3GPP TSG CN Plenary Meeting #12 **Tdoc NP-010332**
Stockholm, Sweden, 13th - 15th June 2001

Source: **CN5**

Title: **Request for approval 'in principle' of a Rel4 CR to 29.198-series for "OSA Return Parameter handling"**

Agenda item: **9.4**

Document for: **DECISION**

Abstract

This document requests an ‘in principle’ decision on replacing the single out parameter for each OSA method with a return type for that method, to ensure that OSA is easy for application developers to implement.
The decision is brought to CN Plenary because it will require significant work to implement this change, even to produce the associated CRs, and a decision needs to be made now rather than in September, in co-ordination with ETSI and Parlay.

1. Introduction

OSA 29.198 series specifications currently use a methodology whereby each IDL method, which returns a value, does so in an out parameter which is part of the parameter list of that method. There is only one out parameter permitted per method, this to comply with restrictions imposed by certain programming languages which will be used to implement OSA, and to permit this out parameter to be mapped to a method return type.

OSA has a return type of TpResult for each method, which is meant to return success/failure information. In fact, failure information will be returned by use of an exception handling mechanism, such as in IDL or Java, and this return type TpResult is redundant and is replaced with void in the OSA IDL descriptions.

This methodology of using out parameters rather than return types, complicates life for programmers who implement OSA, especially if using Java. If OSA is difficult to implement, it will have a reduced acceptance among the application developer community.

2. Proposed Change

CN5 propose that, for each method in the OSA 29.198 specification set, which uses an out-parameter to return a value, this out-parameter is removed, and the method return type is changed to the type of the out-parameter, i.e. the method now returns the value, not the out-parameter.

Example:

signServiceAgreement (serviceToken : in TpServiceToken, agreementText : in TpString, signingAlgorithm : in TpSigningAlgorithm, digitalSignature : out TpStringRef) : TpResult

is changed to

signServiceAgreement (serviceToken : in TpServiceToken, agreementText : in TpString, signingAlgorithm : in TpSigningAlgorithm) : TpString

or, using revision marks:

signServiceAgreement (serviceToken : in TpServiceToken, agreementText : in TpString, signingAlgorithm : in TpSigningAlgorithm~~, digitalSignature : out TpStringRef~~) : ~~TpResult~~TpString

The text description of the method will also be updated to identify what the method returns, i.e. it will include the description of the deleted out-parameter.

3. Consequences of Change

This change will greatly simplify implementation of the OSA APIs. It will remove a significant barrier to acceptance of these APIs among the application developer community, which can only result in greater number of 3rd party applications being written for these APIs. Without this change, there is significant extra programming overhead for implementors and software developers writing applications which use this API.

This change is therefore an essential correction to OSA. It is now realised that the methodology currently used in 29.198 presents a risk to the successful take-up of OSA.

This change is not a backwards compatible change. Therefore it is important that it is done as part of UMTS Release 4. If it is not done for Release 4, it will not be done for Release 5 since this would remove backwards compatibility of OSA Release 5 with OSA Release 4.

This change will not result in the exclusion of any programming language for implementing OSA. This method was originally used by Parlay to ease implementation with certain programming languages which could not handle method return types. However, the consequences now are that implementation is complicated for other, more commonly used, programming languages such as Java. For those lesser used programming languages which cannot handle method return types, a mapping can be made from the return type to an out-parameter mechanism, similar to what is currently in the OSA specification set.

This change has been discussed in the joint 3GPP CN5, SPAN12 and Parlay meetings, and all parties are in agreement as to its necessity. The 3GPP OSA Release 4 specifications, ETSI ES 201 915 specifications and Parlay 3.0 specifications are all aligned, and this alignment will be maintained. Parlay would like to implement this change for their Parlay 3.0 specification, to be delivered in July. It is crucial that CN Plenary accept this change now. Rejection of this change may have a significant impact on the alignment with the Parlay APIs.

4. Timeframe for implementation

This change will require time to implement, since it affects most methods on all the APIs in OSA. Therefore CN5 wish to have agreement in principle from CN Plenary before producing the CRs associated with this change. The CRs themselves will show the detailed changes to each method, which will impact most of 29.198. It is more efficient to implement the changes and present that implementation as the CR.

CN 5 propose that CN Plenary make an in principle decision at CN#12. If the decision is to go ahead with the changes, CN 5 will produce the detailed CRs (implement the changes) by mid July and agree them at CN5 level at their next meeting (week 29). CN5 will then forward them to CN for approval by correspondence during August (timeframe for approval to be set by CN#12 Plenary). Because of CN5's working method (one common UML model used by CN5, ETSI and Parlay, from which the 3 specification sets are generated automatically), it will be significantly more work for CN5 to produce any other CRs for CN#13 based on the version of OSA resulting from CN#12, having already implemented the change requested in this document, rather than basing such other CRs for CN#13 on the implementation of the change requested in this document.