

## T-Mobile Network Performance Monitor

**Project Type:** Networked Application  
**Customer:** T-Mobile

**Product Overview:** The T-Mobile Network Performance Monitor is an application for Nokia Series 60 handsets. It is designed to test the real-world performance of T-Mobile's 3G and HSDPA data network. The application periodically polls a series of websites, and measures how fast they can be accessed. These results are collated and sent via email to T-Mobile for analysis.

**Challenge:** T-Mobile was the pioneer of full internet access on mobile devices. Maintaining its leadership means ensuring that the customer experience matches expectations. With increasingly rich applications being used over the mobile data network, particularly through high-end 3G and HSDPA devices, there is the potential for the user experience to degrade at peak times. This can affect the immediacy of the browser from cold start as well as general browsing speeds.

T-Mobile has monitoring systems throughout its network to minimise the risk of this affecting customers. However T-Mobile's product team wanted to quantify the impact of network congestion in the real-world. They turned to Penrillian.

### Objectives:

- To test real-world network performance
- To quickly create a simple application that replicated typical user behaviour
- To automate the testing process as much as possible, making it very user friendly



**Method Deployed:** Penrillian proposed a simple solution that would closely replicate the real-life user experience. An automated software tool running on a standard consumer handset, that could test access to some of the key web sites visited by web'n'walk users and report back to T-Mobile over its own network.

Penrillian developed a compact application that controlled the existing browser. This simplified development and meant that Penrillian could deliver the application quickly. The application points the browser to a website then measures how long it takes to receive the first byte of information, how long it takes to get the full page, the bearer type and the cell site ID. The total loading time can then be calculated and mapped to a particular location.

Once the application has accessed each of the websites in a cycle, it sends the results back to T-Mobile via email. The application can be configured to repeat this cycle at any given interval, and to send data summaries on a daily basis.

**Results:** Today T-Mobile has nine handsets running the application deployed in the field, with the potential to roll out across further devices in the near future. The application has been configured to check the T-Mobile web'n'walk portal, BBC Online and Google homepages, and report back every 15 minutes. The handsets have been used to test network performance in many different locations, with staff running them in the office and at home them to collect data over time. They have proven particularly useful for checking out anecdotal reports of user problems at specific times of day.

"Penrillian created a robust, simple application that fulfilled a need quickly and efficiently," commented Richard Giazzi, T-Mobile. "It didn't cost the earth, yet is likely to provide a significant tactical impact on how we provision networks over the coming years to ensure that the customer experience meets expectations."