All Smart, No Phone

Prezi

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In the name of GOD

All Smart, No Phone

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After several rings .....

picks up my call on his cellphone.

ask his opinion on the quality of audio on mobile phones.

But the connection keeps cutting out

he asks me to dial him back on his landline.

This time, his voice is much clearer.

How can that be?

Modern smartphones With small size , take photographs, play music and videos, and stream tens of megabits of data to the palm of your hand every second.

But try calling your boss in rush-hour traffic to say you're running late, and there's a good chance your message won't get through.

"Mobile companies have rather lost the focus on a smartphone also being a telephone,"

voice quality

Laboratory tests confirm that Even in the best conditions: quiet environment and a strong wireless signal,
users rate voice quality lower on a cellphone than on a landline.

For example, Nokia found that when they compressed voice data to 5.15 kilobits per second, which cellphones do automatically when a tower connection is weak, user ratings fell from "good".

When engineers decoded and then recompressed the data, which happens when a call travels through the backbone network to another cellphone, the ratings dipped lower .

Back then,
mobility was a luxury

But now, more and more people are cutting the cord—or never installing one.

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wireless

Today in the United States, for instance, 40 percent of homes rely exclusively on mobile phones for making and receiving calls.

In remote areas wired broadband is too costly wireless links.

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Most cellular voice traffic today passes through a patchwork of diverse systems, each exchange point an opportunity for degradation and delays.

But lest you despair, here's some good news

Solutions to many of these impediments are in the works or already available:

HD voice

Voice over LTE.

The first obstacle

The first obstacle to a good-quality voice connection on today's mobile phones is their design.

With its ear-size speaker and microphone pointed directly at his mouth, the monstrosity Motorola used was clearly constructed with voice calls in mind.

Motorola

The smartphone's form "is driven by industrial design and not voice quality

to create an elegant, palmable chassis for watching videos listen to music, smartphone designers small and flatten speakers and sometimes even cover them in plastic

smartphone's puny microphone is similarly problematic. And the farther it is from your mouth, the more unwanted noise it picks up.

Noise cancellation

Many smartphones address this problem by using multiple microphones. With one microphone situated as close as possible to the user's lips and the additional ones set farther away. a smartphone can compare the different incoming signals to better filter out background sounds.

But noise-cancellation algorithms aren't a sure fix, because they can take a few seconds to recognize a noise.

Too much noise suppression removes making it sound robotic.

Yet even if your cellphone distills crisp, noise-free speech, there's no guarantee it will arrive at the listener intact.

next threat: phone transmits the call to a base station.
most mobile phones today digitize audio frequencies from 300 to 3,400 hertz. But unlike landlines with full-capacity channel, cellphones must share a limited amount of wireless spectrum. So they compress the voice data to let more users connect.

local call to a mobile user on your own carrier network, The compressed data will likely travel to the receiving cellphone without further manipulation.

talking to someone on a different carrier: your local network will typically direct the call into the backbone telephone network, which was designed to carry landline traffic. So equipment at the exchange point must convert the mobile voice data to the higher wire-line rate.
landline phone can decode that signal without losing more information. But if your call is sent to another cellphone, voice quality became bad. because base station serving the phone recompresses the data to fit into a cramped wireless channel.

Many new smartphones have enhancements

but carriers will have to make major network upgrades which will take time and money.

One solution is HD voice. 50 to 7,000 Hz

By the 1980s researchers: people need to hear a wider range of wavelengths to fully understand speech.

names like Jeff and Jess sound the same on the phone

329 smartphone models support the standard, and 109 mobile operators offer service in 73 countries.

why you haven't noticed these changes ?

HD voice equipment still typically defaults to standard

Even if your phone is HD compatible, you won't hear an improvement unless the person you're talking with is also on an HD phone and all of the networking equipment in between supports the technology.

VoIP

In general, the quality of VoIP services has gotten better.

VoIP packets enter the Internet or a cellular network, they're handled as "best-effort traffic" along with other data.
But VoIP providers can't promise that sound quality will always be adequate.

Voice over LTE (VoLTE).

VoLTE lets mobile carriers deliver voice traffic just like regular data

VoLTE eliminates the need to convert the data into different formats for different parts of the system. So no information is lost.

LTE carriers can't guarantee that voice packets will arrive at their destination in a timely manner.

U.S. carriers announced plans for VoLTE rollouts

calls it "the next evolution in wireless calling."

If that's really true, it's reason for me and other voice customers to be optimistic.

But I've experienced too many lousy connections to take these promises at face value: I'll believe it when I hear it.

Thanks for your attention

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