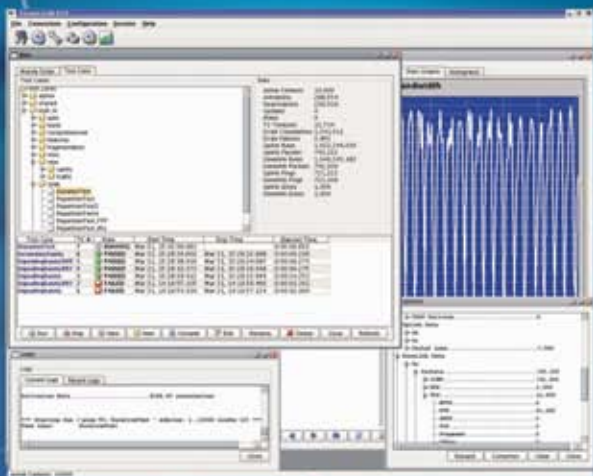


The Torrent 7100 WiMAX Test System

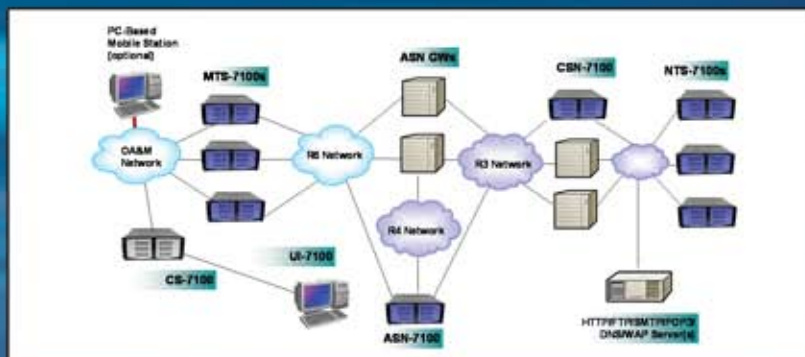
The Torrent 7100 WTS is the world's first WiMAX test system for ASN Gateways and CSN nodes. It was released in 3Q06 and has been actively used at an ever increasing number of sites since. As shown below, the Torrent 7100 actually consists of a suite of products that work together in a unified manner to provide a realistic, high performance, linearly-scalable WiMAX test solution. The central controller for the system is the Linux based CS-7100. This server automatically configures, starts, and directs the traffic servers in the system to run tests as directed by the user through the UI-7100 GUI.

The MTS-7100 traffic server authentically simulates hundreds of thousands of mobiles and hundreds of base stations on a single Linux machine. The ASN-7100 simulates an ASN Gateway which can be useful for testing CSNs or testing R4/R6 mobility. Similarly, the CSN-7100 can simulate a CSN Node for ASN Gateway testing. Finally, the NTS-7100 provides a convenient aggregation of network servers (MMS, PoC, WAP, HTTP, FTP, SMTP, etc.).



Key WiMAX Features

- ASN Profile A & C Support
- Client Mobile IP (CMIP) Support
- Proxy Mobile IP (PMIP) Support
- Network Entry (Single EAP)
- Initial Service Flow Activation
- Reauthentication
- Network Exit (MS & ASN Init)
- Full Dataplane Support (IP CS)
- R6 Handover
- R4/R6 Mixed Mobility Handover
- R3 Relocation (with Auth Relocation)



- Uncontrolled Handover
- Multi-target Handover
- Idle Mode Entry & Exit
- Location Update
- Paging
- EAP Methods: TLS, TTLS, AKA, SIM, PEAP, MD5
- Full Tracing (R3/R4/R6)

Key Benefits

- Reduced product development & test time
- Improved product quality & robustness
- Quality of Experience characterization
- Third party product verification
- Live network service assurance
- Complex traffic profile simulation

Key System Features

- **Realistic Mobile Simulation**

A central feature of the system is that it is realistic, and simulates mobiles and the application data traffic that they generate as precisely as possible. In particular, mobiles are stateful and have their own network stacks built-in.

- **Built-in Mobile Browser**

Each mobile can be hand driven if desired using our built-in browser & terminal interface:



- **Realistic Network Simulation**

Because the entire network around the system under test is authentically simulated, complex tests such as inter-ASN gateway handover with ensuing R3 relocation and authenticator relocation can be performed -- all with concurrent data path continuity testing.

- **Programmable Mobiles**

Another important aspect of the system is that the behavior of mobiles can be programmatically controlled using a high performance scripting language; though built-in programs may be used unaltered in most cases.

- **Full Automation Support**

Test cases may be fully automated and allow the end user to interact with the system under test via ssh, telnet, ftp, etc. through an Expect style interface.

- **Highly Parallel Simulation**

Parallelism is supported on numerous levels. Typically, it is accomplished by running multiple traffic profiles in parallel, but it can be extended right down to the individual mobile level as shown below:

```
attach bs <asn1>
parallel:
  http_get url http://test.mobilemetrics.net
  handover bs <asn2>
parend
deactivate
```

- **Linear Scalability**

Any traffic profile can be scaled linearly by simply adding more computing hardware, and this can be accomplished without having to rewrite or otherwise modify test cases.

- **Ease of Use**

The Torrent 7100 features a simple installation process and intuitive multi-user GUI and does not require programming knowledge to operate.

- **Off-the-shelf Hardware**

The Torrent 7100 runs on standard PC hardware so existing in-house servers may be used if desired.

About Mobile Metrics

Mobile Metrics is a specialized company focused 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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Often, wireless data vendors and carriers think their mix of in-house and commercial tools is satisfactory. But when they understand the capabilities that Mobile Metrics provides, they realize their lives can be easier. They see their products can reach new heights with a new paradigm.

Its a paradigm driven by passion for innovation and testing excellence. From this passion comes the third generation of wireless data test systems, setting a new standard for precise mobile simulation, programmable flexibility, torrential power and sensible, easy-to-use control.

