Agenda Item   **: 6.6**
Source   **: NTT DoCoMo**
Title   **: Distributed implementation specific O&M architecture**
Document for   **: Discussion**

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1. Abstract
This contribution brings up a discussion on implementation specific Inter-Node O&M procedures. A new concept called "distributed implementation specific O&M architecture" is introduced.

2. Requirement
It is required that, when a node fails, not only the management system notice the failure, but the counterpart must also notice the failure as quickly as possible. For the counterpart, such situation does not always have to be informed from the management platform but may be noticed autonomously within the RNS.

3. Discussion

Let us consider a case when a Node B fails. In this case, there are two alternatives that the CRNC can be informed about the failure in the underlying Node B.

  (1) Notification from Management system
  (2) Health-check on Iub Interface

Although (1) is an ordinary idea, (2) is also a very attracting idea. Idea (2) is an idea that it is the CRNC that totally manages the conditions of the underlying Node B. This architecture is what we call "distributed implementation specific O&M architecture" with *built-in management sub-platform* in the CRNC.

Idea (2) brings the following benefits:
-    Burdens in the central management platform may be distributed into the CRNC
-    Traffic volume between UTRAN and the management platform is smaller since the CRNC terminates most of the O&M messages; only abnormal results from Node B will be informed to the management platform

To realise the proposed functions, a mechanism to communicate between RNC and NodeB shall be introduced. Either of the following option shall be adopted:
-    An independent transport for implementation specific O&M signalling on Iub interface shall be introduced
-    A transport for Implementation specific O&M on Iub interface will be shared with the transport between NodeB and management platform
-    An implementation specific O&M messages on Iub interface shall be introduced as a subset of NBAP messages

It is out of scope of this contribution which option shall be adopted.

This contribution does not exclude the idea that management platform directly manages individual NodeB. It is up to operators choice how implementation specific O&M architecture is built. One may build distributed architecture, while others may build non-distributed, and some may even mix up both ideas.

4. Proposal

It is proposed to replace section 10.1.1 in TS25.401 with the following sentences.

10.1.1 Implementation Specific O&M

The Implementation Specific O&M functions are heavily dependent on the implementation of Node B, both for its hardware components and for the management of the software components. It needs therefore to be implementation dependent. Implementation specific O&M functions need to be performed between Node B and the management system, or among

NodeB, RNC, and management system Latter case is applicable only if RNC is equipped with implementation specific management sub-system.

This means that the standardisation in 3GPP-TSG-RAN-WG3 should address the *transport* of O&M signalling among the management system, Node B, and RNC. This transport can be performed by a transport mechanism, possibly IP. The transport can be potentially across the RNC, but not necessarily. Between RNC and Node B, dedicated PVCs or SVCs could be used.

It is also proposed that the Figure 14 in TS25.401 chapter 10 be replaced with the following diagram.

Management Platform(s)

| Node B Management Model | RNCRNS Management Model | Node B Management Model | Co-located equipment Management Model |

Co-located equipment

Node B

Implementation specific O&M

Logical O&M

Traffic Functions

I_ub interface

RNC O&M

Node B Implementation Specific O&M Sub-system

Node B Logical O&M

Traffic Functions

RNC

I_ub interface

Node B

Implementation specific O&M

Logical O&M

Traffic Functions