FORUM NOKIA

Guidelines for CIMD Application Development

Version 1.0; January 09, 2003

Messaging

NOKIA

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Change History

09 January 2003	V1.0	Document published in Forum Nokia.

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1 Introduction

The following document presents guidelines for external applications with Nokia Short Message Service Center (SMSC). It only addresses CIMD2 applications.

2 General Instructions

1. SMSC prefers applications of persistent connection to the SMSC. Maximum performance is gained if all applications remain connected at all times. Applications should be able to reconnect if the connection between SMSC and the external application is broken.

2. If numerous applications are competing for capacity, provisioning CIMD2 Application Capacity Control (CACC) will assist in providing maximum throughput in the Application Originated (AO) direction. It is beneficial to provision CACC in any case, because it helps even out large bursts from push applications.

3. Status reports eat into the total capacity of applications and have a tendency to accumulate in the database. Hence status reports are disabled whenever they are not required.

4. To keep the SM cache size under control as well as to enable a kind of real-time performance in an Application Terminated (AT) direction, the CIMD Application Terminated Overload Control (CATOC) feature should be enabled.

5. In the case of dedicated servers for application traffic, the servers could be tuned to enable maximum throughput.

3 Persistent Applications

Application Server Engine (ASE) supports a stable set of 800 applications if they are of a persistently connected type. This means that applications connect and stay online for a minimum of an hour.

Below are general instructions for permanently connected applications when the number exceeds 100.

1. With respect to the alive packet frequency of the application, applications can flood the system with alive packets etc. once every second, although once every minute is required. It is necessary to check this flooding scenario before accepting an application into the system.

2. In the case of a login attempt, applications are required to wait for the login response from the ASE for at least one minute. Applications that don't follow this rule can overload the

system by retrying to connect while SMSC is still processing the first request. In a cluster environment when one node fails and all the applications are immediately trying to reconnect, SMSC is busy processing requests from all applications and the response time may be long.

3. When a login attempt has failed, an application is supposed to wait for a period of >30 seconds before it reconnects. This eases the SMSC load on critical failure conditions (e.g., node failures) when all applications are trying to connect at the same time.

4. SMSC's sm_res table size should be monitored. Applications that enable status report requests should make sure that they receive and acknowledge the status reports. Otherwise, there may be a pileup of status reports in the SMSC database (DB), which may deteriorate the performance of the message poller, affecting the application interface as well.

5. A high value of "session hangout time," e.g., >2 minutes, is necessary in user profile files for applications of the permanently connecting type. This helps ease congestion when a number of applications are trying to reconnect.

4 Frequently Connecting and Disconnecting Applications

ASE supports a maximum of 400 applications if the applications are of types such as frequently connecting and disconnecting applications. SMSC doesn't encourage these kinds of applications because the frequent connection and disconnection are by themselves an unnecessary burden on the system. The following issues are especially important.

1. The applications request message count from ASE, which really loads the DB and thus reduces the performance of the message poller.

2. In a cluster environment, it is unwise to load individual systems to maximum capacity in terms of the number of applications, because in case of node failures all the applications migrate to the existing machine, which overloads it heavily.

3. If there are numerous send-only applications that connect and disconnect frequently, it is advised to put "session hangout time=0" in the corresponding user profile files. This action guarantees proper cleanup of the internal resources inside SMSC after numerous connection and disconnection operations.

5 Terms and Abbreviations

Term or Abbreviation	Description
CIMD	Computer Interface to Message Distribution.
SMSC	Short Message Service Center.
CACC	Capacity Control
AO	Application Originated
AT	Application Terminated
CATOC	CIMD Application Terminated Overload Control
ASE	Application Server Engine
DB	Database

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