The author's voice

Wireless data traffic has been dramatically increasing over the past few years. Mainly driven by ondemand video streaming, it is expected to further grow from today’s level by almost two orders of magnitude in the next five years [1]. Traditional approaches for coping with this growth of demand are increasing spectral resources (bandwidth), spectral efficiency (modulation, coding, MIMO), or spatial reuse (density of base stations). However, these methods either provide only limited throughput gains in practical conditions [2], [3] or are expensive to implement. In particular, while heterogeneous networks with a large number of small cells can provide high area spectral efficiency [4], the necessity for highspeed backhaul connecting such large number of small cell base stations makes this option prohibitively expensive.

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Over the years, a number of other suggestions have been made to make better use of constrained request patterns: [8]–[11] considers the case that users want the same video at the same time (e.g., in a live streaming service) but with a different channel quality or requested video quality. In this case, scalable video coding can be coupled with some form of broadcast channel coding [12]. Specifically, scalable rateless codes [13]–[15] to support heterogeneous users in a broadcast channel scenario are considered in [8], [10], [11]. Another set of recent works considers the case where neighboring wireless users want the same video at the same time, and collaborate in order to improve their aggregate downlink throughput. In particular, [16] suggests that different users download simultaneously different parts of the same video file from the serving base station and then share them by using device-to-device (D2D) communications.

Fonte:
Wireless Device-to-Device Caching Networks:Basic Principles and System Performance
Mingyue Ji,Student Member, IEEE, Giuseppe Caire,Fellow, IEEE,and Andreas F. Molisch,Fellow, IEEE
https://arxiv.org/pdf/1305.