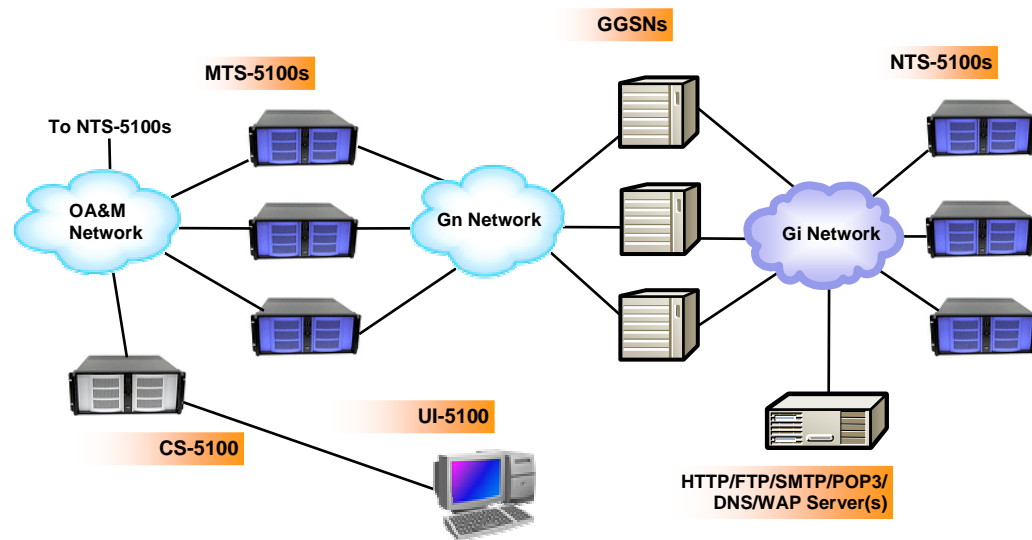


The Torrent 5100 GTP Protocol Stack

Overview

The Torrent 5100 GPRS Tunneling protocol stack is a high performance, field tested GTP implementation. It is C++ based, runs on Linux, and is used in both the MTS-5100 (SGSN) and the GS-5100 (GGSN) simulators associated with the Torrent 5100 GTS:



The Torrent 5100 GTP Stack is single threaded, highly reliable, and is designed to link seamlessly into Linux based applications such as GGSNs, SGSNs, and CGSNs. It features a simple C++ API and requires only light coupling between it and the application(s) using it. Furthermore its single threaded architecture allows encompassing applications to also be single threaded for simplicity and reliability.

Specifications

Conformance

The GS-5100 conforms to a number of IP related RFCs, but the primary specifications it embodies are:

- GTP R99 (3GPP 29.060)
- GTP R97 (ETSI GSM 9.60)

Supported Procedures

Some of the procedures supported by the GTP stack are as follows:

Context Activation

Multiple Primary / Multiple Secondary

Context Modification

Full update support

(QoS/TFT changes)

Full IRAU support including fall back & fall forward.

Context Deactivation

Individual context deletion or

teardown based deletion of a

bundle of contexts.

GGSN initiated deletions

Path Management

Full path management support on both control and bearer planes, including path failure notifications to the application.

User Data

Full support for uplink and downlink user data, as per spec.

PDU Types

The GTP stack supports the following PDU types:

IP
PPP

Performance

The following nominal performance figures characterize the GTP stack on a 64-bit Athlon 3500 based system:

Activation Rate:	40,000 contexts/sec
Deactivation Rate:	40,000 contexts/sec
Update Rate:	30,000 contexts/sec
Max Bandwidth:	200Mbps+

These figures are obviously dependent on the application's implementation, which in the preceding case is the Torrent 5100 GTS.

Capacity

As a reference, when used within the Torrent 5100 GTS, the protocol stack supports 1M+ contexts on a system with 2GB of RAM. A mobile may have up to 10 secondary contexts or up to 7 primary contexts established at any one time.

Configuration

The GTP stack is configured simply by using a text file to specify parameters such as which interfaces to use, T3, N3, which GTP version to default to, etc.

Statistics

The GTP stack features extensive statistics that may be incorporated with ease into a larger encompassing OA&M system. Further information on statistics is available in the Torrent 5100 GTS literature.

Framework

The GTP stack comes complete with its own base framework that includes numerous facilities such as log(n) scalable timers, collections, an event manager, message codecs and a general framework from which a versatile application can be built. For maximum flexibility and in order to impose as few constraints as possible on the application, only selected portions of this framework need be used.

Management

The preceding framework also features a hierarchical Command Line Interface (CLI) facility that may be optionally enabled and used to control both the GTP stack (e.g. to dynamically enable message tracing), or the user application itself as desired.

Limitations

R99 traffic filtering based on Traffic Flow Templates (TFTs) is not currently supported on the data plane, and neither is DSCP marking, at present.

Availability

The Version 2.0 of the Torrent GTP stack will be generally available in August of 2006 (currently, it is only available as a part of the Torrent 5100 GTS).

About Mobile Metrics

Mobile Metrics is a specialized company that focuses exclusively on wireless data test systems, with a specific focus on realistic traffic generation.

At Mobile Metrics, our mission is to help make you successful by providing the most advanced and innovative test systems possible. Beyond our focus on technology is our focus on you, your needs and your goals. From the first consultation to the latest phone call for help, you'll see how a specialized partner can make a difference in your wireless data testing.

Our company grew out of decades of experience in wireless data equipment design and testing. We understand your challenges, since we've been in your shoes. Let our passion for wireless data excellence help take your product and your team to a new level of performance.

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