Enabler Validation Plan for BCAST

Candidate Version 1.0 – 07 Aug 2007

Open Mobile Alliance

OMA-EVP-BCAST-V1_0-20070807-C

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1. Scope

This document details the Validation plan for the BCAST 1.0 Enabler Release. The successful accomplishment of the validation activities will be required for the Enabler to be considered for Approved status.

The validation plan for the BCAST 1.0 Enabler Release specifications is based on testing expectations in the Enabler Test Requirements (ETR). While the specific test activities to be performed are described in the Enabler Test Specification (ETS) the test environment is described in this plan. This test environment details infrastructure, operational and participation requirements identified for the needed testing activities.

1.1 Assumptions

None

1.2 Exclusions

None

2. References

2.1 Normative References

[IOPPROC] "OMA Interoperability Policy and Process", Version 1.4, Open Mobile Alliance™, OMA-ORG-IOP_Process-V1_4, URL:http://www.openmobilealliance.org/

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

[BCAST10-ETR] "Enabler Test Requirements for Mobile Broadcast Services" Open Mobile Alliance™, OMA-ETR-BCAST-V1_0, http://www.openmobilealliance.org/

[BCAST10-ERELD] "Enabler Release Definition for Mobile Broadcast Services", Open Mobile Alliance™, OMA-ERELD-BCAST-V1_0, http://www.openmobilealliance.org/

[BCAST10 -Services] "Mobile Broadcast Services", Open Mobile Alliance™, OMA-TS-BCAST_Services-V1_0, http://www.openmobilealliance.org/

[BCAST10 – Distribution] "File and Stream Distribution for Mobile Broadcast Services ", Open Mobile Alliance™, OMA-TS-BCAST_Distribution-V1_0, http://www.openmobilealliance.org/

[BCAST10 –ESG] "Service and Content Protection for Mobile Broadcast Services", Open Mobile Alliance™, OMA-TS-BCAST_SvcCntProtection-V1_0, http://www.openmobilealliance.org

[BCAST10– ServContProt] "Service and Content Protection for Mobile Broadcast Services", Open Mobile Alliance™, OMA-TS-BCAST_SvcCntProtection-V1_0, http://www.openmobilealliance.org/

[DRM20-Broadcast-Extensions] "OMA DRM v2.0 Extensions for Broadcast Support", Open Mobile Alliance™, OMA-TS-DRM-XBS-V1_0, http://www.openmobilealliance.org/

[BCAST10 –MBMS Adaptation] "Broadcast Distribution System Adaptation – 3GPP/MBMS", Open Mobile Alliance™, OMA-TS-BCAST_MBMS_Adaptation-V1_0, http://www.openmobilealliance.org/

[BCAST10–BCMCS Adaptation] "Broadcast Distribution System Adaptation – 3GPP2/BCMCS", Open Mobile Alliance™, OMA-TS-BCAST_BCMCS_Adaptation-V1_0, http://www.openmobilealliance.org/

[BCAST10–DVB-H-IPDC–Adaptation] "Broadcast Distribution System Adaptation – IPDC over DVB-H", Open Mobile Alliance™, OMA-TS-BCAST_DVB_Adaptation-V1_0, http://www.openmobilealliance.org/

[OMA DM] "Enabler Release Definition for OMA Device Management v1.2", OMA-ERELD-DM-V1_2_0, http://www.openmobilealliance.org/

[DRM-v2.0] "DRM Specification V2.0", Open Mobile Alliance™, OMA-DRM-DRM-V2_0, http://www.openmobilealliance.org/

2.2 Informative References

[OMADICT] "Dictionary for OMA Specifications", Open Mobile Alliance™,. OMA-Dictionary, URL:http://www.openmobilealliance.org/

[BCAST10-Architecture] "Mobile Broadcast Services Architecture", Open Mobile Alliance™, OMA-AD- BCAST-V1_0, http://www.openmobilealliance.org/

[BCAST10-ETS-Client] "Client Conformance Enabler Test Specification for BCAST 1.0", Open Mobile Alliance™, OMA-ETS-BCAST_CON_Client-V1.0, http://www.openmobilealliance.org/

[BCAST10-ETS-IOP] "Interoperability Enabler Test Specification for BCAST 1.0", Open Mobile Alliance™, OMA-

ETS-BCAST_IOP-V1.0, http://www.openmobilealliance.org/

[BCAST10-ETS-Server] "Server Conformance Enabler Test Specification for BCAST 1.0", Open Mobile Alliance™, OMA-ETS-BCAST_CON_Server-V1.0, http://www.openmobilealliance.org/

[BCAST10-EICS-Client] "Client Enabler Implementation Conformance Statement", Open Mobile Alliance™, OMA-EICS-BCAST_Client-V1_0, http://www.openmobilealliance.org/

[BCAST10-EICS-Server] "Server Enabler Implementation Conformance Statement", Open Mobile Alliance™, OMA-EICS-BCAST_Server-V1_0, 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”, are normative, unless they are explicitly indicated to be informative.

3.2 Definitions

Application	A value-added data service provided to a Client. The application may utilise BCAST and/or other ways of data transfer to deliver content
Bearer Network	A network used to carry the messages of a transport-layer protocol between physical devices. Multiple bearer networks may be used over the life of a single push session.
Client	A client is a device or service that expects to receive BCAST content from a server.
Content	Subject matter (data) stored or generated at an origin server. Content is typically displayed or interpreted by a user agent on a client.
Device	Is a network entity that is capable of sending and/or receiving packets of information and has a unique device address. A device can act as either a client or a server within a given context or across multiple contexts. For example, a device can service a number of clients (as a server) while being a client to another server.
End-user	See "user"
Server	A device (or service) which accepts or rejects a connection request from a client. A server may initiate a connection to a client or many clients as part of a service.
User	A user is a person who interacts with a user agent to view, hear, or otherwise use a rendered content. Also referred to as end-user.
User agent	A user agent (or content interpreter) is any software or device that interprets resources. This may include multimedia players, news tickers, etc.

3.3 Abbreviations

BDS	Broadcast Distribution System
ETR	Enabler Test Requirements
ETS	Enabler Test Specification
GPRS	General Packet Radio Service
HTTP	Hypertext Transfer Protocol
IP	Internet Protocol
MS	Mobile Station
MSISDN	Mobile Station International Subscriber Directory Number
OMA	Open Mobile Alliance
QoS	Quality of Service
RFC	Request For Comments
TCP	Transmission Control Protocol
UDP	User Datagram Protocol
URI	Uniform Resource Identifier
URL	Uniform Resource Locator

4. Enabler Validation Description

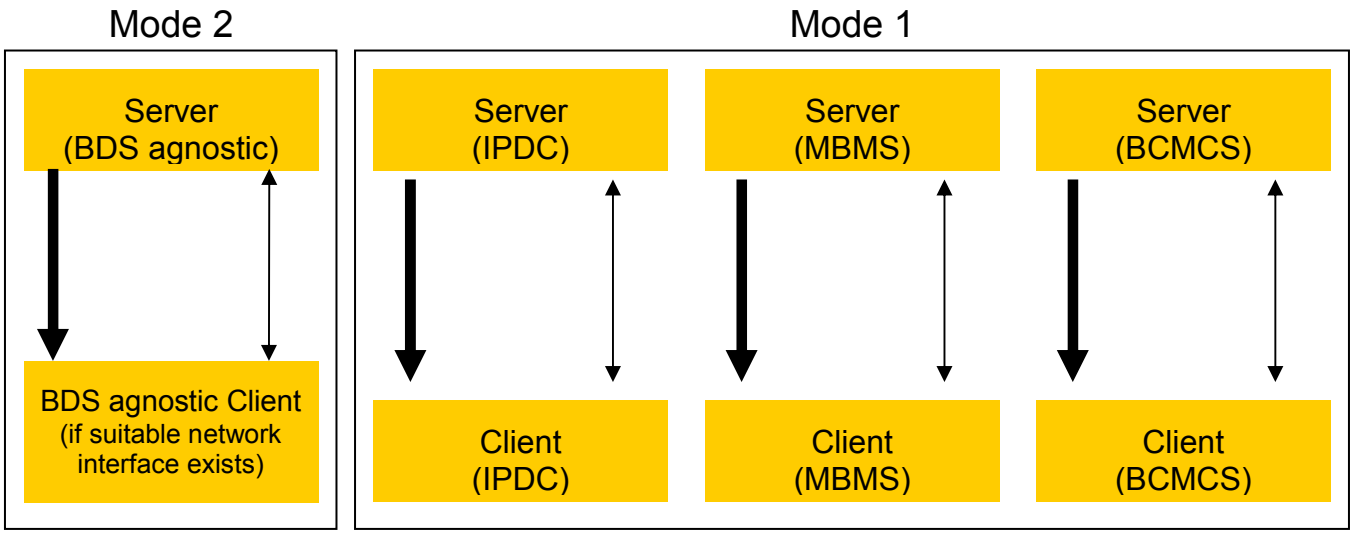
A full description of BCAST 1.0 can be found in the BCAST10-ERELD, ETR, TS and other documents mentioned in the references. For details see chapter 5.

5. TestFest Activities

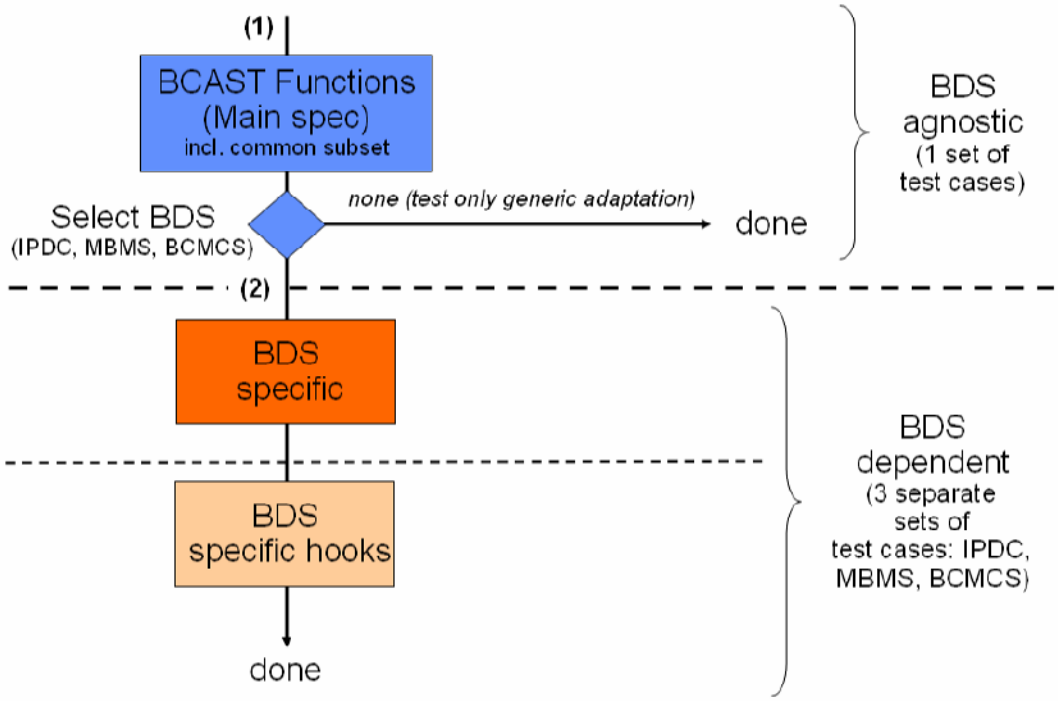
5.1 Enabler Test Guidelines

5.1.1 Minimal Test Configuration

The tests will be done with servers and matching clients i.e. testing a MBMS server against IPDC clients will not be planned.



In order to minimize the number of test cases the tests will be defined in four sets (BDS agnostic, IPDC, MBMS and BCMCS) so that the BDS agnostic parts don't need to be tested four times.



BDS specific tests can start at (2) if the BDS agnostic tests (between 1 and 2) have been passed.

5.1.2 Minimal Participation Guidelines

Minimum

- three client implementations

and

- three BCAST servers

are needed.

The clients and the servers have to match. Having e.g. one IPDC client, one MBMS client and one MBMS server is not sufficient.

In case a test fest is desirable to happen with less servers or clients such requests will be handled as exceptions. Privacy regarding test results could be handled in that way that test results are not published. Details will be negotiated with the test event organizer and the participants. Such exceptions have happened at test fests before.

5.1.3 Optimal TestFest Achievement Guidelines

The TestFest participants are expected to do as much testing as possible during the dedicated test slot. Full list of interoperability test cases can be found from the BCAST Interoperability Enabler Test Specification [BCAST10-ETS_IOP]. The list of test cases executed during a TestFest may vary depending on the special characteristics of the test environment (e.g. the used BDS or the available content protection methods).

In case there is a need to prioritize testing during the TestFest, due time constraints or otherwise, the following prioritization should be used as described in Table 1.

Test Case Id	Priority
5.1.1 Service bootstrap and single content	**High** (pre-test)
5.2.1 Service Guide update (same fragment id, higher version number)	**High**
5.2.5 GZIP compression of Service Guide Delivery Unit	**High** (pre-test)
5.2.6 Content hierarchy	**High**
5.2.5 PreviewData and Service	**High**
5.2.9 Select language specific access parameters	**High**
5.2.10 Subscription of Service	**High**
5.5.2.1.1 GBA-U Bootstrapping USIM / BSM with success	**High**
5.5.2.1.5 Deregistration	**High**
5.5.2.2.1 LTKM (without EXT BCAST: MBMS like) reception at the smartcard	**High**
5.5.2.2.2 LTKM request from the terminal, LTKM reception at the terminal / smartcard	**High**
5.5.2.2.3 BSM solicited pull procedure	**High**
5.5.2.3.2 Correct STKM parsing by Smartcard (MBMS)	**High**
5.5.2.3.3 Incorrect STKM generation – inexistent SEK/PEK (wrong domain ID)	**High**
5.5.2.3.4 STKM processing – inexistent SEK/PEK (wrong SEK ID)	**High**
5.5.2.3.5 LTKM with invalid validity data	**High**
5.5.2.3.9 STKM reception with same same cryptoperiod – terminal filtering	**High**
5.5.2.3.13 Multiple streams protected with Different STKM stream	**High**
5.5.2.4.2 Delivery of SRTP protected stream	**High**
5.3.1.2 Support of in-band delivery of meta-data and FLUTE	Medium
5.4.1 XHTML MP Interactivity	Medium

Test Case Id	Priority
5.4.3 SMS interactivity	Medium
5.4.5 MMS Interactivity	Medium
5.5.2.1.6 Deregistration with bootstrapping	Medium
5.5.2.4.1 Delivery of IPSec protected stream	Medium
5.5.2.4.3 Delivery of ISMACrypt protected stream	Medium
5.5.2.1.2 GBA-U Bootstrapping USIM / BSM with synchronization error	*Low*
5.5.2.1.3 GBA_U: Expired Bootstrapping data	*Low*
5.5.2.1.4 GBA_U: Different Key K on Client and Server	*Low*
5.6.1 Receiving terminal provisioning messages using TP-7	*Low*
5.6.2 Update terminal provisioning messages using TP-7	*Low*
5.6.3 Declaring Terminal Provisioning as a Service within Service Guide	*Low*
5.6.4 Declaring Terminal Provisioning as an Access of a Service within Service Guide	*Low*

Table 1: Priority of Tests to be Performed at TestFest

5.2 Enabler Test Requirements

5.2.1 Test Infrastructure Requirements

The testing shall be performed as end-to-end testing. Most likely the client participants will be in one place, while the participant servers will be located in member companies premises, accessible to the rest of the test fest environment. Such a "distributed" test fest environment puts effort on the test fest host and requires detailed documented configuration. It is also possible that server providers bring their respective servers to the test site.

The Network Elements involved in BCAST testing are:

- 3G network
- MBMS network
- DVB-H network
- BCMCS
- Internet

A Network Analyzer (e.g. Wireshark) for Network Monitoring/Protocol Analyzing is also useful.

A requirement for a test fest host is that one BDS must be available. At least one of the following BDS:

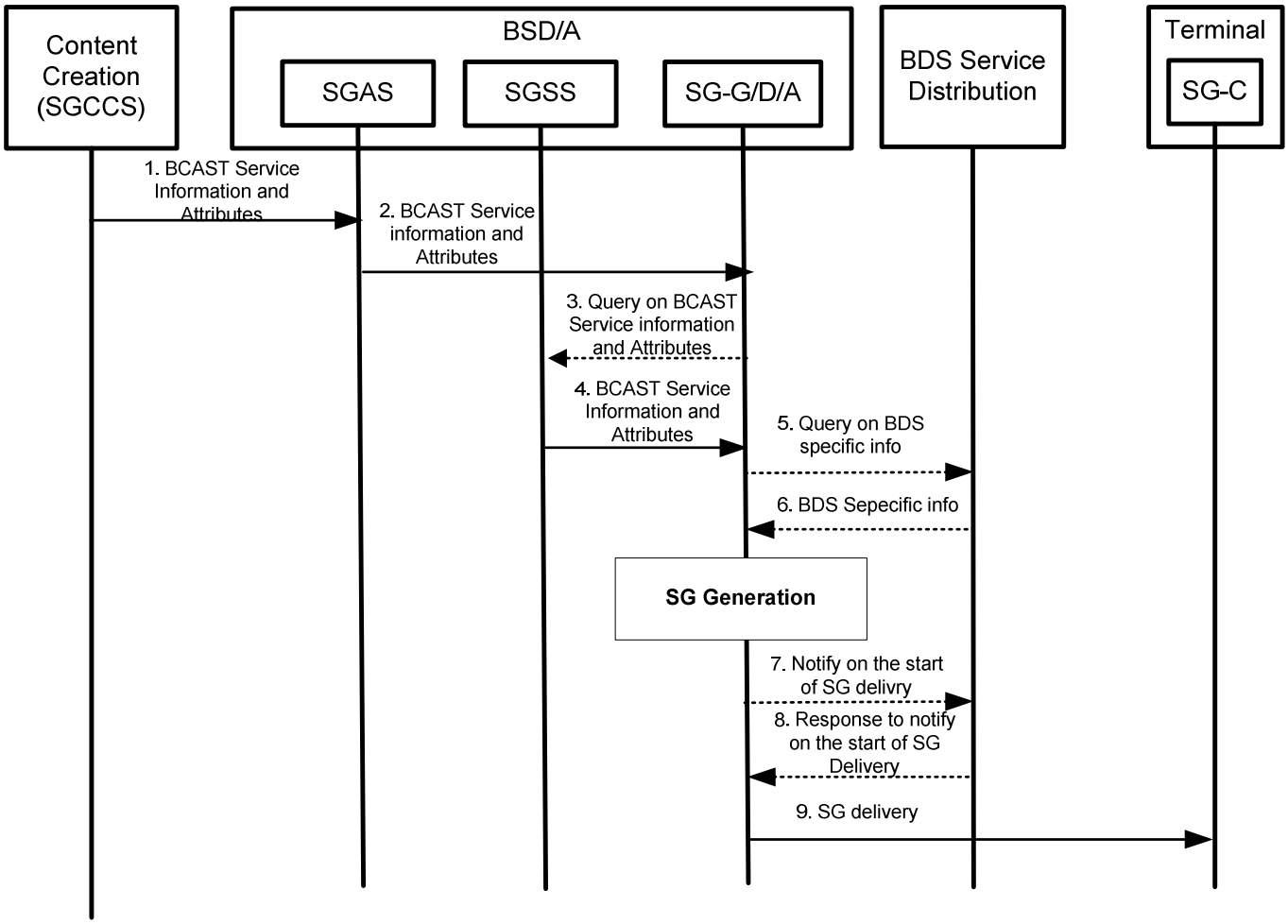
- IPDC
- MBMS
- BCMCS

5.2.2 Enabler Execution Flow

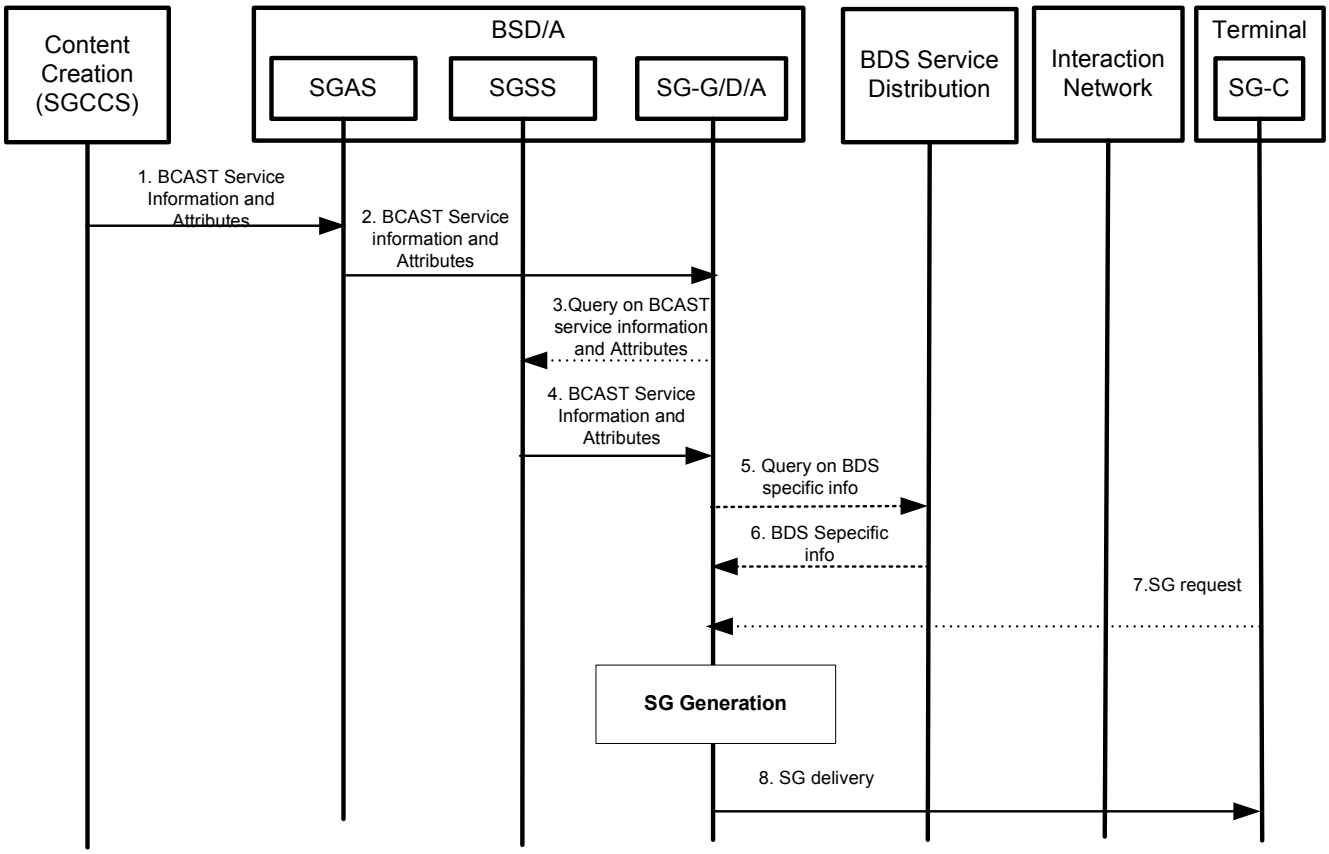
For the different services that comprise BCAST it can be found below the different execution flows.

5.2.1 Service Guide Related Flows

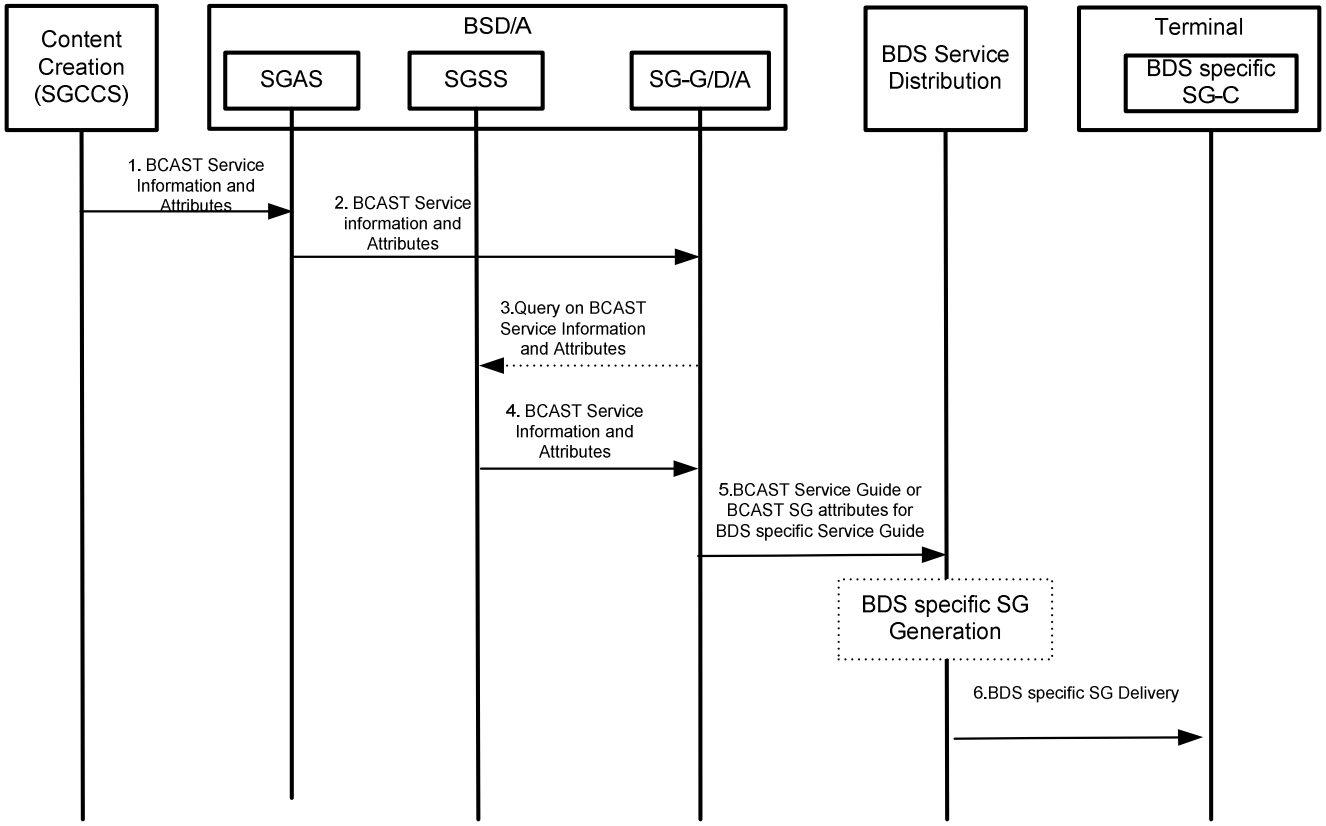
5.2.1.1 Service Guide Generation and Delivery over Broadcast channel



5.2.1.2 Service Guide Generation and Delivery over Interaction channel

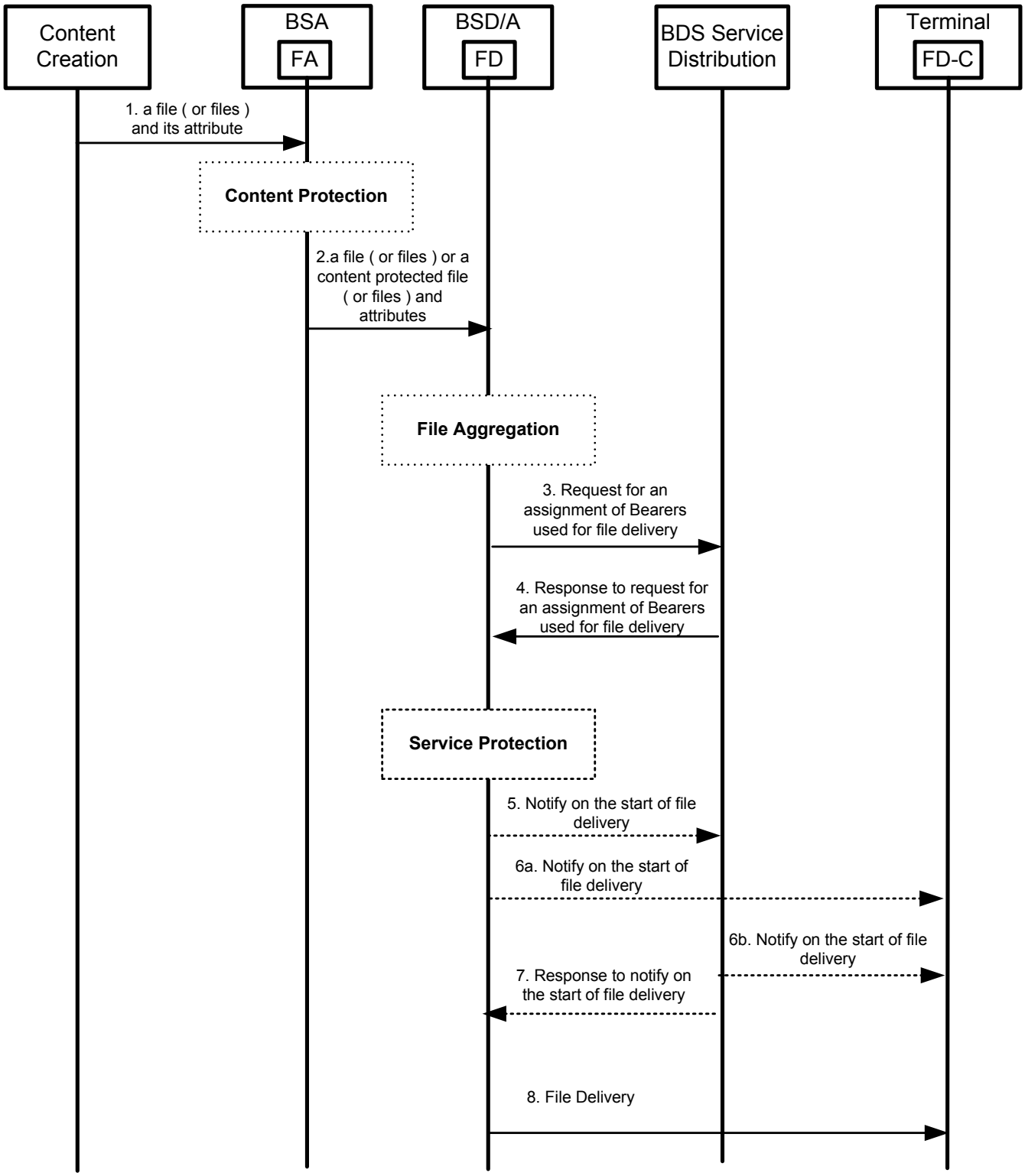


5.2.1.3 Service Guide Delivery to BDS Service Distribution

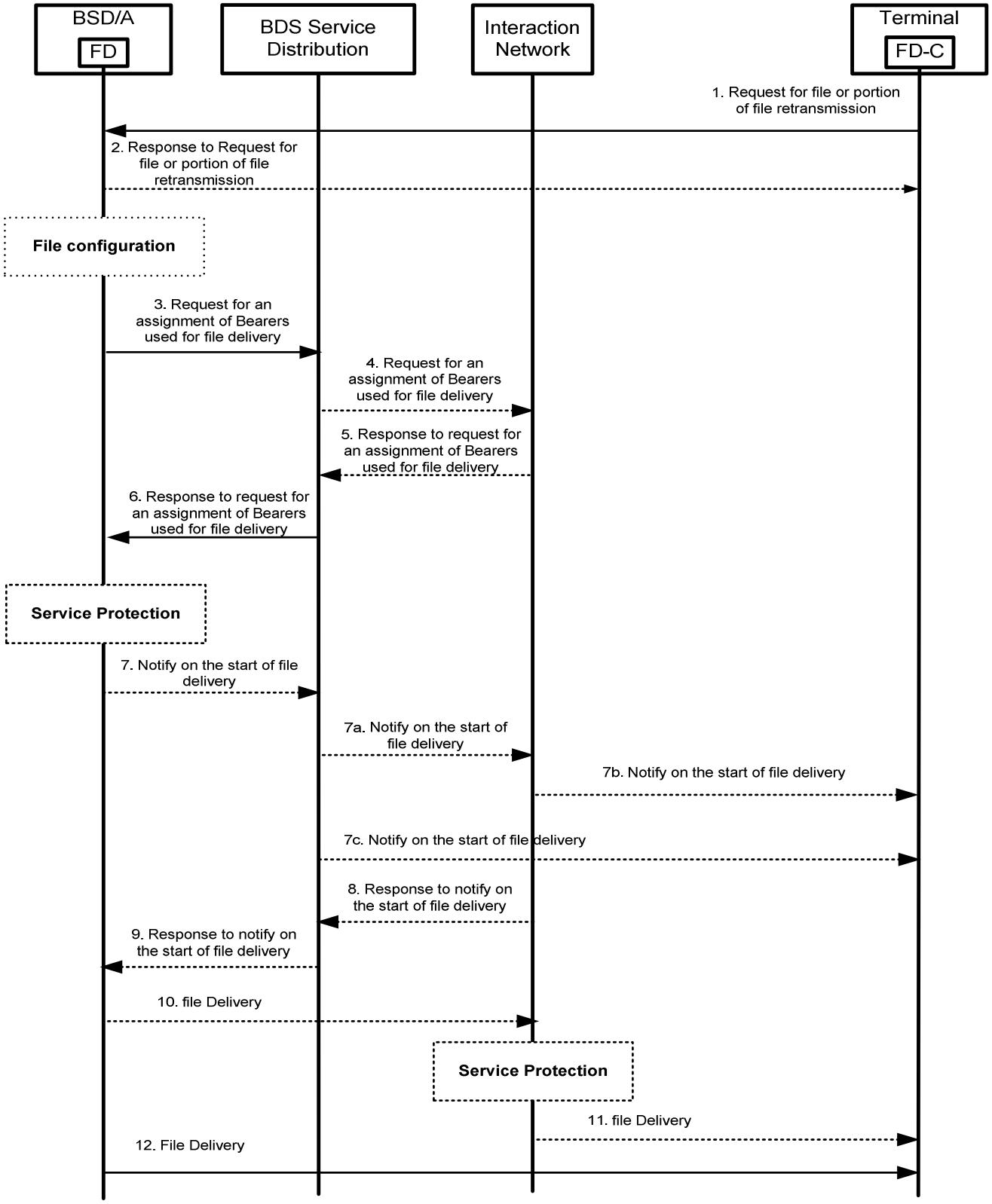


5.2.2 File Distribution Related Flows

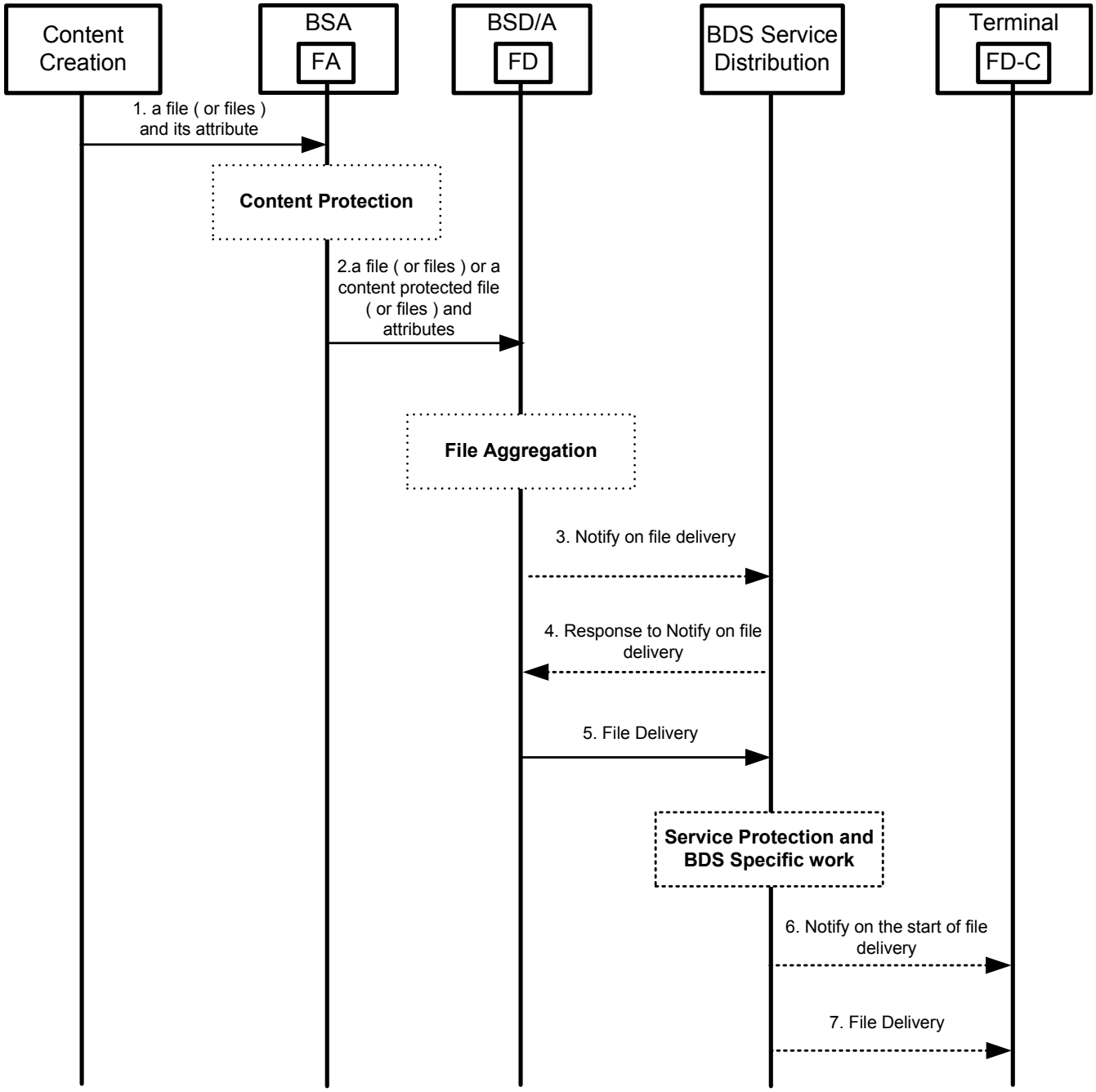
5.2.2.1 File Distribution over Broadcast channel



5.2.2.2 File transmission or repairing over Interaction Channel when BDS Service Distribution exists

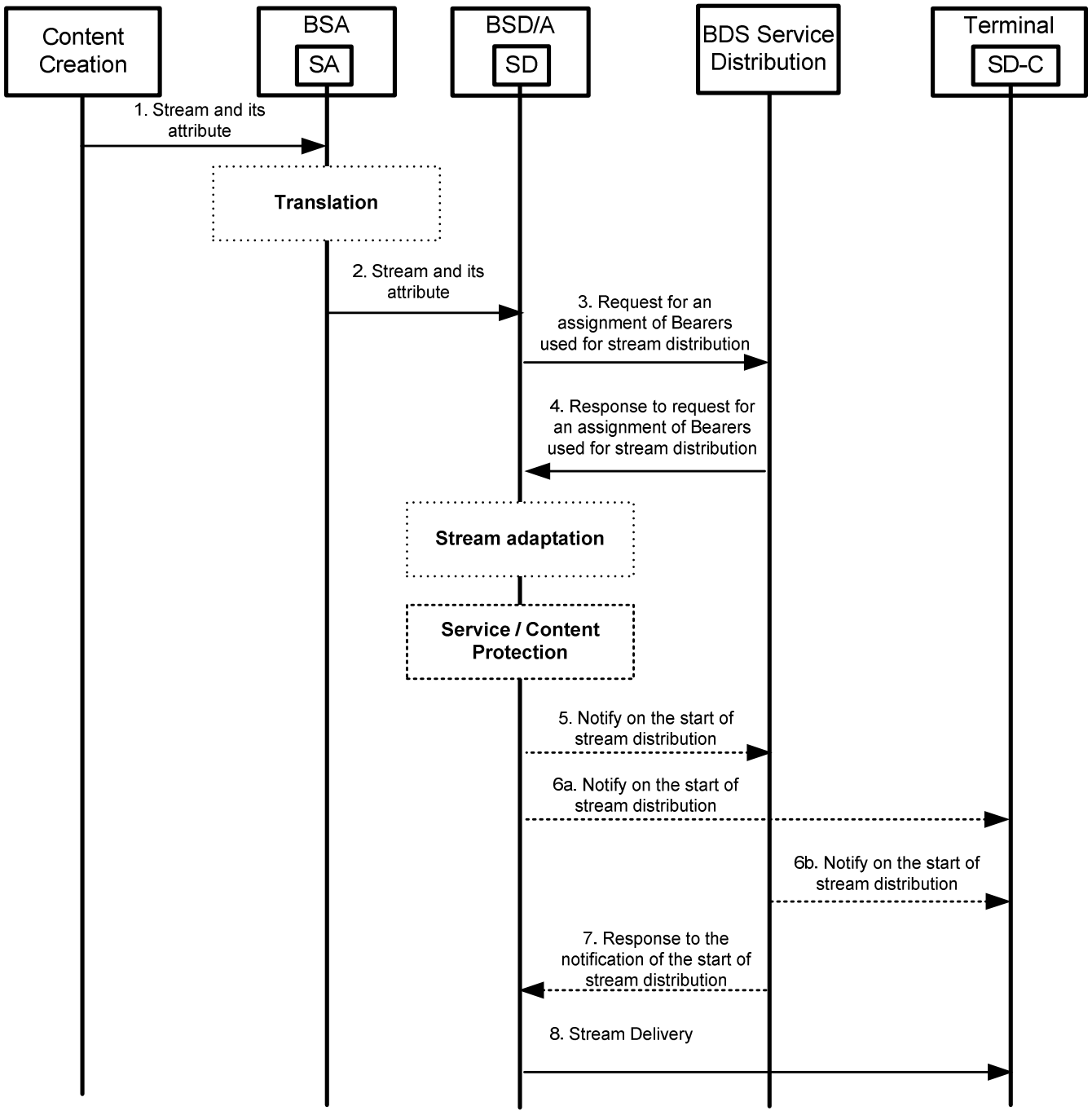


5.2.2.3 File Delivery to BDS Service Distribution

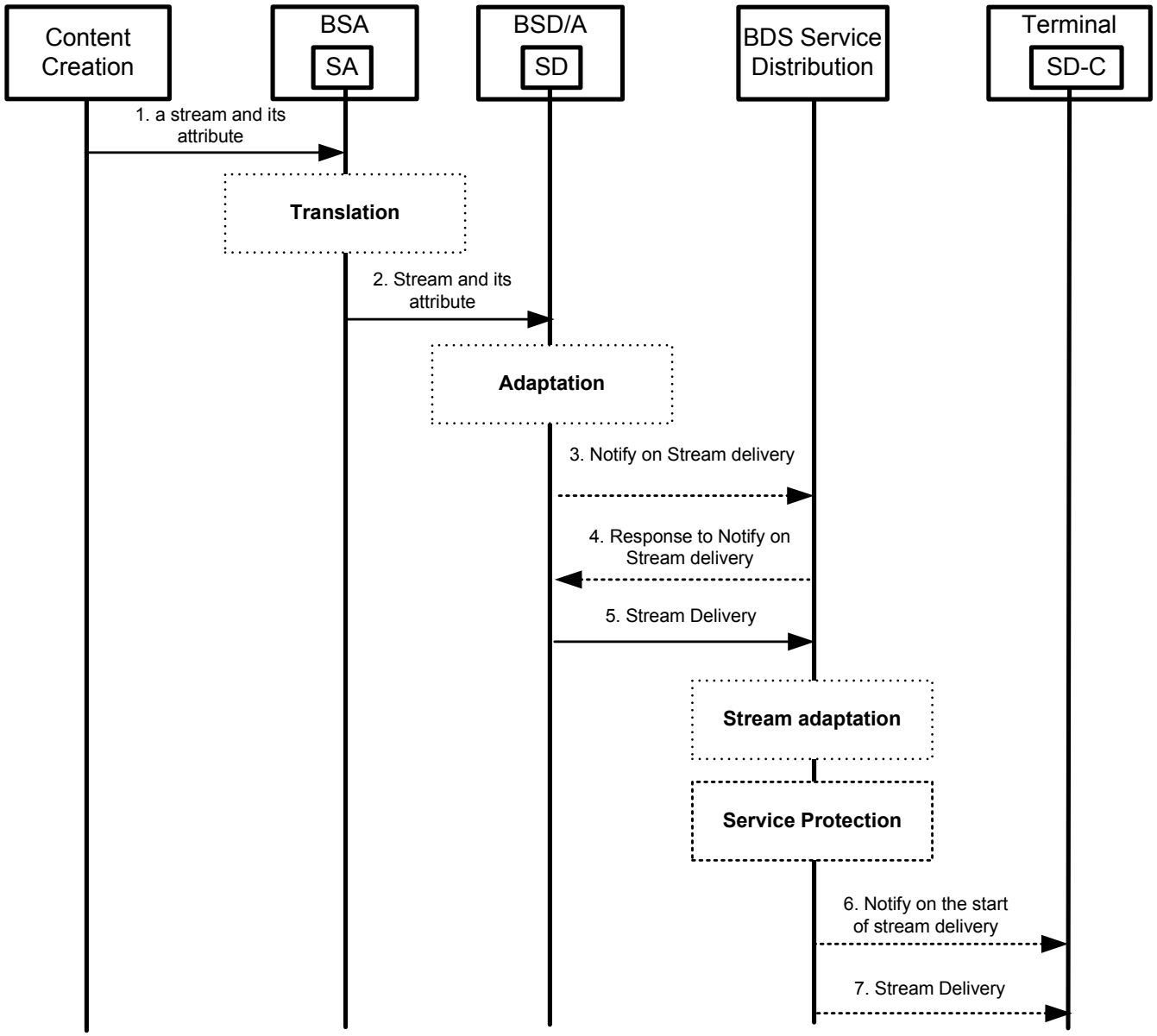


5.2.3 Stream Distribution Related Flows

Stream Distribution over Broadcast channel



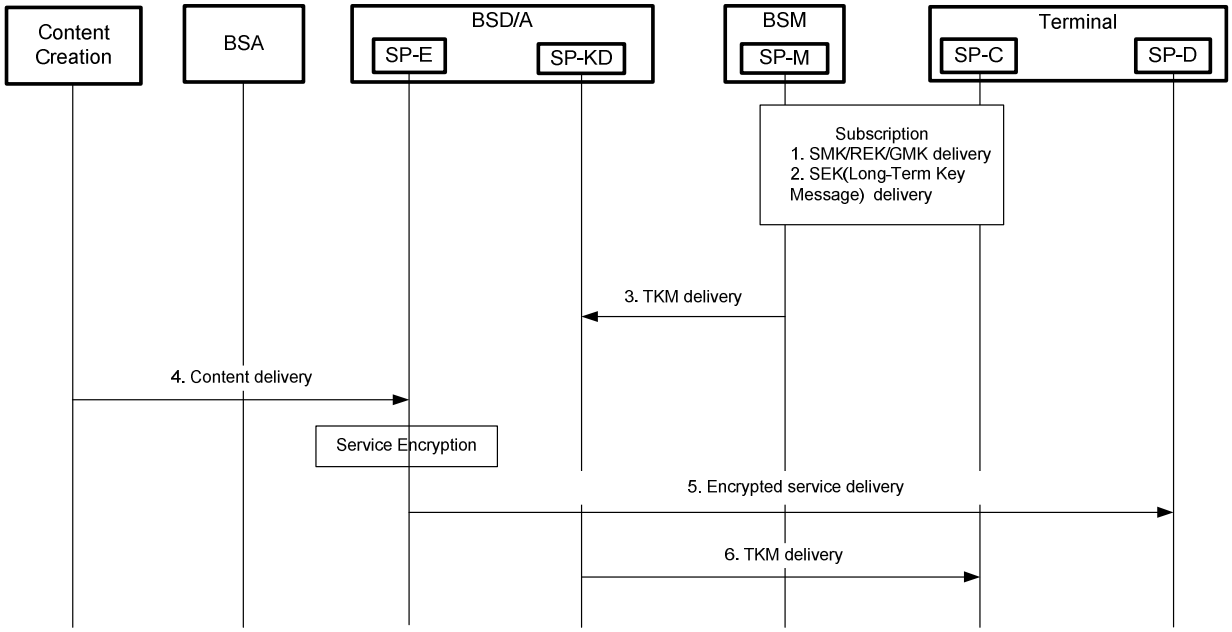
5.2.3.1 Stream Delivery to BDS Service Distribution



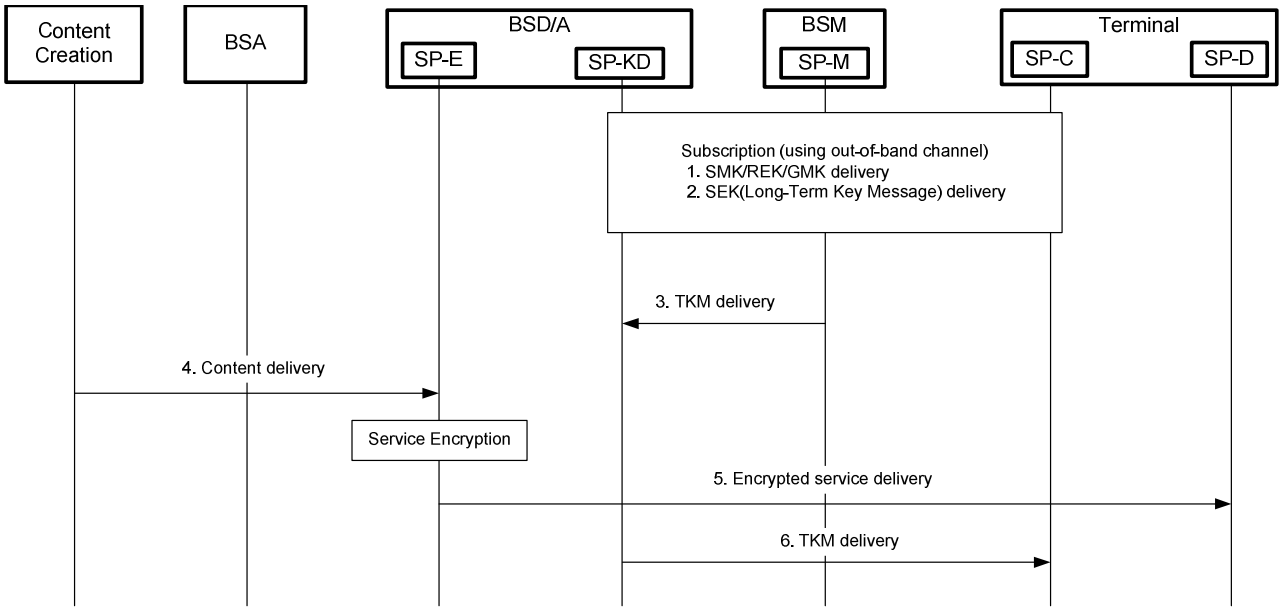
5.2.4 Service & Content Protection Related Flows

5.2.4.1 Service Protection Related Flows

5.2.4.1.1 Service Protection Function Flows for Terminal with Interaction Channel

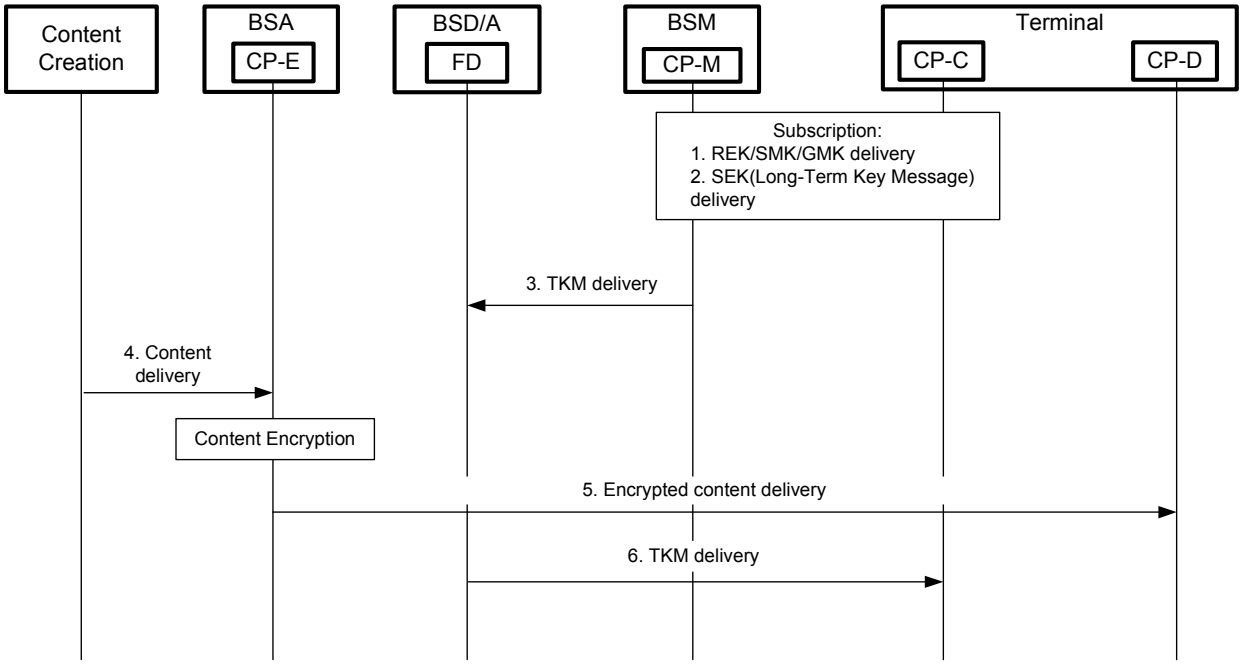


Service Protection Function Flows for Broadcast-only Terminal

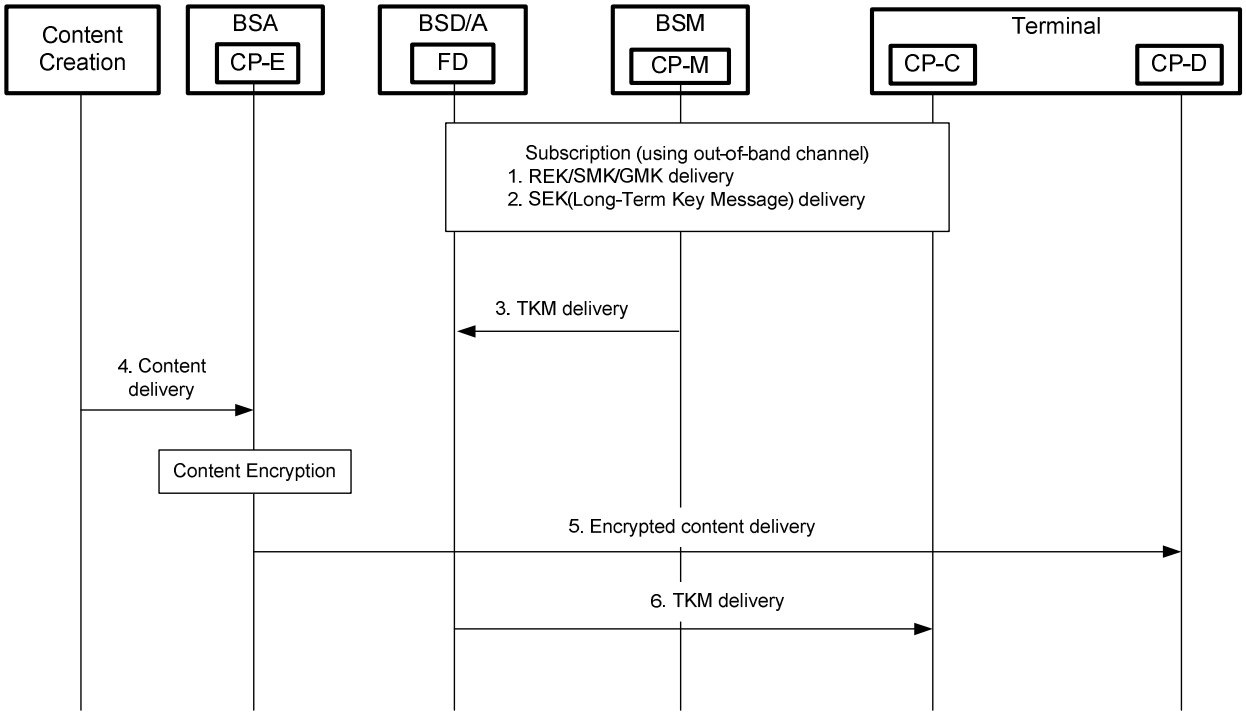


5.2.4.1 Content Protection Function Flows

5.2.4.2.1 Content Protection Function Flows for Terminal with Interaction Channel

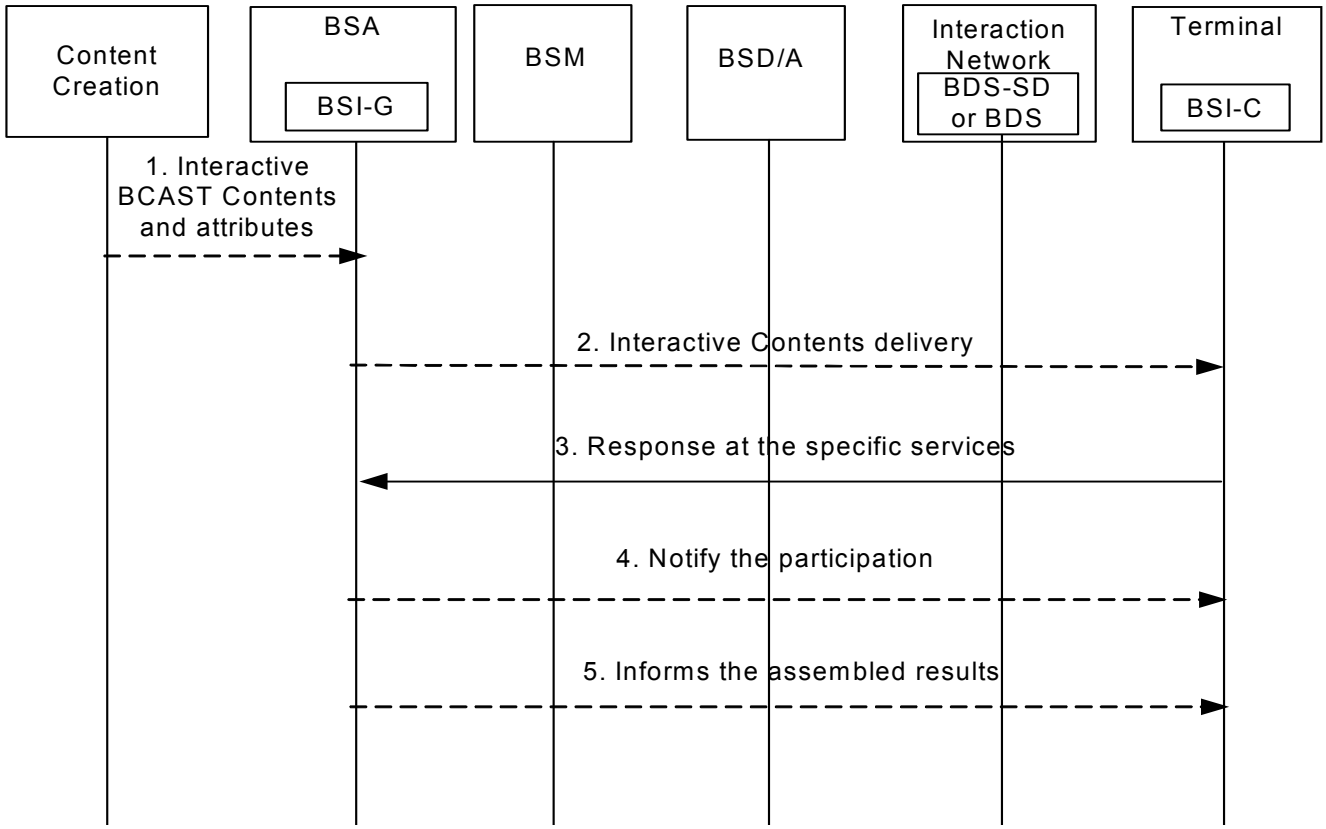


5.2.4.2.1 Content Protection Function Flows for Broadcast-only Terminal



5.2.5 Interaction Channel Related Flows

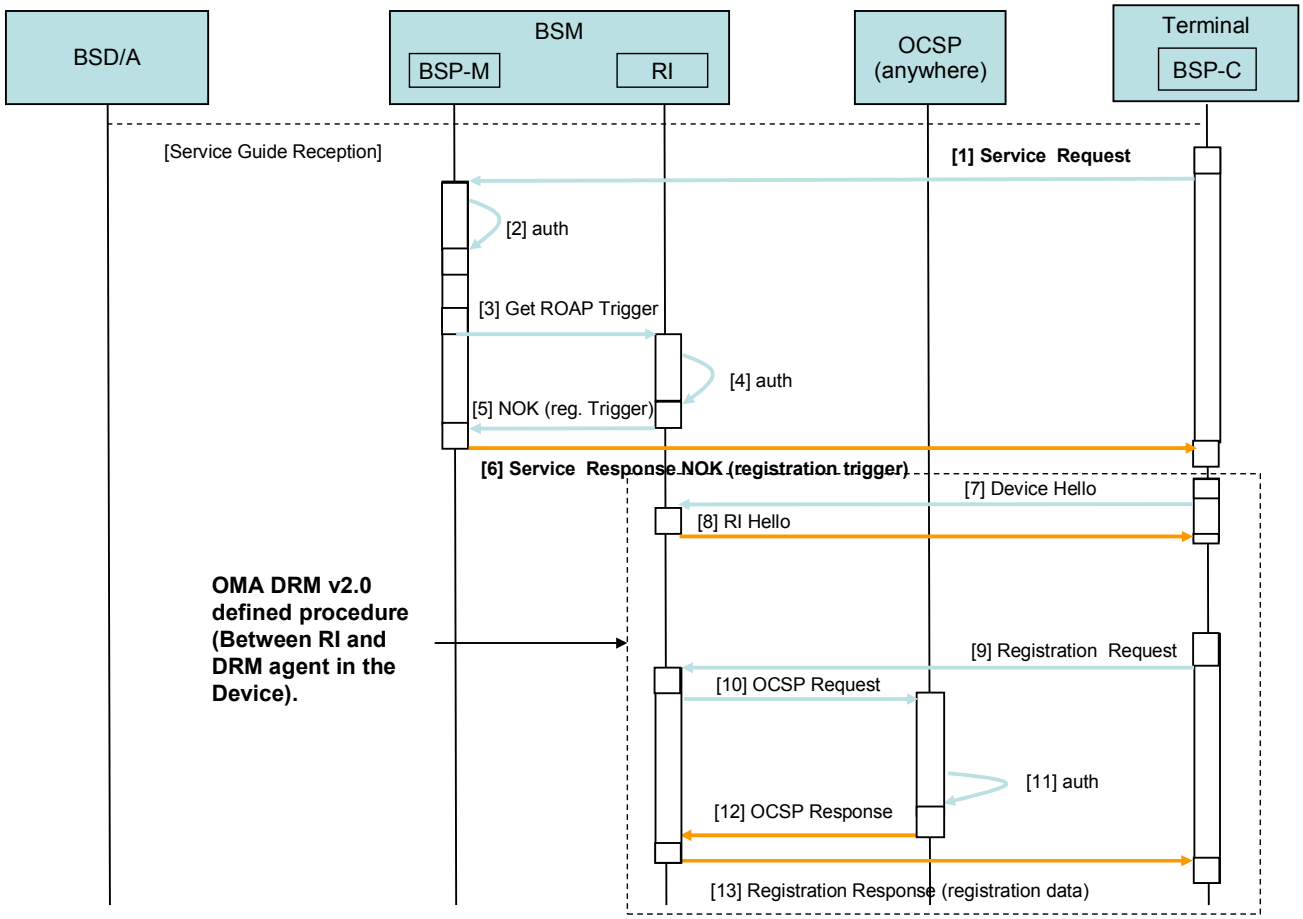
5.2.5.1.2 Interactive Service example Flow – Case1



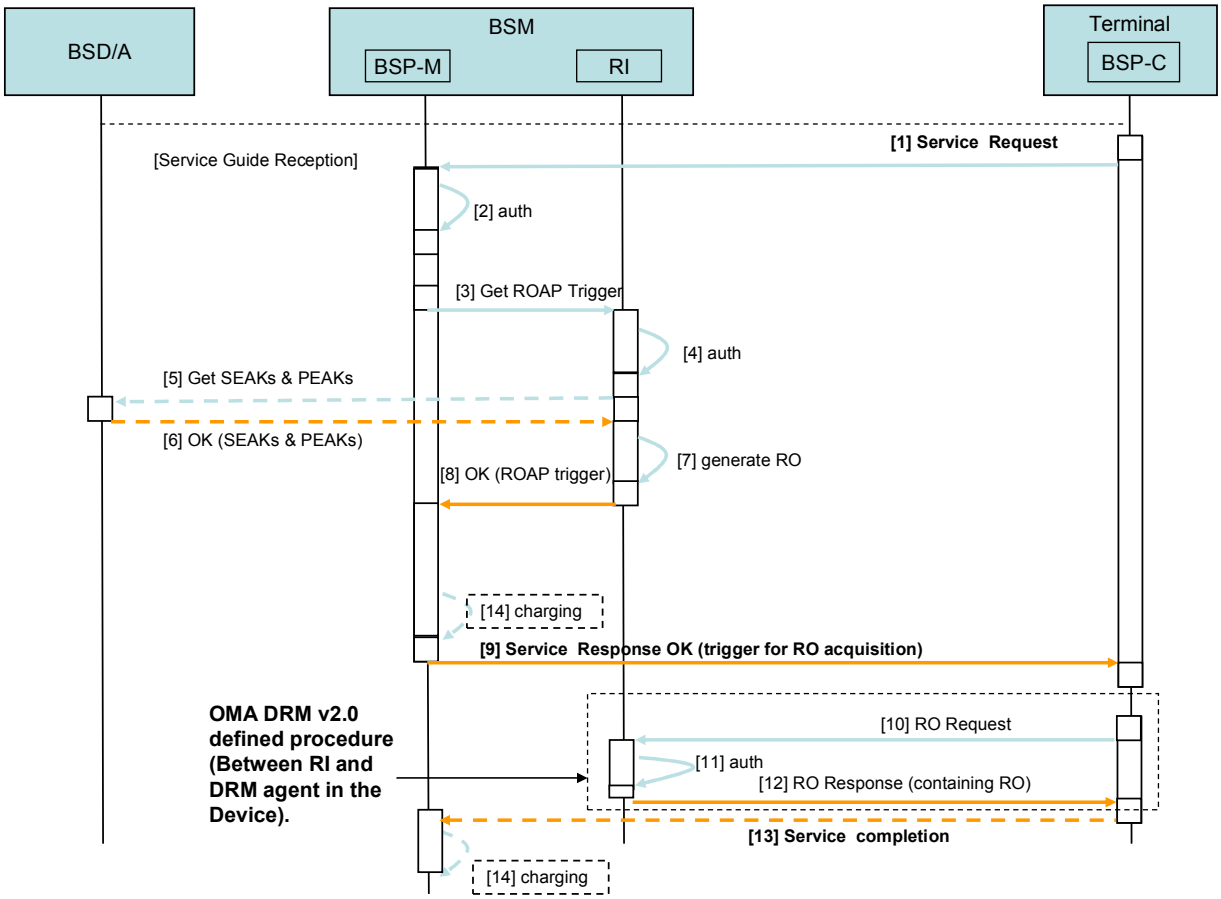
5.2.6 Service Provisioning Related Flows

5.2.6.1 Service Provisioning Function Related Flows (DRM based solution)

5.2.6.1.1 Unsuccessful Service ordering

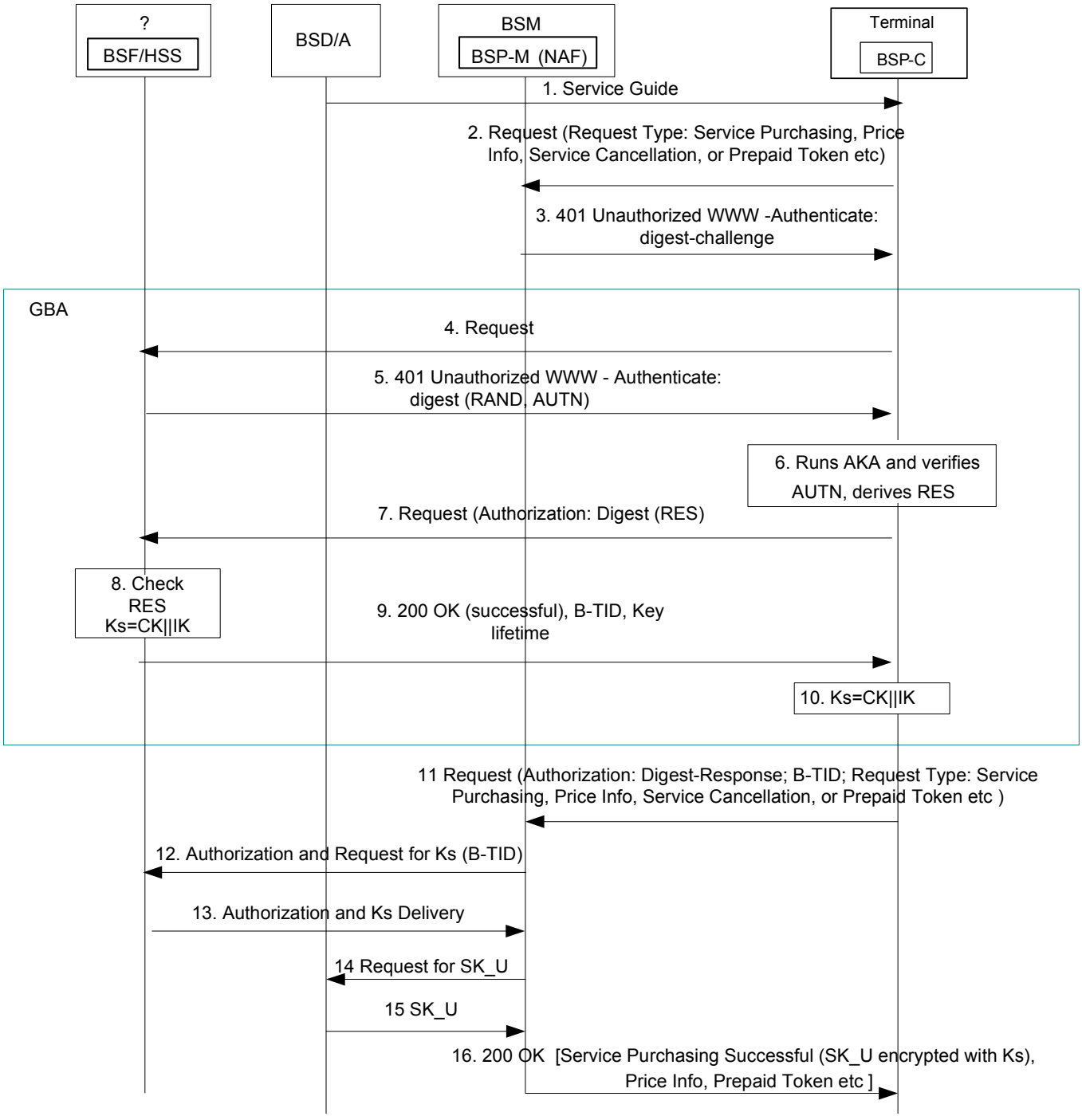


5.2.6.1.2 Successful Service ordering

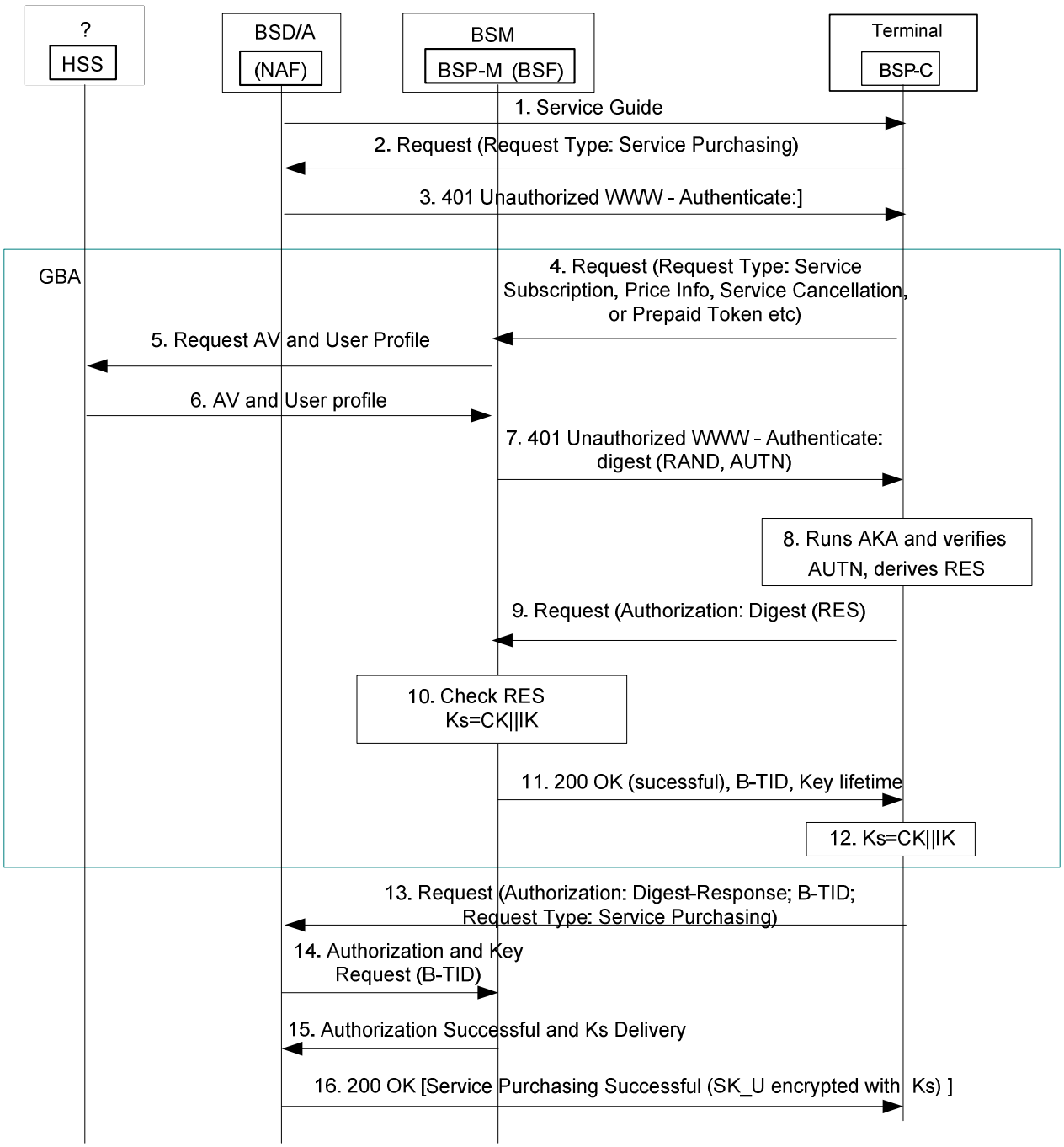


5.4.6.2 Service Provisioning Function Related Flows (GBA based solution)

5.4.6.2.1 Option 1: BSP-M Serves as NAF Function

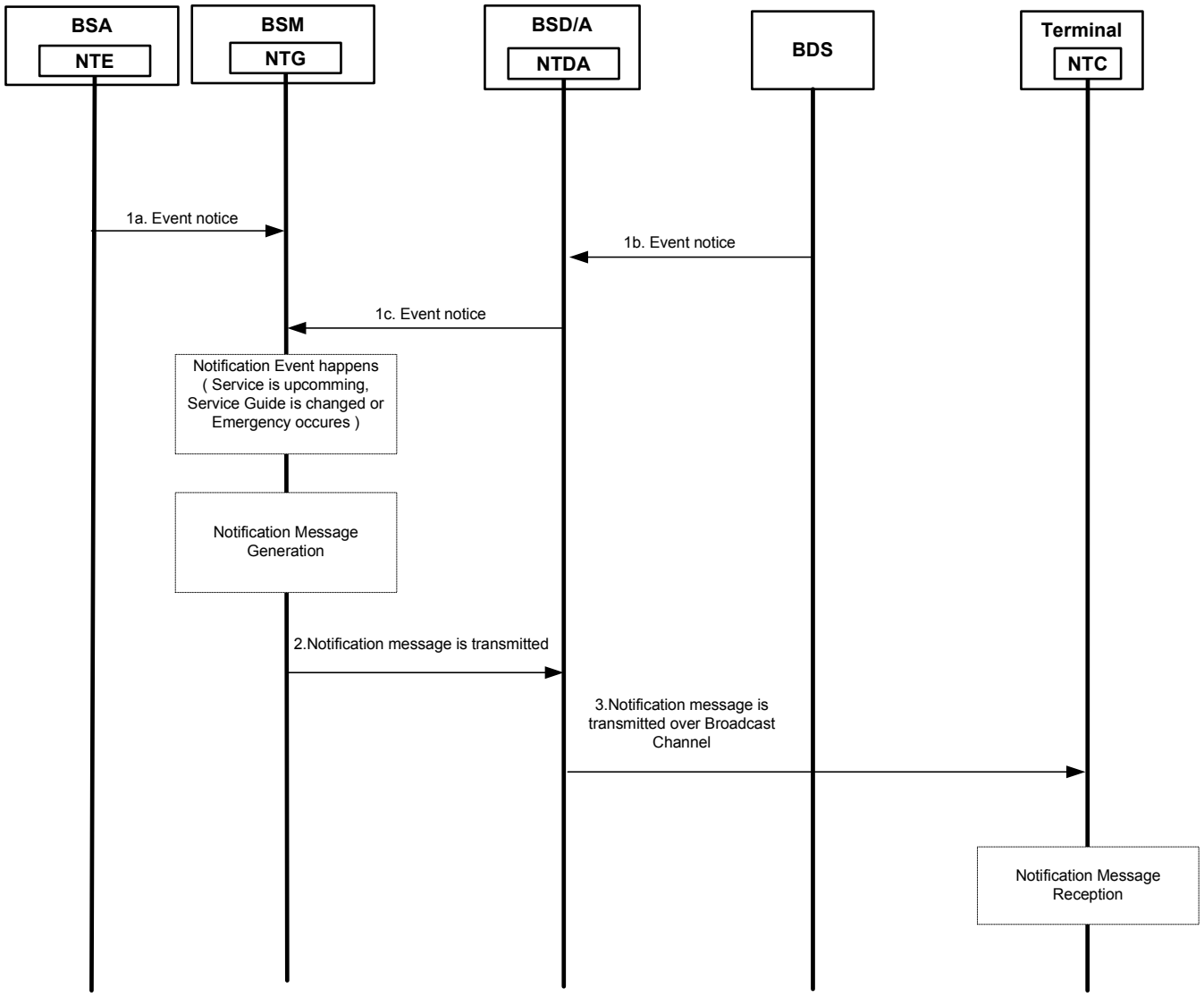


5.4.6.2.2 Option 2: BSD/A serves as NAF Function, BSP-M serves as BSF function

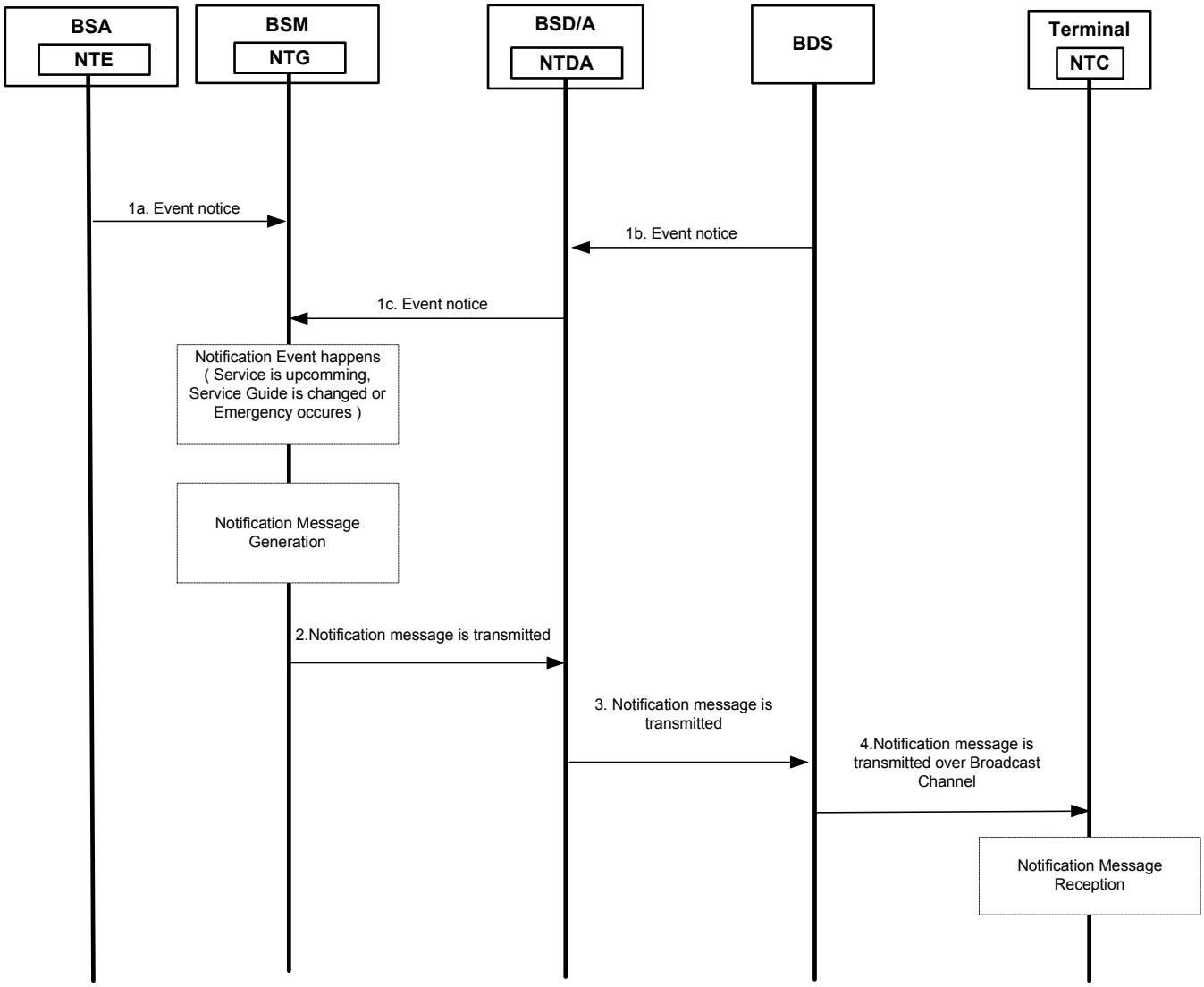


5.2.7 Notification Function Related Flows

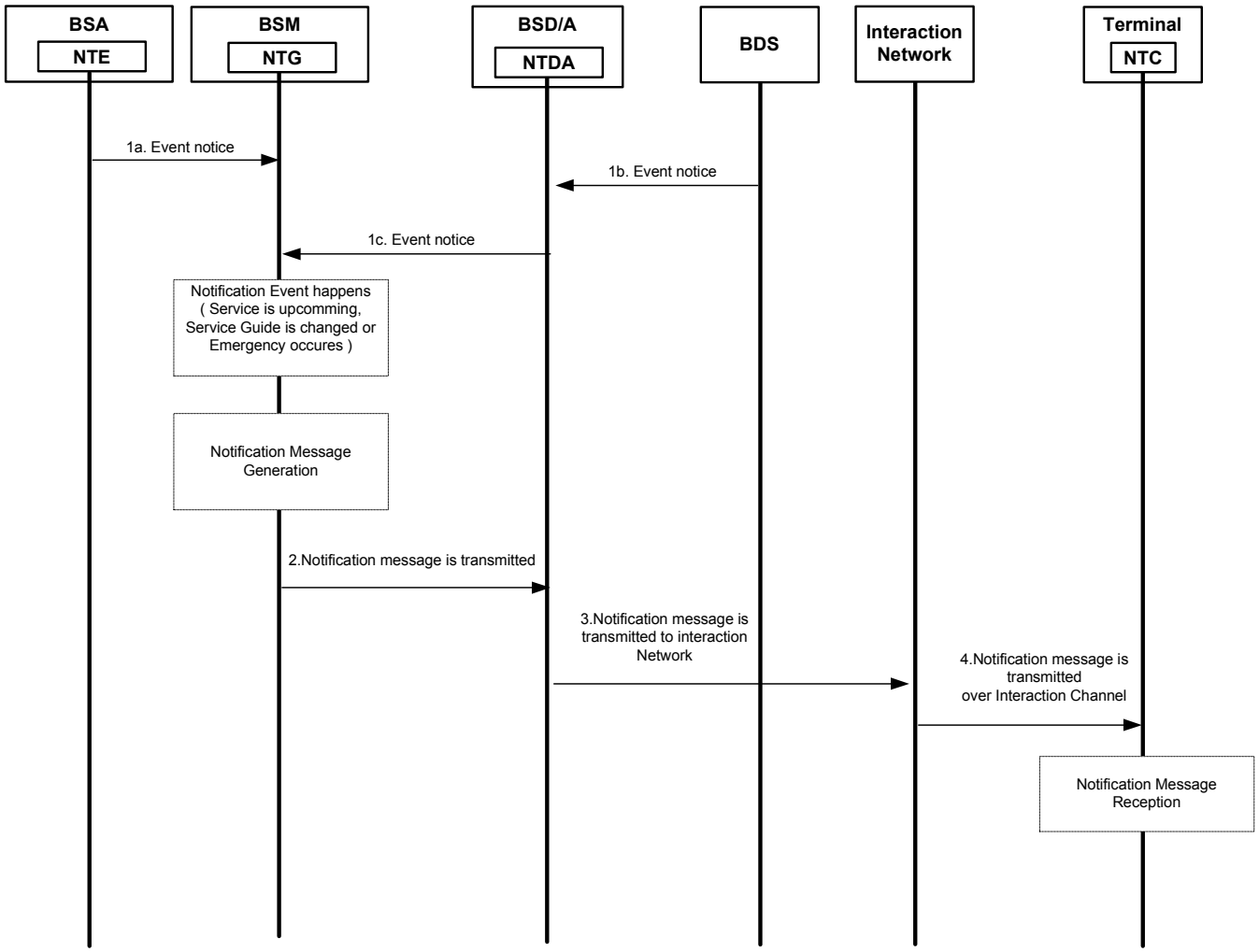
5.4.7.1 Notification Generation and Delivery over Broadcast Channel by OMA BCAST



5.4.7.2 Notification Delivery over Broadcast channel by BDS

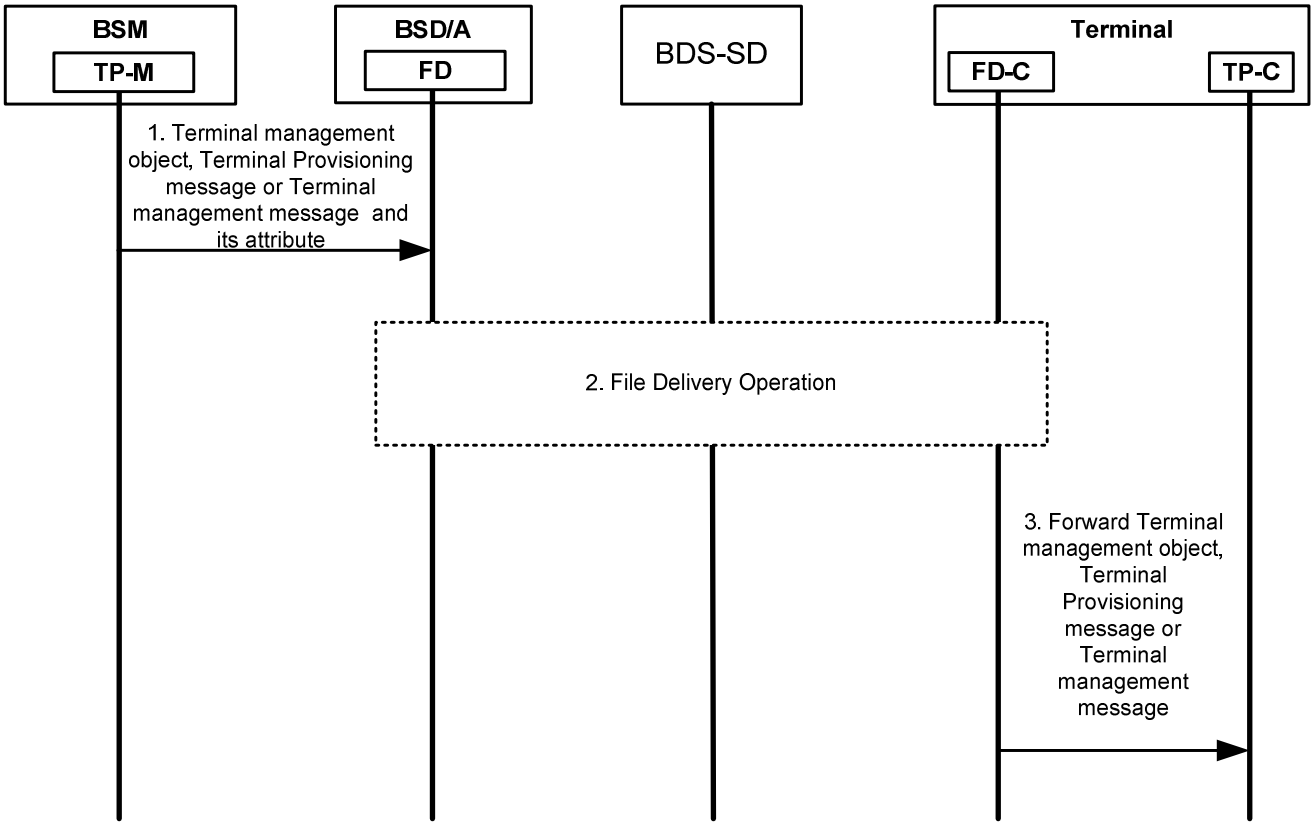


5.4.7.3 Notification Delivery over Interaction Channel by OMA BCAST

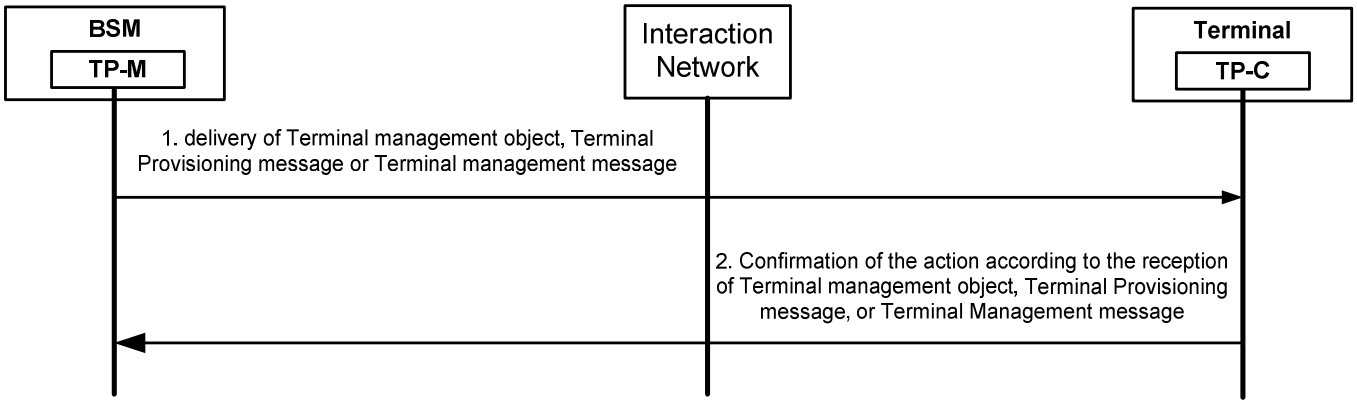


5.2.8 Terminal Provisioning Related Flows

5.2.8.1 Terminal Provisioning over Broadcast Channel



5.2.8.2 Terminal Provisioning over Interaction Channel



5.2.3 Test Content Requirements

For the interoperability tests there is no particular requirement for the test content. The test content has to be adapted to the interoperability test cases.

For the conformance testing the test content will be provided with the test tool in order to satisfy the conformance test cases.

5.2.4 Test Limitations

5.2.4.1 Physical

When running BDS specific tests then radio equipment is required and terminals with a radio unit must stay in range of the signal.

5.2.4.2 Resources

It might be required to have technicians for operating the BDS specific network or for configuring the DRM server, supplying encryption keys and other support services.

It might be necessary that a network operator or Telco supplier provides BDS specific hardware (e.g. a network in a lab or a demo network). Contributions are welcome and should be announced early so that tests fests can be planned properly.

5.2.5 Test Restrictions

5.2.5.1 Test Session Entrance Criteria

The test session entry criteria are defined by the Test-Fest Participation Guidelines of the IOP WG.

5.2.5.2 Technical Prerequisites

- Client settings shall be in accordance with the network parameters provided by the test fest host.
- Gateway and proxy configuration shall be in accordance with the information provided by the test fest host for serving all clients participating in the test fest.

5.2.6 Test Tools

A test tool for conformance tests is required to assess certain server and client functionality. The main areas for server tests are the service guide, boot strapping and service protection.

5.2.6.1 Existing Tools to be Used

It is optional but in case of problems recommended to use a network analyzer like Wireshark (formerly called Ethereal) to create traces for trouble shooting.

In the backend of the conformance test tool or server implementations a collection of existing tools might be required (DRM, codecs, content, keys).

5.2.6.2 Conformance Test Case Priorities

This table shows the relative priorities of the conformance test cases as described in the Client Conformance ETS [BCAST10-ETS_Client].

Test Case Id	Priority
5.1.1.1 Service bootstrap and single content (DVB-H), requires DVB-H BDS.	**High**
5.1.1.2 Service bootstrap and single content (MBMS), requires MBMS BDS	**High**
5.1.2.1 Service Guide update (same fragment id, higher version number)	**High**
5.1.2.2 Service Guide update (same fragment id, lower version number)	**High**
5.1.2.3 Service Guide Update (new fragment id)	**High**
5.1.2.4 GZIP compression of Service Guide Delivery Unit	**High**
5.1.2.5 Content hierarchy	**High**
5.1.2.6 PreviewData and Service	**High**
5.1.2.7 Select language specific access parameters	**High**
5.1.2.8 Subscription of Service	**High**
5.1.2.1.2 Support of in-band delivery of meta-data and FLUTE	Medium
Any additional file delivery test cases	Medium
5.1.4.1 XHTML MP Interactivity	Medium
5.1.4.2 SMS interactivity	Medium
5.1.4.3 MMS Interactivity	Medium
5.1.5.1 Delivery of IPSec protected stream	Medium
5.1.5.2 Delivery of SRTP protected stream	Medium
5.1.5.3 Delivery of ISMACrypt protected stream	Medium
5.1.6.1 Receiving terminal provisioning messages using TP-7	*Low*
5.1.6.2 Update terminal provisioning messages using TP-7	*Low*
5.1.6.3 Declaring Terminal Provisioning as a Service within Service Guide	*Low*
5.1.6.4 Declaring Terminal Provisioning as an Access of a Service within Service	*Low*

Table 2: Conformance Test Case Priorities

5.2.6.3 Test Tool Requirements

General info: Test tool should deliver SG and SGDUs with proper fragments as specified by each specific test case.

The network should allow access to streaming/ content repository as defined in the SDP file.

Streaming server capable to deliver content as defined in SDP description.

ID	BCAST_001 (Functionality)
Requirement	The test tool shall have the functionality to verify the BCAST features as specified in [BCAST10-ETS_Client] and [BCAST10-ETR].
Rationale	A test harness is required for all tests which are not interoperability tests.
Must Level	Ability to run all high priority test cases as described in Table 1.
Wish Level	Ability to run all high and medium priority test cases. Note: Low priority test cases are left for future consideration.

ID	BCAST_002 (Connectivity)
Requirement	The test tool shall connect to the applications under test via TCP/IP over Ethernet.
Rationale	The test can be limited to IP level. Radio hardware or radio specific low level protocols are not part of the test tool. However – the test tool needs to be prepared to be connected to radio equipment in order to connect to clients and servers. The test must interwork with • IPDC (DVB-H) clients and servers • MBMS clients and servers • BCMCS clients and servers The test tool vendor is not expected to provide BDS specific hardware but is expected to cooperate with providers of BDS specific hardware (in case a network operator or Telco supplier provides BDS specific hardware).
Must Level	IPv4
Wish Level	IPv4 and IPv6

ID	BCAST_003 (Source code access)
Requirement	The test tool source code should be available for changes.
Rationale	Having the source code available enables quick bug fixing and extension of functionality without time consuming communication with the software vendor.
Must Level	Closed source, source code not available
Wish Level	Source code available under GPL or LGPL, latest version available from a public web page.

In consideration of vendors concerns: The requirement above does not demand Open Source. It defines Open Source as optional.

ID	BCAST_004 (Test Report generation)
Requirement	The test tool should produce a test report on request.
Rationale	In addition to the raw test results a print optimized (A4) test report with a summary of the test results is useful to get a quick overview.
Wish Level	Test report that is shorter than three A4 pages

ID	BCAST_005 (Class Library)
Requirement	The test tool should use a popular class library.
Rationale	Using a popular class library leads to quicker improvements in the future.
Must Level	Proprietary, undisclosed or none.
Wish Level	.NET 2.0 (or higher) or JAVA 1.5 (or higher)

ID	BCAST_006 (Installation)
Requirement	The test tool should be easy to install.
Rationale	-
Must Level	Installation time: maximum 60 Minutes
Wish Level	Installation time: maximum 5 Minutes

ID	BCAST_007 (Configuration)
Requirement	The test tool should be easy to configure.
Rationale	Configuration time is the time from having a fresh installation up to the point when a test can be started. Configuration can include • setting IP addresses • loading test data • setting the name of the server that will be tested • specifying the test cases which should be executed • etc.
Must Level	Configuration time: maximum 60 Minutes
Wish Level	Installation time: maximum 10 Minutes

ID	BCAST_008 (Concurrent Users)
Requirement	The test tool should be able to serve more than one user at the same time
Rationale	Different server implementations might want to use one instance of the tool at the same time. (It is assumed that the servers connect with unique IP addresses).
Must Level	Single user (no concurrency, only one user per time)
Wish Level	Five concurrent users

ID	BCAST_009 (Test Results)
Requirement	The test tool should collect and store the test results and make them accessible. The test results should be stored in a way that the test runs and users can be distinguished.
Rationale	
Must Level	Test results locally available
Wish Level	Test results available to remote users (FTP site or web page or automatic email)

ID	BCAST_010 (Framework and test scripts)
Requirement	The test tool should separate the test framework from the test scripts (test cases)
Rationale	In case there is separation between test framework and test scripts/test cases (like in TTCN) then scripts/test cases might be owned by OMA while the framework remains under the control of the tool vendor.
Must Level	No separation, tool vendor can "bake" the test scripts/test cases into the tool.
Wish Level	Test framework and test scripts/test cases separated.

ID	BCAST_011 (Concurrent tests)
Requirement	The test tool should be able to run several tests at the same time
Rationale	Different requests for different tests might be sent at the same time and the tool should not block requests.
Must Level	No concurrent tests, before starting the next test the previous must be finished (successful or unsuccessful)
Wish Level	Five concurrent tests

ID	BCAST_012 (Tamper resistant Test Results)
Requirement	The test tool should store or submit the test results in a way that changes to the test results can not be done without being able to get noticed. "Tamper resistant" is probably not the right description – "tamper indication" is probably better (it's not about encryption but change indication e.g. with a checksum or signature).
Rationale	Prevent abuse due to falsified test results
Must Level	No protection of the test results, no tamper indication
Wish Level	Test results with tamper indication

5.2.7 Resources Required

No estimate so far – depends highly on the maturity of individual enabler implementations. For a good estimate in this chapter input from implementation providers is required later on.

5.3 Tests to be Performed

The following sections describe the tests related to the formal TestFest validation activities.

5.3.1 Entry Criteria for TestFest

The terminal vendors are expected to run all applicable test cases in the Client Conformance ETS that are supported by the BCAST Client Conformance Test Tool. From these test cases the terminal implementations must pass at minimum the test cases listed in Table 3. This ensures minimal requisite capability of the terminal implementations. The tests are defined in the Client Conformance ETS and any special comments are noted.

Test Case Id	Special Conditions
5.1.1.1 Service bootstrap and single content (DVB-H), requires DVB-H BDS.	For DVB-H clients and servers
5.1.1.2 Service bootstrap and single content (MBMS), requires MBMS BDS	For MBMS clients and servers
5.1.2.4 GZIP compression of Service Guide Delivery Unit	
5.2.4 Content hierarchy	
5.2.7 Subscription of Service	

Table 3: Listing of Tests for Entry Criteria for TestFest

The required implementation conformance level as described in [BCAST10-EICS-Client] and [BCAST10-EICS-Server] may vary for each TestFest. The latest requirement level will be provided to the OMA Trusted Zone before each event, who in turn will inform the participating companies.

5.3.2 Pre testing to be performed at the TestFest

During Pre-Testing at an OMA Test Fests participant teams must demonstrate correct execution of the following test cases:

- 5.1.1 Service bootstrap and single content
- 5.2.3 GZIP compression of Service Guide Delivery Unit

5.3.3 Testing to be Performed at TestFest

The testing at the BCAST Test Fests is expected to be executed according to the BCAST Interoperability Enabler Test Specification [BCAST10-ETS_IOP]. See also chapter 5.1.3.

5.4 Enabler Test Reporting

5.4.1 Problem Reporting Requirements

Normal Reporting, no special reporting required.

5.4.2 Enabler Test Requirements

Normal Reporting, no special reporting required

6. Alternative Validation Activities

So far no alternative validation activities are specified.

7. Approval Criteria

The BCAST 1.0 Enabler can be put in the Approved state when:

- The Enabler has been tested successfully at 3 Test Fests or
- 3 Companies have successfully run BI-lateral tests sessions towards a BCAST server and have reported results and any issues to OMA. This means three for each BDS and not one IPDC, one for MBMS and one for BCMCS.
- No open PRs exists.

Appendix A. Change History (Informative)

A.1 Approved Version History

Reference	Date	Description
n/a	n/a	No prior version –or- No previous version within OMA

A.2 Draft/Candidate Version 1.0 History

Document Identifier	Date	Sections	Description
Drarft Versions OMA-ETG-BCAST-V1_0	24 July 2006	All	Initial document to address the basic starting point
	24 September 2006	Chapter 4 and 5	Updated according to comments from Nokia and BAC BCAST
	27 September 2006	Chapter 4.2, 5.1, 5.6, 6.3	Updated according to comments from the review during the conference call 26 September 2006
	14 October 2006	Chapter 5.6 and 6.3	Updated according to comments from the review during the conference call 03 October 2006
	04 November	mainly Chapter 5	Changes after the F2F meeting in Athens
	19 November	Chapter 5.6.1	TTCN requirement removed from chapter 5.6.1 according to decision from the conference call from 07 November
	14 December	Chapter 5.2 and 5.3	Updated docum t with the input from NEC: OMA-IOP-BRO-2006-0225R01-CR_BCAST_ETG_Execution_Flow.doc
	22 January 2007	just date change	The document has been discussed during a teleconference and it has been decided to put the document on the permanent documents section.
Draft Versions OMA-EVP-BCAST-V1_0	16 April 2007	All	converted ETG to EVP
	10 May 2007	Chapter 2.2, 5.1.3, 5.2.6.2, 5.2.6.3, 5.3.1, 5.3.2 and 5.3.3.	Setting priorities for conformance test cases. TestFest entry criteria clarified.
	29 May 2007	5.3.1.	More entry criteria test cases added. Table numbers fixed.
	19 July 2007	5.3.1	Addition of CR IOP BRO 131R01
	24 Jul 2007	2	Editorial Corrections to references and ToC
		n/a	Prepared for TP candidate approval as doc ref # OMA-TP-2007-0299-INP_EVP_BCAST_V1_0_for_Candidate_Approval
Candidate Versions OMA-EVP-BCAST-V1_0	07 Aug 2007	All	Status changed to Candidate by TP TP ref # OMA-TP-2007-0299-INP_EVP_BCAST_V1_0_for_Candidate_Approval