3GPP TSG-CT Meeting #28 **CP-050171**
1st – 3rd June 2005. Quebec, CANADA.

Source: **NTT DoCoMo, Inc.**

Title: **Implementation of Domain Specific Access Control within Rel-5 UEs**

Agenda Item: **6.1.2**

Document for: **Discussion**

1. Introduction

Within the work item of Access Class Barring and Overload protection (ACBOP), 3GPP studied Domain Specific Access Control (DSAC) and completed its stage 3 specification as a Rel-6 functionality. DSAC enables operators to apply access class barring to a specific domain (CS or PS). One of its major use cases is to allow subscribers to access emergency and safety information via the PS domain while their access to the CS domain is blocked in the event of natural disasters. When a large-scale disaster occurs, the degree of packet traffic congestion is generally lower than that of voice communications. Thus, it is effective to control the packet communications independently to CS voice communications for the purpose of attaining a higher rate of completion for messaging and web access.

In this contribution we propose that TSG-CT consider and recommend to TSG-SA so that specification work within TSG-CT and TSG-RAN is undertaken to enable implementation of DSAC in a Release 5 UE as an optional feature. At first we explain how urgent the introduction of DSAC is requested in Japan and how effective DSAC is in a live network to show the reason behind our proposal. Secondly we show the current status of RAN2/CT1 discussion and issues involved.

2. Discussion

2.1 Situation of mobile operators in Japan

The Ministry of Public Management, Home Affairs, Posts and Telecommunication (MPHPT) in July 2003 released a report from the "Study Group for Ensuring Important Telecommunications in the Telecommunications Business" recommending measures for ensuring important telecommunications. Since then, considering the earthquake off the coast of Miyagi Prefecture in May 2003 in which extreme congestion of mobile communication was witnessed, MPHPT has been compiling urgent measures to be adopted by telecommunications carriers.

In line with the recommendations, telecommunications carriers have been introducing countermeasures against disasters, for ensuring important telecommunications through individual and/or concerted efforts. For Instance, Japanese mobile operators have been introducing or developing functions for enabling independent communications control on voice and packets on a separate basis. NTT DoCoMo has already introduced the functions in PDC network in 2004 and it is understood that 3GPP2 networks in Japan will provide this functionality in 2005. Since the number of WCDMA subscribers in Japan has surpassed 12 million and continues to rise sharply[1], providing the DSAC function for WCDMA networks is urgently required.

2.2 Effectiveness of DSAC

The figure 1 in the annex shows the traffic measured at base stations in the live PDC network in Niigata Chubu area when the area was flooded in July 2004. The effectiveness of DSAC can be seen in that PS communication can be maintained and controlled while voice traffic is barred. The figure 2 in the annex shows the map of large earthquakes in Japan from 1996 to 2004. According to the statistics by Japan Meteorological Agency, over the last 10 years on average there is one earthquake per month whose JMA Seismic Intensity Scale (http://www.kishou.go.jp/know/shindo/explane.html) is more than or equal to level 5. Since the effectiveness of DSAC

[1] current rate of growth for WCDMA services in Japan is over 1 million subscribers per month

and the emergency services based on it are proven to be very helpful, we would like to provide DSAC for our WCDMA subscribers as soon as possible.

2.3 Status of RAN2 discussion and issues

RAN2 has already discussed this issue technically in the previous two meetings and the current status is shown below.

1) TSG-SA should decide if implementation of DSAC within Rel-5 UEs is allowed

2) From RAN2's perspective it is technically possible to implement DSAC without Network sharing within Rel-5 UEs

3) Provided that implementation of DSAC within Rel-5 UEs is allowed, RAN2 agreed on having a TR to document the implementation of DSAC within Rel-5 UEs and ensuring ASN.1 backward compatibility.

Although RAN2 has yet to study the TR content, we believe that RAN2 can quickly agree on its content in coordination with CT1, and complete the necessary specification work for the implementation of DSAC in a Release 5 UE as an optional feature.

2.4 Status of CT1 discussion and issues

Implementation of DSAC within Rel-5 UEs was introduced in the last CT1#38 meeting and the current status is summarized below.

1) TSG-SA should decide if implementation of DSAC within Rel-5 UEs is allowed

2) Provided that implementation of DSAC in Release 5 UEs as optional feature is allowed, the technical issues involved must be identified

3) From CT1’s perspective, a separate TR for each candidate feature could be considered as a way to document early implementation.

A thorough study on the implementation of DSAC within Rel-5 UEs is yet to be complete in CT1, but we believe it is technically feasible and there are no further complexities involved. As also indicated in section 2.3, we believe CT1 can coordinate with RAN2 and quickly complete the necessary specification work for the implementation of DSAC in a Release 5 UE as an optional feature.

3. Proposal

3.1 Recommendations to TSG-CT

Considering the content of section 2 of this contribution (in particular 2.1, 2.2 & 2.3), it is recommended that TSG-CT plenary consider the issues involved in the implementation of DSAC within REL-5 UEs and recommend to TSG-SA that the necessary specification work be undertaken within TSG-CT.

Annex

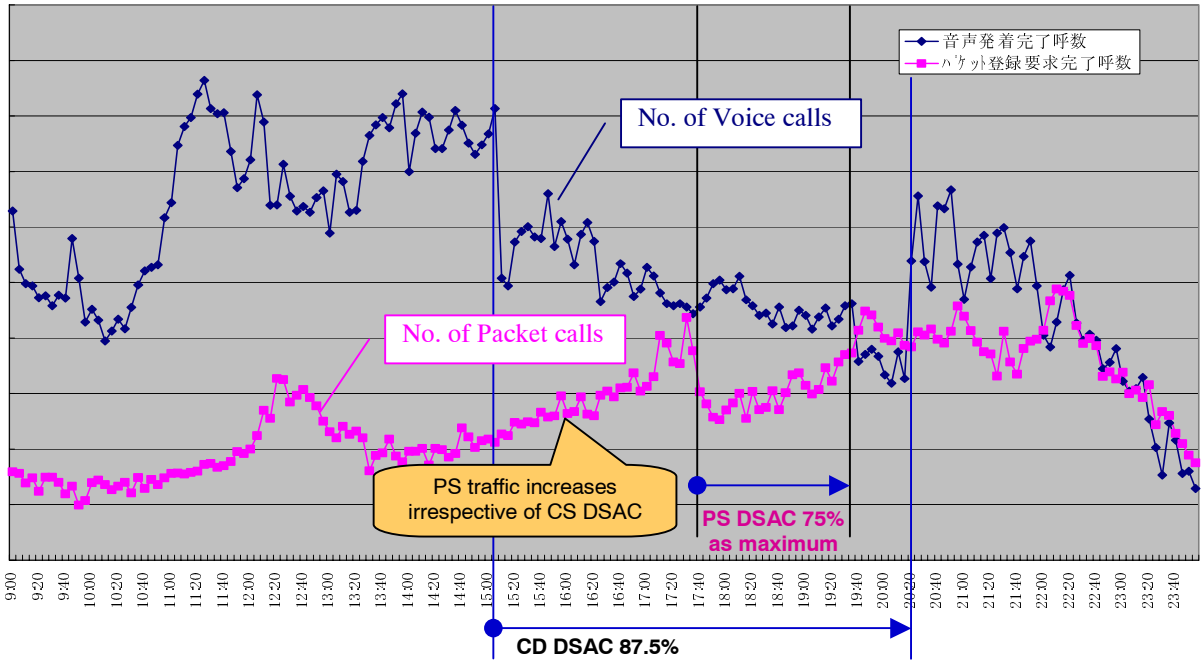

Figure 1 CS and PS number of calls measured at base stations when CS/PS DSAC is applied

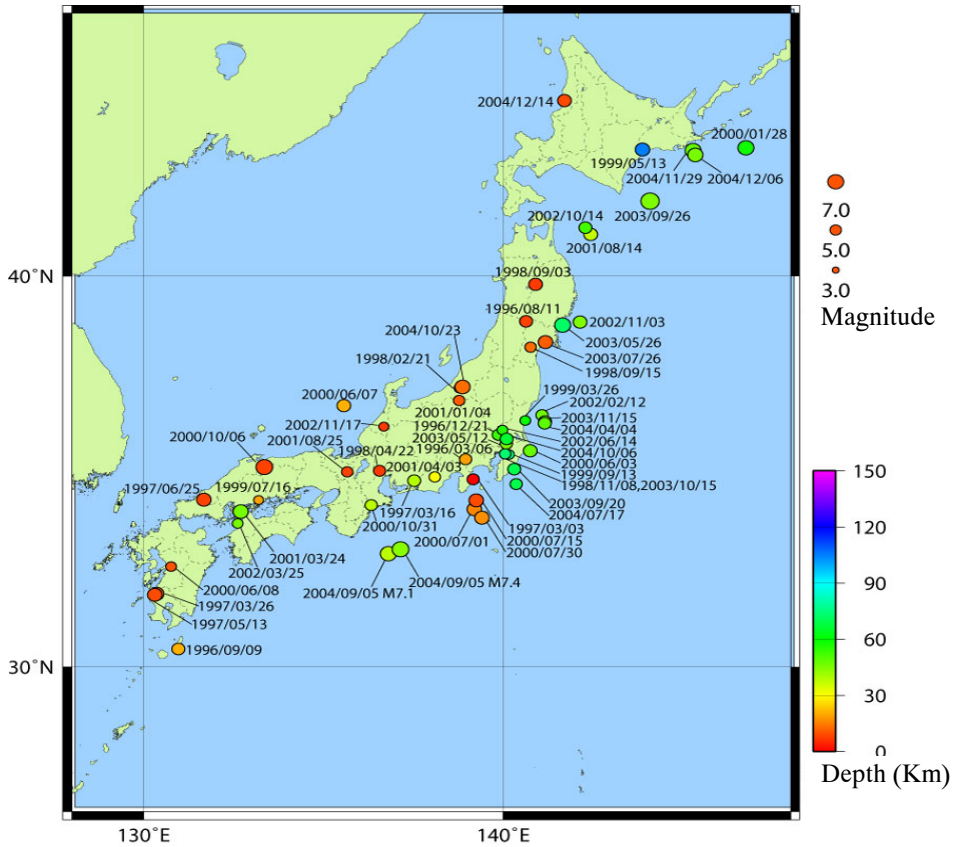

Figure 2 Map of large earthquakes which caused human/infrastructure damage from 1996 to 2004
(quoted from the Japan Meteorological Agency URL: http://www.seisvol.kishou.go.jp/eq/higai/higai1996-new.html)

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Quebec, Canada, 1st-3rd June, 2005

Tdoc CP-050171

Slides : Implementation of Domain Specific Access Control (DSAC) within Release 5 UEs

NTT DoCoMo Inc.

Background and Motivation

- In line with the recommendation from Japanese national agency for ensuring urgent messaging and important telecommunication under extreme circumstances, mobile operators in Japan have been developing functions to control packet communications independently to CS voice. DSAC introduced in 3GPP Rel6 spec is essential for providing such functions.

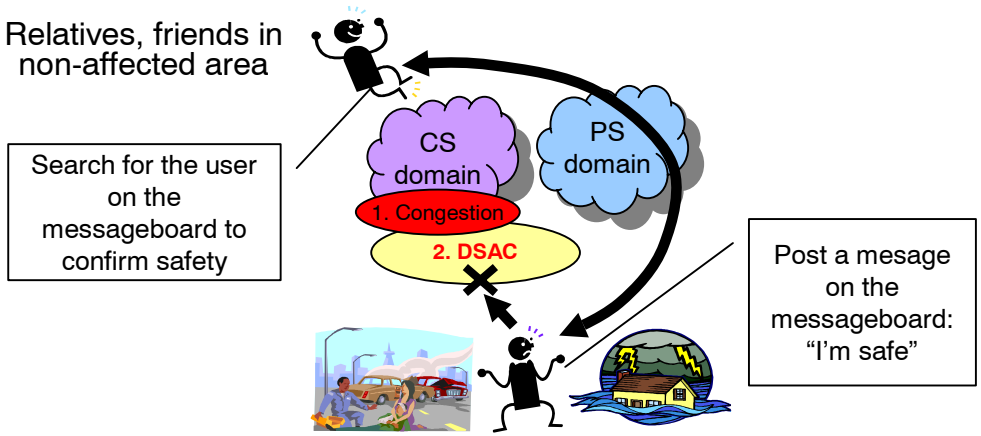
- NTT DoCoMo has already introduced the functions in our PDC (2G) network in 2004 which has proved to be extremely helpful.

- It is urgently required to also provide the functions for 12 million plus WCDMA subscribers

Usecase

- DSAC and Its Major use case

  DSAC (introduced in Rel-6) enables operators to apply access class barring to a specific domain (CS or PS). So in the extreme conditions such as a large-scale earthquake, it allows subscribers to access emergency and safety information via the PS domain while their access to the CS domain is blocked



Current status in 3GPP

- CT1 and RAN2 agrees that decision on DSAC implementation within REL-5 UEs should be taken by TSG-SA
- If TSG-SA agrees, a thorough technical study on the early implementaion of DSAC needs to be completed in CT1
- From RAN2 perspective, it is technically possible to implement DSAC and Network sharing separately within REL-5 UEs
- A new TR considered as a way to document the early support of DSAC in Rel-5 UEs

Proposals to TSGs

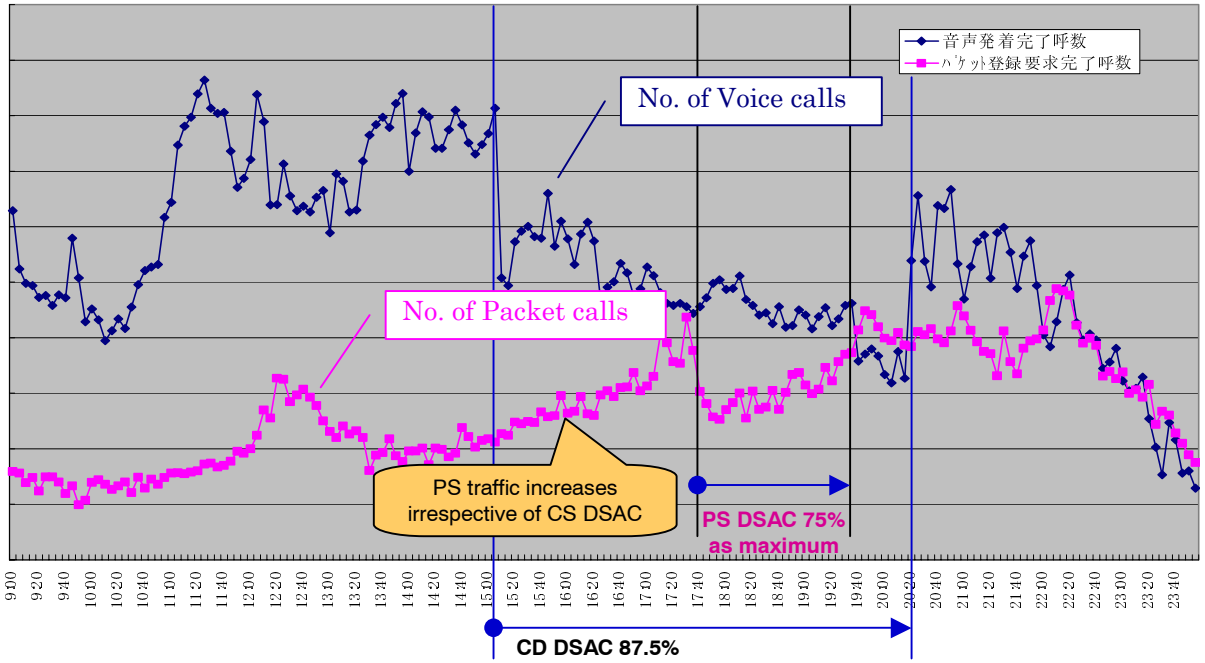
- Recommendations to TSG-RAN
  Consider the issues involved and recommend to TSG-SA that the necessary specification work be undertaken within TSG-RAN to enable implementation of DSAC in a Release 5 UE as an optional feature.

- Recommendations to TSG-CT
  Consider the issues involved and recommend to TSG-SA that the necessary specification work be undertaken within TSG-CT to enable implementation of DSAC in a Release 5 UE as an optional feature.

- Recommendations to TSG-SA
  Consider the issues involved and request TSG-RAN and TSG-CT to undertake the necessary stage 3 specification work to enable implementation of DSAC in a Release 5 UE as an optional feature. Furthermore, due to the urgent need for this functionality to be made commercially available, especially within the Japanese market, TSG-SA should request that this work be completed by the next round of TSG meetings (i.e. September 2005).

Backup Slides 1

- Effectiveness of DSAC



CS and PS number of calls measured at base stations when CS/PS DSAC is applied after a large scale Niigata Chubu flooding in 2004

Backup Slides 2

- Earthquake statistics in Japan

Date	Mag.	Location	Casualties	Main physical damage	Maximum earthquake intensity (Japanese scale)	Tsunami
2000/06/03	6.1	Northern part of Chiba Prefecture	1 injured	30 buildings damaged	Weak 5	
2000/06/07	6.2	Off the west coast of Ishikawa Prefecture	3 injured	1 building damaged	Weak 5	
2000/07/01	6.5	Adjacent water of Niijima and Kozushima	1 dead	15 buildings damaged	Weak 6	7 cm
2000/07/15	6.3	Adjacent water of Niijima and Kozushima	14 injured	7 buildings half destroyed	Weak 6	7 cm
2000/10/06	7.3	Western part of Tottori Prefecture (named The 2000 Western Tottori Earthquake)	182 injured	435 buildings completely destroyed, and 3,101 buildings half destroyed	Strong 6	
2001/01/04	5.3	Chuetsu District of Niigata Prefecture	2 injured	607 buildings damaged	Weak 5	
2001/03/24	6.7	Akinada (named The 2001 Geiyo Earthquake)	2 dead, 288 injured	70 buildings completely destroyed, and 774 buildings half destroyed	Weak 6	
2001/04/03	5.3	Central part of Shizuoka Prefecture	8 injured	80 buildings damaged	Strong 5	
2003/05/26	7.1	Off the coast of Miyagi Prefecture	174 injured	2 buildings completely destroyed, and 21 buildings half destroyed	Weak 6	
2003/07/26	6.4	Northern part of Miyagi Prefecture	677 injured	1276 buildings completely destroyed, and 3809 buildings half destroyed	Strong 6	
2003/09/26	8	Off the coast of Kushiro City (named The 2003Tokachi-Oki Earthquake)	2 missing, 849 injured	116 buildings completely destroyed, and 368 buildings half destroyed	Weak 6	255 cm
2004/09/05	7.4	Off the coast of the Tokaido region	36 injured	2 buildings damaged	Weak 5	93 cm
2004/10/23	6.8	Chuetsu District of Niigata Prefecture (named The 2004 Niigata Chuetsu Earthquake)	40 dead, 4,574 injured	2,867 buildings completely destroyed, and 11,122 buildings half destroyed	7	
2004/11/29	7.1	Off the coast of Kushiro City	51 injured	3 buildings damaged	Strong 5	13 cm
2004/12/06	6.9	Off the southeast coast of the Nenuro Peninsula	12 injured	School building partially damaged	Strong 5	
2004/12/14	6.1	Southern part of Rumoi-shicho	8 injured	Outer walls of buildings damaged	Strong 5	

Quoted and translated from the Japan meteorological agency statistics: http://www.seisvol.kishou.go.jp/eq/higai/higai1996-new.html

Backup Slides 3

- Damage caused by Earthquakes

1－1－5図　神戸港被災写真（六甲アイランド地区）

1－1－4図　鉄道施設被災写真（山陽新幹線：西宮市）

Infrastructure damage caused by Hanshin Earthquake in 1995

Quoted from Ministry of Land Infrastructure and Transport Web page: http://www.mlit.go.jp/hakusyo/transport/heisei07/7PICTTOC.HTM