IIMK EEPITM01

Green And Sustainable Computing Seminar – Green Networking and Communication (Group 5)

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Green Networking and Communications

➤ "Green networking" attracts growing attention due to economical, energetic and environmental reasons.

➤ The amount of power consumed by ICT as well as the energy bill of service providers contributes to the economic reasons.

➤ The carbon footprint of ICT devices due to energy consumption and activities related to their entire lifecycle contribute to global warming.

➤ Communication networks, including the Internet and wireless networks, represent a non-negligible part of the energy consumption of ICT.

➤ Global energy consumption is currently one of the major concerns faced by governments worldwide, because of its significant environmental footprint and the eventual exhaustion

➤ A major role in the "greening" effort to globally reduce energy consumption will be played by **wireless networking technologies.**

Reliance efforts in Green Communication.

➢ India is becoming warmer, and its temperature rises are rapidly catalyzing soil degradation, water pollution, and flooding.

➢ The emission of CO_2 is widely considered to be the dominant cause of global warming and the resulting environmental degradation.

➢ Energy conservation, reductions in emission are urgently required to reduce further environmental destruction.

➢ India is one of the countries which is leading the drive to promote a low carbon economy

➢ Reliance, is stepping up its efforts to open the door to green communications

➢ Reliance constructed its green Radio Access Network (RAN) using eco-friendly GSM solutions to provide economically and environmentally sustainable services for 55 million mobile subscribers across 20,000 towns and 450,000 villages

CDMA/GSM co-location for emission reductions

➢ India's vast territory is experiencing urbanization and this is accompanied by surge in communication needs.

➢ To ensure wide coverage a new mobile network requires a large number of outdoor equipment rooms.

➢ Research reveals that producing materials for equipment room construction such as cement and tiles creates 65% of the total CO_2 emissions in one site.

➢ Reliance's existing CDMA sites, the available space in most equipment rooms was insufficient to house traditional GSM equipment, which in turn requires new sites. A project that involves tens of thousands of equipment rooms would have an obvious and extremely bad impact on the environment.

➢ Reliance selected Huawei's new generation, highly integrated green GSM BTS after comparison with other vendor's solutions.

- Outshining the competition with its remarkably low carbon emissions and construction costs, Huawei's future-oriented BTS facilitates an S4/4/4 site by using single cabinet that occupies less than half a square meter.

- The lightness of the BTS negates the need for large mounting facilities and reduces the number of construction personnel, and its compact dimensions reserve space for future expansion that can support 18 GSM/UMTS carriers.

- In large cities such as Bombay and Delhi, Reliance has significantly curtailed its construction costs by co-positioning its GSM and CDMA networks to share auxiliary devices such as antennas, feeders, and power supplies.

- These advantages have prompted Reliance to consider sharing its site resources with other operators so as to not only minimize its own carbon footprint, but also that of other operators.

Electricity Management for Energy Conservation

➢ The green Huawei [GSM](#) BTS selected by Reliance features an intelligent electricity manager, which employs Huawei's power amplification (PA) technology to enhance efficiency by 50% and cut BTS power consumption by over 60%, while giving the same coverage

➢ Its intelligent power control technology can either shut down idle carrier modules or disable part of a given carrier's time slots to reduce transmission energy when traffic is low

Smooth evolution to a green 3G network

➢ Reliance expects its 3G network to form an energy-saving platform that integrates multiple data services, including multi-media entertainment and remote medical care, monitoring, and education

➢ Huawei's future-oriented GSM solution can smoothly upgrade Reliance's GSM network to UMTS (**Universal Mobile Telecommunications System**). The space reserved by the Huawei GSM BTS can house Huawei's 3G UMTS RF module and baseband processing unit without changing the BTS, and without necessitating large scale, complex upgrades

References

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