

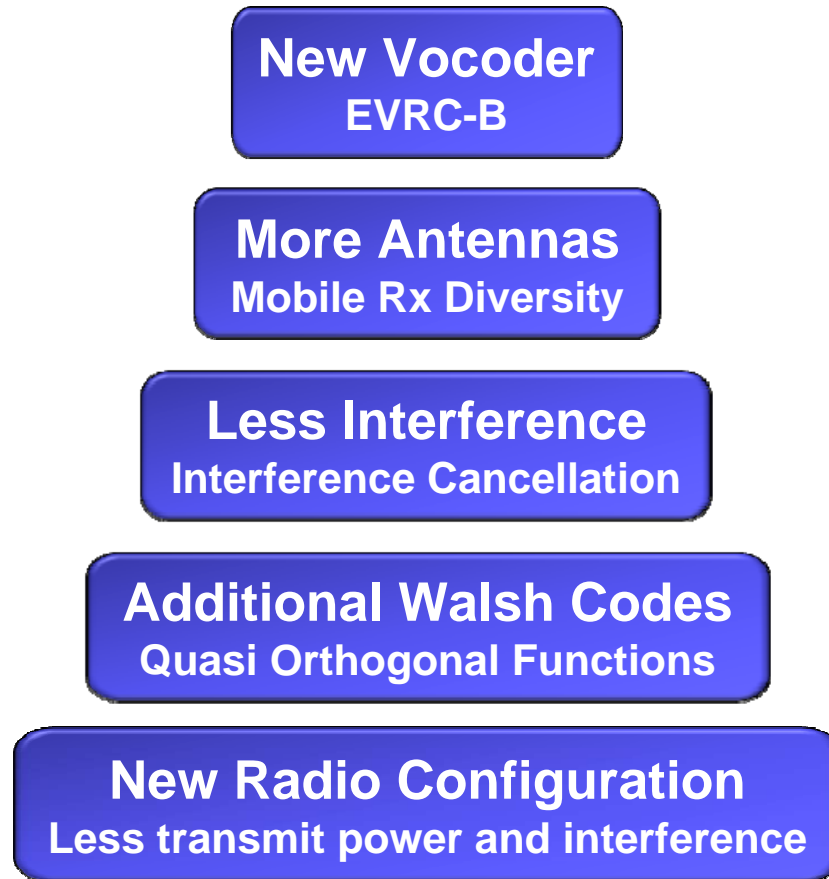


Maximizing Current Investments with CDMA2000

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Talking to the future

CDMA2000 1X Enhancements



- Same industry-leading user experience, robustness and latency as existing CDMA2000 1X systems
 - Fully Backward Compatible

1X Enhancements Available Today: Enable 60% Capacity Increase

These features are already available in current chipsets

- EVRC-B vocoder enables lower data rates with same voice quality as EVRC



- Rx Diversity and QLIC increase received SINR resulting in less FL power per user



- To capitalize on the enhanced capacity*, additional Walsh Codes are needed

- QOF however contributes to increasing FL interference



Further Receiver Enhancements: Extend Voice Capacity Up to 90 Calls per Sector

These enhancements do not impact the standard

- Advanced QLIC (A-QLIC) enables cancellation of interference introduced due to QOF and neighbor set



- RLIC reduces intra-cell interference and rise-over-thermal (RoT) enabling more users per sector



New Radio Configuration: Provides Significant Power Savings for Even Higher Capacity

These enhancements are part of a new standard - cdma2000 1x Rev. E

- Smart Blanking of 1/8th rate frames reduces FL and RL Tx power used for background noise



- Reducing power control bit rate to 400MHz significantly reduces overhead power per user
 - Power control commands sent at power of full-rate frames
 - Soft Handoff users consume additional power for PC commands



- Early decode of frames allows system to further reduce transmit power and other-cell interference



1X Enhancement Benefits

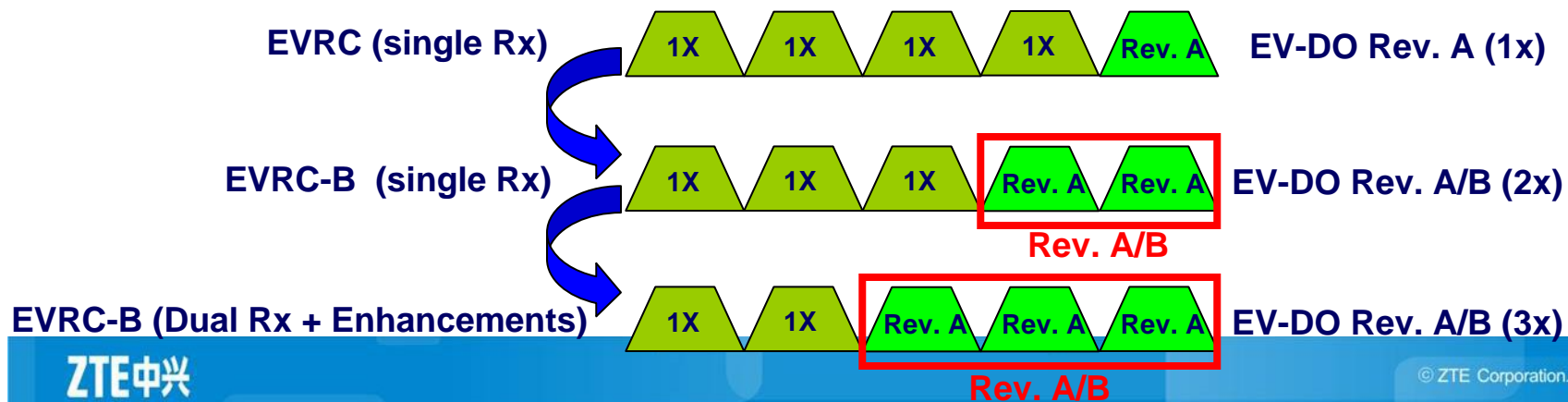
Lower Cost per Call
Greater spectral efficiency

More Minutes of Usage
Enables unlimited voice offerings

More Efficient Use of Spectrum
Important for spectrum constrained markets

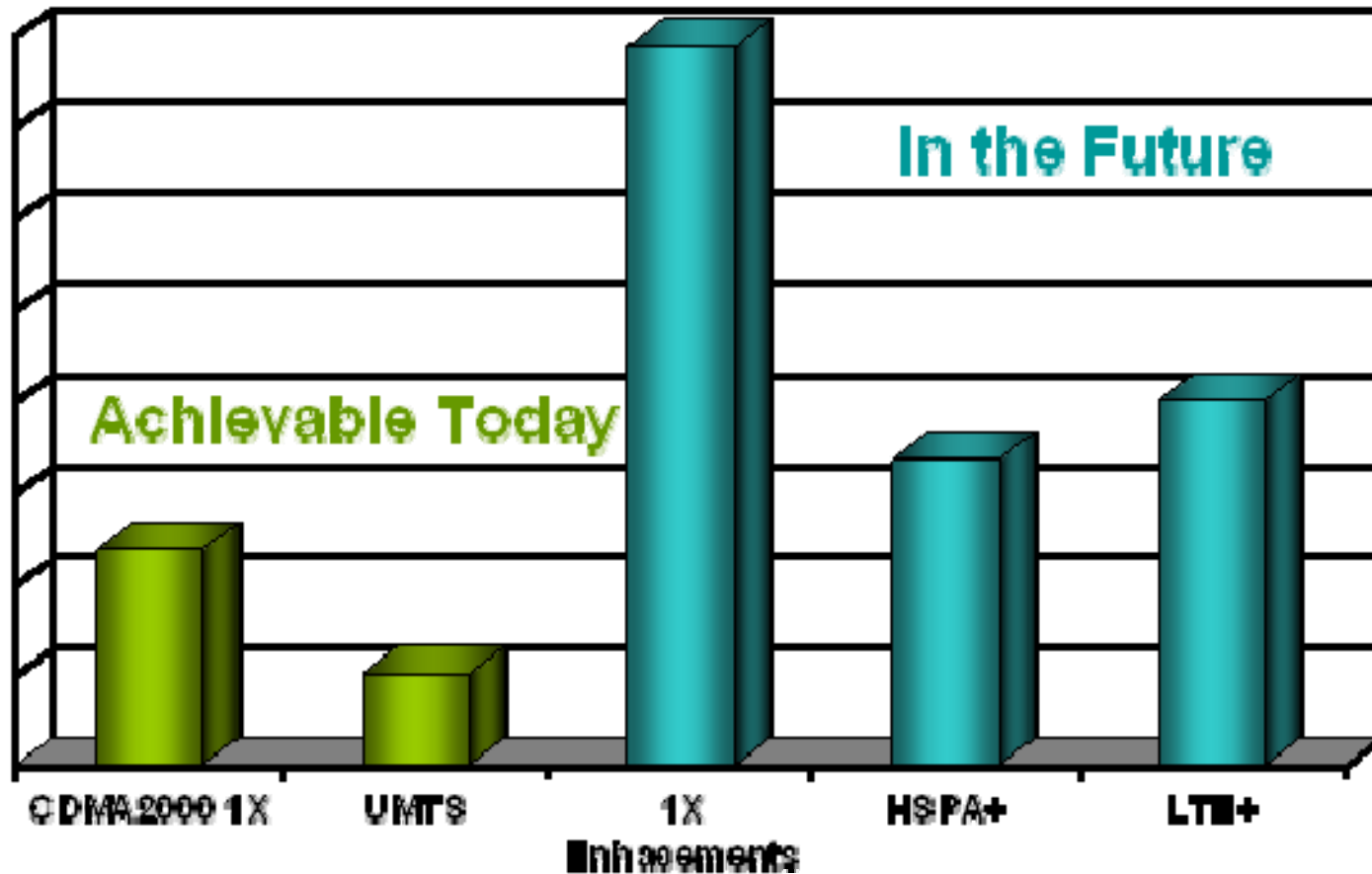
Enables Opportunity to Increase Revenue
Frees up channels that can be used for EV-DO services

Evolutionary Steps to Greater Broadband Revenue



Voice Capacity Comparison

Number of simultaneous voice calls per sector



1X Enhancements increase CDMA's already excellent voice capacity

1. Single antenna 1X devices with EVRC vocoder. Capacity shown has been validated in the field.
2. UMTS (WCDMA R99), AMR 12.2 vocoder.
3. 1X Enhanced devices with EVRC-B vocoder, Rx Diversity, QLIC, RL IC, QoF, FL and RL early termination, reduced power control bit rate, efficient closed loop power control, and smart blanking of 1/8 rate frames. Results based on simulation and estimated analysis.
4. Circuit-switched voice over HSPA+, AMR 12.2 vocoder, Rx diversity, DTX, UL IC, E-FDPCH, HS-SCCH-less, F-DPCH. Result based on simulations.
5. LTE - Rel. 8, AMR 12.2 vocoder, Rx diversity, Based on NGMN simulations assumptions and Release 8 basic setup

Voice is still the Killer App



Does Not Have to Be Sexy to Make Good Money



Do Not Overlook Current Investments!



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Thanks!

Talking to the future