines that the game user is interesting in certain game much more, and will adjust the mix of advertisement sent to the game user accordingly.
8. User's Ad metric data is combined in different ways with data from other users also to achieve statistics about the size of audience for the Ad. Such statistics reports can be certified and published and therefore serve as a valuable metric for all actors in the value chain (e.g.: advertiser, game Service Provider). This clicking is also a reference for discount or metrics, etc.

B.16.2 Market benefits

- User: Can be shown relevant, fresh advertisements when playing game, play game at a reduced price.
- Game service provider: May offer a better game service and additional revenue, because of the use of metering capabilities. May consider charging for certified statistics reports, or use them as a tool to attract more advertisers.
- Advertisers: Are able to market their products effectively to mobile gamers through the use of adverts that are targeted to interested gamers. May use certified statistics reports to refine Ad campaign.

B.17 Point-to-point AD transfer usecase

B.17.1 Short Description

Game Client exchanges or passes game item with other Game Client which is actually ad item in Point-to-Point (P2P) manner.

B.17.1.1 Actors

- User UA: A user with a mobile device, who is to be shown an advertisement and plays Game Client GC-A.
- User UB: A user with a mobile device, who is to be shown an advertisement and plays Game Client GC-B.
- Game Client GC-A: A game client has interaction with user A and has ad item AI-A.
- Game Client GC-B: A game client has interaction with user B and has ad item AI-B.
- IGA Client: An IGA Client interfaces with Game Client and handles interaction information from the game client.

B.17.1.2 Actor Specific Issues

N/A

B.17.1.3 Pre-conditions

- Game Clients are already installed and configured in each handset.
- AD items are existed in each Game Clients.
- Game Clients support point-to-point ad item exchange or pass method.

B.17.1.4 Post-conditions

Game Clients collect game playing information (e.g. exchanged ad items) and send to each IGA Clients.

B.17.1.5 Normal Flow

1. User UA wants to exchange a game item (ad item) with user UB.
2. Game Client GC-A looking for GC-B (e.g. WiFi or Bluetooth network).

3. Game Client GC-A finds GC-B and sends request for exchange game item.
4. User UB indicates the request and accepts that.
5. User UA chooses an item AI-A and Game Client GC-A sends related information (e.g. item data and meta-data for the ad item) for initiate exchange process.
6. User UB indicates the item AI-A and chooses an item AI-B from GC-B's item list. GC-B sends AI-B information to GC-A.
7. Game Clients sends the user interactions to each IGA Clients.
8. IGA Client sends the user interactions to IGA Server as AD metrics.

B.17.1.6 Alternative Flow 1

In case User UB does not accept the offer from UA, there will be no more steps after 4).

B.17.2 Market benefits

- User: Can be shown relevant, fresh advertisements when playing game.
- Game Server: No need to managing advertisement material and related actions.
- Game Client: Would be simple to develop even though it has complex type of AD method.
- IGA Server: Can successfully manage Ads regardless of game type.
- IGA Client: get User interactions without combining game logic.

B.18 Charging in IGA usecase

B.18.1 Short Description

While game user playing a game, there is a certain area in user's screen for advertisement, user clicks (or press down) this area, game client pushes certain ad to user's screen, allowing game users to interact with advertisers' brand as part of the game play. Game Client captures the interactions as ad metrics, and delivers to IGA-C. IGA-C analyses and refines these ad metrics based charging policy and report them to IGA-S.

Advertisers may make charging policy that is relative to user's clicks and press-button behavior (metrics data), and pay for the ads that are impressed in game.

B.18.1.1 Actors

- User: A user with a mobile device, who receives advertisements for products and services that interest him.
- Game Client: A game client has interaction with user and has the interaction information.
- IGA Server: An IGA Server communicates with game server and has IGA information, and receives metrics from IGA-C.
- IGA Client: An IGA Client interfaces with game client and handles interaction information from game client, collect and refine these metrics related information from game client for charging, then deliver them to IGA Server. Game charging policy may also configure on IGA Client.
- Advertiser: Merchants who would like to advertise their products and promote them for potential targeted users.

B.18.1.2 Actor Specific Issues

N/A

B.18.1.3 Pre-conditions

- Game Client and Game Server are already installed and configured.
- Game user agrees to receive advertising in exchange for lower service subscription rates,.
- Game charge policy may configure on IGA Client, such as refine metrics that relative to user's pressing some buttons and inputting content while impressing Ads.
- Game user agrees to allow the device to report advertising metric to the game Service Provider, and the game Service Provider charges Advertisers.

B.18.1.4 Post-conditions

IGA Client delivers metrics data that relative to charging to IGA Server. Game Service Provider receives data on game user's Ad viewing, Ad responses, and uses this information for advertiser charging.

B.18.1.5 Normal Flow

1. When a user is playing a game, there is certain area in the end user's screen for advertisement.
2. The user clicks the certain area for advertisement.
3. IGA-C requests the IGA-S to push certain ads of advertisers to the game user.
4. The certain ad is played on the end user's screen.
5. The user may press some buttons to express his option about the certain ad.
6. Game user's click and button actions are caught by the game client, and then deliver them to IGA Client. IGA Client refines these metrics and delivers them to IGA-Server.
7. Based on these Ad metrics data, game Service Provider may charge Advertisers.

B.18.2 Market benefits

- User: Can be shown relevant, fresh advertisements when playing game, play game at a reduced price.
- Game service provider: May consider charging for certified statistics reports. Charging policy configures on IGA Client and decreases network traffic that causes by metrics delivery.