

(GTP):

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Game Transport Protocol (GTP): New Transport Protocol for Efficient Transmission of Game Event Data

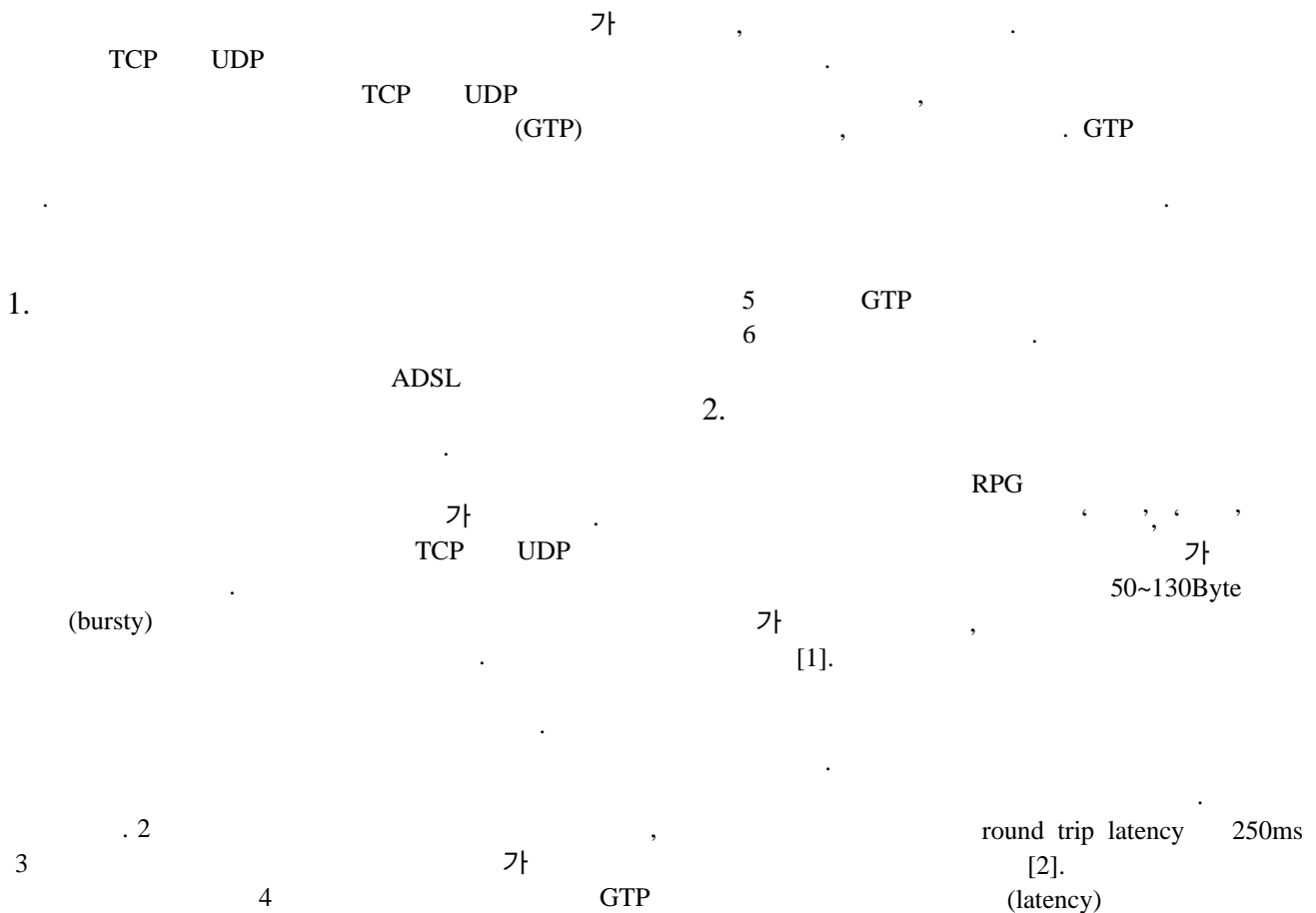
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**Electronics and Telecommunications Research Institute

***Taff system

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(flow control)

RTP 가 . RTP
 UDP
 Time Stamp
 [5]. RTP
 RTP
 UDP
 (Best
 Effort Service) RTP

3.

3.4.

Reliable UDP [6], Improved UDP [7]
 UDP

3.1. TCP (Transmission Control Protocol)

TCP[3] (end-to-end)

가

가

가 [4]. TCP 가
 (Congestion)

Slow

Start, Congestion Avoidance, Fast Retransmission

가

GTP

4. GTP (Game Transport Protocol)

GTP

IP

TCP 가
 가

가

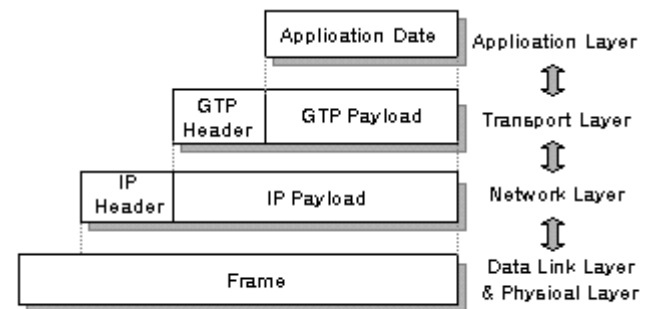
TCP

3.2. UDP (User Datagram Protocol)

UDP

UDP

UDP

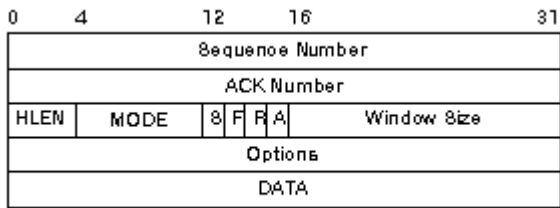


[그림 1] GTP Protocol Stack

4.1. GTP

[2] GTP
 Option 가 . GTP

3.3. RTP (Realtime Transport Protocol)



[그림 2] GTP 패킷 구조

Sequence Number ACK Number

HLEN 가 MODE

4 가 Window

size 가 S, F, R, A

S(SYN): SYN

F(FIN):

R(RST): RESET

A(ACK): ACK

4.1 (Retransmission)

GTP

GTP ACK

ACK 가 (Timeout)

ACK 3 ACK

GTP

4.2. (Packet-Based Window)

GTP

TCP

가 GTP

GTP 가 , GTP Rate Control

4.3. (Buffer Management)

GTP

(out of order)

(Double Linked

List)

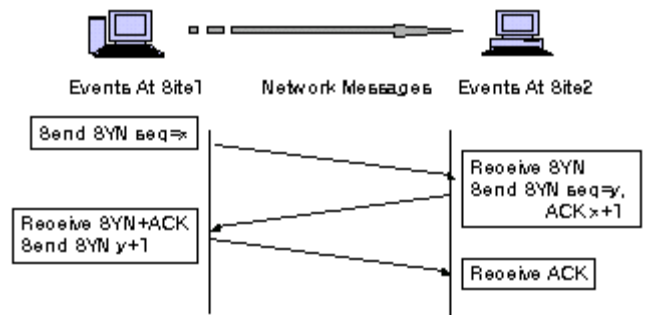
4.4. (Connection Oriented)

Sliding Window

GTP

(Connection-Oriented)

GTP TCP Three-way handshake [3]



[그림 3] Connection Establishment

flag 가 SYN

ACK (ACK SYN

.)

(Half connection)

(Duplex connection)

GTP

GTP API

(Feed-back)

4.5. (Multi Mode Control)

GTP

SYN MODE

GTP 가 가 가

가

Mode 1:
Mode 2:

ACK

[5]

4.6. GTP

(State Diagram)

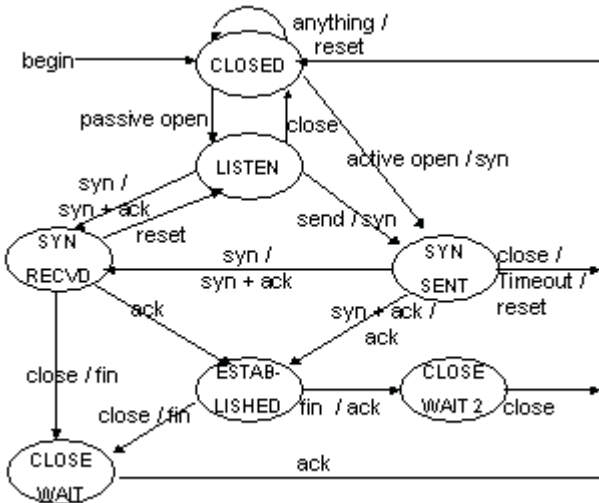
TCP

가

TCP

GTP

TCP



[그림 4] GTP Finite State Machine

5. GTP

5.1.

GTP

MFC

2

5.2.

GTP

IP

API

UDP

GTP

GTP

TCP

(Winsock)

TCP

(Blocking)

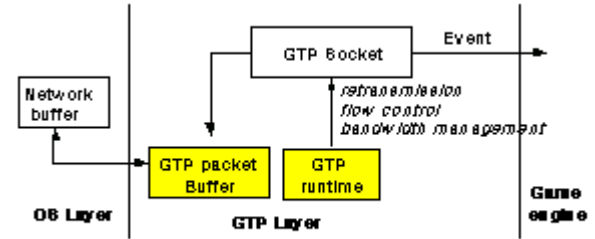
(Asynchronous)

API

DLL

5.3.

GTP ETRI 가
3D ”



[그림 5] 시스템 구성도

GTP

6.

TCP

UDP

가

GTP

GTP

GTP

UDP

GTP

TCP

Friendly Rate Control

2001

21

가

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