

## DICOM Correction Proposal

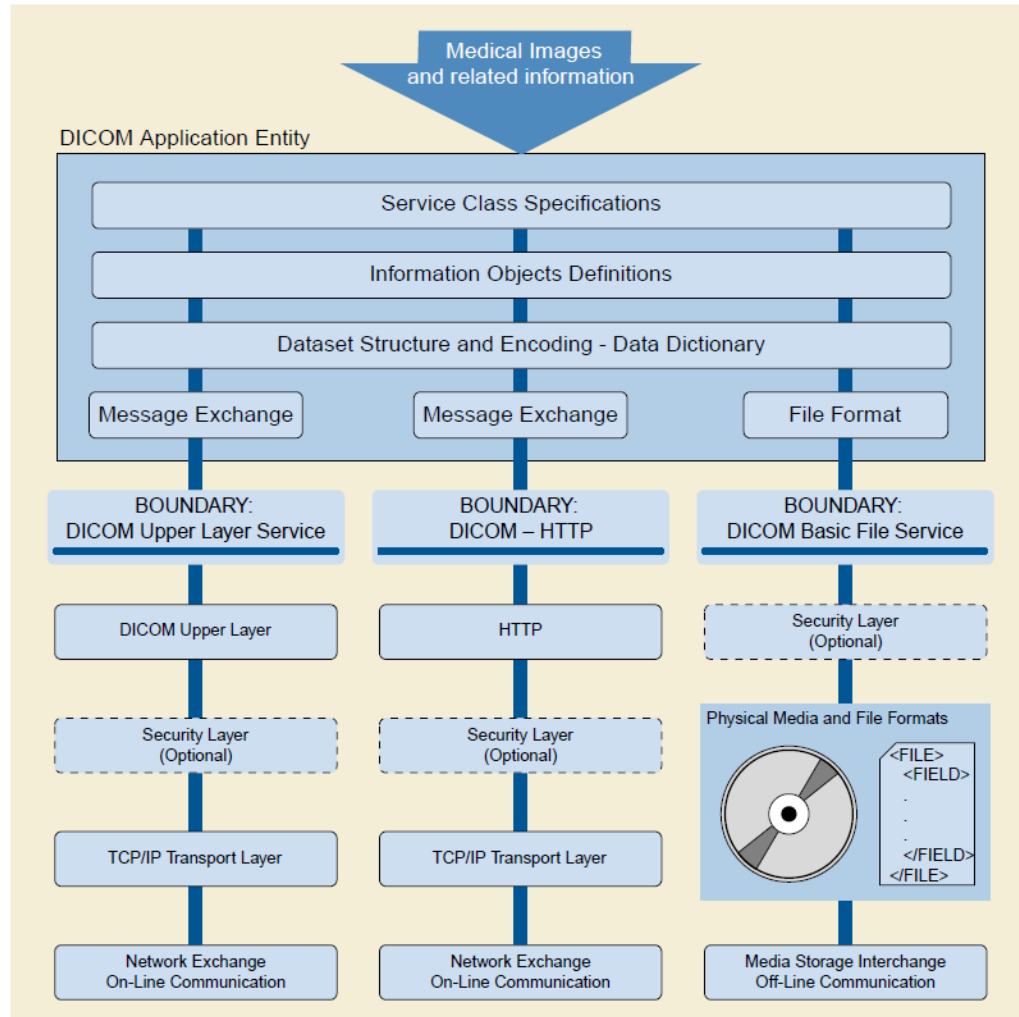
STATUS	Letter Ballot
Date of Last Update	2018/11/11
Person Assigned	W. Corbijn
Submitter Name	Jeroen Medema
Submission Date	2018/02/22

Correction Number	CP-1793
Log Summary:	Harmonize the description of the DICOM Communication Model across the parts
Name of Standard	PS3.1, PS3.7, PS3.10, PS3.18

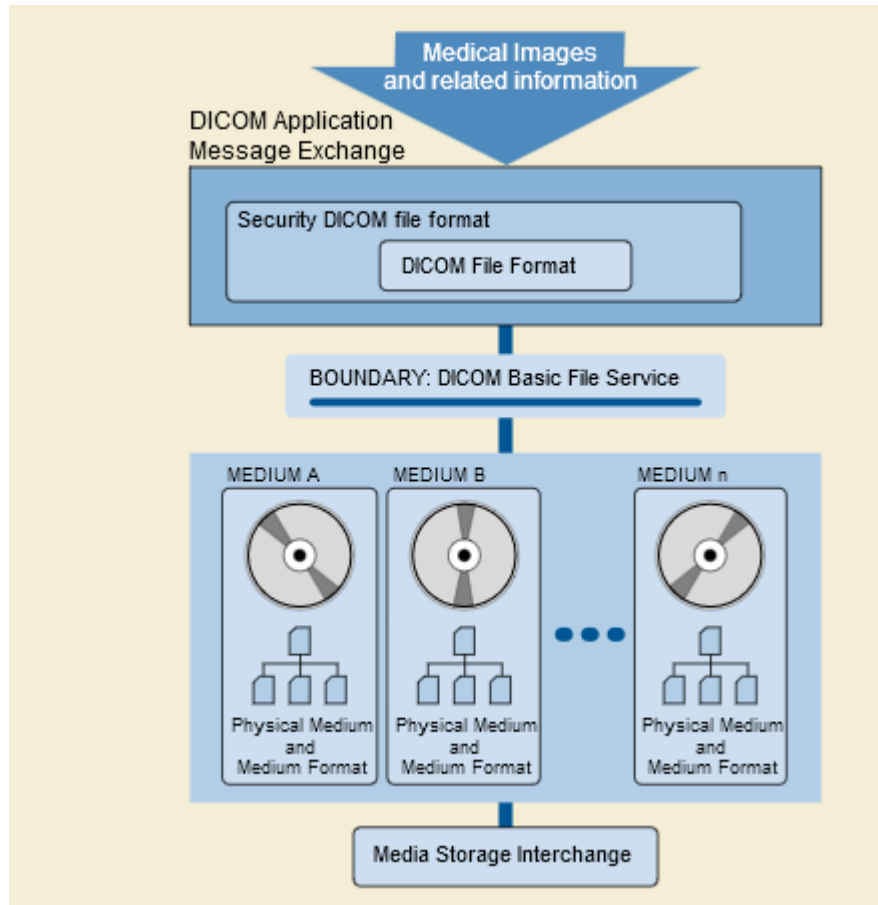
### Rationale For Correction

When looking at the different ways the DICOM Communication Model has been described in the standard currently, we see a mismatch between the parts. PS3.1, PS3.7 and PS3.10 all define it differently, while PS3.18 should describe it but doesn't yet (even not in the latest public rewrite version).

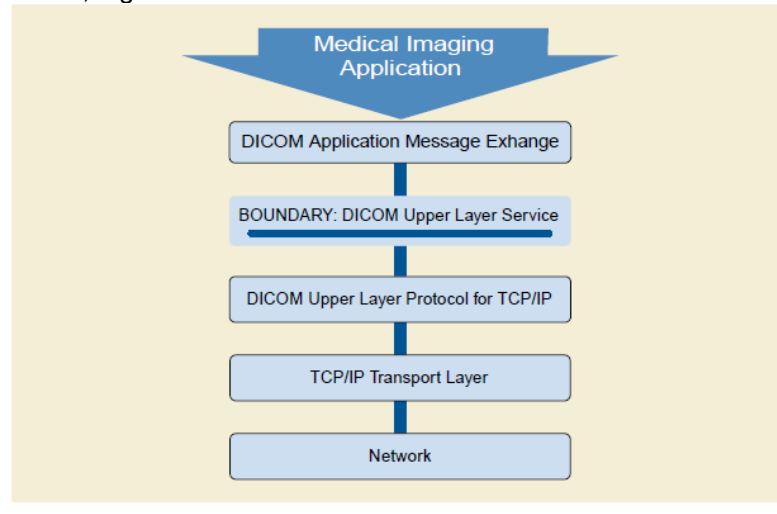
PS3.1, Figure 5.1 General Communication Model:



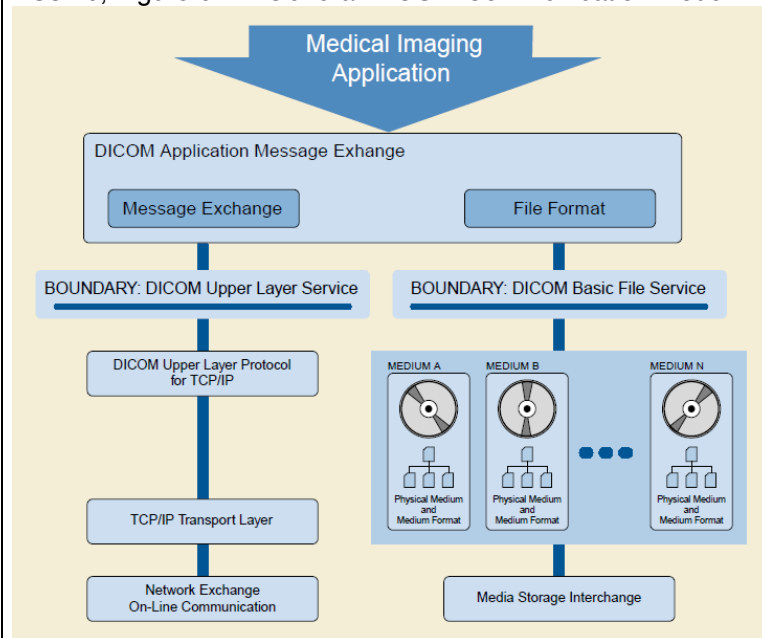
PS3.1, Figure 6.10-1 DICOM Media Communication Model



PS3.7, Figure 6.1-1 DICOM Network Protocol Architecture:



PS3.10, Figure 6.1-1 General DICOM Communication Model



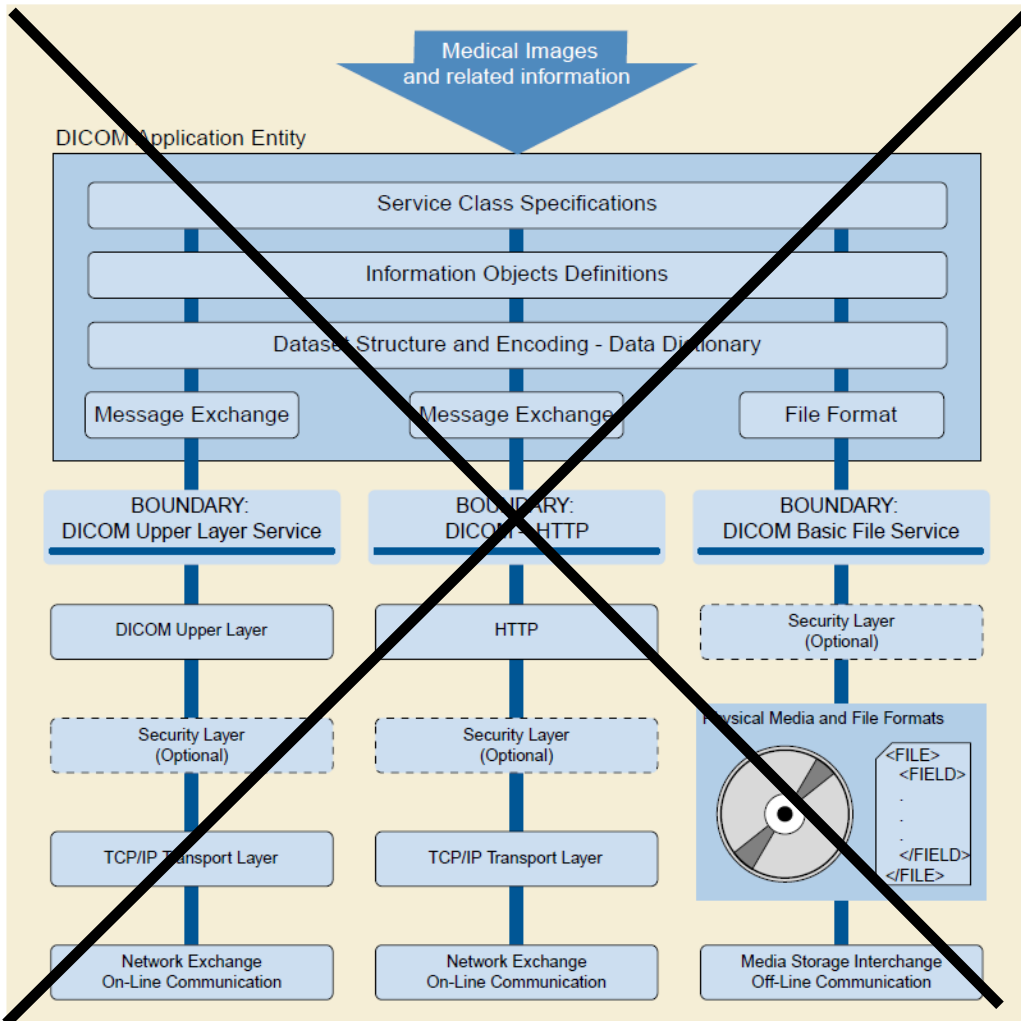
Correction Wording: the proposed approach was to harmonize the different figures. WG-06 approach is to have an overview figure in Part 1, and specific figures in the other Parts.

Item #1: Changes in PS3.1, section 5

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Figure 5-1 presents the general communication model of the **DICOM** Standard, which spans both network (on-line) and media storage interchange (off-line) communication. Applications may utilize any of the following transport mechanisms:

- the DICOM Message Service and Upper Layer Service, which provides independence from specific physical networking communication support and protocols such as TCP/IP.
- the DICOM Web Service API and HTTP Service, which allows use of common hypertext and associated protocols for transport of DICOM services.
- **T**he Basic DICOM File Service, which provides access to Storage Media independently from specific media storage formats and file structures.



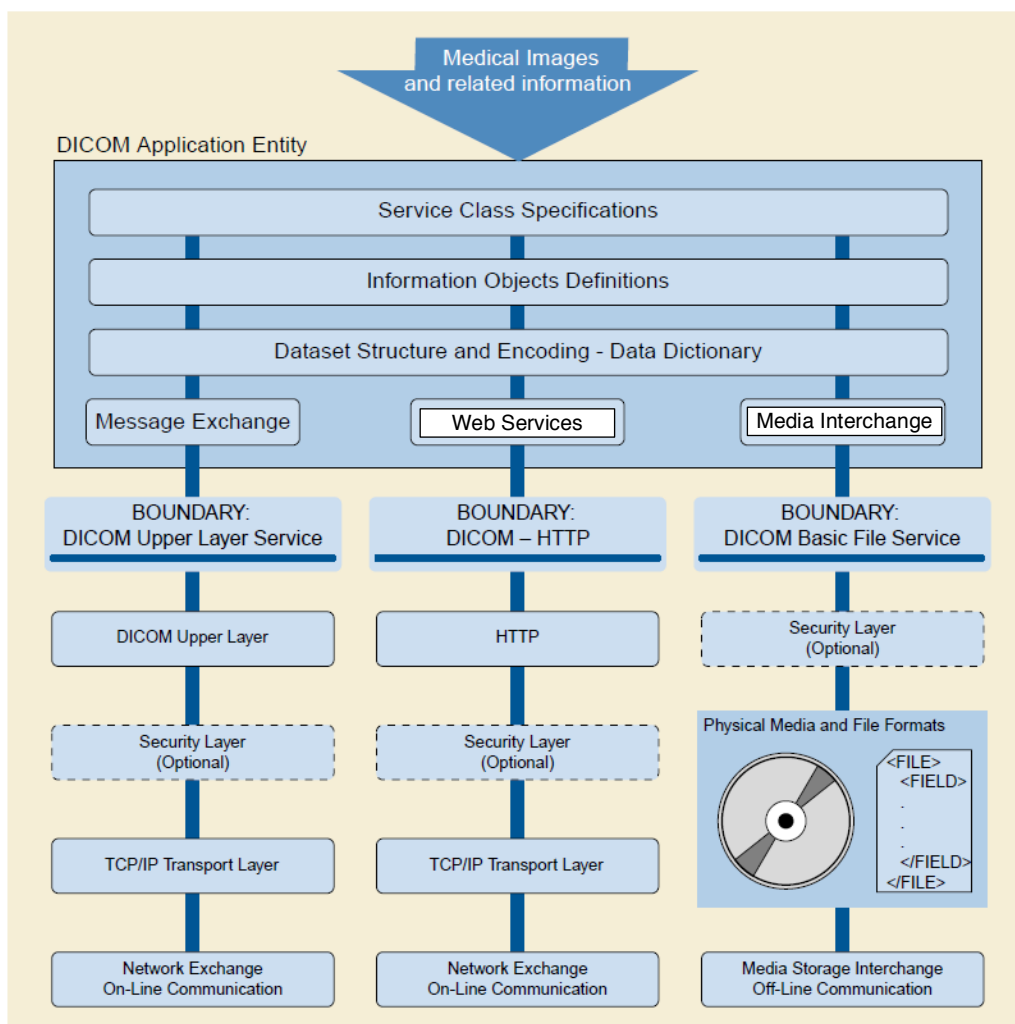


Figure 5-1. General DICOM Communication Model

Item #2: Changes in PS3.1, section 6.10

PS3.10 of the DICOM Standard specifies a general model for the storage of medical imaging information on removable media (see Figure 6.10-1). The purpose of this Part is to provide a framework allowing the interchange of various types of medical images and related information on a broad range of physical storage media.

**Note**

See Figure 5-1 for understanding how the media interchange model **relates compares** to the network model.

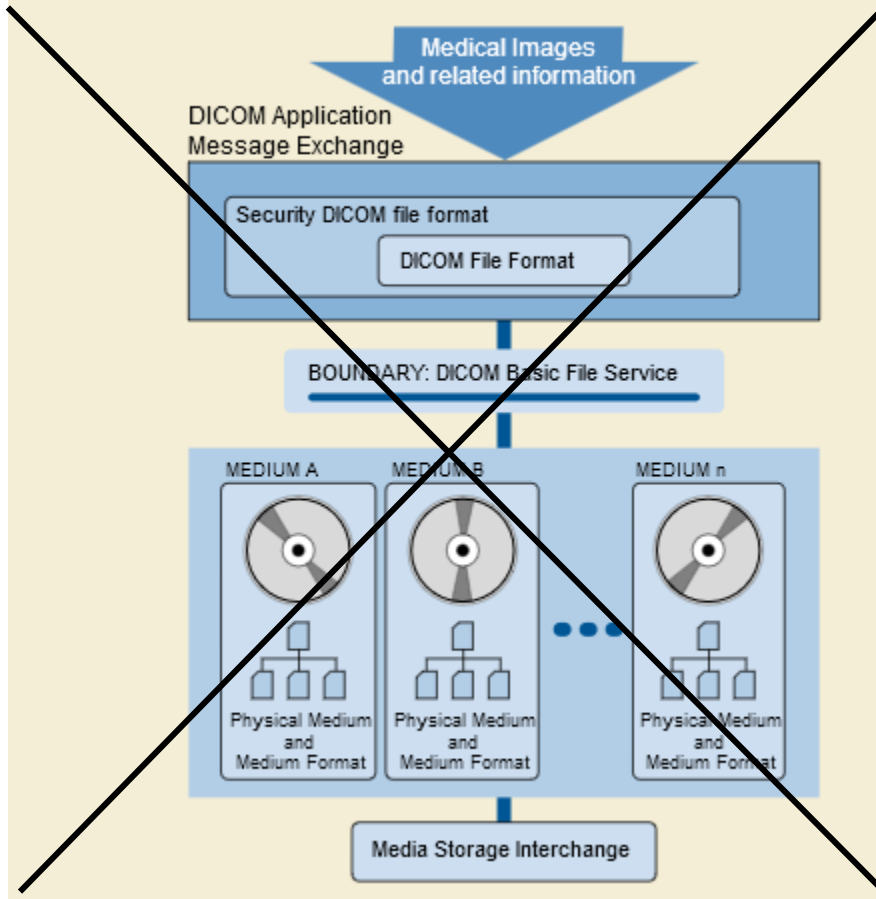
PS3.10 **SS** specifies:

- a layered model for the storage of medical images and related information on storage media. This model introduces the concept of media storage application profiles, which specify application specific subsets of the DICOM Standard to which a media storage implementation may claim conformance. Such a conformance applies only to the writing, reading and updating of the content of storage media.
- a DICOM file format supporting the encapsulation of any Information Object;
- a secure DICOM file format supporting the encapsulation of a DICOM file format in a cryptographic envelope;

- a DICOM file service providing independence from the underlying media format and physical media.

PS3.10 defines various media storage concepts:

- the method to identify a set of files on a single medium;
- the method for naming a DICOM file within a specific file system.



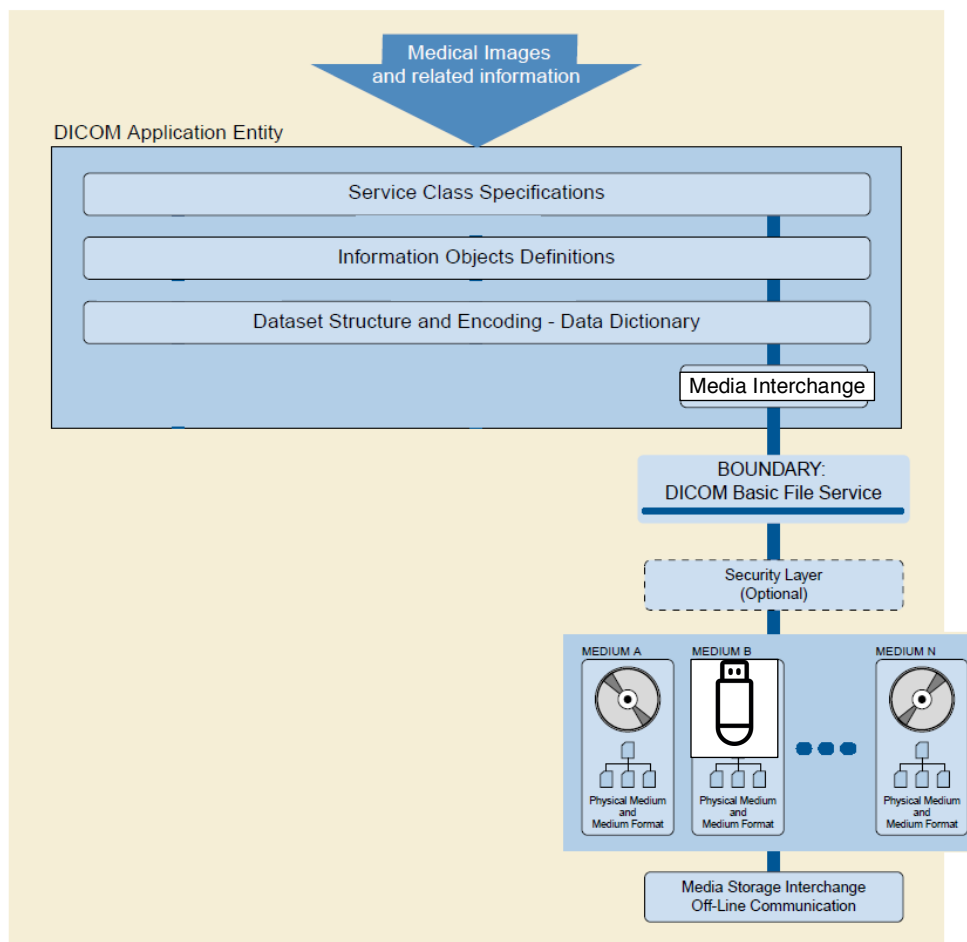


Figure 6.10-1. DICOM Media Communication Model for Media Interchange

Item #3: Changes in PS3.10, section 6.1

### 6.1 General DICOM Communication Model for Media

Figure 5.1 of PS3.16-1-1 presents the general communication model of the DICOM Standard, that which spans both network (on-line) and storage media interchange (off-line) communications. The DICOM Applications may rely on either one of the following boundaries utilize any of the following transport mechanisms:

- the OSI Upper Layer Service, which provides independence from specific physical networking communication support
- the DICOM Message Service and Upper Layer Service, which provides independence from specific physical networking communication support and protocols such as TCP/IP.
- the DICOM Web Service API and HTTP Service, which allows use of common hypertext and associated protocols for transport of DICOM services.
- the Basic DICOM File Service, which provides access to Storage Media independently from specific physical media storage formats and file structures.

PS3.10 focuses on the latter of these, as depicted in Figure 6.1-1.



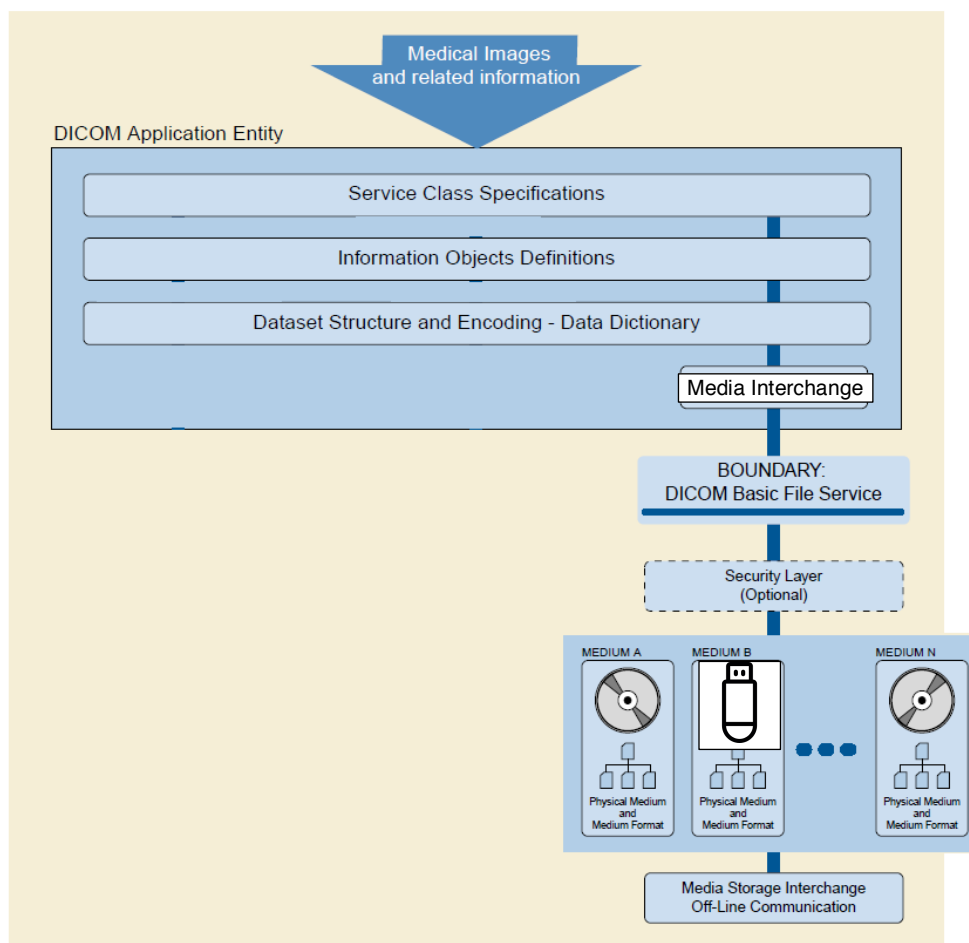
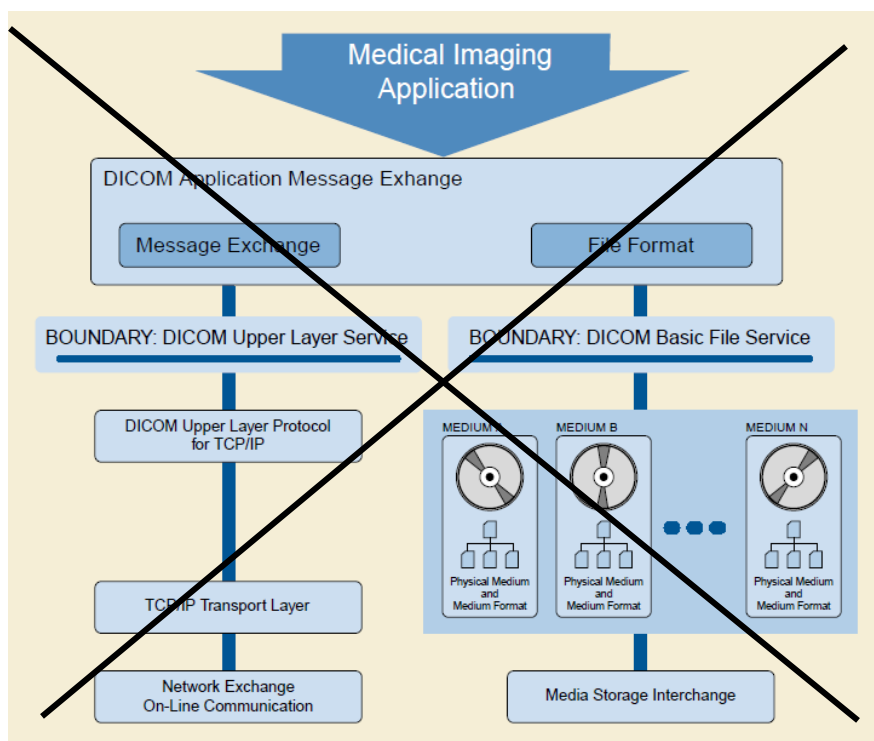


Figure 6.1-1. General DICOM Communication Model for Media Interchange

Item #3: Changes in PS3.7, section 6.1

### **6.1 DICOM Communication Model for Message Exchange and the OSI Basic Reference Model**

**Figure 5.1 of PS3.1 presents the general communication model of the DICOM Standard, which spans both network (on-line) and storage media interchange (off-line) communications.**

**Applications may utilize any of the following transport mechanisms:**

- **the DICOM Message Service and Upper Layer Service, which provides independence from specific physical networking communication support and protocols such as TCP/IP.**
- **the DICOM Web Service API and HTTP Service, which allows use of common hypertext and associated protocols for transport of DICOM services.**
- **the Basic DICOM File Service, which provides access to Storage Media independently from specific physical media storage formats and file structures.**

**PS3.7 focuses on the DICOM Message Service and here** ~~T~~the OSI Basic Reference Model is used to model the interconnection of medical imaging equipment. As shown in Figure 6.1-1 several layers of communication protocols are distinguished. DICOM uses the OSI Upper Layer Service to separate the exchange of DICOM Messages at the Application Layer from the communication support provided by the lower layers.

This OSI Upper Layer Service boundary allows peer Application Entities to establish Associations, transfer Messages and terminate Associations. For this boundary, DICOM has adopted the OSI Standards (Presentation Service augmented by the Association Control Service Element). It is a simple service that isolates the DICOM Application Layer from the specific stack of protocols used in the communication support layers.

The DICOM Upper Layer protocol augments TCP/IP. It combines the OSI upper layer protocols into a simple-to-implement single protocol while providing the same services and functions offered by the OSI stack.

The DICOM Upper Layer Service is defined in [PS3.8](#).

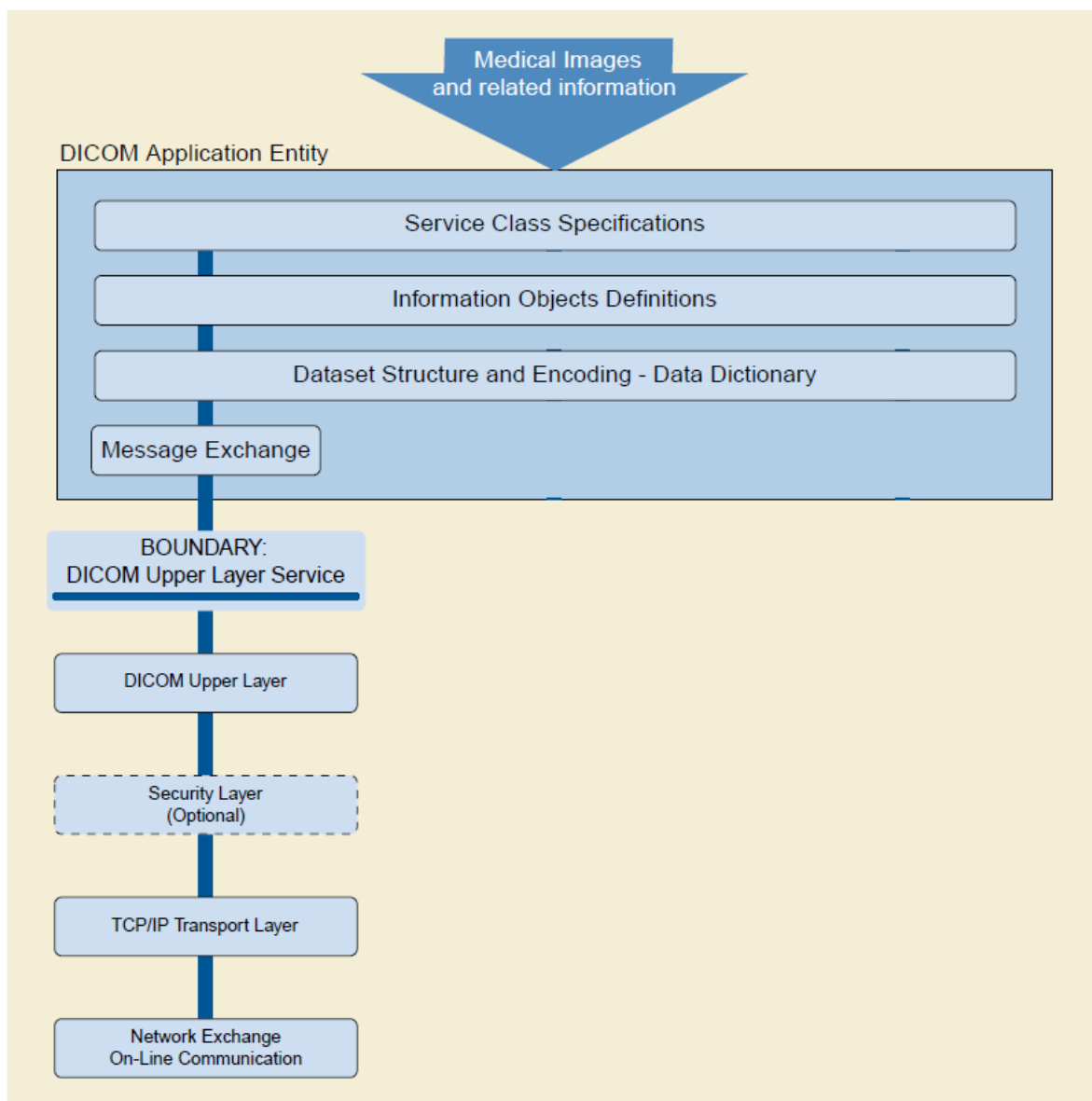
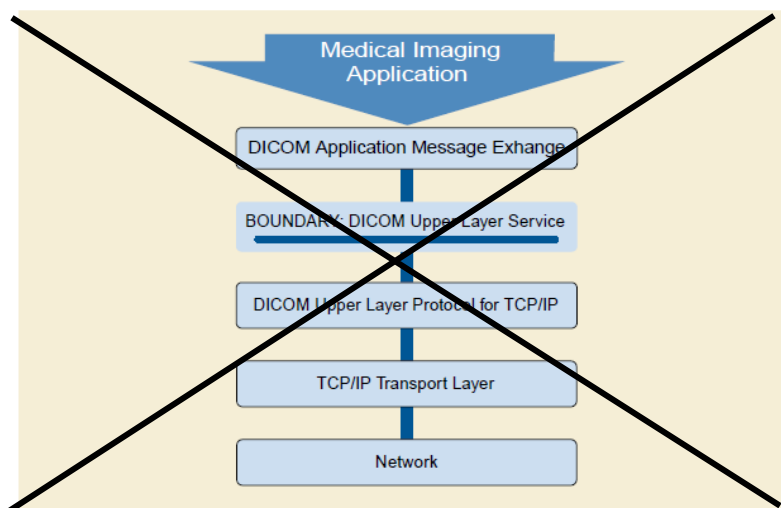


Figure 6.1-1. DICOM Communication Model for Message Exchange Network Protocol Architecture

Item #4: Changes in PS3.18, section 6

## 6 DataDICOM Communication RequirementsModel for Web Services

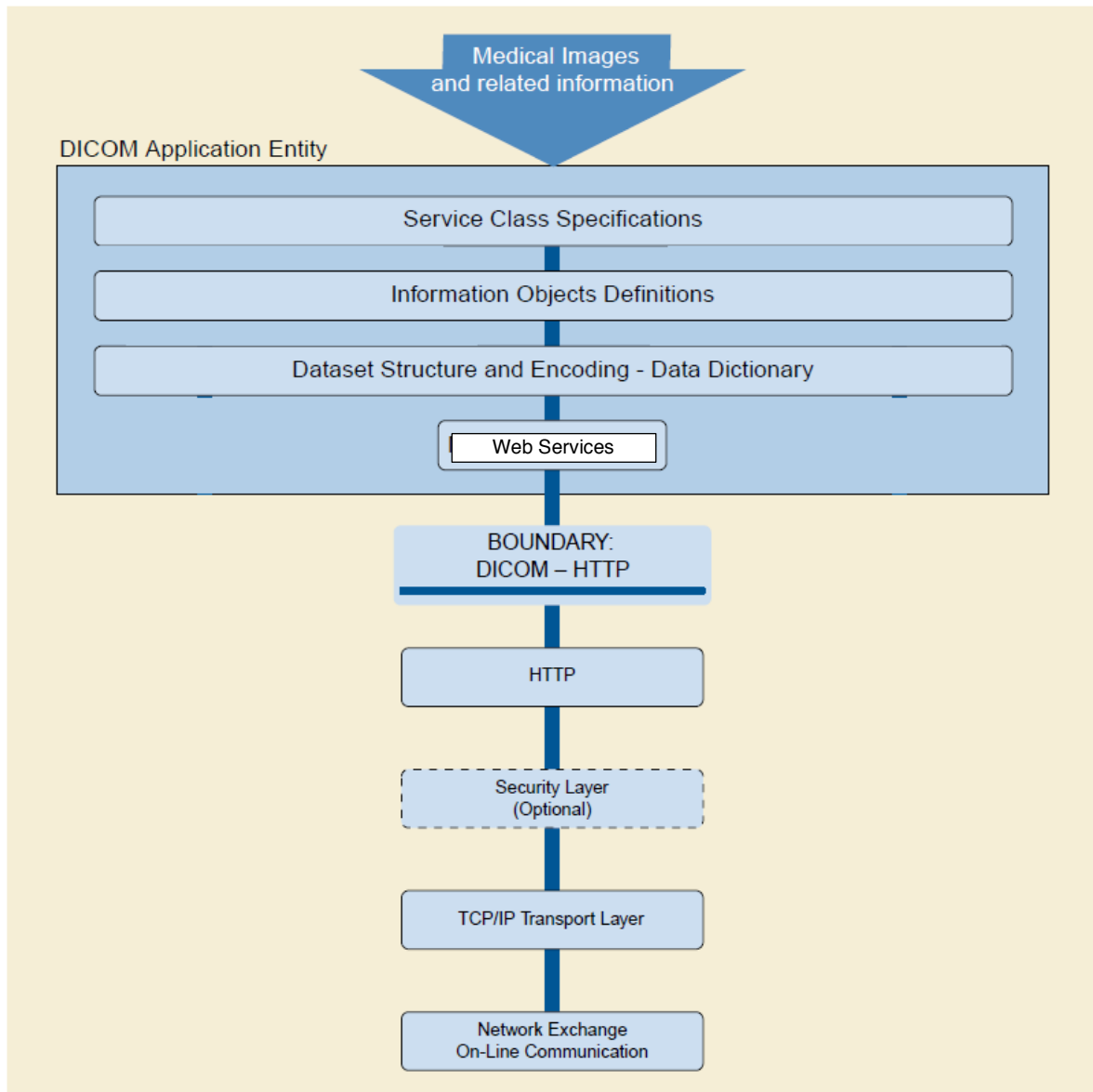
**Figure 5.1 of PS3.1 presents the general communication model of the DICOM Standard, which spans both network (on-line) and storage media interchange (off-line) communications.**

**Applications may utilize any of the following transport mechanisms:**

- **the DICOM Message Service and Upper Layer Service, which provides independence from specific physical networking communication support and protocols such as TCP/IP.**
- **the DICOM Web Service API and HTTP Service, which allows use of common hypertext and associated protocols for transport of DICOM services.**
- **the Basic DICOM File Service, which provides access to Storage Media independently from specific physical media storage formats and file structures.**

**PS3.18 focuses on** DICOM Web Services **which** use the HTTP and HTTPS protocols as its transport medium, **see Figure 6-1**. Web Services supports versions 1.0, 1.1 and 2 of the protocol. If an origin server supports version 2, it shall also support version 1.1. If an origin server supports version 1.1, it shall also support version 1.0.

Item #5: PS3.18 Add image in section 6



**Figure 6-1. DICOM Communication Model for Web Services**

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