SOFTWARE TEAM

SMARTLINK

ESPA 4.4.4 . SmartLink implementation

(v.01 – Oct. 10, 2011)

Document Contents

This document describes how SmartLink complies with ESPA 4.4.4 protocol for messages paging.
These technical specifications refer to the ESPA 4.4.4 protocol definition.
A flowchart and communication examples are provided.

Document Recipients

People that want to receive alarm messages from SmartLink.
People that want to know whitch functions and permances they can expect from this integration.

Document purposes

Give all the information useful to know as well as possible haw SmartLink communicates with telephone systems, messaging and alarm management systems, that use ESPA 4.4.4 as communication protocol.

Document versions

First version

Document name	Version	Date	Author	Approved by
SmartLink – ESPA 4.4.4 implementation	v01	10/10/11	R.Maggioni	R.Maggioni G.Marino

Following versions

Version	Date	Author	Approved by	modifications

Introduction

To send message notifications to PABX, alarm management or other messaging systems, SmartLink uses ESPA 4.4.4 protocol.

The ESPA 4.4.4 protocol is fully supported.

We suppose that the "Control Station" and the "Station" to which send messages are the same system.
This system will have "address"=1 in ESPA records.

Due to the fact that several SmartLink can be installed in the hospital and send messages to the same messaging system, SmartLink will operate as "Station" with "address"=2 to 9 in ESPA records.

Optional Address Extension

To support connection with more than one SmartLink over the same ethernet network, we propose to adopt an "extended address", containing not only the destination address, but also the address of the sender.
In this case, for example, an Enquiry message from the Control Station (Notification Server) to the Station number 3 (SmartLink #3) will be: "31ENQ".

This solution (or any other equivalent solution) must be agreed between Software Team and the PABX or messaging system producer.
Otherwise only the standard "address" will be adopted (one numeric integer character).

Record types classification

SmatyLink manages all the defined record types as follows:

Record type	Data Identifier	Data	Meaning	SmartLink's management
Call address	'1'	max 16 chars	Address of the pager or DECT or phone to which send the message	Alfanumeric field
Display message	'2'	max 128 chars	The message to be displayed	See chapter "Message structure" in this document.
Beep coding	'3'	'0'	Reserved	<not used>
		'1'		one beep
		'2'		two beeps
		'3'		three beeps
		'4'		four beeps
		'5'		one pip (low level alarm)

Record type	Data Identifier	Data	Meaning	SmartLink's management
		'6'		two pips (mid level alarm)
		'7'		three pips (high level alarm)
		'8'		four pips (emergency alarm)
		'9'		<not used>
Call type	'4'	'0'	Reserved	<not used>
		'1'	Reset (cancel) call	to stop message paging
		'2'	Speech call	<not used>
		'3'	Standard call	e.g. message (not "speech")
Number of transmissions	'5'	'0'	Reserved	<not used>
		'1' .. x	Number of transmissions for this message	Number of attempts to page the message
Priority	'6'	'0'	Reserved	<not used>
		'1'	Alarm (Emergency)	Emergency alarm
		'2'	High	high level alarm
		'3'	Normal	mid and low level alarm
Call status	'7'	'0'	Reserved	<not used>
		'1'	Busy	managed
		'2'	In Queue	managed
		'3'	Paged	managed
		'4'	Absent	managed
		'5'	Call terminated	managed
		'6'	AKC from called party	managed
		'7'	Speech channel open	<not used>
		'71'	Speech channel open (paged)	<not used>
		'72'	Speech channel open (absent)	<not used>
		'8'	Fault indication	managed
System status	'8'	'0'	Reserved	<not used>
		'1'	Transmitter failure	managed

<not used> means that SmartLink will not send this record or this data type.
Is SmartLink receives a record or data type <not used>, this record will be accepted and acknowledged, but not processed..

Message structure

SmartLink can build a message embedding the alarm message coming from the patient monitoring system. In this case, all the characters not included in IA5 char set are substituted with "space".

The message structure is built according to the need to support message communication even with phone devices ables only to display a caller ID (15 chars).

To do that, the first 15 chars are the essential part of the message, with the key information to identify service&room&bed and alarm codes or abbreviations.
If this part of the message is shorter than 15 chars, it's filled to the right with spaces.
This first part of the massage can be displayed as "caller ID" if this is the only messaging option available.

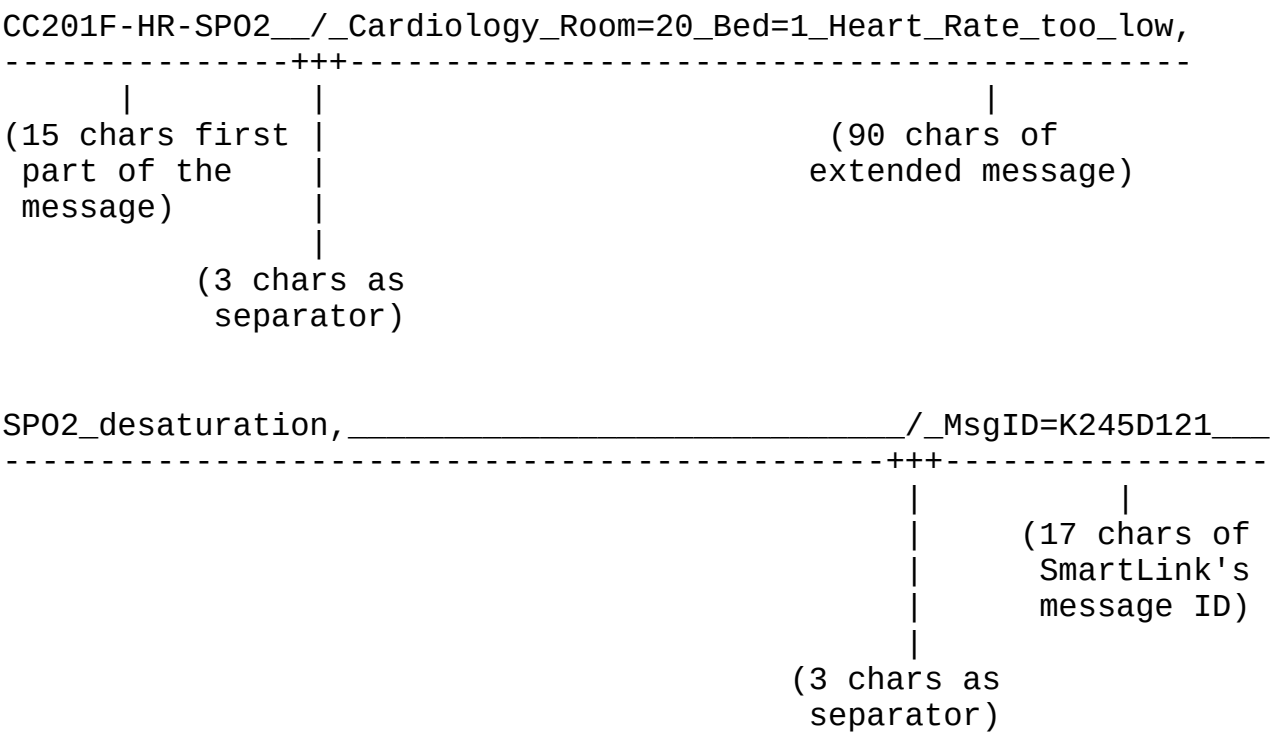
Chars 16,17,18 are the separator string " / " (space, slash, space)

The following 90 chars of the message (from 19 to 108) are the full length message, with a long description of room/bed/patient/alarm.

Chars 109,110,111 are the separator string " / " (space, slash, space)
If this part of the message is shorter than 90 chars, it's filled to the right with spaces.

The last 17 chars of the message (112 to 128) contains the SmartLink's message ID, left justified and filled with spaces to the right.

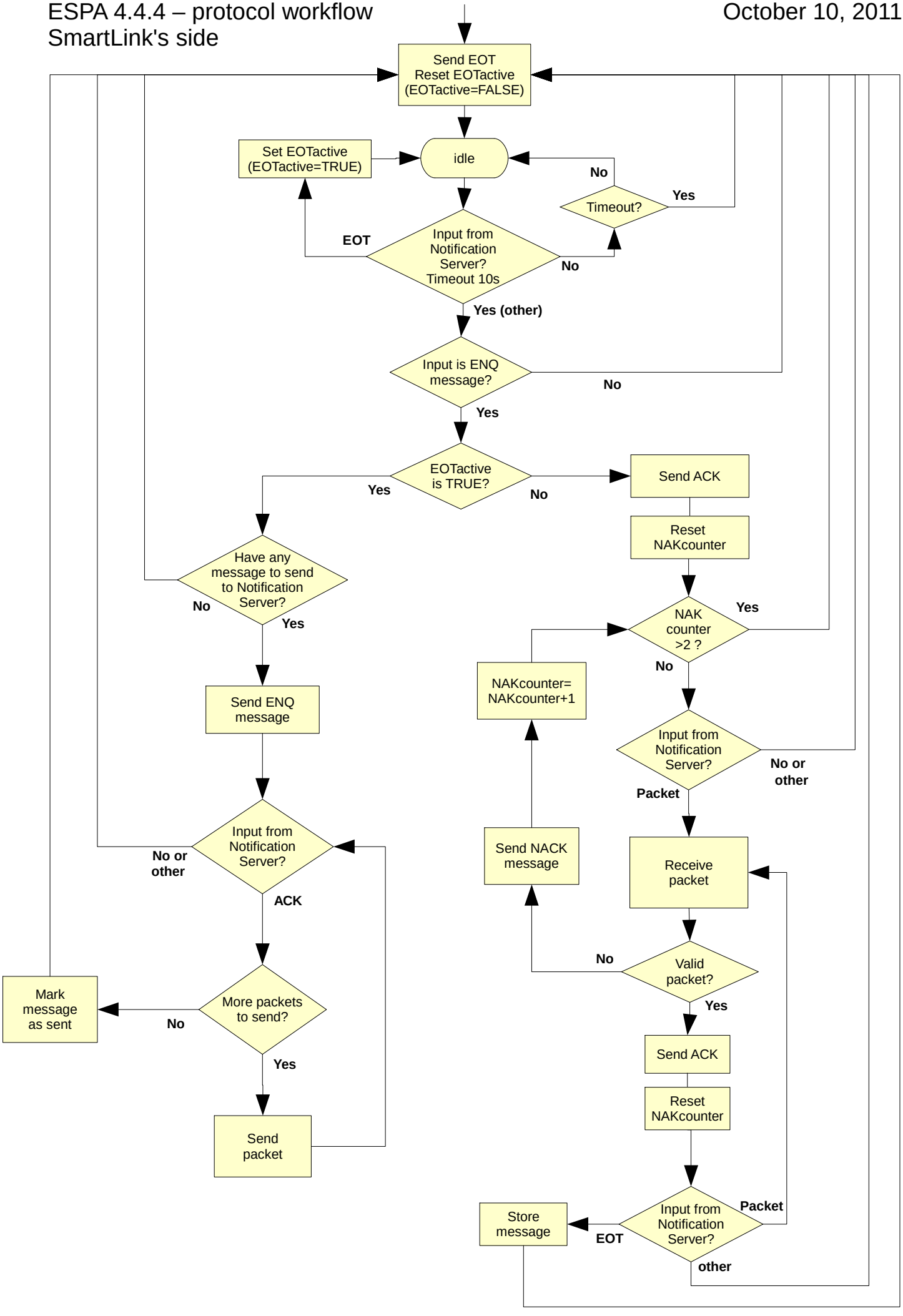
Message example (128 chars):



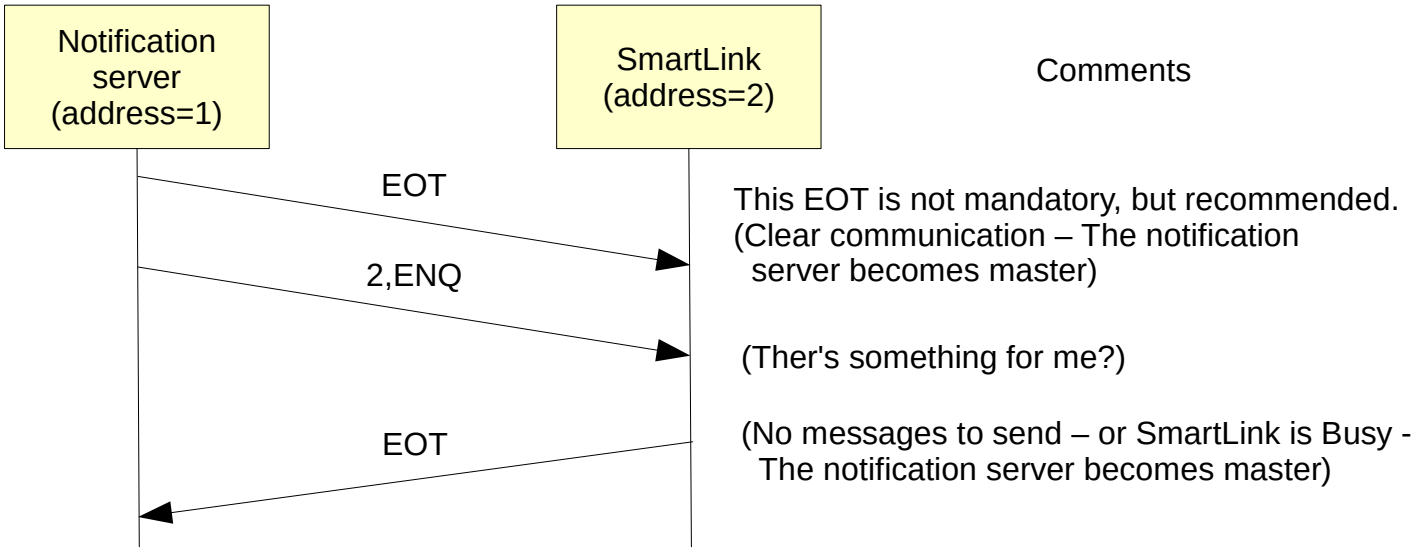
(Note that "_" means <space> and not "underscore").

ESPA 4.4.4 – protocol workflow
SmartLink's side

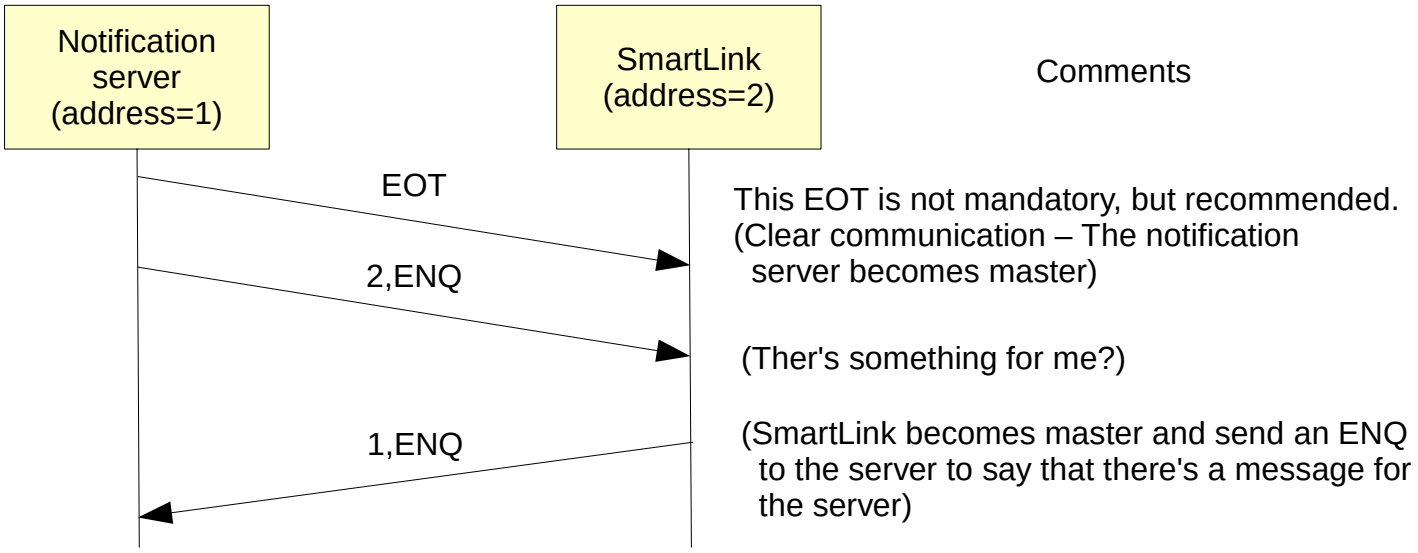
October 10, 2011



1 - Poll and select sequence
(SmartLink has no message to send or it's busy)

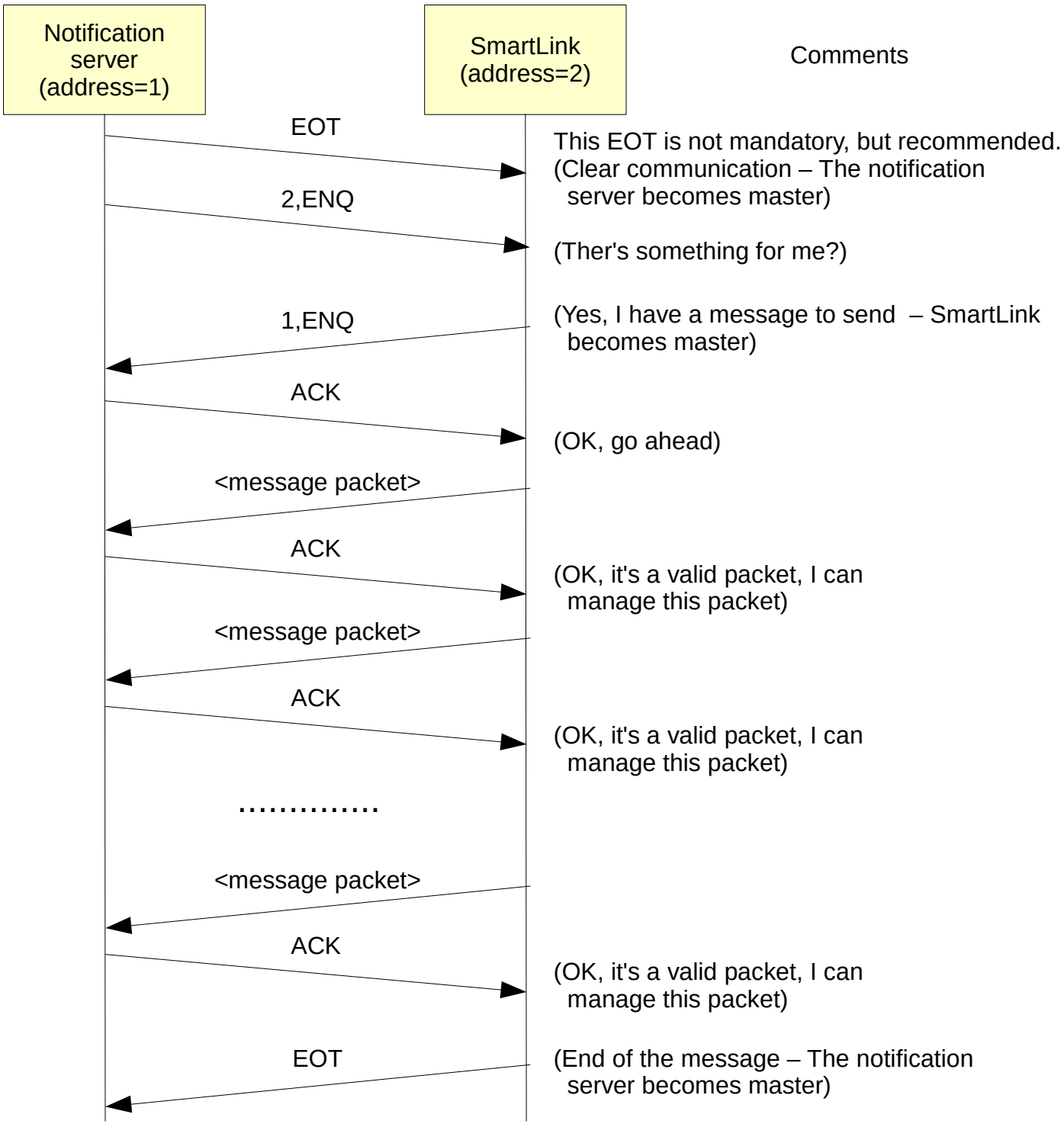


2 - Poll and select sequence
(SmartLink has a message to send to the Notification Server)



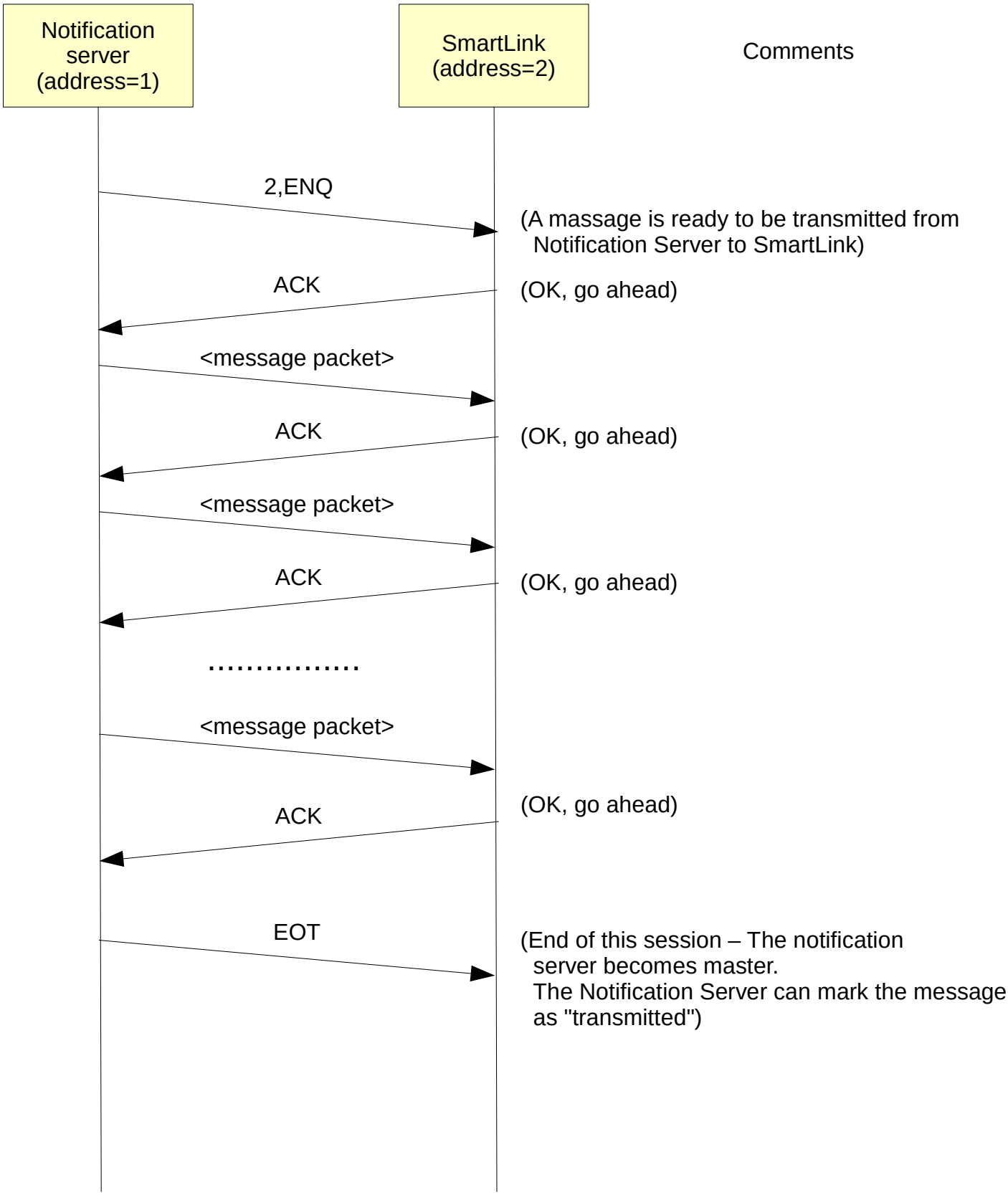
Note: an EOT no matter in which step of the communication and no matter of the sender will end the session and make the Notification Server became the master.

3 - Message transmission from SmartLink to the Notification Server



Note: an EOT no matter in which step of the communication and no matter of the sender will end the session and make the Notification Server became the master.

4 - Message transmission from Notification Server to SmartLink



Note: an EOT no matter in which step of the communication and no matter of the sender will end the session and make the Notification Server became the master.

Contents and Technical Specifications
subject to change without notice



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