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ACCESS BYTES

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Feedback constitutes to be the most important part of a relationship between a seller and the buyer. Our continuous interactions with our clients and partners often bring up queries which can be grouped into 2 factions of “*general*” & more specific “*technical info*” on the products and services of BBS Access. This issue of the newsletter aims at answering the most common of queries received concerning Network Planning and associated services provided by BBS Access Pte Ltd.

DECLoop Network Planning

The **Network Planning Group** addresses pre-deployment planning and design of multiple network elements and management systems, covering the wireless DECLoop technology for fixed Wireless access for both Voice and Data. BBSA engineers use technology expertise, sophisticated algorithms and disciplined design processes to provide the total end-to-end design solution for new networks, maintenance of existing networks and network expansions. The Network Planning performs network architecture modeling for your DECLoop Voice and Data network(s) based on analysis of the market, technical and service requirements.

Network Planning Services deliver value by designing the most economical network with the highest Quality of Service to support current and future service and capacity requirements. A well-planned network maximizes profits by minimizing capital expenditures and reducing operational costs, while providing the highest Quality of Service required in order to be successful.

Let us start with the most basic yet popular question for those who are in the process of getting familiar with our products & services.

Question 1: What is DECSim?

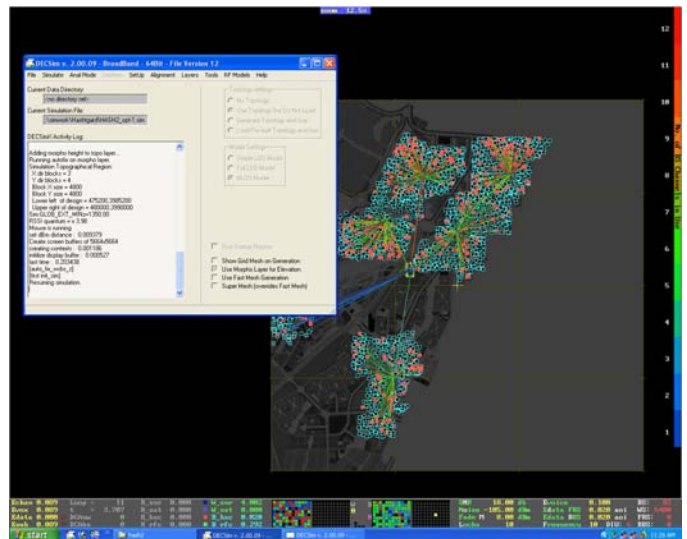
DECSim is an advanced wireless radio network design and simulation tool developed in-house by BBS Access specifically for use with the company's family of DECT based Wireless Local Loop (WLL) voice and data communication equipment (DECLoop / DECLoop5000 / IP-Max). DECSim is intended for use by professional radio network designers. DECSim is used to develop initial designs of large fixed radio networks, design expansions of existing networks, verify or optimize existing networks, and to analyze potential problems with installed networks.

DECSim WLL

DECSim is also used to study the behavior of the DECLoop family of equipment by allowing the designer to ask "what if" questions about various equipment configurations and quickly see how the equipment behaves under those conditions.

Question 2: How is DECSim used?

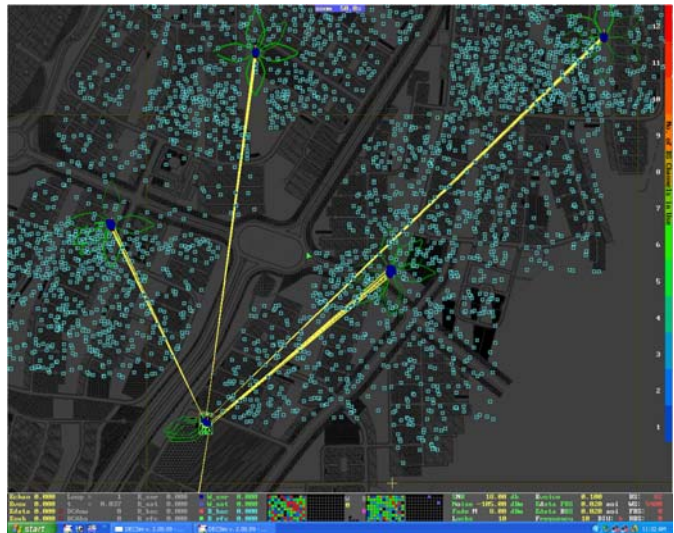
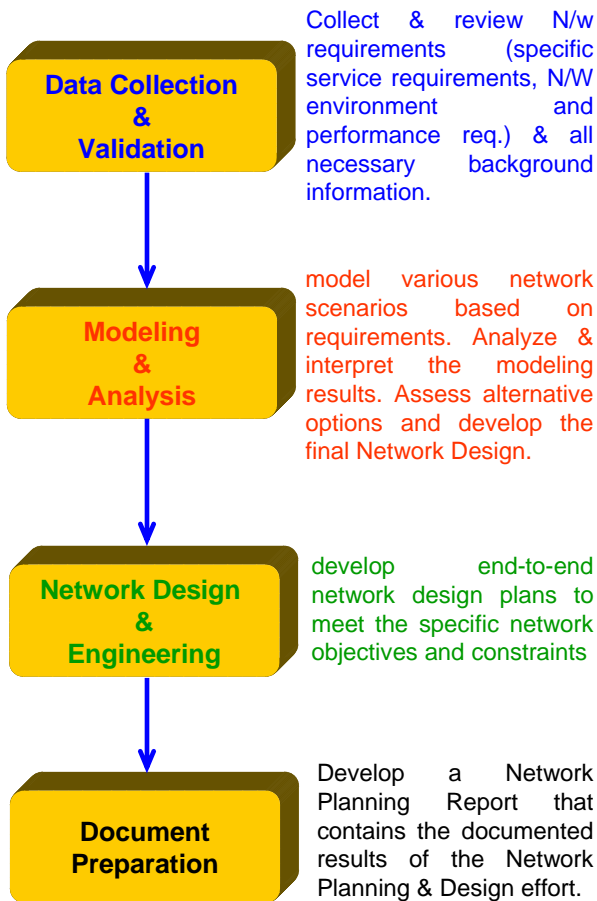
DECSim is both a design and a simulation tool. It allows the designer to graphically design an entire radio network using all equipment modules available in the DECLoop family including wireless and wired equipment modules. Call progress proceeds over a series of both wired and wireless links connecting the subscriber's unit to the local PSTN. Wired communication links are fixed by the designer while wireless links are dynamically allocated as the network runs on the computer.



After the initial design is entered, the designer can run the network and observe its behavior in real time (no waiting for results). In addition to simulation capabilities, DECSim provides a wide range of computer graphics and visualization tools for network analysis as well as real time numerical outputs that summarize the state of the network. The graphics and visualization tools run in real time as the network is running, and allow the designer to observe the overall performance of the network as well as the behavior of all individual subscribers. The designer can easily spot trouble with an individual subscriber, a group of subscribers, a particular geographic region, or the entire network.

Questions 3: How does DECSim work?

DECSim is a Monte-Carlo, real-time, event driven simulation of a real wireless network. Calls are generated based on random traffic patterns and calls progress in the same way that they would proceed in a real network i.e. off hook, negotiate for base station and air channels according to DECT standard, off hook for a variable hold time, on hook. Call progress and termination for all subscribers' proceeds simultaneously allowing each radio unit to see interference and competition for network resources from all other network radios in exactly the same way it would happen in a real network. In this way, the entire performance of the network can be monitored by the computer and will be similar to a real live network.



Three parts of the network are simulated simultaneously for each subscriber radio

- > Radio signal propagation and interference,
- > The DECT air interface protocol, and
- > Network wide traffic.

In this way, the performance of each individual subscriber radio can be observed in addition to the performance of the entire network.



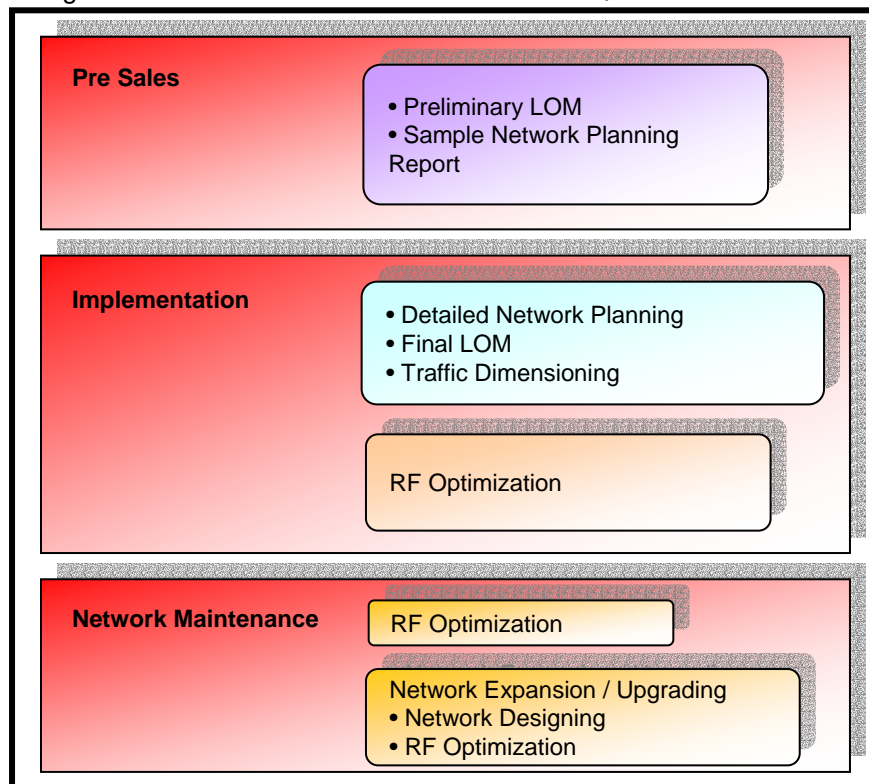
Questions 4: Network Design before implementation.....Hmmm. What else?

So your network has been designed, it's been installed. That is where DECSim steps in again with the function of fine tuning the network or commonly known as Optimization. This usually occurs when the initial network is rolled out and placed under a few months of observation. It is not uncommon to find that the actual network element such as subscriber distribution and capacity are not quite the same as the initial plan. *Optimization is required to adapt to the ever changing network.* From a network designer's perspective, optimization is like designing a network but this time faced with lot more constrains such as fixed tower location, limited tower height, etc. Therefore, it is a more challenging task compare to proposing a new network plan. With DECSim, optimization couldn't be more easier. By reproducing the actual network and studying the performance in the simulator, network designer can

quickly identify areas of interest and propose the appropriate solution at the minimum cost.

At the end of the day this translates into improvement in the user satisfaction and increase in revenue for the operator.

With the network implementation ranging from a few months to maybe a year or more, new buildings pop up out of no-where & trees vanish; So again at that stage "*Optimization*" as a part of *Network Maintenance* rules out any problems that will surely multiply with increasing number of subscriber and network elements. Similar to initial network design and network optimization, *Network expansion* cannot be performed without the used of DECSim. Imagine if the network is not properly plan for expansion, how far it is away from network collapsing due to radio interference and the lack of radio resources to handle the ever increasing traffic. The effect can be catastrophic, so why opt for such disaster to happen when simulator is readily available to minimize such network mishap?





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Questions 5: How does DECSim add value to our network & business?

An optimal network design process allows you to assess alternative options for an emerging network and include network migration (say from narrowband to broadband DECLoop) and possible expansion considerations into planning from the start, avoiding costly redesigns.

Our experience and record of success are what will differentiate a network designed to optimize the deployment of DECLoop system & its services for both today and tomorrow. Optimized network architectures and engineering result in faster deployments, allowing you to get to market with a new network and leading edge services in order to maximize profit from investments.

Questions 6: DECSim – What's new?

Beginning with version 2.0, DECSim now supports the company's new family of broadband DECT WLL equipment. The new DECLoop is an entirely new set of WLL equipment capable of handling individual subscriber rates of 288 kbps and 338 kbps (with

double slots). This is accomplished by using multiple data slots per radio (up to 3), and multilevel modulation (2, 4 and 8).

The new broadband equipment exhibits similarity in Architecture and system elements to the older DECLoop equipment (SSU, BS, BSD, RBS, DIU, etc) except for its enhanced capabilities. For the most part, the new equipment can support most of the older equipment. For instance, an older WS can talk to a broadband basestation (XBS). However, a new broadband WS (BBS) can not talk to an older basestation. The new DIU can support both new and older basestations, etc. In other words it has been designed to be backward compatible.

DECSim Broadband can support the complete family of new broadband WLL equipment, the older family of WLL equipment, or a blend of both. Many new analysis tools and features are available to support the design and analysis of the broadband system.

From version 2.0, DECSim will be come in two versions, the first supports the new broadband equipment and the second does not. They are designated as **DECSim2 Broadband** and **DECSim2**, respectively.

BENEFITS OF NETWORK PLANNING FOR OPERATORS

- Highly accurate Simulation of DECLoop system behavior
- A more efficient Network in terms of QoS and capacity handling
- Accurate LOM = Lesser CAPEX = \$ Savings
- Appropriate Network resources = high uptime = customer confidence
- Plan for tomorrow's network today!



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We would appreciate any feedback / queries that you may have concerning this newsletter and it's contents. You may fill up a hard copy of the form below or click on ["ONLINE FEEDBACK FORM"](#) . This will take you to an online feedback form which you can simply fill up and click submit to forward it to us.

Newsletter Feedback

▶ To get help us to improve on our newsletter and products , please fill the feedback form below .

Feedback Form

1. Your details:

Company name

Business nature OEM CM Stockist/Trader
 ODM Design House Others (please specify)

Country *

Salutation

Name *

Email address *

Contact number

Fax number

Address



Closing the Communication Gap



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2. Feedback details:

The information in the Newsletter should be :-

- More Technical
- Less Technical
- The current level is fine

Do you find the content informative ?

- Yes
- No

Which of the following elements of the newsletter do you think could be improved ?

- Content
- Layout
- Frequency of newsletter
- Others (please specify)

List the topics you would like to see contents in future issues of the newsletter:-

If you like to forward us your inputs on any aspects of the newsletter not covered above, please use the space provided below :-

Please contact me regarding the following matters

- | | | |
|---|--|---------------------------------|
| <input type="checkbox"/> DECLoop | <input type="checkbox"/> DECLoop 5000 | <input type="checkbox"/> IP-Max |
| <input type="checkbox"/> Network Planning | <input type="checkbox"/> Internet Access | <input type="checkbox"/> PBX |
| <input type="checkbox"/> Energy Meter | <input type="checkbox"/> Broadband | |

* Compulsory

Thank you for your time and valuable feedback.