TSG-RAN Working Group 3 (Meeting#5) **TSGR3#6(99) 860**
Sophia Antipolis, FRANCE, 23rd – 27th August 1999

Agenda Item: 16.3

Source: Motorola

Title: Block Resource procedure to support O&M lock and shutdown functionality

Document for: Decision

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1 Introduction

This paper presents updates to the Block Resource procedure in order to support traditional O&M functionality. From the Node B management system, an operator has the ability to lock or shutdown a device, which subsequently may take out Node B logical resources. The loss of logical resources has to be communicated to the CRNC by the Node B via the Block Resource procedure.

Block Resource procedure changes are outlined to show how lock device and shutdown device are supported.

2 Discussion

A relative time field is added to the BLOCK RESOURCE REQUEST message to support the blocking of resources when a lock or shutdown command from the Node B management system impacts logical resources.

When the relative time field is set to a zero (0) value, the management system has indicated an immediate need to get some equipment out of service (i.e., lock). The CRNC should transfer all existing calls off the logical resource impacted.

When the relative time field is set to a non-zero value, the management system has indicated that some equipment should cease to be used (i.e., shutdown). The CRNC should not allow any new calls on the impacted resource but wait for the calls on the impacted resource to transfer or complete in the time permitted.

2.1 Block Resource Request message contents (section 8.1.2.1 [1])

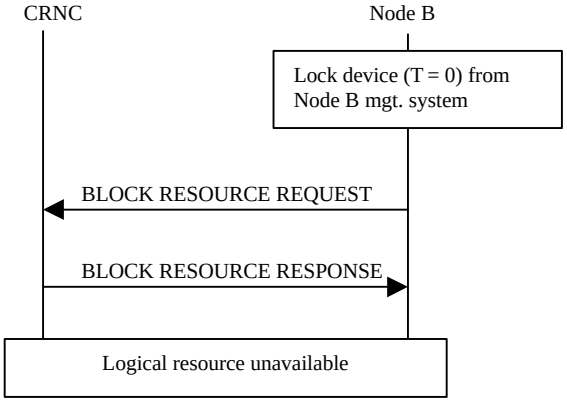
The BLOCK RESOURCE REQUEST message contains the following information:

- Cell Id (allows the Node B to block a resource in the correct cell where a Node B supports multiple cells)
- Resource Identifier (e.g. resource type and identifier)
- ~~Priority Indicator (enables the Node B to request an immediate block instead of allowing the RNC the option to suspend) – definition FFS~~
- Relative Time (in seconds)
- Transaction Id (identifies the procedure)

2.2 Lock device scenario

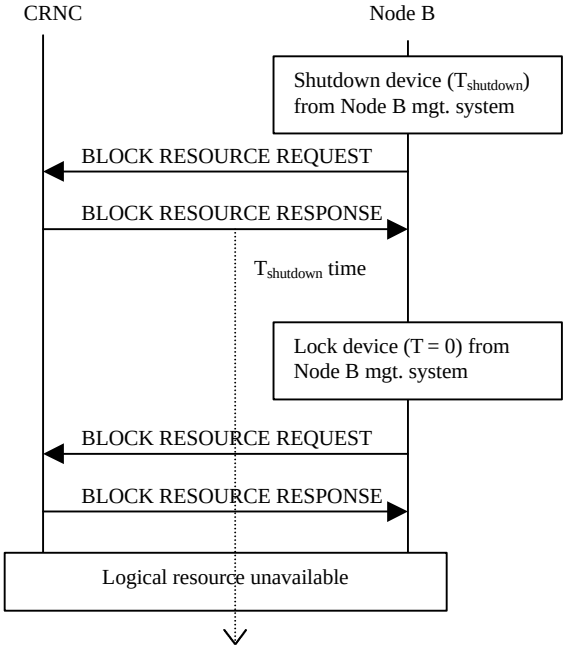
The Block Resource procedure is used when a lock device command initiated from the Node B management system makes unavailable logical resources at the Node B
The following is true about the BLOCK RESOURCE REQUEST message:

- Relative time is set to 0 seconds



2.3 Lock overriding shutdown state scenario

A Block Resource procedure previously executed for shutdown of a device supporting a logical resource may be overridden by a subsequent Block Resource procedure for lock of the same device . In this scenario, an operator originally initiated a shutdown of a device supporting a logical resource (device state = shutting down) and has followed with a lock command for the same device (device state = lock).

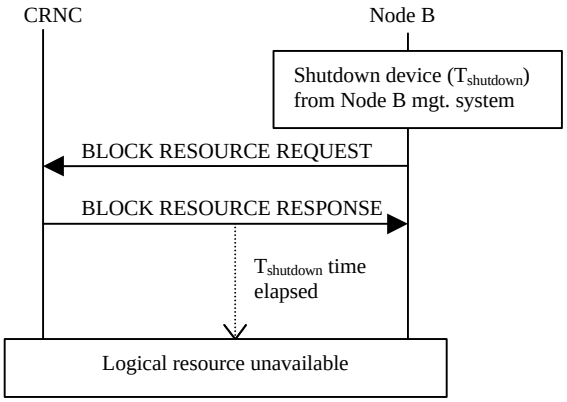


2.4 Transition from shutting down to lock state scenario (timer expiry)

The Block Resource procedure is used when a shutdown device command initiated from the Node B management system makes unavailable logical resources at the Node B at a future time. In this scenario, the operator indicates that the device supporting the logical resource will become unavailable in $T_{shutdown}$ seconds.
The following is true about the BLOCK RESOURCE REQUEST message:

- Relative time is set to $T_{shutdown}$ seconds

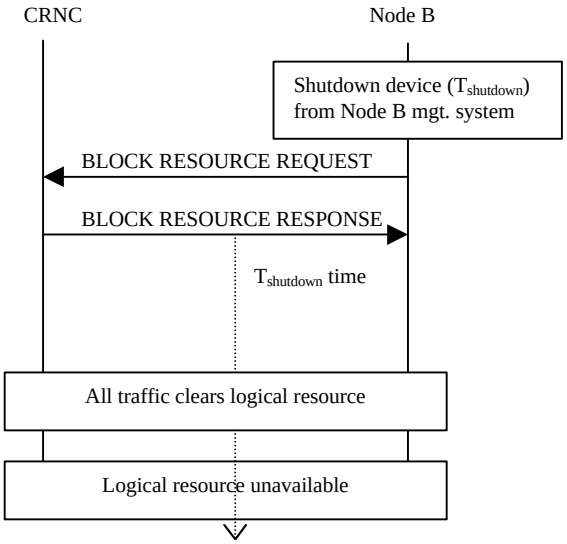
Both the CRNC and Node B know to mark the logical resource unavailable when the relative timer has elapsed. The underlying device is now considered in the locked state.



2.5 Transition from shutting down to lock state scenario

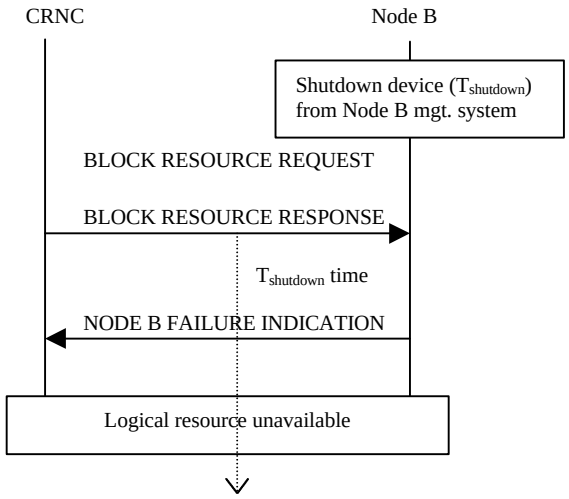
After a Block Resource procedure has been initiated for shutdown, the device shutting down may then transition to the lock state when the last user has quit the logical resource supported by the shutting down device. In this case, all traffic on the logical resource has moved off before the relative timer has expired.

Both the CRNC and Node B implicitly know to mark the logical resource unavailable as both nodes are aware as to when no traffic is present on the logical resource. The underlying device is now considered in the locked state.



2.6 Transition from shutting down to disabled state scenario

After a Block Resource procedure has been initiated for shutdown, the device shutting down may then transition to the disabled state if the device at the Node B has experienced some sort of failure. In this case, the Node B Failure procedure overrides the current shutdown to indicate that the underlying device is disabled and the associated logical resource unavailable.



3 Proposal

The following changes to TS 25.433 [1] are proposed –

1. Update section 8.1.2.1 with the contents of Section 2.1
2. Include in section 8.1.2.1 the contents of Section 2.2 through 2.6 to clarify the use of Block Resource for lock and shutdown scenarios

4 References

[1] 3GPP TS 25.433 - NBAP Specification v1.1.1