

Self organizing network for heterogeneous LTE networks developed by NEC

February 14 2011

NEC Corporation announced today the development of Self Organizing Network technologies for its heterogeneous LTE network composed of mixed coverage base stations. NEC's latest SON technologies successfully tackle two of the most challenging scenarios in LTE deployment: traffic hotspot and multiple user mobility. This maintains a high quality user experience in various challenging environments while significantly reducing operators' CAPEX and OPEX.

SON solutions reduce the Operation and Maintenance (O&M) cost of mobile networks by using automated and intelligent procedures to replace human intervention without compromising network performance. However, a major challenge to the design and development of SON technologies is how to achieve high quality user experience and optimize the network in a heterogeneous network while taking into account varying regional traffic characteristics and user mobility.

NEC's small cell LTE solution enables mobile operators to install new base stations in any traffic hotspot area without the need to modify their existing networks. By applying NEC's SON technologies, NEC's small cell eNBs can independently recognize the distribution and movement of users automatically and tune dynamically various parameters to optimize its coverage and improve the cell-edge performance. This could help achieve more uniform and stable high quality user experience at densely populated traffic hotspot areas.

NEC has developed handover optimization in its SON technologies to provide high quality transmission for users with various mobility characteristics. In its design, handover settings from macro to small cell coverage are automatically adjusted in response to transmission conditions. For example, macro base stations can dynamically restrain handover to small cell base stations for the fast-moving user. On the other hand, macro base stations favour the handover to small cell base stations for slow moving or static terminals.

The performance of these developed SON technologies are thoroughly evaluated and tested by using NEC's unique 3-dimensional simulator, which is more close to the real world compared its 2-D counterparts. The performance results demonstrate that, by using NEC's SON technologies, the cell edge users' user data rate was increased up to 2 times, especially for terminals previously located near the edge of base station coverage. In addition, the radio link failure rate was significantly reduced.

[NEC](#) will exhibit these technologies at Stand 8A125 at "Mobile World Congress 2011" in Barcelona, Spain from February 14 - 17, 2011.

Provided by NEC

Citation: Self organizing network for heterogeneous LTE networks developed by NEC (2011, February 14) retrieved 26 April 2024 from <https://phys.org/news/2011-02-network-heterogeneous-lte-networks-nec.html>

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