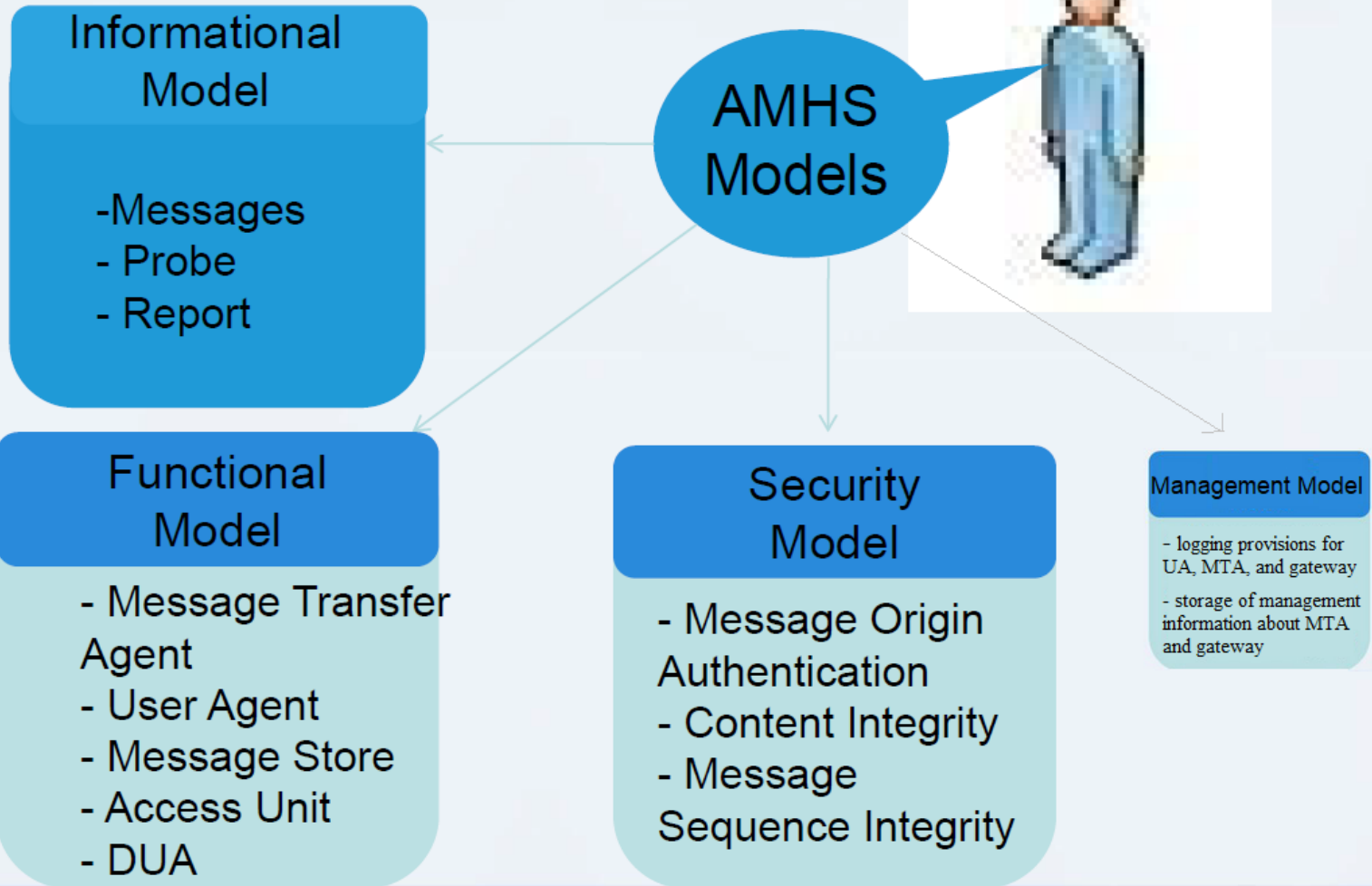




# AMHS Model

Functional Components  
Information Objects

# AMHS Models



## ➤ **AMHS functional model**

In terms of functionality, the ATSMHS comprises the following components:

a) message transfer agent (MTA)

b) user agent (UA)

c) message store (MS)

d) access unit (AU) :

e) directory user agent(s) (DUA).

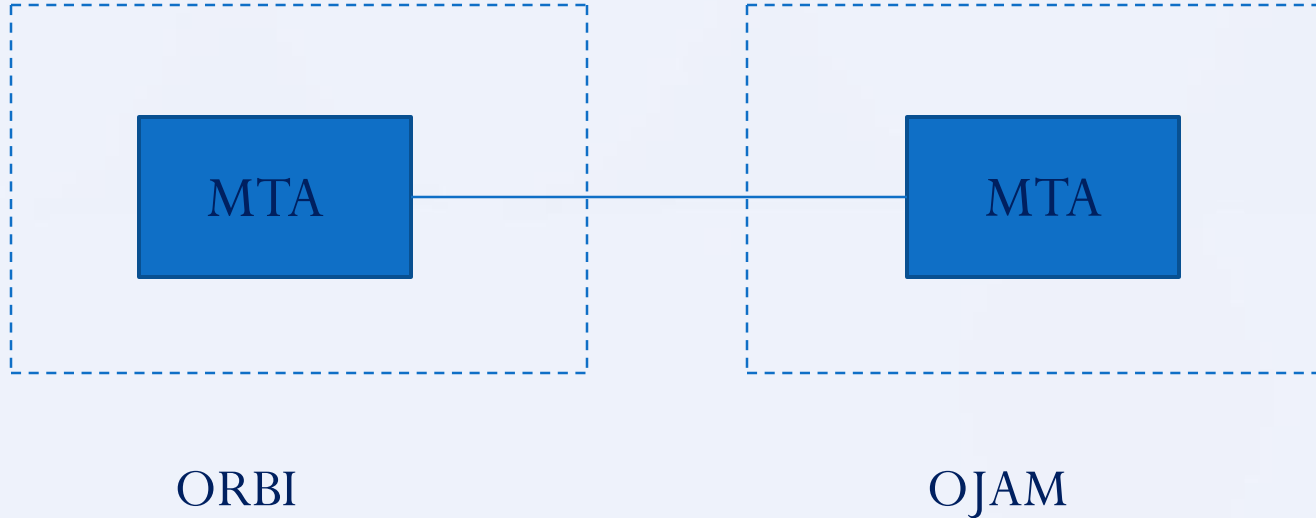
included in Extended ATS Message Service

## ➤ **AMHS Functional Components**

### **a) Message transfer agent (MTA)**

- performs the function of the message switch and connects to external systems.
- The MTA transfers messages and delivers them to the intended recipients.

## ➤ AMHS Functional Components



message transfer agent: (MTA)

## ➤ **AMHS Functional Components**

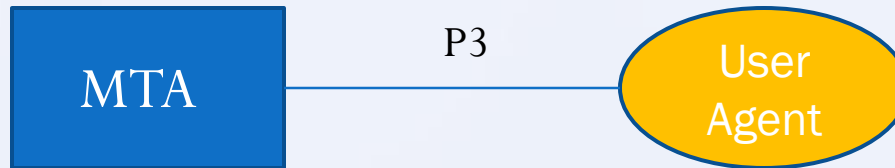
### **b) User Agent**

- provides input mechanism and protocols for users to send and receive messages.
- It is connected to MTA or/and MS normally through LAN or VPN or dedicated circuits.
- For the support of the Extended ATS Message Handling Service, an ATS Message User Agent shall include a DUA.

## ➤ MHS Functional Components

### ATS Message User Agent

a- P3 User Agent



b- P7 User Agent



## ➤ **MHS Functional Components**

### **c) Message Store (MS)**

- provides the intermediary storage between MTA and UA and is usually co-located with the MTA.
- It's primary purpose is to store and permit retrieval of delivered messages.

## ➤ **MHS Functional Components**

### **d) Access Unit (AU)**

- Provides conversion towards other messaging systems.
- AU converts formats, service elements and protocols.

## ➤ **MHS Functional Components**

### **e) Directory User Agent (DUA)**

The DUA Component is an intrinsic part in an AFTN/AMHS Gateway supporting the Extended ATS Message Handling Service

## ➤ **AMHS Protocols**

The ATS Message Handling System is based on the X.400 Message Handling System. It is important to note that the X.400 Message Handling System is not a physical system with actual physical entities but rather is an architectural model for specifying functions or services provided by logical entities and the protocols between these logical entities

## ➤ **AMHS System Requirements**

Three categories of ATN end systems are defined for the support of the ATS Message Handling Service:

- 1) the ATS message server
- 2) the ATS User Agent
- 3) the AFTN/AMHS gateway

Together, these systems provide connectivity between users at ATN end systems and users at AFTN Stations.

# 1- ATS Message Server

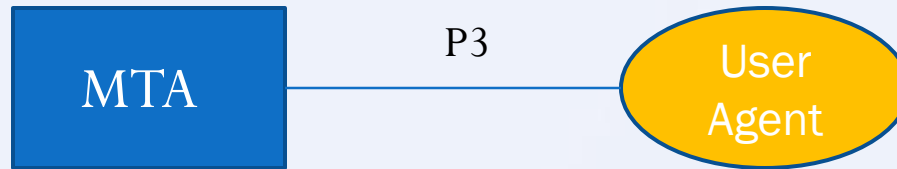
- Accepts, relays and delivers messages in a store-and-forward fashion and serves attached ATS message User Agents.

- An ATS Message Server shall include a MTA and optionally one or several Message store (MS)s.

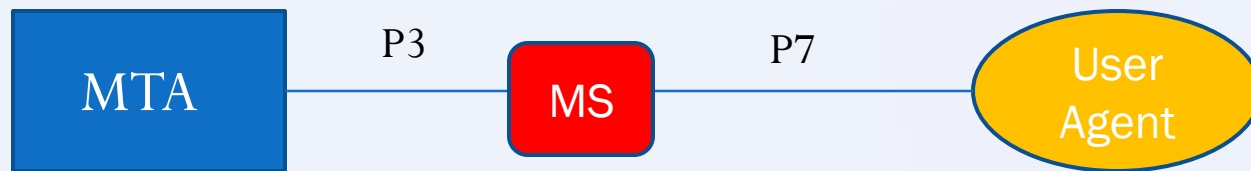
## 2- ATS User Agent

- Based on Java technology.
- Access to Remote message Transfer agent (MTA).
- Allow for both AFTN over X.400 and X.400 messages generation.
- Provided with customization if required.

a- P3 User Agent



b- P7 User Agent



## **3- AFTN/AMHS Gateway**

An AFTN/AMHS Gateway shall provide for an interworking between the AFTN and the ATN such that communication with other AFTN/AMHS Gateways, with CIDIN/AMHS Gateways supporting the AFTN MTCU.

An AFTN/AMHS Gateway shall consist of the four or five following logical components:

- a) AFTN Component;
- b) ATN Component;
- c) Message Transfer and Control Unit (MTCU or AU)
- d) Control Position
- e) Directory User Agent, **if** the Gateway supports the Extended ATS Message Service.

## a) AFTN Component;

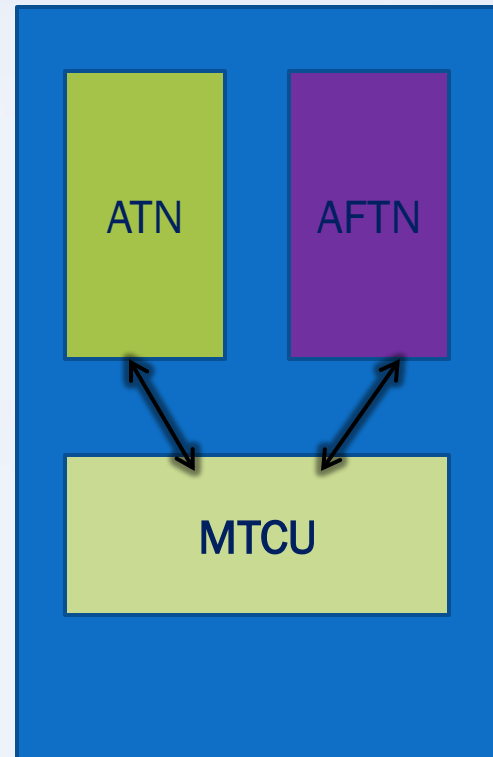
- The AFTN Component incorporates an AFTN procedure handler providing for all AFTN functions and procedures as prescribed in Annex 10, VOL II for an AFTN station. The component exchanges with the MTCU the AFTN user messages and Service message of the type SS acknowledgement and SVC ADS UNKNOWN.
- Behaves like an AFTN center.
- Responds to AFTN messages that do not generate AMHS messages.

## **b) ATN Component;**

The ATN Component incorporates an MTA complying with the profile specification for an ATS message server. In this way, the gateway is externally indistinguishable from ATS Message and can communicate with other ATS Message Servers and peer gateways

## C) Message Transfer and control Unit

The MTCU performs bi-directional conversions (mappings) between AFTN and AMHS information objects (messages, priorities, ..etc)



## **d) Control Position;**

- used for monitoring the AFTN/AMHS gateway.
- Display of error.
- Interface for correction of errors in AFTN messages

## **e) DUA Component;**

if the Gateway supports the Extended ATS Message Service.

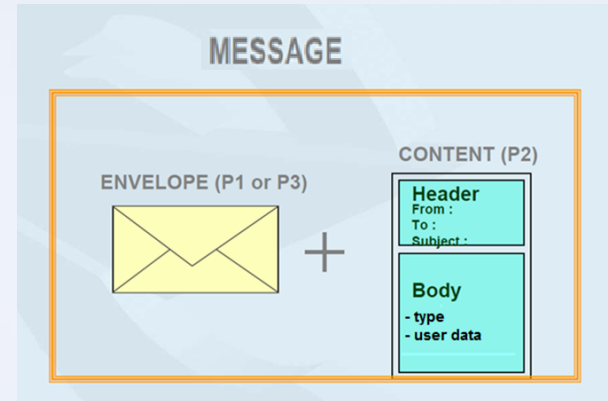
- 1- used for the determination of the level of ATS Message Handling Service supported by AMHS users;  
and;
- 2- for the retrieval of AMHS security information.

# ➤ MHS Information Objects

## 1. Message (IPM & IPN)

The message consists of :

- 1) Envelope P1
- 2) content P2



### 1.1 Interpersonal Message (IPM): (a “true” message)

- ❖ IPM conveys user data to the intended user(s).
- ❖ The content of IPM consists of two parts:
  - 1) **The Heading**: includes control information needed by cooperating UAs.
  - 2) **The body**: contains the real user data.

- ❖ Typically, an IPM body part contains two components:
  - 1) **Body part type**: specifying the encoding of the data included in the body part; and
  - 2) **Data**: the user data itself
  
- ❖ Examples of IPM body part types:
  - IA5-text
  - general-text-body-part
  - bilaterally-defined-body-part
  - file-transfer-body-part
  - G4 class 1, G3-Facsimile
  - Encrypted

## 1.2 Interpersonal Notification (IPN):

IPN is only used as acknowledgment for high-priority messages. The IPN can be RN or NRN

### a) Receipt Notification (RN)

Is generated by the recipient's UA to inform the message originator about reading of the message.

Interpersonal Notification (IPN) is sent to the message originator in the form of a Receipt Notification (RN) when the originator requires an IPN.

### b) Non-Receipt Notification (NRN)

When the high-priority message expires before being read by the recipient. (usually not implemented)

## 2. Report

- To inform the message originator about the outcome of the communication.
- The Report consists of two parts:
  - The Report transfer Envelope; and
  - The Report Transfer content.
- Two types of Report are used in AMHS:
  - Delivery Report (DR)
  - Non delivery report (NDR).
- The AMHS reports shall be delivered only to direct AMHS users.

## 3. Probe

- Is a message without contents (envelope only).
- Probe is initiated at by a UA to find out whether an intended recipient is reachable by the MTS and would accept a user message of specified characteristics.
- It is not delivered to the recipient's User Agent, The MTA serving the intended recipient verifies the specified message characteristics against registered UA parameters, and depending on the verification result returns either a Delivery Report or a Non-Delivery Report.

- The probe is handled and routed by the Message Transfer agent (MTA) just like a message , Failed routing at a transferring MTA (non-reachability) generates a Non-Delivery-Report.
- If the recipient address is an AFTN user , then the MTCU will determine if the address is convertible (XF,CAAS) or not ! If the address is convertible , then the MTCU will return a DR . If not , it will return a NDR.
- A probe check the connectivity if the destination is an AMHS user Agent , but it does not check the connectivity of the destination is an AFTN Station , just indicates successful (potential) conversion to AFTN.
- Only direct AMHS users shall be able to submit AMHS probes.

## ➤ **MHS and AMHS Priority Parameters**

The MHS standard defines a priority parameters which is related to the *Message Transfer System (MTS)* and another at the level of the *Interpersonal Messaging System (IPMS)* .

The (mandatory) ***MTS parameters priority*** indicates the priority at which the originator's UA requests that the message be delivered by the MTS.

Three parameters values are defined :  
***Urgent, Normal , Non-urgent***