



"Agilent acceSS7 Location enables wireless service providers to deploy GSM location-aware services with 100-250 meter accuracy regardless of network or handset, with no impact on network operation or performance."

1

Handset location from signaling monitoring

Features & benefits of A-bis Data

According to Ovum Consulting, the market for location-aware services will grow to \$12 billion by 2006. To date, however, several obstacles have impeded the widespread deployment of these services, including the need for subscribers who want to access most location-aware services to have state-of-the-art handsets.

Agilent's acceSS7 Location solution was developed in response to these challenges. Unlike other location-aware auto location technologies, acceSS7 Location takes a passive and non-intrusive approach, using data that is already available in the signaling network. With acceSS7 Location, there is no additional loading and therefore does not interfere in any way with the perofmance of the network.





Agilent Technologies

Value of A-bis data

A-bis data provides the first link in the chain of providing successful services to an end customer. These vital links between the radio transmitters and the Base Station Controllers provide a rich source of information about the performance and capacity of a service provider's network and the mobility of its users, which largely goes untapped today. By monitoring this data, many measurements can be made on the network and easily passed through algorithm engines to pinpoint the location of all active mobile devices.

Uses of A-bis data

Agilent's patented IMSI to TMSI tracking allows specific subscriber's to be tracked across the network and allows personal profiles and preferences for services to be applied just to them. End-user services such as 'child finder' or 'restaurant finder' applications can be target-marketed. Personal tracking can also be used for security and emergency applications, such as E-911 Phase 2 in the US. In addition, all active mobiles can be tracked across the network at all times, allowing for mass-market applications.

Network performance and capacity tracking can be measured, enabling superior quality of service to be provided to customers. "Internal" applications such as RF optimization tools would be enriched greatly with the addition of location information to pinpoint black spots, hand off issues and lack of capacity, greatly augmenting traditional drive-test methods.

acceSS7 Location Overview

Designed for mass-market use, acceSS7 Location is the first subscriber location solution that is based on real-time monitoring of signaling links. The information collected from signaling links enables acceSS7 Location to calculate the position of all active mobiles, all the time. And because monitoring is independent of the core network, this process does not disrupt the operation or performance of the network.

Unlike other techniques, acceSS7 Location takes a passive and non-instrusive approach to autolocation and in order to do this the solution monitors parts of the signaling network. Figure 1 depicts these monitoring points.



Figure 1.

A-bis and A-interface data can be collected from E1, T1, DS3, OC3, OC12, STM1 and STM4 interfaces, which ensures a dense and cost-effective collection solution.

Features and Benefits of acceSS7 Location

Cost-effective and quick to market

o Quickly deploy a proven monitoring solution without any handset upgrade required.

Scalability

- Network elements do not need to be specially designed for this solution as compatible with both existing and next-generation networks, and works with all handsets from day one.
- Designed and engineered to support large numbers of position requests as acceSS7 Location is independent of the network infrastructure.
- acceSS7 Location hardware is a small footprint, high reliability, carrier grade solution.

As a consequence of these benefits, service providers can accelerate mass-market deployment of location-aware services and open up new revenue streams quickly and cost-effectively.

A high level of accuracy

- Attained through monitoring signaling links and positioning algorithms, acceSS7 Location significantly improves the accuracy that can be achieved with enhanced Cell ID techniques.
- Dependent on the application the service provider deploys, a consistent range of accuracy of sub 50 meters to 250 meters is possible based on different location technologies, for example Cell ID only gives a large range to accuracy between 400m and 30km.
- More consistent accuracy will encourage subscribers to re-use services therefore increasing revenues.

Control of location

- acceSS7 Location is a network-based solution rather than in the handset and so enables the service provider to provide location information of suspicious individuals to the relevant security authorities without that person being able to deactivate tracking.
- The data belongs to the service provider and can be sold to third parties, such as highway authorities for road traffic management.

Mass tracking capabilities

3

• Unlike other methods, acceSS7 Location is a high-capacity mobile location system that enables mass-market reach.

Fully flexible, easy to use software

- acceSS7 Location software requires no configuration on installation and will auto discover cells, neighbor cells and channel assignments.
- The enriched measurement records (EMRs) can be fully configured to contain the SS7 messages required for each application.



Location Technologies

Agilent is working with a variety of location technology providers to offer a range of A-bis data feeds that will supply varying levels of accuracy. Based on these different technologies, service providers can select the most appropriate level of accuracy for the applications that they wish to implement.

Uplink–Time Difference on Arrival (U-TDOA)

Agilent is working successfully with TruePosition, a wireless location technology company, to provide an A-bis feed that meets the strict FCC E911 mandate regulations of sub 100m accuracy. The use of this data is not limited to emergency applications but can also be used to feed RF quality of service and optimization tools or location-aware commercial services such as a 'child finder' application.

Enhanced Cell G I

Alternatively, there may be a requirement for mass market applications that require less accuracy. Agilent has teamed with Applied Generics, a specialized application provider, to provide sub 200m accuracy for such applications as road traffic management, troubleshooting, or proximity advertising.

With these location techniques the applications mentioned previously are only examples of how this data can be used. The A-bis feeds that are available from the acceSS7 Location platform are fully flexible and can be configured to supply data to other third party applications, existing network tools and self built applications. Pure A-bis feeds without location information are also available for troubleshooting or RF purposes.

Summary

4

Agilent's acceSS7 Location platform provides a flexible source of location-based A-bis information that can be used to source data for either mass-market or customer-specific applications. These applications can help service providers to increase the quality of the network or help to reduce capital spend on additional equipment. Other services, such as traffic management data or commercial services will help to provide new revenue streams as data can either be sold to consumers or other agencies. The A-bis data that is required to feed all of these application is already available within the network and can be extracted easily and cost effectively from any physical interface using acceSS7 Location's small footprint, high density, carrier grade hardware.

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