CableLabs®
SaFI Specifications

Interactive Application Fulfillment Summary Interface Specification

CL-SP-SaFI-IAF-I01-090626

ISSUED

Document Status Sheet

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Key to Document Status Codes:

Work in Progress	An incomplete document, designed to guide discussion and generate feedback that may include several alternative requirements for consideration.
Draft	A document in specification format considered largely complete, but lacking review by Members and vendors. Drafts are susceptible to substantial change during the review process.
Issued	A stable document, which has undergone rigorous member and vendor review and is suitable for product design and development, cross-vendor interoperability, and for certification testing.
Closed	A static document, reviewed, tested, validated, and closed to further engineering change requests to the specification through CableLabs.

Trademarks:

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1 SCOPE

1.1 Introduction and Purpose

The purpose of this document is to define requirements for an Interactive Application Fulfillment Summary Interface (IAF). The IAF interface provides a means for messaging generated by an interactive application to be exposed to an external entity. While individual messages may flow over this interface, more typically a summary of messages is transmitted, e.g., the aggregated results of a voting application may be transmitted, such as 'x' number of 'A" responses, 'y' number of 'B' responses, etc.

1.2 Requirements

Throughout this document, the words that are used to define the significance of particular requirements are capitalized. These words are:

"SHALL"	This word means that the item is an absolute requirement of this specification.
"SHALL NOT"	This phrase means that the item is an absolute prohibition of this specification.
"SHOULD"	This word means that there may exist valid reasons in particular circumstances to ignore this item, but the full implications should be understood and the case carefully weighed before choosing a different course.
"SHOULD NOT"	This phrase means that there may exist valid reasons in particular circumstances when the listed behavior is acceptable or even useful, but the full implications should be understood and the case carefully weighed before implementing any behavior described with this label.
"MAY"	This word means that this item is truly optional. One vendor may choose to include the item because a particular marketplace requires it or because it enhances the product, for example; another vendor may omit the same item.

2 REFERENCES

2.1 Normative References

In order to claim compliance with this specification, it is necessary to conform to the following standards and other works as indicated, in addition to the other requirements of this specification. Notwithstanding, intellectual property rights may be required to use or implement such normative references.

[SaFI COM XSD]	CL-SaFI-COM-I01.xsd, June 26, 2009, Cable Television Laboratories, Inc.
[IAF XSD]	CL-SaFI-IAF-I01.xsd, June 26, 2009, Cable Television Laboratories, Inc.
[IAF WSDL]	CL-SaFI-IAF-I01.wsdl, June 26, 2009, Cable Television Laboratories, Inc.

2.2 Informative References

This document uses the following informative references.

[IAM]	Interactive Application Messaging Specification, CL-SP-SaFI-IAM-I01-090626, June 26, 2009, Cable Television Laboratories, Inc.
[SMS]	Service Measurement Summary Interface Specification, CL-SP-SaFI-SMS-I01-090626, June 26, 2009, Cable Television Laboratories, Inc.
[CIP]	Campaign Information Package Specification, CL-SP-SaFI-CIP-I01-090626, June 26, 2009, Cable Television Laboratories, Inc.
[IAF EXMPL]	CL-SaFI-IAF-I01-example1.xml, June 26, 2009, Cable Television Laboratories, Inc.
[IAF HTML]	CL-SaFI-IAF-I01.html, June 26, 2009, Cable Television Laboratories, Inc.

2.3 Reference Acquisition

- Cable Television Laboratories, Inc., 858 Coal Creek Circle, Louisville, CO 80027;
  Phone +1-303-661-9100; Fax +1-303-661-9199; http://www.cablelabs.com
- Internet Engineering Task Force (IETF) Secretariat, 46000 Center Oak Plaza, Sterling, VA 20166,
  Phone +1-571-434-3500, Fax +1-571-434-3535, http://www.ietf.org
- W3C, http://www.w3.org

3 TERMS AND DEFINITIONS

This specification uses the following terms:

Enhanced Program Sequence ID (EPSID)	A small integer identifying a unique Enhanced Package or Enhanced Package Element within a specific Programmed Event.
Programmed Event	A Programmed Event (ex. a program, network spot, vod asset, guide page, an advertisement, etc) represents a constrained subscriber experience that includes an enhanced experience. Each Programmed Event will have a Programmed Event Identifier (PEID). A primary function of the Programmed Event Identifier is to uniquely specify the context of application lifecycle events as well as qualify any underlying measurement or fulfillment messages generated by the enhancements delivered during the lifetime of the Programmed Event.

4 ABBREVIATIONS AND ACRONYMS

This specification uses the following abbreviations:

SaFI Stewardship and Fulfillment Interfaces. A collection of interfaces defined by CableLabs to support advanced services on multiple cable systems

5 OVERVIEW

5.1 General Context

The Interactive Application Fulfillment (IAF) platform provides an interface between MSO systems and partners. Its purpose is to transmit the results of viewer interactions with specific application functions. Examples include the results of vote, poll, and RFI functions.

While the interface supports transmission of individual responses, the expected usage is that aggregated responses will be transmitted. For instance, the results for a particular vote may be aggregated across some portions of an MSO's footprint, or the entire footprint, and transmitted as one payload over the interface. Therefore, this specification is called a "summary" interface.

5.1.1 Reference Architecture

The following diagram illustrates a system's view of the IAF platform. This diagram is derived from work produced by the Advanced Advertising Interfaces team, and represents an advertising-centric view of the platform. The Interactive Application Fulfillment platform will be generalized such that applications unrelated to advertising can use the same platform.

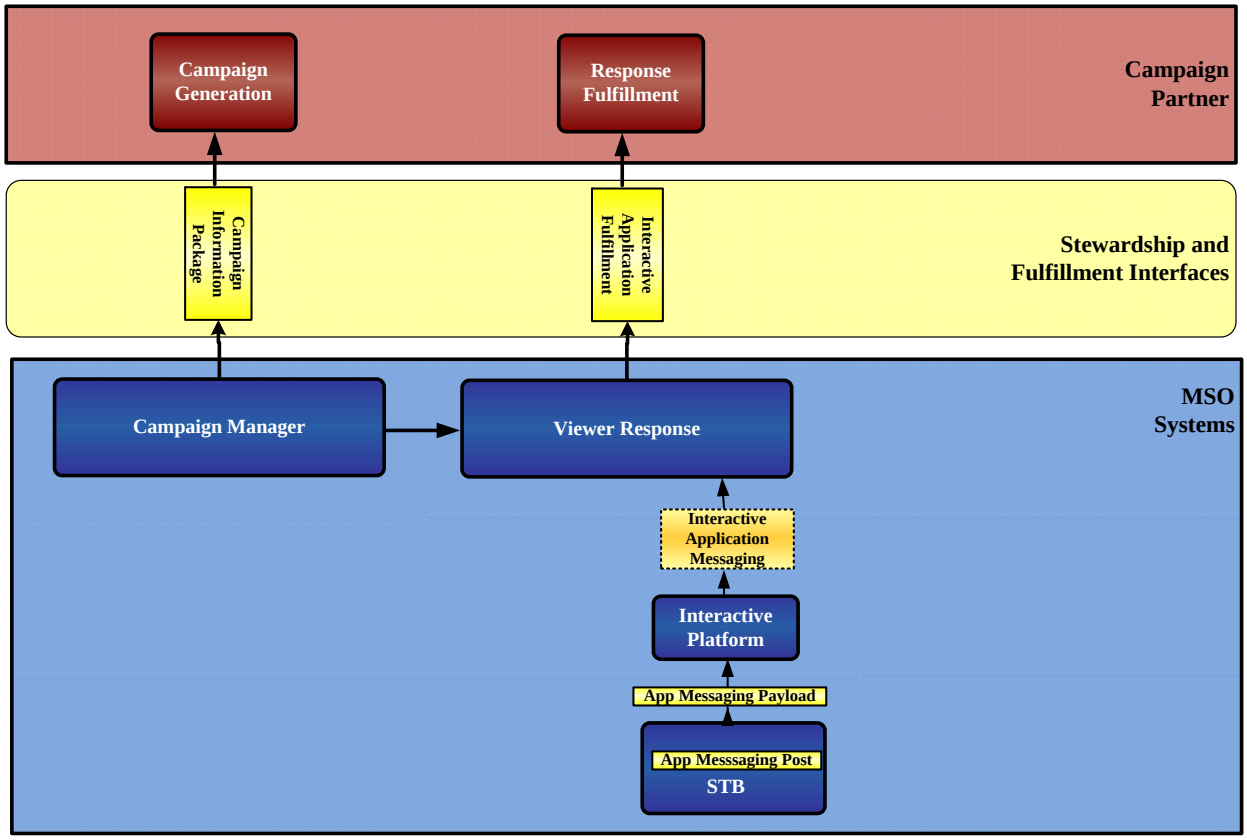

Figure 5–1 - IAF Platform Context

5.1.2 Interface Descriptions

As illustrated above, the Interactive Application Fulfillment architecture is composed of several components.

Interactive Application Messaging. This interface defines how an application instantiates a message that includes a vote/poll or RFI response and application instrumentation messages that support Service Metrics. This interface is

defined in [IAM]. Illustrated here are sub-components of application messaging post and application messaging payload.

Note the Campaign Information Package Interface [CIP]. This provides information to MSOs for resolution and routing of Interactive Application Fulfillment data.

6 INTERACTIVE APPLICATION FULFILLMENT INTERFACE REQUIREMENTS

This section defines requirements for the Interactive Application Fulfillment interface.

6.1 Data Model

An XML schema is defined in Section 7 to fully describe the data that will be transmitted by an MSO and delivered to the CAAS.

XML files conformant to this data model SHALL be generated by MSO systems and properly received by the CAAS.

6.1.1 Application Fulfillment

The Application Fulfillment element is the root element of an Interactive Application Fulfillment Summary Message.

It contains the following data units.

- Application Fulfillment Header Group – Contains message header info common to all contained message payloads (see Section 6.1.2).
- Event – Contains one or more Events in the form of VoteType (sees Section 6.1.7) or RFIType (see Section 6.1.6).

6.1.2 Application Fulfillment Header Group

The Application Fulfillment Header Group contains header information for an IAM message.

It contains the following data units.

- Minimum Schema Version – The lowest level revision of the schema that will validate this document. Schema evolution is required to maintain backward compatibility to ensure all subsequent revisions will validate a superset of the prior revision.
- Timestamp – This provides a reference time for the message. The Timestamp element provides time and optionally an offset and interval.
- GeoCode – This is a wrapper element around one of Zip Code or Sys Code used to geographically organize responses (see Section 6.1.3).

6.1.3 Geo Code

The Geo Code element provides a wrapper around the specific type of geographic partitioning of the data being reported. It can take one of two forms, Zip Code or Sys Code. It is required that one form of Geo Code be provided for each message.

It contains the following data units.

- Zip Code – The zip code for all Events being reported in an IAM message.
- Sys Code – The sys code for all Events being reported in the IAM message.

6.1.4 Event

The Event is an abstract type that is extended in order to represent specific Event types being reported. It currently has implementations for RFIType and VoteType.

It contains the following data unit.

- Package ID Group – Used as a container for the following identifiers: PEID, EPSID and EventID.

6.1.5 Package ID Group

The Package ID Group contains the three identifiers used to map messages back to Programs and Programmed Events.

It contains the following data units.

- PEID – Programmed Event ID
- EPSID – Enhanced Program Sequence ID. This is a unique value within the scope of an associated PEID.
- EventID – A unique value within the scope of an associated EPSID. An eventID is allocated by an application to discreet entities within the application. For instance, they may indicate an User Interface component, or 'overlay', or may indicate a lifecycle change within an applications, such as a 'pause' as the result of a channel change.

6.1.6 RFI Type

The RFI type or Request For Information Type is an implementation of the abstract Event Type. It is used to carry information about subscribers who have request additional information through an Event.

It contains the following data units.

- Subscriber Info – Contains information about a specific subscriber, including name and contact information.
- Parameters – This field may be used by applications to provide application specific data. Examples might include model or pricing information for the related RFI.
- Package ID Group – Inherits Package ID Group from the EventType.

6.1.7 Vote Type

The Vote Type is an extension of the abstract type Event. It is used for carrying aggregated vote counts through one or more Result elements. The first Result element would map to the first response, the second Result element would map to the second response, and so forth through the last response.

It contains the following data unit.

- Result – Used to report aggregate responses to an Event. Will repeat any number of times to represent each potential response for an Event.

6.1.8 Subscriber Info

The Subscriber Info is a wrapper containing informational elements about a specific subscriber and/or household.

It contains the following data units.

- First Name – First name of subscriber.
- Last Name – Last name of subscriber.
- Subscriber Contact Group – Subscriber contact information containing at least one of Address, Phone number, or Email.

6.1.9 Subscriber Contact Group

The Subscriber Contact Group contains the preferred contact information for each subscriber who has responded positively to an RFI.

It contains the following data units.

- Address – Full address including street, city and zip code.
- Phone Number – Numeric seven digit phone number.

- Email Address – Email address.

6.1.10 Address

The Address element contains the viewers billing / mailing address.

It contains the following data units.

- Street1 – Primary street address. Includes building number and street.
- Street2 – Includes unit number if present.
- City – Name of city.
- State – Two letter code for state.
- Zip – 5 or 9 number zip code.

7 INTERACTIVE APPLICATION FULFILLMENT DATA MODEL SCHEMA

The formal data definition is found in [IAF XSD].

8 INTERACTIVE APPLICATION FULFILLMENT WEB SERVICES DESCRIPTION LANGUAGE

The formal data definition is found in [IAF WSDL].

Appendix I XML Example (Informative)

Examples of SMSI data expressions can be found in [IAF EXMPL].

Appendix II HTML Representation (Informative)

A browse-able, graphical representation of the IAF data model can be found in [IAF HTML].