

## The Third Generation Difference

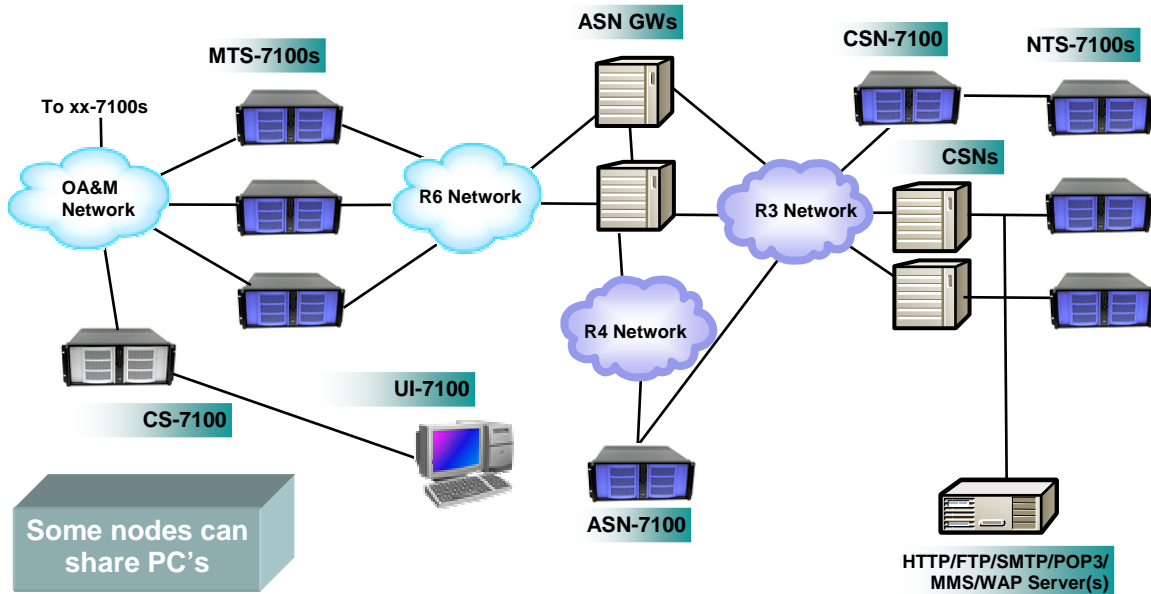
The Torrent 7100 WTS is an original – the first-ever WiMAX test tool for ASN Gateways, CSNs and convergence nodes. It's another of our Third Generation wireless data test systems. But what does that mean, and what difference can it make in your lab, your team and your product?

First generation test systems were essentially simple packet blasters. As the industry matured, second generation systems became available which featured stateful transactional mobile traffic. In 2005, Mobile Metrics introduced Torrent 5100 GTS as the first in the new Third Generation class of products, setting a new standard for precise mobile simulation, programmable flexibility, torrential power and sensible, easy-to-use control. Now, Torrent 7100 WTS follows in the same tradition.

The following picture compares the generations of wireless data systems:

Commercial tools		Mobile Metrics' tools
In-house tools		
1 <sup>st</sup> Generation	2 <sup>nd</sup> Generation	3 <sup>rd</sup> Generation
Simulated signaling and bearer byte streams	Mobiles behave per specification	Mobiles behave like actual mobile brands
Command control	System control	Per-mobile control
One activity at a time	Mostly one activity at a time	Full parallelism
Combinations of canned packets	Static traffic profiles	Flexible, realistic traffic profiles
Limited statistics	System statistics	Detailed hierarchical statistics, down to per-mobile statistics and event tracing
Program and input data changes by designer or user	Software update by user	Automatic software updates by system

## The Torrent 7100 WTS product suite



### A unified Third Generation system

The Torrent 7100 WTS (WiMAX Test System) consists of a set of nodes that work together to produce the most complete WiMAX testing system available.

**MTS-7100** – Our Mobile Traffic Simulator is the workhorse of the Torrent 7100 WTS. Able to simulate up to one million subscribers in a single node, the MTS-7100 precisely follows the 802.16e specs to reproduce mobile behavior in a wide variety of protocols. In addition, the MTS-7100 exercises R6 conformance as a Base Station interacting with ASN Gateways.

**NTS-7100** – The MTS-7100 can send to real application servers or to our Network Traffic Simulator. The NTS-7100 turns around packets to provide responses to the MTS-7100.

**CS-7100 / UI-7100** – Highly flexible mobile configurations...easy yet powerful scripting capabilities...the ability to use default tests or customize per department or per user...detailed hierarchical statistics and event traces down to the per-session level. All these features are available through our control center, making it easy to drive the Torrent 7100 WTS and debug your access and core networks.

**ASN-7100 and CSN-7100** – These nodes drive conformance test cases. The ASN-7100 exercises the R4 and R3 interfaces as an ASN GW, while the CSN-7100 exercises the R3 interface as a CSN.

### Companion products

**Encore 1270 PRS** – Submit an Ethereal trace and get ready to solve your ASN Gateway field issue. Our Packet Replay System simulates the content and timing of the R3, R4 and R6 traffic represented on the trace. The Encore 1270 PRS is smart enough to automatically translate field IP addresses into your lab addresses, so you don't have to waste time getting to the heart of the field issue.

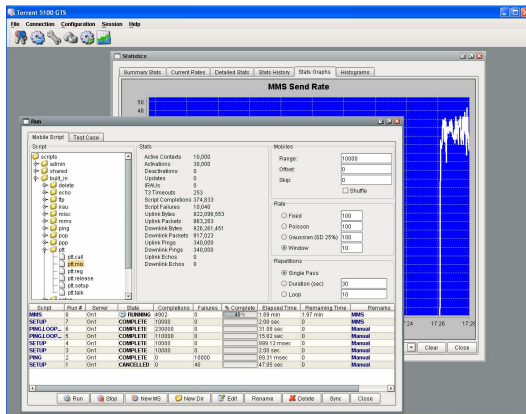
### How Torrent 7100 WTS benefits you

- Eliminates need for in-house tools development and maintenance
- Improves your product's quality and robustness
- Reduced field outages
- Unique capabilities allow difficult problems to be reproduced and fixed.
- Reduced development and testing cost through more efficient and effective testing.

## Fulfilling user desires

### All in one place

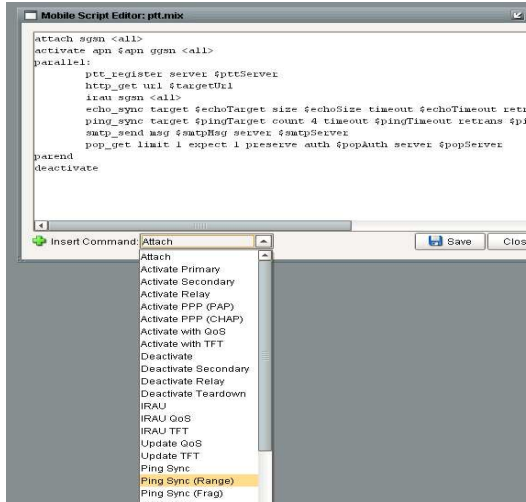
Listening to customers is our strength. Our users have told us what they want in a user interface, and we've put it into the Torrent 7100 WTS.



The UI-7100 driving experience is superb. Get immediate feedback because the key information about a run is all in one place – results, stats, histories, and more.

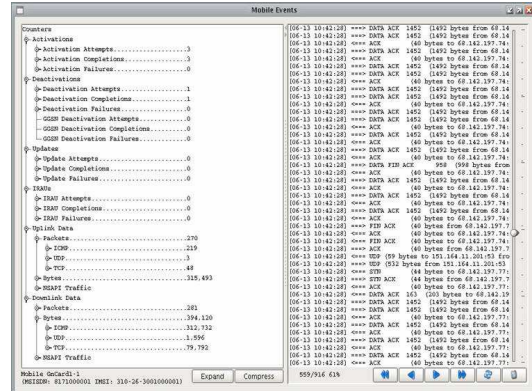
### Intuitive scripting

Use our challenging test suites, or create your own. Our users tell us that it's easy to set up test scripts for our Third Generation test systems.



### Drill down to the problem

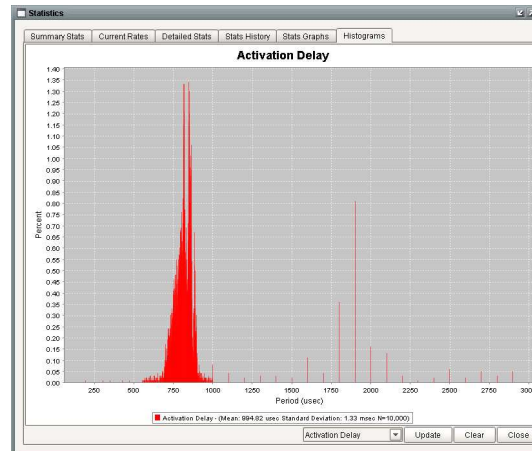
You ran a test, but what happened? Where did your access or core network go wrong? The Torrent 7100 WTS gives you tremendous insight through extensive statistics and traces, down to the per-session level.



### Full, cleanly-presented information

The Torrent 7100 WTS captures hundreds of statistics, including packet loss and latency, organized hierarchically to see the big picture or the fine details. You can look at statistics in user windows or export them to Excel<sup>®</sup>.

Our high-resolution histograms allow you to easily interpret system performance.



NOTE: All diagrams on this page are taken from the Torrent 5100 GTS user interface.

## Features and Specifications

### Supported Protocols

#### HTTP

- 1.0 and 1.1
- Get, Post

#### TCP

#### UDP

- Best Effort and Reliable Echoes

#### FTP

- Get operations

#### WAP

- 1.2 and 2.0
- Get operations, Segmentation / Reassembly

#### MMS

- Send, Receive and Notify operations

#### SMTP

- Send operations

#### POP3

- Get, Mail management operations

#### Push-to-Talk over Cellular (VoIP)

##### SIP

Registration, Call establishment, Call teardown

##### RTCP

Call setup, Call teardown

##### RTP

Bidirectional speech

#### ICMP

- Best Effort Ping and Reliable Ping

#### OSPF, RIP, DNS

### System Parameters

**Subscriber sessions:** Up to 1,000,000+ per node  
*Number of supported subscriber sessions is a priced, configurable system option. Base configuration is 1,000 sessions.*

**Bearer:** 550 Mbps / second (single node)  
*Linear scalability with multiple MTS-7100's*

**Packet Size:** 64 KB with built-in IP fragmentation

### Test Suites

Our Challenge series of test suites come standard with the Torrent 7100 WTS. More than 100 rigorous tests are based on wireless data call models and our own assessment of how best to test your WiMAX access and core networks. The Challenge series is a great addition to make sure your product is absolutely ready for a real world environment.

#### Basic

- Signaling, Mobility, Data

#### Application / Protocol Verification

- HTTP, MMS, WAP, SMTP, POP3, FTP, PTT, DNS

#### Parallelism

- Increasing complexity of single-mobile events

#### General Traffic

- Increasing complexity of multiple-mobile events

#### Rate-Based Traffic

- Tune activation, mobility and application event rates

#### Bandwidth Limits

- Bearer plane stress

#### Parallel Traffic

- Classes of mobiles running different parallel profiles to create real-world modeling

#### Soak Tests

- Long-duration runs

#### Subscriber Capacity

- Exercise system limits on subscribers / sessions

### General Features

Client Mobile IPv4  
Simple IP / Proxy Mobile IPv4  
Transparent linear scalability  
Multiple user support  
Multiple ASN GW / CSN support  
Shuffled / random mobile traffic  
Easy installation and configuration  
Automatic software updates



## Ordering Information

### Product identification

#### Torrent 7100 WTS (WiMAX Test System)

MTS-7100	Mobile Traffic Simulator
NTS-7100	Network Traffic Simulator
CS-7100	Control Server
UI-7100	User Interface
ASN-7100	ASN Gateway Simulator
CSN-7100	CSN Simulator

#### Encore 1270 PRS (Packet Replay System)

Also ask about our:

#### Torrent 5100 GTS (GGSN Test System)

#### Torrent 6100 STS (SGSN Test System)

### Release sequence

V1.0 (performance release) – August 2006

V1.3 (full conformance release) – October 2006

### How to get your copy

- Sales: Dial our number and indicate that you want the Sales line, or dial extension 803.
- Trial: We'd be happy to discuss setting up an evaluation with your company.
- Document downloads: We can set up access for you to examine user documentation.

### About Mobile Metrics

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

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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